

## **Cyclotron computing**

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Cyclotron research programs require stable, fast, and secure computational and network resources. To that end, we continued to add infrastructure to accommodate the growing need for cpu power, storage, and network throughput. We also migrated our mail users to the University mail server as required by the recent decision of TAMU to consolidate email services.

The majority of our mail users have been successfully migrated from our departmental mail server to the TAMU central server. This enables us to eliminate headaches having to do with operating a mail server and transfers the responsibility of implementing University policy requirements for confidential data inherent in email as well as mail archiving requirements.

We added two powerful new computational servers, each with the ability to run 40 jobs concurrently, to the lab's general computational cluster. Additionally we provisioned for one particular group a computational docker grid comprised of 1 master node and 4 compute nodes capable of running a total of 48 jobs concurrently. This gives the lab a total of 53 computational servers capable of running 768 jobs concurrently.

Four new DAQ front-ends were brought online. Two small form-factor pc's for USB to VME crate readout and one larger with a PCE slot enabling it to utilize a PCE to VME fiber link for VME crate readout were implemented. We also implemented a Raspberry-Pi ( \$50 credit card sized unix pc ) to test the feasibility of utilizing it as a DAQ frontend for USB to VME crate readout.

A new backup server which has a capacity of 11 terabytes of storage was provisioned and put into production. It is currently at 8% storage utilization and has 8 free slots for an additional 32 terabytes of backup storage. We also added 32 terabytes of disk space to one group data file server and added 4 terabytes of disk space to the data file server for another group.

All aging 3COM 100 megabit network switches were replaced with new 1 gigabit switches to facilitate data analysis and network reliability since we were seeing switch lockups which resulted in loss of internal access for some users. We are continuing the process of recovering network addresses from devices which do not require outside internet interaction and reassign these addresses to devices that do.