Enterprise Infrastructure Solutions (EIS)

Unified Communications as a Service (UCaaS)

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1 Background

This whitepaper addresses Unified Communications as a Service (UCaaS). 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, which improves agency efficiency and effectiveness.

Many agencies have some or many of the services typically associated with UCaaS (instant messaging [IM], voicemail [VM], audio/video conferencing, etc.) but are deployed as 'silos' (i.e., independently operated). The goal of the UCaaS solution is to enhance the ability of agency personnel to communicate, collaborate and exchange information by integrating these separate communication services.

The purpose of this whitepaper is to provide additional details on UCaaS and how it can be procured under EIS even though it is not an EIS service, per se. The target audience is GSA, agencies, and contractors supporting agencies.
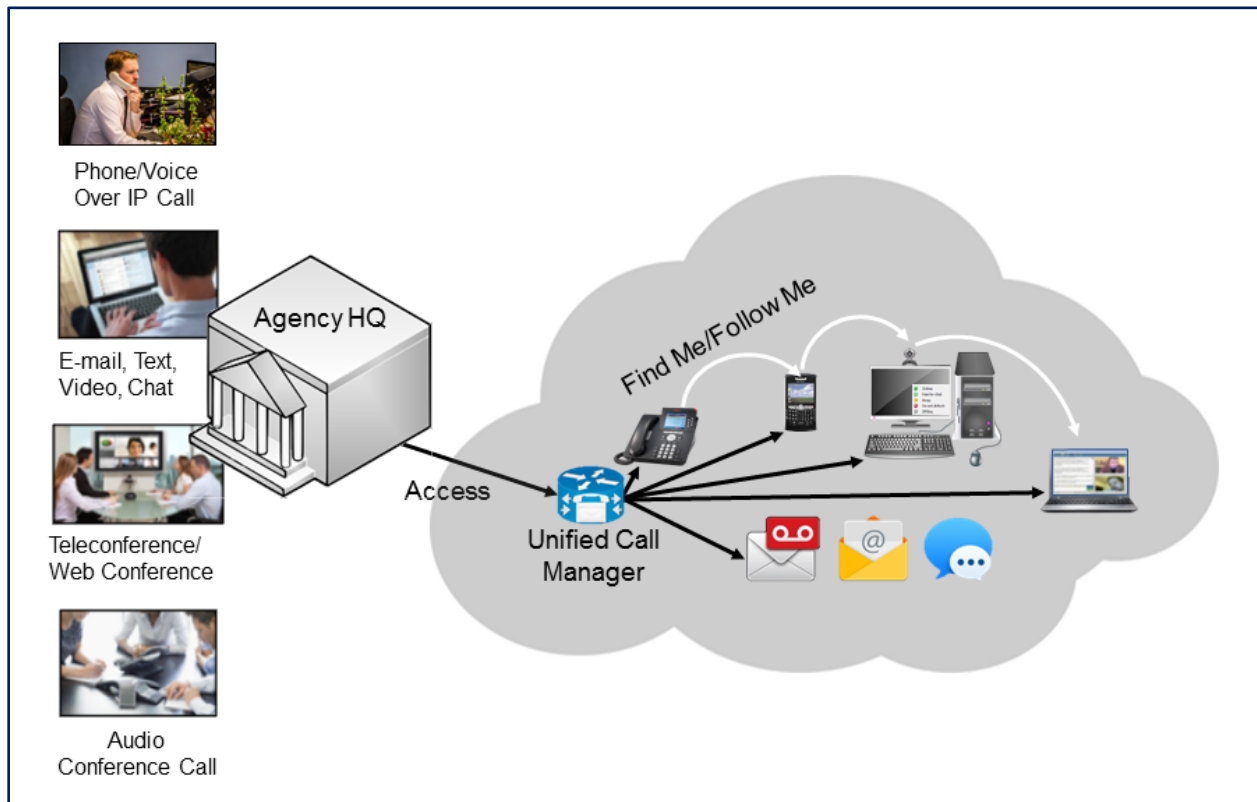

Figure 1 Unified Communications as a Service

2 Why an Agency Might Find UCaaS Attractive

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 messages with any device, anywhere, and at any time.

UCaaS enables an agency to combine independently run communications subsystems to allow communication and collaboration regardless of location without major capital investment, addition of engineering personnel (i.e., IT support), or taking on major new network management responsibilities.

UCaaS can thus complement an agency's existing VoIP deployment, or replace legacy voice services when ordered along with IP Voice Service (IPVS).

One thing to keep in mind before going with a UCaaS solution is that the agency's network needs to support real-time communications for UCaaS to be deployed effectively. So, when deciding to adopt UCaaS, the agency may also need to optimize its WAN. SD-WAN, with its application-level QoS and prioritization, is one technology that can complement UCaaS.

3   UCaaS vs Hosted United Communications Service (UCS)

UCaaS is very similar to hosted United Communications Service (UCS), which is an EIS service, but with one major distinction: UCaaS is a cloud service. UCS, on the other hand is defined as a "managed service" in the EIS contract. While it is true that a hosted UCS solution can also be considered as being in "the cloud," it is not required to meet the definition 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 in **Section 4 UCaaS – Five Essential Characteristics**.

4   Five Essential Characteristics

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**:

- **On Demand Self-Service**: ability to select and provision services as needed

- **Broad Network Access**: universal access to thin or thick client platforms such as mobile devices and laptops

- **Location Independent Resource Pooling**: computing resources are shared, serving multiple consumers

- **Rapid Elasticity**: ability to immediately scale up or down based on user needs and peak demands

- **Measured Service**: ability to pay only for what is used

5 Technical Capabilities

In addition to the cloud service capabilities listed above, UCaaS has additional technical capabilities that center on seamlessly integrating multiple communication services in order to enhance the ability of personnel to communicate, collaborate and exchange information. These capabilities are fully detailed in EIS contract **Section C.2.8.3.1.4 [UCS] Technical Capabilities**. Here is a summary:

1. **UC Capabilities**: Supports enabling UC capabilities via many devices, including desktop phones and mobile devices (smart phones, tablets, etc.), wireline and IP phones, soft clients, and video conferencing devices.

2. **Unified Messaging**: Consists of four capabilities including providing user access to and management of voice mail, e-mail and fax messages through the same inbox or interface.

3. **Mobile Integration**: Comprises six capabilities including supporting handing off calls from cellular to Wi-Fi connections and vice versa on smart phones.

4. **Unified User Interface**: Comprises 18 capabilities including: (a) access from IP phones, mobile phones, web browsers (may not be offered by all vendors), e-mail clients, desktop clients, PCs, tablets and (b) collaboration and data sharing (electronic bulletin boards, e-Calendar, Audio/Video/Web conferencing).

5. **QoS**: Provides the following capabilities to support QoS, if UCS is provided over the contractor's IP network: (a) Configuration Options for QoS, (b) Traffic Prioritization, and (c) QoS Queuing Methods and Scheduling.

6. **Premises-based WAN Optimizer**: Provides a premises-based WAN optimizer to collect only the changes from each site, if the compilation of the current status of all users being logged on is transmitted over the agency WAN (NOTE: This service may not be offered by all vendors).

7. **IPv4 and IPv6**: Supports both IPv4 and IPv6 and is able to communicate over IPv4-only, IPv6-only, and/or dual-stack networks.

8. **Voice Quality**: Meets a minimum voice quality level that is equivalent to or better than a Mean Opinion Score (MOS) of 4.0 as specified in ITU-T specification P.800 series.

9. **Security**: Complies with agency-specific security policies, regulations and procedures to minimize susceptibility to security issues and prevent unauthorized access.

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

6 Features

UCaaS has no features as the EIS contract defines no features for UCS.

7 Complementary Services

In order 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). Complementary services may be purchased a la carte and integrated with the UCaaS solution.

8 Procurement Approach

A UCaaS solution can be purchased under the EIS contract by issuing a task order solicitation for a Software as a Service (SaaS) solution. It is important for the agency to specify the required technical capabilities (refer to **Section 5**) in the task order solicitation. This solicitation would include the list of services (e.g., e-mail, faxing, instant messaging, voice and video calling, conferencing, etc.) to be integrated by the solution.

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

A contractor may offer additional, non-standard solutions by using task order unique CLINs (TUCs).

NOTE: In order to use UCaaS, the agency would need appropriate EIS Access Arrangements (AAs) or the equivalent.

8.1 Access Arrangements

Appropriate Access Arrangements (AAs) must be selected for each endpoint. Please visit the EIS Service Guides and locate the Access Arrangements Service Guide for more detailed information.

NOTE: AAs can only be ordered *with an EIS service*; they cannot be ordered alone.

8.2 Service Related Equipment (SRE)

SRE must be chosen based on equipment required at each location. The vendor will propose equipment and use its' catalog to add, edit and remove SRE over the life of the service.

NOTE: SRE uses catalog-based pricing.

8.3 Price Components

SaaS is a catalog-based service consisting of an NRC charge, an MRC charge, and a Usage charge. One or more of these components may not be needed to price a particular service package.

Table 1 SaaS-Based UCaaS Price Components

Component	*Charging Unit*
SaaS Cloud Service Catalog Item (NRC)	ICB
SaaS Cloud Service Catalog Item (MRC)	ICB
SaaS Cloud Service Catalog Item (Usage)	ICB

9 Service Level Agreements (SLAs)

The UCaaS performance levels and AQL of KPIs are provided in the table below. This table is identical to the KPI tables in the SaaS subsections of **Section C** in the EIS contract. The agency should also include any needed custom SLAs in the solicitation, but should keep in mind that non-standard SLAs may increase the cost of the UCaaS solution.

Table 2 Table Referenced by EIS Contract Section C.2.5.3.4 SaaS Performance Metrics

KPI	Service Level	Performance Standard (Threshold)	AQL
Availability	Routine	99.95%	≥ 99.95%
Time to Restore	Without Dispatch	4 hours	≤ 4 hours
	With Dispatch	8 hours	≤ 8 hours

10 Connectivity

The connectivity requirements are defined in EIS contract **Section C.2.5.3.1.3 [SaaS] Connectivity**.

Appropriate Access Arrangements (AAs) must be selected for each endpoint. Please visit the EIS Service Guides and locate the Access Arrangements Service Guide for more detailed information.

NOTE: AAs can only be ordered *with an EIS service*; they cannot be ordered alone.

Appendix A References

A.1 EIS Contract

- [Enterprise Infrastructure Solutions Contract Basics](#)

- [EIS Contracting Frequently Asked Questions (FAQs)](#)

- Please refer to a contractor's EIS contract for specifics on the contractor's offerings.

A.2 EIS Services

- [EIS Service Guides](#)

A.3 EIS Fair Opportunity Process

- [EIS Fair Opportunity and Ordering Guide](#)