DREN IPv6 Update

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Fairbanks, AK

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Topics today

- The big issues (for us)
- Network Management over IPv6
- World IPv6 Day observations
The major issues for us

- Lack of IPv6/IPv4 feature parity
  - taking too long to get there
- Vendors not eating own dogfood
  - but starting to turn around
- Privacy Addresses (RFC4941)
  - no good solution yet
- MacOSX 10.6
  - but starting to get much better (10.6.8, 10.7)
- Network Management over IPv6
Network Management

- Most products cannot be managed over IPv6
- We've been trying to do ALL network management using IPv6, so we can remove IPv4 from the management networks.
- We think we can succeed by Sept 2011
  - But we've had to remove various vendors' products from our networks
Mgmt LAN over IPv6

- **Goal** – Management LAN IPv6-only (see previous talks)
- **Status:**
  - Switches: removed all IPv4 configuration from all (over 500) switches at one campus.
  - other campuses in process of doing same
  - Routers: using only IPv6 for most functions, but awaiting fixes or features
  - monitoring: went with Gigamon instead of Anue
  - sensors: all IPv6, including the DRAC ports
  - UPSs: replaced all APC hardware, now all managed over IPv6
  - management/admin tools (apps): still dual stack to accommodate remaining few IPv4-only devices.
  - replacing some old hardware that will never get IPv6 support
- **Upcoming milestone:**
  - remove all remaining IPv4 configurations (no more lifeline).
  - Sept 2011?
- **Remaining issues**
  - Lack of unified IP MIB support (RFC 4293) in most products

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Management over IPv6 in some mainstream products

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1. Lack IPv6 ACL support
2. Can't specify router-ID as IPv6 on MLX product
3. firmware bug in FastIron products
4. but not in MLX
5. not in all products.
• DREN3 RFP (Jan 2011)
  – “DREN is identified as an IPv6 network with IPv4 legacy support”
  – “Additionally, all network management shall be enabled using IPv6”
World IPv6 day

- For DREN and SPAWAR, nothing new to turn on for the day
  - every day is IPv6 day for us
- What does it look like from an enterprise perspective, where ALL clients (users) are dual-stack?
  - well, 99% actually
Percentage of Internet traffic over IPv6

- 1% (2009, before Google whitelisting)
- 2.5% (Google whitelisted)
- 10% (late Jan 2010, Youtube added)
- World IPv6 day... (peak at 68%)
After IPv6 day

- Percentages across a day (5 min averages):

- Why higher during the work day?
After IPv6 day

• Past week (hourly averages):

• Month (daily averages):
From Google Trends
Other observations

- DoD
- NIST
- Proxy/Translators
  - how do we make sure they are only temporary?