



FOUNDRY[®]
NETWORKS

Data Center Networking: Connectivity Strategies

Bill Ryan
Product Marketing Manager
Foundry Networks



Interconnecting Data Centers Global, National or Regional

❁ Three or Four Geo-Economic Strategic Data Centers are the norm

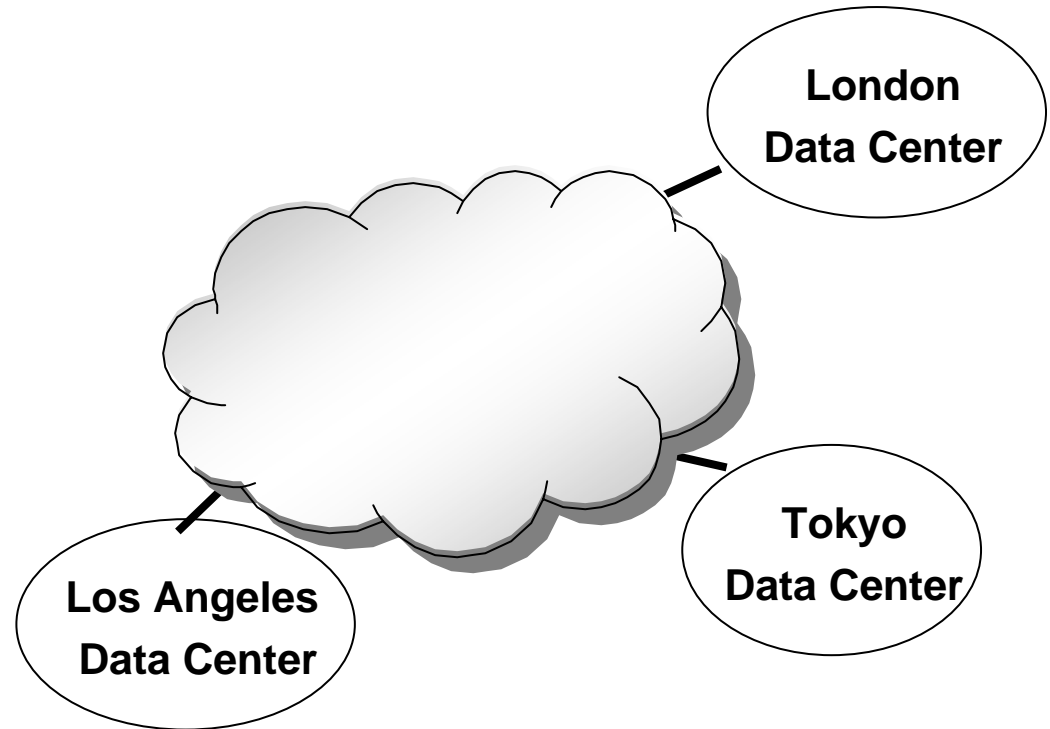
- Regional High Availability for content delivery
- Disaster Recovery with synchronized data centers
- Global Load Balancing for Content Access

❁ Ethernet and IP are the Transports

- Gigabit and 10 Gigabit Ethernet

❁ Multiple Means of Transport

- Dedicated Lambdas
- VPLS over MPLS core
- Routed IP over High Performance Carrier Core





Interconnecting Data Centers

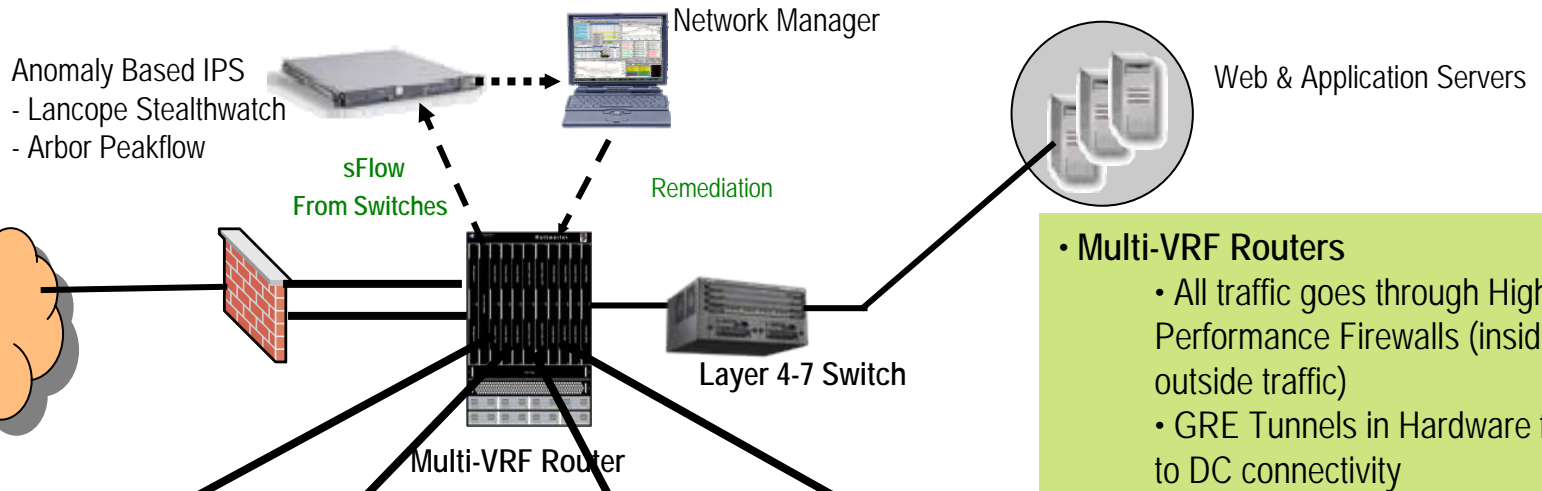
The Need for Speed

- ❁ **Mega Data Centers with Thousands of Servers and with Tera-Bytes and Petra-Bytes of Data**
- ❁ **Traditional Access is fulfilled with 1 Gbps or less connections**
- ❁ **Mega Data Centers will need One or Many 10GE links for Mirroring Data**

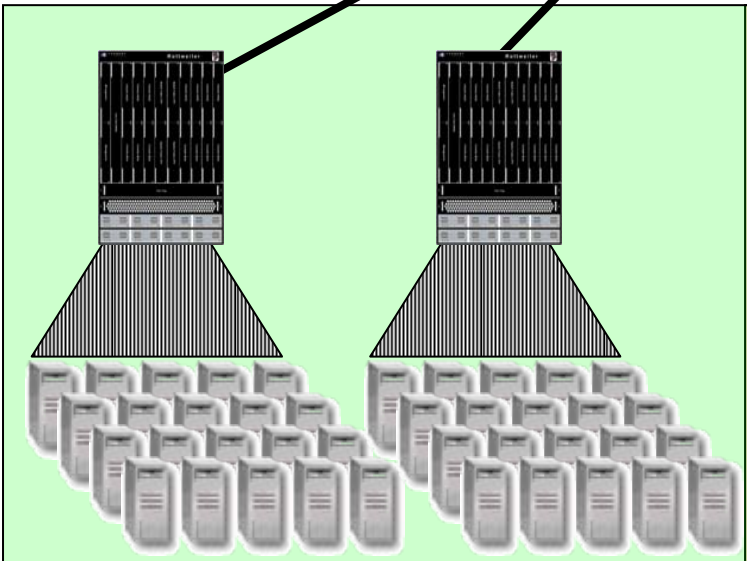
Time to Transmit 1 Tera-Byte of Data	
10 Gbps	15 Minutes
1 Gbps	2 ½ Hours
100 Mbps	1 Day
45 Mbps	2 Days
1.5 Mbps	2 Months



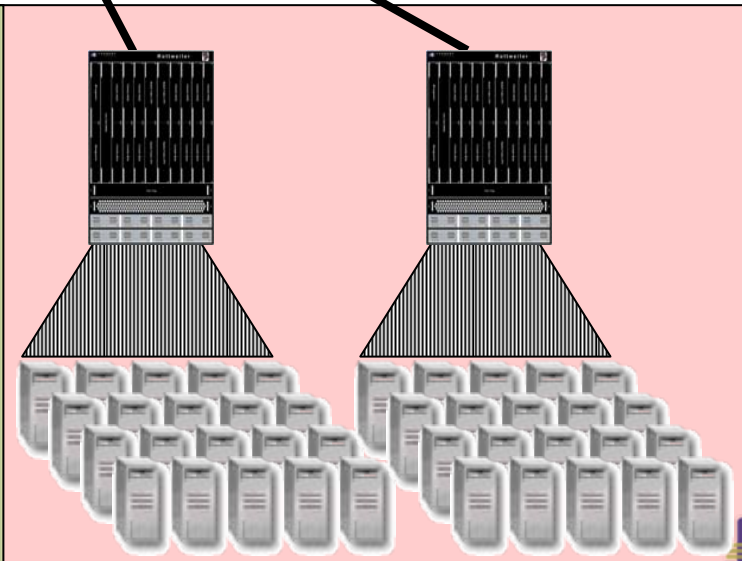
Multi-Zone Secure Data Centers



- **Multi-VRF Routers**
 - All traffic goes through High Performance Firewalls (inside and outside traffic)
 - GRE Tunnels in Hardware for DC to DC connectivity



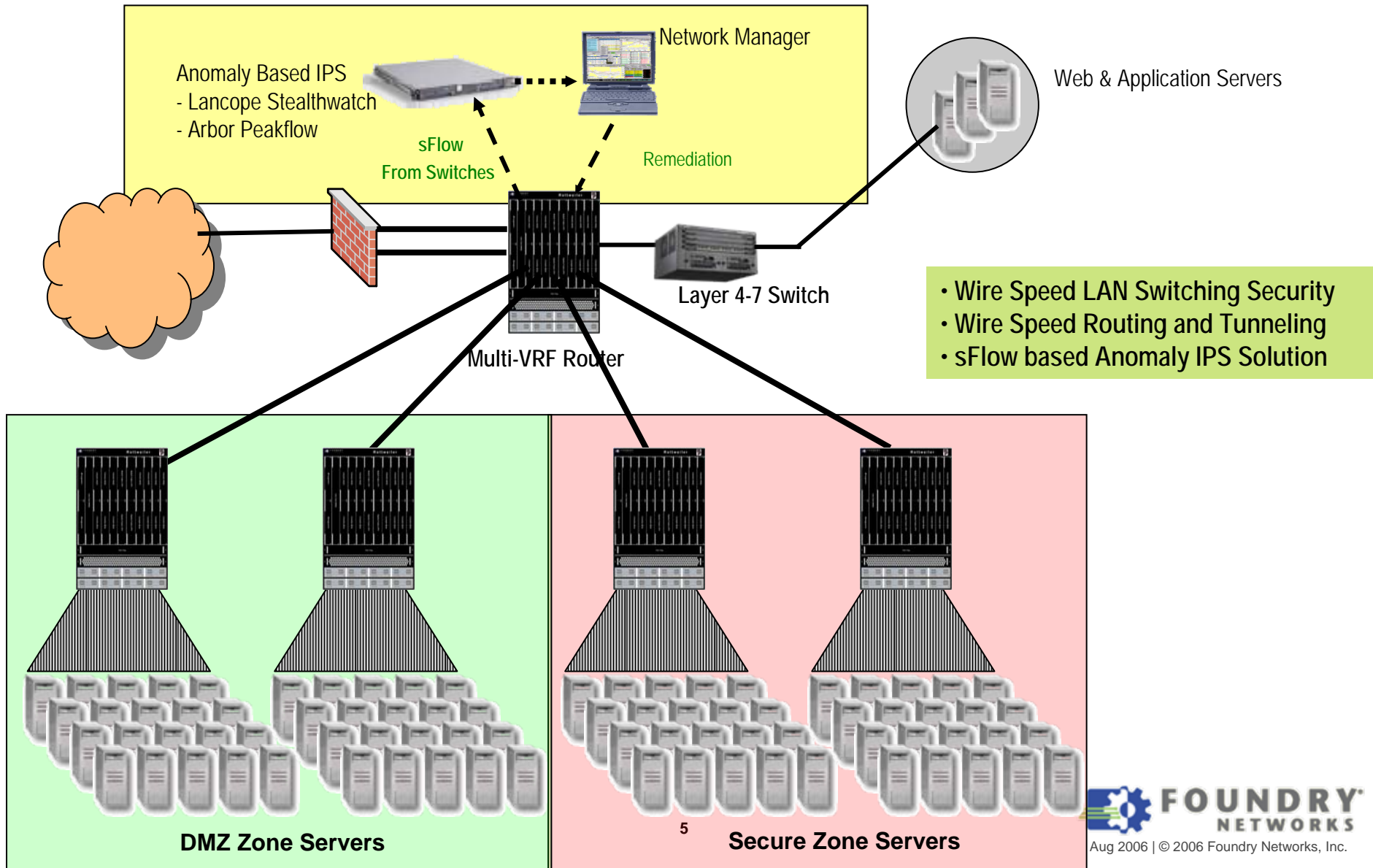
DMZ Zone Servers



Secure Zone Servers



Zero-Day Attack Prevention with sFlow





Summary

- ❁ **High Performance Networks are Required for Inter Data Center Synchronization**
 - Various methods available; DWDM Lambdas, VPLS Services, or Routed High Performance SP Core
- ❁ **Securing Data Centers at 10GE Requires New Thinking**
 - High Performance Firewalls to restrict entry
 - Multi-VRF Routers to segment the Data Center into Zones
 - Pass all traffic through Firewalls regardless of source
- ❁ **Layers of Security are Needed**
 - Utilize wire speed RFC 3176 sFlow fed to Anomaly IPS devices
 - Closed loop remediation to stop identified threats