FUJITSU

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Advanced Fiber Services

Like any equipment, fiber optic cable requires both corrective and preventative maintenance over time. In addition to regular, scheduled maintenance, it is important to include a thorough assessment of the condition of fiber plant in the planning phase of a network migration or expansion. Fujitsu Advanced Fiber Services is a suite of related services addressing all aspects of optical fiber inspection, testing, maintenance and correction. We coordinate and manage every Advanced Fiber Services project through our program management office to assure continuity of service. The services offered are:

- Fiber Inspection
- Fiber Correction
- Fiber Management
- Fiber Monitoring

Fiber Inspection

The purpose of installing a DWDM network is to increase the amount of data transmitted using existing fiber. This existing fiber may be acceptable for SONET equipment, but DWDM equipment requires a different, higher standard. Inspecting your fiber cable is an essential precursor to purchasing DWDM equipment or performing a major network upgrade or migration. An inspection costs a fraction of your total investment in network equipment and can save money, for example, by identifying situations where actual deployed fiber does not match the original network design data. The inspection process can also help ensure that the correct equipment and material is ordered prior to deployment. With the Fujitsu Fiber Inspection service, a highly trained engineer will perform five different tests to ascertain the current state of the fiber. These tests determine whether or not your embedded fiber will adhere to engineering specifications and support the desired level of network performance. The tests performed are:

- Optical Time-Domain Reflectometry (OTDR)
- Optical Insertion Loss (OIL)
- Optical Return Loss (ORL)
- Chromatic Dispersion (CD)
- Polarization Mode Dispersion (PMD)

Upon completion, the test results are analyzed to identify and isolate any faults in the fiber. Faults discovered during testing are subjected to Root Cause Analysis (RCA). Using RCA methodology, the quality engineer defines both the root cause of fiber faults and the corrective actions necessary to restore the fiber to the optimal state. Minor corrective actions such as cleaning connectors or polishing fiber faces are part of the Fiber Inspection service, and can be performed while the auditor is still on site. At the conclusion of the project, we deliver a formal report that contains site-by-site inspection results along with any further corrective actions recommended by Fujitsu.

Identify critical fiber requirements before deployment

- Eliminate potential problems
- Confirm design accuracy
- Assess growth capacity
- Eliminate project delays
- Ensure accuracy of equipment ordered

Assess and optimize your optical fiber

Improve performance of existing optical fiber

- Match fiber quality to service requirements
- Improve fiber utilization and capacity capabilities
- Optimize network performance
- Prioritize fibers available
- Verify specifications
- Ensure bandwidth capacity
- Detect and locate faults

Fiber Correction

In some instances, faults found during the Fiber Inspection process cannot be addressed immediately. We address these faults through the Fiber Correction service. The Fiber Correction service rectifies faults within a Central Office (CO) or in outside-plant facilities. Fujitsu engineers consult with you to determine and plan a course of action along with a scope of work. We then deploy the right engineering staff to restore the optical fiber to optimal condition.

Fiber Management

Certain faults and inefficiencies in fiber systems derive from incorrect installation and management of the fiber itself. Substandard installations and cable dressing degrade the performance of your fiber and can result in lost revenue and increased downtime.

Working from the standards defined in Section 22 of Telcordia GR-1275, Fujitsu quality engineers assess the current state of fiber plant routing and management. The engineers scrutinize aspects of the installation, including fiber bend radii, fiber routing through overhead racks, and the general state of the fiber. Upon completing the audit, the customer receives a detailed site-by site analysis with photographic evidence, along with a complete remediation plan.

Fiber Monitoring

Early detection of faults is crucial to maintaining SLAs and ensuring customer satisfaction. A real time monitoring service, such as the Fujitsu Fiber Monitoring service, can reduce the impact of failures by reducing repair and response times. The service uses a dedicated piece of equipment to monitor the health of the fiber bundle. The results are fed back to a central server and appear on a desktop via a Web client. Monitoring one fiber allows you to detect more than 80% of the cable faults.

This service can be deployed in one of two ways: out-of service monitoring or in-service monitoring. Out-of-service monitoring uses a spare fiber to monitor the fibers within a cable. No link modification is required and any test wavelength can be used. In-service monitoring provides health information in situations where all the fibers are being used to carry traffic. Additional passive components allow the device to monitor fiber health without affecting signal loss.

Fujitsu can sell and install the fiber monitoring equipment for customers capable of monitoring their own equipment. The Fiber Monitoring capability is also available as part of a Fujitsu Managed Network Solution.

Fujitsu Network Communications Inc.

2801 Telecom Parkway, Richardson, TX 75082

Tel: 800.777.FAST (3278) Fax: 972.479.6900

us.fujitsu.com/telecom

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