100G & 40G
Market Timing
&
Broad Industry Support

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Presentation Motivation

- Discussions at & since the April '07 Ottawa HSSG interim meeting highlighted some significant 100G & 40G misconceptions

- Substantial differences exist between the 100G & the 40G MAC rates with respect to:

  - Relative market timing & demonstrated user need

  - Broad industry support significant enough to ensure a successful standard

- We'll examine these two areas as evidenced by presentations made to the HSSG

100G Time-to-Market Need (User Driven)

- The HSSG has received an unprecedented amount of input from the carrier/service provider & data center end-user communities
  - Many of these end user participants have attended multiple meetings, taken part in the various SG discussions & debates, and voiced their needs & requirements on the reflector
- Several observations can be made from their input:
  - A large percentage of these end users are using nx10G LAG *today* - with many starting to push the <u>limits</u> of this capability
  - Numerous end users have clearly stated that within the 2-3 year standards development schedule, they will have <u>exhausted</u> the limits of LAG & are already looking to interim/proprietary solutions
- The Ethernet equipment vendors have responded to this clear, succinct articulation of market demand with their <u>active, on-going participation & presentations</u> to the SG

100G Broad-based Industry Support

- 100G has the requisite broad based industry support to be successfully developed as a standard and successfully deployed in the market

- Presentations have been <u>given</u> by individuals affiliated with:
  - Components & enabling technology suppliers
  - Modules & related subsystems
  - Systems – including Ethernet Switch, Ethernet Routers & MAN/WAN Transmission Equipment
  - End users – across data center, content provider, carriers/MSO & various additional industry segments &verticals

    Note: 100G is deemed important enough to justify their time & effort to prepare the presentations and deliver them to the SG

- All aspects of the technology & product 'food-chain' are each represented by <u>multiple</u> individuals with <u>active participation</u> within the HSSG process

infinera

40G is Significantly Different

- **Time-to-market need:**
  - There has been no expressed views that 40G is driven by any urgent or pressing time-to-market requirements
  - The position seems to be that time-to-market can be easily achieved as quad-10G <u>components</u> are being brought to market for 10G applications
  - 10G is just beginning to see nascent deployment in the applications suggested
    - Unlike the 100G applications which are heavily using LAG today

- **Broad-based Industry Support:**
  - 40G presentations have not been given by a <u>broad base</u> of individuals affiliated with Ethernet network equipment manufacturers (i.e. Ethernet switch,…)
    - Are all these switch system manufacturers unaware of the need?
  - The 'food-chain' is not properly represented & and is skewed

Conclusions

- A successful standard requires broad-based, active participation and mutually aligned interests in the resulting end market
  - 100G has this broad, active support
  - 40G does not
- The carrier/service provider and data center end users have been very vocal & articulate in the needs for 100G – and the Ethernet switch/router & transmission OEMs are actively represented here in efforts to serve this need
  - To date, what little expression of 40G end user requirements have been put forward has not been for the 'target' application
  - And 40G is fundamentally lacking interest from a key industry community who would have to support it – Ethernet Switch/Router OEMs
- Just because it might be easy to build a particular 4x10G component/widget, does not mean that we should
- Agree strongly with the material expressed in dove_01_0507 & nicholl_01_0507 that 100G should move forward with PAR A