NORDICS CARRIER ETHERNET EVENT
OCTOBER 2, 2014, COPENHAGEN, DENMARK
SPONSORS:
RAD   TeliaSonera   ONEACCESS   transmode   interxion
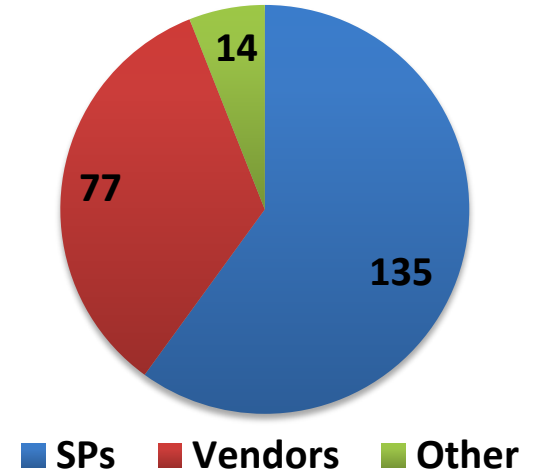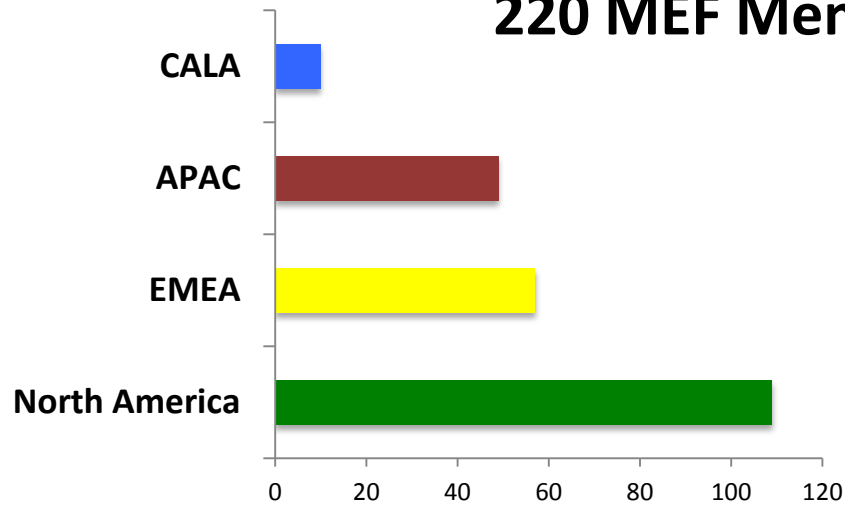EVENT SUPPORTED BY: MEF   WWW.METROETHERNETFORUM.ORG

Welcome and Introduction

Youcef Ayad
**MEF Nordics, Marketing Co-chair
Senior Global Product Manager
VPN & Ethernet Services,
TeliaSonera, Group Commercial**

MEF at a Glance

220 MEF Member Companies

$2 Trillion in Member Market Capitalization

40+ Standards

800+ MEF Certified Services & Products from 150+ companies

2500+ MEF-CECPs in 70 countries
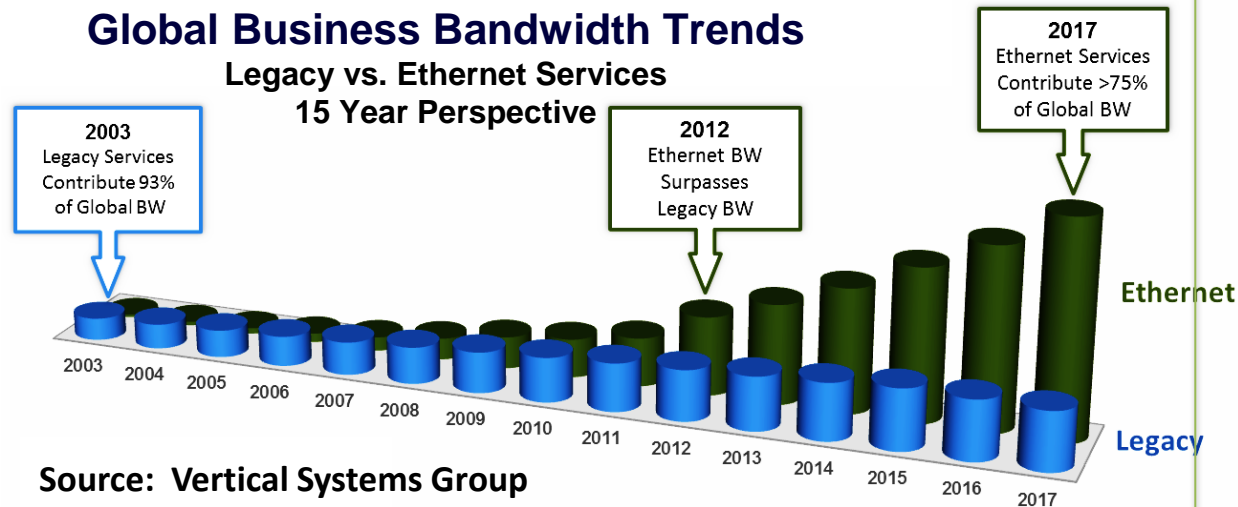
Global Ethernet Market Trends

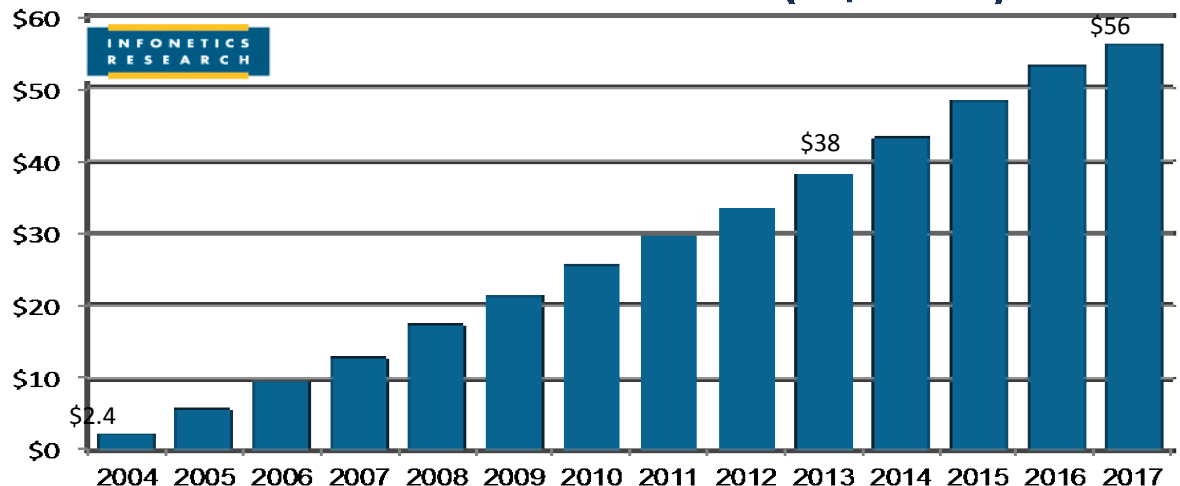Ethernet Services will represent 75% of the world's business bandwidth by 2017

Service growth from $38bn to 56bn by 2017

Global Business Bandwidth Trends
Legacy vs. Ethernet Services
15 Year Perspective

2003 Legacy Services Contribute 93% of Global BW

2012 Ethernet BW Surpasses Legacy BW

2017 Ethernet Services Contribute >75% of Global BW

2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

Ethernet

Legacy

Source: Vertical Systems Group

Global Ethernet Services Revenue (US$ Billions)

INFONETICS RESEARCH

$60
$50
$40
$38
$30
$20
$10
$2.4
$0

$56

2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
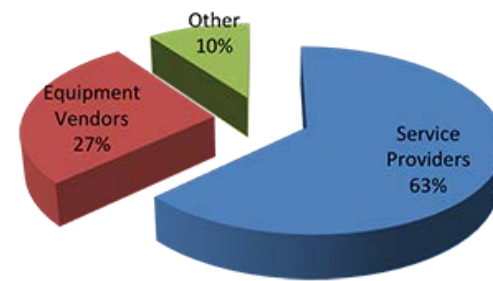
MEF

29 Service Providers – 156 services

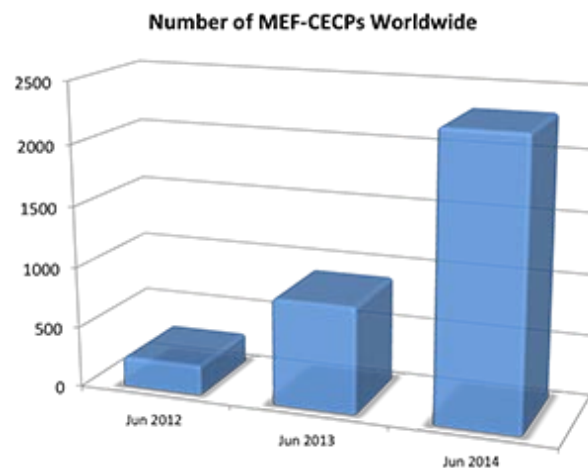**36 Equipment Manufacturers – 162 products**

- 1h 45m online exam covering CE technology & services
- Students self-study or attend accredited training programs
- MEF-CECP 2.0 expertise is now a strategic step for success in the Carrier Ethernet market

- 2,500 MEF-CECPs
- 288 companies
- 175 Service Providers
- 70 countries

Number of MEF-CECPs Worldwide

Q1. What do you believe have been the most important growth drivers for the wholesale Ethernet services market during the past two years?

Key growth drivers: (1) Performance-price advantages of Ethernet and (2) Customer migration from TDM leased lines / legacy services to Ethernet.

	Not Important		Somewhat Important		Important		Very Important		Critical Factor Impacting Growth	
Performance-price advantages of Ethernet versus alternative services	1	1.7%	2	3.3%	7	11.7%	30	50.0%	20	33.3%
Customer migration from TDM leased lines / legacy services to Ethernet	0	0.0%	1	1.7%	12	20.0%	31	51.7%	16	26.7%
Ethernet access to cloud services, Layer 3 VPN, or other services	0	0.0%	6	10.0%	16	26.7%	27	45.0%	11	18.3%
MEF standards for Carrier Ethernet connectivity & access services, interconnection, etc.	0	0.0%	11	18.3%	24	40.0%	21	35.0%	4	6.7%
Expanded Ethernet service coverage	1	1.7%	0	0.0%	16	26.7%	28	46.7%	15	25.0%
Wireless backhaul bandwidth upgrades	5	8.3%	10	16.7%	20	33.3%	15	25.0%	10	16.7%
Retail Ethernet bandwidth demand	2	3.3%	11	18.3%	20	33.3%	23	38.3%	4	6.7%
Ethernet service innovation (improved quality of service, performance, reliability, etc.)	1	1.7%	12	20.0%	15	25.0%	28	46.7%	4	6.7%

Q4. What are the top 4 service features that you believe will impact your wholesale customers' purchasing decisions in the next 12 months?

Top differentiators: (1) End-to-end SLAs with performance visibility, (2) service & network resiliency, and (3) bandwidth scalability up to 10GE

	Score*	Overall Rank
End-to-end SLAs with performance visibility (uptime, jitter, packet delivery, latency)	79	1
Service and network resiliency (including node, link, and route diversity)	75	2
Bandwidth scalability (for example, 2 Mbit/s up to 10 Gbit/s)	71	3
Accelerated service turn-up	56	4
Expanded service coverage between metro markets	55	5
Low or ultra-low latency	46	6
Bandwidth on-demand (manual, scheduled, or threshold-driven dynamic capacity changes within minutes or hours)	46	7
Expanded service coverage within metro markets	38	8
Real-time performance management with granularity (for example, per segment)	28	9
Automated pricing / flow-through automation of entire service delivery process	26	10
Variety of access technologies (e.g. fiber, bonded copper, coax, PON, microwave, etc.)	23	11
Virtual services with multiple classes-of-service options	21	12
MEF Carrier Ethernet 2.0 services certification	19	13
100 Gigabit Ethernet connectivity	17	14

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... The Road Ahead

Two Widely Deployed Data Networks

Performance & Security
Lack of Agility

Internet

On-Demand & Ubiquitous
No Service Assurance

Is there a need for a new type of network service combining the best of both worlds

- Internet-like agility and ubiquity with CE 2.0-like service assurance

- Unprecedented levels of user control of the network

- Cloud Service-like dynamic, on-demand service experience

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A New Type of Network Service

TheThirdNetwork
Agile, Assured, Orchestrated

a Network as a Service

- *Agile*
  - Delivery of new, dynamic, on-demand services
- *Assured*
  - Delivery of performance and security guarantees
- *Orchestrated*
  - Delivery of automated service across service providers

Work of the MEF

MEF Certified Professionals

LIFECYCLE SERVICE ORCHESTRATION

Lifecycle Service Orchestration
- Fulfillment, Control, Performance, Assurance, Usage, Analytics, APIs

Lifecycle Service Orchestration
Service Definitions and Information Model

Network Infrastructure
| NFV | SDN | Existing WAN |

PROCESSES

Business Processes
- Ethernet Lifecycle Definition, Service Catalogues, Order Forms, Reporting

RETAIL & WHOLESALE SERVICES

Retail/ Wholesale Services
- E-Line, E-LAN, E-Tree, E-Access, E-Transit
- Info Models & OAM

E-Line   E-Tree
E-LAN
E-Access
E-Transit
CE 2.0 MEF CERTIFIED
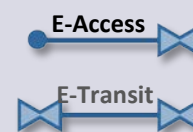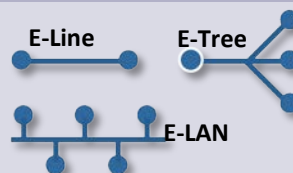
ARCHITECTURE

Architecture
- UNIs and ENNIs
- EVCs and OVCs
- vNIDs
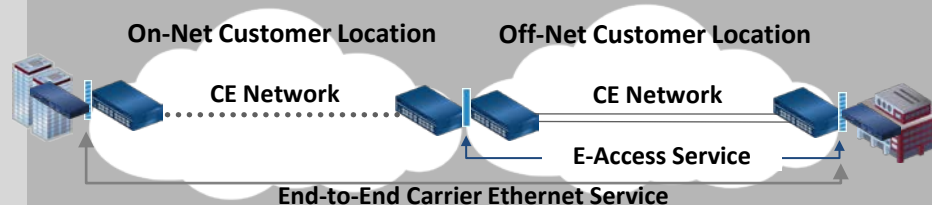
On-Net Customer Location   Off-Net Customer Location
CE Network   CE Network
E-Access Service
End-to-End Carrier Ethernet Service

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Carrier Ethernet Nordics

CE in the Nordics Area

- **Local presence so far**
  - Two MEF certified Service Providers
    - TeliaSonera and BroadNet
  - Two MEF certified Equipment Vendors
    - Ericsson and Transmode in the Nordics.
- **Market Trends**
  - The Carrier Ethernet based services had a yearly growth from 16 to 20% between 2012 - 2014 in the Nordics (DK,SE, NO,FI).
 - Mainly driven by SDH legacy migration and new Mobile Backhaul services.

Country Perspectives

- **The MEF Nordics Regional Marketing Committee part of EMEA:**
  - Benelux | D-A-CH | France | United Kingdom | South Africa
  - Cofounded by TeliaSonera and BroadNet, Oct 2011.
    - Incl. Rad Co-chair | One Access | Transmode |Alcatel-Lucent
- **Local MEF Events in the Nordics**
  - The Stockholm Events, in Q1 2013 ,Feb 19th 2014
  - The Copenhagen Events, in Q4 2013, Oct 2nd 2014

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Ethernet Services

Nordics – Retail Ethernet Services Spending
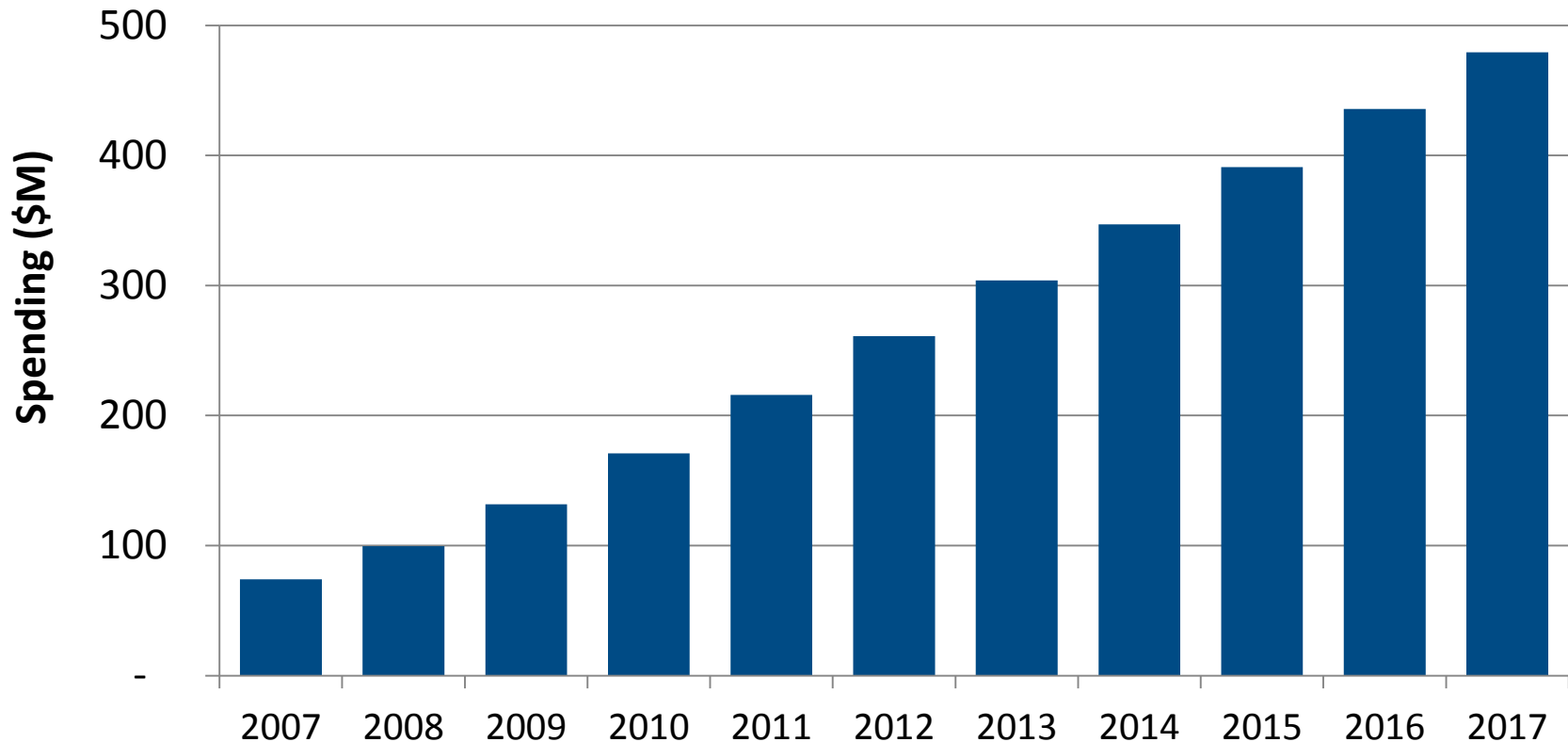
Source: IDC's European Telecom Services Database, 13Q4

MEF note on this slides provided by IDC
- Does not include data for Carrier Ethernet for Internet access and transport for IP/VPN and other services
- Also excluded are any wholesales access traffic and mobile backhaul applications
- Slide provided by IDC. For more info please see: IDC's Europe, Middle East and Africa Telecom Services Database **http://www.idc.com/tracker/showproductinfo.jsp?prod_id=381**

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Additional MEF E-Access Resources

[CE 2.0 Ethernet Access Services White Paper](#) (October 2013)

[CE 2.0 Wholesale Access Presentation](#) (March 2014)

Next ...

- ## CE and CE 2.0 Basics
- Service management white paper
- Application and business benefits for end users with Case studies

Presented by Eyal Aloni

Head of Business Development

Rad Data Communication

MEF