Packet Backhaul: Carrier Strategies & Real-World Deployments

EXECUTIVE SUMMARY

The need for mobile backhaul networks to undergo the same circuit-to-packet transition that is underway throughout the wireline network and in the core of mobile networks is well understood. With the rollout of mobile broadband standards such as High Speed Packet Access (HSPA) and Evolution-Data Optimized (EVDO), and with Long Term Evolution (LTE) expected to be commercially deployed in volume within three years, time-division multiplexing (TDM) circuits no longer provide the capacity, flexibility, and crucially, the cost-per-bit metrics that are needed to enable the mobile industry to make a profitable transition from a voice-dominated business model to a data-dominated business model.

Carriers have been experimenting with different packet backhaul solutions for three or four years now. But with HSPA and EVDO usage driving mobile broadband traffic volumes to increase by a factor of ten year-over-year in many cases, there is an urgent need for real-world insight into just how much real progress carriers – and by implication, their vendor suppliers – are making in executing on this transition.

Packet Backhaul: Carrier Strategies & Real-World Deployments examines how much progress has been made in deploying packet backhaul at cell sites worldwide, using information from 50 highly detailed examples of live packet backhaul deployments submitted by nearly two dozen of the world's leading backhaul equipment vendors. The report provides the first insight into what today's live packet backhaul deployments really look like – where they are, what architecture they conform to, what technologies they use, and critically, how many cell sites were actually in live service as of the second quarter of 2009. By presenting and analyzing this first large and reliable sample of live packet backhaul deployments, this report provides a unique and timely perspective on whether mobile operators are reducing their backhaul costs at the rate they need to as they make the transition from voice-centric service and revenue models to data-centric models.

For this report, Heavy Reading conducted the first survey of its kind among equipment vendors active in the packet backhaul equipment space. Vendors were asked to provide as many as three account references anywhere in world where they have backhaul equipment deployed and where that equipment is in live service with packet backhaul to the cell site.

Vendors were also asked to provide the following details about each packet deployment:

- Region
- Type of carrier (i.e., integrated, pure-play cellular, or pure-play wireline)
- Cellular technology or technologies supported
- Whether the deployment is "hybrid" or "pure packet"
- Whether the initial packet interface at the cell site is supported in the base station itself or in a dedicated transport device serving as a cell site gateway
- Layer 1 technologies involved in the deployment (fiber, copper, or microwave)
- Number of cell sites in live commercial service in packet mode as of April 2009

Responses were received from 22 leading equipment vendors, covering a total 50 packet backhaul deployments worldwide. Operators included in the research case studies represent a wide geographic distribution and a wide range of deployment sizes, as shown in the following figures.

Excerpt 1: Live Packet Backhaul Deployments by Region

![Excerpt 1: Live Packet Backhaul Deployments by Region](image)

Source: Heavy Reading

Excerpt 2: Global Packet Backhaul Deployments by Size

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Report Scope & Structure

Packet Backhaul: Carrier Strategies & Real-World Deployments is structured as follows:

Section I is an introduction to the report, with complete report key findings.
Section II provides a brief update on the latest trends in mobile broadband take-up and factors driving the mobile carrier's business case for transitioning to packet backhaul.

Section III describes our research methodology for this report, detailing the distribution of packet backhaul references by region, by size of deployment, by type of carrier, as well as by the type of cellular traffic transported.

Section IV provides more details about the architectures that have been adopted, according to whether the architecture is "hybrid" or "pure packet"; by the Layer 1 transport technology in use; and by whether the packet interface is provided in the base station itself or by a standalone cell site gateway.

Section V profiles the approaches to packet backhaul being taken by BT, StarHub, Vodafone, and T-Mobile, analyzing the rate at which these carriers are transitioning to packet backhaul and how they are implementing their strategy. Each profile concludes with a Heavy Reading estimate of the number of cell sites in live service with packet backhaul at the end of April 2009.

Section VI measures the rate of adoption for two key packet backhaul-enabling technologies – pseudowires for emulating legacy traffic over packet backhaul and new packet network synchronization standards. Specific vendors are also identified for the leading-edge contribution that they are making to driving adoption of these technologies in packet backhaul deployments.

Section VII assesses maturity and competition in the backhaul equipment market, describing the different product types and the role they play in the packet backhaul transition and identifying the vendors that are the current market leaders in each product space.

Section VIII analyzes the positioning of the leading vendors in the packet backhaul market, each vendor's responses to our questionnaire, and each vendor's product strategy for packet backhaul.

Section IX provides the complete survey responses provided by vendors, by region.

Section X details Heavy Reading's conclusions regarding the current state of play in the transition from circuit to packet backhaul in mobile networks, analyzing the current rate of adoption and near-term outlook for further adoption and outlining our projections for take-up through 2012.

Packet Backhaul: Carrier Strategies & Real-World Deployments is essential reading for a wide range of industry participants, including the following:

- **Packet backhaul technology suppliers**: How does your current deployment base for packet backhaul compare with your competition? Are your customers behind or ahead of the curve regarding the transition from TDM to packet backhaul? Is your company emerging as a market leader in this critical sector? In what regions and in what types of network operators is packet backhaul gaining the most traction right now?

- **Network operators**: How does your strategy for transitioning from TDM to packet backhaul compare with other operators? Do your technology choices give you a clear competitive advantage in terms of packet backhaul deployments, or are there better alternatives? Which technology suppliers are in the best position to deliver the solutions you need for your packet backhaul plans?

- **Investors**: Which suppliers are emerging as the leaders for deploying packet backhaul products? Which regions are moving fastest to packet backhaul, and how will this migration affect network operator revenues and profitability in the coming months and years?

Packet Backhaul: Carrier Strategies & Real-World Deployments is published in PDF format.