

Low Cost 10GE / 40GE / 100GE Switch-Server Interconnect

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10GE Switch-Server Interconnect Requirements

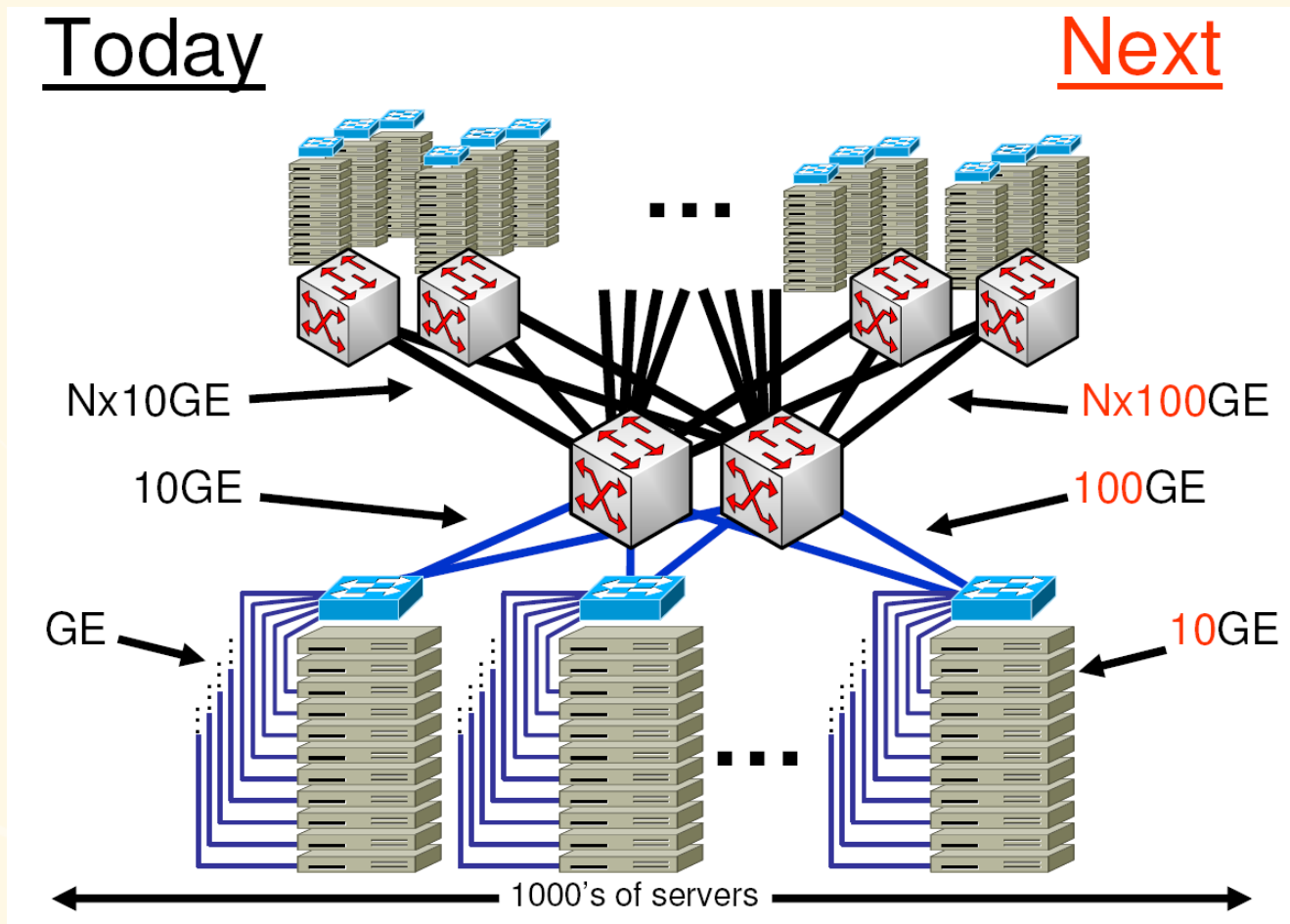


Diagram: Donn Lee, Google, IEEE HSSG Presentation, April, 2007

HSSG estimates of 10GE Switch-Server deployment start: 2008 - 2009

40GE Switch-Server Interconnect Requirements

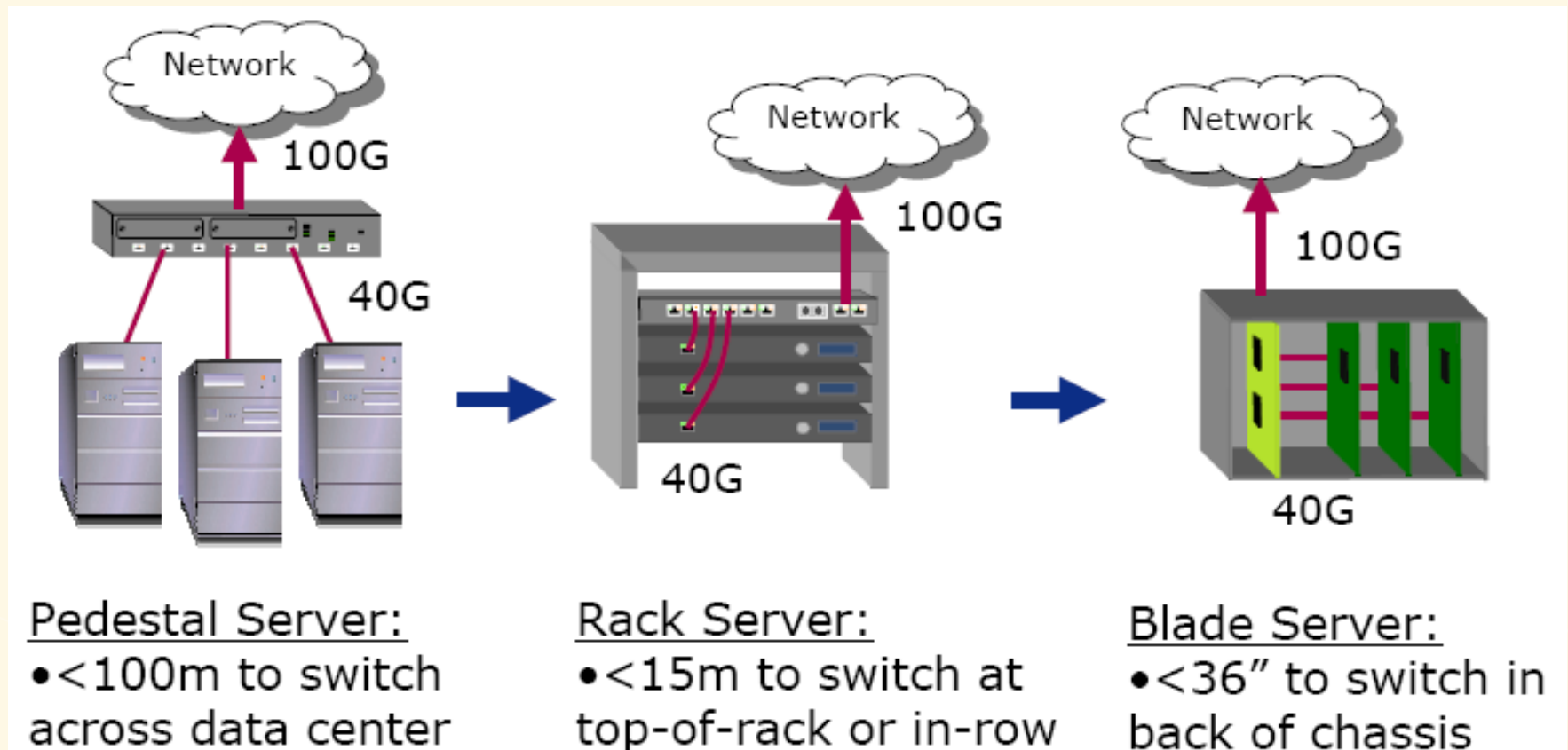


Diagram: Robert Hays, Intel, IEEE HSSG Presentation, April, 2007

HSSG estimates of 40GE Switch-Server deployment start: 2009 - 2012

100GE Switch-Server Interconnect Requirements

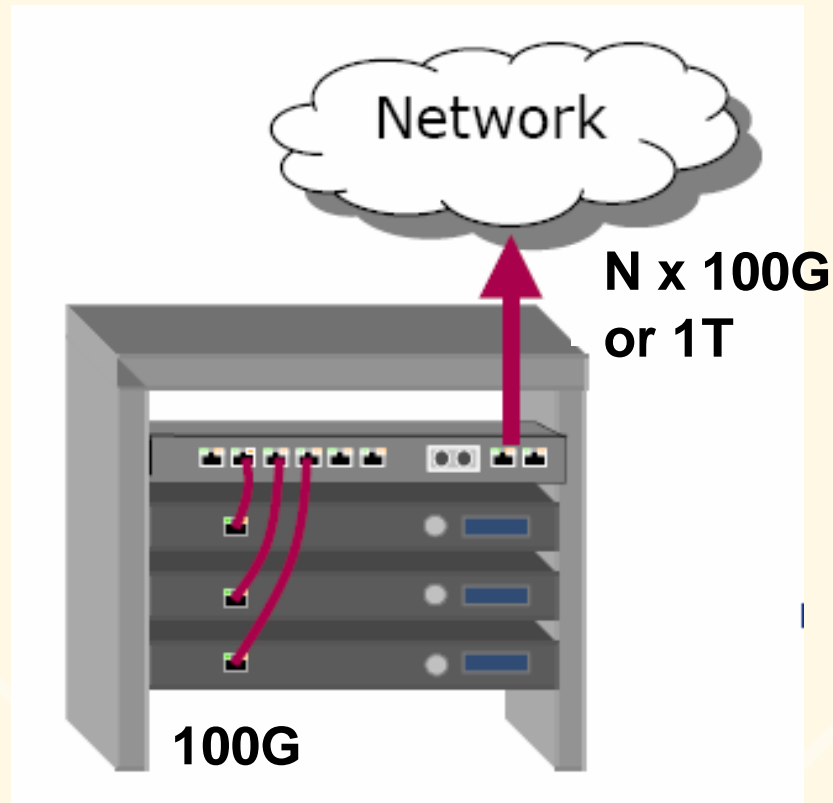


Diagram Graphic: Robert Hays, Intel, IEEE HSSG Presentation, April, 2007
(Data Rate Annotations: Chris Cole)

HSSG estimates of 100GE Switch-Server Deployment start: 2012 - 2018

10GE Switch-Server Interconnect Alternatives

- <10m
 - CX-4
 - 4 x 3G XAUI
 - 8 differential Cu pairs
 - SFP+ Cu (linear)
 - 1 x 10G LRM SFI
 - 2 differential Cu pairs
 - SFP+ Cu (limiting)
 - 1 x 10G SR SFI
 - 2 differential Cu pairs
- <100m (includes <10m)
 - 10GBASE-T
 - 4 x 3G XAUI
 - 4 differential Cu pairs
 - SFP+ Optics (linear)
 - 1 x 10G LRM SFI
 - 2 OM3 MMFs
 - SFP+ Optics (limiting)
 - 1 x 10G SR SFI
 - 2 OM3 MMFs
 - Other Form Factors / Specs (?)

40GE Switch-Server Interconnect Alternatives

- <10m
 - QSFP Cu (linear)
 - 4 x 10G LRM SFI
 - 8 differential Cu pairs
 - QSFP Cu (limiting)
 - 4 x 10G SR SFI
 - 8 differential Cu pairs
 - Other Form Factors / Specs (?)
- <100m (includes <10m)
 - QSFP Optics (linear)
 - 4 x 10G LRM SFI Parallel
 - 12-fiber OM3 MMF ribbon
 - QSFP Optics (limiting)
 - 4 x 10G SR SFI Parallel
 - 12-fiber OM3 MMF ribbon
 - Other Form Factors / Specs (?)

100GE Switch-Server Interconnect Alternatives

- <10m
 - “CQ” Cu
 - 4 x 25G EQ
 - 8 differential Cu pairs
 - “CQ” Optics
 - 4 x 25G Parallel
 - 12-fiber OM3 MMF ribbon
 - Other Form Factors / Specs (?)
- <100m (includes <10m)
 - “CQ” Optics
 - 4 x 25G WDM
 - 2 SMFs
 - Other Form Factors / Specs (?)

Switch-Server Interconnect Approach Proposals

■ 10GE

- Develop industry consensus on lowest cost alternatives for switch-server interconnect
- Different alternatives may be optimum for different data center applications
- Success of 100GE critically depends on the existence of widely accepted common approaches to low cost switch-server interconnect

■ 40GE

- Maximize re-use of existing 10G specifications and components
- Develop 4x10G PMD specifications in 40GE PAR A TF
- Complete 4X10G MSA specifications
- Develop 40GE components based on 10GE technology

■ 100GE

- Develop 4x25G PMD specifications in 100GE PAR A TF
- Develop other 4x25G PMD specifications in future 100GE PAR(s) TF(s)
- Develop all new specifications optimized for 100GE applications (this holds for 10x10G PMDs in PAR A for switch-switch interconnect)
- Develop 4X25G MSA specifications
- Develop new 100GE components