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FLASHWAVE® 4300

Optical Transport Platform

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Dynamic solutions for a complex network
The FLASHWAVE® 4300 optical transport platform provides a highly scalable and flexible solution that is ideally suited for access ring aggregation, network grooming and multiservice Interoffice Facility (IOF) transport. Standards-based architecture optimizes access traffic at the customer's Central Office (CO). Carrier-Class SONET, Ethernet, M13 multiplexing and data switching services offer unequalled flexibility in an optical networking platform.

Built-in test access support combined with any-port-to-any-port STS and VT connectivity provides true cross-connect capabilities. Other key features include:

- Survivable point-to-point and point-to-multipoint 10/100Base-T and Gigabit Ethernet-based data transport
- Direct DS1 and DS3 access from OC-3, OC-12 and OC-48 interfaces
- Virtual Tributary (VT) grooming across a full OC-48 with the industry's largest VT switch fabric
- Integrated ring and hairpinning support

Quantum leap in networking efficiency
The FLASHWAVE 4300 platform optimizes cross-connect port usage by aggregating and grooming traffic before it goes to the Digital Cross-Connect System (DCS). STS channels can be filled by VT1.5 grooming and the unique M13 Transmux functionality. This solution consolidates traffic before entering the DCS, saving CAPEX and OPEX by:

- Extending the life of an existing DCS with optimized port utilization
- Providing the ability to scale new DCS deployments
- Providing a distributed DCS functionality
- Postponing and/or reducing capital investments

Fujitsu has teamed with several companies to integrate test access functionality with the FLASHWAVE 4300 platform. Test access allows carriers to test DS1 and DS3 circuits within the Fujitsu platform's switch fabrics. This integrated test access functionality allows the FLASHWAVE 4300 platform to be deployed as a distributed cross-connect solution.

Single shelf architecture delivers cost savings
The single-shelf design includes universal interface slots, providing a flexible, scalable solution for all data aggregation and grooming needs. Reduced power and space requirements lower network operations costs. Deploying only currently required interface units lowers initial costs. Easy in-service addition of interfaces and switch fabric enables unparalleled service velocity as network needs grow or change.

Integrated Ethernet provides flexibility
The FLASHWAVE 4300 platform transports Ethernet over SONET, delivering a survivable and flexible data transport solution. Service availability is accessible wherever SONET is deployed. Point-to-point and point-to-multipoint Ethernet bridging eliminates the need for overlay network facilities, overlay operations staff and overlay operations systems. The Telcordia™ OSMINE flow-through-provisioning-process fully supports Ethernet. NETSMART® 1500 Network Management System (NMS) provides enhanced management and monitoring of Ethernet services.

Empowering wireless networks
With the FLASHWAVE 4300 platform, wireless applications can easily be transported across a single, converged network for improved performance and plenty of capacity for future growth. Equipment space requirements are greatly reduced by providing multiple OC-3 and OC-12 interfaces in a single shelf. The FLASHWAVE 4300 platform provides flexible VT 1.5 grooming for improved network efficiency and flexible protection schemes to increase circuit availability on any wireless platform. DS3 Transmux features offer increased T1 density and flexibility, allowing wireless carriers to aggregate and fully utilize DS3 handoff points and Radio Frequency (RF) links to reduce recurring leasing/operating expenses.

Interoperability for network optimization
The FLASHWAVE 4300 platform plays a key role in an IOF network and is ideally suited for deployment in the CO. From DCS optimization to ATM switching and optimization, the FLASHWAVE 4300 platform fully interoperates with all Fujitsu SONET transport products. NETSMART 500 and NETSMART 1500 software provide Operation, Administration, Maintenance and Provisioning (OAM&P) support and communications across the complete suite of products in the Fujitsu optical transport network.

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Features and specifications

Architectures	• Terminal • Linear ADM (1+1) • Unidirectional Path Switched Ring (UPSR) • Two Fiber-Bidirectional Line Switched Ring (BLSR) (OC-48)	
Interfaces	DS1	64-pin AMP connectors
	DS3/EC1	BNC connectors
	DS3 Transmux	BNC connectors
	OC-3/STM-1	FC, SC, ST or LC connectors 1310 nm wideband
	OC-12/STM-4	FC, SC or ST connectors 1310 or 1550 nm wideband
	OC-48/STM-16	FC, SC or ST connectors 1310 or 1550 nm wideband
	Ethernet 10/100Base-T	RJ-45 connectors
	Gigabit Ethernet	SC connectors

Maximum number of service interfaces

	Ports/card	Unprotected ports/shelf	Protected ports/shelf
DS1	14	168	168
DS3/EC1	3	36	18
DS3 Transmux	3	36	18
OC-3/3c/STM-1	2	32	16
OC-12/12c/STM-4	1	16	8
OC-48/STM-16	1	2	1
Ethernet 10/100Base-T	4	24	-
Gigabit Ethernet	1	6	-

Switching	• Flexible any-port-to-any-port Time Slot Interchange (TSI) • 240 x 240 STS-1 TSI • Optional 2688 x 2688 VT1.5 TSI (Cascadable to 5376 x 5376 VT1.5 TSI) • Optional 2.5 Gbps ATM switch
Synchronization	• Internal Stratum 3 timing source • Synchronization Status Messaging (SSM) • DS1 Building Integrated Timing Supply (BITS) primary and secondary clock output/input • Line timing

Protection	DS1	1:n (n=1 to 6) or unprotected
	DS3/EC1	1:1 or unprotected
	OC-3/STM-1	1+1, UPSR or unprotected
	OC-12/STM-4	1+1, UPSR or unprotected
	OC-48/STM-16	1+1, UPSR, 2F-BLSR or unprotected
	Ethernet	Unprotected
	Switch matrices	1:1
	ATM Switch	1:1
	Synchronization	1:1
Operations	• TL1 protocol over X. 25, OSI/LCN or IP/LCN • Simple Network Management Protocol (SNMP) over UDP/IP or ATM • TCP/IP and X.25 gateway functionality • Software download and remote memory backup/restore • NETSMART 500 Element Management System (EMS) and NETSMART 1500 Network Management System (NMS) • Interoperable with all Fujitsu transmission products • Telcordia OSMINE compliant • DS1 and DS3 test access	
Power consumption/ heat dissipation	Power consumption	290 W (typical)
	Heat dissipation	989 BTU (typical)
Operating environment	Temperature	–40 to +65° C (–40 to +149° F)
	Humidity	5 to 95% (non-condensing)
	Extended temperature operation (except Ethernet)	
	NEBS Level 3 compliant	
	Rural Utilities Service (RUS) Technical Acceptance	
Physical characteristics	Dimensions (H x W x D)	17.5 x 21.5 x 12"
	Weight (fully loaded)	95 lb (43 kg)
	Power input	–48 V DC

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