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News

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Taming IP Networks Sans MPLS

By [Joe McGarvey](#)

A Layer 3 visualization tool from Packet Design is meant to give network managers an improved view of network traffic conditions.

When you boil it down, there are two approaches available to service providers for gaining greater control of their IP networks. The first and currently the most popular is to try to make IP networks, which are connectionless, look more like circuit networks. The other option is to apply more sophisticated management technology to IP networks.

Offering products to allow service providers to pursue the latter course is Packet Design, which today introduced a network appliance that gives service providers greater insight into the flow of data across their networks.

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"Until now," says Judy Estrin, founder and CEO of Packet Design, "no tools could show you how the network is working and how packets are flowing through the network."

Estrin explains that most traffic-analysis tools built for IP networks are primarily element-management tools. Instead of providing a snapshot of the way traffic is flowing between network devices, these tools merely monitor the health and performance of the network elements themselves. Packet Design's Route Explorer, says Estrin, works by gleaning information directly from the routing protocols, such as IS-IS and OSPF, which are responsible for moving data from one end of the network to the other.

Route Explorer actually operates at Layer 3. It works by taking in information

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about the flow of traffic across the network, then creating a picture of current traffic routes and the way constant changes to the routing table affects those routes. In addition to getting an up-to-the-second image of how a packet would cross the network, the system can be used to get a sort of instant replay of a network failure. The idea, says Estrin, is to give service managers a tool for pinpointing a problem, even an intermittent one.

Ironically, the ability of a packet network to find an alternative route to a destination in the event of a failure or congestion can sometime confound network managers by masking intermittent problems or problems that only become a nuisance when the network is stressed. Through the use of a traffic analyzer that works at the packet level, Estrin says, network managers can find the source of errors that can introduce disruptions to the network, such as route flapping.

Estrin has long been outspoken in her views that MPLS technology alone will not turn IP networks into an environment that is robust enough to deliver all types of traffic, both voice and data. Using this technology, she says, could allow a service provider to significantly improve network predictability without introducing the added cost or complexity of MPLS. At the same time, she says the tool could indicate that MPLS might be a good approach for improving the network.

In addition, Estrin says that the technology could also be an aid in capacity planning. Having better tabs on the behavior of your network, she says, should make it easy to add capacity in increments that better match demand. In the past, says Estrin, network operators would often obviate the need to deal with performance problems by simply throwing more bandwidth at the problem. As service providers become more cost conscious, however, that scenario becomes less attractive.

Estrin says the appliance would essentially give service providers the ability to tune up their networks for peak performance.

"If you want to offer service-level agreements similar to those for traditional telecommunications services, you need to tune the network more than you did in the past," says Estrin. "A car that's out of tune will get you there, but you're sure to burn a lot more gas."

Estrin is no novice to IP. Along with her husband, Bill Carrico, Estrin has built and then sold four successful packet-based companies. Packet Design, which is backed by \$29 million in funding, is her fourth. Prior to founding Packet Design, she was the CTO at Cisco Systems, having arrived at the networking giant through its acquisition of her third startup.

Packet Design's rollout of Route Explorer is actually a departure from the company's original business model. When it was founded two years ago, Estrin said the company would not develop its own products but rather work on solving some of the long-term problems associated with IP by licensing technology or spinning out separate companies. Packet Design had previously spun off Vernier Networks, which is dedicated to solving security issues in wireless LANs.

The decision to not roll the Route Explorer technology into a separate company was largely a reflection of the changing market environment, Estrin says. With public offerings and acquisitions becoming rarer, Estrin says you have to be more thoughtful about the doing company launches.

Estrin says existing market conditions have justified the decision to focus on long-term investments. "It's a great time for innovation," she says. "We are in a good place with our business model, because we are not short-term revenue focused."

Router Explorer is priced at \$25,000. It's expected to be commercially available in the third quarter of this year.

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