ALCATEL-LUCENT ENTERPRISE AND SDNSQUARE SDN² NETWORK SOLUTION

Enabling Highly Efficient, Volumetric,
Time-Critical Data Transfer over IP Networks

SDN²

Alcatel·Lucent
Enterprise

INTERNET TECHNOLOGY HAS COMPLETELY CHANGED THE NETWORKING INDUSTRY OVER THE PAST FEW DECADES. THE SUCCESS OF IP NETWORKS – MOSTLY ETHERNET-BASED – HAS MADE IT THE ARCHITECTURAL CHOICE IN MOST NETWORKING ENVIRONMENTS.

The list of IT-based media applications continues to grow, and includes digital media, healthcare, video content distribution and media cloud storage, to name a few. These applications have data throughput requirements and traffic patterns unlike any previously seen in the IT industry. Large and continuously changing north-south and east-west data transfers are overwhelming traditional enterprise networks. This has created a permanent state of congestion that even overprovisioning with expensive, high-end switches can't resolve. The result is that transfers are failing or become unpredictably delayed, available link bandwidth remains largely underutilized and service level agreements can't be guaranteed or maintained.

Best practices and technology that traditionally resolved issues for processing and storage applications are falling short when applied to digital content processing feeds. End users hold real-time applications such as video to a higher standard than best-effort applications such as e-mail. This problem becomes more evident as the resolution and frame rate of rich media content rapidly increases, leading to continuously rising demand to transport more data at higher speeds.

**BENEFITING FROM
SDN TECHNOLOGY TODAY:**

+ Design and deploy complete complex networks within minutes

+ Upgrade as you grow, no forklift required

+ Improve network efficiency and QoE while reduce costs

PROVIDE EFFICIENT LARGE DATA TRANSFERS

Transporting rich media with an acceptable quality of experience (QoE) means that IT departments must focus on high-bandwidth utilization and the ability to guarantee lossless network paths with minimum jitter and latency. This requires the ability to control the complex interactions between bursty, large data transfers at each network hop. This can only be accomplished through the complete network management intelligence offered by new software defined networking (SDN) technology, which is far advanced from today's painstakingly detailed and time-consuming switch configuration.

Enterprises need a highly flexible, dynamic, integrated, easy-to-use solution to design, deploy, configure, and manage their high-performance IP networks. As new applications add workflows and traffic patterns on the network, SDN allows cost-effective modular expansion of network infrastructure and avoids having to overprovision with expensive high-end switches.

Alcatel-Lucent and SDNsquare have collaborated to create a network solution based on a highly modular network architecture based on of the Alcatel-Lucent OmniSwitch 6900 (OS6900), enhanced by SDNsquare's SDN² intelligence and managed by the SDN² expert system.

SDN² technology is a revolutionary approach to enabling rich media content to be treated, processed, stored and transported independently of the video or picture format. This is accomplished by providing highly automated, flow-based, end-to-end network provisioning, guaranteeing dedicated network resources for each flow.

FULLY EXPLOITING
SDN TECHNOLOGY

By centralizing the control plane with an external SDN expert system, the SDN² solution reduces the complexity of network design and management by introducing three simple concepts:

1. Using a graphical design wizard to facilitate the design of modular SDN² network topologies using predefined templates.

2. Adding clients/servers as nodes to the network topology.

3. Provisioning individual data flows between nodes.

The underlying expert system automatically handles all the detailed network configurations. The user no longer has to define elements such as virtual local area networks (vLANs), access control lists (ACLs) or routing tables. A network topology and configuration can be constructed and ready for deployment in less than 15 minutes.

As the flows are managed end-to-end through the network, the SDN² expert system takes care of the individual switch configurations along each optimally selected path. In this way the system can guarantee loss-less transfer of each flow at the provisioned speed, thereby eliminating the congestion and traffic interference inherent in any traditional IP network.

"An Information Week survey finds that IT pros who've implemented or plan to have SDN think it will boost network utilization and efficiency (42%), automate more provisioning and management (35%), and improve security (32%)."

INFORMATIONWEEK.COM, OCT 2012

SDN² Architecture
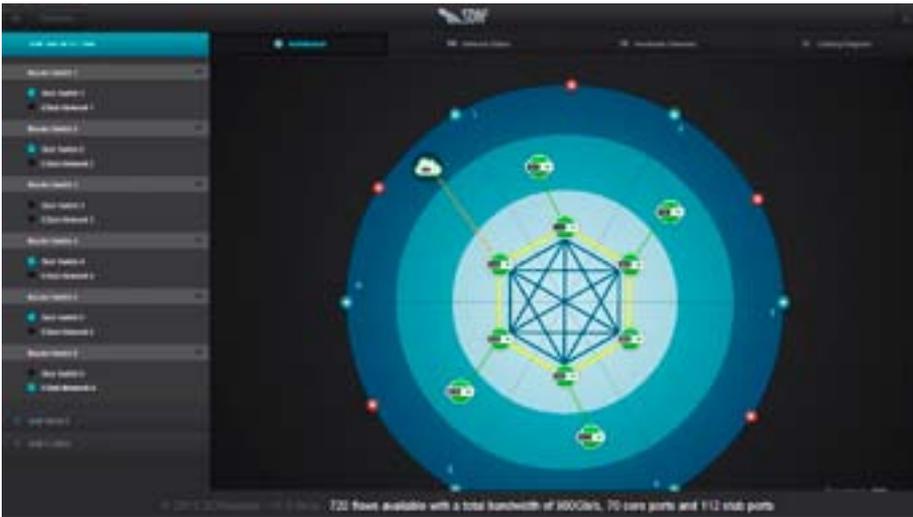
The SDN² network solution benefits end users, IT teams, and the corporate bottom line by:

PROVIDING EFFICIENT LARGE DATA TRANSFERS
- Easy end-to-end network provisioning per flow.
- Guaranteed loss-less data paths; no packet-loss, no retransmissions even when the flows are bursty.
- Complete utilization of provisioned bandwidth by orchestrating the network fabric.
- Maximized capacity for the SDN² network with minimum network resources.

ENABLING COMPLETE COMPLEX NETWORK DESIGNS WITHIN MINUTES
- Graphic architecture design: auto deploy, add clients, define flows.
- Design your SDN² network architecture with a graphical design wizard in under five minutes, without a consultant.
- Years of network experience automated at the click of a wizard button.
- List available ports, bandwidth and flow resources automatically while you design.
- Guaranteed performance characteristics without a consultant.
- Generate all network documentation – including architecture overview, cabling diagrams, bill of material – with one click.

### DEPLOYING NETWORKS WITHIN MINUTES
- Fastest network deployment time currently available in the market.
- Automatically generate all switch configurations within seconds - no command-line interfaces (CLIs), network commands or consultants required.
- Automatically deploy switch configurations within minutes.
- Automatically test cabling.

ALLOWING MODULAR NETWORK UPGRADES – NO FORKLIFT REQUIRED
- Add switches seamlessly into SDN² network topology.
- Integrates easily with legacy networks, no greenfield required.
- Grow SDN² networks to match demand – one switch at a time.
- Integrate new projects by adding flows to existing SDN² networks.
- Migrate easily between 1 Gb and 10 Gb.

OFF-LINE NETWORK SIMULATION
- Simulate new SDN² network designs on existing SDN² networks with the same tool.
- Simulate SDN² network expansions on current production SDN² networks - switch between simulation and production mode with one click.

SDN² Flow Provisioning
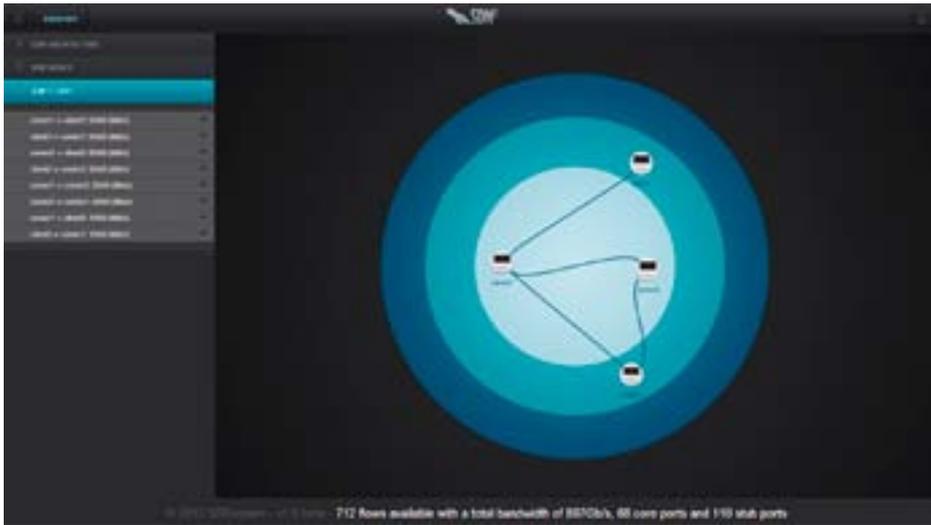
- Simulate load on new SDN² network designs or on existing SDN² networks.
- Detect any capacity bottlenecks in simulation mode before they occur in a live environment.

INTUITIVE NETWORK MONITORING
- Evaluate network performance by measuring what really matters: the performance of the network flows.
- Intuitive health monitoring.
- Monitoring and accounting of effective network usage.

REDUCE COSTS
- Achieve 100 percent utilization of provisioned network
- Reduce capital and operating costs by optimizing the use of switch resources instead of overprovisioning the network.
- Increase efficiency of server and storage infrastructures - consolidate four to eight 1 Gb servers into a single 10 Gb server – and reduce expensive application software licenses.
- Reduce expense of application software licenses for servers that can't fill their network connection – the network is no longer the bottleneck.
- Give network operators the ability to monitor what really matters to end users: flow performance.

- Make every new application as simple as adding flows to the SDN² network.

IMPROVE NETWORK EFFICIENCY AND QOE WHILE REDUCING COSTS
As the resolution and frame rate of media files continue to grow, enterprises must implement entirely new solutions to meet the massive data storage and real-time file transfer requirements. The Alcatel-Lucent SDNsquared SDN² solution creates "content aware" digital networks that dynamically support the large traffic peaks specific to media flows. This approach provides both a higher quality user experience, and lower costs since the network can transport large files more efficiently.

ABOUT SDNSQUARE

SDNsquare is the technology partner that empowers 'mission critical organisations' with guaranteed performance, reliability, efficiency and scalability for their storage, datacentre and client networks. SDNsquare demonstrated its operational and financial value for companies in media, medical, military, life science and security services. SDNsquare was established in 2010 to tackle the reliability and performance issues of 'large files' within IT systems and IP networks. The SDNsquare team brings together experience in network technology, storage systems and media applications.

The headquarters and research activities are based Belgium. The company is globally active via its growing network of partners.

For contact and more information, visit SDNsquare on:
www.sdnsquare.com

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