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Performance Enhancers: Striving for End-To-End Solutions
by Peter J. Brown

- TRUNCATED STORY -

WHAT DO PEOPLE REALLY MEAN BY END-TO-END?

Secure networking through VPNs seems like a pretty straightforward proposition, regardless whether a satellite link is present or not. At France-based UDCast, which has been at the forefront of developing Unidirectional Link Routing (UDLR)-based products and services, a new acceleration tool known as UDboost is taking shape that overcomes the performance degradation, or latency and bit error rate, associated with IPsec transmissions over satellite.

According to the company, UDLR is a routing protocol that mimics a conventional bi-directional transmission atop an asymmetric link. UDLR can also be used as a tunneling mechanism that allows for interoperability or the assembly of the diverse elements of a network into a single entity, thereby improving performance. UDLR is a Layer-2 protocol that renders the hybrid satellite/terrestrial links equivalent to Layer-2 Ethernet-type connections.

As the former innovation manager at Maiaah!, a MPLS service provider in Europe, and a former pre-sales senior manager for UUnet, Pierre Françon, marketing manager at UDCast, has seen his fair share of end-to-end IP solutions.

"A true end-to-end solution cannot be viewed here as just the satellite segment alone. End-to-end means creating a single secure tunnel from the client at the point origin right

through to the destination server," says Françon. "Extending the trusted domain or environment does not allow for the breaking of a VPN at the Network Operations Center (NOC)."

According to UDCast, with UDboost, any third party encryption or firewall with IPsec embedded will work, and there is no conversion of TCP to a different protocol over the satellite link. "With UDboost, there is a dynamic modification or changing of window size, along with a modification of the TCP slow start mechanism as well as a selective suppression of acknowledgements on the return link," says Françon. "Again, our emphasis all along at UDCast has been on enhancing the performance of asymmetrical links, as this is reflected in UDboost.

"With so much focus now in particular on the new generation of satellite broadband platforms that are using DVB/RCS, our customers are looking to optimize the return path performance in particular, and thus reduce the overhead associated with the return path," Françon adds. "With UDboost, we provide a double value proposition here. Both the satellite service providers and the end users benefit in the process."

UDboost incorporates both HTTP caching and pre-fetching. Providing network access to multiple users in remote locations minus these

two elements can be very expensive, indeed.

"You want to avoid using your satellite capacity over and over again just to bring the same CNN logo back. You want to retain any unchanged Web page components, and just deliver refreshed content," says Françon. "This approach applies to all Web-enabled applications, not just Internet browsing. While it is easy to cache and pre-fetch at the hub, it is very difficult to perform these two things at the remote location where the true benefits is derived."

UDCast also released UDcrypt recently in order to help customers benefit from IPsec multicast, which enables users to distribute a single IPsec key to multiple end users simultaneously. Since IP multicast is so bandwidth efficient, network security can be significantly enhanced by re-keying every 10 or 15 seconds, or even less, if required.

"Remember that when it comes to performance enhancement, the judicious use of multicasts is always preferable. Reducing the volume of much more expensive unicast transmissions whenever possible must be seen as a priority," says Françon.