

FLASHWAVE 9500

Packet Optical Transport Innovation

Fujitsu Network Communications

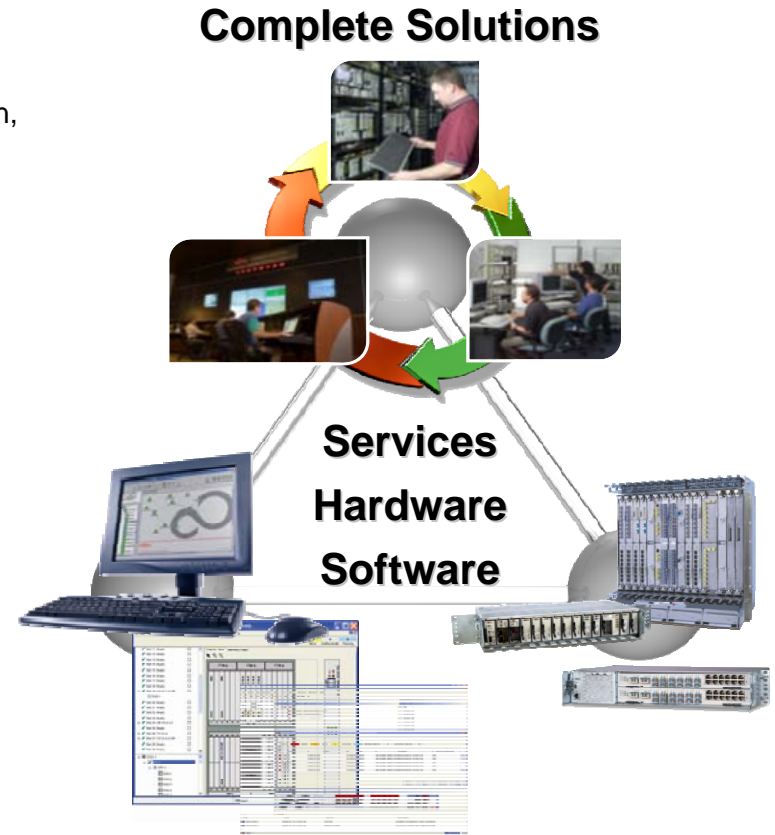
Packet Optical Networking Solutions

Fujitsu Network Communications (FNC)

Who We Are



- **Over 30 years' business presence in North America**
 - IOCs, LECs, MSOs, wireless carriers
 - Federal, state and local government, financial, utilities, transportation, healthcare, research and education
 - Global scope—local presence
- **Broad portfolio, proven real-world performance**
 - Packet Optical Networking Platforms
 - Professional services and software
 - FLASHWAVE® DWDM and SONET/SDH
 - 450,000+ network elements deployed in the US
- **Industry-leading quality**
 - In-house manufacturing – dual factories
 - TL-9000 certified
 - Highest quality performance in the industry
- **Large US office and manufacturing facility**
 - The ONLY major optical networking vendor to manufacture its own equipment in North America



Fujitsu Network Communications

Tradition of Industry Leadership



■ Support Traditional Technologies

- TDM, WDM, L1 Ethernet Transport

■ Growth in Packet Optical Networking

- Optical transport – ROADM
- TDM aggregation – SONET
- L2 Connection-oriented Ethernet
- EoS to Ethernet interworking
- OTN aggregation

■ Enabling network transition

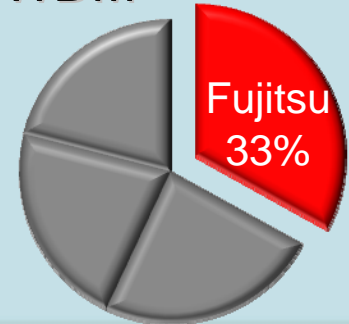
- 2G → 3G → 4G Mobility
- DS1/DS3 → 10/100M
- SONET → Packet
- FOADM → ROADM
- 10G → 40G → 100G

Metro WDM



FLASHWAVE 7500
FLASHWAVE 7420
FLASHWAVE 7120

WDM



Aggregation (ADM's/OED's/Packet ONP)



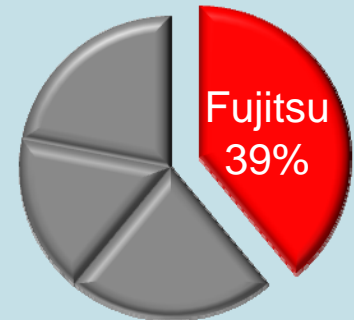
FLASHWAVE 4100
FLASHWAVE 4500

TDM
Packet



FLASHWAVE 9500 HDS
FLASHWAVE 9500 SDS
FLASHWAVE CDS

Packet
WDM
TDM



Fujitsu Network Communications

Our Product Portfolio



Services Aggregation and Transport

Packet Optical Networking



FLASHWAVE 9500
FLASHWAVE 7120

ROADM/DWDM



FLASHWAVE 7500
FLASHWAVE 7420

Multiservice Provisioning Platform



FLASHWAVE 4500

Network Design & Management



NETSMART 2000
NETSMART 1500
NETSMART 500

Services Access

Packet Optical Networking



FLASHWAVE CDS
FLASHWAVE 4100 ES

Ethernet Demarcation



FLASHWAVE 9420
FLASHWAVE 9410
FLASHWAVE 5150 Family
FSP 150 Family

Multiservice Provisioning Platform



FLASHWAVE 4100
FLASHWAVE 4010

Cabinets & Ancillary Equipment



Cabinets & Racks
Batteries & Rectifiers
Cables & Patch Panels

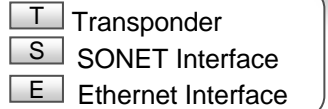
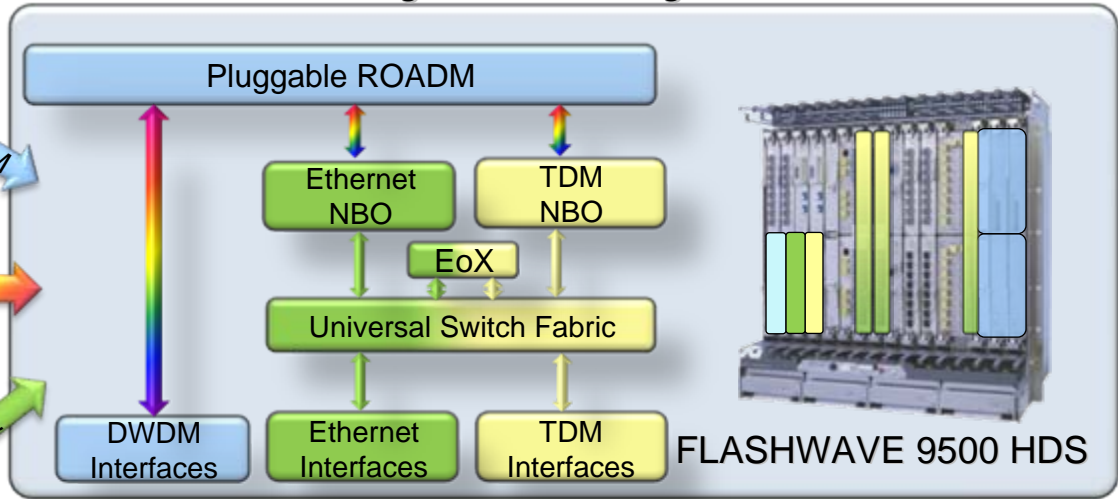
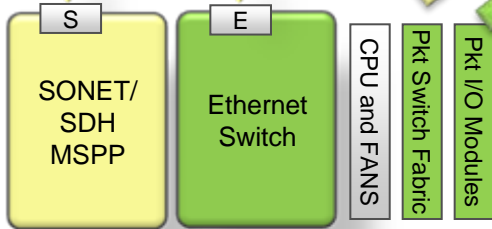
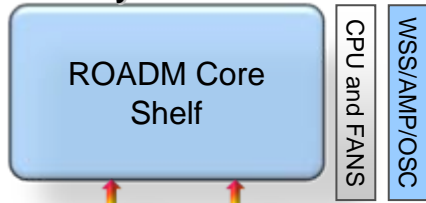
Introducing the FLASHWAVE 9500

Modular Pluggable Architecture



Many Shelves

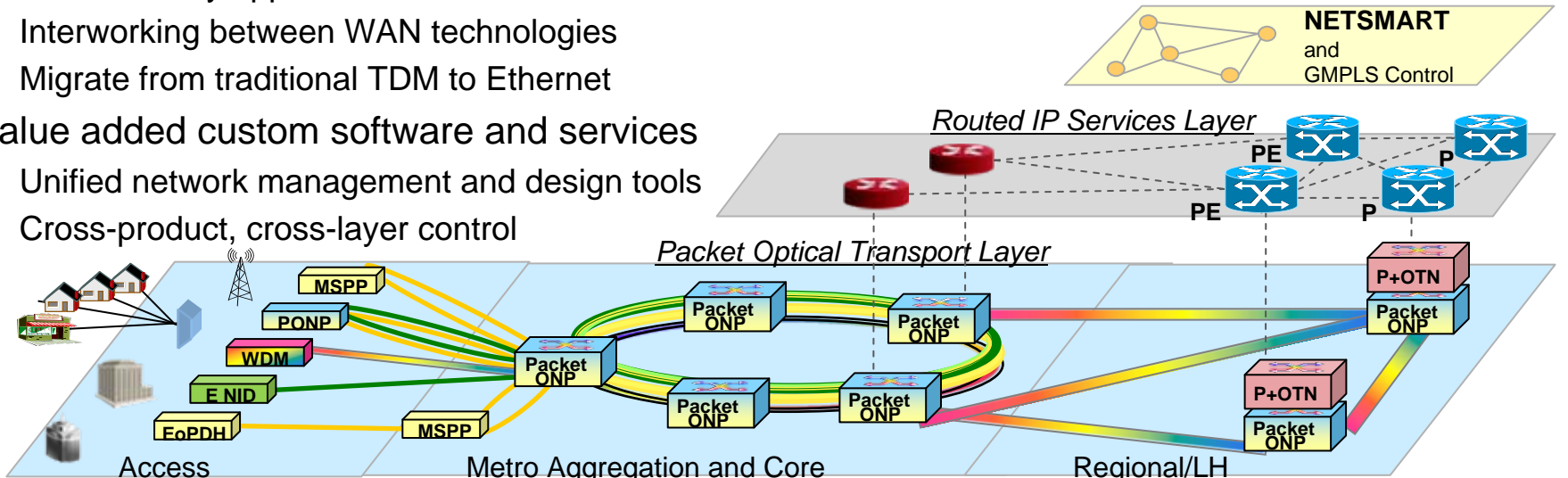
Single Shelf / Single EMS



- Realizing CapEx and OpEx reduction
- Universal switching of TDM and Packet services
- Connection Oriented Ethernet for high performance E-LINE
- EoX Gateway – Ethernet over any access
- Scalability with pluggable ROADM
- 10G, 40G, and 100G optical networking

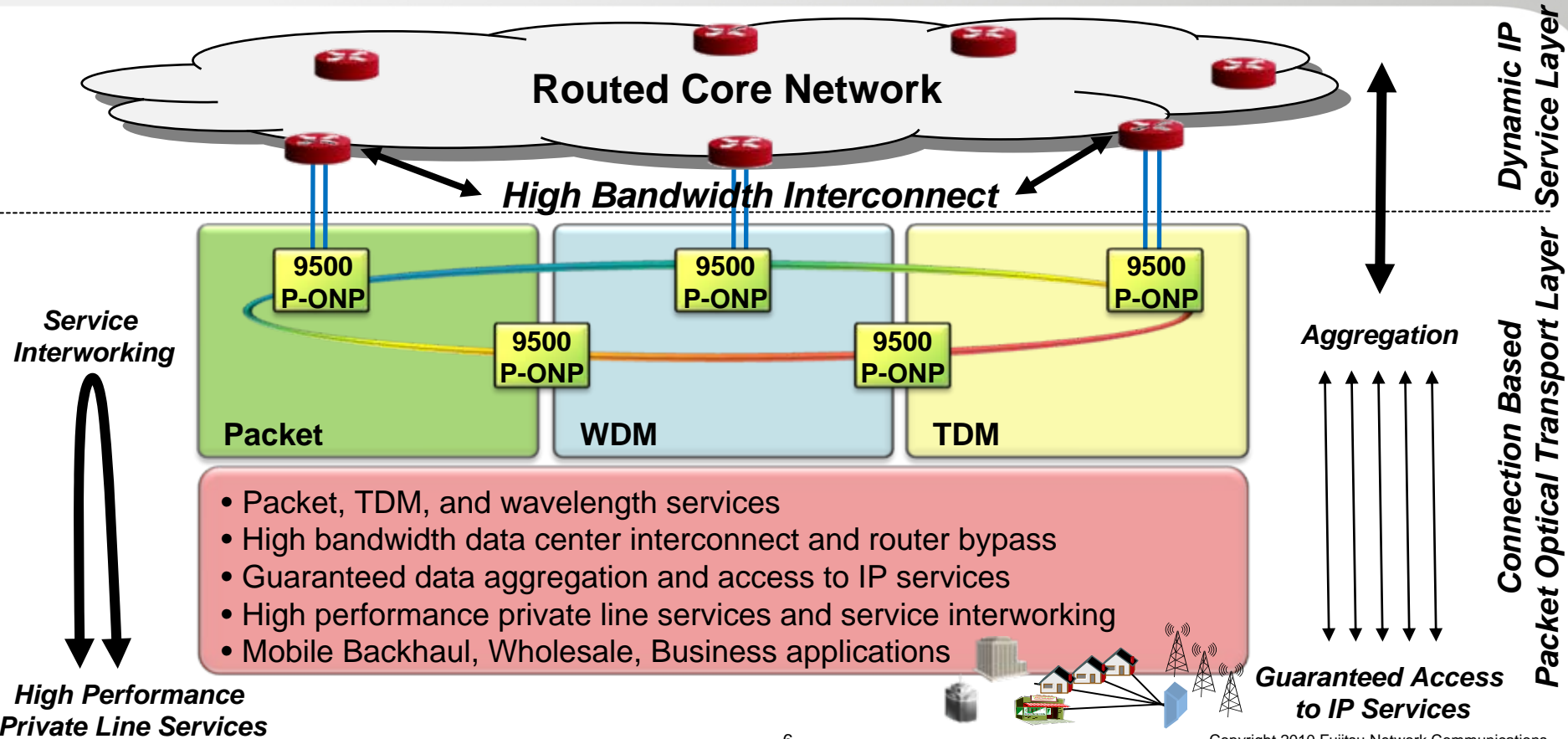
Packet Optical Networking Architecture Vision

- A converged Packet Optical Network transport layer
 - Converged infrastructure for all service networks
 - Modular technologies
 - Diverse access strategy
- Ubiquitous Ethernet services over any access media
 - EoX Gateway application
 - Interworking between WAN technologies
 - Migrate from traditional TDM to Ethernet
- Value added custom software and services
 - Unified network management and design tools
 - Cross-product, cross-layer control



Packet Optical Networking Convergence

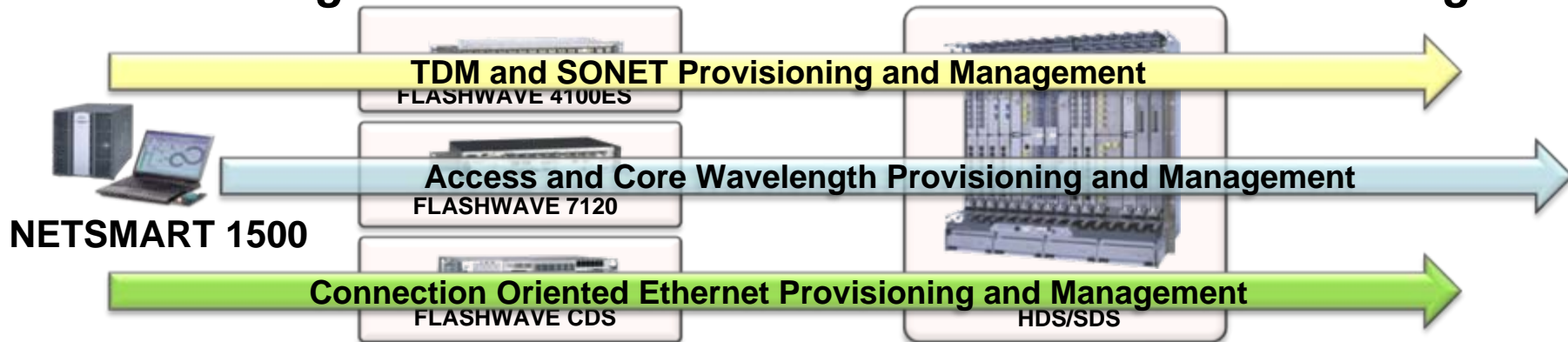
Multiservice Access, Aggregation, and Transport



NETSMART Network Management



Common Management of all FLASHWAVE Elements and Technologies



■ NETSMART 1500 EMS

- Configuration, Provisioning & Fault Mgmt.
- Software Download
- NE Backup & Restore
- 150K+ Managed Elements

■ NETSMART 500

- Enhanced graphical NE interface
- Local and remote NE mgmt. and control

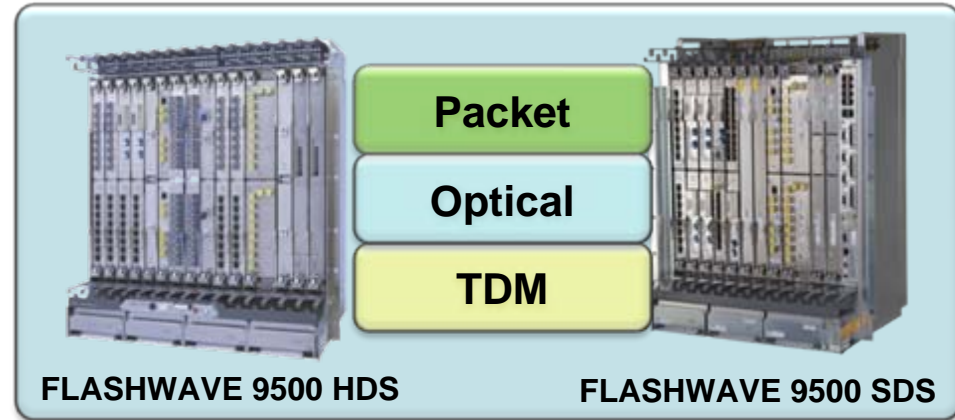
■ NETSMART 2000 Planning Tool


- Optical Network Planning
- Node placement, line card, amplifier & DCM selection based on fiber and demand data
- Creates detailed network design, shelf, cabling and BoM outputs

FLASHWAVE 9500 Packet ONP



- Enabling the Transition from TDM to Packet
- Industry Leading Technology Integration
 - Packet
 - Optical
 - TDM
- Architectural Innovation
 - Universal Switching
 - ROADM-on-a-Card
 - Service Interworking
- Connection Oriented Ethernet for Service Providers
 - Best of SONET/SDH: Reliability, Availability, and Manageability
 - Best of Ethernet: Economics, Ubiquity, and Scalability
- End-to-End NETSMART Network Management





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shaping tomorrow with you