UNIVERSITY OF HAWAI`I
REQUEST FOR INFORMATION (RFI) NO. 20-0079
NEXT GENERATION VOIP PLATFORM
OCTOBER 14, 2019

1.0 EXECUTIVE SUMMARY

The University of Hawaii System ("University") seeks responses to this Request for Information (RFI) to assist in establishing a Next-Generation VoIP Platform (NextGen-VoIP) that will be the basis for the delivery of system-wide telephony and related application services. Responses to this RFI are not offers and cannot be accepted by the University to form a binding contract. This RFI shall not limit any rights of the University, and the University reserves all its rights including but not limited to its right to elect not to procure the goods and/or services that are the subject of this RFI and its right to procure them from a vendor that has not responded to this RFI.

The University recognizes that the NextGen-VoIP platform may require changes in the way that telephony and related application services are provisioned, delivered, and supported; that the system may impact the design and provisioning of system-wide IP services; and, that these changes will likely require a phased adoption of the NextGen-VoIP over a multi-year period in order to ensure the delivery of qualified services to the University community with minimal downtime.

Given the size of the potential opportunity, the University believes that the NextGen-VoIP platform will allow it to effectively manage and deploy high-value real-time communication services and related applications in a manner consistent with an enterprise having the breadth and complexity of a forward-looking facilities-based competitive telecommunications carrier.

2.0 INTRODUCTION

The University operates ten campuses and dozens of educational, training and research centers located throughout the State of Hawaii. As the public system of higher education in Hawaii, the University is a multi-dimensional operation conducting education, research, and public service programs. The University operates a robust, reliable and high capacity systemwide IP network across all islands. The University also has multiple high capacity and redundant circuits to the Internet and Internet2.

Telephony services are currently delivered by employing a system of Nortel/Avaya CS1000 VoIP PBXes. These CS1K's were installed in 2010-2012 as part of an upgrade from the legacy Nortel PBXes and leveraged much of the backend infrastructure that was deployed at that time. As part of this upgrade, the University built out a systemwide VoIP network using virtual routing and forwarding (VRF) features of its network infrastructure. All necessary switches and cabling throughout the University system were replaced, upgraded and provisioned with PoE switches to provide PoE power to the Avaya phones.

Each campus' CS1K is connected to a central Avaya Session Manager that controls call routing between campuses as well as a central Avaya Aura Messaging Server for voice mail. Avaya SIP trunking connects the campus CS1Ks to the central Session Manager and toll-bypass/tail end hop off is configured on those trunk lines. Each campus has different dial plans, call out extensions and class of services. All campuses utilize PRI circuits for local and long distance PSTN access at various quantities. (Each island is a different rate center.) Each campus and their respective CS1K is survivable and is able to function independently of the central Session Manager. In the event of a network outage, access to toll-bypass and voice mail would be down, however other islands or campuses, as well as the PSTN would be reachable as the CS1K would utilize the available PSTN trunk route for access.

The University has built a provisioning system that is deployed to all campuses that allow a phone to boot and provision itself automatically based on MAC address of the phone and PBX provisioning data.

Inclusive of all statewide locations, the University currently supports approximately 10,828 VoIP lines, 1885 analog lines, and 12,713 voicemail boxes. Current Avaya IP Handsets may need to be replace depending on the solution as they run Avaya UniSTM protocols. While there is an Avaya SIP firmware available, licensing prohibits the use of the SIP software if a non-Avaya server is being used. Refer to Appendix for estimated per site line counts.

3.0 GOALS OF THE NEXT-GEN VOIP PLATFORM

The University is looking to the future to establish its next generation communication service platform as the basis for the ability to deliver cost-effective basic telephony services, AND enable the delivery of high-value applications to take full advantage of current and future capabilities of VoIP infrastructure empowered technologies that meet the needs of the current workforce. The NextGen-VoIP system must be robust enough to deliver carrier-like capabilities, flexibility, and performance, to any of the University's statewide locations while adhering to industry standards to allow for third-party devices to easily connect to and participate in the voice network. The NextGen-VoIP system must require minimal capital investment, and allow the University to reduce its baseline recurring, out-of-pocket operating costs.

Existing telephony services are severely constrained with proprietary protocols and limitations that require substantial workarounds. While the University's currently in service VoIP system is fully functional, robust and reliable, the University is faced with the looming end of support and resulting operational costs that require it to look to the future for standards-based VoIP services that meet the changing needs of today's mobile workforce.

The University requires that its NextGen-VoIP system delivers strategic capabilities, including:

- Core architecture engineering and support requirements consistent with standards compliant commodity IP networks and open systems, including the suite of SIP standards. The University intends to fully exploit the ready availability of commodity SIP devices and soft clients throughout its network. Respondents are cautioned that any requirement to introduce proprietary protocols or non-standards-based approaches will be viewed as less-than-desirable.
- The core must fully support both IPv4 and IPv6 addressing schemes to ensure compatibility with the University's IP network. Both IPv4 and IPv6 co-exist on the University's networks.
- Hosted, On-premise or hybrid architectures will all be considered.
- Architectures must provide adequate security to ensure sufficient access to systems and applications, as well as afford protection of all of the critical architectural elements.
- Architecture must provide for survivability for campuses in the event of network outages. Minimum requirements are for local campus and PSTN inbound and outbound calling.
- Broad applications support that is well integrated with the NextGen-VoIP core architecture, including, but not limited to unified communications, presence, conferencing, multi-media support, and collaboration.
- Support for the range of commonly available and standards-based customer devices, including software clients supporting all major desktop and mobile operating systems.
- Support for PSTN access with existing PRIs and/or SIP trunking should that be used in the future.
- Support for broadcast notification at a system, campus, and granular zone level (i.e. department/building, etc) level.
- Flexible configuration, administration, and management tools supporting a high level of granularity, including system-wide, campus, departmental and workgroup operations. Ability to fully control, operate and administer the entire system with a "minimum number of personnel". The architecture must support a single, common system-wide administrative and management database to ensure consistent support and operation regardless of the division of responsibility. The database must be replicated across all campus locations in order to ensure fully survivable distributed operations, i.e. continuous operation on a campus by campus basis when connections to the rest of the system are unavailable.
- Seamless scalability ranging from a small, initial technology trial (e.g., under 200 endpoints), through broad state-wide enterprise-class support of at least 20,000, preferably more, endpoints. The scaling must occur without hardware or software "forklift" activities to preserve the skills and experience gained by University personnel beginning with the initial technology trial.
- Ability to easily interconnect and interoperate with existing legacy telephony assets.
- Ability to fully participate with the evolving community of IP telephony service providers, including peering opportunities with similar entities, as well as legacy PSTN and traditional long distance providers.
- Standards-based provisioning (i.e. DHCP/TFP) allowing for UH to customize/develop provisioning processes that allow for flexible deployment options for all campuses (independently of each other).
- Self-Administered/Managed/Supported to the extent possible with regards to the architecture proposed. The University prefers not to depend on contractors for maintenance services but rather build the skill sets internally and contact the software/hardware vendor directly for service.

4.0 PHASED DEPLOYMENT OF THE NEXT-GEN VOIP PLATFORM – NECESSARY TO ENSURE SUCCESS

Given the significantly large number of endpoints impacted, the University plans to deploy the NextGen-VoIP over a multi-year period to help ensure that the University can successfully deliver on the potential of the NextGen-VoIP system and quickly achieve a high level of customer satisfaction throughout its statewide customer base.

Once the selection of the NextGen-VoIP is complete, inclusive of the requisite procurement and contracting activities, the University will work to deploy its initial implementation of the NextGen-VoIP on a small scale (i.e., supporting approximately a small number of station lines across multiple campuses). The primary objectives of this initial deployment shall be the successful activation of representative core and high-value communications applications, including the full ramp-up of skills within the University's technical staff (required to properly engineer, deploy, administer and maintain the NextGen-VoIP system).

Once the initial deployment of the NextGen-VoIP is complete, the University will deploy the range of applications and services within candidate workgroups to demonstrate the utility of the range of capabilities of the NextGen-VoIP system. Successful completion of these initial trial service deployments will then be followed by production deployments of increasing scale and complexity. The University will scale the NextGen-VoIP deployment up as required to support the expansion of its customer base, including the deployment of geographically redundant core elements and fully survivable distributed location support. In this context, fully survivable distributed location support means that distributed locations, including campuses and groups of customers in off-campus spaces, shall be able to enjoy continuously available basic calling services and features, even if access to core NextGen-VoIP facilities is disrupted for some period of time.

5.0 INSTRUCTIONS FOR RESPONDING TO THIS RFI

The University is requesting input from the community of potential strategic partners, including manufacturers and systems integrators, that are able to provide solutions for its new NextGen-VoIP. Respondents to this RFI shall prepare and submit a written response to this solicitation no later than **4:30 P.M. HST, NOVEMBER 15, 2019**. Respondents shall submit one (1) hard copy and one (1) electronic copy (via e-mail) of its response to:

Chris Zane
Network Engineering Manager
Information Technology Services
University of Hawaii
2520 Correa Road
Honolulu, HI 96822

Email: czane@hawaii.edu

Respondents are responsible for ensuring delivery of its response by the response deadline; the University shall confirm receipt of all timely submitted responses via e-mail.

Responses should address the following:

1) A complete description of the product(s), architecture and implementation approach recommended to satisfy all of the University's requirements.
2) A description of the strategy and approach recommended to help the University achieve its objectives of implementing its NextGen-VoIP system as described above. This should include a complete discussion of any design and development activities already underway, the extent to which you would engage the University in design and/or development activities, and specific timelines for development and deployment.
3) Background information and a brief history of your company.
4) Current client references, similar in size and/or complexity to the University, who are using the proposed solution.
5) The budgetary cost of ownership projections including narrative information regarding the basis of the projections so that the University can assess cost reasonableness and likely applicability to the University's situation and environment. Include a detailed breakdown of cash and non-cash and recurring and non-recurring costs; describe any and all applicable licensing cost models in support of the recurring and non-recurring costs.
6) Expectations of what the University must provide in order to ensure the successful implementation of the NextGen-VoIP platform, including elements such as, staffing, hardware, environmentals, etc. Responses shall include in its estimates any ongoing technical, functional and administrative labor required of the University to operate the NextGen-VoIP platform.

In addition to those capabilities listed in Section 3 – Goals of the NextGen-VoIP Platform, please list any **ADDITIONAL** or **SPECIAL SERVICES** that you would be able to provide in conjunction with the deployment of the platform.

All materials submitted in response to this RFI shall become the property of the University and shall be subject to public inspection to the extent required by applicable law. Individuals and firms submitting responses may designate specific information in their submissions relating to trade secrets and/or proprietary data as confidential. In the event of a request for the public inspection of information so designated, the request shall be subject to written determination by the Office of the University General Counsel for confidentiality in accordance with Chapter 92F, Hawaii Revised Statutes, and subject to further appeal as provided therein.

Any questions regarding this RFI should be directed via e-mail to Chris Zane at czane@hawaii.edu. The University reserves the right to incorporate in a later solicitation, if issued, any recommendations presented in response to this RFI.

The University shall not be responsible for any costs associated with developing and submitting a response to this RFI. Neither the University nor any individual or firms submitting responses to this RFI shall have any obligations as a result of this RFI.

Based on its assessment of the information received in response to this RFI, the University may request additional information from one or more respondents, may request presentations regarding capabilities and development activities underway, may request visits to reference sites, or any combination of these or other activities that may help the University understand its opportunities. Additionally, the University may issue a formal RFP based on responses to this RFI.

APPENDIX

Campus	Analog	IP Phone	PRIs	VoiceMail Boxes
UH Manoa	1,254	6,755	14	5,457
UH Hilo	175	885	2	776
Maui College	97	518	2	496
UH West Oahu	30	272	2	249
Honolulu CC	76	433	2	331
Windward CC	45	350	2	283
Kapiolani CC	82	553	2	525
Leeward CC	47	517	2	480
Kauai CC	35	216	1	234
Hawaii CC	44	329	1	260
Totals	**1,885**	**10,828**	**30**	**12,713**