



THE VIRTUAL EDGE

JEAN TURGEON OF AVAYA NETWORKING EXPLAINS WHY SHORTEST PATH BRIDGING (SPB) WILL HELP TO VIRTUALISE THE DATA CENTRE ENVIRONMENT

Consolidation, virtualisation, and Cloud Computing are the trends that are transforming the Data Centre faster than at any other time in history. Virtualisation has already significantly impacted the software and server industries, and it is now beginning to have a similar effect on both networking and storage. The pre-existing technologies and architectures are firmly out of date, and they only serve to perpetuate burdensome complexity. This complexity can adversely impact this new dynamic computing environment, making a new approach inevitable. It is no surprise then that businesses are already looking for this next-generation network architecture. They search one that will help them to simplify the design, deployment, and management of the underlying infrastructure.

All businesses need to be agile and when it comes to information systems they want the ability to seamlessly move virtual machines between more than just servers in the same rack. They also need to be able to move them across and between Data Centres. To achieve this they will need a networking infrastructure that can support and complement the dynamic changes in their virtual computing environments; one that automates the provisioning of network edge devices, as virtual machines migrate from server to server.

These are the capabilities that customers will now demand from their networking vendors, and they will want it served up without increasing the risk to their business, or adding to the complexity of their network architecture.



Provisioning the network to support the seamless migration of virtual machines is a common challenge, and it entails extending a Layer 2 network throughout the Data Centre environment. Businesses have traditionally employed technologies like Virtual Local Area Network (VLAN) or Virtual Private LAN Service (VPLS) to extend the network, but these approaches have significant time-to-service limitations and carry the high risk of human-induced configuration errors, due to the multitude of changes required along an extended connectivity path.

Shortest Path Bridging (SPB), the IEEE's 801.1aq standard, is the next-generation technology specifically created to reliably virtualise the Data Centre environment and beyond. SPB is an open technology that allows businesses to greatly simplify how they create and configure networks - across the enterprise and to integrate with the Cloud - by empowering edge-only service provisioning. Once the edge is provisioned, the network automatically and instantaneously reconfigures all relevant devices and links. SPB provides businesses with the agility and mobility they demand when creating and managing the Private Cloud, with the elimination of complex, antiquated protocols being an added benefit.

Optimising east-west traffic flows is something

else that requires special consideration as applications evolve and become far more complex; server-to-server traffic is quickly outpacing client-to-server traffic and is soon predicted to account for almost all Data Centre traffic. As a result, businesses will need to select Top-of-Rack (ToR) solutions that not only support high performance local switching, but also enable high-capacity switching across numerous racks, avoiding the unnecessary transit through the core of the network. The optimal solution is to use a high-speed interconnect between the racks, and therefore ToR Switches should implement specialised technology; 10 Gigabit and the emerging 40 Gigabit connectivity alone will be insufficient. In order to augment the resiliency model, businesses should also consider a solution that implements dual ToR Switch, one that delivers active-active dual-homing for servers or storage devices, and completely eliminates single points-of-failure.

Now, more than ever, enterprises need to pragmatically assess all available solution options and gauge their value in relation to the challenge faced in sustainably delivering high quality information services to the business. Astute decision makers will seek out those solutions that simplify the delivery of consistently optimised end-to-end connectivity between users and their content. **NC**