

Beyond 10 Gigabit Ethernet

Subramanian Krishnamurthy NANOG34



40 GbE vs 100 GbE

The IEEE Standards Process

40 GbE or 100 GbE?

777

777

- History demonstrates the next IEEE standard will probably be 100 GbE, not 40 GbE
- Standards process favors neither 100 or 40 GbE yet since nothing has officially started



40 GbE Pros & Cons

Pros

- 40 GbE is the logical next step leveraging SONET / SDH OC-768
- 40 GbE can leverage OIF efforts underway to standardize OC768 interfaces
- Packet processing is achievable with 90 nm process technology

Cons

 Not a significant enough performance improvement to warrant the cost of development/adoption

100 GbE Pros & Cons

Pros

- Next logical step in Ethernet
- For system vendors, the development cost of 100 GbE would be marginally higher than 40 GbE, if the fundamental infrastructures are already in place in the system, but deliver a much higher benefit
- Easier to get to selling price goal for technology to get to mass adoption
 - GbE \$500/port
 - 10GbE \$2.5K/port
 - 40GbE \$4.5K/port
 - 100GbE \$10K/port

100 GbE Pros & Cons

Cons

- Need to use bleeding edge silicon technology
- Lots of work need to happen in the front end optical technology
- Optimizing 10 GbE pricing with the same chip sets would be difficult



40 GbE vs 100 GbE

The IEEE Standards Process

Standards Process: P802.3ah – Nov 2000 / Sept 2004

Call for Interest	By a member of 802.3
5	0% WG vote
Study Group	Open participation
7	75% WG PAR vote, 50% EC & Stds Bd
Task Force	Open participation
7	75% WG vote
Working Group Ballot	Members of 802.3
7	75% WG ballot, EC approval
Sponsor Ballot	Public ballot group
	75% of ballot group
Standards Board Approval	RevCom & Stds Board
↓ :	50% vote
Publication	IEEE Staff, project leaders

Mass Adoption Will Probably Happen in 2013



What You Can Do

- We need your involvement to start momentum and demand now
 - Or else we will only have 10 GbE for several years
- Start talking to your equipment vendors
 - Switching/routing
 - Transport
- Get involved in the IEEE

Thank You FORCE