Networks, Data Centers & Telecommunications

UW MEDICINE SITE CONFIGURATION STANDARDS

Overview

UW-IT is deploying Voice over IP (VoIP) phone service to improve and expand existing voice services, leveraging state-of-the-art capabilities that allow organizations to share a common voice and data infrastructure. This physical convergence reduces overall costs and administration due to a reduced set of equipment. Voice and data services are logically separated using software protocols that provide for the separation of voice and data traffic and assignment of precedence and priority to voice services. Where feasible UW-IT will implement VoIP service as the supporting equipment is upgraded and/or changed out due to lifecycle maintenance.

UW Medicine Health System has made a business decision to maintain physically separated voice and data network infrastructures until at least 2015. This changes the deployment strategy for voice services at UW Medicine locations. The convergence design model will not be used to support UW Medicine sites. This document defines the standard design and variations that will be provided at the UW Medicine Health System locations, both on and off campus. The purpose of this document is to convey design standards for voice services. This document does not constitute a contractual agreement. Any information provided in this document is subject to change.

Description

UW Medicine Health System locations will follow the non-converged standard at this time. This means when deploying VoIP communications UW Medicine will require physically separated network and voice infrastructures. The standard design deployed at a given location will depend on infrastructure availability and site specific requirements (numbers of handsets, types of services, etc.).

For low-bandwidth locations, voice compression will be used. This will limit the voice bandwidth consumption thus increasing the total call capacity. It should be noted that compression is only performed on voice calls and not on fax/modem type calls where compression can disrupt these services.

Dial-tone and handset charges are subscriber based and are outlined in the IT Services Catalog. Please reference the IT Services Catalog for the current rates, as these charges covered by subscribers. (http://depts.washington.edu/uwtsat/Telephones)

UW-IT will provide uninterrupted power supplies (UPS) for minimal survivability targeted at 20 minutes for voice services unless prohibited by site infrastructure limitations.
Option 1 – Full Voice over IP (VoIP) Service: In locations where infrastructure is available, UW-IT can provide IP services all the way to the handset. The standard design for this option includes:

<table>
<thead>
<tr>
<th>UW-IT FUNDED</th>
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<tbody>
<tr>
<td>• Avaya Aura Communication Manager (voice application connectivity)</td>
<td>• Network router, with one or more circuits depending on bandwidth requirements. (Commercial Ethernet service is recommended)</td>
</tr>
<tr>
<td>• Media-gateway (if required)</td>
<td>• Network switch(es) with Power over Ethernet (PoE) enabled ports</td>
</tr>
<tr>
<td>• UPS</td>
<td>• Infrastructure improvements</td>
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Please note that this is a non-converged design, therefore workstations will obtain network connectivity via a separate data network switch. QoS (Quality of Service) will not be configured on the voice switch.

Optional services available at an additional cost include:

- Uninterruptable power supplies (UPS) for routers, switches, and media gateways that exceed targeted minimal survivability
- Redundant network circuits
- Local PSTN trunks
- Local survivable server (LSP) and Media-gateway

![Figure 1 – Full Voice over IP No local survivability](image1)

![Figure 2 – Full Voice over IP With local survivability](image2)
Option 2 - Hybrid Service (VoIP and TDM): Some UW Medicine locations have older infrastructure that does not support full IP service. This may be due to limited power, space, cooling, or cabling. In these situations, UW-IT can deliver hybrid solution that includes IP phones where capable and TDM service where necessary by using Media Gateways connected to deliver analog or digital handsets. The standard design for this option includes:

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Workstations will connect to the network on the separate data network switch. Where feasible, VoIP phones will be deployed in conjunction with digital or analog phones and will be connected to the voice switch. QoS will not be configured on the voice switch.

Optional services available at an additional cost include:

- Uninterruptable power supplies (UPS) for routers, switches, and media gateways that exceed targeted minimal survivability
- Redundant network circuits
- Local PSTN trunks
- Local survivable server

Figure 2 - Hybrid
**Option 3 - TDM Service:** Some UW Medicine locations have older infrastructure that does not support full IP service. This may be due to limited power, space, cooling, or cabling. In these situations, UW-IT can deliver partial IP service by using Media Gateways connected to analog or digital handsets. The standard design for this option includes:

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Workstations will connect to the network on the separate data network switch. Where feasible, VoIP phones will be deployed in conjunction with digital or analog phones and will be connected to the voice switch. QoS will not be configured on the voice switch.

Optional services available at an additional cost include:

- Uninterruptable power supplies (UPS) for routers, switches, and media gateways that exceed targeted minimal survivability
- Redundant network circuits
- Local PSTN trunks
- Local survivable server
Optional Services

Optional services may be acquired based on business requirement and justification. These services are chargeable to the customer based on the tariff fees associated with the service offering. When an optional service is applied to the telecommunications system the customer is responsible for following the acquisition and maintenance guidelines of the service as defined in the UW-IT Service Catalog.

Power

Local power service interruption to the outlet will result in the provided telecommunications equipment failing over to the UW-IT provided UPS until such time that survivable power is exhausted, at which time the telecommunications equipment will simply shut down until power service is restored. Power service interruption due to act-of-God, loss of power on the energy provider’s grid, or maintenance at the power panel does not count against the service uptime and availability guidelines set forth in the UW-IT Service Catalog. If the customer desires to protect the system from power outage events longer than the UW-IT provided minimal survivability a site survey will be required to determine the building infrastructure support capabilities. If the building infrastructure can support the extended power survivability the customer will be responsible for the difference in cost to provide power for the extended duration.