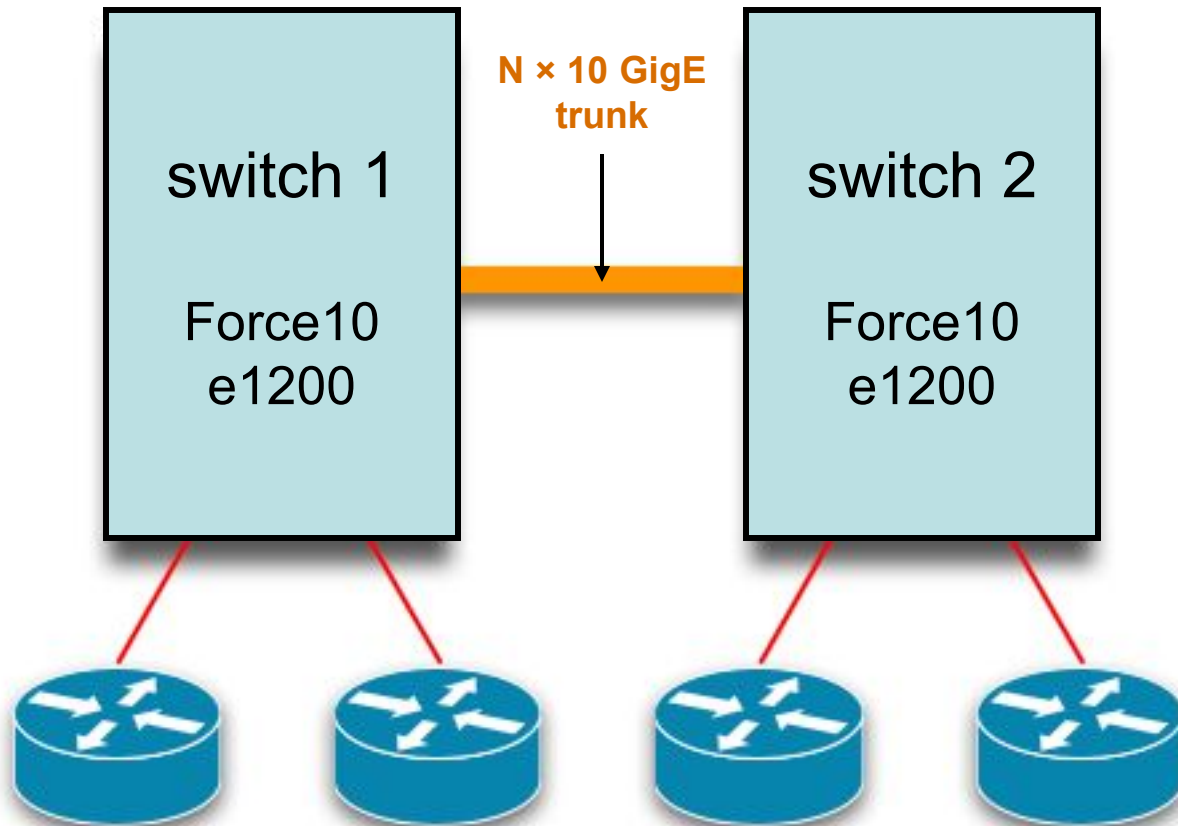




# End User Perspective on Higher Speed Ethernet

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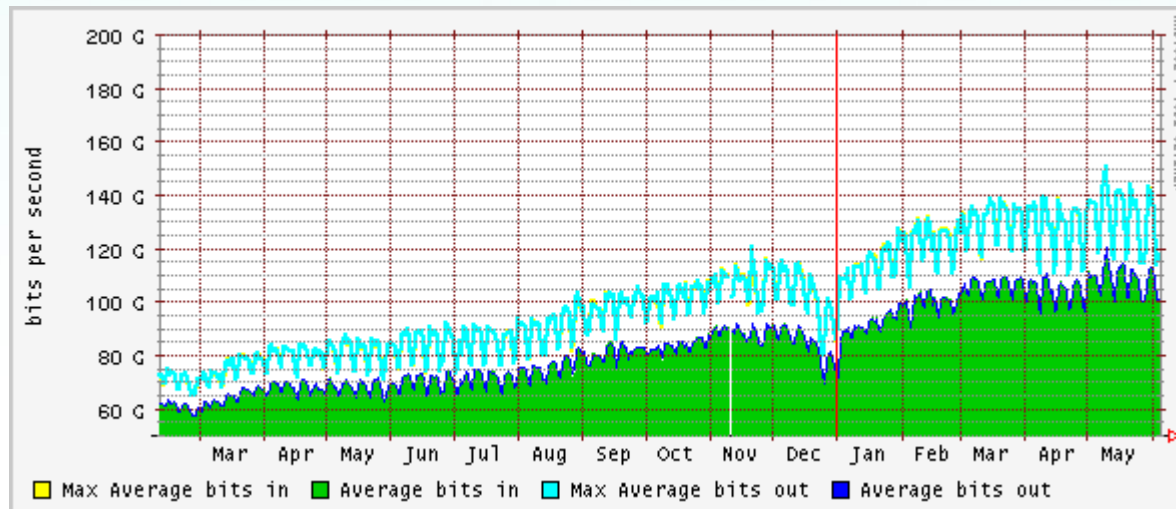
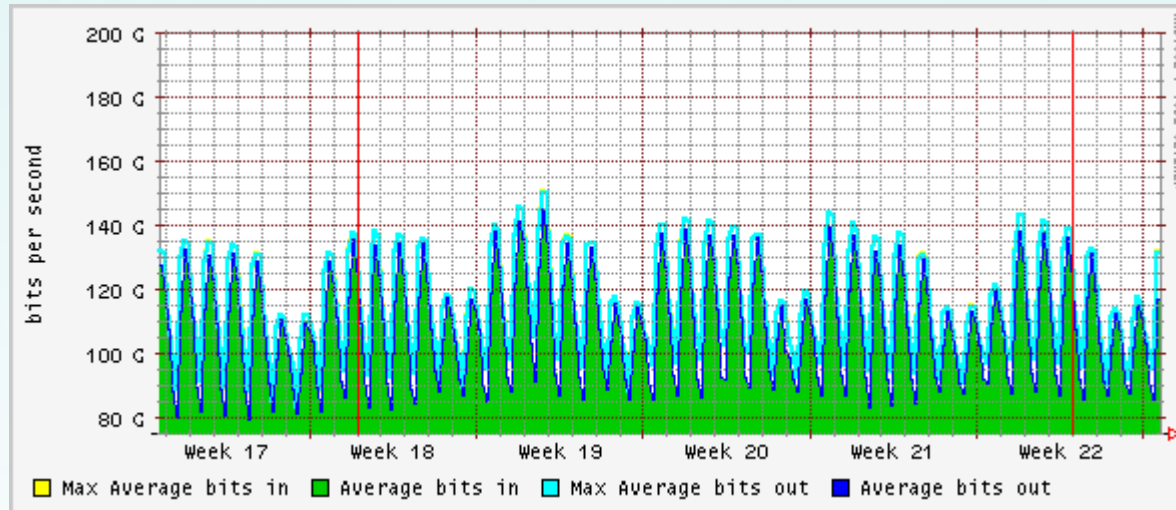
- A range of fabric trunking:
  - Single IBX fabric
    - local fiber x-connects between 2 switches
  - Campus fabric
    - lots of fiber pairs available
    - Distance < 10km
  - Metro fabric
    - More expensive dark fiber available, usually need to optimize via DWDM
    - Distance < 40km



**IX participants with FastE, GigE, NxGigE, and 10 GigE connections**



# Current Utilization: Nation-Wide Across All Exchanges



- Current DC/Ashburn peak ~80G
- 200G by year-end 2008
- 400G by year-end 2009
- 800G by year-end 2010 ← 100G standard available?!
- Trunks in 2010 would be ~ 4x100G
- Would require 10x40G if no 100G available
  - ***40G too little, too late for large IXPs***

- Washington, D.C. 10GE connections:
  - Late 2005 - 1st customer 10GE
  - Today - 35 10GE customer connections
  - Before 2008 - several 2 × 10GE customer LAGs
  - By 2009 – several 4 × 10GE customer LAGs
- Traffic is doubling every year! There is no reason to expect that this growth will slow down within the next 5 years.

- Link Aggregation concerns:
  - 10GE port density on switches!!
  - Additional fibers or WDM equipment
    - Added cost
    - More complexity
  - Traffic distribution across customer LAG links are less than optimal due to large flows.

## Equinix's Requirements for Higher Speed Ethernet

- 100 Gbps or greater
- 10 km SMF
- 40km SMF
- Port density:
  - 1 × 100GE port should not replace more than 4 × 10GE
- Link fault signaling support
- Link aggregation support



# Thank you. Questions?

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