Campus Wired Network Refresh

Frank Guerra on June 23, 2017
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Background

The Campus Wired Refresh project (also known as the Campus IDF Refresh project) was undertaken to provide a standard network infrastructure platform. The three key projectives are intended to provide a forward-looking technology platform while simultaneously improving the cost / support model.

1. Address existing fiber capacity to support future growth
2. Replace EOL network switches
3. Migration from Cisco network gear to a Juniper solution

Additional opportunities for improvment are intended to address operational considerations, including:

- Refresh EOL or inadequate UPS devices
- Update VLANs to support upcoming project requirements
- Decommission unused / inactive network devices to free space and reduce power consumption
- General clean-up of IDFs, specifically targeting labelling of dressing of cables, removal of items improperly being stored in IDFs, and improving ease of access to network devices

Project Objectives

There is a continuous effort to upgrade and standardize UCSF's network equipment for the wired infrastructure. As a general statement the projects objectives include:

1. **Install VoIP ready equipment as a precursor dependency of the Next Generation Voice Project**
   - Install Juniper POE switches to support VoIP hardware
   - Configure all IDF equipment with VLAN availability to support VoIP, non-VoIP network users, wireless and building maintenance equipment
   - All new Juniper equipment will provide a minimum 1 gigabit wired port speed
   - Equipment selected for replacement is prioritized by the Next Generation Voice [1] project

2. **Update legacy end of life and failing equipment in the campus network**
   - Target the existing Cabletron and Foundry end of life? equipment for replacement. Some Cabletron equipment has been in place for 15 years. Some Foundry equipment has been troublesome and/or failing
   - Edge equipment will be standardized to individual switches in a virtual chassis configuration. This will eliminate the need to upgrade power circuits and UPS?s in many IDF?s and allows ease of replacement in the case of failure

3. **Provide port capacity for the Campus Wireless Network Refresh Project**
   - Provide projected additional port capacity for the wireless project
4. **Reduce overall port count for replacement**

- Identify existing unused ports
- Engineering to recognize unused port count when making projections for replacement port capacity
- One special note: The Community Center at Mission Bay is excluded from the port reduction scenario as its revenue generating capability can be dependent upon events requiring heavy and varied wired port capacity

**Business Need and Business Benefits**

The benefits resulting from the hardware replacements, equipment upgrades, and IDF room build updates include the following:

- Improved infrastructure management from having a consistent hardware platform and known configurations
- Elimination of, or a reduction in, need to maintain spares for equipment no longer in use and that has been removed from the network
- Basis of the technology platform to support the Next Generation Voice [1] and Campus Wireless Network Refresh [2] projects
- Reduction in support costs from narrowing the number of platforms, versions, and installations from multiple vendor platforms to a single, consistent Juniper solution
- Cost saving from the removal of inactive or limited-use network devices to reclaim space and reduce power consumption requirements

**Project Scope and Exclusions**

<table>
<thead>
<tr>
<th>In Scope</th>
<th>Out of Scope</th>
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<tbody>
<tr>
<td>Install POE enabled equipment for VOIP telephones</td>
<td>Re-engineering of network for projects other than for Next Generation Voice [1] (NGV) or wireless refresh projects</td>
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<tr>
<td>Current VLAN configurations</td>
<td>Replacement of equipment that is not in a primary IDF or is in a space marked for renovations or abandonment; e.g. the old riser IDFs in the Medical Sciences building</td>
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<tr>
<td>Identify and reduce unused Ethernet ports</td>
<td>Installation or replacement of copper / fiber cable required for network connectivity</td>
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<td>Leave in place, relocate, recycle, and/or surplus refreshed equipment as directed by Network Operations team</td>
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<tr>
<td>Provide added port capacity for Campus Wireless Network Refresh [2] project</td>
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<tr>
<td>Where possible, install dual 10 gigabit uplinks to new equipment</td>
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**Additional Materials**
Campus Wired Migration Plan (list of buildings in project scope):

Campus Wired Migration Plan [3]

For More Information

For any questions, please contact the IT PMO project manager: frank.guerra@ucsf.edu [4]

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