Unix Server Room Proposal

Introduction

This proposal is for the new server room that will be going in the new facility. The proposed plan will include all the technical components of the server room. This proposal will make sure that the facility’s servers can run for the foreseeable future.

Background

This proposal is designed to create a new server room at the new facility that the hospital is making. It must support a minimum of 800 users and 350 workstations, while having enough storage to hold all the relevant data that the doctors will use at the new site. The proposed plan leaves room for any future expansion needed while providing an appropriate number of redundancies and backups.

Benefits and feasibility

The benefits of the proposal include the opportunity to expand in the event of an increased workload and the reliability of the system due to having backups for everything. We expect the proposal to have a 95% success rate, with the other 5% being issues caused by natural causes.

Task description

The server room will be a 10-foot by 20-foot room. The room will contain in total 12 server racks; six server racks with four patch panels, three switches, and one power supply; four server racks with five IBM Power servers, one switch, and one power supply; and two closed racks with four routers, one firewall, one ethernet switch, one IBM Power server, and one power supply. Also in the room are three air conditioning units, one dehumidifier, a main computer to control the servers, two UPS devices that can handle up to 100 kVA, and a replacement server rack that holds the backup servers, switches, and patch panels. In the event of a power outage, there will be a dedicated generator outside the building to ensure the servers stay on and functional. Once everything is installed and running, virtual devices will be made and put on all computers in the building and will be held on the first two ECS servers on each storage rack. After the virtual devices are installed, we will download all the necessary services to the virtual server and provide all 350 workstations with Citrix XenDesktop. We will be using a storage array rather than cloud storage due to the need for fast calls to the database and the security it will provide. Once everything is completed, we will make sure we have enough backup servers and replacement wires to last at least two years, after which we will start gradually upgrading the equipment.

Schedule

We expect the server room and everything inside to be done at approximately the same time as construction finishes, around mid-June of 2024. We expect to have all the equipment by late April of 2024 at the latest. Once construction is complete, we will go around setting up all the computers and laptops that will be used, with an expected completion date of early July 2024.

Resources and cost

Product Cost Total

13 Hubbell NEXTFRAME Open Equipment Frame 36” $9507.42 $9507.42

13 Tripp Lite 1500VA Smart UPS Back Up $12163.06 $21670.48

24 Rapink Patch Panel 24 Port Cat6 with Inline Keystone $1030.80 $22701.28

16 Cisco Catalyst WS-C2960X-48LPS-L Managed Switch $32720 $55421.28

20 IBM Power S1014 $789800 $845221.28

8 Nighthawk® Tri-Band WiFi 6E Router $4399.92 $849621.20

2 TP-Link ER8411 | Enterprise Wired 10G VPN Router $799.98 $850421.18

2 APC Symmetra PX $74000 $924421.18

3 Wall Mounted Mitsubishi Mini-Split WR Single Zone Heat Pump $3206.79 $927627.97

1 Office Dehumidifier - 50 Pint $315 $927942.97

1 ViewSonic VA2447-MH monitor $109.99 $928052.96

Backup servers, wires, and lights $73500 $1001552.96

Manual labor costs $9000 $1010552.96

The total cost of the project is expected to be $1010552.96, with the network team working six hours a day once they have everything.

Conclusion

This project, if accepted, will provide everyone in the facility with a fast, reliable connection to the network. It will be secure and will still function if the power goes out, and we will have backups to make sure everything runs smoothly. This project provides scalability and is prepared for the workload to increase over the next couple of years, which will save the hospital money in the long run. Everything used for the project is up to code and will pass an inspection from any government agency.

Specs

<https://www.ibm.com/downloads/cas/K4XKZVDJ> - IBM Power S1014 spec sheet

<https://www.cisco.com/c/en/us/products/collateral/switches/catalyst-2960-x-series-switches/datasheet_c78-728232.html> - Cisco Switch spec sheet

<https://www.amazon.com/Keystone-Support-Rapink-Pass-Thru-Removable/dp/B09FZKHH2G/ref=sr_1_1_sspa?keywords=patch%2Bpanel&qid=1696609340&sr=8-1-spons&sp_csd=d2lkZ2V0TmFtZT1zcF9hdGY&th=1> - Patch Panel page that contains specs

<https://assets.tripplite.com/product-pdfs/en/SMART1500LCD.pdf> - Rack UPS spec sheet

<http://www.hubbellpremisewiring.com/catalog/model_SF841924.htm?sid=12C0E3B8CC7DAA1C5532A5ECD781DFE1&pid=1218> - Rack specs on page

<https://www.netgear.com/home/wifi/routers/raxe500/> - Router specs are on page

<https://www.amazon.com/TP-Link-ER8411-Enterprise-Integrated-Protection/dp/B0BK9T1P5F?source=ps-sl-shoppingads-lpcontext&ref_=fplfs&smid=AJ8LMC6YR4HCZ&th=1> - Ethernet router specs on page

<https://www.somersetpowersystems.com/shop/apc-symmetra-px-80kva?gclid=Cj0KCQjw9rSoBhCiARIsAFOiplkgZ73SAphzACV-pFrBysTthFsswzCzSv1cIJ28jnxLMpcI12tP0fAaAgLiEALw_wcB> - Standing UPS specs on page

<https://hvacdirect.com/mitsubishi-mz-wr09na-9-000-btu-16-seer-ductless-mini-split-heat-pump.html?utm_source=%7Bgoogle%7D&utm_medium=%7Bcpc%7D&utm_campaign=17232246877&adgroupid=&utm_content=&utm_term=&cq_plac=&cq_net=x&cq_pos=&cq_med=pla&cq_plt=gp&gclid=CjwKCAjw4P6oBhBsEiwAKYVkqzXCNgNycgJzRQMv02nFImYt7noTieZ1J5kU7fGFHo7wegVhPpsiABoCb84QAvD_BwE> - Air Conditioner specs on page

<https://www.uline.com/Product/Detail/H-8555/Warehouse-Fans-and-HVAC/Office-Dehumidifier-50-Pint?pricode=WB0009&gadtype=pla&id=H-8555&gclid=CjwKCAjw4P6oBhBsEiwAKYVkq9wEuhoKG4CcoAfUHpdE99y3ZA4T_YIWyAr0PMeLkJSsiZr9jpgVYRoC5-cQAvD_BwE> - Dehumidifier specs on page

<https://www.newegg.com/viewsonic-va2447-mh-24-full-hd/p/N82E16824117048?item=N82E16824117048&source=region&nm_mc=knc-googleadwords-pc&cm_mmc=knc-googleadwords-pc-_-pla-_-monitors+-+lcd+flat+panel-_-N82E16824117048&utm_source=google&utm_medium=paid+shopping&utm_campaign=knc-googleadwords-pc-_-pla-_-monitors+-+lcd+flat+panel-_-N82E16824117048&id0=Google&id1=19482411089&id2=153453153308&id3=&id4=&id5=pla-1721781830624&id6=&id7=9017606&id8=&id9=g&id10=c&id11=&id12=CjwKCAjw4P6oBhBsEiwAKYVkqy0JtFnMhipb8VKwAhZhY-RfMc89M6qsOZEHrMp66Yz13qPHiH-UZRoCZWIQAvD_BwE&id13=&id14=Y&id15=&id16=643825081351&id17=&id18=&id19=&id20=&id21=pla&id22=8438988&id23=online&id24=N82E16824117048&id25=US&id26=1721781830624&id27=Y&id28=&id29=&id30=16585953209933170169&id31=en&id32=&id33=&id34=&gclsrc=aw.ds&gclid=CjwKCAjw4P6oBhBsEiwAKYVkqy0JtFnMhipb8VKwAhZhY-RfMc89M6qsOZEHrMp66Yz13qPHiH-UZRoCZWIQAvD_BwE> - Monitor specs on page