**IDAHO STATE UNIVERSITY RESEARCH DATA CENTER**

**FACILITIES, EQUIPMENT, AND OTHER RESOURCES**

**Laboratory/Facility**

The Research Data Center (RDC) at Idaho State University became operational in August 2017. This university-wide facilty is located in ISU’s Lilibridge Engineering Building (room 123A) and uses a 40 Gbps core with 10 Gbps switches connecting each server to the core at 10 Gbps with minimal network bottleneck issues. The RDC is powered by one 225 amp and two 100 amp power feeds going into the RDC. There are four 100 amp panels installed from these feeds with two being used immediately to power two APC 15 kVA SmartUPS units with the ability to expand to a total of four UPS units (each one directly connecting to a dedicated 100 amp panel.

The back-up power supply is designed to allow RDC servers to run continuously on DC battery backup for approximately 30-minutes allowing sufficient time for automated system shutdown in the event of a long-term power outage (note: ISU is developing plans to install a backup power generator to keep the RDC facility running during long-term power outage events). The facility is cooled by two 10-ton roof mounted air conditioning units forcing cold air through the floor to the front of each rack unit. The cooling design uses a hot/cold aisle approach to move air efficiently.

**Clinical**

Not applicable

**Animal**

Not applicable

**Computer**

The RDC contains space for approximately 17 full-height server racks and accompanying UPS units. Initially, it will contain four server racks, one containing a Dell FC630 server (Intel Xeon E5-2630 running at 2.4 GHz with 16 cores in total and 256 GB RAM) designated for use by Protected Environment (PE) research only (this designation is made both systematically and physically within the RDC), another will contain an identical Dell FC630 server (Intel Xeon E5-2630 running at 2.4 GHz with 16 cores in total and 256 GB RAM). Racks one and two will have sufficient expansion space to add numerous additional servers as needed. The third rack will contain a Dell 830 Server with four Intel Xeon E5-4660 CPU’s (56 cores in total, 256 GB RAM, and 600 GB SAS hard drive space) along with a Dell SC4020 storage device with over 100 TB raw storage capacity. This space will be shared by other servers in the RDC. This fourth rack will be the server constellation from the GIS TReC which is currently located in Graveley Hall and detailed in the GIS TReC’s facilities list (note: the GIS TReC’s development servers will remain in Graveley Hall as will all their research workstations).

Virtual machines will be created and managed by the Research Systems Administrator (Ms. Kindra Serr) using Microsoft Hyper-V.

**Office**

Connected to the RDC and yet physically separated by an access-controlled interior door is the RDC Operators Office. This office contains a desk, computer and other basic materials.

**Other**

Not applicable

**Major Equipment**

None

**Other Resources**

The RDC will utilize the high-performance software defined network provided through this proposal to connect to computers in Graveley Hall (GIS TReC), Physical Sciences (Department of Geosciences (investigator Delparte’s UAS lab), Gale Life Sciences (Biological Sciences Department (Molecular Research Core Facility)), as well as the ISU Meridian campus and investigator Xu’s simulation lab. This connection will effectively by-pass ISU’s enterprise firewalls as prioritized network traffic and allow rapid data transfers and near effortless data sharing.