

Successful Mobile Backhaul Deployment

JDSU EtherReady Services ensure thorough field testing for a leading mobile carrier

The ever-increasing demand for bandwidth to support next-generation smartphones and mobile access devices is spurring a mass deployment of high-performance LTE, WiMax, and HSPA+ networks. They need mobile backhaul that is more flexible, has a much higher bandwidth, and has a cheaper cost-per-megabit than the legacy TDM connections used today. Packet backhaul over optical fiber using Ethernet as the access technology meets this need.

This case study describes how a leading mobile carrier ensured successful first office application (FOA) trials of Ethernet backhaul services supplied by third-party providers. The carrier met an aggressive timeline by using JDSU EtherReady professional and consulting services to thoroughly qualify their FOA sites and resolve critical issues before mass deployment.

The Challenge

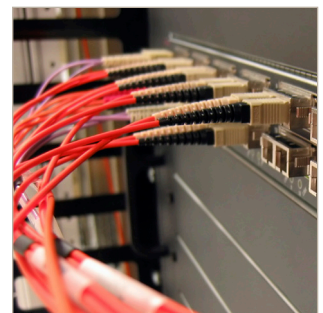
Preparing for substantial changes across a mobile carrier's network involves many steps, including procuring new backhaul circuits, installing equipment, and commissioning. Frequently, the most overlooked step is preparing for field testing.

Ethernet is an attractive and flexible access technology, but its adoption and implementation is considerably more complex than maintaining the legacy TDM backhaul it replaces. Mobile service providers, and the telecom operators who deliver the backhaul connections for them, are having a lot of problems getting their mobile telephone switching offices (MTSOs) up-and-running with Ethernet.

The mobile carrier in this case study planned a migration with a tight time frame for completing trials of FOAs at targeted MTSO locations. This goal challenged their existing processes and technology understanding, as well as their agreements and testing knowledge in dealing with out-of-franchise (OOF), third-party backhaul network providers. Yet the carrier lacked the trained personnel and the equipment to perform proper field trial testing and results analysis.

The Solution

To meet their deadline for successful, comprehensive field testing, the carrier looked to JDSU and its EtherReady professional and consulting services. First, JDSU created an exhaustive field trial test plan for third-party-provided Ethernet virtual circuits between MTSOs and their associated cell sites. This included performance requirements, network architecture and topology, and overall goals. JDSU then provided the personnel and test equipment to perform the field verification testing. This part of the program involved several geographically dispersed MTSOs and included troubleshooting issues that arose during the deployment. Lastly, JDSU performed exacting results analysis and made specific recommendations. This prepared the carrier for the mass deployment of packet backhaul to thousands of cell sites within their rollout schedule.



The Results

Multilocation field-trial tests uncovered a myriad of issues to fix before mass deployment could start. Eighty percent of MTSOs experienced test failures at one or more associated cell sites. The third-party providers could quickly identify and correct half of these failures within the initial deployment period. Forty percent of MTSOs experienced major failures that could not be resolved during the initial deployment, requiring re-deployment to test and confirm the fixes. The breadth of problems experienced highlighted the value of performing carefully crafted, extensive field-trial testing procedures.

The insightful data from the program gave the carrier increased confidence in the third-party providers' abilities to install services efficiently whilst ensuring that services met required performance levels. Additionally, the carrier and third-party providers gained a better mutual understanding of backhaul service requirements, problem-solving scenarios, and the overall probability of install success.

The optimized testing accelerated the deployment schedule, helping the carrier realize new revenue streams faster as the increased backhaul capacity supported new data services at a greater volume.

Additionally, because the comprehensive regimen uncovered difficult-to-find performance issues, ongoing installation failures during mass deployment were minimized. This in turn minimized the operational expenses of dispatching additional technicians to troubleshoot problems.

JDSU Solution

Hardware: T-BERD/MTS-6000A Multi-Services Application Module (MSAM) — Next Generation Carrier Ethernet Test Platform

Services: EtherReady — Deployment Readiness

- Test methodology design based on network architecture and capabilities
- Test procedure development
- Field trial test planning, execution, and results analysis

Tests: Single- and multisite testing between the MTSO and cell sites

- RFC-2544 performance testing
- Traffic capture and decode analysis
- Multisite and multistream simultaneous aggregated throughput testing
- Multisite failover and resiliency analysis



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