Understanding Servers

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What is a server?

- Desktop
- Workstation
- Server

Functional Roles

- Data Storage
- Application Host
- GeoProcessing Server
- Spatial Data Management
- Website Host
- E-mail

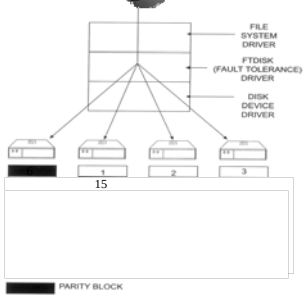
Data Storage

- NAS
- SAN

Data Storage: Fault Tolerance

- RAID=Redundant Array of Inexpensive Disks
- Hardware or software implementation
- Level 0,1,5,10
- Minimum four disks on server
- Hard disk types
  - IDE
  - SCSI
  - Hot-swappable

Data Storage: The Way Fault Tolerance Works!



Data Storage: RAID and RAIS

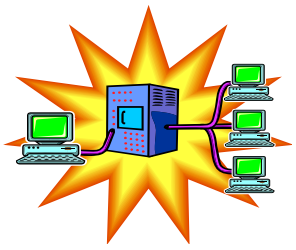
- Redundant Array of Inexpensive Disks
- Redundant Array of Inexpensive Servers

Hints and Tips: The 5-nines

- 99.999% of the time…
- Servers are operational and functioning
- How much down-time does this allow?
  - 5 minutes!
  - No longer even a goal!
  - Why?

Application Host

- GIS software-host server (application server)
- GIS software license server

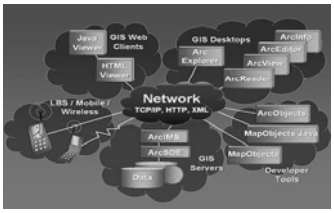


GeoProcessing Server

- Arc/Info application resides on server with GeoProcessing Services running
- Clients have the desktop or workstation application installed
- Large tasks are processed by the server
  - Can utilize >1 processor

Spatial Data Management

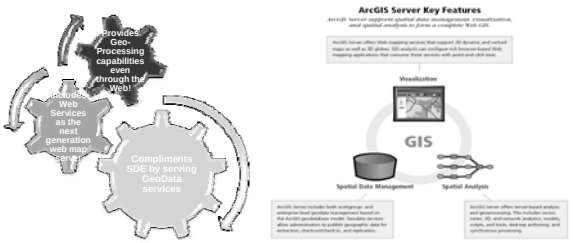
- SDE=Spatial Database Engine
- Requires DBMS
- ArcSDE
- Spatial library organized with a RDBMS



Web Server

- IIS
  - Overview of structure on host server
  - Client access (http://giscenter.isu.edu)
- IMS
  - Serving maps

ArcGIS Server



Types of Server Hardware

- Glorified desktops
- Standard Rack-based
- Blade
  - Rack based, but not limited to 42 Units
  - Can contain more than CPU

Professional Tips

- Graphics files folder for your web site
- Data folder for clients
- Data liability policy
- Use of Temp folders
- System Administration:
  - Do not allow write access from remote clients anywhere on your system!
- Security
  - Web access is principal security threat
  - FTP is a primary avenue for intrusion
  - Dynamic IP addressing

Applying Security to Your Server

- Reactive:
  - TCP/IP exclusion
- Proactive
  - Service packs
  - Updating anti-virus dictionaries
  - Disabling and uninstalling FTP
  - Firewalls

Security (cont'd)

- Backup your data
  - Mission critical
  - Critical
  - Non-critical data

Key Concepts

- A server is best defined by its **Functional Role.**
- You should now know several roles for GIS servers.
- Fault tolerance addresses **data integrity**.
- Proactive security measure address **data security**.

Questions…Assignment