Facilities, Equipment, and Other Resources at Indiana University

There are substantial central computing resources offered by the University: our cyberinfrastructure is rated in the top 10 in the U.S, and includes the Big Red cluster (30 TeraFlops), the Quarry cluster (9 TeraFlops, general-purpose Unix computing), and supports TeraGrid, I-Light, and the Open Science Grid. Dr. Ortiz (Department of Physics) and Dr. Sabry (School of Informatics and Computing) have access to departmental license software, as well as access to most electronic and hard copy journals through Indiana University Libraries, and access to conference facilities for meetings.

Department of Physics

A computer server facility specifically serving the Departments of Physics and Astronomy is installed in the basement of Swain Hall. This $\sim$ 110 m^2 room has sufficient power and cooling capacity to house 24 racks of hardware in a single area for ease of security and maintenance resulting in a high-quality, small-scale facility meeting local needs. In addition to the ATLAS/D Tier-3 Analysis Cluster (22 eight-core 2.66/2.88 GHz Xeon nodes, ¿60 TB of raid disk storage), it also houses experimental computing for lattice gauge and related calculations, the special partial-wave computing facility for the GlueX experiment (including both regular nodes and an experimental GPU cluster), computing access for the neutrino group, and servers for the Physics and Astronomy Departments. Finally, it also provides an appropriate home for interfaces to hardware such as IU2019s Data Capacitor, a large-scale data storage/access system developed by Indiana University IT Services and used heavily by Astronomy. Indiana University and the University of Chicago jointly manage the Midwest Tier2 (MWT2) computing center, with hardware split approximately equally between them. The Indiana University portion of the MWT2 is located primarily in Indianapolis on the campus of Indiana University Purdue University Indianapolis (IUPUI). Currently the IUPUI portion of the MWT2 has 1.8M kSi2k of computing power and 200 TB of storage. The CPUs are various AMD and Intel processors purchased from several vendors 2013 a total of 768 cores at IUPUI with approximately 2 GB of memory per core. A 1 Gb/s link connects each compute node to the Indiana University backbone while storage nodes are connected to the backbone with 10 Gb/s connections. The MWT2 is connected to the outside world with a 10 Gb/s link. In addition to the usual desktop units, a dedicated room is available containing projection units and a high-definition Polycom videoconferencing unit recently acquired using DoE stimulus funds. The Department has also requested renovation of a different space to house this system as well as other equipment for use in distance learning.

School of Informatics and Computing

The School of Informatics and Computing maintains a highly distributed, heterogeneous, networked computing environment consisting of UNIX/Linux, Windows, and Macintosh workstations and

servers across 3 primary facilities (2 auxiliary). This includes over 250 Linux workstations/servers, over 450 Windows workstations/servers and over 150 Apple workstations/servers. There are 3 Linux clusters (128-node dual Opteron, 16-node dual Opteron, and 8-node dual Xeon) to support School research. Additionally, there are 2 dedicated virtual machine servers available to host VMs for both research and instruction.

The network infrastructure at the School provides 1000Mbps gigabit ethernet connections to all servers and most workstations and as well as 802.11a/b/g wireless connectivity. The facilities have 1 gigabit or greater connectivity (one facility has 10 gigabit) with campus and research backbones which provides high-speed access to university and worldwide computing resources.

Special-purpose teaching and instructional labs are provided, including 2 electronic classrooms (24-seat, 48-seat), hardware laboratories, and 4 multi-purpose Linux and Windows laboratories to support the course work for both undergraduate and graduate students. There are 4 rooms (2 classrooms) within the School enabled with video conferencing technology that can be used for both distance education and research collaboration.

The School maintains 10 full time staff members dedicated to IT infrastructure and facilities with the mission of enabling world class research and instruction