Networking Support and 10G Upgrades for CAT Beamlines

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APS InterCAT Technical Workgroup Meeting
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CAT Network Upgrades

- 10Gbps connectivity to Internet
- 10Gbps connectivity to beamline switches
- Line rate speed on copper ports
- Separation of CAT and XSD subnets
- Additional copper and fiber ports
CAT Backbone Today

ANL Intranet

2 X 10 G

PRISM Cisco 6509

Firewall Iota

10 G

CAT Burb

10 G

Firewall Zeta

10 G

CAT Burb

PANCHO Cisco 6509

4 X 1 G

LOM Switch Cisco 4507

4 X 1 G

XSD + CAT beams
share switch

1 G to beamline

6 Apr 2010
DWL, MLW
CAT 10 G Upgrade

ANL Intranet

2 x 10 G

PRISM
Cisco 6509

10 G

Firewall
Iota

10 G

Firewall
Zeta

10 G

PANCHO
Cisco 6509

10 G

CAT Burb

CAT Burb

10 G Backup

10 G

CAT HP Switch

10 G
to beamline

XSD
Cisco 4507
CAT Network Upgrade Schedule (Tentative)

- May 13  DND
- May 14  MR
- May 17  CARS & HP
- May 18  IMCA, BIO & SBC
- May 19  LS, SER, GMCA, NE
- May 20  LRL
Firewall Upgrades

- Last shutdown firewall hardware upgraded
- 2 x 2.8Ghz Nehalem quad core, FSB speed 1333Mhz, Memory 12GB
- +95% idle, ~12% memory usage
- Intrusion Protection Service for Proxy Rules
- Patches
- Outbound IE 5 and 6 blocking
Firewall Access

- Inbound rules – require IT-ARG approved ticket https://noc.anl.gov/cspo
- Outbound rules – Enter a Support Request
- All outbound ports are blocked by default
Firewall Speed

- IP Filters – faster throughput, direct connection to server from client, less secure
- Proxy – firewall makes connection, more secure, virus checking, IPS, Trusted Source
- IP Filters – ssh, vpn, GridFTP
- Proxies – http, https, ftp
Web Performance

- Smartfilter, MIME/Virus/Spyware checking, HTTP URL Control, HTTP request header checking
- ANL DNS Blackholing
- Ad Blocker or Adblock Plus
- Firebug – Firefox only
Firebug Output
Networking Tools

- Traceroute – cannot be passed through firewall, will not send back a response to the ICMP or UDP unreachable traceroute packet
- PerfSONAR Servers:
  Reverse traceroute
  Network Diagnostic Tester (NDT) should get 900+Mb/s both inbound and outbound
  NPAD diagnose network problems in last mile
Network Data Transfer

- [http://fasterdata.es.net](http://fasterdata.es.net) – Move a terabyte in 8 hours
- Use GridFTP or ftp, scp/sftp will be slow
- Host tuning is the key – hardware, OS and version
- Current data rates: max outbound 450Mbs, max inbound 100Mbs
GridFTP Setup

- IT has instructions for Linux
- Working on Windows and Mac
Remote Access

- VPN – use AnyConnect client
- SSH
- NX – very fast (ssh tunneling)
- 802.1x on wireless – requires mac registration and user account
Shared Storage

- Not currently available for CATs – demand?
- GridFTP server?
Skype Access

- Skype works from visitor/wireless nets
Cell Phone Access

- Sprint and Nextel service available
- T-Mobile Unlicensed Mobile Access (UMA) – available through wireless
- Inter access point hand off should be enabled on phone
- Lab is working on service for other providers