



Outsmart Your Competitors

Metro ROADM Market Landscape

NXTCOMM – Panel Discussion: Session A2
**Faster, Better, Sooner - IPTV Service Delivery
with ROADM**

June 18, 2007

Agenda

- ■ **Definition**
- ■ **Drivers of Metro ROADM Deployments**
- ■ **ROADM's Role in IPTV**
- ■ **Market Snapshot**
- ■ **Who's Selling/Deploying Metro ROADMs**
- ■ **Wrap-up**

Definition

■ Features of the ROADM Discussed Today

- Multi-degree hubbing capabilities
- Based on All-Optical switch fabrics
 - i.e., Wavelength Selective Switch (WSS)
 - Most commonly based on MEMs technology
- Most likely deployment scenario (as it stands today)
 - Functionality housed in metro edge/core platforms

Drivers

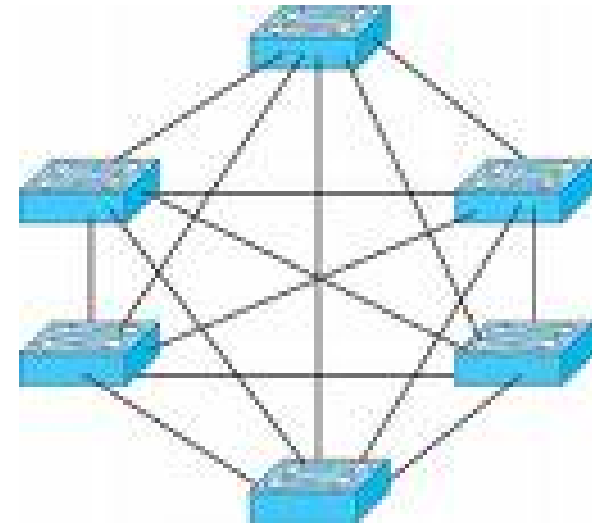
Key Word: Flexibility

■ Physical

- Mesh Networking
 - Deployment flexibility
 - Protection/Restoration
 - Network efficiency
- Enhanced OAM
 - Agile network control

■ Service Delivery

- Rapid turn up of business services
- Video/IPTV



ROADM as an IPTV Enabler

Key Words: Bandwidth Allocation

- **VoD already forcing cable companies to provision for spikes in demand**
 - New services like HD VoD will only raise stakes

- **IPTV makes VoD look like a drop the bucket**
 - **Increased interactivity**
 - Upstream/Downstream communications
 - “Lean Forward” programming model
 - **Increased integration**
 - Entertainment melded with Commerce

Market Snapshot

■ Multi-Degree ROADM in Infancy

- Most telecom carrier networks
 - >70% comprised of 2 degree nodes (i.e., ring-based networks)
 - ~20% support 4 degree (i.e. N/S/E/W)
 - ~ 5% superhubs (i.e. greater than 4 degrees)
- Growth in multi-degree nodes will not take off without advanced video services

■ Carriers are in evaluation stages

- Where deployments are taking place, they're small scale

■ Vendors are making their offers ready for “prime time”

- Many vendors are still in the process of folding WSS capabilities into their metro core platforms



Who's Selling ROADMs - Products

- ADVA – FSP 3000RR
- ALU – WSM, 1696/TRX-24000, 1850-TSS
- Ciena – CN 4200 FlexSelect
- Cisco – ONS 15454 MSTP
- ECI – XDM 40
- Ericsson – MHL 3000 Metro
- FNC-Fujitsu – FLASHWAVE 7500
- Huawei – OSN 6800
- Meriton Networks – 6400 OTP
- NEC – DW4200
- Nortel – implemented via CPL
- NSN – hiT 7300
- OpVista – OpVista 2000
- Tellabs – 7100 OTS

Note: Not all products listed above have multi-degree ROADM capabilities in G.A.



Who's Selling ROADMs – Market Momentum

- Cisco – #1 market share*: 5K NEs deployed (2-degree)
- Fujitsu – #2 market share*: N. Am (MSO), Japan (carrier)
- OpVista – #3 market share*: Cox, TimeWarner
- ALU – TimeWarner (TRX-24000), U.S. Army (WSM)
- Tellabs – Verizon win (FiOS)
- ECI – Corenet (Finland)
- Meriton – Tier 2/3 carriers in U.S.
- ADVA – Research networks (NASA, NLR, etc.)

- Many more cite “ROADM enabled” deployments
 - Nortel via CPL
 - Ciena via CN 4200
 - ALU via Metrospan 1696
 - Not an exhaustive list



Who's Deploying ROADMs

— North American Market Leads the Way

■ MSOs

- Most major MSOs have begun ROADM roll-outs at select nodes

■ Tier-1 Telcos

- Verizon one of the first to go on record

— Japan Supplies Early Momentum for Fujitsu

— Europe Ramping up Cautiously

- Corenet (Finland) one of first multi-degree ROADM references

Caveat:

- 2-degree wavelength blockers relatively common in L-H backbone networks in North America, Europe, Asia-Pac

Wrap-Up

■ Where is ROADM best suited?

- Current trends indicate metro edge/core/regional
- JDSU unveiled WSS switch fabric for metro access devices at OFC/NFOEC 2007

■ IPTV will be critical

- Business services won't drive wide-spread deployment
- If IPTV lags, ROADM deployments will suffer

■ ROADM is a feature, not a product category

- ROADM modules will make their way into many parts of the network
 - Highly dependent on individual deployment scenarios

Competitive
Intelligence
levels the playing field...

[Competitive
Response]
enables you to
Win.

Current Analysis is the *only* competitive research firm that provides solutions to improve your company's **Competitive Response**

For more information, please contact...

Jason Marcheck

Principal Analyst – Optical Infrastructure

703.788.3795

jmarcheck@currentanalysis.com | www.currentanalysis.com

