A Brief

History of IPv6 @ ARIN

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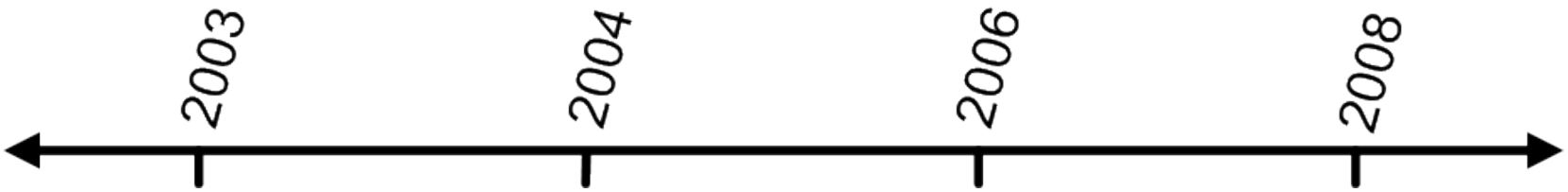
Network Operations Manager

Time line



Sprint IPv6
WWW, DNS, FTP
Linux Router
PMTU Issues
Routing Issues

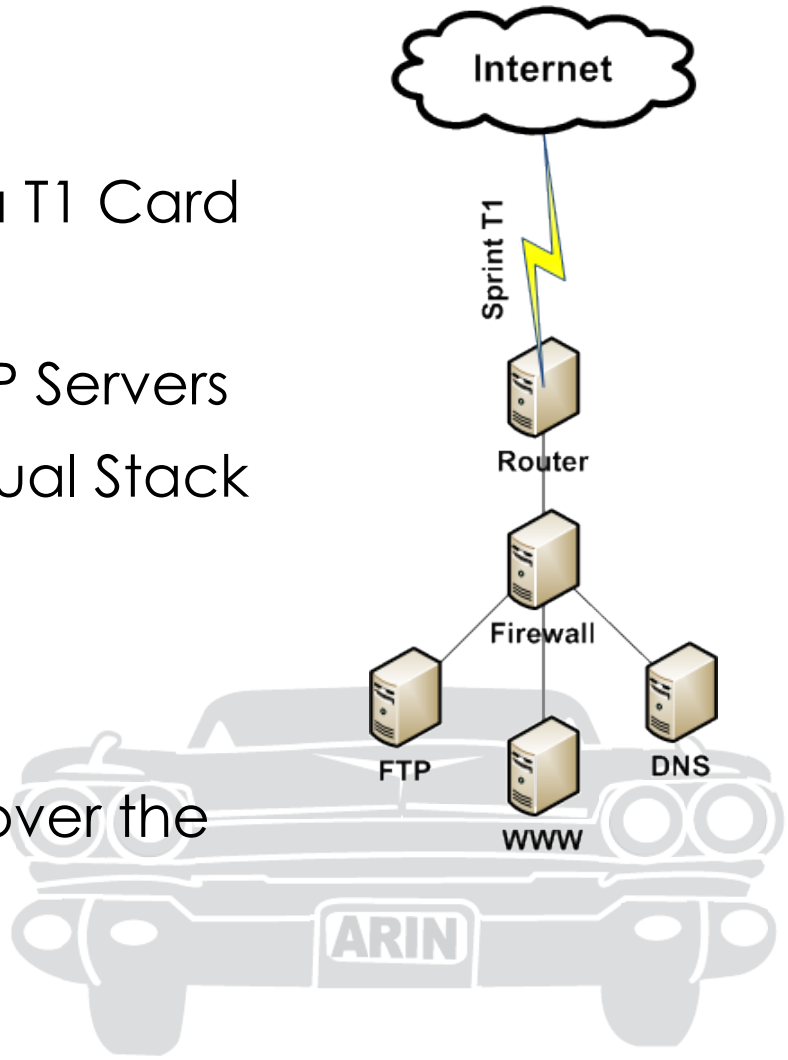
Worldcom IPv6
WWW, DNS, FTP
Cisco Router
PMTU Issues
Routing Issues

Equi6IX IPv6
Transit via OCCAID
WWW, DNS, FTP
Cisco Router
13 Peers

NTT | Tinet IPv6
WHOIS, DNS, IRR
Cisco Router
4 Byte ASN
8 Peers

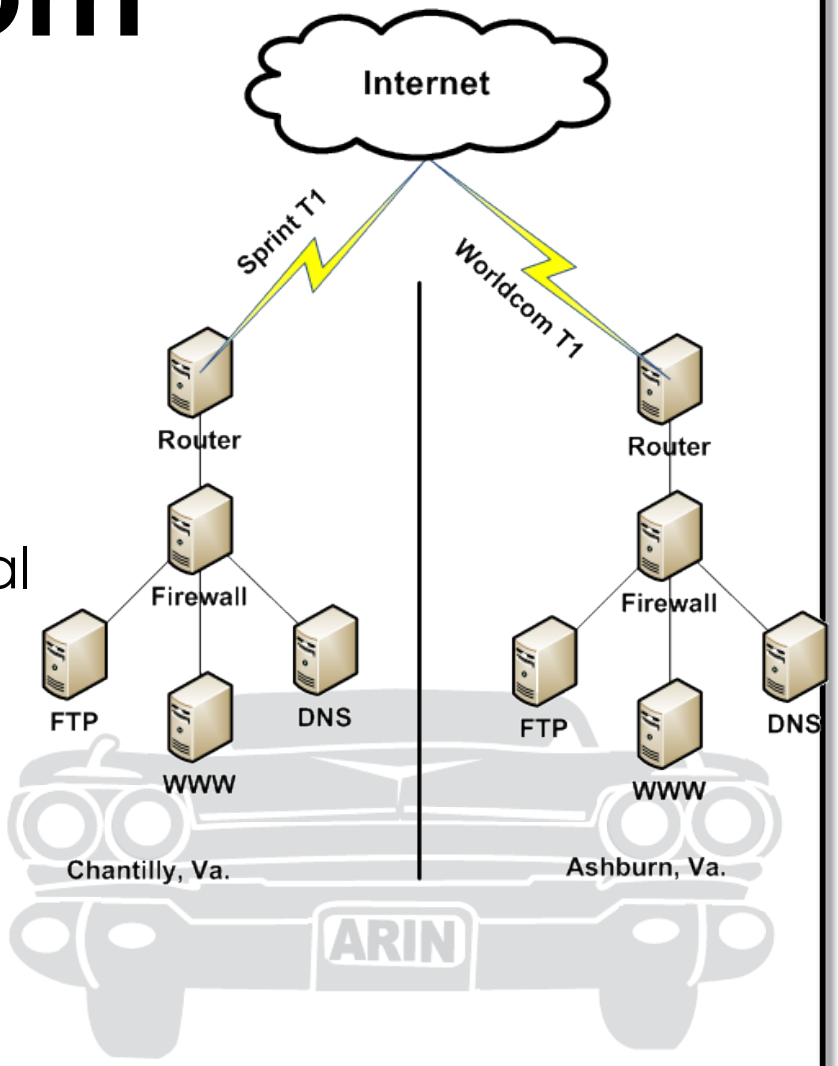
2003: Sprint

- T1 via Sprint
- Linux Router with Sangoma T1 Card
- OpenBSD Firewall
- Linux Based WWW, DNS, FTP Servers
- Segregated Network No Dual Stack (Security Concerns)
- A lot of PMTU Issues
- A lot of Routing Issues
- Service has gotten better over the years



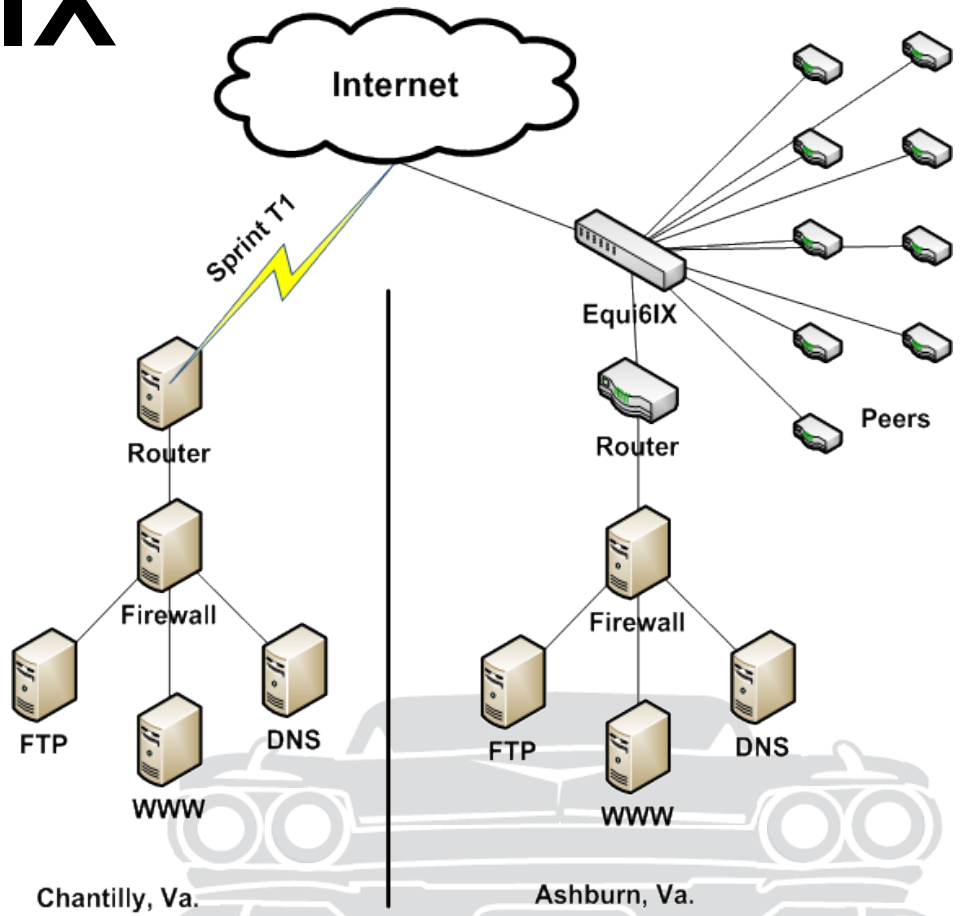
2004: Worldcom

- T1 via Worldcom to Equinix
- Cisco 2800 Router
- OpenBSD Firewall
- Linux Based WWW, DNS, FTP Servers
- Segregated Network No Dual Stack (Security Concerns)
- A lot of PMTU Issues
- A lot of Routing Issues



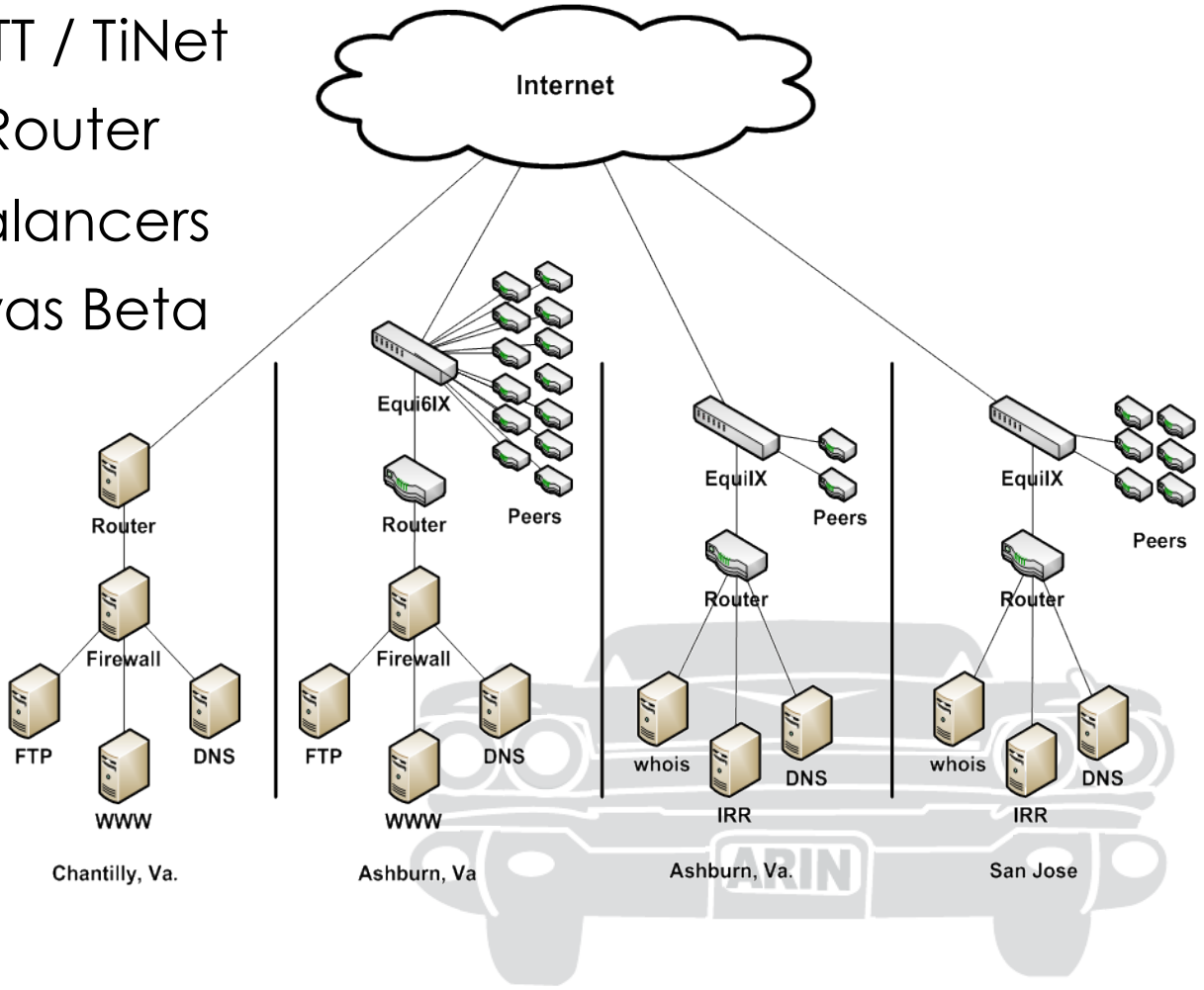
2006: Equi6IX

- 100 Mbit/s Ethernet to Equi6IX
- Transit via OCCAID
- Cisco 2800 Router
- OpenBSD Firewall
- WWW, DNS, FTP Servers
- Segregated Network
- Some Dual Stack

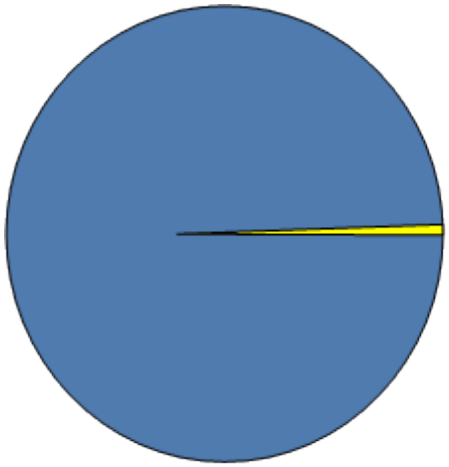


2008: NTT / TiNet IPv6

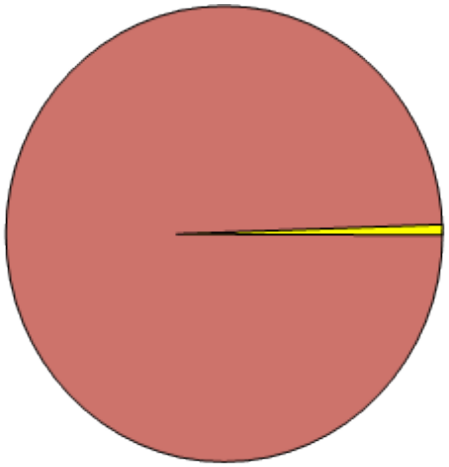
- 1000 Mbit/s to NTT / TiNet
- Cisco ASR 1000 Router
- Foundry Load Balancers
  - IPv6 Support was Beta
- DNS, WHOIS, IRR, More Later
- Dual Stack
- Stand Alone Network



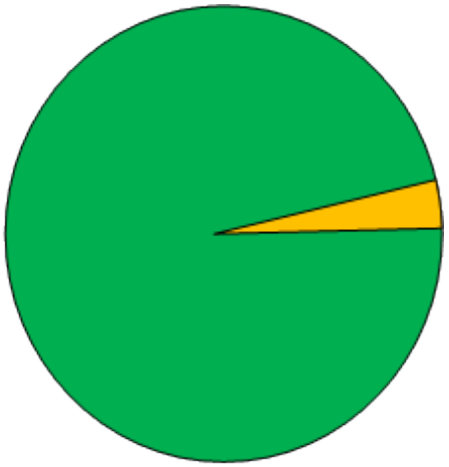
How much IPv6 Traffic?



WHOIS IPv6
~ .12%



DNS IPv6
~.55%



WWW IPv6
~8%

Lessons Learned

- Tunnels are not desirable
- Not all transit is equal
- Routing is not as reliable (pmtu? filters?)
- Dual Stack is not so bad
- Proxies are good
- People fear 4 byte ASN

More Lessons Learned

- Native support is better
- DHCPv6 is not well supported
- Reverse DNS is a pain
- Windows XP is broken but usable
- Bugging vendors does work!

Today and the Future:

- Standardized on dual stack
- IPv6 is enabled by default
- V6 support a requirement from vendors
- All RFPs list IPv6 as a requirement

Questions?

Thank You!