

Report to IEEE 802.3ae of technology demonstration conducted by



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Mark Fishburn

Vice President Technical Strategy, Spirent Communications

Chair, Test & Demo Committee, 10GGEA

Vice President, 10 Gigabit Ethernet Alliance

Chair Marketing Committee, 10GGEA





First Multi-Vendor 10 GbE Technology Demonstration

- Multiple 10 GbE technologies demonstrate major customer applications
 - 5 of 7 port types: 10GBASE-LR, 10GBASE-LW, 10GBASE-SR, 10GBASE-EW, 10GBASE-ER
 - 3 of 4 transceivers (PMDs)
 - MM and SM fiber links
- XAUI demonstration: chip-to-chip interconnect
- Multiple types of equipment: systems, test equipment, components, cables
- Video application over 10 GbE
- Depth and breadth of industry support
- 18 companies showing product

10GEA Demo & Hot Stage Participants



10GEA Demo Participants

Agilent Technologies

AMCC
APPLIED MICRO CIRCUITS CORPORATION

AVAYA
COMMUNICATIONS

BROADCOM

CISCO SYSTEMS

extreme
networks

FOUNDRY
NETWORKS

intel

IXIA

Lucent Technologies
Bell Laboratories

MINDSPEED
A CONEXANT BUSINESS

NORDX/CDT
A SUBSIDIARY OF
CABLE DESIGN TECHNOLOGIES

PICOLIGHT

NORTEL
NETWORKS

PMC
PMC-SIERRA

SPIRENT
Communications

tyco | Electronics

Velio

10GEA
10 GIGABIT ETHERNET ALLIANCE

Report to IEEE 802.3ae

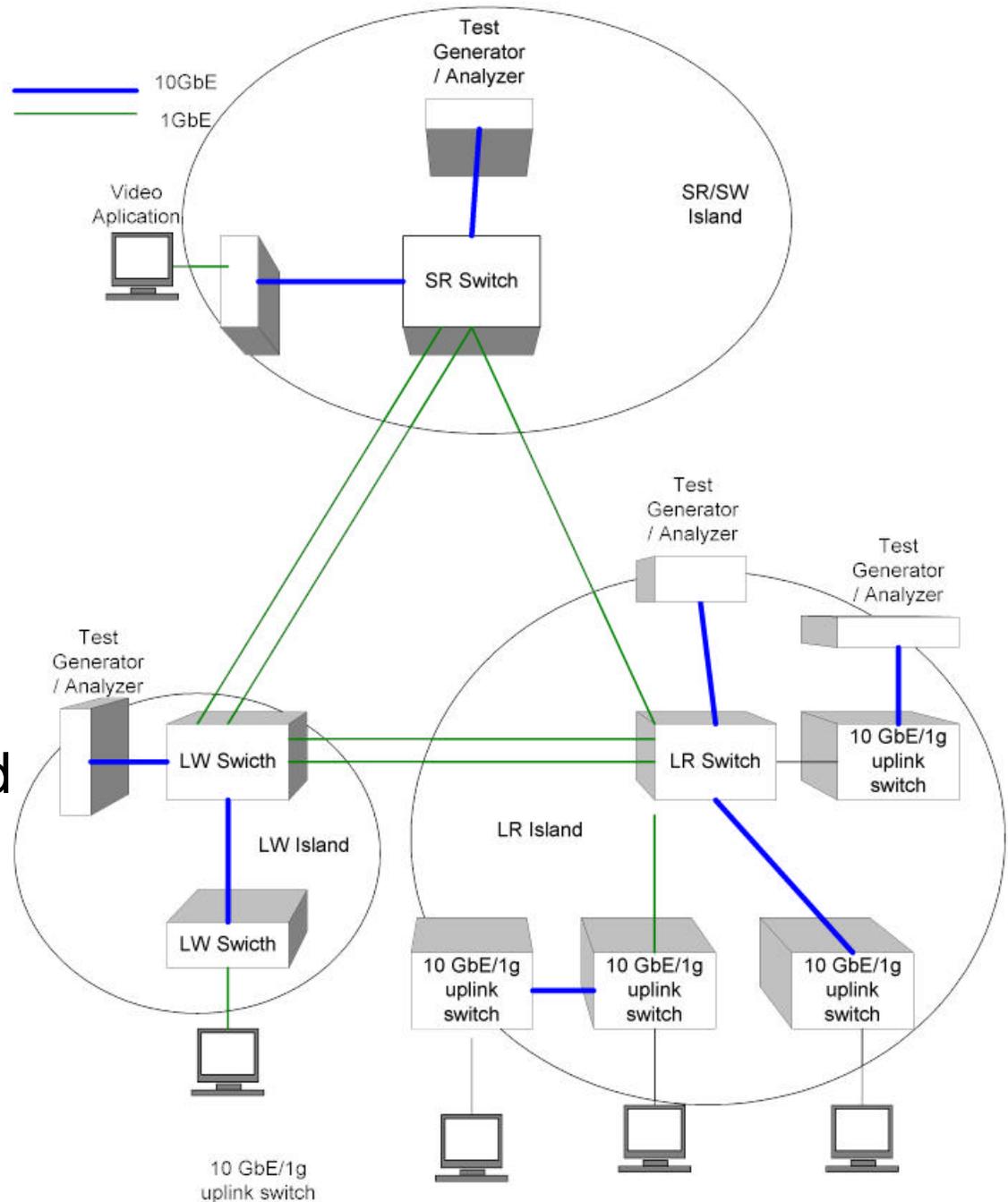
- Technology Demonstration Goals
 - Demonstrate operation and interworking of systems implementing current draft
 - Demonstration of multiple PMDs
 - Demonstration over full distance fiber
 - Demonstration of a user-relevant application operating across several implementations
 - Demonstrate feasibility of 10GbE based systems in support of IEEE 802.ae initiatives
- Non-Goals
 - Not a formal interoperability demonstration
 - Not a formal conformance demonstration
 - Avoid full packet rate performance test
- Result
 - Successful demonstration
 - Press coverage

Organization

- Hot Stages and Booth set-up
 - Belmont, CA & Atlanta, GA ...8/23, 9/8
 - Run by Bob Noseworthy, Eric Linskey, UNH, IOL and assistants
 - Application Demo, David Newman, NetworkTest
 - John D'Ambrosia, XAUI Demo
 - Organized by 10GEA, Mark Fishburn, Test & Demo Chair
- Network Configuration
 - Mark Fishburn, Bob Noseworthy, availability

Nominal diagram*

(I.e. the one we wanted to achieve, but didn't)



Demo consisted of ...

- 3 Test vendors
- 3 Client/component systems
- 4 Active switch vendors
- 5 XAUI participants
- 2 Cable vendors
- Video based end-to end application
- 3 technology islands, some connected by 1GbE links
- Single Mode fiber 10km

Hot Stage & demo activities

- Initial one-to-one pair testing
 - LR, SR, LW pair testing, packet transmit/receive between systems. Limited initial success – improved later.
 - Full packet rate approx 14.4 Mpps error free LR testing between switch vendors. Other PMDs not tested in the same way
 - No LX4 participation at the time of the demo

Hot Stage & demo activities

- Multiple System interworking (continued)
 - LW test system to LW switch (#PMD vendors unknown) then via multiple 1gbE back to test systems
 - Low rate interworking for video based applications with canned video and live TV feed on show floor
 - Network connectivity from low rate server across 10GbE network to destination client application work without fault throughout the show
 - Substantial progress between 1st hot stage and N+1 demo, with no system failures observed through 3 days of the show

Hot Stage & demo activities

- Multiple System interworking
 - SR test system over 300m MM fiber to to SR switch, return via 1GbE link (1 PMD vendor)
 - LR demonstration test vendor to switch vendor to switch vendor to test vendor (multiple PMD vendors)
 - As above with 10km spool SM fiber
 - SR test system to SR switch return via LR interface to LR test system

Conclusions to be drawn

- The three PMDs, **as implemented by the vendors**, demonstrated successful operation over a period of 3 days
- The systems showed the capability of conducting user level applications
- The PMD implementations were the same as those being used in the feasibility demonstrations
- The test equipment showed the ability to generate and analyze full packet rate, operating without errors
- Reports by the press support the feasibility of the technology



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