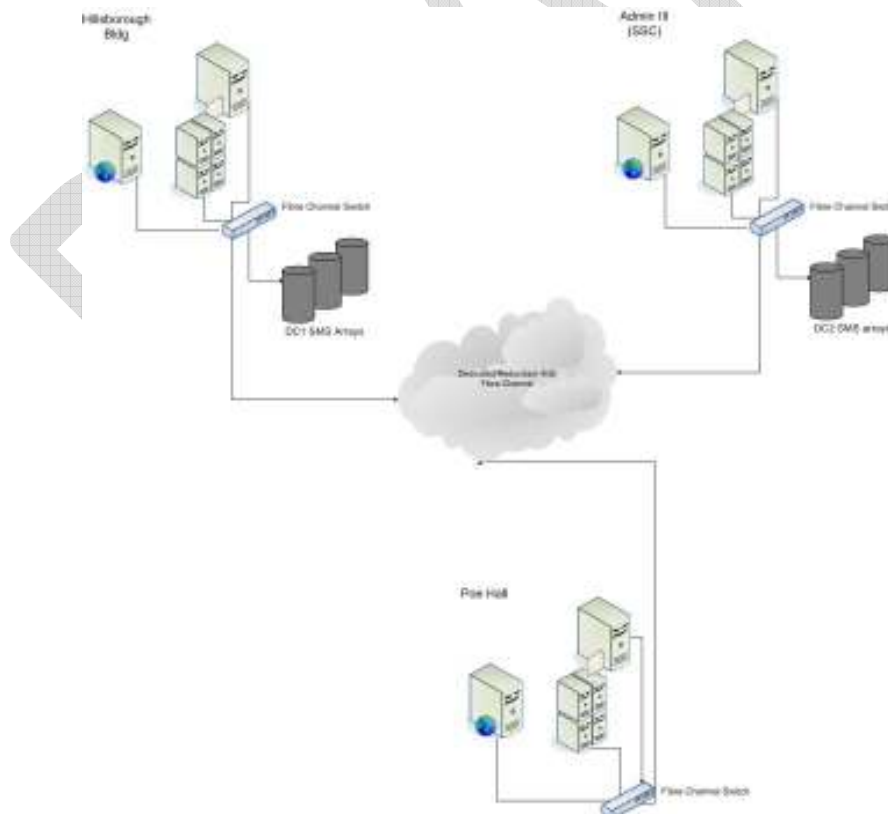


SMS-II usage and allocation

Background: In Aug. of 2004, ITD and RMIS replaced their multiple and disparate SAN storage arrays and switch-fabrics with one shared storage management system (SMS). This system has enabled both units to effectively manage ongoing growth and offers a disaster recovery safety-net through hardware mirroring.

Our system was enhanced in May of 2007 to improve growth potential and administrative flexibility. We now have the potential for thousands of drives and hundreds of connected hosts (servers). Many departmental IT units have enterprise storage needs, are creating server clusters, consolidating under VMWare, or just trying to meet basic DR requirements. Because of our expansion, we are now able to offer enterprise storage services to campus departments for \$1600/TB (annually). While enterprise/SAN storage is becoming more of a requirement than a convenient option, startup costs and administrative overhead can be high. We believe this service will alleviate those burdens and allow staff to focus on growth, consolidation, and other IT challenges.

Details: SMS arrays along with ITD and RMIS servers are housed in DC1 (Hillsborough Bldg.) and DC2 (ADMINISTRATIVE SERVICES III). Our FibreChannel storage fabric interconnects both sites through dedicated links. This fabric has been extended to the Poe Hall datacenter to provide connectivity for collocated departmental servers.



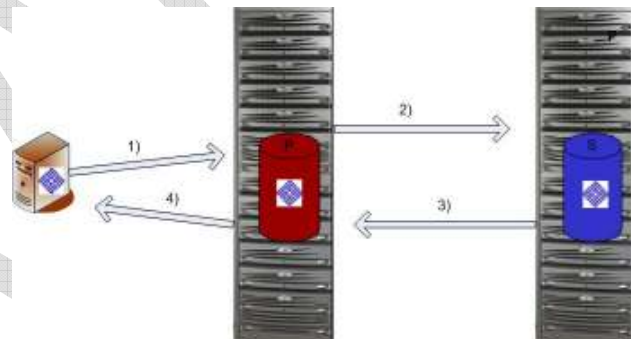
The Poe Hall collocation facility is a communications style datacenter with upgraded cooling and a backup generator. Access is restricted through RF-tag campus ID. ITD operations also monitors this facility for fluctuations in temperature and humidity on an ongoing basis.

For specific hardware requirements and recommendations, please see our specifications guide.

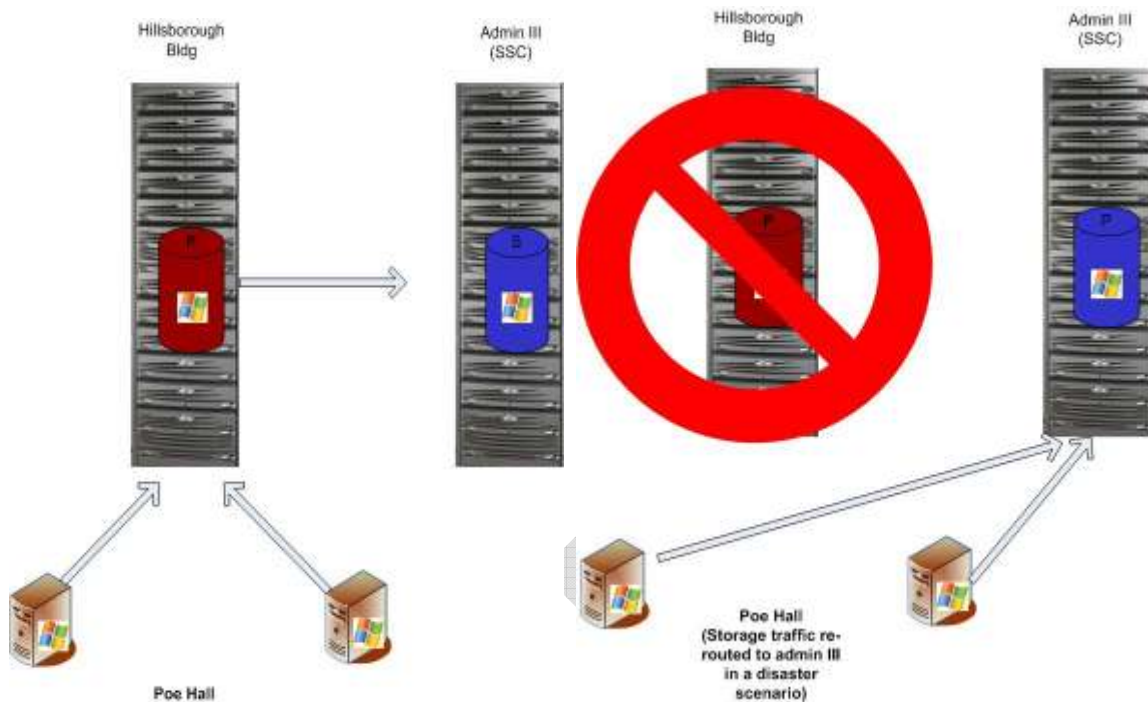
Tape backup: In addition to connecting your systems to centrally managed, enterprise class storage, we will also provide tape backup for your systems at no additional cost (in most cases). We will discuss your backup, retention, and restore requirements at initial consultation.

Data Mirroring: We are also able to offer hardware data mirroring for customers who require additional disaster protection. Array based mirroring is done at the disk block level and is independent of the type of connected host or operating system. From the host perspective, there is just one copy of the data.

- 1) Write command is sent from the host to the storage system.
- 2) The primary array issues the same write to the secondary array on behalf of the host.
- 3) Acknowledgement of the write returns from the secondary array to the primary.
- 4) Finally the host receives acknowledgement of the write.



No additional host configuration is required for data mirroring, however departments will need to purchase the mirror-destination space (at the same \$1600/TB rate). In the event of a loss of an array at either DC1 or DC2, or loss of the entire site, we will convert your mirror destination into a primary storage site and point your host there. This is a manual process and will require host downtime.



FAQ:

Q: Do we have to purchase a connection or other software license to use this service?

A: We will provide all necessary software and licenses for the duration of your contract. These must be returned to ITD upon contract cancellation.

Q: Are there any hidden costs?

A: In addition to the server, you will need to purchase HBAs, the necessary optical cables and your network cables. Please see the hardware recommendation guide for more information.

Q: What is the largest LUN size you can publish to a single host? What's the smallest increment of storage I can purchase?

A: We can present a ~6TB LUN (or multiple LUNs of this size) based on currently available drive capacity. We expect to have access to larger drives in summer 2008 which would give us the potential for a 12TB LUN.

1TB is the minimum block of storage may be purchased. However, we can split the allocation between multiple hosts (ex: 800GB to server1, 200GB to server2).

ITD maintained AFS, email, or Novell locker space may also be purchased in 100Mb increments .

Q: Can my DR/ SMS-II connected server reside in the same network VLAN as my other departmental servers?

A: We have multiple dedicated and secured VLANs for this service. Customers are strongly encouraged to use IPs in these address ranges. Comtech has agreed to customize domain registration so there should be no DNS domain change.

Q: Can my server reside in a location other than the Poe datacenter and connect to the SMS switch fabric?

A: The SMS network is a FibreChannel fabric and requires dedicated optical links. At this time it only extends to the Poe datacenters. We will be offering additional connectivity options in the future.

DRAFT