Vera C. Rubin Observatory
Rubin Observatory Project Office

Third Floor Network Planning

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ITTN-047

Latest Revision: 2021-07-28

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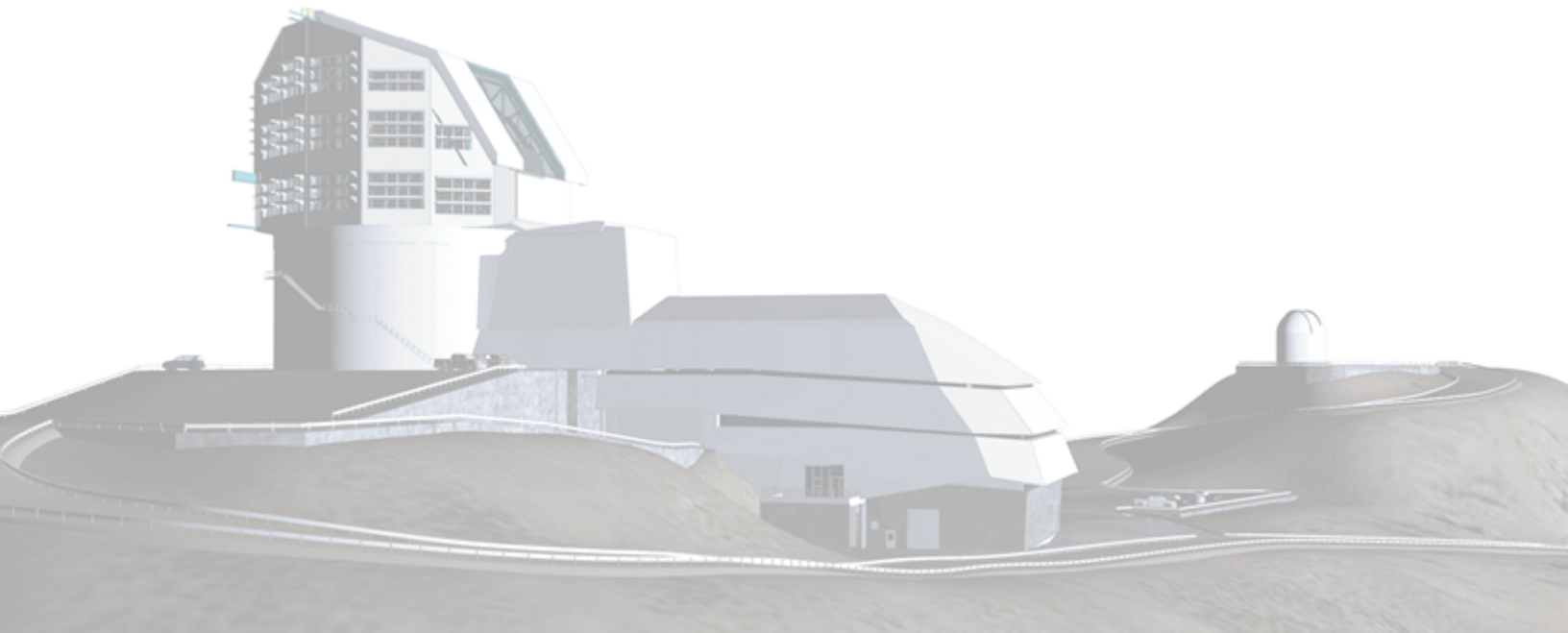

Abstract

The following document details the plan to deploy the fibers, devices, and configuration to provide a solution for the connectivity on the third-floor laboratories at the Vera C. Rubin building at Pachon Mountain.

Change Record

Version	Date	Description	Owner name
1	2021-06-16	Unreleased.	Hernan Stockebrand

Document source location: `https://github.com/lsst-it/ittn-047`

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Third Floor Network Planning

1 Introduction

The following documentation provides a closer look at network installation on the third-floor labs while giving an inside look at the materials used and areas involved. The IT Team at Rubin is in charge of installing the fiber optic cable that originates at the computer room located on the second floor of the main building and extending to the fiber distribution box that IT will install on the third floor. Other Rubin Staff members will carry out any other connections related to this activity.

The IT requirements are the following:

Install six pair single-mode fibers and six pair multimode fibers from the Computer room to the fiber boxes that needed to be installed on the third floor The cables used for this project were OS2 LC Full duplex and OM3 LC Full duplex.

2 Proposed Layout

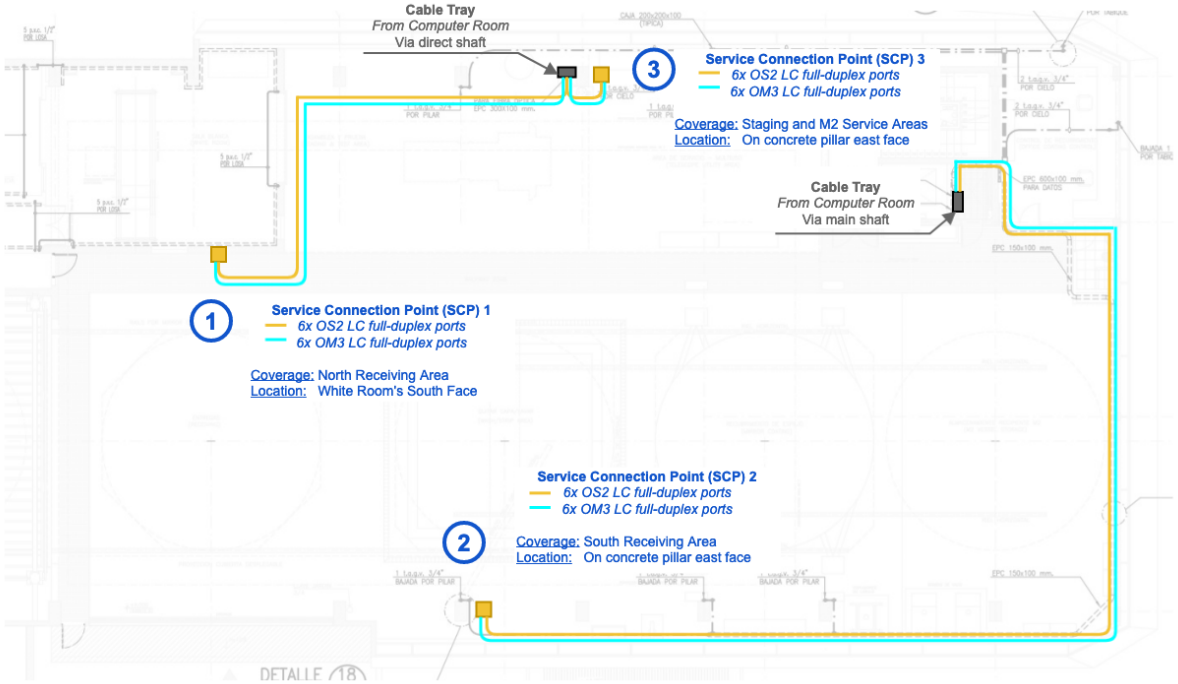

Figure 1: Proposed layout

2.1 Explanation

As the images describe, it is possible to watch the proposed location of the SCP around the laboratories on the third floor, where each cabinet will contain inside a PDU, UPS, and a Gigabit Switch. Also, it will be possible to move at least a few meters the rack from the SCP, with fiber and power extension rolled on a reel assembly

3 Network configuration

3.1 High Level Topology

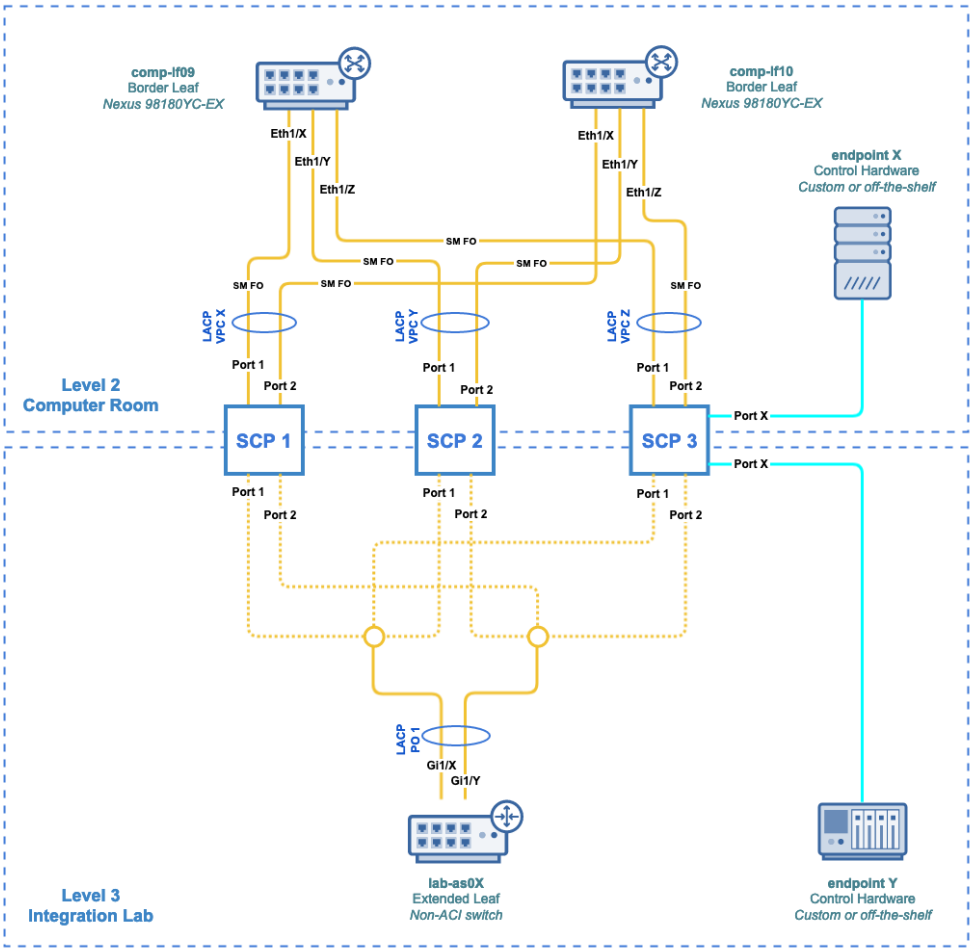

Figure 2: Network configuration High level topology

3.2 Explanation

The above diagram represents the concept of the "always-on" connections to be implemented. The idea is to have a pair of interfaces in the ACI border leafs pre-configured and always cabled up for this purpose. Each pair of interfaces connects to the Service Connection Points (SCP) so that the switches used for integration at Level 3 can physically roam around the floor. The engineers working in the area can get the connection back online only by moving the fibers to the same ports in the next SCP. The diagram shows only one switch, but there will install a Kit (i.e., Mobile Rack, Gigabit Switch, UPS, PDU, and Reel assembly) per SCP. For network connections, you will want to use single-mode all the time to future-proof the install in case of special integration requirements that ask for more bandwidth.

Some relevant points to have in consideration for the implementation:

- All vPCs on the datacenter side should be configured in the same way for this to work correctly and without IT intervention.
- The fabric will see the endpoints mac-addresses "flapping" from one port to another, and Syslog may alert about this
- Label everything properly and provide the non-IT engineers with specific instructions for moving a switch from one SCP to another.

4 Bill of Materials

Qty	Part	Specification	Comments
1	Network Switch	24 Ethernet Ports	SFP Uplinks
3	Server Rack Cabinet	12U	with 3" Casters
8	LC-LC OS2 SM	20m	Indstrial Grade
2	LC-LC OS2 SM	30m	Indstrial Grade
2	LC-LC OM3 MM	30m	Indstrial Grade
30	LC-LC OS2 SM	5m	Indstrial Grade
30	LC-LC OM2 MM	5m	Indstrial Grade
3	UPS	1000kva 110v	
3	Cable Roller		

5 Deployment Plan

Our deployment plan will begin once the new cable trays are installed in the laboratory, then the fiber installation from the Datacenter to the SCP will begin. Once installed the SCP, the fiber technician will fusion the fibers kind of connections on the pre-defined points. The following steps are to assemble the racks with the installation of the devices, including his logical configurations.

The installation of this equipment will require the help of a group of 4 people, and work will carry out throughout four days, taking into fiber install two days, one day to assemble de racks, and one day for logical configuration.

5.1 Deployment Conclusions and Considerations

- Wait around 2 months for the materials to be delivered and have them at the summit.
- All cable installation work must be coordinated one week in advance.

A References

B Acronyms