UNIVERSITY OF CALIFORNIA
UCRIVERSIDE

Service Level Agreement

Computing & Communications

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1.0 EXECUTIVE SUMMARY

Computing and Communications (C&C) provides a wide variety of services and support to UCR's students, staff, and faculty. In general, these services can be categorized as follows:

- ***Planning and strategy*** relating to information technology and related campus activities, from instruction to business operations.

- ***Core infrastructure*** planning, installation, and support, from network fiber and electronics to classroom technology and related physical appointments.

- ***Teaching, Learning, and Student Success*** support and programs including support for online, hybrid, and digitally enhanced learning as well as a variety of classroom and instructional technologies.

- ***Research and Digital Scholarship*** support and cyberinfrastructures.

- ***Business, Academic, Student software development, systems, and process improvement support***, including services supporting Human Resources, Financial Services, Academic Personnel, Business Operations, Student Enrollment / Financial Aid, and a wide variety of other electronic systems touching almost all aspects of campus life.

- ***Cybersecurity and Privacy / Confidentiality***.

- ***Systems, Middleware (e.g. single sign-on), Databases, Virtual Servers, Storage, and other core hardware and software*** that enable UCR, Cloud, and UC provided software, application, and system development and deployment.

- ***Faculty, Staff, and Student Technical Help Desk and Computer Labs***. Phone, email, remote desktop, and walk-in direct consulting to faculty, staff, and students as well as instructional computer labs and technology checkout.

- ***Communications technologies, support, and services***, including traditional telephones, wireless networks, and web servers and support.

The Service Level Agreements (SLAs) contained in this document provide substantial details concerning these services as well as metrics measuring and illustrating the breadth / impact of C&C's various support offerings. The following three notes provide additional context to C&C's Service Level Agreements:

Faculty, Staff, Student Help Desk Support. This support was dramatically reduced during the recent budget crisis. C&C is working with faculty, the BAS Shared Services team, and other campus stakeholders to create a new vision for providing this important campus support. Thus, the SLAs relating to Help Desk technology support should be considered "work-in-progress."

Information Technology Rationalization. A pilot effort is currently under way to rationalize information technology support / infrastructures within several campus organizations, from CHASS to Student Affairs. This effort will alter several of the SLAs as campus infrastructures, service offerings, and staffing are consolidated / optimized during the next year.

Metrics and Key Performance Indicators. The metrics and key performance indicators contained in this document will be improved and enhanced in the year ahead as C&C reviews and refines its Service Level Agreements.

2.0 SERVICE LINE SUMMARY

Service Line Summary				
Service	Level of Service			Page #
	Core Service	Premium Service	Recharge Service	
Educational Support Services				
Open Access Computer & Instructional Labs	√		√	7
Student Help Desk	√			9
Digital Learning & Instructional Technology Support				
iLearn	√			10
Workshops and Seminars	√			13
Pedagogical Collaboration	√			14
Instructional Design	√			17
Multimedia & Classroom Technology	√			21
Application Development				
Enterprise Applications	√			30
Academic Information Systems	√			36
Non-Enterprise Applications	√			40
Database Administration				
Enterprise Databases	√			43
Computing Infrastructure & Security				
Information Technology Security	√			45
Computing Infrastructure	√			49
On Campus & Off Site Data Centers	√			57
Firewalls	√			59
Communications Services - Voice				

Voice/Telephone Infrastructure	√	√		61
Multi-Button Instruments			√	
Specialized Services (e.g. voice mail/unified messaging/speech-to-text)	√			
New Building Planning (Voice)	√	√		
Outside Plant Cable Planning (Voice)	√	√		
Adds/Moves/Changes (Voice)			√	
Trouble Resolution (Voice)	√	√		79
Communication Services – Network				
Wired Network Infrastructure	√	√		81
Wireless Network Infrastructure	√	√		
Network Operations (Wired & Wireless)	√	√		
Network Security (Wired & Wireless)	√	√		
New Building Planning (Network)	√	√		
Outside Plant Cable Planning (Network)	√	√		
Adds/Moves/Changes (Network)			√	
Web Site & Electronic Systems Support	√			
Trouble Resolution (Network)	√	√		111
Computing Support Services				
Web Site Development Support	√			114
Faculty/Staff Help Desk	√			115
Affiliates	√			120
Mail Groups	√			121
Second Email Accounts (Departmental)	√			122
Administrative Services				

Financial & Administrative Support	√			123
Other Services				
Collaboratory	√			125

3.0 GENERAL SERVICE OVERVIEW

- Manage all campus network electronics and in the majority of cases provide support to the "wall jack" (~45,000 ports).

- Support a private high-speed research network (9 labs, colocation facilities, end-points).

- Support UCR's wireless network with up to 18,000 peak concurrent / daily users.

- Support UCR's off-campus network connections, both wired and wireless (e.g. to CE-CERT, etc.).

- Provide and support an instructional Learning Management System (iLearn) supporting over ~4,000 courses per quarter (per during past academic year).

- Provide just-in-time support to all general assignment classrooms during all instructional hours (87 general assignment classrooms and ~3,000 courses per quarter).

- Provide planning support for campus-wide telecommunications / network buildout and infrastructure maintenance (100s of 1000s of feet of campus air-blown fiber and in-building copper wiring).

- Install / develop, operate, and maintain large, complex vendor supplied software from PeopleSoft, Banner, Cognos, Information Associates (Student Information System), and others as well as 70+ cloud or UCR developed systems (e.g. supporting Human Resources, Academic Personnel, Purchasing, etc.).

- Provide support for common webserver, content management, departmental file storage, and various campus collaboration tools (e.g. SharePoint). For example, 1,010+ academic and administrative websites are supported on these common systems and all students and the vast majority of staff and faculty receive e-mail via a single common platform.

- Support a variety of infrastructures enabling UCR's technical eco-system, including identity management (e.g. UCR NetID), single sign-on, and other core tools (e.g. systems enabling fail-over, backups, etc.).

- Responsible for cybersecurity tools, initiatives, and support.

4.0 SERVICE LINE DETAIL

EDUCATIONAL SUPPORT SERVICES (ESS)

Name of Service:	**ESS: Open Access Computer & Instructional Labs**
Keywords:	Computer Labs, Instructional Labs, Public Labs
Brief Description of Service:	Seven computer labs with over 170 computers are made available for UCR undergraduate and graduate students use during the academic year. Four of the seven labs can be reserved for instructional/administrative purposes as well.
Customers Eligible to Request Service:	Faculty, Staff, Students

How is Service Requested:	Students: Walk-In
	Faculty/Staff: Online Reservation Form
	                        (http://cnc.ucr.edu/scs/reslabreq.html)
	                         Specialty Software Installation Request Form
	                        (http://cnc.ucr.edu/scs/ressoftreq.html)

How is the Service Delivered:	In person

Service Level Agreement Specifics:	Student Use of Open Access Computer Labs:
	Open Access Computer Labs include the following:
	    Arts 311
	    INTS 4146
	    Sproul Hall 2225
	    Olmstead 1316
	    Watkins 2101, 2111, 2117
	
	Regular lab operating hours, as well as vacation, spring and summer break hours, and lab closures, can be found by visiting http://cnc.ucr.edu/scs/vacationhours.html.
	
	Each lab comes with standard software and standard equipment (e.g. Mac Computer vs. PC computer). To view the standard software and hardware available in each lab, please visit http://cnc.ucr.edu/scs/complabs.html and click on the individual labs for more detailed information.
	
	Instructional Use of Open Access Computer Labs:
	Lab Reservation:
	To utilize the labs for instructional use, please complete the online form located at http://cnc.ucr.edu/scs/reslabreq.html to make a reservation. Faculty/Staff should receive a response to their reservation request within 24 – 48 hours.

	Specialty Software Installation related to Instruction:
	If special software is required for instruction, please complete the online form located at http://cnc.ucr.edu/scs/ressoftreq.html. Software must be provided and funded by the instructor or his/her department. The labs must receive a copy of the software at least 4 weeks prior to the first class meeting in order to ensure specialty software is installed correctly on all machines and tested appropriately. Please provide any written start-up and installation instructions for the software as the lab consultants are not responsible for knowledge of non-standard software installed in our labs. The lab consultants will install the software and show students how to access it; however, they are not responsible for providing any training /instruction on the software or answering technical questions related to the specialized software.
	
	C&C will provide an annual report that includes metrics on the following activities:
	    - Total logins per quarter for core labs (Watkins, Sproul and Stat)
	    - Number of unique courses held in each lab, per quarter (all labs)
	    - Total course reservation hours per lab, per quarter.
	
	C&C will work under the following Key Performance Indicators (KPIs):
	    • Failed computer workstations will be repaired or replaced within one (1) business day.
	    • Failed printers will be repaired or replaced within one (1) business day.
	    • New software for courses will be installed and deployed within two (2) business days of the request.

Recharge Services:	Use of Labs for Non-Academic Events (e.g. Staff Training). The labs are reserved in the same manner as noted above for instructional use.
Premium Services:	None

Name of Service:	**ESS: Student Help Desk**
Keywords:	Help Desk, Application Support
Brief Description of Service:	Provides all registered undergraduate and graduate students technical support on a variety of services related to student centered UCR applications (e.g. R'Mail, iLearn, computer labs, GROWL, UCR accounts (NetID & password), wireless and VPN. Services NOT provided include repairing/troubleshooting personal hardware issues (e.g. blue screen on a student's personal laptop, laptop not booting up) or specialty software issues (e.g. student has installed Adobe Photoshop on their computer and it is not working).
Customers Eligible to Request Service:	Currently Enrolled Students
How is Service Requested:	Email: helpdesk@student.ucr.edu Phone: (951) 827-6495
How is the Service Delivered:	Phone, Email, In Person
Service Level Agreement Specifics:	Help Desk Hours of Operation: Help Desk **phone** hours are: • Monday – Thursday: 8am to 10pm • Friday: 8am to 5pm • Saturday & Sunday: Noon to 5pm • Closed on holidays • Reduced hours during breaks and summer Students receive a response from the Help Desk within 24 hours. Kiosks Self-service kiosks are available in the computer labs in Sproul Hall 2225, Olmsted Hall 1316, Watkins Hall 2111 and the Bear Help Desk in the HUB to assist with many account-related functions, including UCR Net ID lookups and password resets. C&C will provide an annual report that includes metrics on the following activities: - Walk-in support instances - Helpdesk phone support instances - Instances of troubleshooting lab hardware/software errors - Total helpdesk email support - Other support activities C&C will work under the following Key Performance Indicators (KPIs):

	• Phone support calls will receive immediate technical support. • 90% of email support requests will receive a reply or resolution within one (1) business day.
Recharge Services:	None
Premium Services:	None

Name of Service:	**ESS: Digital Learning & Instructional Technology Support - iLearn**
Keywords:	Blackboard Learning Management System, iLearn, Lesson, Assignment, Activity, Quiz, Grade Center, Course, Section, Online, Hybrid, Blog, Wiki, Journal, SafeAssign, Examity, Piazza, Discussion, Instruction, Teaching, Learning, Learning Object, Digital Asset, Digitally Enriched.
Brief Description of Service:	iLearn is UCR's Blackboard Learning Management System, a campus-wide course management platform designed to host and deliver instruction online, including course materials, communication, activities, assignments, assessments, and grades. Also, serves as a virtual space and repository for facilitating collaboration among campus communities, groups, and units.
Customers Eligible to Request Service:	Faculty, Staff, Students, TA's Weekdays 8:00am - 5:00pm
How is Service Requested:	Faculty/Staff/TA's: Faculty Helpdesk (951)827-3555 helpdesk@ucr.edu (http://cnc.ucr.edu/ilearn/) Weekdays 8:00am - 5:00pm Students: Student Helpdesk 951-827-6495 helpdesk@student.ucr.edu Go to Watkins 2111 or BearHELP at the HUB
How is the Service Delivered:	Phone, Email, Online, In Person: Weekdays 8:00am - 5:00pm Responses to requests and inquiries will be met within 24 hours; time to trouble resolution may vary on a case-by-case basis.
Service Level Agreement Specifics:	Instructional Use of iLearn: iLearn course shells are automatically provisioned each quarter through the registrar for every course listed in the schedule of classes. These course shells are released to students and

instructors on specific dates before the start of the quarter. Using the Student Information System (SIS), each department assigns the instructor-on-record for each class. The designated instructor is by default enrolled as the instructor for his or her corresponding course(s) in iLearn.

iLearn Services include:
- Manual enrollment of students or instructors in iLearn
- Assignment of system roles or functions following correct SIS assignment through course feeds, to facilitate levels or permission for access to courses or course content
- Course copy, creation, and/or merges for cross-listings or special cases
- Course or departmental template creation
- Bulk course content copy or deletion
- Grade Center support
- Implementation of web-based lessons, assignments, and quizzes
- Guidance on content management and delivery
- Integration of supported third-party tools
- Trouble resolution

Special Use Cases:
iLearn course shells can be created by request for special use. Examples include for:
- Preparation of courses in iLearn prior to course release by the registrar
- Research and development of online tools or strategies
- Collaboration among members of departmental search committees
- Facilitation of learning communities or special interest groups

SLA Specifics (AY 14, 15, 16)
Average courses supported per academic quarter: 4000
Average special use cases (iLearn Communities) supported per academic quarter: 450
Average Faculty Support Calls per academic quarter: 300
Average courses supported for Summer Sessions: 30
Average Faculty Support Calls for Summer Sessions: 300

Important Note: The support calls noted above relate strictly to utilizing iLearn to optimally support innovative and effective pedagogy supporting student engagement and student success. Trouble calls relating to system performance, down time, training, etc. are handled through C&C's Faculty/Staff Help Desk and are not reflected in the metrics noted above.

	C&C will work under the following Key Performance Indicators (KPIs): 80% of iLearn support tickets (calls or email requests) will be solved/closed with one (1) business day of the request.
Recharge Services:	None
Premium Services:	None

Name of Service:	**ESS: Digital Learning & Instructional Technology Support: Workshops and Presentations**
Keywords:	Workshop, Webinar, Walk-In, One-on-One, Group, Self-Paced, Session, Support, Tutorial, Resource, Tool, Technology, Document, Consultation, Help
Brief Description of Service:	Workshops and training sessions are scheduled as part of a series or customized by request for groups or individuals on topics related to teaching strategies, resources, and supported tools or technologies. Support documents, tutorials, or resources may be provided in addition to training or as training supplements where appropriate. Consultations are also available on topics related to educational technology, learning services, and digital resources.
Customers Eligible to Request Service:	Faculty, Staff, Students, TAs, Lecturers, Other Instructors
How is Service Requested:	Email: engage@ucr.edu Weekdays 8:00am - 5:00pm
How is the Service Delivered:	Phone, Email, Online, In Person: Weekdays 8:00am - 5:00pm Responses to requests and inquiries will be met within 24 hours; time to trouble resolution may vary on a case-by-case basis.
Service Level Agreement Specifics:	Workshops (topic-specific): Appointments for group hands-on workshops or consultation sessions with one or more Instructional Designers can be requested at any time. Instructional Designers offer face-to-face workshops on various topics, including UCR's supported instructional technologies or resources, best practices, and trends in teaching and learning. Workshops often offer opportunities for hand-on practice with select tools. Webinars and Online Courses: To better support faculty's busy schedules, Instructional Designers offer virtual training sessions of varying lengths and on topics such as UCR's instructional technologies or resources, best practices, and trends in teaching and learning. Existing, third-party webinars or online courses may be recommended in lieu of customized webinars or as supplements where appropriate. Self-Paced Training: Instructional Designers maintain a library of support guides and help sheets for self-guided instruction on UCR's instructional technologies and best practices. Such resources may be developed as necessary, or by request. Existing resources are made available where possible. Student Workshops:

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	Instructors can request one-off hands-on workshops for students to serve as overviews of/introductions to commonly supported tools or resources, such as iLearn and clickers. Exploratory tools or resources may be supported in special circumstances. Student workshops may be supplanted or supplemented by curated resources where appropriate. Panel Discussions, Showcases & Learning Community Presentations: Instructional Designers will partner with instructors to provide colleagues with opportunities for exposure to specialized tools, resources, and instructional approaches. Instructional Designers will help to identify and to provide the appropriate session formats or venues. They will develop and curate supplementary resources on identified topics where appropriate. Instructional Designers will facilitate the growth and development of faculty-led special interest groups and learning communities. Per quarter, the instructional design team will collectively be responsible for iterative and process consultation on a combination of 3-5 (high-demand) or 6-9 (low-demand) workshops and seminars. These ~15 workshops and seminars will be delivered using the various modalities listed above (panel discussions, small workshops webinars, etc.). C&C will produce annual dashboards outlining the counts of these workshops/seminars, topics, attendance, and participant feedback. C&C will work under the following Key Performance Indicators (KPIs): • Support requests will receive a call back within one (1) business day. • Annual consults and contacts will include additional 5% of the faculty that have not previously used this service.
Recharge Services:	There are no recharge services offered.
Premium Services:	There are no premium services offered.

Name of Service:	**ESS: Digital Learning & Instructional Technology Support: Pedagogical Collaboration**
Keywords:	Instruction, Instructional, Strategy, Teaching, Approach, Tool, Resource, Digital, Pilot
Brief Description of Service:	The Instructional Design Support team collaborates with instructors and others (e.g. VPUE office, Library, etc.) to identify, surface, and assess instructional resources, tools, and strategies and implement these resources and strategies into innovative pedagogical approaches aimed at enhancing student success.
Customers Eligible to Request Service:	Faculty, Staff, TA's, Lecturers, Other Instructors
How is Service Requested:	Email: engage@ucr.edu Weekdays 8:00am - 5:00pm
How is the Service Delivered:	Phone, Email, Online, In Person: Weekdays 8:00am - 5:00pm Responses to requests and inquiries will be met within 48 hours; time to trouble resolution may vary on a case-by-case basis.
Service Level Agreement Specifics:	Consultations for Instructional Planning and Support: Instructional Designers will support individuals or groups of instructors in all aspects of teaching involving instructional design, delivery, and assessment, with or without incorporation of instructional technologies. Grant Planning and Proposal Review: Instructional Designers work with faculty in conjunction with Research and Economic Development and individual college/school personnel to identify funding sources that will enable course design or re-design opportunities. Faculty Technology Support will assist with project planning for proposals, proposal review prior to submission, and identification of strategies for grant implementation or evaluation. Evidenced-Based Practices: The Instructional Design team seeks to collaborate with faculty to promote awareness of highly effective teaching methods that facilitate student engagement or academic achievement. Instructional Designers will partner to plan and organize the exchange of ideas surrounding new or existing proven practices. Faculty Technology Support can help to identify ways in which instructors can implement proven methods. Designers can also develop strategies and tools to track and/or measure teaching effectiveness. UCR's Instructional Designers will interact with at least one instructor/week supporting the topics noted above. During an academic quarter, this will yield no less than 40 instructor

	interactions (the actual count of faculty/instructors receiving this support may be higher given that these interactions can take place in a group setting). C&C will work under the following Key Performance Indicators (KPIs): • Support requests will receive a call back/email reply within one (1) business day. • Annual consults and contacts will include 5% new faculty that have not previously used this service.
Recharge Services:	None.
Premium Services:	None.

Name of Service:	**ESS: Digital Learning & Instructional Technology Support: Instructional Design**
Keywords:	Instruction, instructional, strategy, teaching, approach, tool, resource, digital
Brief Description of Service:	The Instructional Design team provides consultation and assistance with identification of instructional goals and provides suggestions for new or alternate ways of instruction that extend to course, lesson, or activity planning, including design, delivery, management, and assessment. The Instructional Design team places a particular emphasis on leveraging a wide variety of technologies to support online, hybrid, and digitally enhanced instructional delivery. Additionally, Instructional Designers provide guidance or input to local administrative units and to UC system-level units through the UC Instructional Design & Faculty Support community of practice.
Customers Eligible to Request Service:	Faculty, Staff, TA's, Lecturers, Other Instructors
How is Service Requested:	Email: engage@ucr.edu Weekdays 8:00am - 5:00pm
How is the Service Delivered:	Phone, Email, Online, In Person: Weekdays 8:00am - 5:00pm Responses to requests and inquiries will be met within 24 hours; time to trouble resolution may vary on a case-by-case basis.
Service Level Agreement Specifics:	Instructional Designers work with instructors to develop strategies for course development, revision, or enhancement. Designers will partner with Faculty to investigate, implement, and evaluate teaching methods or technologies to help them meet instructional objectives. Designers will assist with identification and selection of courses or course components that may be enhanced through hybrid or online methods. They will help match specific UCR tools or resources to individual teaching goals while identifying opportunities for exploration of rich media content development (graphics, video, audio, interactives, etc.) • Course Design & Redesign: Faculty members can work with Instructional Designers to design or to redesign courses or course components. Assistance is available to help identify, plan, or implement new or alternate approaches to teaching methods, delivery of content, course management, and assessment.

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- **Best practices (Digitally Enhanced, Hybrid, Online):** Instructional Designers are available to discuss with faculty best practices relating to design, delivery, and management of instruction.

- **Course Administration:** Faculty members may receive assistance in determining approaches to course management and administration that best facilitate student navigation of course content and student understanding.

- **Instructional Approach and Learning Outcomes:** Working closely with faculty members, Instructional Designers can help to identify or implement instructional strategies that best support a course's learning objectives and goals.

- **Active Learning Strategies:** To promote deep learning, Instructional Designers can offer guidance about ways to actively engage students with the course content, the instructor, and each other.

- **Technology Integration:** Instructional Designers are available to help faculty members find and implement tools or technologies to support their instructional approach.

- **Templates & Models:** Instructional Designers can help to speed the course design process by providing faculty members with course templates or models, as well as evaluation rubrics.

- **Delivery Formats:** Instructional delivery formats are negotiable based on project scope (course, lesson, activity), project purpose, state of development, timeframe to delivery, course format (face-to-face, blended, online), course goals, learning objectives, available resources, instructional content, instructional materials, teaching strategies, and instructor preference.

- **Delivery Platforms:** Instructional Designers may recommend various web-based platforms to facilitate, host, deliver, or manage/administer instructional content, lessons, assignments, or learning activities.

- **Media Content Development Support:** Instructional Designers will help match specific UCR tools or resources to individual teaching goals while identifying opportunities for exploration of rich media content development (graphics, video, audio,

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interactives, etc.). Instructional Designers can assist faculty members in the identification of appropriate delivery formats and in the design of instructional media.

- Learning Object Development Support: Instructional Designers can support faculty members in the design and deployment of self-contained learning modules, which may contain a variety of instructional materials, activities, and assessments related to a select topic.

- Feedback & Grading Methods: Instructional Designers can suggest time-saving methods for grading assignments and activities while still giving students effective feedback.

- Assessment Analysis: Instructional Designers can review current forms of assessment to ensure alignment with learning objectives.

- Quality Reviews: Faculty members may request an appraisal of current methods or course components to identify areas that may benefit from suggestions for revision or alternate approaches. Included within any such review are specific recommendations.

- Web Site and Communications: The Instructional Design team will maintain a comprehensive and compelling web site with information relating to all aspects of instructional technology and pedagogical support. Additionally, the Instructional Design team will communicate with faculty via email, flyers, portal announcements concerning new services and support offerings.

C&C will create an instructional design outcomes dashboard that presents a combined view of all activities contained within this Service Level Agreement.

C&C will work under the following Key Performance Indicators (KPIs):
- Facilitate/deploy 6 significant digital initiatives per academic year. This effort is in addition to the faculty interactions noted in the "Pedagogical Collaboration" section of the SLA. These significant digital initiatives include online courses, hybrid courses, and the creation of digital learning objects in support of face to face instruction.

	• Annual consults and contacts will include additional 5% of the faculty that have not previously used this service.
Recharge Services:	None
Premium Services:	None

Name of Service:	**ESS: Multimedia Services**
Keywords:	Presentation Technology, Classroom Technology, Smart Classrooms, Special Events Media Support , Projectors, Microphones, Course Capture (Podcast / Classroom Recording), Live-Event Streaming, Event Video Archiving, Video Conferencing, Video Playback Requests, Instructional Media Production, Enhanced Teaching Facilities, Hyperstruction Studio, Flex Classrooms, Classroom Technical Support, In Classroom Orientation and Consultation Services, Instructional / Event Equipment Checkout
Brief Description of Service:	Multimedia Services provides and maintains classroom presentation technology in 87 general assignment classrooms and supports special events, campus-wide. This involves design, installation, configuration, programming, and trouble remediation for classroom technology, and presentation technology used to facilitate enhanced learning.
Customers Eligible to Request Service:	Faculty, Staff, Students
How is Service Requested:	In general, request for service(s), trouble resolution, etc. are made via Multimedia Services located at B221 Sproul Hall (Basement), with the following office hours, and contact information: M-F 8:00a-5:00p Phone: (951) 827-3041 Fax: (951) 827-7282 E-mail: multimedia@ucr.edu Staff may also request service via Mediaworks: https://mediaworks.ucr.edu/ In Classroom Help is available via the "Help" button on classroom media consoles, or via an in classroom telephone that can be used to contact the Multimedia Classroom Presentation Technology Helpdesk.
How is the Service Delivered:	For General Assignment Classrooms, C&C supports a classroom helpdesk that is staffed Mon. – Fri. (8:00 AM to 5:00 PM). In addition, all Multimedia staff are on call to respond to instructors requests for immediate assistance 7 days a week, 24 hours a day. Typically large academic instructional activities that occur on the weekend receive special attention/staff assignments. Importantly, Multimedia staff deliver group and one on one workshops, training, seminars, etc. to UCR instructors several times during an academic quarter.

	In addition, Multimedia Services may be delivered via Phone, Email, Online, and In-Person (Weekdays, 8:00a-5:00p), and after normal business hours, as determined by on-going dialogue with campus stakeholders in support of classroom presentation technology, and special events occurring on campus, for which Multimedia Services are requested.

Service Level Agreement Specifics:	**Classroom Presentation Technology**
	Classroom presentation technology is maintained in 87 General Assignment Classrooms (which includes Large Lecture Halls, Flex Classrooms) and Enhanced Teaching Facilities.
	
	General Assignment Classrooms feature the following technology as part of the digital standard classroom configuration which are designed, acquired, staged, installed, tested, and serviced/maintained by Multimedia Services:
	
	Digital Standard Classroom Technology
	    o 1-2 projectors (Flex Classrooms have two projectors)
	    o Digital Switcher
	    o Networked Media Controller
	    o Touch Panel Control Interface
	    o Classroom Computer
	    o AppleTV for Wireless Connection to Projector
	    o Connections to support HDMI / VGA, Video playback of DVDs, and other technologies not part of the standard.
	
	Digital Standard Classroom Computer Configuration
	    o As part of the standard classroom computer configuration the following occurs on a quarterly basis:
	    o Standard Software Configuration: Installation and configuration of software on general assignment classroom computers.
	    o Software Refresh: This Standard Software Configuration is then distributed to all classroom computers via an automated process for use in support of classroom instruction.
	    o Coordination with faculty and staff, in response to faculty software installation requests, for software outside of the standard configuration.
	    o Classroom Response System (Clicker) Support
	    o Configuration of acquisition software for instruction as needed.
	
	Maintain Classroom Presentation Technology
	    • Please note that all General Assignment classrooms require the following maintenance, and Renewal and Replacement

| | (R&R). On a daily basis student operators will conduct the following:
o All General Assignment classrooms shall be checked (in the early morning prior to classes beginning) for functioning technology, and ensuring replacement batteries are available.
o Will grant (lock and unlock) access to media consoles.
o Provide delivery services for items requested that are not provided as part of the digital standard classroom.

Renewal and Replacement of Classroom Presentation Technology
o As part of the Classroom Technology Plan, Multimedia Services creates a renewal and replacement plan with known timelines for all equipment replacement; additionally, Multimedia Services investigates various technologies and acquires these technologies to ensure the most cost effective provisioning of classroom technology.

Project Management Services
R&R and the installation and configuration of Classroom Presentation Technologies requires coordinating installations with:
o Physical Plant
o Network Services

Instructional Equipment Checkout Service
As part of Classroom Presentation Technology, faculty, staff, and students may request video playback & and specialized equipment as needed.
• Video Playback Equipment: VHS / DVD / Blu-Ray
o Video Playback Equipment may be requested via: http://cnc.ucr.edu/multimedia/videoplaybackrequest.html

• Special Equipment Requests
o Webcam
o Document Camera

For a complete list of equipment which may be checked out please visit http://cnc.ucr.edu/multimedia/delivery.html.

Course Capture
Students in classrooms which support Course Capture will have on-demand access to rich educational content as presented during lecture. This includes an archive of the presentation display |

	(computer, laptop, document camera, iPad, etc.) as well as video camera and audio. Course Capture is presently available in the following formats:
	
	• Audio Only & Audio & Slides Capture: All General Assignment Classrooms
	• Audio Slides, & Video are available in the following locations: UNLH, Physics 2000, INTN 1020, Bourns A125 & B118, and MS&E Lecture halls
	
	Audio Podcasting
	As part of Classroom Presentation Technology, Multimedia Services facilitates audio podcasting as well. Audio podcasting provides an enhanced learning experience to students. These podcasts are distributed automatically via subscriptions, and mail available via iLearn.
	
	• Podcasting is supported in General Assignment classrooms.
	• For non-general assignment classrooms, a portable audio recorder may be used.
	• The Course Capture and Audio podcasting may be requested by faculty via http://podcast.ucr.edu/.
	
	Online Learning
	Multimedia Services provides pre, and post production support for the following campus initiatives.
	
	• Instructional Recording
	   o Learning Glass
	     ▪ Learning Glass Studio (Olmsted A-139)
	     ▪ For more information on the Learning Glass, you may contact: Learningglass@ucr.edu
	   o Instructional Lecture Modules
	
	• Synchronous Distance Learning
	   o Real Time Far-Site Learning utilizing a third party video conference software such as Zoom, for example.
	
	• Instructional Media Production
	   o Pre-Recorded Lecture (Absentee Lecture Recording)
	   o Conference Support for off-site, guest lectures.
	     ▪ Deliver sound system and web-camera.
	     ▪ Guest lecturer can interact with remote guest lecture audience.

- Important Note: Multimedia Services collaborates with the Instructional Design team to support Online Learning, Hybrid Learning, and the creation of digitally enhanced course materials. In general, Multimedia Services provides equipment and production services while the instructional design group provides pedagogical and instructional design support.

Administrative Multimedia Support
Multimedia Coordinators utilize Mediaworks to conduct the following administrative functions (work order management, student employee scheduling and management, scheduling ad-hoc instructional equipment deliveries, etc.).

Training
Multimedia Services provides targeted workshops/seminars, etc. to instructors and staff on the use of classroom presentation technologies including the multimedia consoles. These sessions are coordinated via the following:
- In Classroom Orientation and Consultation Services
  - Phone Requests
  - Quarterly Trainings in Large lecture halls and Flex Classrooms

Enhanced Teaching Facilities
- The Hyperstruction Studio. The Hyperstruction Studio (Surge 170) is an innovative learning space that has movable furniture and educational technologies that support active learning in the classroom. The Hyperstruction studio provides the following technologies:
  - Annotation Panel
  - Interactive board
  - Videoconferencing
  - Video wall
  - Computer with wireless peripherals
  - Podcast and Webcast technologies
  - Clicker receivers
  - Reconfigurable furniture

- Flex Classrooms. Flex Classrooms to allow instructors to explore a variety of teaching modalities. This is accomplished through the utilization of adaptable, flexible furniture (e.g. wrap-around white boards, moveable conference style tables) as well as various innovative

technologies (multiple projection systems with multiple points of control). Flex classrooms provide the following technologies:

- o Dual Projection System
- o High-Resolution Document Camera
- o Dual Touchscreen Control Panels
- o Dual Laptop Access
- o PC Computer with wireless keyboard and mouse
- o WiFi access
- o DVD & VCR
- o Program Audio
- o Clicker Receivers
- o For a list of Flex Classrooms please visit: http://flex.ucr.edu/list.html

Website Support For General Assignment Classrooms

Multimedia Services maintains the SmartClassrooms@UCR site: (http://classrooms.ucr.edu/). This includes information on where you can locate any general assignment "smart classroom". In addition you may view floorplans and photographs of actual rooms, or review the technology available in each room, and obtain instructions for equipment operation.

Trouble Resolution

Multimedia Services maintains all Classroom Presentation Technology in the General Assignment classrooms. Classroom Presentation Technology Support may be requested via:

Rapid Response Classroom Technology Helpdesk

- A Student Operator will be available to answer incoming trouble requests, and dispatch as needed.
- If a request for service or support is requested, Multimedia Services will coordinate with the requester as to their preferred timeframe for resolution.
  - o Immediate Support (During lecture)
  - o Scheduled Support (After Lecture)

On Site Support at Special Events

A student operator will be made available as needed defined by on-going dialogue with Campus stakeholders, and Multimedia Services.

Other Support

Multimedia Services may also serve as liaison with Physical Plant, and other internal stakeholders for general room maintenance issues.

Instructional Support Dashboard

C&C provides the following support to UCR's instructional enterprise:

- 2,856 hours per year of on call classroom/instructor support.
- 20 large classroom technology workshops per year.
- 32 small/medium classroom workshops per year.
- Planning, acquisition, installation, and maintenance of approximately 600 unique technology components (ranging from digital projectors to document cameras) in 87 general assignment classrooms.
- As part of this SLA, C&C will create and present an annual dashboard of all instructional related activities provided by the Multimedia Services group.

Special Events Multimedia Production Services

Special Events Multimedia Production Services encompass the following categories of events:

Job Talks

- o Video Recording Services
- o Two hours of student labor
- o 1 camera / 1 mic
- o Video Production - 1 hour staff time.

Small Scale Events

- o Event that lasts less than four hours.
- o Event with low complexity technology.

Large Scale Events

- o Event that lasts for more than four hours.
- o A small event that includes complex technology, such as those requiring web conferencing and panel presentations.

Depending on the type, and duration of the event, Multimedia Services will provide the following:

- *Basic Outdoor Audio Event Setup*
  - o Amount of microphones requested, and a sound amplification system.

        o Student Operator assistance, duration of assistance to be based on number of hours of event.
- *Basic Classroom Event Setup*
  - o Access to room multimedia equipment.
  - o Full Day / Half day as needed.
  - o Self Service Support. Multimedia Services will provide orientation for classroom equipment.
- *Basic Lecture Hall Event Setup*
  - o Access to room multimedia equipment.
  - o Full day / Half day as needed.
  - o Operator: Full day / Half day as needed.

Large Scale Events that require overflow, or one to many (audience) would have the option to utilize the following services:

- *Live-Event Streaming*
  - o Live Stream Overflow. Classroom Presentation Equipment in a large lecture hall.

- *Live-Event Video Archiving*
  - o Archival of Live-Event recording, for later viewing availability, and archive.

Commencement
On-site Commencement multimedia support typically starts on the Wednesday of Commencement week, until the following Monday. This includes the following support:

Multimedia Commencement Logistics:
Pre Commencement Planning:
- Coordination with campus stakeholders, regarding the Multimedia Service needs per commencement event.
- Equipment ordering, delivery, configuration.

Commencement Equipment Deployment:
- Equipment installation at Commencement site(s).
- Multimedia Student Operators, and Staff, on the ground coordination via two way radios.
- Equipment removal post commencement ceremonies

Multimedia Services Commencement Video Production Services
During a typical Commencement ceremony, Multimedia Services support will include the following:

	• Real Time Video Streaming • 3 Cameras (5 Student Operators, 1 Staff) • Closed Circuit Video Feed (JumboTron) • Overflow Rooms (e.g. Watkins 1000 / UNLH) **Note**: Commencement audio services are provided via a third party vendor. **Special Event Support:** C&C provides the following support relating to campus special events: • 300 "small events" annually (as defined above; event that lasts between 1 to 4 hours and has low complexity) • 50 "large events" annually (As defined above; event that lasts 4 or more hours, but less than one day, are counted as a single event. If an event spans multiple days, each day is counted as an event. In addition, large events also include small events (1 to 4 hours events) with highly complex technology, such those requiring web conferencing and panel presentations. • Job Talks (as defined above) • 2 Chancellor/Provost events per quarter (e.g. Town Halls/Chancellor's Dinner) • Commencement Support (please see definition above) • Highlander Orientation • Scholarship Celebrations (BCOE, CHASS, CNAS) • As part of this SLA, C&C will create and present an annual dashboard of all special event related activities provided by the Multimedia Services group. C&C will work under the following Key Performance Indicators (KPIs): • 90% of in-class support requests will receive technical support within two (2) minutes during normal business hours. • 18% of classroom technology components will be replaced annually (based on 6-year renewal and replacement cycle).
Recharge Services:	There are no recharge services offered. C&C will seek additional resources if Instructional or Special Event requests exceed the SLA levels noted above.

Premium Services:	None.

APPLICATION DEVELOPMENT (AD)

Name of Service:	**AD: Enterprise Application Development and Maintenance (Vendor, Cloud, and Custom Systems)**
Keywords:	New Applications, Application Upgrade, Programming, Vendor Software Configuration, Vendor Software Implementation, Cloud Software Configuration, Cloud Software Implementation, Application Security, Application Tuning, Support, Training, Project Management
Brief Description of Service:	C&C interacts with UCR Steering Committees, Advisory Groups, Vice Chancellors, Deans, and other campus stakeholders to create vision and priorities for administrative and academic systems development, implementation, operations, and continuous improvement. Systems may be vendor supplied, cloud based, or custom developed. Under all circumstances, this support involves design, configuration, programming, troubleshooting, maintenance, continuous improvement, trouble remediation, security, performance optimization, interoperability enablement (e.g. single sign-on), usability (including responsive / mobile frameworks) and documentation. C&C will also provide project management support and in partnership with business/ functional leadership, create training, communications, web pages, and other support materials, offerings, and platforms. Systems and support include system-wide ERP solutions (e.g. PeopleSoft), transaction-processing / work order tools (e.g. procurement), reporting and data marts, and foundational tools that enable access and/or interoperability (e.g. portals, enterprise access control, etc.).
Customers Eligible to Request Service:	Faculty, Staff, Students
How is Service Requested:	In general, request for new services, enhancements, trouble resolution, etc. are made via one of several Steering Committees / Advisory Groups or directly to the campus CIO (see below). The following systems are supported by the Enterprise Application Development Group (there are other relatively minor systems that are also maintained by this group). ***Human Resources***

	• Recruitment Systems
	• Classification Systems
	• Job Description Systems
	• Learning Management Systems
	• Employee Profile Tool
	• Other Tools

Academic Systems
- Graduate Student Information / Applications System
- Enrollment Graduate Student Management System
- Online Instructor Evaluation System
- Online Grade Submission System
- Course Request and Management System
- Other Tools

Financial Services
- PeopleSoft Financial, Budgetary, and Accounts Payable System
- Payment / Direct Deposit Processing (including electronic invoicing)
- Extramural Billing
- Journaling and Cost Transfers
- Chart of Account Maintenance and Attribute System
- PeopleSoft Based Reporting
- Post Audit Notification System
- Ledger Reconciliation and Storage System
- Cash Reconciliation and Reporting System
- Other Tools

Payroll
- Time and Attendance Reporting
- Weekly and Biweekly Payroll (in partnership with UCOP)

Procurement
- Purchasing System
- Financial System Integration (e.g. encumbrance processing)
- Business to Business Procurement (Sciquest)
- Procard System
- Other Tools

General Campus Work Order / Business Process
- Campus Mail Services System **
- Printing and Reprographics **
- Fleet Services **

	• Physical Plant • Travel • Business / Entertainment Reimbursement • Communications (Telephone / Data) Management System • Emergency Notification System • Other Tools *Academic Personnel* • Academic Personnel Merit and Promotion System (eFile) • ACAPER (campus academic personnel database) • Academic Recruitment • Academic Document Storage / Management System • Other Tools *Research Administration* • Coeus Research Administration Database / Application • eAward System (award notification / financial system integration) • eCAF (campus approval for extramural fund proposals) • Cayuse (cloud budgeting tool) • Pre-Award Review and Processing Tool • Other Tools *Post Award Support* • Principal Investigator Web Reporting System • Annual Extramural Fund Salary Certification System • Other Tools *Data Marts and Reporting Tools* • Payroll Expense • Human Resources • Financial and Budgetary • Space • Course Information and Reporting • Student Information *Please note all applications / tools generally have a system specific query and reporting system* *Foundational Systems* • Portals • Enterprise Access Control Systems • Enterprise Directory Service • Other Tools

	Oversight • Administrative Business Systems Steering Committee (major enterprise systems) • Human Resources Systems Steering Committee • Proposal / Award Advisory Group • Physical Plant Advisory Group • Financial Services Steering Committee • Academic Personnel Steering Committee • Graduate Student System Steering Committee • Key Stakeholders: Chancellor, Provost, Vice Chancellors, Deans, Vice Provost for Undergraduate Education, Senate Committee on IT and Libraries, and UCR Faculty. ** These tools were developed on a fee-for-service basis. Due to funding reductions, C&C's business partners have not provided support for active upgrades/enhancements during the past several years. Other Note: Please note that C&C manages and supports an application developer for CNAS.
How is the Service Delivered:	Via continuing discussions with Steering Committees, Advisory Groups, Senior Leadership, and campus stakeholders, C&C defines requirements, development specifications and timelines, and then proceeds to programming/configuration/acquisition, testing, and implementation phases.
Service Level Agreement Specifics:	*For Enterprise Application Development, Vendor, or Cloud Software Configuration/Integration:* • Maintenance / operations of existing ERP solutions include PeopleSoft, FAMIS (Physical Plant), and Coeus (Research Administration). This support includes trouble resolution, monitoring, performance tuning, and security / integration at the application layer. • Maintenance / operations of existing systems as noted above (Development, Vendor, Cloud). This support includes trouble resolution, monitoring, performance tuning, and security / integration at the application layer. • Continuous improvement efforts for each ERP / major system noted above. Typically, this includes 8 enhancements (two per quarter) within each functional area noted above (for example, enhanced web pages / minor functionality improvements, new

reports, improvements to the user interface, etc.). These efforts include Project Management, technical support, and in partnership with business / functional team, web support and training (please see the note below on deliverables).

- Additional new tools / functionality for each ERP / major system noted above. In general, this includes two major system enhancements within a functional area (e.g. Human Resources, Procurement, etc.) depending on complexity of the new functionality per year. These efforts include Project Management, technical support, and in partnership with business / functional team, web support and training (please see the note below on deliverables).

- Please note that all Enterprise Applications require the following support:

  o Maintenance / Operations
  o Continuous Improvement
  o Enhancements
  o Creation of New Tools Functionality
  o Project Management, Web, Training Support (in partnership with the business / functional team)

The mix of support (continuous improvement, new functionality, etc.) is outlined in this Service Level Agreement. However, the annual output / deliverables will depend on prioritization from campus Steering Committees / Advisory Groups, the projects involved and their complexity, other factors (e.g. security issues, major deployments, etc.), and guidance from senior campus leadership.

C&C will therefore provide an annual scorecard of output / deliverables and update this service level agreement depending on campus needs, evolving technical paradigms, and the inventory of software and systems supported by C&C.

- Other services included in this Service Level Agreement:

Data Downloads
Web Services

These services are provided on an ad hoc basis with no timeline / services levels attached. Such requests are evaluated, scheduled, and fulfilled depending on priority and urgency.

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	Typically data downloads and requests for web services can be accommodated within one month of the request.
Recharge Services:	None
Premium Services:	None

Name of Service:	**AD: Enterprise Application Development and Maintenance – Academic Information Systems (Vendor, Cloud, and Custom Systems)**
Keywords:	New Applications, Application Upgrade, Programming, Vendor Software Configuration, Vendor Software Implementation, Cloud Software Configuration, Cloud Software Implementation, Application Security, Application Tuning, Support, Training, Project Management, IBM
Brief Description of Service:	C&C interacts with UCR Steering Committees, Advisory Groups, Vice Chancellors, Deans, and other campus stakeholders to create vision and priorities for administrative and academic systems development, implementation, operations, and continuous improvement. Systems may be vendor supplied, cloud based, or custom developed. Under all circumstances, this support involves design, configuration, programming, troubleshooting, maintenance, continuous improvement, trouble remediation, security, performance optimization, interoperability enablement (e.g. single sign-on), usability (including responsive / mobile frameworks) and documentation. C&C will also provide project management support and in partnership with business/ functional leadership, create training, communications, web pages, and other support materials, offerings, and platforms. Systems and support include system-wide and campus ERP solutions (e.g. PPS, Student Information System (SIS)), transaction-processing / work order tools (e.g. Asset & Equipment Management, Storehouse and Logistics System, Collections and Write Offs System, etc.), reporting and data marts, and foundational tools that enable access and/or interoperability.
Customers Eligible to Request Service:	Faculty, Staff, Students
How is Service Requested:	In general, request for new services, enhancements, trouble resolution, etc. are made via one of several Steering Committees / Advisory Groups or directly to the campus CIO (see below). The following systems are supported by the Academic Information Systems Group: *Academic Systems* • Student Information System o Financial Aid

	o Student Business Services (includes Collections and Write Offs) o Registrar & Enrollment Services o Summer Session o Student Portal o Other (Transcripts, Grading, etc.) • Student/Faculty/Course Reporting Tools & Repository • General Campus Student/Faculty/Course Reporting Data Warehouses • Data Dissemination Systems and Tools for Campus Departments/Colleges/Central Offices • Course Request and Management System ***General Campus Systems & Services*** • Asset & Equipment Management • Payroll & Personnel System • Storehouse/Logistics (Premium Service – see below) ***Oversight*** • Administrative Business Systems Steering Committee • Student Information System Steering Committee • Student Information System (Banner) Implementation Steering Committee ***Key Stakeholders*** Chancellor, Provost, Vice Chancellors, Deans, Vice Provost for Undergraduate Education, Senate Committee on IT and Libraries, and UCR Faculty.
How is the Service Delivered:	Via continuing discussions with Steering Committees, Advisory Groups, Senior Leadership, and campus stakeholders, C&C defines requirements, development specifications and timelines, and then proceeds to programming/configuration/acquisition, testing, and implementation phases.
Service Level Agreement Specifics:	For Enterprise Application Development, Vendor, or Cloud Software Configuration/Integration: Due to the upgrade of UCR's Student Information System (expected deployment fall 2016) to the web-based Oracle platform, C&C will be retiring the IBM Mainframe in two years. The remaining IBM applications (Asset & Equipment Management, Collection and Write Off System, Storehouse Logistics System (see below), etc.) will be upgraded and moved to the Oracle platform or Cloud as appropriate. Thus, the notes below are only effective until the IBM mainframe is retired. *Importantly, this SLA will be extensively modified/updated once the mainframe is retired.*

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	• Implementation of the new Banner Student Information System including data conversion, development of new systems/software, hardware and software installation, project management, integration with other campus systems.
	• Maintenance / operations of existing solutions as named above. This support includes trouble resolution, monitoring, performance tuning, and security / integration at the application layer.
	• Migration of all systems noted above to Oracle platform or Cloud as appropriate. These efforts include Project Management, technical support, and in partnership with business / functional team, development of service delivery vision and specifications guiding the transition/enhancement of the application in question.
	• Please note that all IBM Applications require the following support:
	○ Maintenance / Operations ○ Project Management, Web, Training Support (in partnership with the business / functional team)
	C&C will provide an annual scorecard of output / deliverables and update this service level agreement depending on campus needs, evolving technical paradigms, and the inventory of software and systems supported by C&C.
	• Other services included in this Service Level Agreement:
	Data Downloads Web Services
	These services are provided on an ad hoc basis with no timeline / services levels attached. Such requests are evaluated, scheduled, and fulfilled depending on priority and urgency. Typically data downloads and requests for web services can be accommodated within one month of the request.
Recharge Services:	None.
Premium Services:	C&C has an agreement with Storehouse to maintain, monitor, tune, troubleshoot problems, and secure the existing Storehouse Logistics System. At this time, upgrades and enhancements are no longer being considered since the IBM mainframe will be retired in

	the next couple of years. Prior to the mainframe being retired, the Storehouse Logistics system will be upgraded/converted to the Oracle platform or a Cloud solution and the support agreement for this system will be revisited at that time.

Name of Service:	**AD: NON-Enterprise (Unit/Dept. Specific) Application Development and Maintenance (Vendor, Cloud, and Custom Systems)**
Keywords:	New Applications, Application Upgrade, Programming, Vendor Software Configuration, Vendor Software Implementation, Cloud Software Configuration, Cloud Software Implementation, Application Security, Application Tuning, Support, Training, Project Management
Brief Description of Service:	C&C will interact with UCR's Non-Enterprise Application Development/Integration Steering Committee (NEADISC) to create vision and priorities for non-enterprise (unit/dept. specific) administrative and academic systems development, implementation, operations, and continuous improvement. Systems may be vendor supplied, cloud based, or custom developed. Under all circumstances, this support involves design, configuration, programming, troubleshooting, maintenance, continuous improvement, trouble remediation, security, performance optimization, interoperability enablement (e.g. single sign-on), usability (including responsive / mobile frameworks) and documentation. C&C will also provide project management support and in partnership with business/ functional leadership, create training, communications, web pages, and other support materials, offerings, and platforms.
Customers Eligible to Request Service:	Faculty, Staff, Students
How is Service Requested:	An annual call will be made to the campus to submit proposals for new NON-enterprise applications (e.g. upgrade affiliate establishment process, create hardware/software contract maintenance database system) or enhance/upgrade existing systems (e.g. Chancellor's Commitments system). NEADISC will evaluate the proposals and determine priorities for development/integration.
How is the Service Delivered:	Via continuing discussions with NEADISC and application stakeholder(s), C&C (specifically the Application and Multimedia Development team) will define requirements, development specifications and timelines, and then proceeds to programming/configuration/acquisition, testing, and implementation phases.
Service Level Agreement Specifics:	*For Non-Enterprise Application Development, Vendor, or Cloud Software Configuration/Integration:*

- Maintenance / operations of existing NON-Enterprise Application solutions (Custom Developed, Vendor, Cloud). Please see the list of systems below. This support includes trouble resolution, monitoring, performance tuning, and security / integration at the application layer.

  Current Non-Enterprise Systems Supported:
  - International / Visiting Scholar
  - Cash Collection and Reconciliation System
  - ACAPER (Academic Personnel Repository and Reporting
  - Tool)
  - UC MEXUS
  - Communications Work Order System
  - Chancellor's Resource Database
  - Conflict of Commitment System
  - eForms (will be migrated to Service Now in the future)
  - Ad Hoc Enhancements to Campus Enterprise Systems:
    - eBuy
    - iGrade
    - iEval
    - Clickers @ UCR
    - Various reporting tools

- Maintenance / operations of new or upgraded systems (Custom Developed, Vendor, Cloud). This support includes trouble resolution, monitoring, performance tuning, and security / integration at the application layer.

- Continuous improvement efforts for each system noted above. Typically, this includes 8 enhancements (two per quarter) within each functional area noted above (for example, enhanced web pages / minor functionality improvements, new reports, improvements to the user interface, etc.). These efforts include Project Management, technical support, and in partnership with business / functional team, web support and training (please see the note below on deliverables).

- Additional new tools / functionality for each system noted above. In general, this includes two major system enhancements within a functional area depending on complexity of the new functionality per year. These efforts include Project Management, technical support, and in partnership with business / functional team, web support and training (please see the note below on deliverables).

	• Two new significant systems per year and six relatively minor systems per year will be developed and deployed by the Application and Multimedia Development group.
	
	• Please note that all NON-Enterprise Applications require the following support:
	
	   o Maintenance / Operations
	   o Continuous Improvement
	   o Enhancements
	   o Creation of New Tools Functionality
	   o Project Management, Web, Training Support (in partnership with the business / functional team)
	
	The mix of support (continuous improvement, new functionality, etc.) is outlined in this Service Level Agreement. However, the annual output / deliverables will depend on prioritization from NEADISC, the projects involved and their complexity, other factors (e.g. security issues, major deployments, etc.).
	
	C&C will therefore provide an annual scorecard of output / deliverables and update this service level agreement depending on campus needs, evolving technical paradigms, and the inventory of software and systems supported by C&C.

Recharge Services:	None
Premium Services:	None

DATABASE ADMINISTRATION (DA)

Name of Service:	**DA: Enterprise Databases**
Keywords:	Database, DB, Oracle, SQL Server, WebLogic, IIS, HTTP Server, Application Server, SQL, PL/SQL, T-SQL, DBaaS, Database as a Service, SQL Tuning, Data Warehouse, ETL, SSIS, SQL Integration Services, Cloud, PeopleSoft, Banner, COGNOS
Brief Description of Service:	The Database Group provides installation, instantiation, and ongoing maintenance of web, application, and database servers/instances/other infrastructures in support of UCR's systems, applications, vendor, and cloud solutions.
Customers Eligible to Request Service:	C&C Staff
How is Service Requested:	In general, request for new services, maintenance, trouble resolution, etc. are made via an online service request from the Enterprise Application Development Director, Project Manager, Programmer, or directly via the campus CIO.
How is the Service Delivered:	New projects (databases, web sites, new applications, schedulers, and integration components), enhancement of existing applications, and reoccurring routine maintenance of databases and application servers such as backups, tuning, data integrity, auditing, patching, and troubleshooting are assigned and prioritized for the Database Group by the Senior Director for Enterprise Application Development. Once assigned to the Database Group, the work is performed using industry best practices and approaches relating to database creation, maintenance, and tuning.

Service Level Agreement Specifics:	Support by the Database Group includes importing and exporting of data, backup and restoration of databases, patching and updates (including applications, http/application servers, databases, and Windows Servers), upgrades, and system administration. Requests and coordinates the appropriate supporting resources for a system such as URLs, host name aliases, firewall and VPN allowances, Virtual Machine and Solaris Zone details, security requirements, and storage allotments.
	
	The following applications and technologies are supported by the Database group:
	• HTTP/Application Servers
	    o Oracle WebLogic
	    o Microsoft Internet Information Server
	• Databases
	    o Oracle – Over 55 Databases
	    o Microsoft SQL Server – Over 70 Databases
	• Batch Servers
	    o PeopleSoft – Enterprise Financial System

	- o Banner – Student Information System • Schedulers - o Oracle Scheduler – Database Scheduler - o ISE Scheduler – Operating System Scheduler • Current Applications (Selected) - o PeopleSoft – Enterprise Financial System - o Banner – Student Information System - o Primavera – Design and Construction Project Management - o Pinnacle – Communication Work Order System - o SharePoint – Enterprise Collaboration - o School of Medicine - Admissions Application - o Team Foundation Server – Source Code Management - o Raiser's Edge - Constituent Management Software - o Financial Edge – Nonprofit Accounting Software - o UCR Custom Applications – Approximately 100 • Please note that all Servers and Databases require the following support: - o Tuning - o Patching/Upgrading - o Backup and Recovery - o Security - o Auditing - o Capacity Planning Specific performance metrics: • The Database Group will provide sufficient resources to support the new system development/upgrades/enhancements and other services as defined within the Enterprise Application Development Group Service Level Agreement. • The Database Group will resolve within 48 hours any performance/security issue that is impacting a production service or application. • The Database Group will apply patches/upgrades within three months of availability when such a patch or upgrade has a material impact on performance/security.
Recharge Services:	None
Premium Services:	None

COMPUTING INFRASTRUCTURE & SECURITY (CIS)

Name of Service:	**CIS: Information Technology Security**
Keywords:	Security Monitoring, Network Security, Application Security, Risk Assessment, Vulnerability Management, Incident Response, Forensics
Brief Description of Service:	Implements information technology security best practices and conducts security monitoring for UCR's centralized enterprise applications and network. In addition, analyzes UCR's enterprise hardware/software infrastructure, architecture, and configurations for security risk and vulnerabilities. Responds to large scale information technology security incidents and performs forensic analysis when necessary. Coordinates dialogue with distributed IT units concerning security and conducts annual audit of distributed systems and services that store or process sensitive and protected data. Develops and deploys both campus as well as UCOP security related policies and procedures. Interacts with UCOP for all coordinated UC-wide Cybersecurity activities. Develops and deploys various tools, systems, messaging, and training to support desktop security for faculty/staff/students (this includes for example UCR's DMCA program, anti-phishing initiatives, anti-virus/anti-spam/anti-malware, etc.)
Customers Eligible to Request Service:	Predominantly internal C&C Staff; however, Faculty, and non-C&C Staff can make security requests. Other customers include UCOP and external entities that interact with UCR concerning security (e.g. FBI, Police Departments).
How is Service Requested:	Requests from non-C&C staff and faculty are made in writing to the Chief Information Security Officer, various C&C Directors, and UCR's CIO. C&C staff requests are made through C&C's ticketing system.
How is the Service Delivered:	Based upon IS-3 policies, federal and state security mandates, and in conjunction with current IT security best practices, C&C designs security specifications and timelines and then proceeds to programming/configuration/acquisition, testing, and implementation of IT security processes/devices. In addition, C&C provides various web pages, annual inventory/analysis, tools, services, conducts meetings, etc. in support of distributed IT security efforts as well as faculty/staff/student desktops and mobile devices.
Service Level Agreement Specifics:	For enterprise applications and UCR's network the following services will be provided: • ***General Security Monitoring*** C&C will continuously monitor enterprise (C&C managed) systems which includes centralized logging (collecting and analyzing C&C system logs). C&C will continuously

monitor security controls and develop and implement procedures and tools for consuming information security data from many sources (e.g. OSSEC). Finally, C&C will develop/purchase and implement applications that enable it to prevent, monitor, and respond to cyber-attacks in the most effective and efficient manner. *This support is extended to UCR's Oracle servers, identity management systems, web servers, and other devices that support core enterprise systems.*

- *Network Security*
  C&C will deploy, maintain, and monitor Network Intrusion Detection/Prevention systems and respond to intrusion incidents. C&C will make recommendations to prevent network intrusion and implement network intrusion prevention mechanisms. In addition, C&C will deploy, maintain, and monitor firewalls where necessary and in accordance with C&C's information security best practices. C&C will investigate abnormal network activity and perform network forensics when necessary and in accordance with UCR's Electronic Communications Policy (ECP). C&C will develop/purchase and implement applications that enable it to prevent, monitor, and respond to cyber-attacks in the most effective and efficient manner. *This support is provided to all network traffic entering the campus and to network traffic that is destined for UCR's enterprise systems.*

- *Enterprise System/Application Security*
  Develop and implement security baseline configurations which protect UCR's enterprise (C&C managed) systems and applications. Install and configure host-based firewalls. Plan and perform penetration testing and make recommendations as to remediation if and when security issues are discovered. Deploy, maintain, and monitor Host Intrusion Detection/Prevention Systems and respond to intrusion incidents. Make recommendations to prevent host intrusion and implement intrusion prevention methods. *This support is extended to UCR's Oracle servers, identity management systems, web servers, and other devices that support core enterprise systems.*

- *Abuse Complaints*
  C&C will analyze and respond to abuse complaints (e.g. an employee has been phished, notify students of a DMCA violation, turn off a port to a computer that has been hacked).

	In addition, make recommendations as to how the abuse could be avoided in the future. • *Risk Assessment and Vulnerability Management* C&C will conduct risk assessment of enterprise (C&C managed) IT systems and applications and design and develop security controls to reduce/eliminate risk. Implement, enforce, and provide proof of security policy compliance and that security control objectives (e.g. HIPPA, PCI, IS-3) are being met. *This support is extended to UCR's Oracle servers, identity management systems, web servers, and other devices that support core enterprise systems.* For distributed IT security the following services will be provided: • *Distributed Security Templates, Best Practices, Support Information* Based on UC policy, provide security templates for departmental and college/unit use enabling the development of security plans that are consistent with policy requirements. Conduct regular meetings with distributed IT leaders to discuss issues/challenges/best practices enabling robust Cybersecurity. Create and maintain web sites that promote IT security best practices and inform campus stakeholders of UC-wide Cybersecurity requirements. • *Annual Inventory of Systems* Conduct, review, analyze, and report on UCR's Annual Security Inventory submissions and make recommendations to remediate information security issues. • *Scanning and Monitoring* Based on risk and other factors, scan and monitor desktop and other campus systems and inform and/or remediate issues as discovered. • *Forensics and Investigation of Wrong Doing* Provide support to law enforcement agencies and others as required by law and UC policy. Please note this support is limited to a foundational analysis; advanced forensics must be provided by off campus resources. For desktop security the following services will be provided: • *Anti-Virus/Anti-Malware*

	Provide Anti-Virus/Anti-Malware for all faculty and staff (licensed). Provide non-licensed or free Anti-Virus/Anti-Malware software for students.
	
	• ***Messaging, Web Support, Best Practices***
	  Create and maintain web sites that promote IT security best practices for desktop and mobile device security and inform campus stakeholders of UC-wide Cybersecurity requirements. Message with campus faculty/staff/students concerning critical Cybersecurity topics throughout the year.
	
	• ***Automated Desktop Review and Remediation***
	  Provide tools to review malicious desktop traffic and remediate automatically. Current examples include automated DMCA remediation, automated account deactivation due to phishing compromise, and automated port off due to anomalous network traffic.
	
	C&C will provide an annual scorecard of output / deliverables (see below) and update this service level agreement depending on campus needs, evolving technical paradigms, and the security needs of the campus.
	• # of incidents requiring UCOP notification
	• completion of distributed computing inventory/mitigating controls and publication of dashboard per published timeline
	• # of systems scanned for vulnerabilities and compliance
	• # of university desktop/laptop computers that utilize a managed platform or endpoint control

Recharge Services:	None
Premium Services:	None

Name of Service:	**CIS: Computing Infrastructure**
Keywords:	Servers, Operating Systems, ERP Systems, Identity Management, Storage, Virtual Machines, VMs, Databases, Application Servers, Web Servers, Email, Collaboration Tools, Web Hosting, Learning Management System, LMS
Brief Description of Service:	Installs, operates, upgrades, maintains, patches, troubleshoots, and supports the computing infrastructure required to deliver UCR's production information technology services, tools, and support. In general, this support includes the following: • Database, Application, and Web Server (Hardware) Installation, Management and Maintenance. • Operating System Installation, Management, and Maintenance for all Hardware Supporting UCR's Enterprise Applications (Operating Systems include Solaris, Windows, Linux, IBM Z/OS). • Installs, Manages, and Maintains Virtualization Software and Infrastructure on campus enterprise hardware as appropriate. • Database, Application, and Web Server (Software) Installation, Management and Maintenance (in some cases this support is collaboratively provided with the Database Administration Group). • Installs, Manages, and Maintains Identity Management tools and systems that integrate with both on and off campus systems and tools. • Installs, Manages, and Maintains various Cloud and locally provided collaboration tools including Email, SharePoint, mailing list systems, etc. • Installs, Manages, and Maintains Storage Systems for use by enterprise applications as well as distributed users including departments/faculty/staff. • Installs, Manages, and Maintains systems that enable web hosting and content management for campus departments/faculty/staff. • Installs, Manages, and Maintains tools that provide for server level monitoring and reporting.

	• Installs, Manages, and Maintains tools and systems supporting a campus Service Oriented Architecture including middleware, service bus, etc. as well as tools and services enabling data and file transfers. • Creates and manages policies, procedures, processes for managing computing infrastructure. • Creates and manages both back-up as well as disaster recovery programs.
Customers Eligible to Request Service:	C&C Internal Staff
How is Service Requested:	C&C Ticketing System.
How is the Service Delivered:	C&C's CIS support is provided by a group of Systems Administrators who are trained and skilled in the delivery of the various services noted above (managing and maintaining operating systems, supporting virtual computing environments, installing and upgrading servers, etc.)

Service Level Agreement Specifics:	C&C currently provides the following computing infrastructure support:
	• ERP Systems
	• PeopleSoft
	• Ellucian Banner
	• Legacy Student Information System
	• PPS
	• Blackboard (iLearn)
	• Advancement Systems (Raiser's Edge, Financial Edge, etc.)
	• Other Vendor Supplied Tools
	• UCR Developed Oracle Applications
	   • Includes HR, Academic Personnel, Campus Work Order Systems, Campus Reimbursement Systems (travel and business expense), Portals, Academic Business Systems (Grading, Evaluations, Graduate Student Information System, etc.) Reporting/Data Warehouse Tools, etc.
	
	For the systems noted above, the CIS group maintains the following hardware profile:
	   o 5 Oracle T5 Database Servers
	   o 5 Oracle M4000 Web & Application Servers
	   o 30 Oracle X4200 and X4140 Web & Application Servers

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○ 108 Virtual Machines hosted in C&C's virtualization environment

The physical devices noted above all operate using the Solaris 11 operating system that is upgraded at least once annually and patched at least once quarterly. The virtual machines listed above all run the Redhat operating system and are patched once quarterly and upgraded once yearly.

- Identity Management
  - Includes the capacity to create unique identifiers for faculty, staff, and students, and supports single sign-on and authorization to both internal and external systems. This support is provided via the following profile:
    - 6 Oracle X4140 Servers
    - 1 Oracle v215
    - 1 Oracle v240
    - 24 virtual machines hosted in C&C's VM environment

    The Oracle devices noted above operate using the Solaris 11 operating system. The virtual machines noted above operate using either the Redhat operating system or the Ubuntu 12.04 operating system. All these systems are upgraded at least once annually and patched at least once quarterly.

- Disaster Recovery/Back-Ups
  - For systems identified in UCR's Disaster Recovery Plan, disk back-ups are maintained at either SOM, R3, or SDSC Data Centers. In addition, these systems are also backed up to tape and stored off campus. For systems that are not maintained within UCR's Disaster Recovery Plan, disk back-ups are maintained within the SOME Bldg. Data Center. This support is provided via the following profile:
    - 2 HP DL370s with external storage arrays and tape drives
    - 2 Storinator Storage Arrays
    - 3 Oracle x4500 storage arrays

    The devices noted above all operate using either the Ubuntu 12.04 operating system or the Solaris 11 operating system. These OSes are upgraded at least once annually and patched at least once quarterly.

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- Data/File Transfer and Web Services
  - C&C maintains a series of servers and services that enable Data/File transfer as well as Data Transfer via Web Services. This support is provided via the following profile:
    - 1 Supermicro x86 Server
    - 2 Oracle v215s

    The devices noted above all operate using either the Solaris 11 operating system or the Redhat operating system. These OSes are upgraded at least once annually and patched at least once quarterly.

- Collaboration Tools
  - C&C provides a series of collaboration tools including email, Sharepoint, Wiki, etc. This support is provided via the following profile:
    - 3 Oracle X4140 Servers
    - 1 HP DL360 Server
    - 3 Supermicro x86 Servers
    - 27 Virtual Machines hosted in C&C's virtualization environment

    The devices noted above all operate using either the Windows 2008 operating system or the Ubuntu 12.04 operating system. Windows systems are patched at least once monthly. Ubuntu systems are upgraded at least once per year and patched at least once per quarter.

- Storage
  - In support of enterprise systems, teaching and learning, and research C&C provides various storage options to the campus. This support is provided via the following hardware profile:
    - Enterprise Oracle Systems - NetApp 3170 with 70 TBs
    - eStorage - Oracle 7210
    - R'Cloud - 10 Storinator Servers each with 320 TBs
    - iShare, iLearn, vhost, etc - 4 Oracle x4500

    The NetApp 3170 and the Oracle 7210 devices noted above operate using special purpose operating systems. These devices are patched as patches become available, and are upgraded once per year, or as upgrades are made available. The remaining systems operate using either the Solaris 11 operating system, or the Ubuntu 12.04

operating system. These systems are upgraded at least once annually and patched at least once quarterly.

- Virtual Infrastructure
  - C&C currently supports approximately 400 virtual servers providing a wide variety of support for application delivery, departmental use, and other infrastructure requirements (e.g. various security systems run on virtualized servers). This support is provided via the following profile:
    - 2 Nutanix Nx3460 Virtualization Servers
    - F5 Load Balancer

    The Nutanix devices noted above all operate using the VMware ESXi operating system that is upgraded at least once annually and patched at least once quarterly. The F5 load balancer noted above runs a special purpose operating system and is patched and upgraded as patches and upgrades become available.

- Web Hosting
  - C&C supports over 1,000 web sites on a common web server and content management platform. This support is provided via the following profile:
    - 3 Oracle X4140 Servers
    - 2 Oracle X4500 Storage Servers
    - F5 Load Balancer

    The Oracle devices noted above all operate using the Solaris 11 operating system that is upgraded at least once annually and patched at least once quarterly. The F5 load balancer noted above runs a special purpose operating system and is patched and upgraded as patches and upgrades become available.

- Middleware
  - C&C's enterprise service oriented architecture and middleware enables the secure integration of systems, data, and cloud services. The middleware infrastructure is provided via the following hardware profile:
    - 15 Virtual Machines hosted in C&C's virtualization environment

    The devices noted above all operate using the Redhat operating system that is upgraded at least once annually and patched at least once quarterly.

- DNS
  - C&C provides DNS to the campus for machine name to IP translation and vice versa for IPv4 and IPv6. The DNS service is provided by Infoblox appliances and C&C DNS servers listed below:
    - 5 Infoblox IB-1420 Servers
    - 2 Oracle X4200 Servers

    The X4200 devices above operate the Ubuntu Linux 12.04 LTS operating system updated every time patches are available from Canonical, the Infoblox devices are updated every time Infoblox releases updates.

- Policies/Procedures for Installation, Management, and Maintenance of devices.
  - C&C maintains various policies and procedures that govern how systems are installed and maintained at UCR. Currently, these policies and procedures include the following:
    - Physical Access
    - Operating System
    - Network Security
    - Database Security
    - Identity Management

- Management and Monitoring
  - C&C maintains an infrastructure that manages and monitors systems, their uptime, their logs, etc. and alerts C&C personnel when issues arise. Currently, this infrastructure consists of the following components:
    - 1 Oracle v490
    - 2 Oracle X4200 Servers
    - 4 Virtual Machines hosted in C&C's virtualization environment

    The Oracle systems listed above operate using the Solaris 11 operating system. The virtual machines noted above run the Ubuntu 12.04 operating system. These systems are upgraded at least once annually and patched at least once quarterly.

- Research Technology Support
  - C&C provides a concierge service to consult with researchers on the proper technological tools to utilize in

	their research (e.g. data storage, computational resources, network connections). The resources/recommendations provided to faculty may physically exist on campus, throughout the UC system, or may be provided by vendors via cloud solutions.
	
	   o Computational Resources
	
	      ▪ C&C provided and maintained Collaborative Computation cluster that researchers share (64 cluster nodes + 5 special purpose compute nodes)
	
	      ▪ C&C administration of dedicated research computational clusters that confirm to a specified standard configuration (2 clusters currently in service)
	
	      ▪ C&C provided support for non-standard compute clusters under appropriate agreement to cover the additional resources (1 cluster currently in service)
	
	   o R'Cloud data storage maintained by CIS. This system will provide up to 800 academic senate faculty members with 3TB of secure storage hosted locally. (for more information see Faculty Research Storage below).
	
	   o A Science DMZ network provides high speed links connecting researchers, computational resources, data, and external research locations. In a big data world fast movement of large datasets is key.
	
	   o C&C provides co-location facilities in support of UCR's research enterprise. The co-location support includes cooling, power, and remote hands for systems located within the SOME Bldg. Data Center. Currently, C&C supports systems for Physics, Chemistry, Bioengineering, Bioinformatics, Center for Bibliographic Studies, Computational Biology, and other academic departments.
	
	• Site Licensing
	C&C provides site licensed software to faculty and staff (students are provided free software through the Student Technology Fee project: Software as a Service) as per the site license agreements with each of the software vendors. Software products that are available are as follows:
	   o SPSS
	   o Stata

	o SAS
	o Mathematica
	o JMP
	o ArcGIS
	
	• Credit Card Processing
	  o C&C maintains the following three credit card environments:
	    ▪ SecurePay
	    ▪ CashNet for Banner user
	    ▪ CashNet for non-Banner users
	
	    In the near future, the SecurePay environment will be decommissioned, and the campus POS environment will be supported. As of now, the credit card processing environment consists of the following components:
	    ▪ 2 Oracle X3-2 Servers
	    ▪ 2 Virtual Machines hosted in C&C's virtualization environment
	
	    The Oracle devices noted above operate using the Solaris 11 operating system that is upgraded at least once annually and patched at least once quarterly. The virtual machines noted above run the Ubuntu 12.04 operating system and are upgraded at least once per year and patched at least once per quarter.
	
	All services are expected to be available at all times. To ensure high availability, Computing and Communications, where possible, runs these services on multiple servers located in different locations. C&C maintains an average uptime of approximately 99.9% (~9 hours of unplanned downtime per year) for enterprise campus services.

Recharge Services:	None
Premium Services:	None

Name of Service:	**CIS: On Campus and Off Site Data Centers**
Keywords:	Data Center, Hardware, Servers, Storage, Co-Location Facilities, Backup, Hardware Infrastructure
Brief Description of Service:	Computing and Communications maintains several data centers which house the hardware and software supporting UCR's enterprise applications. The main campus data center, located within the School of Medicine Education (SOME) Bldg., is a secured facility with climate controls, power conditioning and power backup infrastructure, fire suppression, and co-location facilities supporting both administrative and academic resources. C&C also maintains a small secured data center in the Telecommunications Bldg. with climate, power, and fire suppression infrastructure. This facility has no space for non-C&C co-located resources. Finally, C&C maintains hardware and software in two remote facilities: one secure cage at Riverside County's RC3 Data Center, and another at the San Diego Supercomputer Center co-location facility at University of California, San Diego. C&C manages compute servers, storage devices, and ancillary hardware supporting production services. This includes operating system configuration, patching, upgrades, and general maintenance. C&C also manages some critical supporting infrastructure like uninterruptible power supplies.
Customers Eligible to Request Service:	Staff or faculty may request space in the UCR's on-site data center's administrative co-location facility.
How is Service Requested:	Staff and faculty requests for use of the campus co-location facilities may be addressed to C&C's CFAO, CTO, or the Director of Computing Infrastructure and Security.
How is the Service Delivered:	The Data Center is managed by a group of operations staff who are on-site 24 hours a day, Monday through Friday and twelve hours on Saturday. Various C&C procedure/policy documents guide use of the facility including rack deployment, server placement, power utilization, etc.
Service Level Agreement Specifics:	• *Planning and Implementation Support* The Data Center operations group maintains an inventory of all racked hardware, power utilization and capacity, etc. and also manages a set of procedures and processes to install and decommission devices as required. • *Remote Hands*

	The Data Center operations group assists both C&C and non-C&C administrators by providing remote hands support to remediate hardware and software issues. • *Colocation Support* C&C provides colocation support to administrative and academic users. C&C estimates there is potential support for approximately 20-30 racks over the next 10 years; however this is currently limited due to environmental constraints (e.g. cooling). • *IBM Mainframe Job Control* UCR Data Center operations group provides production management support for the Student Information System and other software that resides on the IBM mainframe. When the IBM mainframe is retired, this group will provide production management support for Oracle-based systems. • *Printing Coordination and Distribution* UCR Data Center operations group provides printing coordination support primarily for the Student Information System (e.g. transcripts). • *Racking and Installation Support* New servers are typically mounted in racks, supplied with redundant, conditioned power circuits, and assigned network ports within three business days of arrival to the Data Center. Within another three business days, new systems generally have an operating system installed and configured, including basic networking, monitoring, and backups. C&C will provide an annual scorecard of output / deliverables (see below) and update this service level agreement depending on campus needs, evolving technical paradigms, etc. • Square Footage of SOME Bldg. Data Center • Square Footage of Telecomm Data Center • Total # of Racks in both SOME Bldg. and Telecomm Data Centers • Total # of Racks in both RCIT and SDSC Data Centers • Total # of Co-Location Racks (racks other than C&C's) in the SOME Bldg. and • Telecomm Data Centers • Power Utilization in SOME Bldg. and Telecomm Data Centers
Recharge Services:	None
Premium Services:	None

Name of Service:	**CIS: Firewalls**
Keywords:	Firewalls, Security
Brief Description of Service:	C&C provides a fully managed and proactive firewall management solution where the Computing Infrastructure and Security (CIS) Group is solely responsible for the administration, management, and monitoring of the firewall platform's configuration, security policy, and rule-set in accordance with this Service Level Agreement (SLA). CIS has dedicated staff that will work with authorized departmental security contacts to review, validate, implement, and audit firewall requests and changes as needed.
Customers Eligible to Request Service:	Faculty and Staff
How is Service Requested:	Departments requesting a hardware firewall send a request to the Director of Educational Technology and Computing Services (via fw_req@ucr.edu). The request includes preliminary configuration information and a departmental point of contact, with whom CIS will work with in installing and configuring the firewall. Departments requesting modifications to existing firewalls will contact CIS directly via the email list firewalls@lists.ucr.edu.
How is the Service Delivered:	**C&C Responsibilities** **Deployment** ● Installation, maintenance, and configuration of new and existing hardware, software, and licenses ● Integration of firewall services into monitoring and alerting systems ● Provisioning of new firewalls and related network infrastructure **Maintenance** ● Managing and processing renewal of all support agreements covering hardware and software related to the firewall and network hardware and related systems ● Rule-set validation, verification, tuning, and optimization ● Review of firewall policy and firewall security posture assessments ● Software upgrades, patch management and device configuration maintenance ● Device configuration change management and auditing ● Maintain backups of device configurations **Emergency Response/Disaster Recovery** ● After-hours response to system outages

	● Incident response related to disruptions of service from network or other related failures **Requesting Department Responsibilities** ● Reporting errors and connectivity or performance problems between systems with traffic ● Traversing the firewall, including performance issues detected at the application level. ● Notifying C&C of changes in requirement needs with sufficient time to allow for adequate planning. ● Provide and maintain a list of contacts allowed to submit or approve changes for a unit/department's firewall services. ● Administration and troubleshooting of systems located behind the firewall
Service Level Agreement Specifics:	**New Firewalls and/or Modification Requests** <table><tr><th>Action Item</th><th>Timeline</th></tr><tr><td>Configure/deploy new firewall</td><td>2 business weeks</td></tr><tr><td>ACL changes</td><td>2 business days</td></tr><tr><td>Add/modify firewall zone</td><td>2 business weeks</td></tr></table> **Service Expectations** Users can expect approximately 99.9% service availability (Approximately 8.7 hours per year of unplanned outage time) for hardware and services covered by this SLA. This downtime is measured over the time period of a year, excluding anticipated outages and downtime performed during maintenance periods. Service availability will be measured using Nagios service monitoring and records will be retained for one year. C&C will monitor the firewall devices. Currently, C&C has a limited capacity and can only support up to 20 different firewalls for the entire campus. New firewall requests will be reviewed by C&C senior leadership for approval. The most critical firewall requests, those that are utilized to protect highly sensitive systems/data (e.g. Protected Personal Information), will be honored first.
Recharge Services:	None
Premium Services:	None

COMMUNICATION SERVICES – VOICE (CSV)

Name of Service:	CSV: Voice/Telephone Infrastructure
Keywords:	PBX (Private Branch eXchange), Campus phone company and access to PSTN (Public Switched Telephone Network), Dial Tone, Campus operator, Directory, Analog Voice Circuits, Digital Voice Circuits, Virtual Voice Circuits, Call Control, Call Routing, Conferencing, Circuit ID, Hardware, Software, Call Transfer, Analog Trunks, Digital Trunks (T1/PRI), SIP Trunks, DC Rectifier, Redundancy, Alarm Notification Administration, Application Support, Training, Project Management, Database Administration, E911 Administration, SMDR (Station Message Detail Recording), UPS (Uninterrupted Power Supply) Administration, Off-Campus Service, Emergency Voice Circuit, Intrusion Alarm Circuit, SIP-Server (Session Initiation Protocol), VoIP-Server (Voice Over Internet Protocol), DRU (Digital Remote Unit), Horizontal Cabling, Structured Cable Plant, System Performance Maintenance, Call Traffic Analysis, Asset Management
Brief Description of Service	Voice service (Dial tone) originates from the campus enterprise voice communications system and is extended over campus copper infrastructure to a designated information outlet for academic, administrative, business operations, research labs, classrooms, student housing buildings, temporary construction and special event venues. The number of lines available is dependent on hardware and software resources. In general, this support includes the following: • Analog/Digital voice circuits that provide two-way voice communication from any campus extension. • 5-digit dialing. • Local, long distance, international, toll free and E911dialing. • Paging. • Call Traffic Analysis. • Multi-Line Appearance (Virtual). • Hunt Groups. • Inbound Call Routing. • Provides a variety of voice communication services on campus and off campus locations. • Unified 5-digit dialing plan across multiple PBX and IP-PBX systems, E911 administration, call-detail reporting, and Authorization Code are also provided.

	• Voice services are provided for traditional standard single-line, enhanced multi-line and VoIP telephones to include services to remote campus facilities such as; Heckman Center (Palm Desert), Culver Center, California Museum of Photography, UC Path Intellicenter, Atlanta Printing, Agricultural Operations, Chicago Gateway Business Center, James Reserve, Deep Canyon Reserve, Motte Rimrock Reserve and Granite Mountain.
Customers Eligible to Request Service:	All Units, in addition to Vendors and Contractors
How is Service Requested:	Vendors/Contractors/Students: Walk-In, Call-In, Send Email to: (http://dial.ucr.edu) Faculty/Staff: Online Communications Work Order Request available through RSPACE authorized application: (http://rspaceportal.ucr.edu) Communications Work Order Form: (http://comm.ucr.edu/comm) Service is requested online via R'Space web portal under authorized applications. Department representatives with access to the enterprise communications work order system (Pinnacle) may select service options from the voice or data menu. Communication work orders are screened by Service Request Dispatcher/s for accuracy of the requested voice/data service(s) and verification of appropriate funding source before being assigned to a communications representative for activation of requested service(s). Specific requirements of the service request are outlined in the communication service request to include the department, building, room, telephone equipment type (single-line, multi-line or customer provided equipment), outgoing call restriction preference, appearance and ringing assignment for enhanced call coverage.
How is the Service Delivered:	C&C's Infrastructure support is provided by a group of Data Voice Analysts and Switch Engineer who are trained and skilled in the delivery of the various services noted above (managing and maintaining PBX system, VOIP system, cabling, etc.)
Service Level Agreement Specifics:	KPI 1 – Voice Lines Increase in the provision and support of campus voice lines consistent with campus growth percentage increases. (office, lab, elevator, emergency, alarm, escort

| | Resonates with UCR's campus mission of growth and departmental mission to provide reliable, infrastructure and services.

KPI 2 Trunk Capacity

Increase in the provision of trunk capacity for incoming / outgoing campus calls consistent with campus growth percentage increases.
      Resonates with UCR's campus mission of growth and departmental mission to provide reliable, infrastructure and services.

KPI 3 – E911

Commitment to provide accurate location identification for E911 for every line
      Resonates with UCR's campus mission of growth and departmental mission to provide reliable, infrastructure and services.

• ***Dial tone - Analog / Digital Voice Circuits (365 days a year)***
Service includes 24/7 access to E911, local, toll free, long distance, international calling services, conference calling, station to station calling, emergency, escort telephone - every day of the year.

• ***Business Hours and Services***
Communications Services provides campus-wide voice services Monday thru Friday 8:00AM to 5:00PM, with some services performed outside of normal business hours.

• ***Services to off-site campus facilities which include:***
Palm Desert Campus, Culver Center, California Museum of Photography, UC Path Intellicenter, Atlanta Printing, Agricultural Operations, Chicago Gateway Business Center, James Reserve, Deep Canyon Reserve, Motte Reserve and Granite Mountain.

• ***VoIP Telephone Service***
VoIP (Voice Over Internet Protocol) services are provided in campus buildings and remote facilities where network |

infrastructure is specifically provisioned to meet VoIP telephone requirements.

Each device requires a dedicated data informational outlet and network port. VoIP telephones provide two-way voice communication,

5-digit dialing, local, long distance, international, toll free and E911dialing to and from any campus extension.

- *Projects*

Projects are scheduled 30 days in advance for medium to large department relocations or space renovations. Team currently completes 4 medium to large projects per quarter.

- *Estimates*

The Communications Services team provides approximately 12 estimates per quarter.

- *Analog Phones*

1000 Analog telephone instruments are provided for analog standard single-line phones for on-campus users. The availability of analog phones is dependent on software and hardware resources.

- *Service Averages:*
  - 8000 voice lines (2739 Digital, 5066 Analog, 300 Virtual)
  - 100 Classroom phones
  - 400 Emergency/Elevator/Escort
  - 9 Payphones
  - Alarms/Ring Down
  - Fax/Modem
  - 70,000 out-going calls per month
  - 5000 Campus Operator inquiries per month
  - 10,000 numbers entire 827 prefix
  - 2500 787 prefix
  - Toll Free numbers
  - Directory/ update
  - 15 Carrier Trunks
  - 12 Intra Campus Trunks
  - 48 UPS maintenance and operation
  - Weekly/ Monthly System Preventive Maintenance
  - Daily and Weekly System Backups
  - Bi-Annual Power system PMs
  - Cable plant alerts and response
  - Monthly and Quarterly building power tests

	• Monthly Generator tests and PM processes
Recharge Services:	None
Premium Services:	Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows: • Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow"). • Access to a traditional phone line (dial tone) within most rooms. • Wireless coverage throughout all rooms and the common areas within the Residence Halls. • Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: • Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted. • Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs). • Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.

Name of Service:	**CSV: Multi-Button Instruments**
Keywords:	8 Button, 16 Button, 32 Button, Telephone, VoIP , Operator Terminal, Handsets, Handset Cords, Speaker, Microphone, Display, Programmable Keys,16 -Circuit Digital Line Card, 16-Circuit Analog Line Card, PoE-Network Switch, VoIP Server, MPLS Router, Analog Gateway, UPS, Administrative Database, Information Outlet, Cable Infrastructure, Trucks, and tools.
Brief Description of Service:	Multi-line and VoIP telephones are provided and supported via Communications Services technicians; the combination of phone types is dependent on software and hardware availability.
Customers Eligible to Request Service:	All Units in addition to contractors, vendors with established UC business accounts

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How is Service Requested:	Vendors/Contractors/Students: Walk-In, Call-In, Send Email to: (http://dial.ucr.edu) Faculty/Staff: Online Communications Work Order Request available through RSPACE authorized application: (http://rspaceportal.ucr.edu) Communications Work Order Form: (http://comm.ucr.edu/comm) Service is requested online via R'Space web portal under authorized applications. Department representatives with access to the enterprise communications work order system (Pinnacle) may select service options from the voice or data menu. Communication work orders are screened by Communications Billing Analyst, Administrator(s) or MSO (Management Services Officer) for accuracy of the requested voice/data service(s) and verification of appropriate funding source before being assigned to a communications representative for activation of requested service(s). Specific requirements of the service request are outlined in the communication work order to include the department, building, room, telephone equipment type (single-line, multi-line or customer provided equipment), outgoing call restriction preference, appearance and ringing assignment for enhanced call coverage.
How is the Service Delivered:	C&C's Multi-Button Instrument support is provided by a group of Data Voice Analysts and Switch Engineer who are trained and skilled in the delivery of the various services noted above (managing and maintaining PBX system, VOIP system, cabling, etc.)
Service Level Agreement Specifics:	KPI 1 Multi-Function Instruments Increase in provision and support of multi-function instruments consistent with campus growth percentage increases. Resonates with UCR's campus mission of growth and departmental mission to provide reliable, infrastructure and services. Communications Services provides the following Instrument support: • These telephones are exclusively supported on the campus enterprise voice communications system over campus copper plant infrastructure.

	For the Multi-Instruments, C&C supports the following number of instruments: • 2200 Digital phones • 400 VoIP phones • VoIP (Voice Over Internet Protocol) telephone service is provided via campus VoIP server. VoIP telephone service is uniquely supported in buildings with VoIP enabled networks. • Such service is evaluated in advance for departments considering relocating to off-campus commercial facilities specifically to allow (5) digit dialing and virtual presence of campus voice services.
Recharge Services:	Cost of Multi-Button Phones will be passed through to Departments.
Premium Services:	None

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Name of Service:	**CSV: Specialized Services**
Keywords:	Voice Mail, (messaging, usage, storage, notification, forwarding, reporting, admin management, hardware management) Unified Communications, Unified Messaging, Campus Emergency Notification, Speech-to-Text, Automated Attendants, Unified Call Distribution

Brief Description of Service:	Communications Services provides voice communication related services beyond basic dial tone. In general, this support includes the following:
	• Voice Mail.
	• Unified Messaging (voicemail-to-email).
	• Group messaging.
	• Time of Day routing.
	• Optional Speech-to-Text service.
	• Other services include:
	    o Departmental and individual Automated Attendants or Call Tree menus.
	    o UCD (Unified Call Distribution) for high-volume in-bound call routing. These services are limited by software and hardware resources.

Customers Eligible to Request Service:	All Units
How is Service Requested:	***Online via R`Space – Authorized Applications*** http://comm.ucr.edu Service is requested online via R'Space web portal under authorized applications. Department representatives with access to the enterprise communications work order system (Pinnacle) may select service options from the voice or data menu. Communication work orders are screened by Communications Billing Analyst, Administrator(s) or MSO (Management Services Officer) for accuracy of the requested voice/data service(s) and verification of appropriate funding source before being assigned to a communications representative for activation of requested service(s). Specific requirements of the service request are outlined in the communication work order to include the department, building, room, telephone equipment type (single-line multi-line or customer provided equipment), the outgoing call restriction preference, appearance and ringing assignment of other department extensions.

How is the Service Delivered:	C&C's Voice/Telephone related services support is provided by a group of Data Voice Analysts and Switch Engineer who are trained and skilled in the delivery of the various services noted above (managing and maintaining PBX system, VOIP system, cabling, etc.)
Service Level Agreement Specifics:	KPI 1 – 15% annual increase in the utilization of Unified Messaging (UM) KPI 2 - 10% Speech-to-Text KPI 3 - 5% Availability/Follow Me Services The increase would provide flexibility to subscribers in the processing and management of voicemail messaging. KPI 4 - 5% increase in the utilization of Automated Attendant services. The increase would improve call routing for faculty, students, parents, staff, and other outside agencies to meet increased call volumes expected under UCR's Mission of Growth. Once these services are installed they are available 365 days a year. • There are 5,500 Voice Mail licenses available – Currently, there are 3,393 Voicemail Users. • There are 3,550 Unified Messaging licenses available – Currently, there are 1,000 Unified Messaging Users. • There are 50 Speech to Text licenses available – Currently, there are 35 Speech to Text Users.
Recharge Services:	None
Premium Services:	None

Name of Service:	**CSV: New Building Planning (Voice)**
Keywords:	Telephone, Data, Fiber, Telecom Room Requirements, UPS Systems, Generators, AC and DC Electrical Power Systems, Grounding Systems, Cameras, Security, HVAC, CRAC Units, Underground & In Building Pathways, Data Equipment Racks & Cabinets, Network Electronics, Outside Plant Point-of-Connection, Inside Plant Design, DPP Program Space, Project Design Interface Management
Brief Description of Service:	C&C interacts with UCR Capital Asset Strategies (planning), Architect & Engineers (construction), Faculty and Staff (planning and construction). In general, this support includes the following: • Provide Budget Planning Document for Network Electronic based on Program Space requirements. • Typically work through the various phases of Capital Program Process with the Project Management Team (PMT) for: • Feasibility Assessment, Detailed Project Program (DPP). • Schematic Design. • Design Development. • Working Drawings (50%, 75%, 95% & CD). • Review & Comments • RFI Bid response. • Construction Inspection. • Occupancy and Commissioning. • As-Built and close out documentation.
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts – Service is typically coordinated through UCR's central planning and construction offices.
How is Service Requested:	Request for New Building Planning are made by phone or email.
How is the Service Delivered:	C&C's New Building Planning support is provided by a group of Campus Certified Planners who are trained and skilled in the delivery of the various services noted above.
Service Level Agreement Specifics:	KPI 1- Communication construction documents for new buildings or major project 1-2% increase in 2 projects per quarter new building or major construction project campus communication construction planning, design, specification and review documents or greater to reflect Campus project needs. Resonates with UCR's campus mission of growth and departmental mission to provide reliable, secure infrastructure and services.

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	KPI 2- Communication construction documents for minor construction projects or remodels 1-2% Increase in 4 projects per quarter minor project in campus communication constructions planning, design, specification and review documents or greater to reflect Campus project needs Resonates with UCR's campus mission of growth and departmental mission to provide reliable, secure infrastructure and services. C&C currently provides the following New Building Planning Support: Provide Communications Infrastructure Planning Guidelines with annual review and updates Provide Budget Planning Document for Network Electronics for 2 new buildings or 2 major project renovations per quarter. Provide Communications and/or Network Services Documents to include but not limited to; • Network Block Diagrams • Copper and/or Fiber Plans Drawings • Underground and Building Conduit Pathways • Point-of-Connection (P.O.C.) locations • Communications Vault (Manhole) P.O.C. Details • Data Equipment Rack Elevations • AC / DC Power requirements for Communication Services • Patch Panel or 110 Block Info • Fiber Termination Unit (FTU) Panel Layouts • Minimum Point of Entry (MPOE) Info
Recharge Services:	None
Premium Services:	Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows: • Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow"). • Access to a traditional phone line (dial tone) within most rooms.

	• Wireless coverage throughout all rooms and the common areas within the Residence Halls. • Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: • Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted. • Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs). • Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.

Name of Service:	**CSV: Outside Plant Cable Planning (Voice)**
Keywords:	Outside Plant (OSP), Telephone, Data, Fiber, Cable Vault (Manhole), Underground & In Building Pathways, Telecom Room, Underground Service Alert (USA's), Minimum Point of Entry (MPOE), Building Distribution Frame (BDF), Data Equipment Racks & Cabinets, Network Electronics, OSP Point-of-Connection
Brief Description of Service:	C&C interacts with UCR Capital Asset Strategies (planning), Architect & Engineers (construction), Faculty and Staff (planning and construction). In general, this support includes the following: • Provide direct input for all Underground Communication Pathway Routes for new and existing Buildings to support Outside Plant Cabling needs (existing & future) based on the Physical Master Plan Study and Long Range Development Plans (LRDP) in concert with Capital Asset Strategies. • Typically work through the various phases of Capital Program Process with the Project Management Team (PMT) for: • Feasibility Assessment. • Detailed Project Program (DPP). • Schematic Design, Design Development. • Working Drawings (50%, 75%, 95% & CD) Review & Comments, RFI Bid response. • Construction Inspection. • Occupancy and Commissioning. • As-Built and close out documentation.
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts – Service is typically coordinated through UCR's central planning and construction offices.
How is Service Requested:	Request for New Building Planning are made by phone or email.
How is the Service Delivered:	C&C's New Building Planning support is provided by a group of Campus Certified Planners who are trained and skilled in the delivery of the various services noted above.
Service Level Agreement Specifics:	KPI 1- Communication construction documents for new buildings or major project 1-2% increase in 2 projects per quarter new building or major construction project campus communication construction planning, design, specification and review documents or greater to reflect Campus project needs.

	Resonates with UCR's campus mission of growth and departmental mission to provide reliable, secure infrastructure and services.
	
	KPI 2- Communication construction documents for minor construction projects or remodels
	
	1-2% Increase in 4 projects per quarter minor project in campus communication constructions planning, design, specification and review documents or greater to reflect Campus project needs
	Resonates with UCR's campus mission of growth and departmental mission to provide reliable, secure infrastructure and services.
	
	Provide Communications Infrastructure Planning Guidelines with annual review and updates.
	
	• Provide Communications Construction Documents (Plans & Spec's) as required for 2 new buildings or 2 major project renovations per quarter.
	
	• Provide Communications Construction Documents (Plans & Spec's) as required for 4 minor projects or renovations per quarter.
	
	• Provide Communications Services Documents to include but not limited to:
	  • Copper and/or Fiber Plans Drawings
	  • Underground and Building Conduit Pathways
	  • Point-of-Connection (P.O.C.) locations
	  • Communications Vault (Manhole) P.O.C. Details
	  • Patch Panel or 110 Block Info
	  • Fiber Termination Unit (FTU) Panel Layouts
	  • Minimum Point of Entry (MPOE) Info

Recharge Services:	None
Premium Services:	Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows: • Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow"). • Access to a traditional phone line (dial tone) within most rooms.

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	• Wireless coverage throughout all rooms and the common areas within the Residence Halls. • Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: • Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted. • Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs). • Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.

Name of Service:	**CSV: Adds/Moves/Changes (Voice)**
Keywords:	Enterprise Work Order System, (Voice Adds, Voice Moves, Voice Changes, Voice Disconnects, Data Adds, Data Changes, Data Moves, Department Moves), Manual Bindings, Estimates, Authorization Code Requests. Cable, Fiber, Testing, Jacks, Patch Cables, Power, UPS, Inventory (instruments, line cards) Purchasing, Licensing Resources, Routing, Hardware. Switch Ports, Software, Configurations, Project Management, Documentation/Database Administration, (E911, DIDs, cable records, directory, Enterprise database updates, inventory records), Training, User Manuals, Trucks, Ladders, Safety Training, Labeling. Wiki, Infoblox, FMS, Golden Trees, Rspace.
Brief Description of Service:	Provide following services through Communications Service Requests: • Voice and Network access activation and installation for Staff/Faculty, Vendors, and Contractors for both on campus and off site University locations. • Provide emergency, escort, elevator, alarm lines, payphones, outside panel phones, paging systems, calling cards. • Call detail information provided. • Provide Authorization codes for Students which allows for outgoing toll calling. • Move Voice/Network services for Faculty/Staff individuals as well as entire departments throughout buildings and between building locations. • Provide call trees, auto attendants. • Provide temporary voice services for conferences and campus events. • Generate manual bindings for campus printers and servers. • Provide detailed estimates with job requirements and breakdown of labor, installation and material costs.
Customers Eligible to Request Service:	All Units in addition to Vendors, and Contractors with UC Business Accounts
How is Service Requested:	Vendors/Contractors/Students: Walk-In, Call-In, Send Email to: (http://dial.ucr.edu) Faculty/Staff: Online Communications Work Order Request available through RSPACE authorized application: (http://rspaceportal.ucr.edu) Communications Work Order Form: (http://comm.ucr.edu/comm)
How is the Service Delivered:	C&C's Add/Move/Changes support is provided by a group of Data Voice Analysts, Campus Switch Engineer and System

	Administrator for the Enterprise Management System who are trained and skilled in the delivery of the various services noted above (managing and maintaining PBX system, VOIP system, cabling, etc.).
Service Level Agreement Specifics:	KPI 1- Standard (MACS) Perform standard service Add/Move or Change with 10 working days KPI 2 – Departmental (MACS) Perform departmental Add/Move or Changes to meet the needs of the department providing work orders have been received 30 days in advance. C&C currently provides the following Add/Move/Changes support: • *Activate/Disconnect/Move Voice or Data Services:* To activate/disconnect/move voice and/or data services, customers complete the online Communications request form located at http://comm.ucr.edu. Customers can request activation of dial tone for all campus supported locations. Customers can move their existing voice services and data services when they re-locate from one campus location to another. Customers can disconnect voice and data services if service is no longer required at no charge. An automated email with the service request number is sent immediately to the requestor. Service activation/request is completed within 7 – 10 business days. Expedited requests for services are available by providing funding for overtime pay to FTE to work overtime to complete work after-hours. Customer is provided with instructions/user's manual at http://dial.ucr.edu. • *Switch additions/changes:* Customers can request telephone instrument name and instrument type changes, specific dialing permissions, measured business lines, and calling cards. To request services, please complete the online Communications request form located at

	http://comm.ucr.edu. An automated email with the service request number is sent immediately to the requestor. Service request is completed within 7 -10 business days. Expedited services are available at Customer is provided with instructions/user's manual at http://dial.ucr.edu. Team processes an average of 200 service requests per month.
Recharge Services:	Activations – Fees may apply when infrastructure (e.g. cabling/conduit/copper/fiber, electronics) is required to activate the service(s) and/or the request is in excess of current campus communications infrastructure guidelines (e.g. Office - one voice port/2 data ports per 100 sq. ft. Please see guidelines at ENTER WEB SITE for other communications guidelines). Disconnects – No recharge Moves – Fees may apply when infrastructure (e.g. cabling/conduit/copper/fiber, electronics) is required to activate the service(s) and/or the request is in excess of current campus communications infrastructure guidelines (e.g. Office - one voice/2 data per 100 sq. ft. Please see guidelines at ENTER WEB SITE for communications guidelines). Switch Additions/Changes – Fees may apply if and when the requests exceed UCR's switch capacity or C&C cannot provide campus services to a particular location (e.g. Rubidoux site). The services described above are recharge services. The current recharge is a minimum labor charge per service request of 30 minutes. Actual labor time spent and materials used are billed back to customer via Communications Work Order System. The hourly rate is based upon an 8am – 5pm M-F work schedule. Expedited requests can be requested to be completed after-hours (outside the standard 8-5 M-F) at a rate of one and a half times the standard labor rate.
Premium Services:	None

Name of Service:	**CSV: Trouble Resolution (Voice)**
Keywords:	Types of troubles include: No Dial tone, Bad Handset, Bad Handset Cord, No Communication, No Network Connection, Low Volume, Intermittent Service, Defective Instrument, Programming / Configuration Issue
Brief Description of Service:	Provide onsite and remote technical support. In general, this support includes the following for impaired voice services: • Copper and fiber cable infrastructure repairs. • Information outlet repairs. • Telephone equipment. • Voice communications systems performance and maintenance. • Call quality issues. • Telephone feature or programming issues. • Vendor related service outage. • Miscellaneous voice or data trouble.
Customers Eligible to Request Service:	All Units in addition to Contractors and Vendors with UC Business Account
How is Service Requested:	*Online via R`Space – http://rspace.ucr.edu/trouble_tickets.html* *Email:* dial@ucr.edu *Phone:* (951) 827-3939
How is the Service Delivered:	C&C's trouble resolution is provided by a group of Data Voice Analysts, Campus Switch Engineer and System Administrator for the Enterprise Management System who are trained and skilled in troubleshooting techniques.
Service Level Agreement Specifics:	KPI 1 - Trouble response Respond to trouble call within 4 hours KPI 2 - Restoration of services Restore services within 4 hour not to exceed 24 hours Trouble Tickets - are submitted online via http://rspace.ucr.edu/trouble_tickets.html and assigned to appropriate Communications Services representative for rapid resolution and restoration of impacted telephone/data service(s). A minimum of (1) Data/Voice Analyst is assigned to manage voice/data trouble tickets, with an alternate back-up during peak periods. Critical service outages receive priority response and typically responded to within (4) hours upon receipt of trouble ticket, while non-urgent issues are responded to within (24) hours.

	Resolution of troubles are typically resolved within 8 - 24 hours.
Recharge Services:	None
Premium Services:	Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows: • Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow"). • Access to a traditional phone line (dial tone) within most rooms. • Wireless coverage throughout all rooms and the common areas within the Residence Halls. • Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: • Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted. • Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs). • Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.

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COMMUNICATIONS SERVICES – NETWORK (CSN)

Name of Service:	**CSN: Wired Network Infrastructure**
Keywords:	Design, Plan, Engineer, Configure, and Implement Network Hardware, Network Software (Border, Core, Buildings) with High Availability, Resiliency, and Network Virtualization. Protocols: OSPF (open shortest path first), BGP (border routing), MPLS (multiple label switching), VPN (virtual private network, 802.1q, GRE (generic routing encapsulation), NAT(network address translation), IPsec (Internet protocol security), TACACS (terminal access control). Network Facilities, Space, Environmentals, Physical Security, Equipment Racks, Equipment Cabinets, Data Cable, Fiber, Fiber optic modules, Fiber Termination Units, Tube Distribution Units, Copper, Patch Panels, Patch Cords, End User Terminations, Jacks, Drop Cords. CENIC (Corporation for Education Network Initiatives in California).
Brief Description of Service:	• Provide local and worldwide network access to all campus user desktop locations. • Single central campus network infrastructure with 80+ buildings and three server farms. • Provide and maintain the following remote sites: Intellicenter, RC32(Acorn), Atlanta Printing, Tenth St, CMP/Culver, Palm Desert Campus, James Reserve, Deep Canyon, 1955 Chicago Ave, (University Advancement, Music) 1111 Citrus Ave (Arts).
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts

How is Service Requested:	• Typical Service
	    o To request a common network service such as a new connection for a location, DNS (domain name system) or DHCP (dynamic host configuration protocol) service and the like please complete the online form located at http://comm.ucr.edu. Additional interactions prior to completion will vary with the completeness of the request.
	
	 • Atypical Service:
	    o To request an uncommon network service such as support for third party devices, virtualized network security, non-routed port groups, temporary services and the like please complete the online form located at http://comm.ucr.edu selecting "Service Request" and then selecting "Advanced Network Requests". Additional interactions (emails, meetings, pre-field activities, hardware ordering, etc.) are

	normal for these requests and will vary with the nature of the request. Faculty/Staff requests for Off-campus Locations • Off-campus Locations include any building or common area that is not part of the contiguous UCR Campus property. *Typical* and *Atypical* requests are handled as described above.
How is the Service Delivered	In person and/or remotely.

Service Level Agreement Specifics:	KPI 1 – 20% increase in combined Utilization on the off-campus links by 2020
	    Resonates with UCR's Mission of growth.
	    The increase of bandwidth through the off-campus links would be due to increased student, faculty, and staff population and the overall increase in research and collaboration with researchers, grants, etc.
	
	KPI 2 – 13% increase of MAC addresses across both the wired and wireless network by EOY 2020
	    Resonates with UCR's Mission of growth.
	    The increase of unique MAC addresses recorded on campus would be due to increased student, faculty, and staff population and the overall increase in research devices & tools.
	
	Core Services
	• Design, plan, engineer, install, and provide physical and virtualized network with high availability, and resiliency 365 days a year.
	• Provide and maintain access to World Wide Web.
	• Central Campus infrastructure with 80+ buildings and two server farms.
	• Provide and maintain the following remote sites: Intellicenter, RC32(Acorn), Atlanta Printing, Tenth St, CMP/Culver, Palm Desert Campus, James Reserve, Deep Canyon, 1955 Chicago Ave, (University Advancement, Music) 1111 Citrus Ave (Arts).
	• C&C serves as the ISP (Internet Server Provider) for BCOE – Bourns, Chung, and CeCert.
	• Provide access to and remote hands for CENIC.
	• Design, plan, engineer, install and operate campus Science DMZ network.

Current Campus Network Metrics
- 15,000 unique MAC (media access control address) - users, server farms, non-switch management.
- 894 – Managed Configured Devices (routers, switches, & bridges).
- 104 Routers .
- 745 Edge switches.
- 40 Bridges .
- 2 Border routers.
- 3 Console servers.
- 3 ASA (Adaptive Security Appliance) new generation firewall.
- 1 ACS server (Access Control Server).
- 45,000 available network ports on access/edge devices of which 14,165 are connected to users or reporting as uplinks/downlinks.

Standard building
- Currently includes 1 router with a single power supply and a 1Gig link to the core. Most have 1Gig fiber or copper connections to each IDF (intermediate distribution frame). Most IDFs (intermediate distribution frame) have 10/100Mb ports. Combination of POE (power over Ethernet) and Gig ports. Most buildings are now MPLS (multiple protocol label switching) BGP (border gateway) VRF (VPN routing forwarding) capable so virtual private networks can be created and connected across campus.

Server Farm
- 2 routers with a VSS (virtual switching system/1 brain) configuration. Dual 10Gig links to the cores with redundant power supplies. All edge devices have dual 1Gig uplinks to the routers and 1Gig access ports. Most (2350s) have single power supplies. Nexus switches have dual 10Gig or 40Gig uplinks and provide 10Gig fiber or copper for access ports.

Cores
- Two diverse cores. Single chassis with dual 10Gig access to the other core and both border routers. Redundant power supplies.

Borders
- Two diverse border routers. Single chassis Brocade router with dual 10Gig/1Gig links to CENIC. Dual 10Gig connections to the cores.

	Network Device Management • Each building has networks assigned for the management of wired and wireless devices. There are additional networks built on an as needed basis for printers, VoIP (voice of internet protocol), campus wide access systems, as well as specialty networks for departments or firewalls. User access • In every general assignment building, an appropriately sized network has been assigned for user connectivity. The network is DHCP (dynamic host configuration protocol) and Dynamic DNS enabled for plug and go access. Monitoring • LMS (Local area network monitoring system) & CPI (Cisco Prime Infrastructure) actively and passively monitor the network. Configuration archiving, utilization polling, logging, error polling, memory usage, user tracking, SNMP (simple network management protocol) traps, and both email and text message alerting, image/software status (security alerts). IPAM/DNS/DHCP • IP address management, domain name resolution, and automatic address assignment is maintained with Infoblox. Administrative Delegation is also provided to some users to allow them access to their IP ranges and zones in order to update DNS records & fixed addresses in their controlled spaces.
Recharge Services:	Uncommon network service such as support for non-C&C certified devices, additional coverage, special requirements, temporary services and the like. Other network services provided to assist departments in meeting their research and project needs.
Premium Services:	Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows: • Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow"). • Access to a traditional phone line (dial tone) within most rooms. • Wireless coverage throughout all rooms and the common areas within the Residence Halls.

	• Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: • Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted. • Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs). • Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.
Name of Service:	**CSN: Wireless Network Infrastructure**
Keywords:	Campus Wired Network needed in addition to Wireless Design, Wireless Engineering, Wireless Planning, High Availability, Resiliency, Wireless Hardware, Access Points, Bridges, Antennas, Wireless Software, Wireless Technologies, MPLS, NAT, RADIUS(remote authentication), Wireless Configuration, Wireless Management, Wireless Monitoring, Wireless Facilities, Environmentals, Physical Security, Roof Mounts, Poles, Wall Mounts, Data Cable, Copper, Patch Panel, Patch Cords, End Device Terminations, Jacks, Drop Cords.
Brief Description of Service:	• Provide wireless network solutions, whether typical or atypical, for UCR entities as required. This can range from the addition of a single wireless access device [typical] through a full blown new SSID (service set identifier) or wireless "space" solution involving multiple components, systems and locations [atypical]. • Wireless services include: wireless upgrades, and wireless expansion. We maintain documentation of deployment specifics, model of hardware, warranty status, usage patterns, and reports of coverage deficiencies and uses. Plan wireless for new construction, and wireless network links (wireless bridging) for offsite locations that have prohibitive costs for access via fiber or 3rd party vendor services. • Wireless upgrades and expansion: C&C regularly evaluates the performance of the wireless network and as resources allow, upgrades and expands the network. If campus departments desire immediate upgrades or expansion, they

	can provide funding for necessary electronics, infrastructure and labor costs. C&C designs and manages all upgrades and expansions. Student areas are funded via the Student Technology Fee and prioritized by committee with analysis and consensus. • New construction: During the planning phase of new construction the Campus Planner together with the Wireless Engineer determines the best placement of wireless within the new construction facility. Additional management and support licensing and hardware are assessed as well. • Wireless Links: (Wireless bridging) Sometimes an offsite location or location on campus with no fiber connectivity requests network services to be brought on-line. To solve this C&C installs wireless bridges that can create an uplink path for new service without the prohibitive cost of traditional methods.
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts

How is Service Requested:	• C&C evaluates general campus needs for wireless coverage both in public areas as well as department specific spaces.
	
	• Students and faculty provide input on locations covered via Student Technology Fee resources.
	
	• Faculty/Staff: Online Service Request Form (http://comm.ucr.edu) for areas not covered (see below).
	
	• Faculty/Staff requests for On-campus and Off-campus Locations:
	   o On-campus Locations include any building or common area that lies within the contiguous UCR Campus property at: 900 University Avenue, Riverside, CA 92521
	   o Off-campus Locations include any building or common area that is not part of the contiguous UCR Campus property.
	
	• Typical Service
	   o To request a common wireless network service such as changes to current coverage for a location, analysis of current coverage and the like please complete the online form located at http://comm.ucr.edu. Additional interactions prior

	to completion will vary with the completeness of the request. • Atypical Service ○ To request an uncommon wireless network service such as support for non-C&C certified devices, additional coverage, special wireless requirements, temporary services and the like please complete the online form located at http://comm.ucr.edu selecting "Service Request" and then selecting "Advanced Network Requests". Additional interactions (emails, meetings, pre-field activities, hardware ordering, etc.) are normal for these requests and will vary with the nature of the request.
How is the Service Delivered:	In-person and remotely Remote configuration of existing facilities and/or the deployment of wireless hardware. Team deployment, configuration, certification and documentation of required hardware and software.

Service Level Agreement Specifics:	KPI 1 – 20% increase in combined Utilization on the off-campus links by 2020
	    Resonates with UCR's Mission of growth.
	    The increase of bandwidth through the off-campus links would be due to increased student, faculty, and staff population and the overall increase in research and collaboration with researchers, grants, etc.
	
	 KPI 2 – 13% increase of MAC addresses across both the wired and wireless network by EOY 2020
	    Resonates with UCR's Mission of growth.
	    The increase of unique MAC addresses recorded on campus would be due to increased student, faculty, and staff population and the overall increase in research devices & tools.
	
	 • Design, plan, engineer, install, and provide physical and virtualized network with high availability, and resiliency 365 days a year
	 • Wireless design and cost assessment services with no-cost quotes for campus entities.

	• Wireless testing and throughput analysis. • Wireless services include: wireless upgrades, wireless expansion. C&C maintains documentation of deployment specifics, model of hardware, warranty status, usage patterns, and reports of coverage deficiencies and uses. Plan wireless for new construction, and wireless network links (wireless bridging) for offsite locations that have prohibitive costs for access via fiber or 3rd party vendor services. • Current Wireless Installation ○ 2,230 - Cisco Prime Infrastructure Management for Wireless Shared device license count. ○ 2,500 - Cisco Mobility Services Engine for location management for non-student resident locations ○ 1,000 - Cisco Mobility Engine for location management of student resident locations ○ 3 Cisco Controller for wireless access points Legacy ○ Cisco 2,230 Wireless Access Points (APs) ○ 2,230 – Network Switch ports used for wireless
Recharge Services:	None
Premium Services:	Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows: • Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow"). • Access to a traditional phone line (dial tone) within most rooms. • Wireless coverage throughout all rooms and the common areas within the Residence Halls. • Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: • Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted. • Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs).

	• Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.

Name of Service:	**CSN: Network Operations (Wired and Wireless)**
Keywords:	Documentation, LAN, Network Access, Network Monitoring, CENIC, Preventive Maintenance, Software Analysis for Operational Use, PSIRT (Product Security Incident Response), Security Patches, Bug Fixes, License Renewal, IPAM (Internet Protocol Address Management), DHCP, DNS, Infoblox RBAC, VPN management, Access Control Lists, SNMP, TACACS, Configuration Management and Compliance, Alerting and Notification, Change Management, Maintaining Industry technical KSAs (Knowledge, Skills and Abilities), Network Resiliency, Network High Availability, Network Operation Center (NOC)
Brief Description of Service:	Typical Service • Provide monitoring, analysis, configuration and installation of network hardware. • Provide the configuration and installation of highly complex network systems and hardware. • Provide network problem diagnosis troubleshooting and service restoration. Atypical Service • Provide an internal escalation point, engineering-level problem diagnosis, troubleshooting, and service restoration.
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts – Provided Through C&C's Customer Support Entities (e.g. Help Desk)
How is Service Requested:	Faculty/Staff/Student request for On-campus and Off-campus Locations • On-campus Locations include any building or common area that lies within the contiguous UCR Campus property at: 900 University Avenue, Riverside, CA 92521 • Off-campus Locations include any building or common area that is not part of the contiguous UCR Campus property. Typical Service • To request a common network service such as changes to current coverage for a location, analysis of current coverage, etc. campus users may utilize an online form http://comm.ucr.edu. Additional interactions provided via requests to C&C customer support groups (e.g. the Help Desk).

How is the Service Delivered:	In person and remotely

Service Level Agreement Specifics:	KPI 1 – 20% increase in combined Utilization on the off-campus links by 2020
	      Resonates with UCR's Mission of growth.
	      The increase of bandwidth through the off-campus links would be due to increased student, faculty, and staff population and the overall increase in research and collaboration with researchers, grants, etc.
	
	KPI 2 – 13% increase of MAC addresses across both the wired and wireless network by 2020
	      Resonates with UCR's Mission of growth.
	The increase of unique MAC addresses recorded on campus would be due to increased student, faculty, and staff population and the overall increase in research devices & tools
	
	KPI 3 - 50% increase in concurrent users using the campus VPN/ASA by 2020
	      Resonates with UCR Mission of growth, and department mission commitment to reliability, innovation and security
	The increase of concurrent users recorded using the campus ASA would be due to increased student, faculty, to reach UCR resources in a secure manner.
	
	KPI 4 – 100% deployment of campus wide NAC by 2019
	      Resonates with departmental mission to provide reliable, secure infrastructure and services.
	
	Typical and Atypical Service - Perform field dispatch and office based tasks as required for these services including but not limited to:
	• End-user platform problem issues
	• Cable plant issues
	• Network hardware and software failure issues
	  o Failed hardware removal and replacement installation
	  o RMA (return to vendor) processing for items under contract
	  o Inventory control
	  o Bug discovery, tracking and resolution
	• Network performance, violations or problem isolation and correction

	- Network documentation, diagrams and various reporting - Network staging, proof-of-concept and hardware burn-in - Replacement stock control - End-of-life stock relocation and storage - Unexpected / urgent requests [not as rare as one might think] Network Device Management - Each building has networks assigned and managed for standard wired and wireless devices. There are additional networks built on an as needed basis for printers, VoIP, etc. as well as specialty networks for departments or firewalls. Provide User access - In every general assignment building, an appropriately sized network has been assigned for user connectivity. The network is DHCP (assignment of network addresses) and DDNS (network name resolution) enabled for plug and go access. Provide Monitoring - LMS & CPI (vendor monitoring software and systems) actively and passively monitor the network. Configuration archiving, utilization polling, logging, error polling, memory usage, user tracking, SNMP traps, and both email and text message alerting, image/software status (security alerts, EoL, EoS). Manage IPAM/DNS/DHCP: - IP address management, domain name resolution, and automatic address assignment is maintained with Infoblox (vendor supplied network management appliance). Administrative Delegation is also provided to some users to allow them access to their IP ranges and zones in order to update DNS records & fixed addresses in their controlled spaces Netflow - Provides long term traffic patterns from core and server farm devices are archived for reference should a security or performance concern arise. Custom Logging and Log Interpretation

	- Logs are sent to C&C's central logging server for archival using Syslog as the protocol format. Settings for logs can be changed to provide a more detailed logging archive or we can simply search and interpret the logs for messages pertaining to a specific security or performance concern. SPAN (switch port analyzer) - When a very specific security or performance issue arises, using SPAN (port mirroring technology), we can capture the actual traffic data based on a single physical port, multiple physical ports, or a VLAN to use as a forensics tool. Tap Aggregation: - TAP aggregation is more advanced version of the previously mentioned SPAN technology. TAP aggregation allows us to segment traffic from a specific physical port and send the traffic to specific destinations based on a multitude of criteria in a much more robust and customizable way. Network Address Translation (Large Scale) As mentioned above, this service allows a service or device to be hidden using a private network while giving it public access using a translated IP address. The large scale version provides the same service, but on a much larger scale and more broad in scope. This service is intended more for broad NAT policies encompassing hundreds to thousands of users. - Large Scale Many to Few NAT (Network Address Translation) - This service is currently being used mostly for student wireless access, but can be expanded to any number of other services should there be a need or requirement. - NAT Logging Forensic Assistance: When network security concerns appear within the networks utilizing the NAT technology, we can provide information related to hosts or services for forensic purposes. Current Number of Services:

	• VPN
	    ○ Peak concurrent VPN sessions: 242
	    ○ Average concurrent VPN sessions: 137
	• 5 Custom VPN profiles (for various departments, including CNC):
	    ○ Departments: Library, BCOE, VOIP MGMT, BAS-IT, and School of Medicine.
	• NAT
	    ○ Throughput Capacity: 30Gbps
	    ○ Peak Throughput (all appliances): 5Gbps
	    ○ Peak Active Connections: 1,500,000
	    ○ Average Active Connections: 215,000

Recharge Services:	None
Premium Services:	Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows: • Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow"). • Access to a traditional phone line (dial tone) within most rooms. • Wireless coverage throughout all rooms and the common areas within the Residence Halls. • Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: • Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted. • Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs). • Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.

Name of Service:	CSN: Network Security (Wired and Wireless)
Keywords:	Hardware Security, Software Security, Network Monitoring Specific to Security, IPAM (Internet Protocol Address Management, VPN (Virtual Private Network) Management, Access Control Lists, Software Security Analysis, Data Center Network Firewalling, ASA (Adaptive Security Appliance), DHCP snooping, Dynamic ARP (address resolution protocol) Inspection, Port Level Security.
Brief Description of Service:	Provide configuration and administration of native security elements within the standard campus network hardware and operating systems. Network Device Security Hardening • Provide configuration and administration of native security elements within the standard campus network hardware and network operating systems. This can include, but is not limited to: port-security, SSH and console restrictions, IP verification (spoof prevention), DHCP snooping, and IP ARP Inspection. VPN Secure Access (CNC) • Configure and provide custom VPN access using a variety of methods. The methods are based on the needs of the customer. If there is a specific set of devices and/or services that are required for a select set of persons, then a custom VPN URL, access policies, and/or profiles can be created with a number of options to fulfil the access requirements. • Configure and provide custom access policies: Through the use of a technology known as Dynamic Access Policies (DAP), we can create aggregated custom access to multiple systems securely through the Secure CNC VPN. • Configure custom profiles: If more extensive customization is required for specific resources, VPN profiles can be created to add additional customizations aside from or in addition to the Dynamic Access Polices. Customizations within these profiles can include, but are not limited to; custom URLs, assigned IP address space (VPN pools), authentication and/or authorization settings, DNS, and more.

Data Center Firewalling

- Configure and provide firewall services to encompass many different networks, services, and systems within the Campus Data Center. The access policies are configured in many different ways and can be applied to systems on a very specific level to allow only the required network traffic while preventing unauthorized or unwanted network traffic.

- Design, configure and provide ACL (access control lists). The Access Control List polices are the central aspect of the Campus Data Center firewalling. These policies allow or deny traffic based on very specific criteria and can be designed and configured based on source/destination IP addresses, TCP/UDP ports, time frames, packet size, type of packet (TOS, DSCP, etc.), and more.

- Plan, configure and provide Network Address Translation (NAT) firewall specifics. With the use of Network Address Translation, a service or device can be hidden using a private network while giving it public access using a translated IP address. This can be done with the use of Static NAT (1 to 1 NAT), PAT, and NAT overloading depending on the service requirements. This service caters to specific services or hosts mostly contained within the Campus Data Center.

- Configure and provide firewall logging forensic assistance: With every NAT or ACL policy, tracking of events can be exported using logging. Syslog is the primary protocol for this and these logs are being exported live for historical or forensic analysis when needed.

IP Address Management (IPAM)

- IP address assignments are tracked and DHCP settings are performed using our IP Address Management (IPAM) system. The IP Address Management service includes network creation and/or tracking on a per customer or per service basis. This service also includes DHCP bindings (reservations) for specific client or server machines in addition to the general DHCP scope creation.

	MPLS VPN/VRF Security Design and Assistance • Within our routing infrastructure, we host a service that provides logical network segmentation that addresses advanced security and/or reachability requirements for systems that should not reside on the public address space within the UCR campus network. MPLS technology provides a scalable end to end solution that can provide secure and segregated access between different buildings, data centers, and more.
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts – Provided Through C&C's Customer Support Entities (e.g. Help Desk)
How is Service Requested:	Network security is generally treated as a utility and is requested / organized by C&C management. Faculty and staff may request support via an online form http://comm.ucr.edu. Additional interactions provided via requests to C&C customer support groups (e.g. the Help Desk)
How is the Service Delivered:	In person or remotely

Service Level Agreement Specifics:	KP1 – Planning, design and implementation of Campus Border Firewall 2018.
	
	     Resonates with departmental mission to provide reliable, secure infrastructure and services.
	
	KP2 – 100% deployment of campus wide NAC by 2019
	Resonates with departmental mission to provide reliable, secure infrastructure and services.
	
	• Network Forensics
	   o When network security or performance issues arise, network services assist in determining the issue using a multitude of network forensic tools. These tools can provide both real-time and historical forensic data and include the following:
	Netflow
	   o Provides long term traffic patterns from core and server farm devices are archived for reference should a security or performance concern arise.
	Custom Logging and Log Interpretation
	   o Logs are sent to our central logging server for archival using Syslog as the protocol format. Settings for logs can be changed to provide a more detailed logging archive or we can simply search

	and interpret the logs for messages pertaining to a specific security or performance concern. SPAN - When a very specific security or performance issue arises, using SPAN (port mirroring technology), we can capture the actual traffic data based on a single physical port, multiple physical ports, or a VLAN to use as a forensics tool. Tap Aggregation - TAP aggregation is more advanced version of the previously mentioned SPAN technology. TAP aggregation allows us to segment traffic from a specific physical port and send the traffic to specific destinations based on a multitude of criteria in a much more robust and customizable way. - Network Access Control (NAC) and Port Authentication (802.1x) Network Access Control are an increasingly important service that many organizations or departments have adopted or are considering. Considering this technology is based specifically on the use of network technology, C&C plays a large part in the design and implementation of this type of service. - Access Control Lists: In addition to the Campus Data Center firewalling, Access Control Lists are utilized on various different routers across campus for various scenarios in order to control traffic based on specific service requirements. This technology is used when there is a specific need that cannot be met by other technologies. - Network Address Translation (Large Scale). Configure device to be hidden using a private network while giving it public access using a translated IP address. The large scale version provides the same service, but on a much larger scale and more broad in scope. This service is intended more for broad NAT policies encompassing hundreds to thousands of users. - Large Scale Many to Few NAT (AKA NAT Overloading) - This service is currently being used mostly for student wireless access, but can be expanded to any number of other services should there be a need or requirement. - NAT Logging Forensic Assistance - When network security concerns appear within the networks utilizing the NAT technology, we can

	provide information related to hosts or services for forensic purposes. Typical - Additions, changes or deletions to current security policies are determined within the Network Services group and shared and collaborated with the Infrastructure Security Operations group as appropriate. Atypical Service: - For situations that involve standard network hardware security policies but, exceed our usual and customary boundaries (SNMP information being shared with UCOP as an example), solutions are determined by Network Services in concert with the Security Operation group. VPN Access (Faculty and non-CNC Staff): - Design, configure and provide custom VPN access using a variety of methods. The methods are based on the needs of the customer. If there is a specific set of devices and/or services that are required for a select set of persons, then a custom VPN URL, access policies, and/or profiles can be created with a number of options to fulfil the access requirements.
Recharge Services:	None
Premium Services:	Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows: - Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow"). - Access to a traditional phone line (dial tone) within most rooms. - Wireless coverage throughout all rooms and the common areas within the Residence Halls. - Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: - Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted.

	• Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs). • Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.

Name of Service:	**CSN: New Building Planning (Network)**
Keywords:	Telephone, Data, Fiber, Telecom Room Requirements, UPS Systems, Generators, AC and DC Electrical Power Systems, Grounding Systems, Cameras, Security, HVAC, CRAC Units, Underground & In Building Pathways, Data Equipment Racks & Cabinets, Network Electronics, Outside Plant Point-of-Connection, Inside Plant Design, DPP Program Space, Project Design Interface Management
Brief Description of Service:	C&C interacts with UCR Capital Asset Strategies (planning), Architect & Engineers (construction), Faculty and Staff (planning, construction, and maintenance). • Provide Budget Planning Document for Network Electronic based on Program Space requirements. • Typically work through the various phases of Capital Program Process with the Project Management Team (PMT) • Feasibility Assessment, Detailed Project Program (DPP), • Schematic Design, Design Development, • Working Drawings (50%, 75%, 95% & CD) Review & Comments, • RFI Bid response, • Construction Inspection, Occupancy and Commissioning, • As-Built and close out documentation.
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts – Service is typically coordinated through UCR's central planning and construction offices.
How is Service Requested:	Request for New Building Planning are made by phone or email to Communications Services.
How is the Service Delivered:	Meeting, teleconference or direct calls, Inter-Office or USPS mail service.
Service Level Agreement Specifics:	KPI 1- Communication construction documents for new buildings or major project 1-2% increase in 2 projects per quarter for new building or major construction project campus communication construction planning, design, specification and review documents or greater to reflect Campus project needs. Resonates with UCR's campus mission of growth and departmental mission to provide reliable, secure infrastructure and services.

	KPI 2- Communication construction documents for minor construction projects or remodels

1-2% Increase in 4 projects per quarter for minor project in campus communication constructions planning, design, specification and review documents or greater to reflect Campus project needs
      Resonates with UCR's campus mission of growth and departmental mission to provide reliable, secure infrastructure and services.

Develop and Maintain *Communications Infrastructure Planning Guidelines* with annual review and updates.

Provide Budget Planning Document for Network Electronics for 2 new buildings or 2 major project renovations per quarter.

Provide Communications and/or Network Services Documents to include but not limited to;
- Network Block Diagrams
- Copper and/or Fiber Plans Drawings
- Underground and Building Conduit Pathways
- Point-of-Connection (P.O.C.) locations
- Communications Vault (Manhole) P.O.C. Details
- Data Equipment Rack Elevations
- AC / DC Power requirements for Communication Services
- Patch Panel or 110 Block Info
- Fiber Termination Unit (FTU) Panel Layouts
- Minimum Point of Entry (MPOE) Info |
| Recharge Services: | None |
| Premium Services: | Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows:
- Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow").
- Access to a traditional phone line (dial tone) within most rooms.
- Wireless coverage throughout all rooms and the common areas within the Residence Halls.
- Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. |

	In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: • Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted. • Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs). • Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.

Name of Service:	**CSN: Outside Plant Cable Planning (Network)**
Keywords:	Outside Plant (OSP), Telephone, Data, Fiber, Cable Vault (Manhole), Underground & In Building Pathways, Telecom Room, Underground Service Alert (USA's), Minimum Point of Entry (MPOE), Building Distribution Frame (BDF), Data Equipment Racks & Cabinets, Network Electronics, OSP Point-of-Connection
Brief Description of Service:	C&C interacts with UCR Capital Asset Strategies (planning), Architect & Engineers (construction), Faculty and Staff (planning and construction). • Provide direct input for all Underground Communication Pathway Routes for new and existing Buildings to support Outside Plant Cabling needs (existing & future) based on the Physical Master Plan Study and Long Range Development Plans (LRDP) in concert with Capital Asset Strategies. Typically work through the various phases of Capital Program Process with the Project Management Team (PMT). • Feasibility Assessment, • Detailed Project Program (DPP), Schematic Design, Design Development, • Working Drawings (50%, 75%, 95% & CD) Review & Comments, • RFI Bid response, • Construction Inspection, • Occupancy and Commissioning, • As-Built and close out documentation.
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts – Service is typically coordinated through UCR's central planning and construction offices.
How is Service Requested:	Request for New Building Planning are made by phone or email.
How is the Service Delivered:	Meeting, teleconference or direct calls, Inter-Office or USPS mail service.
Service Level Agreement Specifics:	KPI 1- Communication construction documents for new buildings or major project 1-2% increase in 2 projects per quarter for new building or major construction project campus communication construction planning, design, specification and review documents or greater to reflect Campus project needs.

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Resonates with UCR's campus mission of growth and departmental mission to provide reliable, secure infrastructure and services.

KPI 2- Communication construction documents for minor construction projects or remodels

1-2% Increase in 4 projects per quarter for minor project in campus communication constructions planning, design, specification and review documents or greater to reflect Campus project needs

     Resonates with UCR's campus mission of growth and departmental mission to provide reliable, secure infrastructure and services.

- Provide Communications Infrastructure Planning Guidelines with annual review and updates.
- Provide Communications Construction Documents (Plans & Spec's) as required for 2 new buildings or 2 major project renovations per quarter.
- Provide Communications Construction Documents (Plans & Spec's) as required for 4 minor projects or renovations per quarter.
- Provide Communications Services Documents to include but not limited to;
  - Copper and/or Fiber Plans Drawings
  - Underground and Building Conduit Pathways
  - Point-of-Connection (P.O.C.) locations
  - Communications Vault (Manhole) P.O.C. Details
  - Patch Panel or 110 Block Info
  - Fiber Termination Unit (FTU) Panel Layouts
  - Minimum Point of Entry (MPOE) Info
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<td>Recharge Services:</td>
<td>None</td>
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<td>Premium Services:</td>
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Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows:
- Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow").
- Access to a traditional phone line (dial tone) within most rooms.
- Wireless coverage throughout all rooms and the common areas within the Residence Halls.
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	• Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: • Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted. • Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs). • Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.

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Name of Service:	**CSN: Add/Moves/Changes (Network)**
Keywords:	Enterprise Work Order System, Data Adds, Data Changes, Data Moves, Department Moves, Cable, Fiber, Tools, Testing, Jacks, Patch Cables, Power, UPS, Project Management, Documentation/Database Administration, Training, User Manuals, Infoblox, Wiki, Advanced Network Requests, Access Control Lists, Microwave Links, Firewalls, Switch Port Configuration, Access Control Point, DAP, DNS Names, CNAMEs, DHCP, Subnets, VLAN, Host Names, IES Network, Domain Names. Inventory, Purchasing, Licensing Resources, Routing, Hardware. Switch Ports, Software, Configurations, Project Management, Documentation/Database Administration, FMS (Facility Management System), Golden Trees, Rspace.
Brief Description of Service:	Provide following services through Communications Service Requests: Data port configuration and service activation and installation for Staff/Faculty, Vendors, and Contractors for both on campus and off site University locations. Provide temporary networking capabilities for conferences and campus events. Provide wireless connectivity to campus and guest users. Configure ACL's, firewalls, microwave, switch ports, analyze and improve data throughput, provide support for campus network design. Move Network services for Faculty/Staff individuals as well as entire departments throughout buildings and between building locations. Generate Manual bindings for campus printers and servers. Provide detailed estimates with job requirements and breakdown of labor, installation and material costs.
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts.
How is Service Requested:	Vendors/Contractors/Students: Walk-In, Call-In, Send Email to: (http://dial.@ucr.edu) Faculty/Staff: Online Communications Work Order Request available through R'Space authorized application: (http://rspaceportal.ucr.edu) Communications Work Order Form: (http://comm.ucr.edu/comm)
How is the Service Delivered:	In Person and Remotely

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Service Level Agreement Specifics:	KPI 1- Standard (MACS) Perform standard service Add/Move or Change with 10 working days KPI 2 – Departmental (MACS) Perform departmental Add/Move or Changes to meet the needs of the department providing work orders have been received 30 days in advance. Activate/Disconnect/Move Data Services • To activate/disconnect/ move voice and/or data services, customers complete the online Communications request form located at http://comm.ucr.edu. Customers can request activation of dial tone for all campus supported locations. Customers can move their existing voice services and data services when they re-locate from one campus location to another. Customers can disconnect voice and data services if service is no longer required at no charge. An automated email with the service request number is sent immediately to the requestor. Service activation/request is completed within 7 – 10 business days. Expedited requests for services are available by providing funding for Overtime pay to FTE to work overtime to complete work after-hours. Customer information provided at http://dial.ucr.edu. Team processes an average of 200 service requests per month
Recharge Services:	Activations – Fees may apply when infrastructure (e.g. cabling/conduit/copper/fiber, electronics) is required to activate the service(s) and/or the request is in excess of current campus communications infrastructure guidelines (e.g. Office - one voice port/2 data ports per 100 sq. ft. Please see guidelines at ENTER WEB SITE for other communications guidelines). Disconnects – No recharge Moves – Fees may apply when infrastructure (e.g. cabling/conduit/copper/fiber, electronics) is required to activate the service(s) and/or the request is in excess of current campus communications infrastructure guidelines (e.g. Office - one

	voice/2 data per 100 sq. ft. Please see guidelines at ENTER WEB SITE for communications guidelines). Switch Additions/Changes – Fees may apply if and when the requests exceed UCR's switch capacity or C&C cannot provide campus services to a particular location (e.g. off general campus locations). The current recharge service is a minimum labor charge per service request of 30 minutes. Actual labor time spent and materials used are billed back to customer via Communications Work Order System. The hourly rate is based upon an 8am – 5pm M-F work schedule. Expedited requests can be requested to be completed after-hours (outside the standard 8-5 M-F) at a rate of one and a half times the standard labor rate.
Premium Services:	None

Name of Service:	**CSN: Website Support and Electronic Systems Support**
Keywords:	Dial, Communications, Work Orders, Voicemail, Telephone, Unified Messaging
Brief Description of Service:	Provide Maintenance, Updates, and support for Communications Services web site, ticketing system, electronic database, and service request systems.
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts.
How is Service Requested:	Web site changes / enhancements can be made by contacting UCR's administrative support group.
How is the Service Delivered:	Online
Service Level Agreement Specifics:	N/A Not a line of service of Communications Update the Communications websites quarterly and upon request, to reflect the full list of services offered and to provide the ability to electronically request all services and support.
Recharge Services:	None
Premium Services:	None

Name of Service:	**CSN: Network Trouble Resolution**
Keywords:	Network, Network Trouble, Network Help Desk, Enterprise work order/ trouble ticket system, 3rd party services (CENIC, Carriers), cable, copper, fiber, tools, testing, jacks, patch cables, inventory, purchasing, licensing, routing, hardware, software, configurations, power, UPS, in-depth knowledge of campus facilities.
Brief Description of Service:	Typical Service • Provide initial network problem resolution and service restoration. • Diagnose the configuration and installation of network hardware as it relates to service interruption. Atypical Service • Provide an internal escalation point (2nd line) and engineering-level problem diagnosis, troubleshooting and service restoration.
Customers Eligible to Request Service:	All UCR Colleges / Units in addition to Vendors and Contractors with UC Business Accounts.
How is Service Requested:	Online via R`Space – http://rspace.ucr.edu/trouble_tickets.html Email: dial@ucr.edu Comm Services Trouble line and staff access : (951) 827-3939
How is the Service Delivered:	In Person, Remotely Remote system or telephone support. Dispatch for onsite requirements. Lab replication of environment for engineering-level problem diagnosis, problem resolution, interaction with vendor engineers or development of an alternative service to resolve a problem.
Service Level Agreement Specifics:	KPI 1 - Trouble response Respond to trouble call within 4 hours KPI 2 - Restoration of services Restore services within 4 hour not to exceed 24 hours Faculty/Staff requests for On-campus and Off-campus Locations: • On-campus Locations include any building or common area that lies within the contiguous UCR Campus property at: 900 University Avenue, Riverside, CA 92521 • Off-campus Locations include any building or common area that is not part of the contiguous UCR Campus property.

	Typical and Atypical Service - Perform field dispatch and office based tasks as required for these services including but not limited to:
	• End-user platform problem issues
	• Cable plant issues
	• Network hardware and software failure issues
	    o Failed hardware removal and replacement installation
	    o RMA processing for items under contract
	    o Inventory control
	    o Bug discovery, tracking and resolution
	• Network performance, violation or problem isolation and correction
	• Network documentation, diagrams and various reporting
	• Network staging, proof-of-concept and hardware burn-in
	• Replacement stock control
	• End-of-life stock relocation and storage
	• Unexpected and urgent requests
	
	Trouble Tickets - are submitted online via http://rspace.ucr.edu/trouble_tickets.html and assigned to appropriate Communications Services representative for rapid resolution and restoration of impacted telephone/data service(s).
	
	A minimum of (1) Data/Voice Analyst is assigned to manage voice/data trouble tickets, with an alternate back-up during peak periods.
	
	Critical service outages receive priority response and typically responded to within (4) hours upon receipt of trouble ticket, while non-urgent issues are responded to within (24) hours.
	
	Troubles are typically resolved within 8-24 hours.
	
	Network Services Major Outage Reporting (951) 827-4100.

Recharge Services:	None
Premium Services:	Network / Communications services provided to the Residence Halls, in general, mirror the support provided to UCR faculty and staff. Specifics relating to these services are as follows: • Wired network connection for all Residence Hall students (one Fast Ethernet (100Mbs) port "per pillow"). • Access to a traditional phone line (dial tone) within most rooms. • Wireless coverage throughout all rooms and the common areas within the Residence Halls.

	• Management and provisioning of network addresses, network security, and other systems / tools required for delivering Internet and campus network access to the Residence Halls. In addition to the services that mirror faculty / staff offerings, the following additional support is provided to the Residence Halls: • Support for registering actual devices (computers, laptops, etc.) on the Residence Halls' network. If devices are not registered, access to the network is not permitted. • Support of bandwidth management, protocol shaping, and allocation optimization as required (e.g. when bandwidth overutilization occurs). • Support for Digital Millennium Copyright Act violation prevention and remediation within the Residence Halls' network.

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COMPUTING SUPPORT SERVICES (CSS)

Name of Service:	**CSS: Web Support and Design (CMS)**
Keywords:	Web Support, Web Design, Web Development, Content Management System, Omni Update Campus, CMS
Brief Description of Service:	Provide faculty, staff, and students with a web presence. These web sites can be college, departmental level, for labs, research projects, conference, groups, etc. Most websites created utilize Omni Update Campus, UCR's preferred CMS. In person training for Omni Update Campus is provided. These trainings take place when the training room and editors/users are available. On average, there is one training per week.
Customers Eligible to Request Service:	Faculty, staff, students
How is Service Requested:	Email: cmshelp@ucr.edu
How is the Service Delivered:	Email, In Person
Service Level Agreement Specifics:	Support is provided for 1000+ web sites, 700 of which are supported via the Omni Update Content Management System. UCR currently has 500 editors of these various web sites. C&C processes 4 requests/tickets per day. Please note that some requests/tickets that are long term projects may take months to resolve. Support is provided for the following environments: • Omni Update • Word Press • Custom Developed Sites (web hosting only; site development performed by Application and Multimedia Development group) • Training • Hacked Site Remediation • General Support Please note that the services outlined above are provided by a single staff member and a student worker. The SLA reflects a "shared services" environment where one web hosting/web management environment is supported by a single individual and utilized by hundreds of distributed users across the campus.
Recharge Services:	None
Premium Services:	None

Name of Service:	**CSS: Faculty and Staff Help Desk Support**
Keywords:	Helpdesk, Application Support, Phone Support, Remote Support, Install, Installation, Troubleshoot, Network, Computer, Printer, Consult, Mobile Device, Laptop
Brief Description of Service:	Provides all faculty and staff technical support on a variety of services ranging from new computer and peripheral installations, troubleshooting computer, peripheral, and network issues, installing and configuring software, consulting and advising on technology purchases, as well as limited hardware repair. Support is provided to Windows and Macintosh computers, as well as most mobile devices and tablets.
Customers Eligible to Request Service:	Faculty & Staff
How is Service Requested:	Email: helpdesk@ucr.edu Phone: (951) 827-3555 In person
How is the Service Delivered:	Phone, Email, Remote Session, In Person
Service Level Agreement Specifics:	Help Desk Hours of Operation: Help Desk **Phone and Email** hours are Monday – Friday, 8am to Noon, 1pm - 5pm. Please note that emergency after hours support is available via Systems and Network support lines and that C&C management will also respond to non-business hour requests as required. The Help Desk will assist with the following issues (Windows and Macintosh platforms for university-owned desktop/laptop computers): • New computer and peripheral installations • Troubleshooting computer, peripheral, and network issues • Providing desktop security & back-up support • Resolution of virus/malware/phishing trouble • Installing and configuring software • Consulting and advising on technology purchases • Limited hardware repair (i.e. add memory modules, replace hard drives) The Help Desk also provides specialized support for the following areas: • *Mobile Device Support*: Support provided for devices being used primarily for University business. Mobile devices supported are Android, Microsoft and Apple smartphones and tablets. Support includes consulting and advising on device selection and purchase, setup and

| | configuration assistance, assisting with setup of networking and connection to campus services, troubleshooting connectivity and device problems, and migrating to a new device.

- *Email/Calendar (Exchange):* All campus employees are granted a campus Exchange account, which provides email, calendaring, and contact management. This account is created automatically as part the onboarding process for each new employee. In addition, chat services are provided on a separate server. More information on email/calendaring can be found at http://cnc.ucr.edu/exchange/.

- *Web conferencing:* Staff and faculty are able to request web conferencing services. Web conferencing services include both a web and audio component. C&C will provide technical assistance before, during, and after a web conference to ensure that the web conference is set up properly and technical issues are avoided and/or resolved quickly. For additional information on web conferencing please visit http://cnc.ucr.edu/conference_calls/ or https://cnc.ucr.edu/iconnect/.

- *iShare:* iShare is a file storage and sharing system provided to all faculty & staff at UCR. The system provides 5GB of disk space that allows you to store copies of important documents (e.g. notes, papers, PowerPoint presentations, graphics, etc.). In addition, documents can be securely shared with anyone who has a web browser and Internet connection. More information on iShare can be found at http://cnc.ucr.edu/ishare/. All senate faculty are granted an iShare account for sharing documents with colleagues on/off campus.

- *eStorage:* eStorage is a file storage and sharing system provided to departments and organizations at UCR. Each unit is granted shared space for its users to store documents, spreadsheets, graphics, publications, presentations, etc. Documents and files in eStorage can be securely shared within an organization, with a very flexible permissions system. Shares of eStorage are usually requested by departmental CFAOs, MSOs, Chairs, or senior administrative personnel. C&C will work with the unit to determine the space quota allocated to the unit. These accounts are designed to be used by a workgroup, rather |

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than an individual. Directories and permissions can be set up by the department or organization. For additional information or to request a share of eStorage, please visit http://cnc.ucr.edu/estorage/ and click on "Gaining Access" in the left navigation menu.

- *Google Drive:* Google Drive provides collaboration utilities, such as Sheets (Spreadsheets), Docs (Documents), and Slides (Presentations), whereby files can be accessed by multiple users to create, edit, and distribute in real time. In addition, Google Drive currently provides unlimited cloud based storage of general use files and folders for UCR faculty & staff. Data files and folders are stored in a cloud-based environment hosted off campus via Google, under the Google Apps for Education offering, which falls under a UC agreement with Google.

- *Sharepoint:* Sharepoint is a multi-purpose collaboration tool by Microsoft that can be utilized by departments on campus. SharePoint was designed to incorporate many web applications such as content management and document management solutions. SharePoint enables users to make libraries, lists, and sites, collaborate with colleagues, search content, process information, develop data charts, create workflows, and presents other various tools to aid in organizational needs. Essentially, SharePoint replaces multiple, separate web application tools and is completely customizable. Sharepoint accounts can be requested by departmental CFAOs. Currently, C&C will work with the unit to determine the space quota allocated to the unit. For additional information please visit http://cnc.ucr.edu/sharepoint/.

- *Faculty Research Storage (R'Cloud)*: R'Cloud is a file-syncing and file-sharing encrypted cloud storage solution provided by Computing and Communications to all UCR Senate faculty. This system will provide up to 800 academic senate faculty members with 3TB of secure storage hosted locally by Computing and Communications where faculty can store files, folders, contacts, photos, videos, PowerPoint presentations and more. These files can easily be accessed from a desktop, a mobile device, or a web browser, from any platform, and they can be shared with others, on or off campus. For additional information please visit http://cnc.ucr.edu/rcloud/.

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Calls, emails, and in person visits by faculty and staff are entered into a ticketing system and assisted in the order it is received. Each technician is assigned a ticket and schedules an appointment with the customer. The helpdesk strives to respond to the initial request within 8 hours during normal demand periods.

In the event of a more complex or time-consuming support request, a determination is made as to whether the service could be best provided via a returned phone call, an email, a remote support session, or an in person visit. The requester is contacted, and the service is provided via the most efficient method. The technician will work with the requester to assist or resolve the issue to a satisfactory conclusion.

UCR's Help Desk staffing is as follows:
- Manager (working)
- 6 Professional Staff
- Student Workers who provide 40 hours of phone support/week.

Service counts provided by the Help Desk staff are as follows:
- 300 Requests/Resolutions per month/technician
  - 4 Technicians designated as faculty support
    - 14,400 issues resolved annually
  - 2 Technicians designated as staff support
    - 7,200 issues resolved annually

Service provisioning notes:
- *Faculty Academic Support*. Currently 2 technicians are targeted for CHASS support and 1 technician is targeted for CNAS support. 1 technician provides general support across the campus. Please note that other academic areas (SOM, BCOE, SOBA, GSOE, etc.) have staff that provide College/Professional School specific support.
- *Staff Support*. Currently 2 technicians provide general campus support. This service is provided, in some cases, directly to individuals who do not have department specific support staff. In other areas, these two technicians provide support to the distributed IT staff as needed (VCSA, BAS, Library, ORED, etc.).
- *Ticket Counts and Ticket Resolution*. The current ticket/resolution count equates to approximately 13 issue resolutions per day per technician. This count includes issues resolved via the phone, email, remote support, as well face-to-face. C&C has been able to achieve this level

	of support by leveraging a variety of electronic tools, including a remote desktop support tool.
	 • *IT Rationalization.* Currently UCR is undergoing a process of IT Rationalization. This effort is designed to eliminate redundancy and optimize efficiency within UCR's IT environment. This process in underway and includes the following initiatives:
	      o A campus-wide managed desktop and computer/laptop security management solution.
	      o The use of a Shared Services approach for initial assistance and support.
	      o Where appropriate, the consolidation of support staff within a common organization.
	      o The expanded use of electronic tools and potentially off campus (vendor) support to resolve routine issues and trouble.
	 • *Year of Transition.* The service level agreement presented within this document recognizes that the campus is in a period of change relating to faculty and staff technical support. As IT Rationalization takes place during the next year, the SLA will be revised to reflect staffing realignment, service needs, and the migration of departments and colleges to a more unified technical support environment.

Recharge Services:	None
Premium Services:	None

Name of Service:	**CSS: Affiliate Accounts**
Keywords:	Affiliate, Volunteer, Consultant, Temporary Employee, Visiting Researcher, Visiting Faculty, Contractor
Brief Description of Service:	C&C will establish affiliate accounts (a UCR NetID and Temporary Password) for campus affiliates (a person who is engaging in official campus business but does not have an entry in the campus payroll system and is not employable via PPS. This individual may be a consultant on contract, a visiting international researcher, a temporary agency employee or any other identified individual who, for the benefit of the university, should have access to authenticated electronic communications).
Customers Eligible to Request Service:	Faculty, Staff, Students but typically the request comes from a department's Enterprise Directory Administrator (EDA)
How is Service Requested:	An Affiliate account is requested by completing an online form within the eForms application. Detailed instructions can be found by visiting http://cnc.ucr.edu/edir/affiliateacceforms.html#guide_content.
How is the Service Delivered:	The campus' Enterprise Directory Administrator establishes the Affiliate account within the Enterprise Directory and transmits the user ID and temporary password to the requesting department primarily via fax (due to security concerns).
Service Level Agreement Specifics:	C&C will establish Affiliate accounts within 72 hours of receiving the online application assuming that the application has been filled out accurately, completely, and the proper approvals have been obtained. C&C will provide the number of affiliate accounts created each year in annual report.
Recharge Services:	None
Premium Services:	None

Name of Service:	**CSS: Department Email Accounts (Second Email Account)**
Keywords:	Department Email Account, Second Email Account
Brief Description of Service:	C&C will establish department email accounts (email address and permanent password) upon request. A department email account is a second email account for an individual. The account utilizes an email address other than the individual's firstname.lastname@ucr.edu (e.g. ORG21@ucr.edu, biochair@ucr.edu). Only one person (the owner) can send an email from and receive emails from the department email account
Customers Eligible to Request Service:	Faculty, Staff, Students but typically the request comes from a department's Enterprise Directory Administrator (EDA)
How is Service Requested:	A Department Email Account is requested by completing the form entitled "Application for Department Email Account" located on the following web site (http://cnc.ucr.edu/edir/procedure.html#guide_content) and submitting the form via campus snail mail to the Campus Enterprise Directory Administrator or email the completed form to mailgrouprequests@ucr.edu.
How is the Service Delivered:	The campus' Enterprise Directory Administrator establishes the department email account within the Enterprise Directory and transmits the new email address and permanent password to the requesting department primarily via fax (due to security concerns).
Service Level Agreement Specifics:	C&C will establish Department Email Accounts within 72 hours of receiving the application assuming that the application has been filled out accurately, completely, and the proper approvals have been obtained. C&C will provide the number of second email accounts created each year in an annual report.
Recharge Services:	None
Premium Services:	None

Name of Service:	**CSS: Mailgroups**
Keywords:	Mailgroups, Group email
Brief Description of Service:	C&C will establish mailgroups (mailgroup address) upon request. A mailgroup (e.g. C&Cstaff@ucr.edu) allows an individual to send one email to a large group of individuals (the mailgroup members). There is one owner and the owner can designate other individuals to manage the account (add/delete mailgroup members).
Customers Eligible to Request Service:	Faculty, Staff, Students but typically the request comes from a department's Enterprise Directory Administrator (EDA)
How is Service Requested:	A Mailgroup is requested by sending an email to mailgrouprequests@ucr.edu with the following information: • Mailgroup Name • Business Purpose of the Mailgroup • Approval by the Dept. or Org CFAO Detailed instructions can be found by visiting http://cnc.ucr.edu/edir/mailgroups.html#guide_content.
How is the Service Delivered:	The campus' Enterprise Directory Administrator establishes the mailgroup within the Enterprise Directory and transmits detailed instructions about accessing the mailgroup via email to the individual requesting the mailgroup.
Service Level Agreement Specifics:	C&C will establish mailgroups within 72 hours of receiving the email request assuming that all the necessary information has been included in the email and the proper approvals have been obtained. C&C will provide the number of Mail Groups created per year in an annual report.
Recharge Services:	None
Premium Services:	None

ADMINISTRATIVE SERVICES (AS)

Name of Service:	**AS: Financial and Administrative Support**
Keywords:	Financial Analysis, Budgetary Analysis, Payroll Support, Purchasing Support, Travel Support, Space Management, Hardware & Software Maintenance Contracts, Human Resources Support, Equipment Management Support
Brief Description of Service:	C&C's Financial and Administrative Service Center provides financial, budget, purchasing, payroll, human resources, policy, and space management support to C&C staff and senior leadership.
Customers Eligible to Request Service:	C&C Senior Leadership and Staff
How is Service Requested:	Email, Phone, In Person, Online (through various UCR enterprise applications)
How is the Service Delivered:	Email, Phone, In Person, Online depending upon the nature of the support (e.g. processing a PO through eBuy – online, sharing a quarterly financial report with C&C Senior Leadership – in person).
Service Level Agreement Specifics:	C&C Financial and Administrative Service Center provides the following services to C&C: • Strategic financial and budgetary analysis for all types of funding (general funds, student technology fee, recharge, gift, grant, etc.) utilized by C&C. • Human Resources support (recruitment/new hire processing, leave processing, employee benefit support, employee recognition program, worker's compensation and disability management support) for over 120 staff employees and over 50 student employees. • Payroll support for over 120 staff employees and over 50 student employees. • Equipment Management support (from cell phones to network routers) • Purchasing support (including hardware and software maintenance contract support) • Reimbursement support (travel or misc. reimbursement requests) • Travel Arrangements for C&C staff • Space Management Support • Technology Policy Implementation support • Campus-wide Technology Communications support These services will be provided per the following schedule:

	• All campus budget calls, information requests, planning documents, etc. will be delivered per published campus schedules. • Payroll and HR deadlines will be met. • Financial and Planning reports will be provided to the CIO no less than quarterly and to Directors/C&C Leadership as required.
Recharge Services:	None
Premium Services:	None

OTHER SERVICES (OS)

Name of Service:	**Collaboratory**
Keywords:	Collaboratory, Statistical Consulting, Statistics, Probability
Brief Description of Service:	The Collaboratory provides UCR's faculty and graduate students with an environment for collaboration in research and instruction that emphasizes statistical / quantitative approaches. It provides faculty and graduate students with the most effective quantitative / statistical consulting and statistical software support possible, especially supporting campus research, instruction, and public service efforts. In addition, the Collaboratory offers its statistical support services to the greater Inland Empire area, by providing some consulting services but primarily acting as a conduit for industry, government, and nonprofit organizations to engage campus faculty and graduate students in consulting opportunities.
Customers Eligible to Request Service:	Faculty, Staff, Students and External Entities
How is Service Requested:	Contact the Collaboratory's Assistant Director by email or phone and a meeting or conference call is set-up to discuss what type of statistical services are required.
How is the Service Delivered:	The Assistant Director or a qualified Graduate Student performs the work requested by the customer by a mutually agreeable deadline.
Service Level Agreement Specifics:	The priorities of the Collaboratory have been to simultaneously contribute to the academic objectives of the Statistics Department and to elevate the level of quantitative data analysis across the campus. The Collaboratory is positioned to do this with the skills and expertise in the Statistics department and the interdisciplinary nature of statistical methods. Specific contributions the Collaboratory makes include: 1) classroom materials for undergraduate and graduate-level classes in statistical methods that provide students a view of how statistical methods are used in decision-making, 2) professional statistical data analysis and modeling contributions to research projects across the campus and to industry and government organizations within the surrounding Inland Empire, 3) hands-on experience for undergraduate and graduate students working with real clients, 4) student and faculty research opportunities, including topics for PhD dissertations. The Collaboratory promotes two main types of activities for both the greater UCR community and external clients.

Collaborative
- A gateway for individual collaboration between academia and industry or government agencies, including research design, data collection, data analysis, and interpretation.
- Methodology development.
- Grant/funding planning, development, and proposal preparation.
- Interdisciplinary or multidisciplinary collaboration.
- Graduate student training (e.g. via Stat 293 A/B/C).

Service Oriented
- Design of experiment and model fitting.
- Consulting, managing, and maintaining supported software packages.
- Instructional support, tutorials, workshops, and short courses.

The Collaboratory uses two terms to describe the way it works on statistical data analysis and modeling projects. Projects are categorized as 'service' or 'collaboration' projects. 'Service' describes projects that utilize standard statistical methods, both well-known and less well-known to the clients. 'Collaboration' describes projects where there is some aspect of novelty either in the development or application of statistical methodology.

The Collaboratory would specifically commit to providing the following services the campus:

1. Up to 400 client-project meetings per year, at no charge, to on-campus graduate students, faculty, and administrators. A client-project meeting is a 1 hour face-to-face meeting with an individual in need of statistics expertise.

2. Comprehensive follow-on data analysis, as needed, for each of the client-project meetings. These data analyses usually require an average of 10 hours, including initial and all follow-up data analyses, and discussions.

3. Budgeted allocation for the targeted 4000 annual hours of project work (400 projects x 10 hours/project) is as follows:

   a) 1200 hours between the two GSRs

	b) 2000 hours from the current Associate Director c) 800 hours from the (to-be hired) second Associate Director. 4. The (to-be hired) second Associate Director will spend 1200 additional hours working the marketing and business development of off-campus clients, including providing the data analysis work associated with successfully recruited clients. 5. Collaboratory staff and Statistics faculty will provide at least 6 workshops on important statistical topics as part of the Grad Quant training workshop series.
Recharge Services:	None
Premium Services:	None