

# Networking Support and 10G Upgrades for CAT Beamlines

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APS InterCAT Technical Workgroup Meeting

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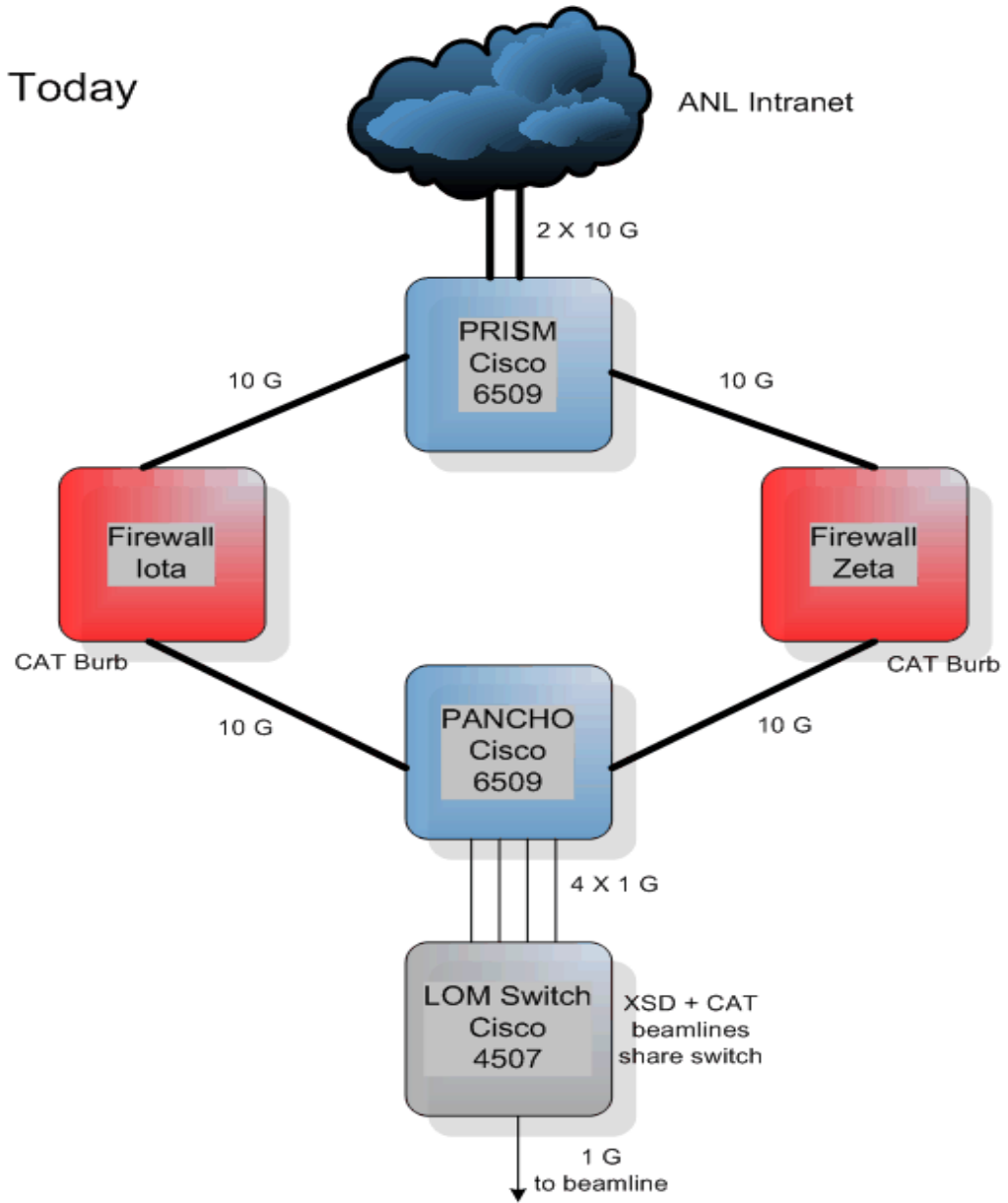


# CAT Network Upgrades

- **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**



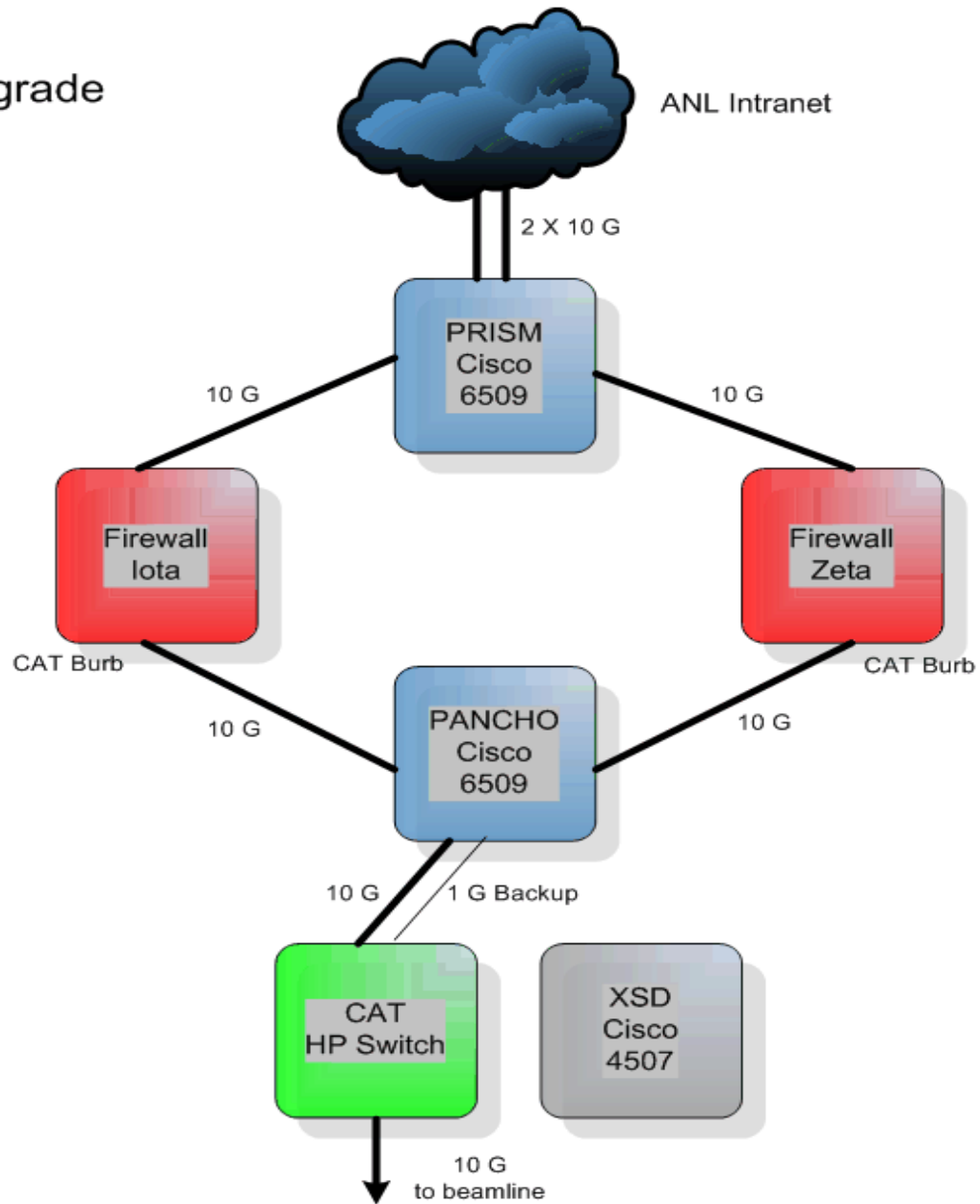
# CAT Backbone Today



6 Apr 2010  
DWL, MLW



# CAT 10 G Upgrade



6 Apr 2010  
DWL, MLW





## 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
- Web Proxy: <http://cat.aps.anl.gov/cat.proxy>





# 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





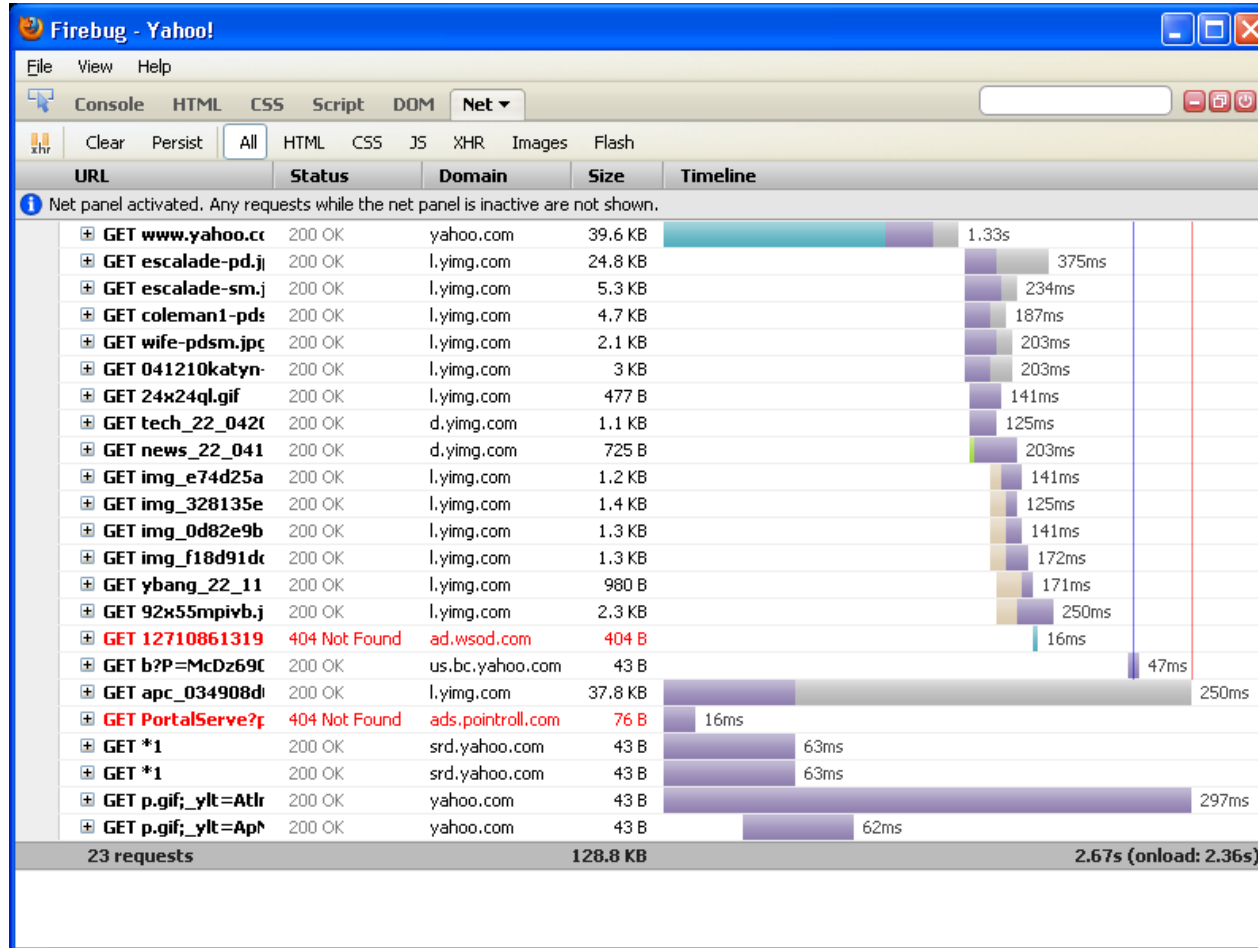


# Web Performance

- 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:  
See <http://anlborder-ps.it.anl.gov> and <https://prfsnr.aps.anl.gov>  
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

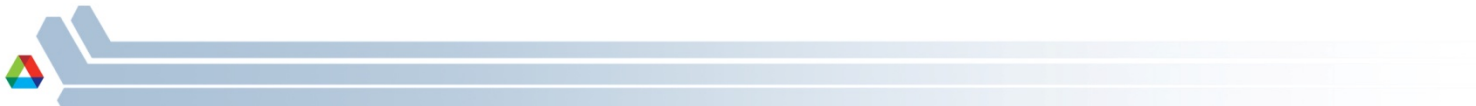
- <http://fasterdata.es.net> – Move a terabyte in 8 hours
- Use GridFTP or ftp, scp/sftp will be slow
- Host tuning is the key – hardware, OS and version
- Current data rates: max outbound 450Mbps, max inbound 100Mbps





# GridFTP Setup

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





# Remote Access

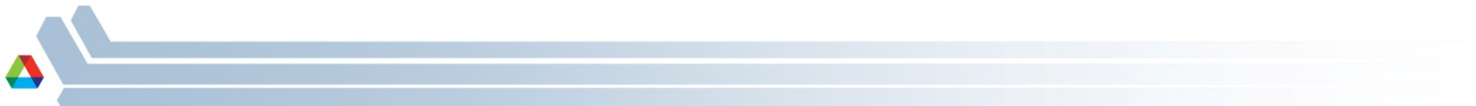
- VPN – use AnyConnect client
- SSH
- NX – very fast (ssh tunneling)  
[http://www.aps.anl.gov/APS Engineering Support Division/Information Technology/Remote Access/aps 1262111 NX-2.pdf](http://www.aps.anl.gov/APS_Engineering_Support_Division/Information_Technology/Remote_Access/aps_1262111_NX-2.pdf)
- 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
- Skype from wired nets requires using SOCKS5 proxy - [http://www.aps.anl.gov/APS Engineering Support Division/Information Technology/General Support/Skype.html](http://www.aps.anl.gov/APS_Engineering_Support_Division/Information_Technology/General_Support/Skype.html)







## 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

