

# **OIF Interoperability 2012**

*A Heavy Reading Perspective*

Sterling Perrin  
Senior Analyst, Heavy Reading  
Tuesday, March 6, 2012

[www.heavyreading.com](http://www.heavyreading.com)

# 100G Standardization Contributors



## Definition of G.709 OTU4 ITU-T Study Group 15

- G.709 revision approved December 2009
- OTU4 rate = 111.8 Gbit/s; optimized for 100GbE, sized for 10xOTU2e
- OTU4 optical power budgets compatible with IEEE



## Definition of 40GbE & 100GbE P802.3ba Task Force

- Standard approved June 2010
- MAC data rates of 40 Gbit/s (41.25 Gbit/s) and 100 Gbit/s (103.125 Gbit/s)
- Transparent transport of 40GbE & 100GbE over standard OTN rates
- Meet following physical layer specifications:

	1m backplane	7m copper	100m MMF	10km SMF	40km SMF
40GbE	✓	✓	✓	✓	
100GbE		✓	✓	✓	✓



## 100G Long-Distance DWDM Transmission Framework

- Targets 1,500km application using coherent DP QPSK technology
- Implementation agreements for Tx and Rx photonic components
- Module project defines electro-mechanical aspects of a module suitable to house the transmit and receive components



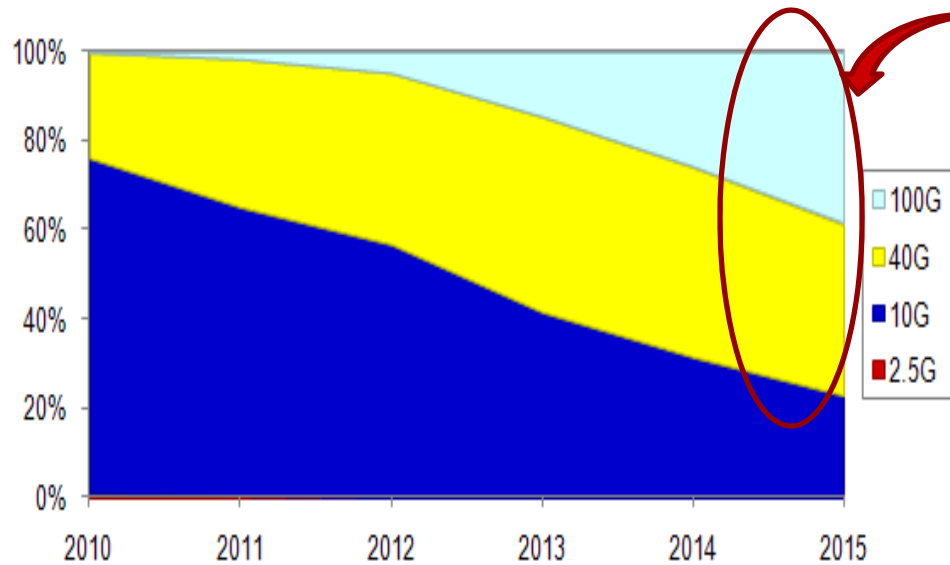
# OIF Filling the Standards Gaps for 100G

Project	Type	Status
100G Long Distance DWDM Transmission Framework	Optical	Whitepaper complete and published
100G Long Distance DWDM Integrated Photonics Receiver	Optical	Approved Implementation Agreement
100G Long Distance DWDM Integrated Photonics Transmitter	Optical	Approved Implementation Agreement
Forward Error Correction (FEC) for 100G DP-QPSK Long Distance Communication	Optical	Whitepaper complete and published
100G Long-Haul DWDM Transmission Module - Electromechanical	Optical	Approved Implementation Agreement
100G Long-Haul DWDM Transmission Module - Management Interface	Optical	In Progress
Micro Integrable Tunable Laser Assembly (uTLA)	Optical	In Progress
Common Electrical Interface - 25Gb (CEI-25-LR/28-SR)	Electrical	Approved Implementation Agreement
OTN over Packet Fabric	Electrical	Approved Implementation Agreement
Common Electrical Interface - 28Gb (CEI-28-VSR)	Electrical	In Progress
Faceplate Thermal Management	Energy	In Progress

Source: OIF, March 2012

# The Commercial 100G Era Has Begun

WW Long-Haul DWDM Share of Line-Side Capacity by Speed

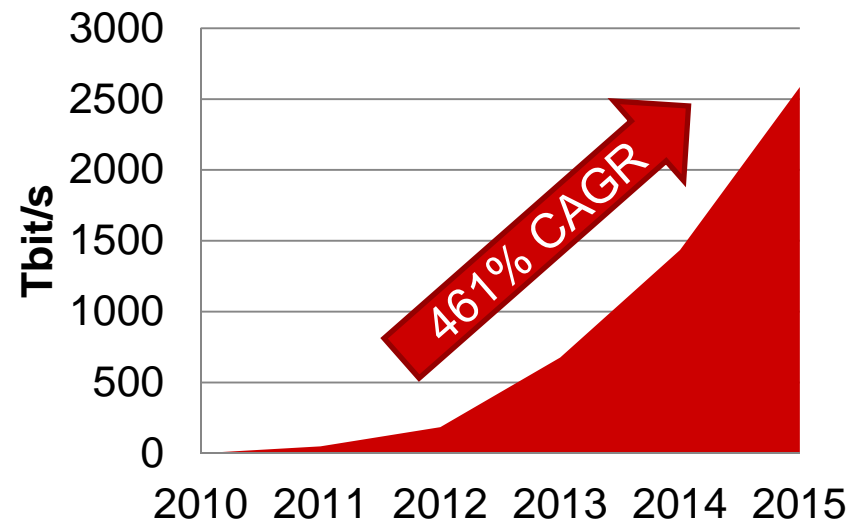


100G overtakes 40G in capacity shipped

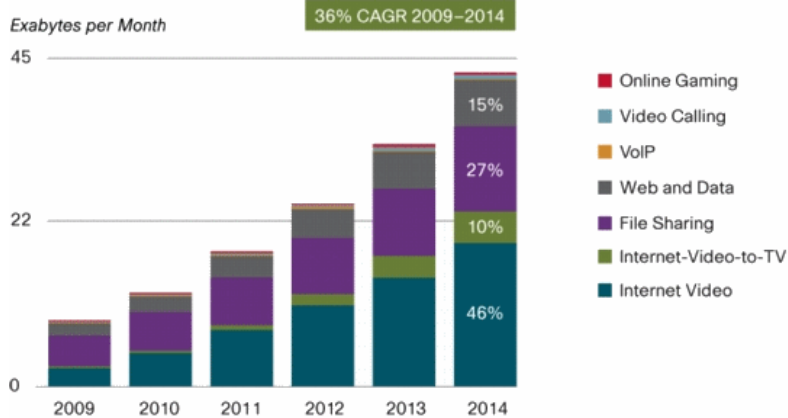
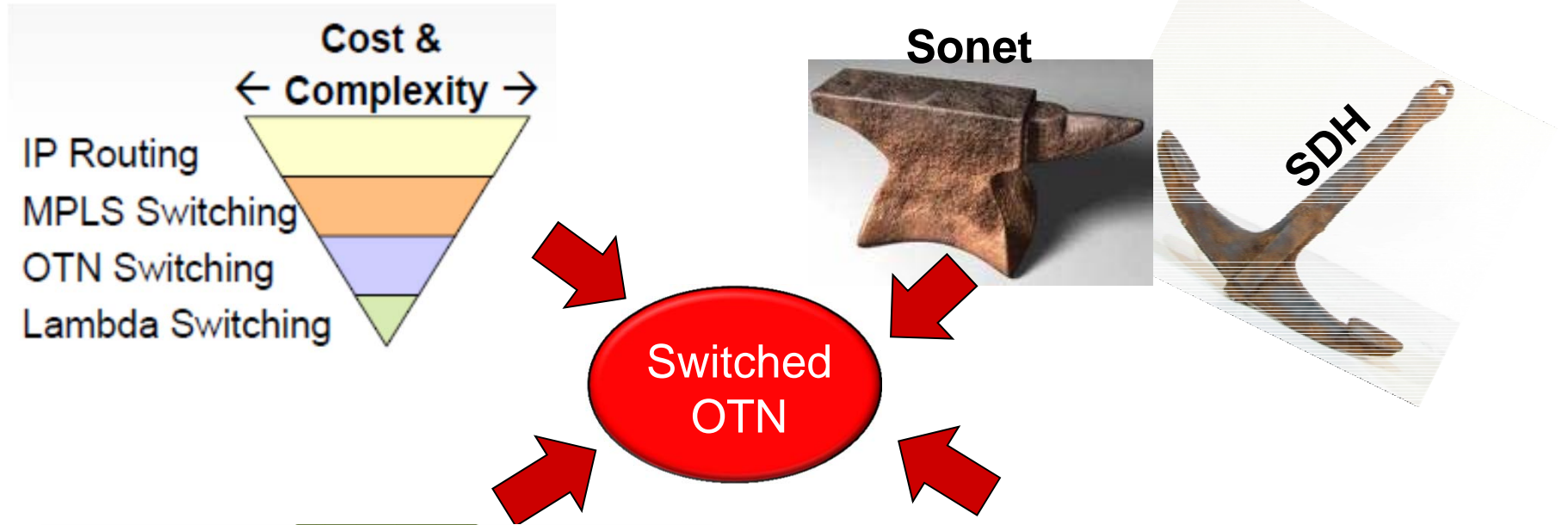
- **10G dominance of backbone networks is already in decline**
- **40G window begins to close now**
- **100G line side capacity shipped to surpass 40G by 2015**

Source: Heavy Reading, 2011

WW LH 100G Transport Capacity Shipped



# Trends Converge on Switched OTN



Core Clients 2015



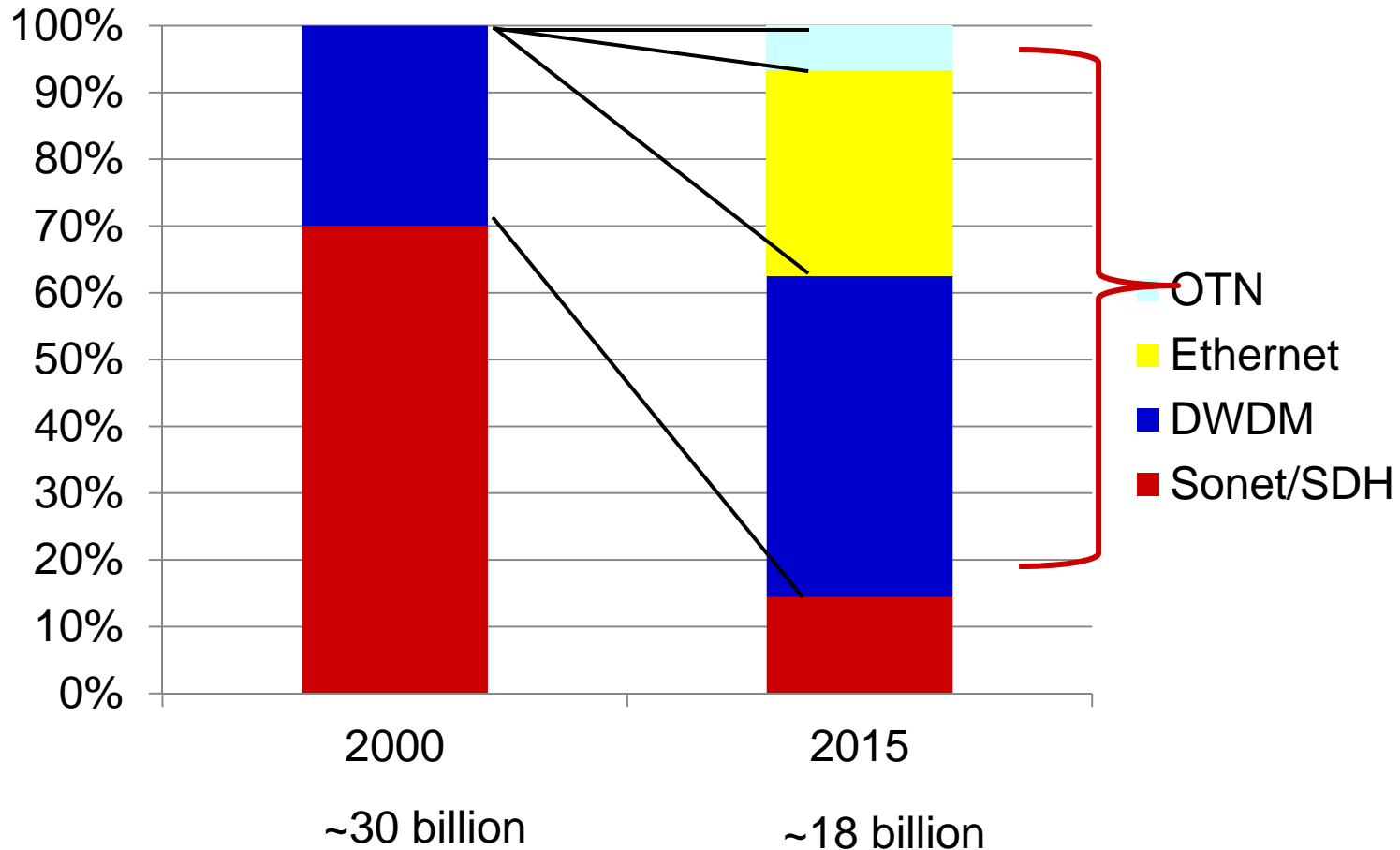
■ <10G ■ 10G ■ 40G ■ 100G

Sources: Verizon, Cisco VNI, Heavy Reading



# The Shifting Trends in Optical Spend

Worldwide Optical Transport Revenue, 2000 and 2015 (%)



Source: Heavy Reading, 2012



Thank You!

