

Cyclotron computing

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This past year we acquired a new block of networking address to allow for the continued growth of our networked devices. This block is non-routable, meaning these addresses cannot see or be seen outside the Institute network. These addresses allow us to free up routable address by using these non-routable addresses for printers, switches, UPS's, VME crates, scopes, etc. which do not require constant security updates, and in general, do not need to access sites outside the Institute.

To satisfy the constant increase of required disk space, we have added a 16 slot disk expansion unit and file server to serve the Institute computational servers. This increases our capacity and allows for further expansion. We have the capacity for 14 Terabytes of general lab expansion and 48 Terabytes of committed group capacity. The institute's 47 computational servers (capable of running 644 jobs) are now served by 5 file servers. All files servers are networked via Gigabit network adapters to Gigabit switches which, in turn, feed the computational servers with 100 Megabit adapters.

New commodity base computers, such as the Raspberry-Pi, allow us to migrate a number of our administrative services to these low cost (~\$70), low power (~6 Watt) units. We have taken advantage of this and migrated our two high powered (~400 Watt) Authentication, Authorization, and Accounting servers to three low powered Raspberry-Pi's with no issues of speed or capacity. We plan to pursue the migration of select administrative services, where advantageous, to such small form-factor fan-less PC's and Raspberry-Pi's so as to further reduce the cost, cooling, and power footprint of our administrative services.