2004 Survey of Ethernet Service Providers

EXECUTIVE SUMMARY

Incumbent carriers and newer metro Ethernet service providers are migrating their voice and data services to a converged services platform, with Ethernet playing a key part both as a service and as a key infrastructure component. As carriers refurbish their networks to enable new services, they are assuming that their enterprise customers have a deep interest in the kinds of Ethernet services being developed.

Enterprises typically have deep experience with Ethernet in their internal networks, so the development of carrier Ethernet services is a natural extension of their in-house expertise. Ethernet services promise to deliver much higher bandwidth than older carrier data services, and at a lower cost – two factors that would appear to make Ethernet services a clear winner.

Heavy Reading’s 2004 Survey of Ethernet Service Providers explores telecom carrier attitudes toward emerging Ethernet services, focusing on such critical issues as the following:

- What is the true extent of carrier interest in offering Ethernet and IP VPN services?
- What are the primary benefits that the carriers perceive with regard to Ethernet and IP VPN services? What do carriers generally see as the main potential deterrents to adopting Ethernet services?
- What do carriers think about the different types of Ethernet services?
- How important are reliability, security, and service interworking issues?
- How much revenue are carriers expecting now and in the future for basic or reliable and secure Ethernet services?
- What types of market segments are carriers targeting with Ethernet services?
- How will metro Ethernet impact SAN extension?
- Do carriers understand QOS and protection in the context of Ethernet services?
- Most importantly, how do service provider perceptions of the emerging Ethernet services market compare with those of enterprise customers?

The cornerstone of this report is an exclusive, invitation-only survey of carrier staff who have personal involvement in specifying, operating, or administering communications services for their organizations. More than 140 service provider employees worldwide participated in the Heavy Reading survey.
Survey participants represent more than 110 different service providers worldwide, ranging from small, metro-focused new carriers to the world's largest incumbent carriers, including AT&T, BT, China Telecom, Level 3 Communications, Qwest, SBC, Singapore Telecom, Sprint, Telefonica, Telstra, and Verizon.

Excerpt 1: Survey Respondents by Type of Service Provider

Excerpt 2: Respondent Job Functions

Respondents were asked to identify their organization's current or planned offering of the following services:
• Private circuits
• Frame Relay
• ATM services
• Ethernet private lines
• Ethernet virtual private lines
• Ethernet private LAN service
• Ethernet virtual private LAN service
• IP virtual private networks
• SAN extension service

Respondents were asked about revenue expectations from Ethernet services for 2004 as a percentage of total revenue and the expected revenue growth for 2005. They were also asked the following questions in relation to their organizations’ customers and markets:

• Which types of customers do you plan to target with Ethernet services?
• Which of these industry sectors do you plan to target with Ethernet services?
• How does your company plan to market Ethernet services to its current customers?

Throughout the report, results from this survey of service providers are compared with results of an exclusive Heavy Reading survey of enterprise user attitudes toward carrier-delivered Ethernet services (published as the 2004 Enterprise User Survey on Ethernet Services) to determine whether service providers’ views of the Ethernet market are in sync with their customers’ needs and expectations. The cross-survey analyses deliver invaluable insight into how the Ethernet services market is likely to develop over the next two years.

Key Findings
Key findings of the 2004 Survey of Ethernet Service Providers include the following:

The carrier focus for future Layer 2 network deployment is Ethernet services. Survey results confirm that new carrier deployments of Frame Relay and ATM data services will be capped, with new spending funneled mainly into Ethernet service rollouts.

The vast majority of carriers surveyed expect to offer a broad range of Ethernet- and IP-based services by the end of 2005. For all Ethernet and IP service types included in the survey, more than 70 percent of respondents indicated that their company would offer those services by the end of next year. IP VPNs appear to be the highest priority among carriers, with 90 percent of respondents saying their company would have IP VPN service in place by the end of 2005.

2005 will see significant expansion in the number of service providers offering Ethernet-based services. Among carriers that do not yet offer Ethernet virtual private LAN service (VPLS), 24.6 percent said they would have VPLS in place by the end of 2005, and 24.2 percent of carriers that don't yet have Ethernet private LAN service will be offering that type of service by the end of next year as well.

Carriers believe the benefits of offering Ethernet services outweigh the potential deterrents. In general, survey respondents were considerably more positive about the benefits of migrating to Ethernet services than they were negative about the potential deterrents. This suggests that carriers have rationalized the move to Ethernet-based services internally and are ready to move forward more aggressively with service rollouts.
Carriers and enterprise customers don't agree on the key benefits of deploying and using Ethernet services. Service provider respondents to this survey cited operational benefits, such as the ability to change bandwidth quickly without a service interface change, as the main drivers for migrating to Ethernet. But in our survey of enterprise users, cost reduction was named as the most important factor in using carrier-delivered Ethernet services, with operational benefits falling to the bottom of the enterprise driver list. These conflicting results suggest that carriers won't be able to sell Ethernet strictly on an ease-of-deployment basis – they will have to demonstrate real savings to get enterprise users' attention.

Carriers apparently view quality-of-service (QOS) guarantees as table stakes and do not expect to earn extra profit from offering Ethernet with QOS. Survey results show almost an exact correlation between respondent estimates of the extra cost for delivering QOS guarantees and the extra premium they will charge for those guarantees. These results suggest that Ethernet service providers are already resigned to the fact that QOS will not be a significant source of extra profits.

Many service providers are still figuring out the economics of delivering Ethernet with QOS guarantees. More than a third of the respondents surveyed said they don't know or are not sure about the extra cost of delivering QOS guarantees or the price premium their company will charge for that service.

Even with lowered expectations for revenues from service with QOS guarantees, carriers are likely to face some price resistance from enterprise customers. In Heavy Reading's survey of enterprise users, 31.6 percent of respondents indicated they did not expect to pay anything extra for Ethernet service with QOS guarantees, and another 38.5 percent said they would be willing to pay only up to 10 percent extra for QOS. These results, coupled with carrier expectations for the added cost of delivering QOS, suggest that many carriers may not be able to recoup the cost of guaranteed QOS in service pricing.

Key Survey Elements

The 2004 Survey of Ethernet Service Providers includes exclusive data on service provider attitudes toward perceived benefits and deterrents to deploying the different types of Ethernet services:

Excerpt 3: Attractions of Ethernet Private Lines vs. Conventional Private Lines

![Exhibit 3: Attractions of Ethernet Private Lines vs. Conventional Private Lines](Source: Heavy Reading)
Excerpt 4: Ethernet Private Line Potential Deterrents

<table>
<thead>
<tr>
<th>Potential Deterrent</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsure Which Variant of Ethernet Private Line to Use</td>
<td>1.5</td>
</tr>
<tr>
<td>Unclear Portfolio Fit</td>
<td>1.0</td>
</tr>
<tr>
<td>Higher Cost Than Virtual Private Lines</td>
<td>2.0</td>
</tr>
<tr>
<td>Unknown Capex/Opex</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Source: Heavy Reading

The subject of QOS was explored in the following questions:

- How much extra will it cost your company to offer Ethernet with QOS guarantees (covering minimum bandwidth and maximum latency, jitter, and packet loss)?
- How much extra will your company charge customers for Ethernet service with QOS guarantees?

The respondents were asked their views on the need for service interworking, so that some customer sites would be connected with Ethernet services, while leaving other existing sites connected with Frame Relay, private circuits, or other legacy services.

The important subject of protection for Ethernet services was covered by the following series of questions:

- What level of protection will your company offer for Ethernet private line service (which dedicates bandwidth to users)?
- What level of protection and restoration will your company offer for Ethernet virtual private line service (bandwidth shared by users)?
- How much will your company charge users for protected Ethernet private line service?
- How much will your company charge for protected Ethernet virtual private line service?

Finally, respondents were asked the following questions on SAN extension services:

- Does your company plan to offer SAN private line services?
- If yes, what technology will be used to deliver SAN private line services?

Report Structure

The 2004 Survey of Ethernet Service Providers is structured as follows:

Section II includes survey results and analysis for questions related to current and planned application of data services by carriers, including private circuits, Frame Relay, ATM, Ethernet services, and IP VPN services. Regional variations are explored for differences in emphasis in different parts of the world.
Section III includes results and analysis for survey questions focused on the advantages and drawbacks of using carrier-delivered Ethernet services, as perceived by the service providers.

Section IV includes results and analysis for survey questions focused on service interworking.

Section V analyzes survey results to gauge service provider expectations for market acceptance of Ethernet services and revenue growth from those services.

Section VI covers QOS and managed protection as they relate to Ethernet services.

Section VII focuses on service provider plans to use Ethernet services to deliver SAN extension to enterprise customers.

The report is essential reading for a wide range of industry participants, including the following:

- **Service providers**: How do your plans and expectations for the Ethernet services market match up to those of your competitors? Does your Ethernet services strategy make sense when compared with what your competition is planning? More importantly, how do your expectations match up to those of enterprise customers who are in the market for Ethernet services?

- **Ethernet system and subsystem manufacturers**: How do your products align with likely service provider demand for products that can deliver carrier Ethernet services? Can you present service provider customers with clear and compelling evidence that Ethernet service rollout is now a must to remain competitive? What are the key pitfalls that you can help your customers avoid as they roll out Ethernet offerings to the enterprise market?

- **Enterprise network managers and planners**: Are service providers in position to deliver the kinds of Ethernet services you want? How flexible are providers likely to be when it comes to negotiating prices for critical Ethernet service components like bandwidth guarantees, QOS guarantees, and managed protection services?

- **Investors and financial analysts**: How strong will the push to deliver Ethernet services be in the coming months? Which types of services will be the key drivers? What are the most realistic revenue expectations for carrier-delivered Ethernet? Will Ethernet truly emerge as a high-margin carrier service?

*Heavy Reading's 2004 Survey of Ethernet Service Providers* is published in PDF format. Report subscribers also gain access to a searchable database of all survey results.