IT Inventory and Optimization

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Introduction

The PCDS IT group takes care of the technical problems that arise in LCLS. They deal with software and hardware, such as installing machines, fixing broken servers and configuring laptops for new users. My tasks included organizing the rooms and parts that were just scattered, testing hardware, inventory, helping write a script, and shadowing the IT group and helping them in any way I can.

Research

Coming back from last year, I worked with the same group of people. My first task this year was to update the Property Control database, which consisted of taking the Property Control numbers, host names and locations of machines, such as switches and servers. Since last year, some machines have been moved but the current locations have not been documented. The new locations of the machines were changed in netconfig, in the property control database, and the rack profiles that were created last year. Aside from switches and servers, other properties of the Department of Energy, such as laptops, tablets and x-ray cameras, had to be located.

When not in use, equipment and other machine parts are stored in different rooms. Similar equipment may not be placed in the same location so people spend a lot of their time just locating parts, like cards that are used to build servers. There are many types of cards - frame grabbers, memory, battery, raid controllers, EVR, etc. To be more efficient, a list containing information, such as serial number, part number, manufacturer, and description, had to be created. In addition, there are many spare laptops that may have problems or are kept for incoming users. Inventory for spare laptops had information about the serial numbers, memory, service number, operating system, etc. This was also done for servers that were in storage. The cards, laptops, and servers were also organized and placed in one location for easier access.
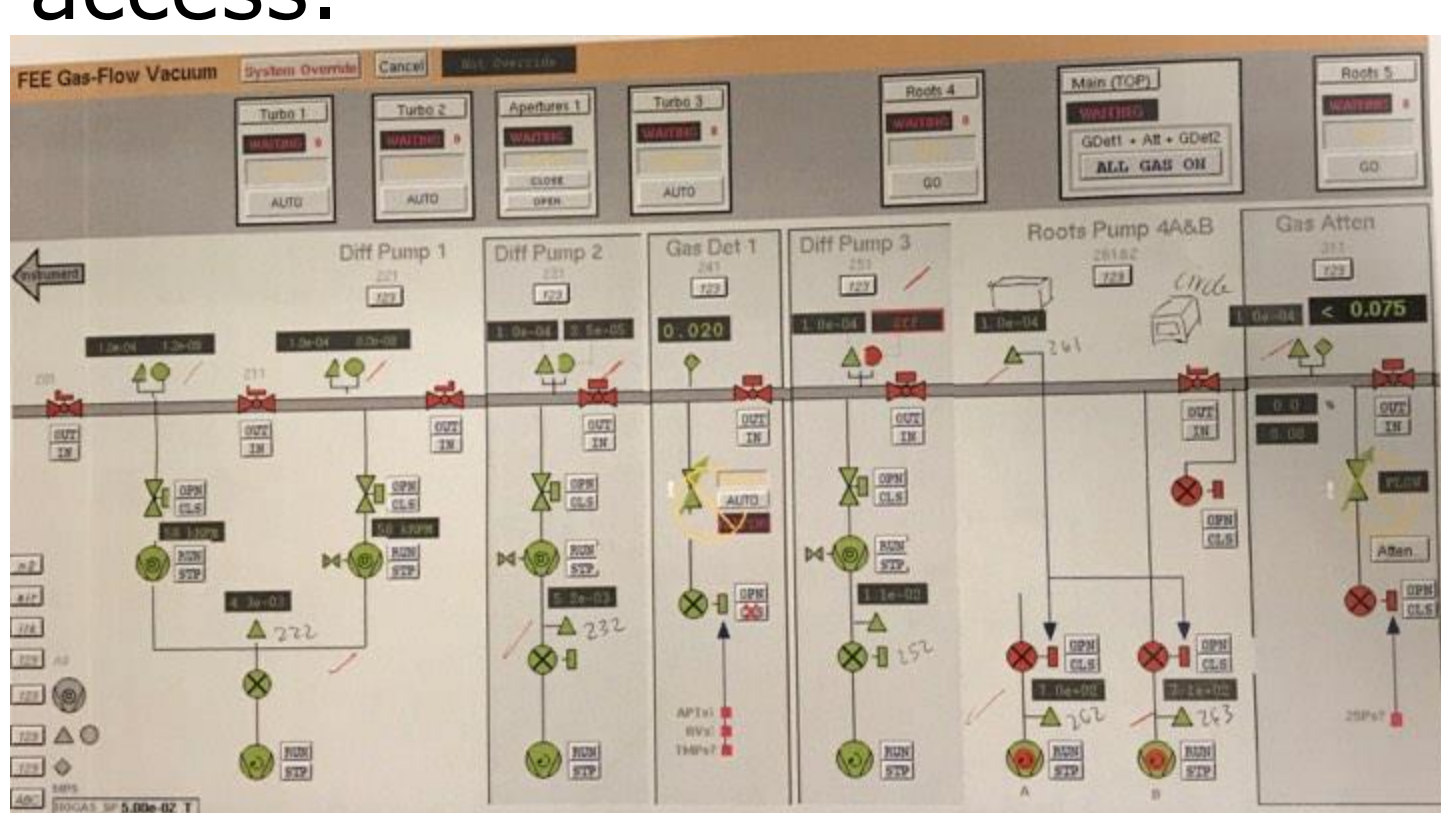

Figure 1. An illustration of the machines in FEE.

Aside from cards and laptops, inventory had to be done for machines in the Front End FEE. Important equipment are used there and they need a list of existing devices to help create a spare parts list. To keep track of this, an illustration was created. I had to determine whether this illustration was up-to-date and was displaying the correct machines. I also had to create a list of the equipment that I saw in the FEE, along with their serial number and description.

Moving from inventory, machines and other computer accessories needed to be tested to know if they can still be kept in storage for future use. One of the machines I tested was a switch. I tested all the ports of the switch using an Ethernet cable and by doing a ping test on each one to determine which ones were bad. I also tested several hard drives for any errors using a driver caddy. Spare keyboards were also tested to see if they were still working properly. They were cleaned and stored properly for future use. Any machine, computer accessory and equipment that do not work are placed in salvage. Before bringing anything to salvage, a form was filled out describing all the things that were being thrown away.

Figure 2. A driver caddy used to test hard drives.

Organization is an important part of IT. The IT group can be busy because of all the technical problems that arise, so to keep the server room organized is a challenge. My task was to clean up and organize any scattered equipment in the server room. I sorted cables that were in a random group, screws that were mixed together, hard drives that are not currently used, and other computer accessories that were left. Moreover, I relabeled some of the optic fibers that were moved over the past year.

My tasks were not limited to hardware only, but also extended to software problems. I helped upgrade workstations in the hutch moment set of commands hostname, I had to check for any package errors, for the kernel version and Red Hat version, for whether the Proxy and CUPS were activated, and update it if it had no errors

Figure 3. Part of the bash script that reboots machines in the hutches.

and were not being used for any experiments in that moment.

Aside from updating the database, I was also able to write a bash script that reboots the ioc, daq, mon and dss machines. These machines can be found in the hutches. The bash script asks the user for which machine he/she wants to reboot. If the input is not in the possible choices, the program ends. Finally, I shadowed the IT group in the tasks they were doing. I helped build a scratch system - which included connecting and disconnecting different kinds of wires, removing and returning hard drives, rebooting and shutting down the systems, and handing over any tools that were needed. I also picked up packages whenever they were busy.

Lastly, I was a dog sitter to Atom, who was sick and needed to be watched for a few days in the office ☺.

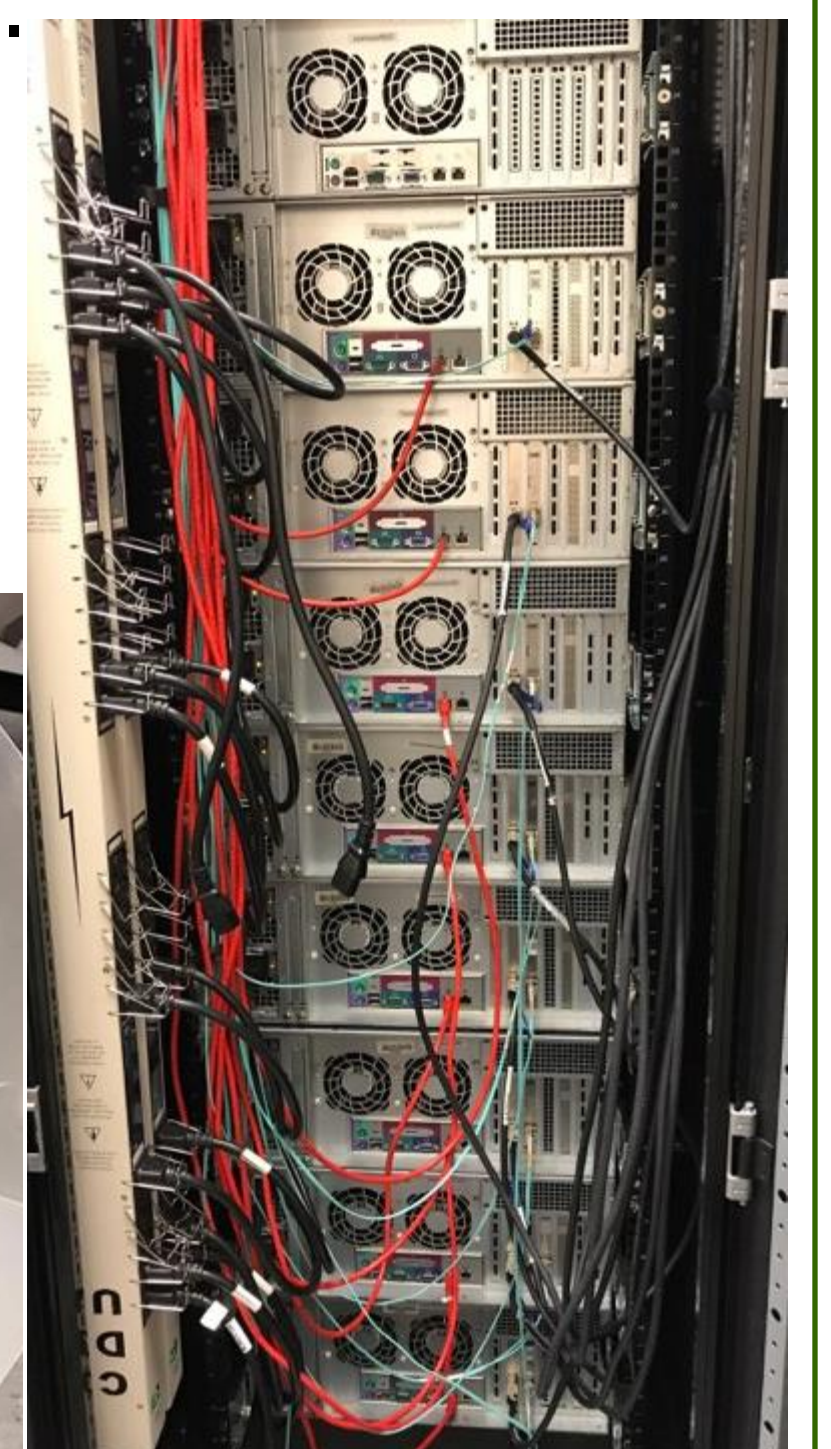Figure 5. Atom, Omar's English bulldog.

Figure 4. Scratch system.

Conclusions

The work I have done for PCDS has helped improve the efficiency of the IT and the Property Control departments.

Time that was previously spent on searching for SLAC property, hardware, cables, etc., and keeping the server room organized, clean and safe was saved. Troubleshooting problems of the fibers and systems will also be largely improved with the updated locations and labels.

Now, less time can be spent on unimportant things and more can be spent on doing the actual work.

Acknowledgments

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