FAST GROWING AUSTRALIAN SATELLITE-FOCUSED ISP AND TELCO HARNESSING THE SCALE OF LSN

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Terence C. Sweetser | Chief Technical Officer, SkyMesh

A10

CASE STUDY

*SkyMesh

COMPANY

Skymesh

INDUSTRY

Service Provider

NETWORK SOLUTION

A10 CGN

CRITICAL ISSUES

- Internet service provider in need of upgrading IPv4 preservation solution, which was costly and failing to meet increased traffic volumes, causing worries about packet drop and strange behavior.

SELECTION CRITERIA

- A10's high price-performance ratio that can accommodate growing traffic volumes while consolidating legacy appliances, all within budget. Additionally, the all-inclusive licensing model does not require additional licensing for advanced features and higher throughput.

RESULTS

- High performance, allowing for 100-fold growth full feature set

- Application Level Gateways compatible with various applications and protocols

- Seamless switchover from the Cisco devices

SkyMesh Pty Ltd is an Australian Telecommunications Carrier and Retail Service Provider of National Broadband Network (NBN) Fibre, Wireless and Satellite services, as well as providing legacy IPSTAR Satellite services to customers connected under the Australian Broadband Guarantee Program. In addition to broadband Internet, SkyMesh delivers premium telephony services over broadband and traditional landlines using Tier 1 providers. SkyMesh is specialised in satellite, and while not one of the biggest players in the overall ISP market, is a leader in the satellite area and in NBN deployments overall.

Founded in Brisbane in 2005, the company remains 100% Australian owned with 40 employees, and services business and residential customers that hail from big cities to the remotest regions across Australia. Priding itself on its ability to provide personalised customer service quickly and efficiently, SkyMesh has been around long enough to understand what customers are looking for in a provider, while young and nimble enough to provide the latest technology solutions.

OUTGROWING THE CAPABILITIES OF EXISTING HARDWARE

SkyMesh faces a challenge common to ISPs these days – needing to conserve their limited IPv4 address space allocation, as the transition to IPv6 is dragging on – and is leveraging their IPv4 allocation with Large Scale NAT (LSN), also known as Carrier Grade NAT (CGN).

SkyMesh's existing routing and switching used industry standard equipment from Cisco to support 8,000 NBN satellite users, 20,000 IPSTAR satellite users and 1,500 NBN fibre/wireless users, but the existing equipment was failing to meet the workload required of it. It was hitting 100% CPU at 130,000 sessions, resulting in dropped packets, and they quickly needed to improve the performance. SkyMesh's first step was to try a replacement Cisco unit, an ASR1002, but it failed to cope with the net load in testing. SkyMesh considered solutions from Brocade, Cisco and A10, but it was A10 Networks that stood out as the most attractive, with its all-inclusive licensing model, which does not require the purchase of additional licenses to realise the full capacity of the unit.

SkyMesh estimated that they would have needed six or eight Cisco ASR 1002 units to do the same job as the A10 CGN, which would not be at all cost effective.
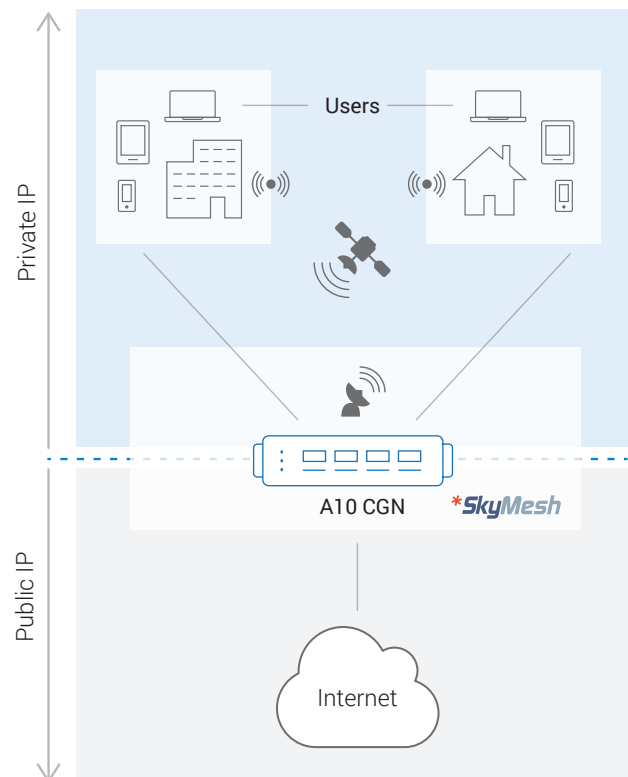

Figure 1. SkyMesh's IPv4 preservation/IPv6 migration solution

A BREAKTHROUGH IN PERFORMANCE

Testing was carried out at 140,000 sessions, and within two months the system was handling 200,000 sessions in production following significant growth after the implementation, with around 600 NBN satellite users being added per month. Overall throughput is averaging 220 Mbps, and peaking at around 250 Mbps, while the CPU of the A10 CGN barely averaging 1%. Chief Technical Officer of SkyMesh Terence C. Sweetser said, "we are deliriously happy with the performance we are getting."

This performance was a huge relief for the marketing team at SkyMesh, having removed any concerns about being able to add large numbers of users in a short space of time. The Cisco system had been causing worries about packets being dropped and strange behavior. In terms of handling special types of traffic that can have issues with NAT, the ALGs built into all of the A10 CGN alleviate any problems. SkyMesh has a separate set of public IP addresses put aside in case a customer has an application that cannot be handled by the available ALGs provided by the A10 ADC, but so far they have not had any customers that have needed to be transferred. CTO Sweetser commented in particular that the SIP ALG is working flawlessly, saving SkyMesh the cost of a Session Border Controller (SBC), and stated that "the deployment has perfectly fulfilled our needs and left room for 100-fold growth."

EASY CONFIGURATION

SkyMesh uses A10 Networks CGN line of Carrier Grade Networking gateways (A10 CGN) to map a private /15 IPv4 address range to a public /23 IPv4 address range connected to the SkyMesh backbone in Sydney. Regarding the setup and configuration Sweetser said, "I was surprised how easy the A10 CGN was to work with. The CLI has a very Cisco-like feel to it, the web client based GUI is very straightforward, and the documentation is easy to follow. Some small changes were required to accommodate the switchover to the A10 product, but there was nothing too onerous."

DEPLOYMENT PLANNING

In planning the deployment, the network topology was already in place due to testing of the possible replacement of the Cisco devices on SkyMesh's backup network, and the A10 CGN was used as a direct drop-in replacement. Once the A10 CGN configuration was completed and tested, the Cisco was simply switched off so that it would failover to the A10 unit. The implementation was a complete success, and SkyMesh has never switched back. SkyMesh has since bought an additional A10 CGN appliance which will be configured in HA mode, providing failover in the event of any issues, according to their standard practice.

SALES AND IMPLEMENTATION SUPPORT

Asked about the interaction with A10 throughout the project, Sweetser praised the local support, saying the local support was tremendously helpful with every part of the purchase process, able to answer every question or to find someone who could get an answer for him. I am particularly happy with that relationship" proclaims Sweetser.

OVERTURNING CONVENTIONAL WISDOM

Sweetser told us, "The general consensus in Australia has been 'No one ever got fired for buying Cisco', but for this kind of role you need an appliance, and Cisco is not out there in the market with an appliance that offers the level of performance of the A10 solution. If someone said to me that they needed a new server load balancer (SLB) I would say go and do a proof of concept (POC) with A10. We are not going to buy an SLB solution from Cisco because we know they are not that specialised in appliances."

THE A10 NETWORKS SOLUTION

- Huge increase in performance
- Drop in replacement for existing hardware
- Additional features at no extra cost
- Excellent sales and implementation support

THE NEXT STEP: HA ADC/SLB

SkyMesh is now considering adding an A10 ADC to play an Application Delivery Controller (ADC) role for virtualised services such as its mail cluster, to replace load balancers which are now starting to show their age, with one of them having recently suffered a faulty power supply. "Given the way the A10 CGN works, we are very willing to try a pair of A10 ADCs in High Availability (HA) configuration as a replacement," commented Sweetser.

A10 THUNDER CGN

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PREPARATIONS FOR IPV6

SkyMesh has deployed IPv6 across its entire core infrastructure, and while IPv6 is running on NBN fibre and wireless services, the NBN satellite and IPSTAR satellite access networks used by some SkyMesh customers will not be IPv6 enabled until new satellites go into service in 2015. Despite their best efforts to reclaim IPv4 address space, IPv4 address space is close to being completely exhausted, and in the APNIC region there is no possibility of getting any further large allocations of IPv4 address space, while purchasing additional allocations from other regions is prohibitively expensive.

SkyMesh plans to deploy DS-Lite and NAT64/DNS64 as soon as possible to support IPv6 clients, so a further attraction of the A10 solution was the ability to use the same hardware concurrently for CGN and DS-Lite or NAT64/DNS64. While SkyMesh is looking forward to the day when IPv6 will be the norm, A10 CGN products are helping them navigate through this transition era at the same time as taking them closer to the final goal.

ABOUT A10 NETWORKS

A10 Networks (NYSE: ATEN) provides Reliable Security Always™ through a range of high-performance solutions that enable intelligent automation with deep machine learning to ensure business critical applications are protected, reliable and always available. Founded in 2004, A10 Networks is based in San Jose, Calif., and serves customers globally with offices worldwide.

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