

Clusters in the Physics Department

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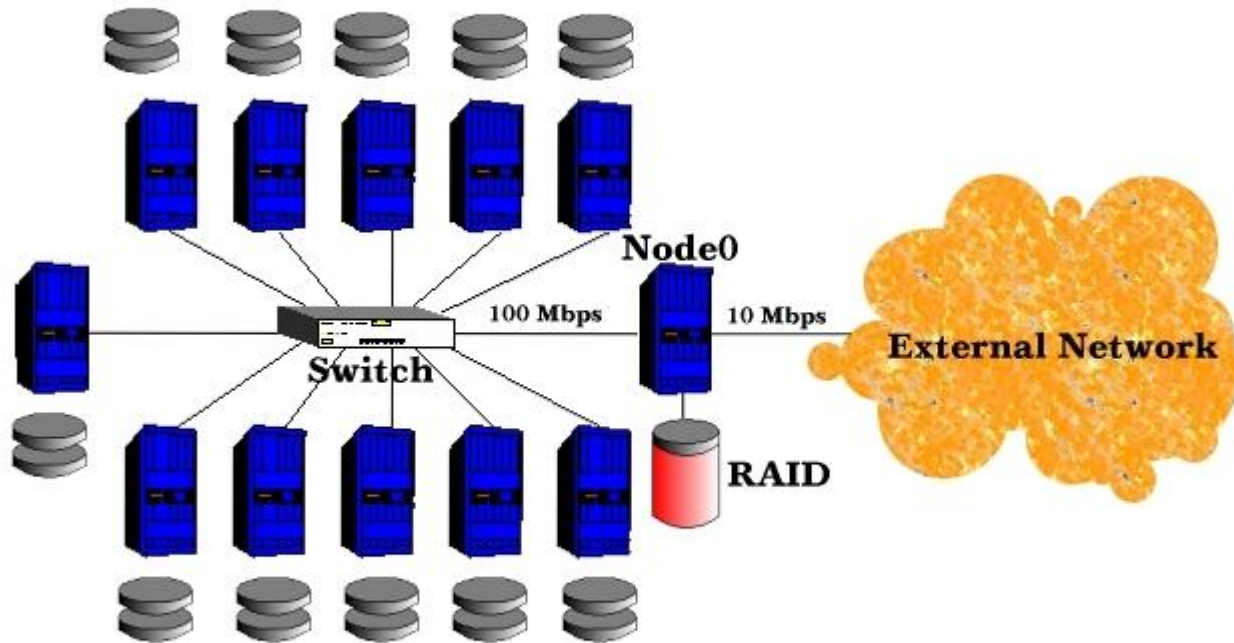
Linux in the Physics Department:

- 1 General-Purpose cluster (Galileo), owned by the department (14 nodes)
- 8 Research clusters (8-16 nodes)
- ~60 Desktops and servers
- All running standard configuration
- Updated nightly

GALILEO: A General-Purpose Linux Cluster

- Built in 1996 with ETF funds
- Originally 14 300MHz nodes
- Nodes built from scratch, in-house
- Upgraded in 2001-02 to 1.2GHz nodes

Diagram of Galileo



Design Goals for Galileo

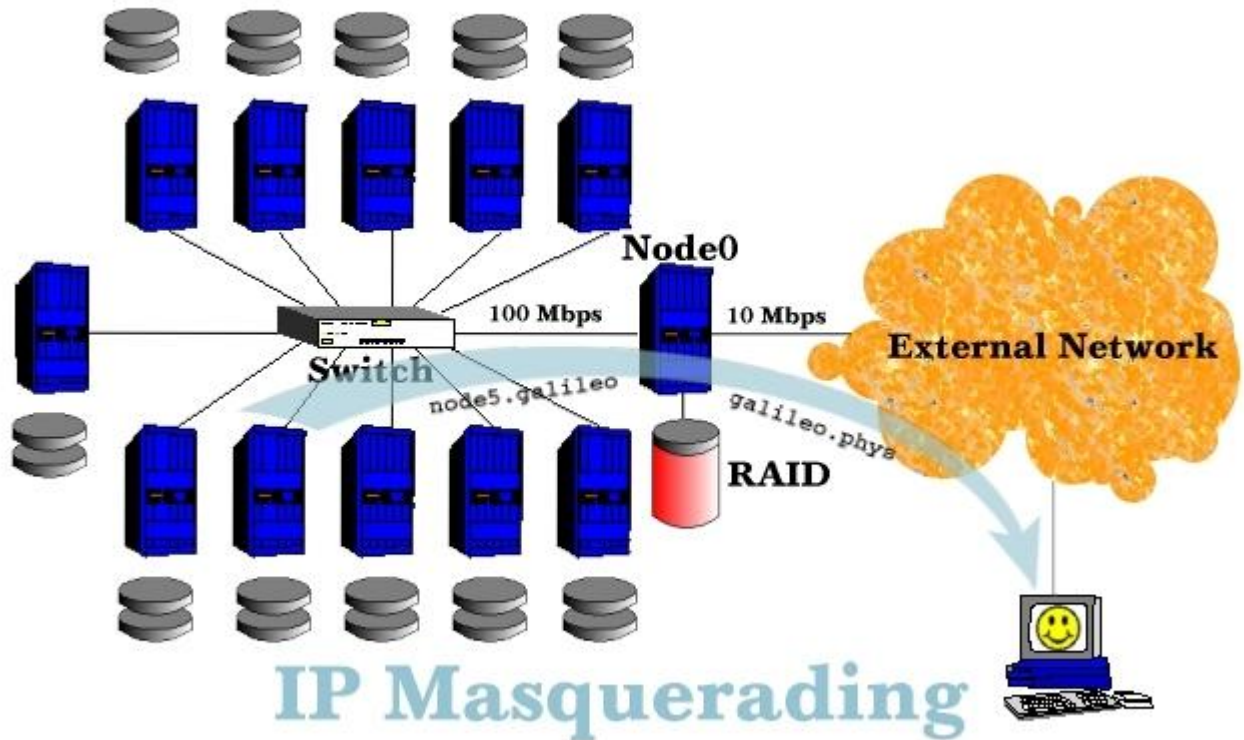
- Serve as many people as possible
 - ◆ high-end users
 - ◆ novices
 - ◆ casual users
- Fault tolerant
- Load balancing
- Modular
 - ◆ add capacity as needed
 - ◆ tests and upgrades

Uses for Galileo

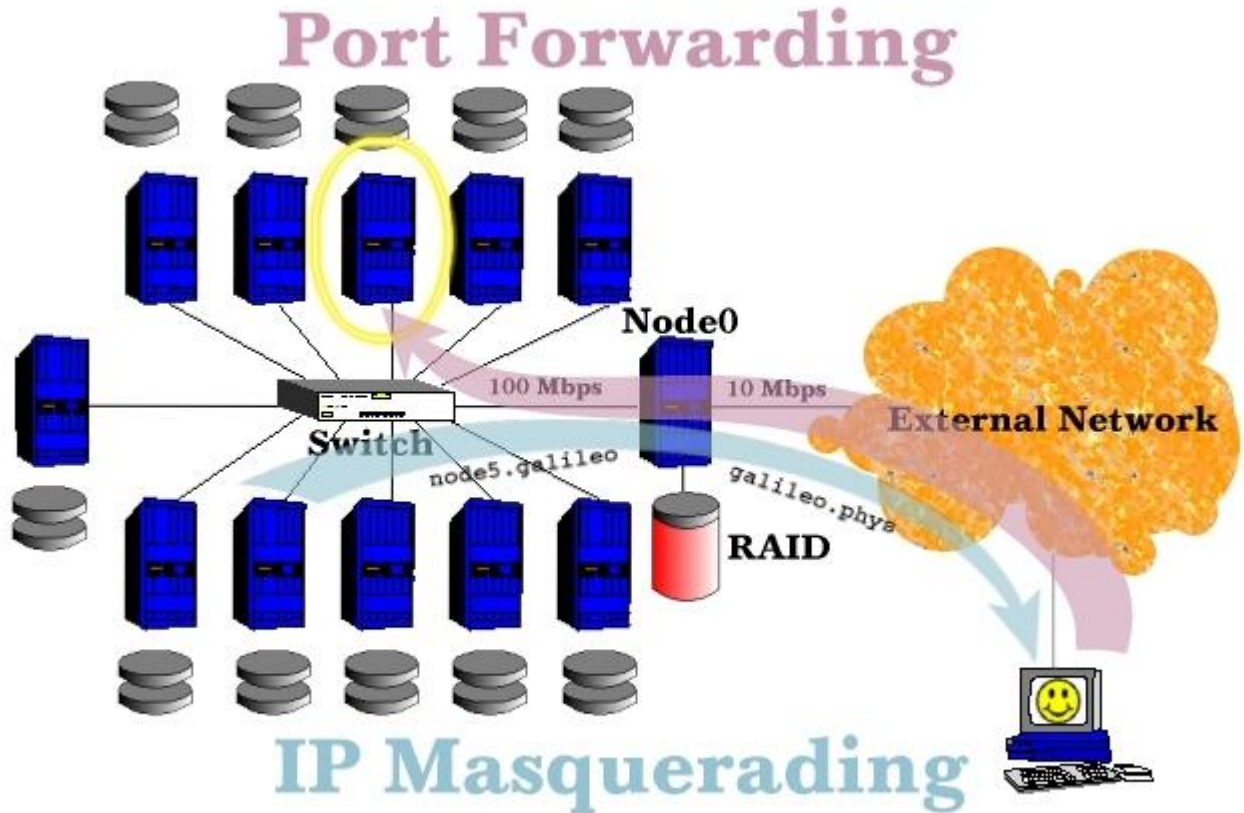
- CPU Server
 - ◆ high-performance computing (PVM and MPI)
 - ◆ high-throughput computing (lots of serial jobs)
- Unix command-line (reading mail, writing papers, doing assignments)
- Web server (personal and class web pages)
- Home directories
- User database
- Update master

How Galileo Works...

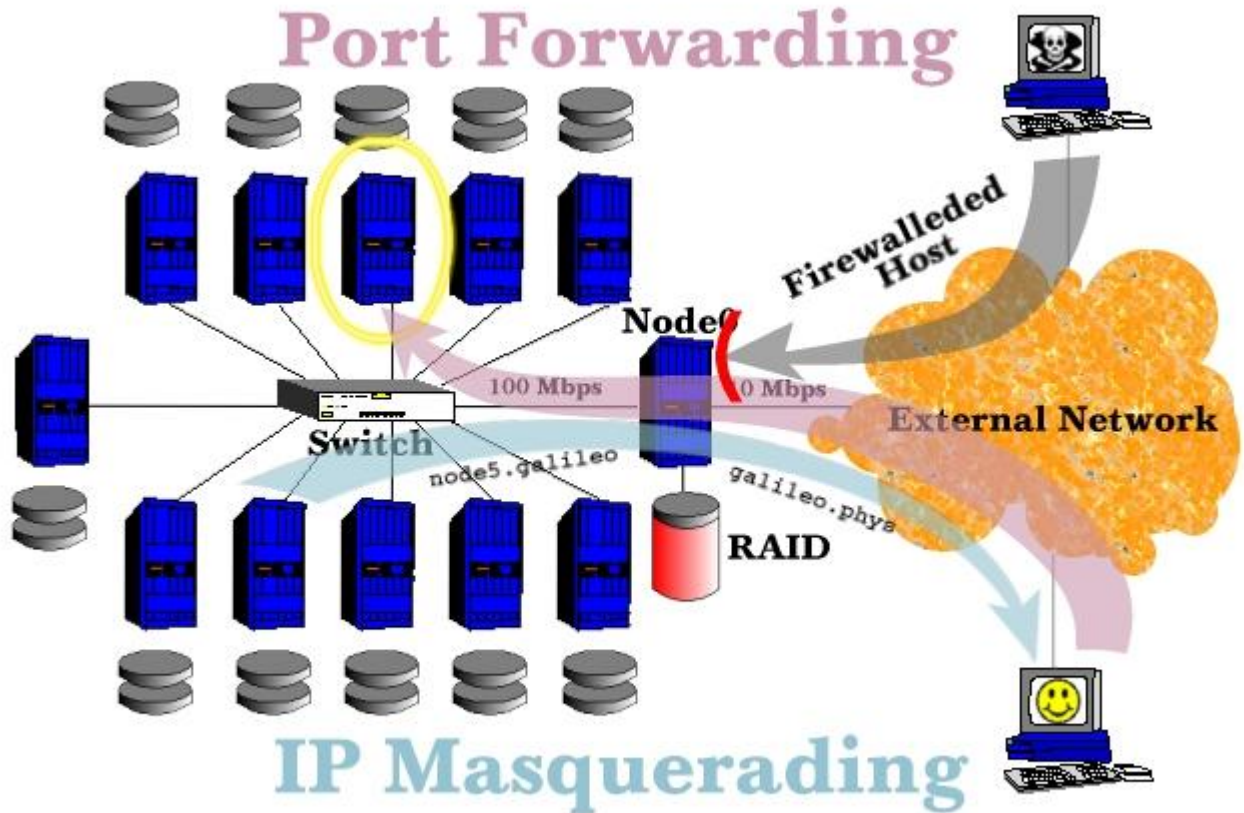
IP Masquerading



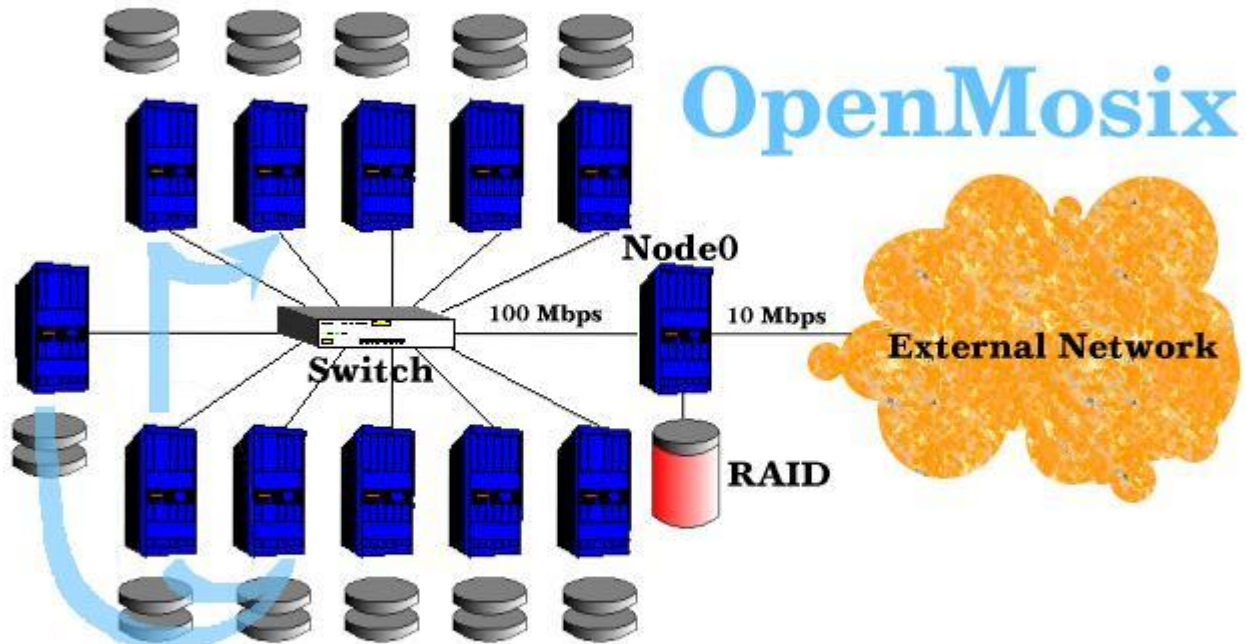
Port Forwarding



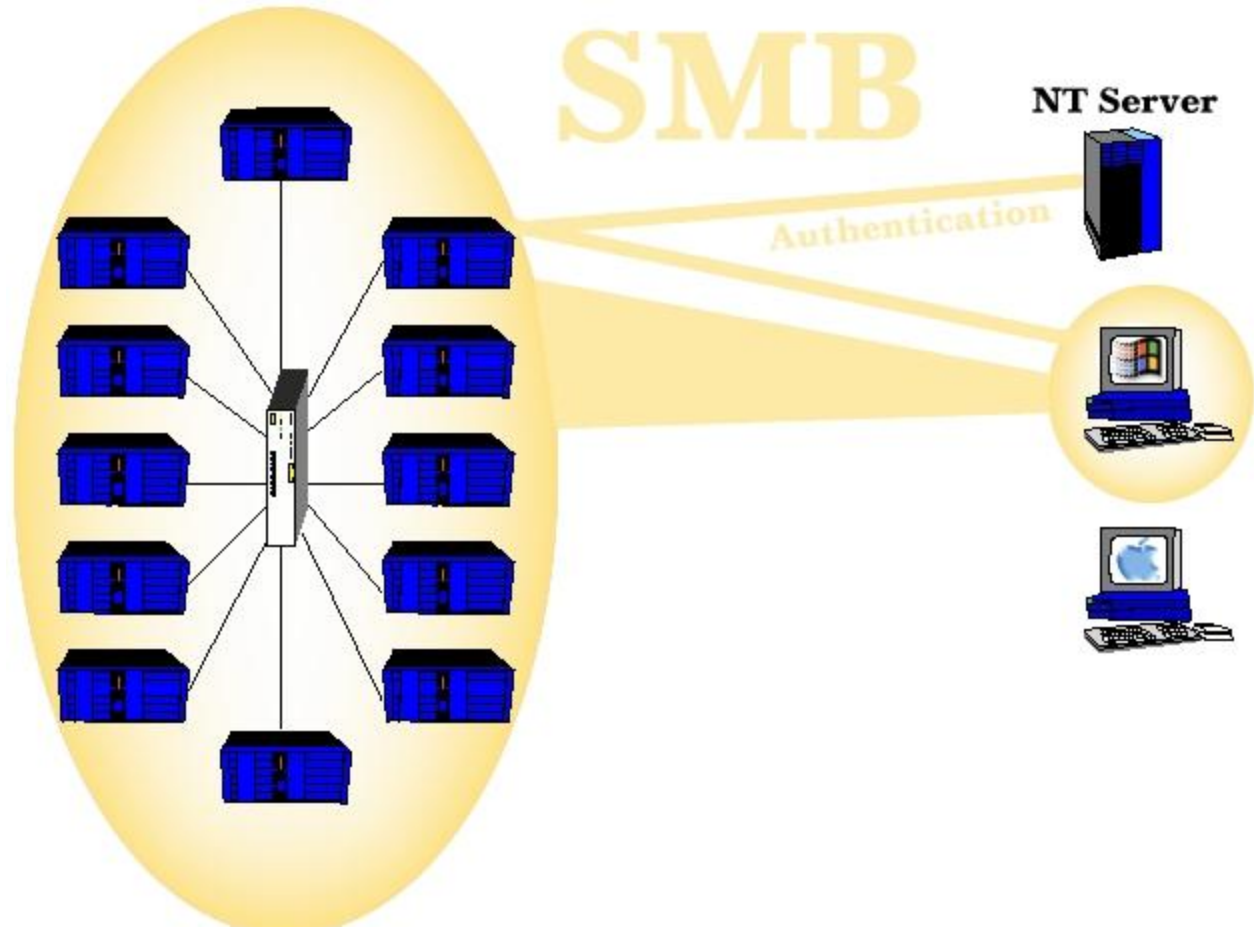
Firewall



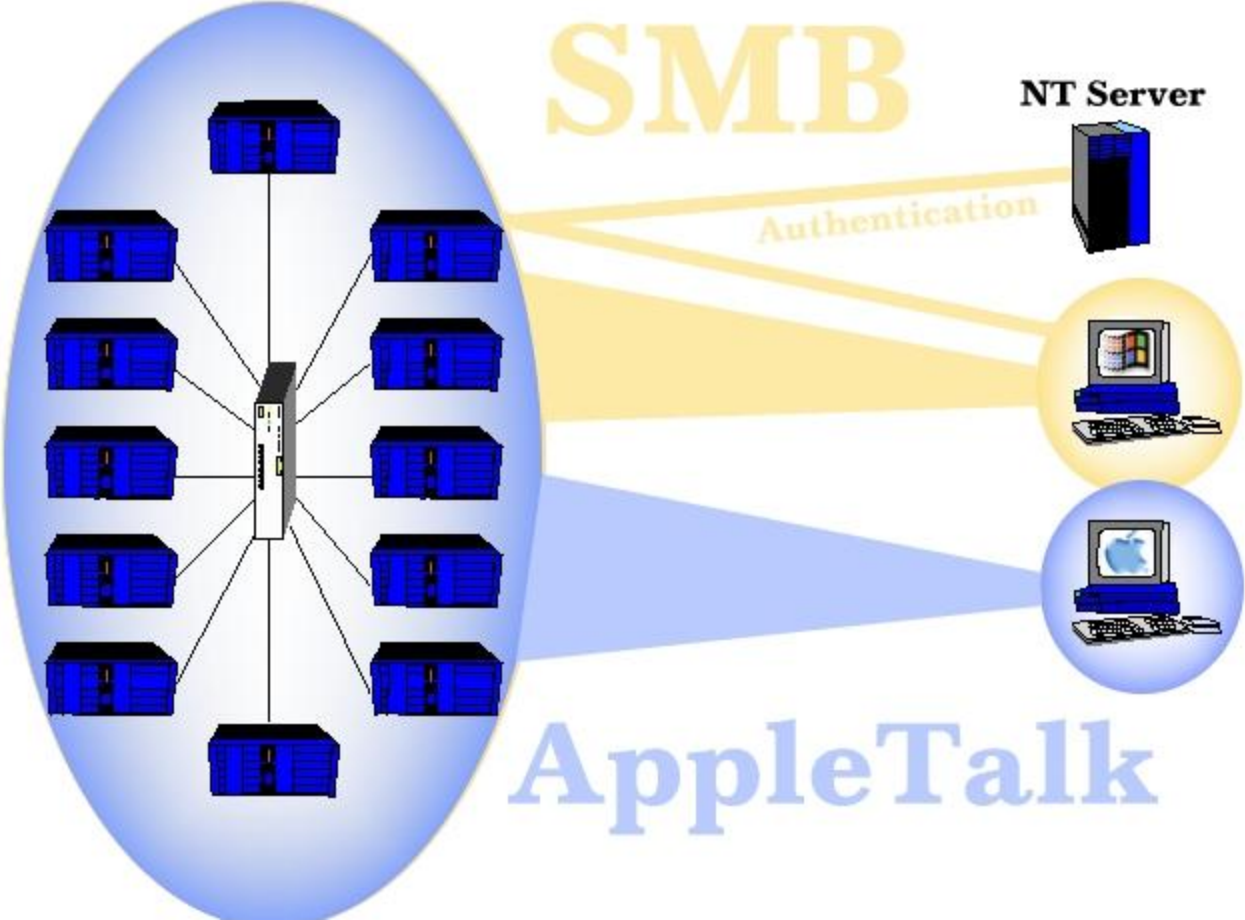
OpenMosix



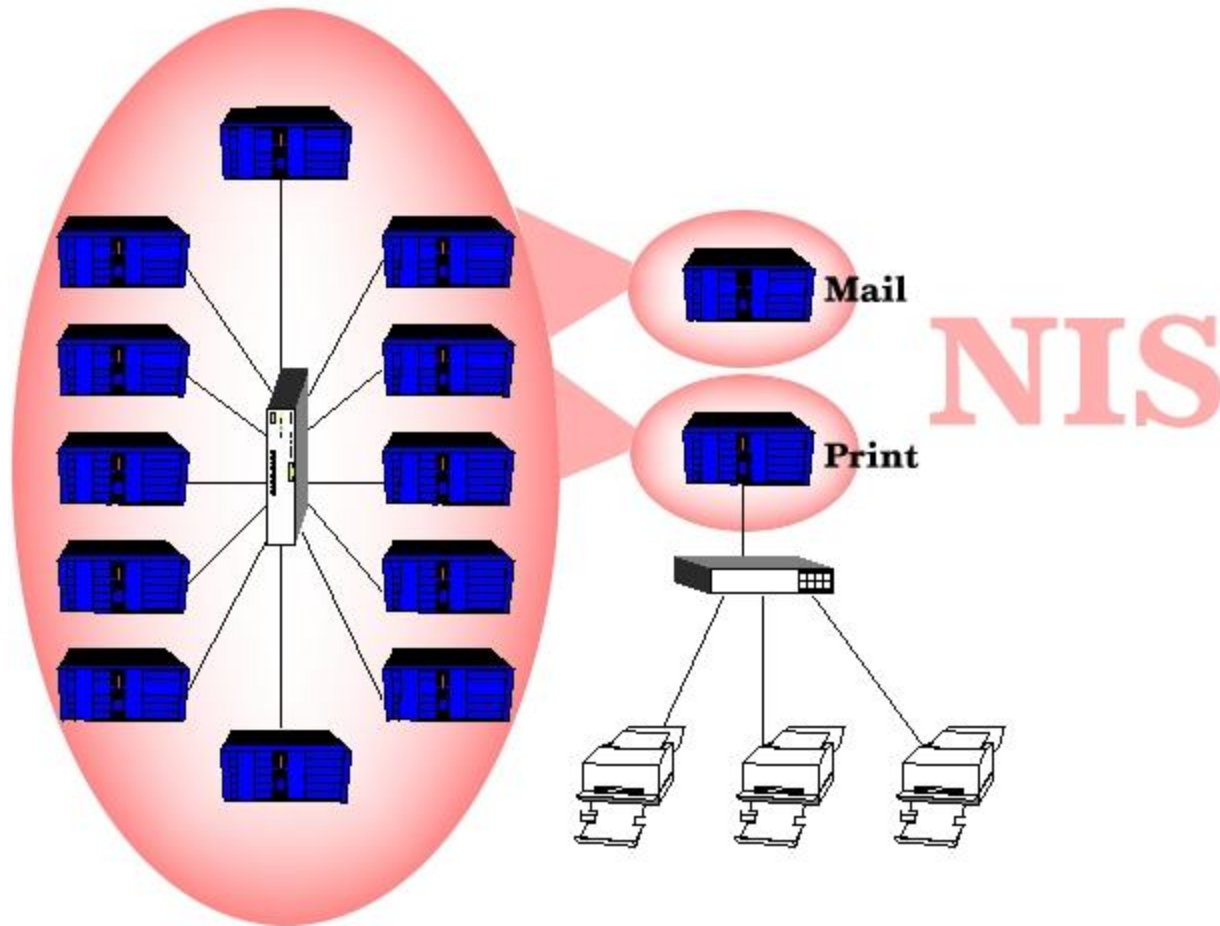
Home Directories, SMB



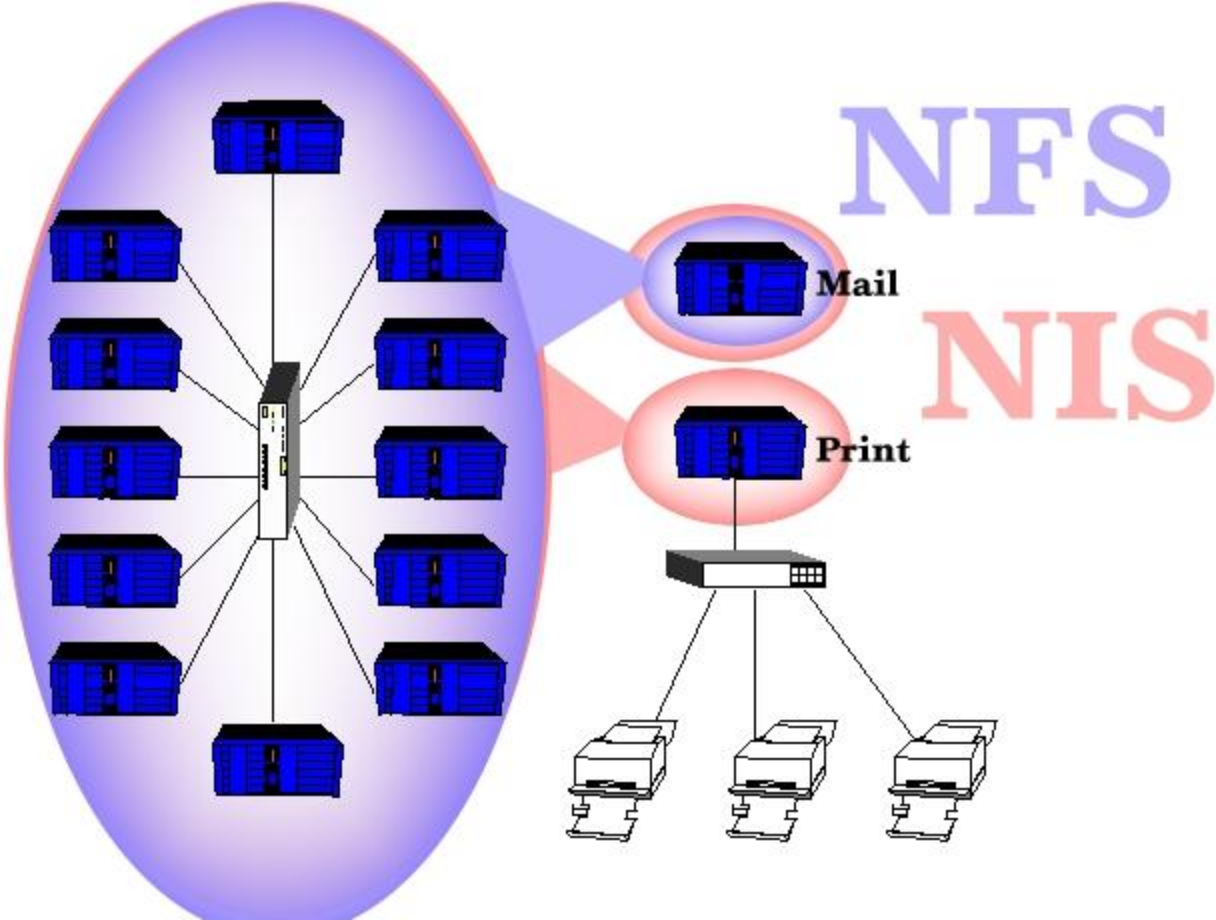
Home Directories, AFP (obsolete)



User Database (NIS)



Shared Files (NFS)



Nightly Updates

