

IEEE802.3 HSSG

100GE - Service/Network Provider View

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100GE - Service/Network Provider View

Overview

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- HSSG approved Objectives and IEEE802 criteria
 - CFI topics
 - Ethernet Networking Vision
 - Proposal
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HSSG approved Objectives – Overview

HSSG approved objectives

- Support full-duplex operation only
- Preserve the 802.3/Ethernet frame format at the MAC Client service interface
- Preserve minimum and maximum Frame Size of current 802.3 Std
- Support a speed of 100 Gb/s at the MAC/PLS interface
- Support at least 10km on SMF
- Support at least 100m on OM3 MMF

IEEE802 criteria

- #1 Broad market potential Consider MAN and WAN: Broad set(s) of applications/services, multiple vendors/users, balanced costs (network vs. attached stations)
- #2 Compatibility
- #3 Distinct identity
- #4 Technical feasibility
- #5 Economic feasibility Consider existing network infrastructures, total installation costs, OTN

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CFI Topics - 100GE needed at Top of the Network

HSSG Target Market

⇒ 100GE needed at Top of the network

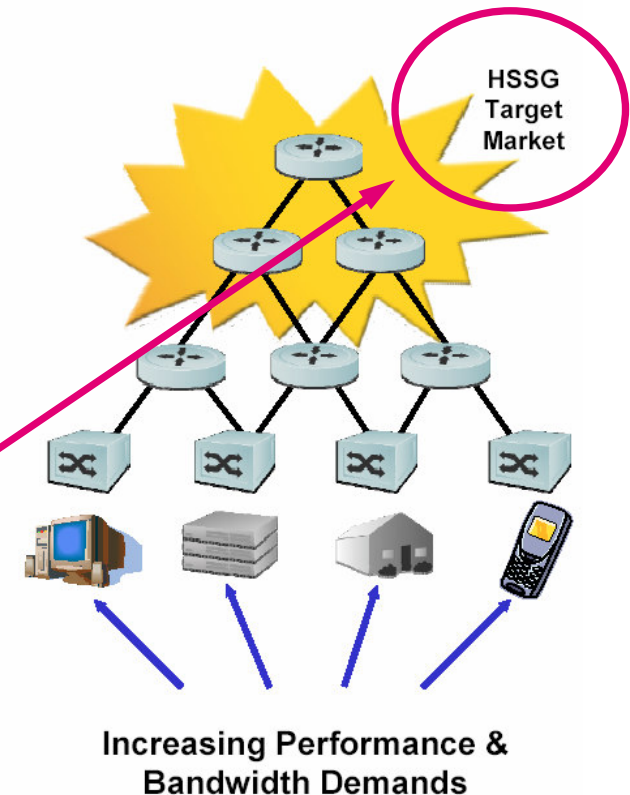
⇒ 100GE Aggregation at Metro (MAN) and Backbone (WAN) networks for broad market potential

⇒ Reduced networking OpEx for economic feasibility

⇒ Criteria
#1 - broad market potential
#5 - economic feasibility

Value = Growth

- Metcalfe Law
 - Value of network proportional to square the number of users
- "Value" of IP and Ethernet has opened new markets
 - Metro, core, carrier
 - Access, consumer
 - Industrial, video, medical, aircraft
- Top of the network requirements
 - Bandwidth is a commodity
 - Resiliency
 - Reduced operational costs (OpEx)



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CFI Topics – 100GE Early Market Adopters, Enablers

100GE MAN and WAN networking

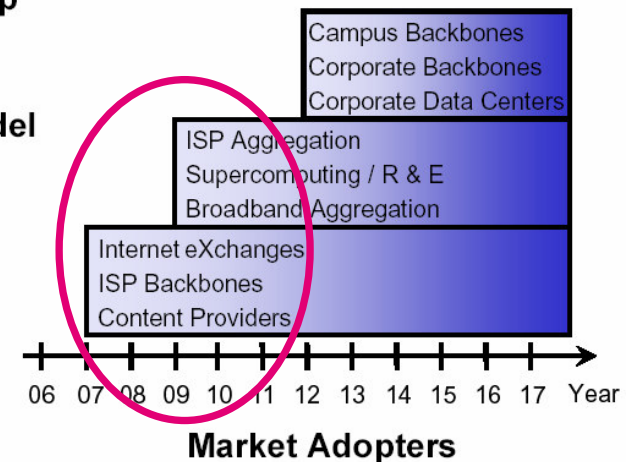
- ⇒ Content Providers
- ⇒ ISP Aggregation
- ⇒ Internet eXchanges
- ⇒ ISP Backbones
- ⇒ Broadband Aggregation

- ⇒ Early market enabler for broad market potential & economic feasibility

- ⇒ Criteria
 - #1 – broad market potential
 - #5 – economic feasibility

Applications

- **Bird's eye view**
 - Not targeted at the desktop
 - Multiple applications throughout the network
 - Consideration of cost model at higher layers of aggregation needed
- **Possible applications**
 - Backplane (1m)
 - Very short reach (< 25m)
 - Short reach (< 100m)
 - Long reach (< 40km)
 - Very long reach (> 40km)
- **Implication...**
 - Possibility of > 1 PAR



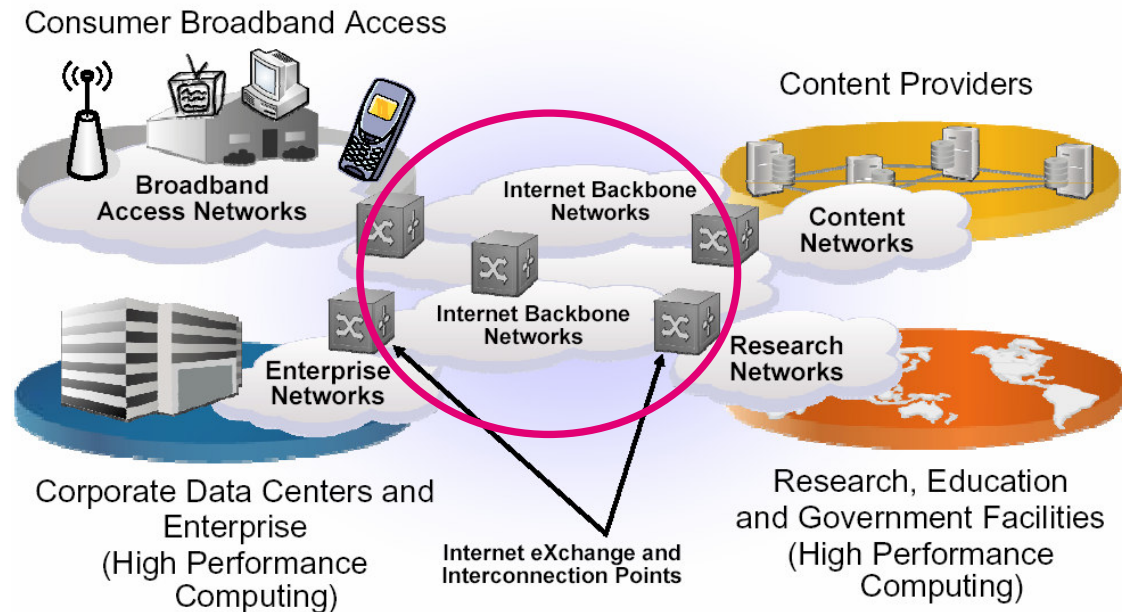
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CFI Topics - 100GE Networking

100GE from the service/network provider view

- ⇒ 100GE in MAN and WAN networks because of high market potential
- ⇒ Using of already installed fiber infrastructure, i.e. standard single mode fiber for cost effective networking
- ⇒ Seamless Interworking with OTN (Metro, Long Haul, Ultra Long Haul) for cost effective networking
- ⇒ **Criteria**
 - #1 - broad market potential
 - #5 - economic feasibility

The Ethernet Ecosystem



July 18, 2006

High Speed Study Group Call-For-Interest
San Diego, CA

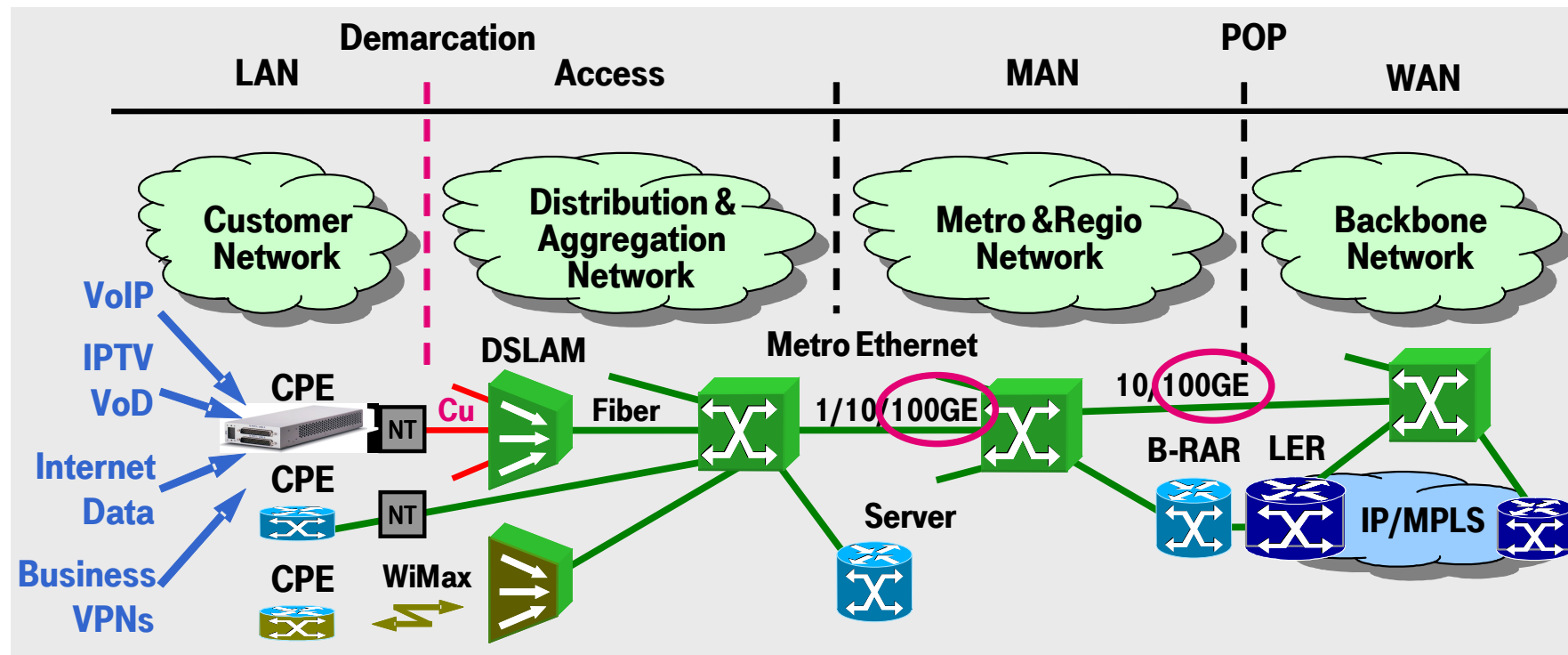
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Ethernet Networking Vision - 100GE Large Market Potential

100GE in Multi-Domain Carrier Grade Ethernet Networking in Aggregation, MAN, and WAN Networks

- Architecture ⇒ Minimizing the number of Interfaces and transmission lines
- Transport ⇒ Resilient, Reliable, and available Network
- Inter-Domain ⇒ Seamless, less complex, one technology
- Management ⇒ Simpler, ease of use, cost efficient



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Ethernet Networking Vision – Service/Network Provider Forecast

Broad market potential for Multiple Play and Carrier Ethernet Network Services

- In MAN and WAN networks
 - ⇒ Increased market potential for 100GE
 - ⇒ Criteria #1 – broad market potential

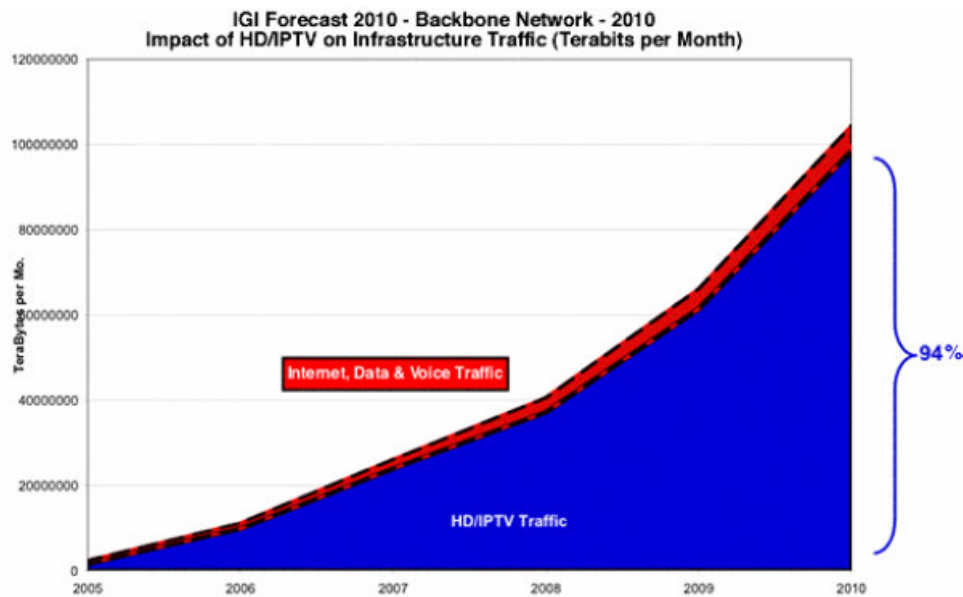
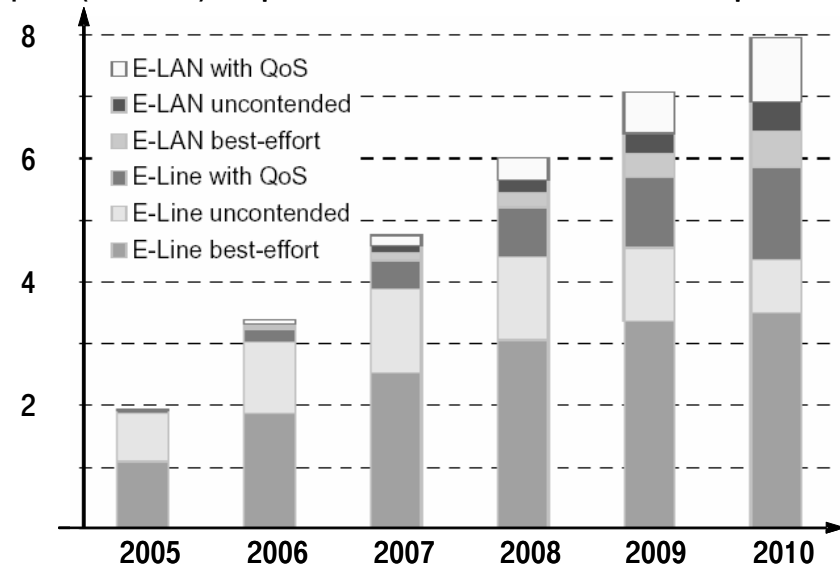


Chart from [Internet Growth – 2006, Traffic on the Internet](#)

Spend (rel. Units) Spend on MEF defined Services in Europe



Source: Analysys Research Limited 2006

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Ethernet Networking Vision – Requirements

What is necessary from the service/network provider view?

⇒ **Support of 100GE in MAN and WAN networks**

#1 – broad market potential

#5 – economic feasibility

⇒ **Support of already installed fiber infrastructure, i.e. standard single mode fiber for cost effective networking (e.g. ITU-T G.652)**

#5 – economic feasibility

⇒ **Support of OTN interworking for early market enablers and cost effective networking**

#1 – broad market potential

#5 – economic feasibility

100GE - Service/Network Provider View Proposal

What is necessary from the service/network provider view?

⇒ Support of 100GE in MAN and in WAN networks

Proposals for additional HSSG Objectives:

⇒ Support at least 40 km on SMF (standard single mode fiber)

⇒ Support OTN interworking

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