

Introducing VPLS

Virtual Private LAN Service (VPLS) is a premium Performance, Layer 2, customer controlled and Flexible data service for connecting the multiple sites of corporations.

By PAUL BUDDE

VPLS as an unstoppable trend
The main types of Multipoint VPN product offerings
Key benefits for corporate users

VPLS technology is defined by the IETF (the internet standards body). Implementation is usually based on MPLS as the underlying technology to deliver carrier-grade QoS (Quality of Service) and network availability.

The first national VPLS product in the Australian market was offered by Nextgen in early 2006. Telstra also operates an international service.

VPLS ESSENTIAL IN INTERNET ECONOMY

An international trend towards takeup of VPLS services and their supporting technology is now evident. The technology is, I believe, poised for substantial growth.

VPLS is fundamentally different to the established customer network offerings in that they are Layer 2, carrier-grade, wide area network services.

With a National VPLS, customers will have at their disposal, from the carrier, a protocol transparent network service on which they can run their choice of applications. They will also have new levels of self-control on how they use the network to exercise maximum flexibility, and use its maximum value. It also stimulates innovation in that it is 'freeing the customer of carrier charges for how they want to use the network'.

I believe that it is an unstoppable trend as it gives both the Internet economy players and their customers, maximum flexibility regarding the products and services which will flow over the telecommunications networks. There is already great demand for such new networks in North America and Europe.

Layer 2 networks, of this type, are going to be the movers and shakers in this market. The reason is obvious – it is what customers want.

I am a great supporter of open networks of this type as this is the sort of initiative that delivers maximum competition opportunities for our industry. At the same time it gives our customers the choices they want, and at competitive prices.

MULTIPOINT VPN

There are three main types of Multipoint VPN product offerings in the Australian market, with typical implementations described below:

- **IP VPN** A Layer 3 (Internet Protocol) VPN and therefore limited in the range of applications supported. Typically, changes must be managed by the carrier in a coordinated outage window and carriers tend to charge extra according to the configuration and QoS options selected by the customer. Available in Australia for about 5 years, IP VPNs were the forerunner in national VPN services, but now lack the flexibility and customer control that is available with VPLS technology.

- **Ethernet Metro VLAN** Local city-based Ethernet, Layer 2 VPNs that are typically not based on an MPLS platform and therefore limited in scale, capability and performance. Multiple VLANs, if offered, are charged and controlled by the carrier. A 'virtual national' service can be provided by packaging two or more Metro VLANs together.

VPLS BENEFITS FOR CORPORATE USERS

The key benefit is rather simple: Ethernet-based VPLS offers more services at a lower cost than that of traditional LAN solutions, such as IP networks.

VPLS also offers a raft of benefits, including:

- **The flexibility of a single service at any location** with any-to-any connectivity in a national, secure, VPN (Virtual Private Network) customer cloud.
- **Support for the widest range of IT applications** because Layer 2 network is Protocol Transparent.
- **Customer control** of the equipment that connects to the VPLS and how the access circuit is configured, compared to other VPNS where configuration changes typically require coordination with the carrier.
- **Support for real-time and mission-critical applications** with QoS profiles.
- **Lowest total cost of ownership** with the simplicity of Layer 2 Ethernet connectivity and bundled pricing which is inclusive of most features.

TABLE 1 – VPN COMPARISONS – KEY DIFFERENTIATORS

| FEATURE | IP VPN | ETHERNET METRO VLAN | NATIONAL VPLS |
|---|--------|---------------------|---------------|
| National Coverage – Single Integrated Network | Yes | No | Yes |
| Ethernet (Layer2) | No | Yes | Yes |
| QoS included as standard | No | No | Yes |
| Multiple VLANS as standard | n/a | No | Yes |
| With cust. Nominated VLAN IDs | | | |
| Customer control of routing | No | Yes | Yes |

VPLS: BEST PRACTICE FOR CORPORATE NETWORKING – CASE STUDY

Brian Bowman, CIO of Leighton Contractors

A Division of Leighton Holdings, Leighton Contractors Pty Ltd is a construction project business with an annual revenue of \$3.2 billion and an IT network that serves in the vicinity of 60 project and data centre sites at any time.

As a corporate CIO, my singular interest is the level of service I provide to underpin the business units that I serve, reducing overall costs and to ensure that the business is protected in the event of any unforeseen disaster.

With this in mind, we have commenced migrating to a VPLS. In the first instance, we deployed high-capacity Ethernet point-to-point services from Nextgen, followed by a VPLS to progressively replace the IP VPN that we had from our previous supplier. We are now progressively integrating the bulk of our network as a single VPLS, serving sites that range from executive homes at 1.5Mb/s to significant offices or data centres that run in excess of 100 Mb/s.

The results have been significant. Chief among the business outcomes are:

- Reduced network cost – Our network actually costs us less.
- Bandwidth increase – The ability to implement any application without bandwidth constraints.
- Disaster recovery – I now have an excellent DR plan, and also the flexibility to centralise and distribute application hosting as needs unfold in the future.
- Additions, moves and changes are now easy –

The VPLS network self-learns what is connected and manages the connectivity. This is a big change to how it was with our previous IP-VPN where it seemed that everything needed to be controlled, and charged for, by the carrier. My own team has taken back control of the network and advise me that connectivity arrangements at each site are now simpler and easier to manage.

- Software licence fee savings – We have made significant savings in software licence fees with the flexibility to centralise or distribute applications to optimise licence fees – in terms of balancing run time or per-seat licence fees.
- User control and security – Where I once worried about balancing corporate security against the needs of my business unit managers to offer broad user access, the multiple VLAN options allow segregated user groups to be managed easily and without extra network charges.
- Innovation pans – And lastly, my network administrators are planning a range of IT innovations which are underpinned, or enable by the VPLS capability and feature set.

In short, VPLS has given Leighton Contractors great flexibility and customer freedom. We believe the technology delivers a wide range of customer benefits and should be considered for any new or migrating corporate network deployments.

ABOUT THE AUTHOR

Paul Budde is the Managing Director of Paul Budde communication (trading as BudeComm), an independent global telecommunications research and consultancy company, which includes 45 national and international researchers in 15 countries. The company operates from Bucketty, in the Lower Hunter Valley, Australia.