FUJITSU

shaping tomorrow with you

Broadband expansion in the critical middle mile

The critical middle mile

Without a robust middle mile infrastructure, last mile expansion initiatives may fall short of customer expectations and, consequently, of their potential return on investment.

The RUS list of acceptable materials includes several Fujitsu platforms:

- FLASHWAVE® 7500 ROADM
- FLASHWAVE 7420 DWDM Platform
- FLASHWAVE 7120 Wavelength Services Access Platform
- FLASHWAVE 4500 MSPP
- FLASHWAVE 4100 MSPP
- FLASHWAVE 4100 ES Micro Packet ONP
- FLASHWAVE 4010 Remote SONET Extension Platform

- **Opportunity:** $7.2 billion allocated for broadband deployment
- **Requirements:** Increased aggregation, higher switching capacity
- **Solution:** Fujitsu Packet Optical Networking and ROADM platforms

Recent government economic stimulus initiatives, such as the American Recovery and Reinvestment Act (ARRA), offer great opportunities to provide broadband services to unserved and underserved areas of the country. These initiatives are encouraging regional and local network operators to invest in service expansion. Funding submissions describe varied applications based on broad-ranging technologies, including 3G wireless, Wi-Fi, WiMAX, cable, DSL, PON, FTTx, satellite, and broadband over power lines.

Achieving potential with strong middle mile solutions

Three things are certain. First, demand for bandwidth created by service extensions into previously unserved and underserved communities will continue to grow. Second, Ethernet will remain the most common communications protocol for devices across the range of application technologies. Third, without a robust middle mile infrastructure, last mile expansion initiatives may fall short of customer expectations and, consequently, of their potential return on investment.

Fujitsu optical networking equipment boosts the potential benefits of broadband service expansion, both for the customer and the service provider. These platforms, including industry-leading MSPPs, ROADMs, and Packet Optical Networking Platforms (Packet ONPs), support Ethernet over any type of access network (EoX).

Solutions to support the last mile

The Fujitsu FLASHWAVE® 4100 ES platform is a proven broadband backhaul solution. This platform is highly suited to applications that incorporate optical fiber links between base stations and switching centers. It is also an excellent choice for optical fiber connectivity between switching centers and either the public switched network or an Internet service provider. At the base station site, the FLASHWAVE 4100 ES platform provides a compact, single-box solution for access multiplexing with integrated NIUs and an optical hub. The recent introduction of Connection-Oriented Ethernet (COE) functionality enables the FLASHWAVE 4100 ES system to be configured as a Micro Packet ONP. This configuration is ideal for mobile or broadband backhaul and Ethernet access.
This widely-deployed Micro Packet ONP is environmentally hardened for outside-plant deployments and its small 2RU footprint overcomes space constraints.

The FLASHWAVE 9500 Packet ONP complements the FLASHWAVE 4100 ES Micro Packet ONP. The recently introduced EoX Gateway for the FLASHWAVE 9500 platform combines the Fujitsu EtherMapper™ card and new system software features in a powerful configuration. The EoX Gateway transparently terminates a wide variety of Layer 1 access technologies (including SONET, native Ethernet, T1/T3 and wavelength). The configuration then extracts the COE tunnels and performs aggregation to present fully protected Ethernet or SONET/SDH handoffs to other transport or service delivery networks. Operators can use the EoX Gateway to offer a complete wholesale access service to their retail service provider partners by aggregating and delivering standardized Metro Ethernet Forum services over any type of access network, from a flexible ENNI to a remote UNI (RUNI).

Proven middle mile platforms

For build-out of existing fiber optic networks to provide service access and aggregation, the Fujitsu FLASHWAVE CDS Packet ONP provides high-capacity Ethernet transport and aggregation, combined with support for TDM services at the network edge. The FLASHWAVE CDS platform extends the reach of today's core and distribution networks, providing an efficient on-ramp for packet-centric applications, with continued support for revenue-bearing legacy services.
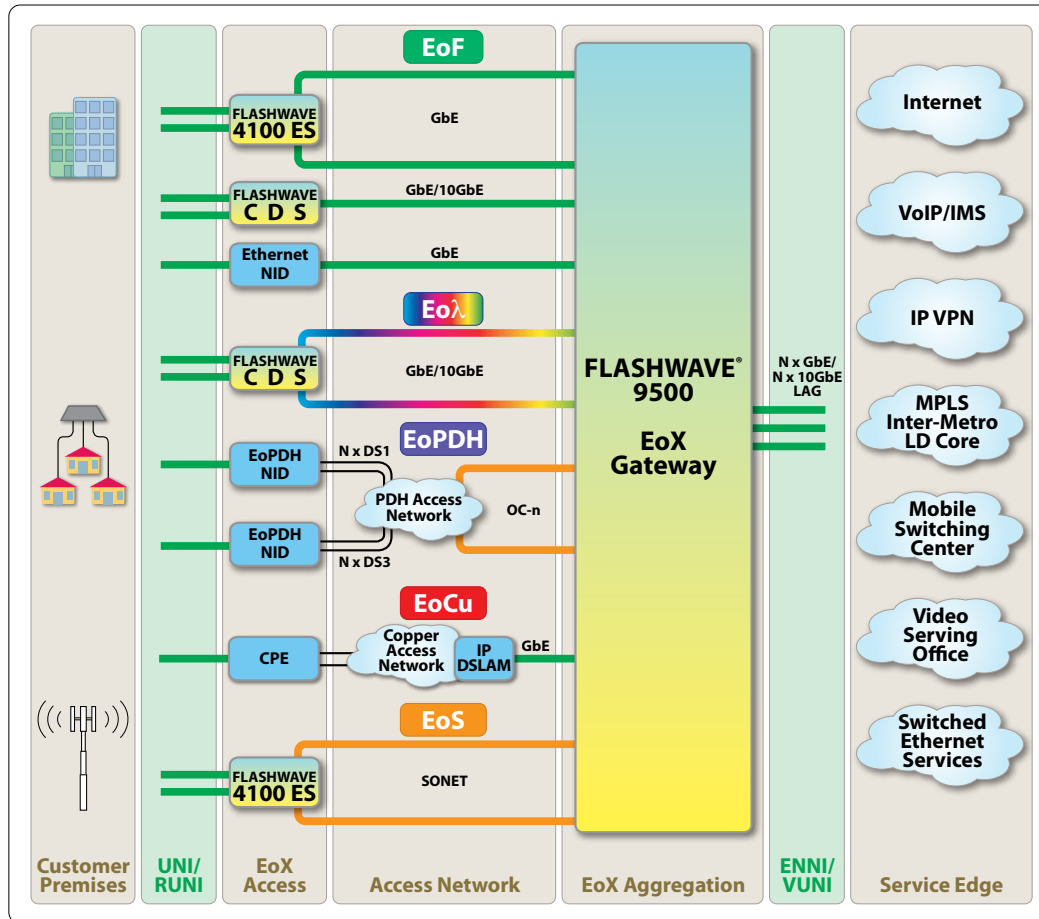
Gateway to the middle mile

Scalable middle mile solutions from Fujitsu

The American Recovery and Reinvestment Act (ARRA) of 2009 allocates more than $7B for broadband initiatives. The RUS List of Acceptable Materials includes several Fujitsu platforms that meet the requirements of the ARRA Broadband Stimulus BIP program. All these platforms are eligible for purchase using federal stimulus funds. Where network enhancements are required to support additional broadband services, Fujitsu offers several solutions that provide increased aggregation of TDM and packet-based services, and deliver higher switching capacity for both of these service types. Fujitsu FLASHWAVE platforms improve efficiency by delivering carrier-class, multiservice optical transport to telecom, MSO and wireless network service providers. Highly scalable and flexible, these platforms create economical next-generation optical transport for a wide variety of innovative services. Fujitsu FLASHWAVE ROADM solutions offer remote software-based provisioning and sophisticated self-tuning features to enable rapid service activation. Advanced optical line cards provide efficient on-ramps to a fully photonic backbone, delivering key services such as Video-on-Demand, residential high-speed Internet access and business data services across metro and regional networks.

Fujitsu Network Communications Inc.

2801 Telecom Parkway, Richardson, TX 75082

Tel: 800.777.FAST (3278)   Fax: 972.479.6900

us.fujitsu.com/telecom