U.S. General Services Administration
Federal Acquisition Service (FAS)
Information Technology Category (ITC)
Enterprise Technology Solutions (ETS)
Technical Account Management Division (TAM)
Solutions Development (SD)

Unified Communications as a Service (UCaaS)

VERSION 1.0

JUNE 2024

Table of Contents

Unified Communications as a Service (UCaaS) Introduction

This technology book aims to provide an overview for United States (US) federal agencies about Unified Communications as a Service (USaaS). It contains a range of documents, including an executive summary, a white paper, use cases, and information on obtaining UCaaS products and services through GSA acquisition vehicles.

EXECUTIVE SUMMARY

Unified Communications as a Service (UCaaS) is a transformative solution that seamlessly integrates various communication tools into a single platform accessible from various devices and locations. UCaaS is the latest technology platform in the evolution of Unified Communications (UC). UCaaS is a cloud-based solution that integrates multiple methods of communication, such as e-mail, faxing, instant messaging, voice and video calling, conferencing, mobile communication, and desktop sharing. UCaaS provides users with easy, integrated access to each service and enhanced collaboration capability in real-time. UCaaS enables effective communication, vital for agencies in today's fast-paced and interconnected technology environment. UCaaS has several benefits for an agency, including enhanced collaboration, scalability and flexibility, cost efficiency, user experience, and security compliance. UCaaS is a paradigm shift in how an agency can collaborate and communicate. Utilizing this cloud-based solution allows an agency to streamline operations, enhance productivity, and drive innovation. Agencies should consider UCaaS as part of their strategy to modernize their enterprise solutions and applications.

CONSIDERATIONS FOR LEADERSHIP/MANAGEMENT (I.E. CIOS)

The UCaaS approach should consider the agency's information technology (IT) strategy, security risk tolerance, and stakeholder requirements. The UCaaS considerations for an agency's IT Strategy should include details for interworking on-premise operations with hosted solutions, a proper evaluation of the existing operating environments, and specific modernization objectives. The UCaaS considerations for an agency's security risk tolerance may include security audits and assessments, strong encryption standards, robust access control mechanisms, incident response, and contingency planning. The UCaaS considerations for an agency's stakeholder requirements can include the collaborative features and functions of the UCaaS solutions. Engaging stakeholders throughout the processes is essential to meet all requirements.[1] By prioritizing these leadership considerations and integrating security into every aspect of UCaaS implementation, organizations can foster a culture of security awareness, mitigate risks, and reap the full benefits of unified communications without compromising data integrity or confidentiality.

UCAAS SWOT (STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS)

SWOT analysis or situational analysis is a strategic planning and management technique that an agency can use to identify the strengths, weaknesses, opportunities, and threats when planning a project or initiative.

TABLE 1- SWOT ANALYSIS

Strengths	Weaknesses	Opportunities	Threats
Rapid Deployment and Scalability	Performance Impacted by Internet Connectivity	On-demand Collaboration Tools	Cybersecurity Threats
Cost Efficiency	Security Concerns with Security and Confidentiality	Data Integrations	Data Privacy and Compliance Risks
Unified Platform	Integration Challenges	Integration with Emerging Technologies and Improved Information Security	Vendor Stability
Accessibility	Vendor Reliance	Partnerships and Ecosystem Development	Rapid Technological Obsolescence

1 Unified Communications Requirements: 7 Conditions to Implement UCaaS (atlantech.net)

STRENGTHS

- Rapid Deployment and Scalability: As a cloud-based solution, UCaaS offers rapid enterprise deployment and scalability to grow or shrink according to agency needs.
- Cost Efficiency: With no need for on-premises hardware and predictable subscription-based pricing models, UCaaS often offers significant cost savings compared to traditional communication systems.
- Unified Platform: Integrating various communication tools, such as voice, video, messaging, and collaboration applications, into a single platform enhances efficiency and productivity.
- Accessibility: Cloud-based UCaaS solutions enable users to access communication tools from any location and device with internet connectivity, facilitating remote work and mobility.

WEAKNESSES

- Dependency on Internet Connectivity: Internet connection impacts the performance of the UCaaS solution. Disruptions in network availability or quality can affect communication reliability.
- Security Concerns with Confidentiality: Storing and sharing sensitive data in the cloud raises security concerns related to data breaches, unauthorized access, and compliance with regulatory requirements.
- Integration Challenges: Integrating UCaaS with existing IT infrastructure, applications, and workflows can be complex and require additional customization or third-party solutions.
- Vendor Reliance: Organizations may become dependent on UCaaS vendors for service availability, support, and updates, posing a risk in the event of vendor downtime or service disruptions.

OPPORTUNITIES

- UCaaS can improve user productivity by allowing users to spend less time managing multiple communication methods in a more uniform environment.
- UCaaS supports remote and mobile users and allows them to connect with other users easily. It enables organizations to extend their communication capabilities globally without requiring extensive infrastructure investments.
- Integration with Emerging Technologies: UCaaS integrates with emerging technologies such as artificial intelligence (AI), the Internet of Things (IoT), and blockchain to enable new functionalities and user experiences.
- Partnerships and Ecosystem Development: Collaborating with technology partners and building ecosystems of complementary solutions can expand the range of UCaaS offerings and create additional value.

THREATS

- Cybersecurity Threats: The growing sophistication of cyber threats poses risks to the confidentiality, integrity, and availability of UCaaS systems and data. UCaaS has some common threats and issues associated with the service, including denial of service attacks, poor access controls, hacking tools, data center vulnerability, malware, phishing, ransomware attacks, and theft of service.

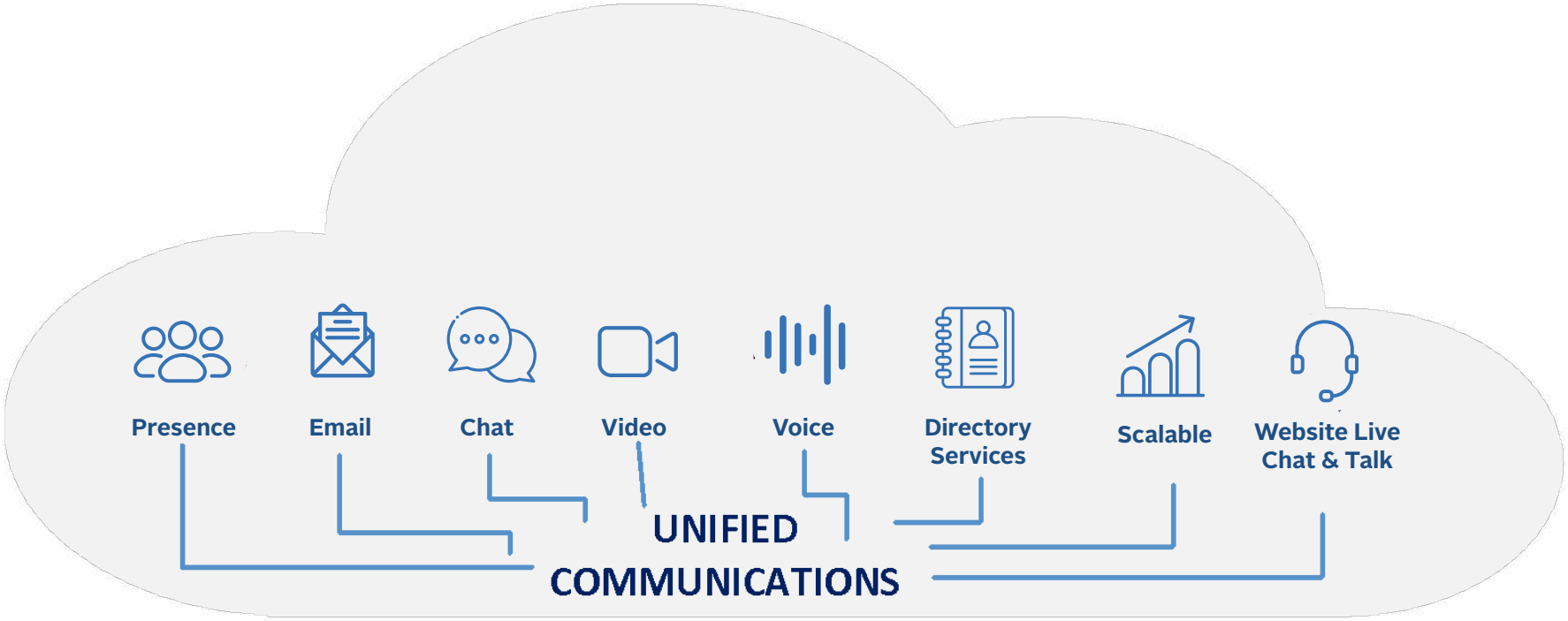
- Data Privacy and Compliance Risks: Evolving data privacy regulations and compliance requirements pose risks for UCaaS providers and their customers, potentially resulting in legal liabilities or reputational damage.
- Competitive Vendor Landscape: Intense competition among UCaaS providers and traditional communication vendors may lead to vendor instability.
- Rapid Technological Obsolescence: Rapid technological advancements and evolving customer preferences may lead to the obsolescence of UCaaS solutions that fail to adapt to changing market dynamics and technological trends.

OVERVIEW OF UCAAS

Unified Communications as a Service (UCaaS) is the latest technology platform in the evolution of Unified Communications (UC). UCaaS is a cloud service that integrates multiple communication methods (e.g., e-mail, faxing, instant messaging, voice and video calling, conferencing, mobile communication, and desktop sharing) and provides users with easy, integrated access to each service. UCaaS can help an agency meet the growing demand for easy access to services due to the rise in remote and hybrid work.

UCaaS helps agencies reduce capital and operational expenses by moving from on-premise platforms to the cloud. The goal of the UCaaS solution is to enhance the ability of agency personnel to communicate, collaborate, and exchange information by integrating separate communication services. UCaaS can also alleviate resource costs by transferring the responsibilities of operating and managing UC to the provider while increasing the capabilities and features available to the end-user.

FIGURE 1 UCAAS



Unified Communications as a Service (UCaaS) Slip Sheet

HIGHLIGHTS

- Unified Communications as a Service (UCaaS) is a cloud service that integrates multiple communication methods (e.g., e-mail, faxing, instant messaging, voice and video calling, conferencing, mobile communication, and desktop sharing) and provides the user with easy, integrated access to each service.
- UCaaS helps agencies reduce capital and operational expenses by moving from on-premise platforms to the cloud. By integrating separate communication services, the UCaaS solution aims to enhance agency personnel's ability to communicate, collaborate, and exchange information.
- UCaaS can also alleviate resource costs by transferring the responsibilities of operating and managing UC to the provider while increasing the capabilities and features available to the end-user.
- UCaaS can help an agency meet the growing demand for easy access to services due to the rise in remote and hybrid work.

BUSINESS VALUE

- Cloud-based services support modernization by transferring the maintenance of on-premises hardware and infrastructure to a cloud service provider (CSP).
- Cloud adoption enables optimization of legacy infrastructures, systems, and applications while improving the user experience.
- UCaaS allows agencies to pay only for those services they need on a consumption basis. Combining UCaaS migration with a cloud-based solution will reduce the agency's overall costs.

HOW TO GET IT

- Using the Enterprise Infrastructure Solutions (EIS) Contract.
- UCaaS is not a standard service on EIS. Instead, EIS offers the flexibility of cloud services with Individual Case Basis (ICB) Contract Line Items (CLINs).

- The agency and vendor can devise several solutions for EIS. The most likely path is to use the Software as a Service (SaaS) cloud service on EIS, and the ICB CLINs meet the agency's requirements.
- The agency must specify the required technical capabilities in the task order solicitation.

RECOMMENDATIONS

- Agencies have options when planning for a cloud migration. An agency will want to consider its priorities, objectives, and security posture when selecting the best option to suit its needs. There are three UCaaS platform architectures available to an agency:
- On-premise or Single: a privately hosted custom-made platform that sits on-site; it easily integrates with on-premises applications.
- Hosted or multi-software and hardware platforms are shared.
- Hybrid – is a mix of a single and multi where an agency can keep security-sensitive applications or information on-premise.
- Utilize Ethernet transport for data centers and campus environments, Multiprotocol Label Switching (MPLS) for sensitive applications, and Broadband Internet for low-risk applications and increases in bandwidth.
- Agencies should consider starting with a pilot, then a limited deployment, before a full deployment
- Utilize GSA tools to implement UCaaS: EIS Modernization Papers and Guides, Quick-start solicitation templates to modernize agency networks, Solicitation Assist Tool - assists agencies in writing solicitation documents.

For more information

Contact your designated GSA representative at www.gsa.gov/nsupport or call (855) 482-4348

Contributors

General Services Administration (GSA)
Java Productions, Inc. (JPI)

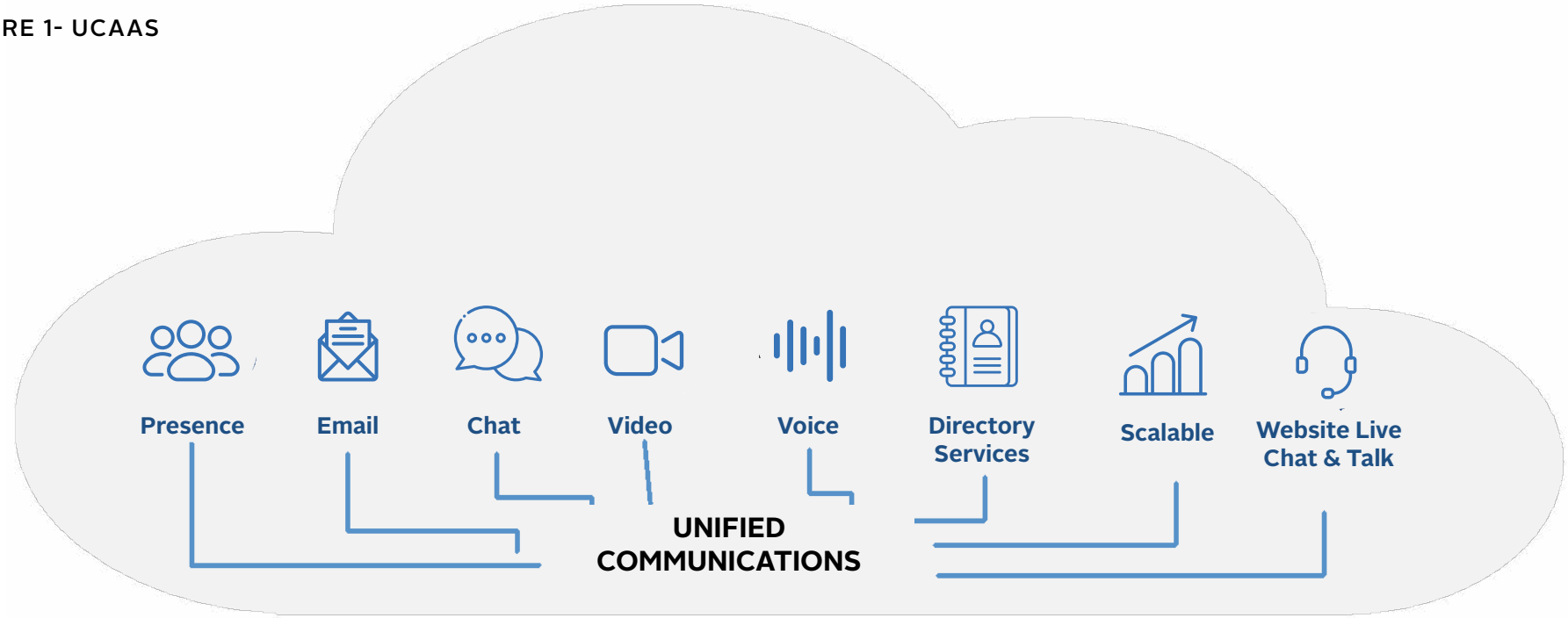
Unified Communications as a Service (UCaaS) White Paper

A. EXECUTIVE SUMMARY

Unified Communications as a Service (UCaaS) is the latest technology platform in the evolution of Unified Communications (UC). UCaaS is a cloud service that integrates multiple methods of communication (e.g., e-mail, faxing, instant messaging, voice and video calling, conferencing, mobile communication, and desktop sharing) and provides the user with easy, integrated access to each service. UCaaS can help an agency meet the growing demand for easy access to services due to the rise in remote and hybrid work. Gartner predicted that by 2021, 90% of all new UC purchases would be cloud-based UCaaS.

UCaaS helps agencies reduce capital and operational expenses by moving from on-premise platforms to the cloud. The goal of the UCaaS solution is to enhance the ability of agency personnel to communicate, collaborate, and exchange information by integrating separate communication services. UCaaS can also alleviate resource costs by transferring the responsibilities of operating and managing UC to the provider while increasing the capabilities and features available to the end-user.

FIGURE 1- UCAAS



B. INTRODUCTION

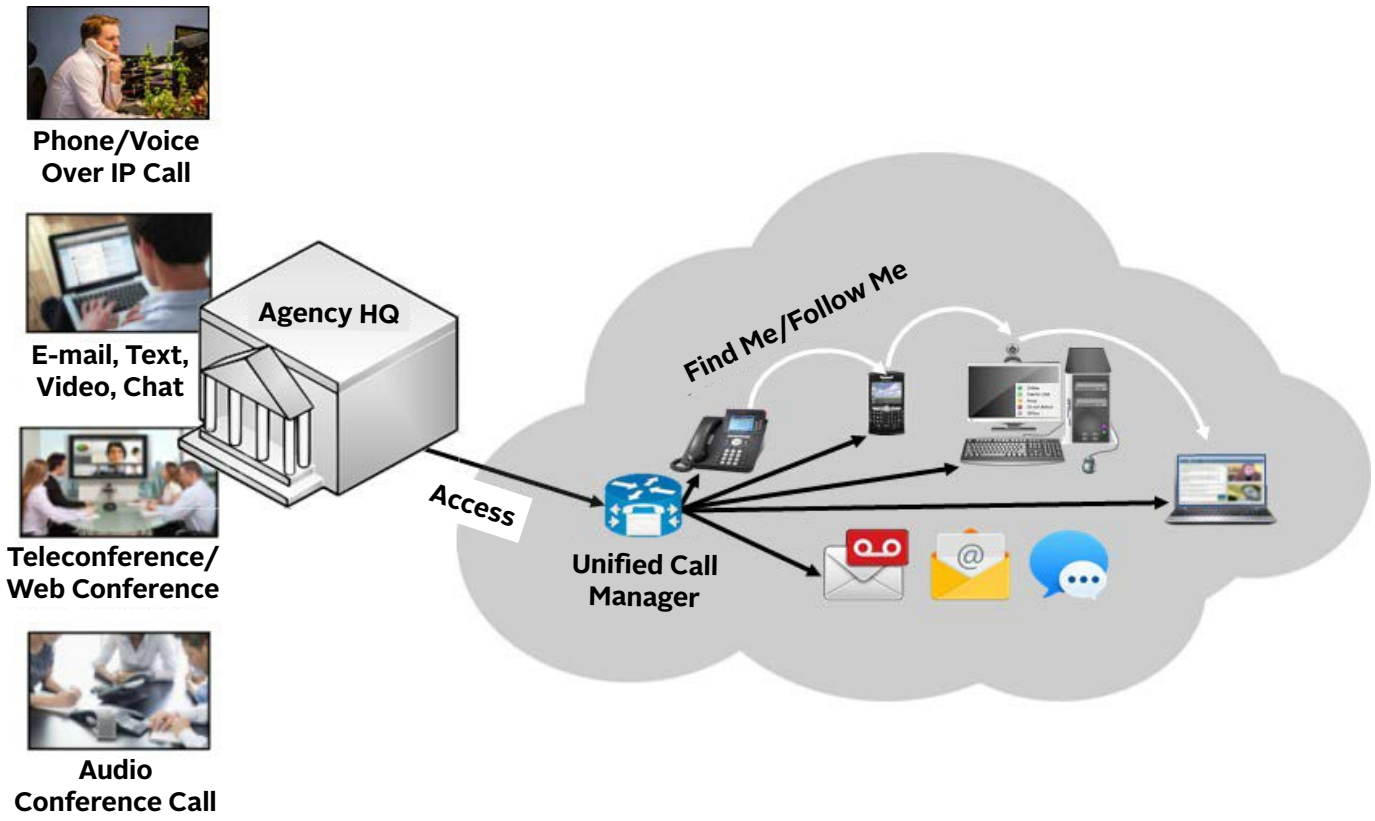
This paper will discuss UCaaS as an integrated telecommunications platform, explore options on UCaaS architecture, present federal guidance and use cases, and provide considerations for ordering. UCaaS is not an EIS service per se, although it falls within the expanded options related to other EIS offerings, such as Unified Communications Service (UCS) and cloud services. This paper will also discuss technical information, advantages, agency benefits, and recommendations for UCaaS.

UCaaS improves team communications and collaboration using connectivity from anywhere, anytime, over a variety of devices. UCaaS is very similar to hosted UCS, an EIS service, but with one major distinction: UCaaS is a cloud service. As a cloud service, any UCaaS offering must include the five essential characteristics of a "cloud service" as defined in NIST SP 800-145 and EIS contract Section 2.5 Cloud Services. The "cloud service" requirements are very specific and are covered below.

- **On-Demand Self-Service**: Provides the ability to select and provision services as needed.
- **Broad Network Access**: Provides universal access to thin or thick client platforms like mobile devices and laptops.
- **Location Independent Resource Pooling**: shared computing resources serving multiple consumers.
- **Rapid Elasticity**: Provides the ability to immediately scale up or down based on user needs and peak demands.
- **Measured Service**: Provides the ability to pay only for used services.

One of the highlights of UCaaS is how it enables an agency to combine independently run communications subsystems without the major capital investment or additional resources for engineering or new network management responsibilities. UCaaS supports a common user interface for agency communications subsystems, such as VoIP-based/enabled subsystems and applications, including unified messaging, instant messaging, presence, voice mail, integration with email where applicable, fax, and video/ audio/web conferencing, and allows users to access systems and information regardless of location.

FIGURE 2 UNIFIED COMMUNICATIONS AS A SERVICE



C. FEDERAL GUIDANCE AND EFFORTS SUPPORTING UCAAS

The Federal Government has increasingly moved toward cloud services as part of Information Technology (IT) modernization strategies. As-a-service offerings are the latest in transforming enterprise environments off-premise into the cloud.
The Federal Government supports cloud adoption through multiple efforts, including:

- The Federal Risk and Authorization Management Program (FedRAMP) offers a standardized approach to authorization, security assessment, and continuous monitoring for cloud-based technologies, including UCaaS solutions.
- The Cloud Smart Strategy, launched in 2018, aims to modernize Federal agencies' IT infrastructure and accelerate the adoption of cloud-based technologies.
- The Cybersecurity and Infrastructure Security Agency (CISA) released the TIC 3.0 Security Capabilities Catalog (version 2), designed to drive security standards and leverage technological advances as agencies adopt mobile and cloud environments.
- The Department of Defense, National Security Agency (NSA) released a Cybersecurity Technical Report, Deploying Secure Unified Communications/Voice and Video over IP Systems (2021), referencing cloud connectivity protections when migrating communications to a cloud environment.

D. THE UCAAS LIFECYCLE PHASES

A. Emerging— UCaaS is the latest cloud-based unified communications, leveraging Voice over Internet Protocol services with advanced communications and collaboration tools. UCaaS allows agencies to move operations from on-premises and hosted data center services into a cloud environment. The consumption-based UCaaS model provides added cost savings.

1. **Research and Development**— Technology is moving at the speed of light, and UCaaS is no different. Operational integration, assessments of the enterprise environment, and security challenges are often the highlight of UCaaS research and development. The evolution of edge security, SD-WAN, Zero Trust internet access, and new as-a-service technologies have resolved many agency security concerns and the ability to "right-size" a solution to allow for efficiencies, security, and enhanced performance.
2. **Early Solutions**— Unified Communications was initially viewed as a convergence of communications platforms or combined voice and data services in a single platform. The early highlights included greater visibility into co-worker availability, follow-me and meet-me collaboration, and e911 accuracy. Unfortunately, many early solutions could not easily integrate with existing platforms and required a hosting facility or data center. Incremental adoption and options for more advanced feature and capability modules were available and allowed agencies to implement only what they needed and plan for future expansion.

B. Initial Adoption— For years, agencies have been working to consolidate services into a solution that can be managed centrally. Early UC solutions offered modules that could be utilized incrementally, and more broadly, agencies utilized VoIP features. Agencies often sought ways to implement UC incrementally and on-premise to maintain controls, but agencies missed out on more enhanced feature capabilities.

C. Broad Acceptance— The need for agencies to reduce costs and improve operational efficiency has fostered a greater acceptance of UC solutions. The shared services initiatives and UC cloud offerings allow more agencies to integrate the collaboration tools without the added capital expense.

Many implementations remain hosted either at data centers off-premise or dually on-premise. For example, agency restrictions on access to a UC cloud solution meant that users could only access over an agency WAN, which requires adequate bandwidth and added network configuration.

D. **Decline**— As the UCS technologies advanced, agencies moved away from VoIP-only solutions and began to utilize additional modules in the same solution. This meant that a vendor solution had to have a wide range of offerings to meet the growing need, or it was replaced by cloud-based solutions with greater flexibility and growth opportunities.

E. **End of Sale**— Vendors no longer sell or install the service on-premise. For example, edge devices, line cards, and chassis will not have an end-of-life, but legacy hardware may sunset.

F. **End of Life**— UCaaS continues to evolve, and using more robust communications and collaboration tools, such as Teams, will impact end-of-life.

G. **Additional Application Paths**— Because UCaaS is the convergence of multiple components, each component will evolve. Upgrades to existing UCaaS components will require agencies to integrate and update specific elements of the UCaaS solution or redesign their existing UCaaS architecture. A purely cloud-based solution accessed directly and embracing the latest security at the edge (SASE) will see greater implementation and bridge the gaps across enterprise applications.

E. TECHNICAL SPECIFICATIONS

UCaaS delivers various capabilities over a single platform that seamlessly integrates multiple communications services to enhance personnel's ability to communicate, collaborate, and exchange information. UCaaS offers the following core capabilities:

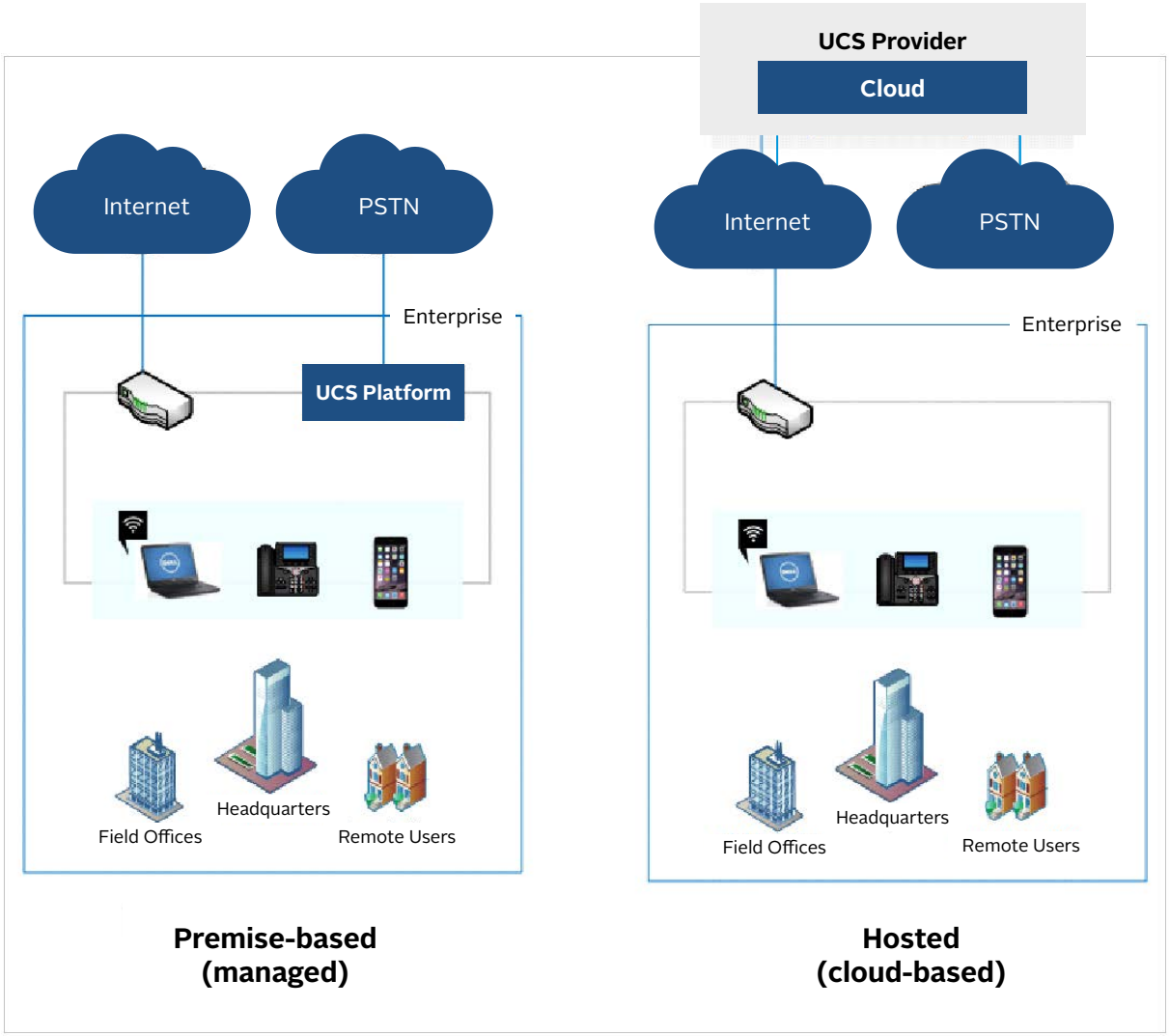
- **Voice and Telephony**—UCaaS offers more than voice functionality and works well with a range of softphones and desk phone solutions. UCaaS can provide access to call analytics, call forwarding, routing, and tracking tools.
- **Conferencing** (audio, web, and video) – UCaaS meets the growing demand for more advanced conferencing capabilities. The top providers offer added features such as in-build scheduling options, virtual backgrounds, and digital whiteboarding.
- **Instant messaging and presence** – Messaging is more popular today than ever, and UCaaS offers web access—and mobile-based applications, expanding team collaboration beyond the desktop. UCaaS can support Short Message Service (SMS) and Multimedia Messaging Service (MMS). Added features may include timed messages, @mentioning, privacy, and real-time presence insights.
- **Cloud-based hosting** – UCaaS allows agencies to move away from the burdens of on-premise UC to the cloud provider. An agency may retain certain functions or data redundancy for more sensitive functions or information.
- **Collaboration Tools** – Most UCaaS solutions provide collaboration tools, employee synchronization, presence, and project management applications. UCaaS file storage platforms are also available, allowing document and knowledge sharing and providing real-time co-editing capabilities.
- **Mobility and Applications** – UCaaS solutions are becoming more flexible, offering mobile options, easier access to Application Programming Interfaces (APIs) for developers, and built-in integration capabilities with partner tools.
- **Unified Communications Interface** – UCaaS provides streamlined access to multiple forms of enterprise communications through a single interface.
- **Communications-enabled business processes** – UCaaS provides methods of embedding automated communications into an existing business process through APIs that facilitate the exchanges between two systems.

- **Management Tools** – UCaaS offers comprehensive cloud-based management tools that enable staff with embedded provisioning capabilities, the ability to update technology, or even track the health and quality of the communications systems from anywhere. This core component of UCaaS also enables application integration capabilities, zero-touch provisioning of tools, end-to-end device monitoring, and resource sharing.

Any UCaaS solution must also meet all federally required security standards for Cloud services, including FedRAMP and Trusted Internet Connection (TIC) requirements.

a. UCaaS Architecture

FIGURE 3 - PREMISE VS HOSTED

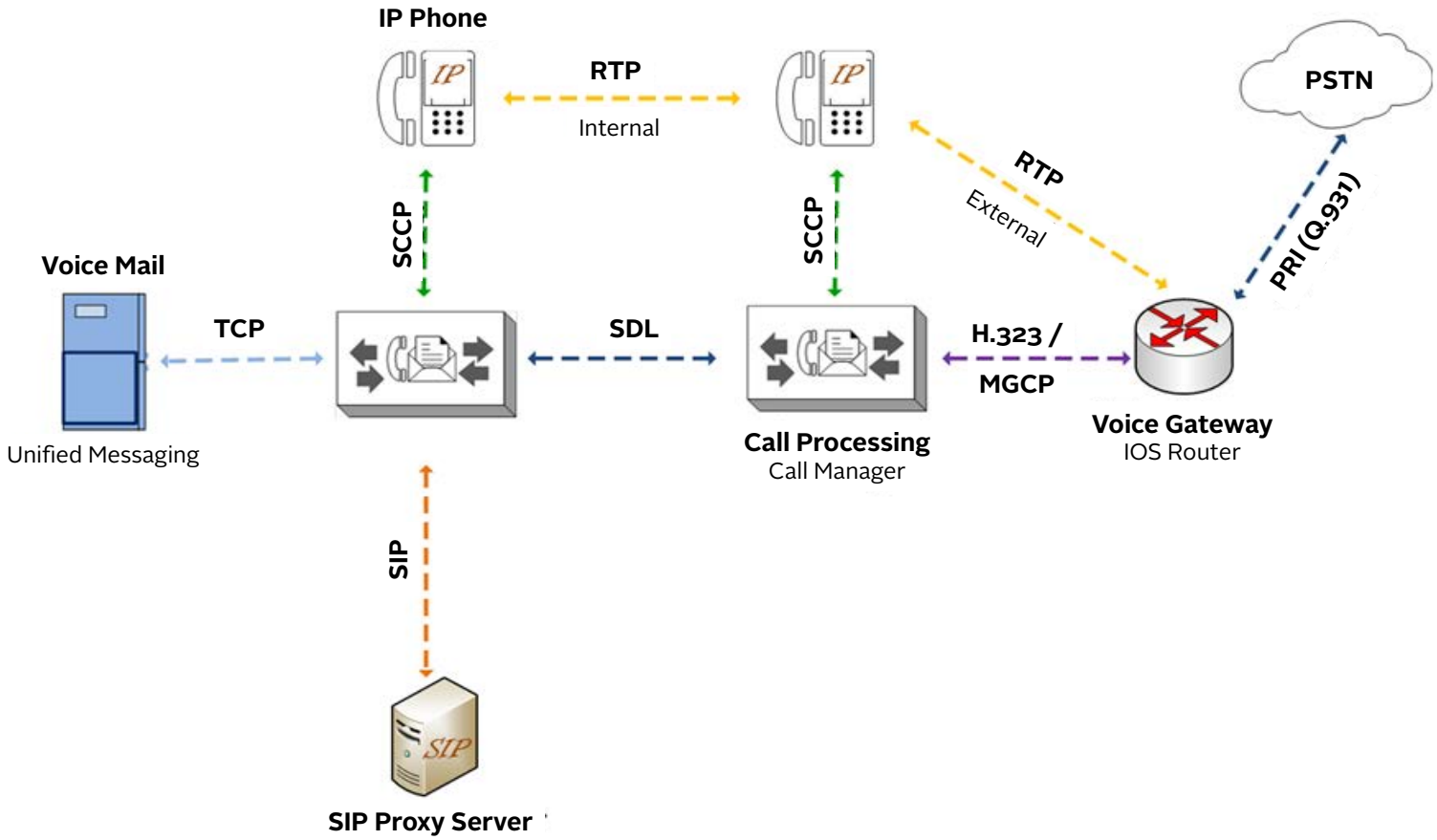


UCaaS offerings typically have three main components:

- Application servers run by UCaaS providers in their data centers, hosted in third-party data centers, or hosted on public cloud platforms, such as Amazon Web Services (AWS), Google Cloud, or Microsoft Azure;
- Downloadable software clients onto user devices or accessed via web browsers using WebRTC or a plugin; and
- Customers access their UCaaS provider via the public Internet or private Wide-Area Network (WAN) links using endpoints such as phones, videoconferencing, and whiteboards.

Companies can bring UCaaS online relatively easily compared to on-premises alternatives, as no complex hardware installation is necessary. UCaaS, which fosters business agility, also enables organizations to shift IT staff away from tedious tasks around siloed, legacy communications platforms to more strategic roles that directly help the business. Most important, however, are employee benefits, including improved collaboration and productivity.

FIGURE 4 - UCAAS BACKEND SET UP (CISCO BASED ARCHITECTURE)



The figure above shows a generic Unified Communication as a Service, Cisco architecture, with all servers hosted on service providers' data centers with client-site components. Local PSTN calling and MPLS connectivity are displayed over a local Voice Gateway, optimizing traffic routing over MPLS. The table below lists the main components and short descriptions.

Main Components	Description
Call Processing	• Unified Communications Manager (Cisco) • Call Manager Express
Endpoints	• Devices (e.g., Cisco ISR 1861, 2800, and 3800 series).
Voice Gateways – Analog or digital	• SIP, H.323, MGCP (dynamic call routing) • Analog – FXO, FXS (connects fax machines, analog phones) • Digital – ISDN PRI's
Applications	• Voice and Unified Messaging (voice mail, auto attendant, etc.) • Call Center: scripts for call routing, etc. • Conferencing

Protocols	• Voice Control – phone conversation
	  • SCCP (e.g., Cisco's skinny) connects with servers
	  • SIP (SDP)
	  • H.323
	  • MGCP

Voice Data – is the protocol	• Real-Time Transport Protocol (RTP) transmission enabling protocol for voice over internet
Two call processing components:	• Direct path one-to-one VoIP calls • Communications via a NAT Device
Quality of Service: Proper handling of voice packets	• Classify – what type of data; voice, data, video • Marking – Priority (high/med/low) • Policing – amount of traffic (voice/data) • Queuing and Scheduling (congestion management and avoidance) • Traffic Shaping, Compression, and Fragmentation – elements across WAN

F. AGENCY NETWORK MODERNIZATION

Cloud-based services support modernization by transferring the maintenance of on-premises hardware and infrastructure to a cloud service provider (CSP). Cloud adoption enables optimization of legacy infrastructures, systems, and applications while improving the user experience. Moreover, UCaaS allows agencies to pay only for those services they need on a consumption basis. Additionally, migrating to a cloud-based solution reduces the agency's overall costs.

One thing to keep in mind before going with a UCaaS solution for enterprise communications is that the agency network needs to be able to support the deployment of real-time UCaaS communications effectively. An agency will need to ensure the network can handle increased traffic. Enhanced network connectivity and performance with broadband and wireless services.

So, when deciding to adopt UCaaS, the agency may also need to optimize its Wide Area Network (WAN). A Single or hybrid solution transformation to a Software-Defined Wide Area Network or Network as a Service will improve access and performance while reducing reliance on resources and costs. A Software-Defined WAN (SD-WAN), with its application-level QoS and prioritization, is one technology that can complement UCaaS.

G. THE EMERGING UCAAS TECHNOLOGIES

Artificial Intelligence (AI)—UCaaS providers are adding AI features, such as automated workflows, intelligent note-taking, transcriptions and meeting summaries, content creation, and the ability to query data stored in other applications from within a UCaaS interface.

AI and Machine Learning (ML) – UCaaS is introducing more intelligent tools capable of offering analytics, virtual assistants, and chatbot support.

Zero Trust – A Zero Trust architecture (ZTA) approach to the cloud is helping agencies boost security and controls. It allows agencies to control exchanges between users, data, and information systems by implementing policy enforcement points in UC areas needing protection with a "never trust, always verify" approach. Data resources, applications, and services primarily cloud-based or used by remote workers are good candidates for a ZTA approach because the subjects and resources are located outside the enterprise network perimeter and are likely to see the most benefit in use, scalability, and security.

Edge Computing – UCaaS benefits from the improved connectivity offered by edge computing, 5G, and other emerging technologies designed to increase communication reliability.

Communications Platform as a Service (CPaaS) – More providers offer UCaaS tools that give access to cloud-based platforms that enable developers to add real-time communications features to their applications without building backend infrastructure and interfaces.

H. CONSIDERATIONS FOR LEADERSHIP/MANAGEMENT

When considering UCaaS as a unified communications option for your agency, here are some key considerations to remember when determining the best solution and total cost of ownership (TCO).

UCaaS expenses—Determine whether the cost of adopting a UCaaS solution offsets on-premise capital and operational costs. Cost offsets may include network assessments, staff time, and third-party fees. The full scope of UCaaS benefits may outweigh the costs. Long-term expenses may end up costing more than the current UC agency solution.

Initial setup—Ensure the initial setup includes everything from phones to fees and other on-premise hardware needed. Setup includes accounting for things like implementation integration fees, the number of users, which solution modules will be set up during implementation, and whether there is a need for on-premise redundant backup data storage and maintenance.

Network – Determine what type of connectivity to use and how much (upgrades, IP phones, connections to the CSP, WAN optimization for quality).
Operations – Evaluate the costs today versus the cost of UCaaS operations in the agency and CSP environments (assessments, management). What, if any, required operational costs? Coordinating operational integration (Internet Protocol (IP) addressing, etc.), helpdesk, and desired service level agreements (SLAs) on performance.

Security – Does the CSP meet agency security requirements for cloud providers, systems, and information? Many agencies require FedRamp-certified solutions as a starting point.

Licensing, storage, and maintenance – Includes monthly costs, extra data storage, and managed services.

Applications - Does the provider have the types of applications you want available?

Cloud Services Integration—Evaluate how flexible the cloud service provider's solution is in terms of its potential to integrate the services with other cloud-based services and applications.

Training – Employees and staff who use or may support a UCaaS platform receive training.
Agencies can opt to migrate or utilize cloud service options incrementally. Most providers offer various modules, each with varying services or applications. Some agencies begin using the Voice Over Internet Protocol (VoIP) portion and then expand to include other applications, such as conferencing and collaboration tools.

I. SUGGESTED ACTIONS FOR AGENCIES

- Before implementation, agencies should assess the current operating environment.
- Network capacity
- Security
- e-911 requirements (see also the specific regulations; OIG)
- Service enabled devices
- Network Internet Addressing
- Deployment strategies
- Data Center access (cloud/on-premises)
- Outages and escalation
- Change Management

J. UCAAS ORDERING GUIDANCE

Order a UCaaS solution under the EIS contract as a cloud service. To find the best solution for your agency, you will want to start by assessing your current environment to develop solicitation requirements. Agencies can use Software as a Service, as an Individual Case Basis (ICB) solution, or modify the Unified Communication Service by using task order unique CLINs (TUCs) to customize UCS as a cloud-based solution. A provider may also offer additional, non-standard solutions by using TUCs.

The agency should also develop a Unified Communications (UC) strategy before submitting a solicitation. The UC strategy should contain, at a minimum, what services and capabilities are required, the agency's current communications applications (Voice Mail (VM), email, Instant Message (IM), etc.), the expected capacity needs (bandwidth, number of users, usage, etc.), and the current and future network topology required (addresses of site locations, current access arrangements, etc.).

The agency must specify the required technical capabilities in the task order solicitation. This solicitation would include the list of services (e.g., email, faxing, instant messaging, voice and video calling, conferencing, etc.) to be integrated by the solution. The agency will need to determine if the needed Service-Related Equipment (SRE), such as IP phones or servers, depends on the type of UCaaS architecture and phones already in place.

To use UCaaS, the agency may need one or more of the following EIS services or equivalents: IP Voice Service (IPVS), Virtual Private Network Service (VPNS), and other Managed Services such as Audio Conferencing Service (ACS), Video Teleconferencing Service (VTS), and Web Conferencing Service (WCS). To use UCaaS, the agency would need appropriate EIS Access Arrangements (AAs) or the equivalent. Ordering AAs requires an EIS service. Options for complementary service purchased a la carte and integrated with the UCaaS solution are possible.

K. GSA CONTRACT VEHICLES BIC CONTRACTS

Best-in-Class (BIC) is a government-wide acquisition designation for contracts and vehicles that multiple agencies can use. BIC acquisition solutions reduce contract duplication by better leveraging the Government's collective buying power and helping agencies operate more efficiently. They also increase transparency and standardization to improve data-driven business decisions, reduce administrative costs, and eliminate practices that dilute or diminish the Government's shared purchasing power. For more information about these contract vehicles, visit the GSA Acquisition Gateway.

L. GSA IS HERE TO HELP

If you would like more information on the topics covered in this paper, please contact your designated GSA representative at https://gsa.gov/nspsupport or call 855-482-4348 to get in touch. GSA has multiple offerings for products, services, and solutions to support your planning, implementation, and continued support of the components of your UCaaS needs. Thank you for reading!

M. CONTRIBUTORS

General Services Administration (GSA)
JPI Solutions (JPI)

UCaaS Use Cases for Deployment

Agencies have options when planning for a cloud migration. An agency will want to consider its priorities, objectives, and security posture when selecting the best option to suit its needs. There are three UCaaS platform architectures available to an agency:

- **On-premise or Single** is a custom-made platform, privately hosted, and sits on-site; easily integrates with on-premises applications.
- **Hosted or Multi** is a shared software and hardware platform,
- **Hybrid** is a mix of a single and multi where an agency can keep security-sensitive applications or information on-premise.

Agencies should consider stakeholder requirements when selecting the UCaaS architecture that best fits their needs.

TABLE 1 UCAAS PLATFORM ARCHITECTURES - PROS AND CONS

	On-Premise / Single	Hosted / Multi	Hybrid
PRO	• Higher level of security • Reliable • Customization options	• Host-provided high security • Cost-effective • Partial customization • Minimal maintenance by the user • Business continuity with redundancy • Highly scalable	• Ability to select specific features • Secure environments • Flexibility • Scalability and agility
CON	• Set-up (HW, space, etc.) costs • Resource intensive (mgt.) • No off-site backups during outages • Lack of scalability	• Limited customization • Less flexible than on-premise • May require infrastructure upgrades	• Moderate pricing (contingent on infrastructure build) • On-premise applications may require support and maintenance by agency resources. • Adds complexity

Regardless of the approach to UCaaS, agencies will need to work closely with their selected provider to ensure their needs are met. These needs include the network and capacity, current call flows, ported phone numbers, equipment, and training of administrators and users.

EXAMPLES OF GOVERNMENT UCAAS CASES

- The General Service Administration (GSA) began its transition in 2010 when it sought to migrate 17,000 employees to a cloud-based email and collaboration system.
- The Department of the Interior (DOI) has also been an avid adopter, investing $10 billion to migrate its IT department to a cloud-based platform.
- The Department of Agriculture (USDA) has not only adopted cloud technology but has begun providing its cloud services to other government agencies.
- The National Information Technology Center (NITC), a branch of the USDA office, offers data center hosting to a range of government agencies while hosting their own data in the cloud as well.

How to Get Unified Communications as a Service (UCaaS) Products and Services

BEST-IN-CLASS (BIC)

Best-in-Class (BIC) is a government-wide acquisition designation for contracts and vehicles that multiple agencies can use. BIC acquisition solutions reduce contract duplication by better leveraging the government's collective buying power and helping agencies operate more efficiently. They also increase transparency and standardization to make data-driven business decisions better, reduce administrative costs, and eliminate practices that dilute or diminish the government's shared purchasing power. For more information, please visit the GSA Acquisition Gateway.

ORDERING GUIDANCE

CONTRACT VEHICLE

Best-in-Class (BIC) Contracts Components

Enterprise Infrastructure Solutions (EIS) - EIS is the go-to contract for enterprise telecommunications and networking solutions. GSA's telecom/IT infrastructure solutions contract replaces Networx and all legacy regional local service telecom contracts. EIS also offers secure wireless services.

Expires 7/30/32

Government-Wide Acquisition Contract (GWAC)

Vendors:

- AT&T Corp. - Large Business
- BT Federal Inc. - Large Business
- Comcast Government Services LLC - Large Business
- Core Technologies, Inc. - Small Business
- Granite Telecommunications, LLC - Large Business
- L3Harris - Large Business
- Lumen - Large Business
- Manhattan Telecommunications - Small Business
- Verizon - Large Business

PRICING BASICS AND REQUIREMENTS DEVELOPMENT

UCaaS is not a standard service on EIS. Instead, EIS offers the flexibility of cloud services with Individual Case Basis (ICB) Contract Line Items (CLINs). The agency and vendor can work out a number of solutions on EIS. The most likely path is to use the Software as a Service (SaaS) cloud service on EIS, and the ICB CLINs meet the requirements of the agency. The agency needs to specify the required technical capabilities in the task order solicitation.

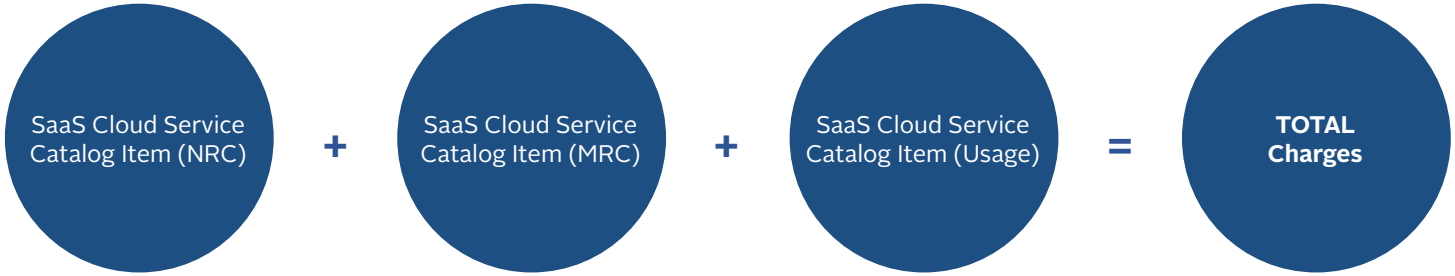
The price structure for SaaS consists of the components shown in the table below.

TABLE 1: SAAS PRICING COMPONENTS

Component	Charging Unit
SaaS Cloud Service Catalog Item: Non-Recurring Charge (NRC)	Individual Case Basis (ICB)
SaaS Cloud Service Catalog Item: Monthly Recurring Charge (MRC)	ICB
SaaS Cloud Service Catalog Item: Usage	ICB

This figure shows how the various pricing components combine to calculate the total SaaS charges. NOTE: One or more of these components may not be needed to price a particular service package.

FIGURE 1: SAAS VARIOUS PRICING COMPONENTS



NOTE: A contractor may offer a custom service variation to meet an Agency's unique requirements. Task Order Unique CLINs (TUC) identify such customizations. It would include added charges to the components in the figure above to determine the total cost of the service (TCO).

CONTRACT VEHICLE PRO/CON

TABLE 2 EIS PROS AND CONS

EIS Pros	EIS Cons
Flexibility to accommodate evolving technologies such as UCaaS solutions.	Development of acquisition solutions for UCaaS solutions can be complex for agencies.
EIS prime contractors can bring on subcontractors providing expertise in UCaaS deployments.	UCaaS is not a standard service on the contract.

Unified Communications as a Service (UCaaS) Lessons Learned and Frequently Asked Questions (FAQ)

LESSONS LEARNED:

- Focus on Value: In early 2020, the COVID-19 pandemic caused a rapid increase in the use of cloud services such as UCaaS. In the current environment, there are lessons learned, and the focus has shifted to long-term benefits and value.
- Develop an enterprise strategy that considers plans for a multi-cloud environment with multiple providers, an enterprise-wide operating framework, and security and governance policies.
- Pilot Implementations: The use of small initial implementations (pilots) can help identify connectivity and security issues while demonstrating the advantages of a more significant deployment.
- Security and Governance: Agencies must ensure that UCaaS solutions comply with any mandates, regulations, and laws governing the protection and privacy of the agency's data.
- Government-Furnished Equipment (GFE): Whenever possible, utilize GFE managed by the agency and designed for government use.

FREQUENTLY ASKED QUESTIONS (FAQ):

Is UCaaS a managed service?

- While UCaaS is considered a cloud service, it offers voice service, collaboration, video, chat, presence, and more in a unified cloud-hosted platform that can be completely managed for an agency or an agency may retain some management capabilities.

Why would I consider a UCaaS solution?

- UCaaS offers a complete integration of communications that ensures all users have access to applications and information regardless of location.

What is the difference between UCaaS and Contact Center as a Service (CCaaS)?

- UCaaS supports individuals and teams, whereas CCaaS is designed to support a call center.

What is UCaaS monitoring?

- UCaaS monitoring tools measure the UCaaS user experience by providing key performance indicators (KPIs), visibility, and insight based on application, session, and network availability, performance, and health from multiple sources (Gartner).

What are the trends in UCaaS?

- Connectivity that integrates with email, customer relationship management (CRM) tools, Human Resources (HR) software, and other core business functions.

Glossary

ACRONYM LIST

Acronym	Description
AA	Access Arrangements
ACS	Audio Conferencing Service
AI	Artificial Intelligence
APIs	Application Programming Interfaces
AWS	Amazon Web Services
BIC	Best-in-Class
CCaaS	Contact Center as a Service
CISA	Cybersecurity and Infrastructure Security Agency
CLIN	Contract Line Items
CPaaS	Communications Platform as a Service
CRM	Customer Relationship Management
CSP	Cloud Service Provider
DOI	Department of the Interior
EIS	Enterprise Infrastructure Solutions
GFE	Government Furnished Equipment
GSA	General Services Administration
GWAC	Government-Wide Acquisition Contract
HR	Human Resources
ICB	Individual Case Basis
IM	Instant Message
IoT	Internet of Things
IP	Internet Protocol
IPVS	Internet Protocol Voice Service
IT	Information Technology
KPIs	Key Performance Indicators
ML	Machine Learning

Acronym	Description
MMS	Multimedia Messaging Service
MPLS	Multiprotocol Label Switching
MRC	Monthly Recurring Charge
NITC	National Information Technology Center
NRC	Non-Recurring Charge
NSA	National Security Agency
SaaS	Software as a Service
SD-WAN	Software-Defined Wide Area Network
SLA	Service Level Agreement
SMS	Short Message Service
SRE	Service Related Equipment
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TCO	Total Cost of Ownership
TIC	Trusted Internet Connection
TUC	Task Order Unique
UC	Unified Communications
UCaaS	Unified Communications as a Service
UCS	Unified Communications Service
USDA	United States Department of Agriculture
VM	Voice Mail
VoIP	Voice Over Internet Protocol
VPNS	Virtual Private Network Service
VTS	Video Teleconferencing Service
WAN	Wide-Area Network
WCS	Web Conferencing Service
ZTA	Zero Trust Architecture

Contributors

Organization	Introduction	Slip Sheet	White Paper	Use Cases	How To Get	FAQ/Lessons Learned
General Services Administration (GSA)	X	X	X	X	X	X
JPI Solutions (JPI)	X	X	X	X	X	X

Appendix A References

- **Federal Cloud Computing Strategy:** https://cloud.cio.gov/strategy/
- **TechTarget – Generative AI (1 of 7 UCaaS features):** Top 7 UCaaS features to enhance productivity | TechTarget
- **Tech guidance – 8 Security Considerations for UCaaS**
- **TechTarget – Unified Communications:** What is Unified Communications (UC)? (techtarget.com)
- **Intercity Unified Communications:** What's the difference between cloud, on-prem and hybrid UC? (intercity.technology)
- https://www.intercity.technology/blog/difference-cloud-prem-hybrid-uc
- **The State Of Unified Communications As A Service, 2022:** https://www.forrester.com/report/the-state-of-unified-communications-as-a-service-2022/RES177823