Fujitsu’s FLASHWAVE 4x70 Multi-Service Provisioning Platform (MSPP) series provides telecommunication carriers and service providers with a powerful solution to survive their fiercely competitive industry.

Integrating reliable and intelligent SDH functionality and efficient Ethernet aggregation and switching into a compact body, the FLASHWAVE 4x70 MSPP enables both traditional voice-based services and increasingly diverse data services to be delivered over a unified optical network.

Enriched with next-generation SDH functionality, the FLASHWAVE 4x70 MSPP allows carriers to not only simplify their network, but also to efficiently, flexibly, and dynamically use network bandwidth with a simple management procedure. In this way, the FLASHWAVE 4x70 MSPP helps to satisfy the growing end-user’s demand in an increasing variety of broadband services at a substantially reduced cost.

**Key Benefits**
- High-density STM-16-based platform to support dual STM-16 rings in a single node.
- Flexible subrack architecture with 11 interface slots and six connector slots.
- All-in-one-box solution to satisfy network and service demands from STM-16, STM-4, STM-1, STM-1E, E3, DS3, and E1, to Fast Ethernet and Gigabit Ethernet.
- Reliable optical network supported by traffic protection schemes such as 1+1 MSP, SNCP, and 2-fiber MS-SPRing for SDH layer as well as Rapid Spanning Tree Protocol (RSTP) for Ethernet layer.
- Next-generation SDH functionality such as General Framing Protocol (GFP), Virtual Concatenations (VCAT), and Link Capacity Adjustment Scheme (LCAS) functions for dynamic bandwidth allocation, adjustments, and protection.
- Non-blocking switching matrix with a capacity optimal for metro networks; 25 Gbps for high-order VC and 10 Gbps for low-order VC.
- Small Form-factor Pluggable (SFP) interfaces to deliver optical rate and parameter flexibility on a per-port basis.
- Common interface cards with FLASHWAVE 4470.

**Ethernet Transport Features**
- Data service applications including EPL (Ethernet Private Line), EVPL (Ethernet Virtual Private Line), EPLAN (Ethernet Private LAN), and EVPLAN (Ethernet Virtual Private LAN).
- Layer 2 processing to reduce bandwidth requirements, and therefore enable cost-effective data transport over the SDH infrastructure.
- VLANs or double-tagged VLANs to enable 802.1p QoS/CoS, as well as segregation of traffic flows, and thereby increase security without sacrificing bandwidth efficiency or network flexibility.
- Advanced Resilient Packet Ring (RPR) technology to provide high-reliable and efficient data transport with QoS control.

**Management Features**
- Speedy operation and maintenance through local craft terminal FLEXR L.
- Network element and sub-network-based management system FLEXR C, supporting all the FLASHWAVE 4x70 products, to enable seamless management of all SDH, PDH, and Ethernet layers.

**Flexible Access and Aggregation Management**

The FLASHWAVE 4270 is an STM-16 MSPP optimized for Metro Aggregation and Access applications.

Typical node configurations are:
- Dual STM-16 rings with 24 x STM-1 lines.
- Single STM-16 ring with 24 x STM-4 and 24 x STM-1 lines.
- Single STM-16 ring with 189 x E1, 8 x FE (Transparent), 4 x GE + 16 x FE (L2 switching).
Technical Specifications

Applications
✓ Terminal multiplexer
✓ Linear add-drop multiplexer
✓ Ring add-drop multiplexer
✓ Mini cross-connect

Traffic Interfaces
✓ STM-16 (L-16.2, L-16.1, S-16.1, narrowband)
✓ STM-4 (V-4.2, L-4.2, L-4.1, S-4.1)
✓ STM-1 (V-1.2, L-1.2, L-1.1, S-1.1, electrical)
✓ E3/DS3
✓ E1 (75 ohms/120 ohms)
✓ GE (1000Base-T, GE-ZX, GE-E, GE-LX, GE-SX, transparent or L2 switching)
✓ FE (10/100Base-TX, transparent or L2 switching)

Cross-Connect
✓ HO capacity: 25 Gbps (160 x 160 VC-4)
✓ LO capacity: 10 Gbps (4032 x 4032 VC-12)
✓ Connection: Unidirectional, bidirectional, broadcast, drop and continue, loopback

Network Protection
✓ 1+1 MSP at STM-1, STM-4, and STM-16
✓ 2-fiber MS-SPRing at STM-4 and STM-16
✓ SNCP/I and SNCP/N at VC-12, VC-3, VC-4, VC-4-4c, and VC-4-16c

Hardware Protection
✓STM-1E card: 1+1
✓ E3/DS3 card: 1+1
✓ E1 card: 1:N (N=1, 2)
✓ Power and CC cards: 1+1

Mapping
✓ G.7041/Y.1303 GFP-F
✓ G.7042 LCAS: VC-12, VC-3, VC-4
✓ G.707 VCAT: VC-12, VC-3, VC-4

Synchronization
✓ Internal clock: G.813 Option 1, Optional Stratum 3 clock
✓ Timing Source: External clock (2 Mbps, 2 MHz), SDH line, E1
✓ Operation: Free-running, hold-over, locked-mode
✓ Priority and quality (SSM) synchronization algorithms

Ethernet Feature
✓ Layer 2 forwarding at wire-speed
✓ Layer 2 switching and aggregation
✓ 802.1Q VLAN and stackable VLAN
✓ 802.3x flow control
✓ MAC Address self-learning
✓ Layer 2 multicast (static provisioned or IGMP snooping)
✓ Rate-limiting per port and/or VLAN
✓ 802.1p QoS/CoS per port and/or VLAN
✓ 802.1w Rapid Spanning Tree Protocol (RSTP)
✓ 802.17 Resilient Packet Ring (RPR)

Power
✓ Input voltage: -48 VDC
✓ Power consumption: approx. 450 W

Mechanical Specifications
✓ Sub-rack size: 447W x 566H x 332D mm (not incl. projection)
✓ Installation: Standard ETSI rack

Environment
✓ Operating temperature: -5 to 45 ºC
✓ Start-up temperature: 0 to 45 ºC

Management
✓ Local provisioning and maintenance by FLEXR L local craft terminal
✓ Remote centralized management at both element and network level by FLEXR C Sub-Network Management (SNM)
✓ SNMPv2 standard MIB

Specifications are subject to change without notice. For the latest detailed information, please contact your nearest local Fujitsu representative.

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