



New University Data Center

Operating Conditions

Claudio Pini

DRAFT FOR DISCUSSION – Version 0.6 Aug 2011



Document Revision History

Version	Date	Author(s)	Description of Change
0.1	June 15, 2010	Claudio Pini	Created
0.2	June 19, 2010	Claudio Pini	Updates based on UDC WG feedback
0.3	June 21, 2010	Claudio Pini	Updates based on D. Shorthouse, K. Richter & T. Yerex
0.4	June 22, 2010	Claudio Pini	New network section and clarification on Charges
0.5	June 2011	Claudio Pini	Updates from UDC
0.6	Aug 2011	Claudio Pini	New template

Table of Contents

- I. Background..... 2
- II. Summary of design and operating conditions 2
 - a. Cooling..... 2
 - b. Raised Floor 2
 - c. Racks..... 2
 - d. Access & Security 3
 - e. Work Space 3
 - f. UPS & Generator 3
 - g. Communication 3
 - h. Governance..... 4



I. Background

The University Data Centre Committee, working since 2007, has recommended the University undertake the construction of a new 2 MW facility on campus to house research servers.

The recommendation is to construct a 5000 sq ft data centre as part of the Pharmaceutical Sciences building. This new facility is expected to be ready for occupancy in September 2012. The UDC will be filled gradually as demand grows and older sites around campus are decommissioned.

II. Summary of design and operating conditions

a. Cooling

65°F (18°C) water will be provided to each rack with the option of converting the entire facility to chilled water if required in the future. Racks should have rear door heat exchangers or another cooling solution that uses the provided water.

A ceiling plenum (4') will be available for future cooling options if needed.

<INSERT LINK TO COOLING DESIGN SPECS>

b. Raised Floor

The space under the raised floor is intended for pipes for the cooling system only. All cabling infrastructure should be above the racks.

c. Racks

All equipment must be rackable into the standard racks provided (preferred solution) or come in racks that can adapt to the cooling, electrical and seismic infrastructure of the UDC.

<INSERT LINK TO RACKS SPECS>

Individual servers will be hosted on provided standard racks with rear door heat exchangers.

“Pre-racked” new equipment will be required to come with rear door heat exchangers and / or other similar mechanism to dissipate heat.



For existing “pre-racked” equipment that is intended to move to the new data center, UBC IT will work with the racks’ owners to determine the best solution for cooling (move to existing racks with heat exchangers or adapt existing racks to a similar solution)

d. Access & Security

The facility will be monitored 7/24 from the IT Operations Centre and IT staff & Researchers will have 24 hour access to their equipment. Access to the main room will be controlled via access cards or similar solution.

Physical access to equipment can be restricted with locked racks and individual alarm systems if needed. Rack owners requiring additional security will need to cover the cost of the specific solution.

Access to the network room will be limited to UBC IT authorized personnel.

e. Work Space

IT staff & Researchers will have access to a staging room to work on their equipment.

The staging room will include workbenches with network drops and limited amount of storage space will be available for tools and spare parts.

f. UPS & Generator

The new data center will have UPS and Generator capacity to provide uninterruptable power to a small percentage of the equipment that we anticipate will require it. Space and power distribution will be designed taking into consideration that if required, additional UPS and generator capacity may eventually be added to support up to 100% of the equipment.

Existing racks, that are connected to UPS and are scheduled to move to the new data center will be able to use the UDC’s uninterruptable power free of charge. Post UDC initial occupancy, there will be an additional onetime charge based on power needs for those users who require UPS and Generator power.

To maximize power efficiency and to minimize rack space utilization, all UPS will be located inside the UPS room and use of individual UPS will not be permitted.

g. Communication



Plans and procedures to ensure proper and timely communication about scheduled outages or any work that may impact users of the data center will be in place.

Researchers / users will have full visibility to monthly, quarterly and yearly maintenance windows plans.

The scheduling and coordination of utilities interruptions will require collaborative effort between all impacted parties.

Researchers / users will be required to provide contact information so they can be located in the case of unscheduled outages or other emergencies.

h. Governance

UBC IT will continue to work with representatives of the UBC community during the UDC design phase to ensure that the UDC's design meets the University's needs as broadly as possible.

After completion, a users' group should be formed to regularly review existing processes, generate requests or provide feedback to UBC IT to update/adjust governance policies and procedures. This group should also be involved in the definition of policies and procedures to manage long term space consumption.

UBC IT will have control over the facility's design and management of the space, power, cooling and network and will be responsible for operational planning (i.e. fire alarm testing)

Rules and regulations about proper use of the facility will be in place for the protection of all researchers' equipment.

UBC IT will designate a person or team who will be the point contact for researchers who want to use the facility. This person or team will work together with the researcher to plan the installation of new equipment.