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 opportunitives 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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Source URL: https://it.ucsf.edu/projects/campus-wired-network-refresh

Links:
[1] https://it.ucsf.edu/projects/ngv
[4] mailto:frank.guerra@ucsf.edu