

## FLAG Telecom Gate 3 – IP Edge Platform Project

### FLAG TELECOM

#### The Challenge:

To meet increased business growth in IP services by increasing capacity between sites and moving to a more defined core and edge network.

#### Objectives:

- To reconfigure its network to achieve a more structured, resilient and scalable core and edge network.
- To provide greater capacity at the core, to accommodate a range of new IP services.
- To enable the growth of FLAG's IP business.
- To move up the value chain in terms of the new IP products to be offered, for example, Security, IP transit and Global Ethernet products.

#### The Solution:

FLAG Telecom installed 10 Juniper Networks M320 combination core/edge routing platforms across three continents.

#### The Benefits:

Juniper Networks M320 solution has given FLAG Telecom a scalable, secure network enabling FLAG Telecom to offer advanced IP/MPLS network services to its customers.

#### FLAG Telecom

FLAG Telecom is a leading provider of international network transport and data services to communications and Internet communities across the globe. FLAG aims to set the standard for excellence in providing customers with a range of services that demonstrate exceptional quality, value and flexibility.

The company's suite of bandwidth, IP, Internet and Ethernet services are delivered using its own high speed fibre optic and MPLS/IP based network. This network encircles the globe, connecting key business centres and Internet markets throughout Asia, Europe, the Middle East and the USA.

FLAG's global network and services provide the foundations which underpin the networks of many of the World's largest and best known telecom carriers, Internet operators and content providers.

#### About FLAG

FLAG Telecom is a leading carrier-neutral provider of international network transport, connectivity and data services to the wholesale communications and Internet communities. With regional headquarters in Hong Kong, London, Dubai and New York, FLAG Telecom owns and manages an international backbone that underpins the networks of the World's major carriers, and a low latency global MPLS based IP network that connects most of the World's principal international Internet exchanges.

It has an established customer base of more than 180 leading operators which includes the World's major carriers, ISPs, content providers and other broadband operators and includes all of the top ten international carriers.

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**Ryan Sher**  
Director IP Engineering  
FLAG Telecom

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**Tim Gigg**

Vice President Networks Operations  
FLAG Telecom

The company’s global network is extremely reliable and is monitored on a proactive basis by two network operating centres to provide 24/7 coverage. Further assurance is provided by the global field operations team who has access to network management through local log-in facilities. In addition, full disaster recovery is provided from its site in London Docklands, together with regional back-up facilities in New York and Hong Kong.

FLAG Telecom’s use of Juniper Networks’ products at key core and edge locations contributes to its exceptional reliability and performance.

**The Challenge:** To build a more structured, resilient and scaleable core network.

The objective of the Edge Project was to get a multiple STM16 ring between the core Points of Presence [PoPs] – London, NY and LA and Tokyo to Hong Kong, to create a solid, scaleable and resilient core network.

In addition to the homogeneous STM16 layer, FLAG Telecom had a requirement to obtain a routing platform which was scaleable up to 10Gbps. There had previously been other changes to FLAG’s network to augment capacity, as the company endeavoured to follow the demand curve; the aim of this project was to get ahead of the curve in terms of capacity.

Ryan Sher, Director IP Engineering at FLAG Telecom explains, “A lot of our services are going to be Ethernet-based and we wanted a platform that gave us low port costs. We needed to have lots of ‘bells and whistles’ on our Ethernet services like mapping with VLAN, VLAN stripping and changing, swapping, and queuing. We needed the Juniper Q PIC which gave us the bells and whistles. We needed to have a platform which could give us cost effective, high performance scalability from on the Ethernet cards”.

Tim Gigg, FLAG Telecom’s VP Network Operations, added, “The network and the customer base had grown to an extent where we were looking at the different services which we wanted to provide. With the growth in business that we are seeing on the IP side – our IP business started off fairly small, really as an adjunct to what we were doing, but now it is fair to say that it is becoming one of our major new products. We are moving up the value chain. You can sell a pipe to a Service Provider and they can add value and sell it on. However, if you move down the IP route you can sell security, IP transit and Global Ethernet, all the MPLS products and differentiate your services – adding new revenue streams.”

**Procurement**

The IP Edge Network project commenced in 2003, when FLAG Telecom asked the market for proposals for a solution which would enable it to build a new platform in order to deliver a number of new services at a greater capacity and to increase the capacity of its current edge platform.

In the face of fierce competition from the other major network equipment suppliers, Juniper Networks eventually won the multi-million dollar contract. Juniper’s winning proposal was based on its highly successful M320 routing platform.

Commenting on the bidding process, Tim pointed out, “There was no guarantee that Juniper was going to get the contract, although they were our previous supplier. We were looking at other vendors, and we ran a full selection of those vendors. We already had a range of Juniper Networks’ other routing platforms, the larger M160 and the smaller M20s and M10s. Also, we knew the JUNOS software, which is common to all of its routing platforms.”

There were a number of key factors in FLAG Telecom’s decision to award the contract to Juniper Networks, including Juniper’s track record based on a combination of product excellence, previous reliability of Juniper equipment and cost. Juniper’s relationship with FLAG Telecom, earned over a number of years, was also a key factor in Juniper winning this new business.

FLAG Telecom’s confidence in Juniper Networks’ M320 product, which offered FLAG Telecom 99.999% reliability, meant that they could implement a combined MPLS Provider [P] and Provider Edge [PE] capability on the same M320 platform on the edge PoPs – an efficient, cost effective solution which was implemented with minimal disruption to the network.

Ryan continues, “Working closely with Juniper, who thoroughly understood our requirements, they proposed an upgrade to the new M320, which we did in multiple PoPs across the globe – Taipei, Seoul, Palo Alto, Amsterdam and London, ten M320s in total, to allow for redundancy”.

In core PoPs the links should never go down, hence we upgraded to M320s, so our core is made up of all M160 and M320 routers giving us a scaleable PoP to 10Gbps. Juniper supplied us with the QPIC interface, which was important, because one of the key business requirements from the IP Edge Network Project was to get cost-effective full service port costs on Ethernet”.

## The Solution

The completion of the Edge Project involved upgrading Juniper M20 routing platforms to Juniper M320s in multiple PoPs across Europe [Amsterdam and London], Asia [Hong Kong, Seoul, Taipei and Tokyo] and the Palo Alto PoP in the USA.

The implementation of Project Edge using the Juniper Networks M320 solution enables the following service applications:

- Consistent product line per PoP
- Broad product definition [Ethernet, VPN, VPLS, IPT, QoS]
- Cost effective price per GE, FE and E1 [Channelised STM-14]
- Multiple services per interface [VPLS, IPT, Sec]
- Low time to market new cost effective services.

The entire network routing consists of Juniper Networks platforms, specifically the new M320s and M160s as core routers and M320s and M20s as edge routers.

There are clear benefits to this strategy, as Ryan explains, “Having just one vendor means you don’t have to port between vendors; if you have a new platform for every service, you have to train people every time to get the required familiarity. This way it’s much easier to hand over a new service on something which employees have seen before.”

## The Bottom Line

FLAG Telecom is one of the first wholesale carriers to implement a rich MPLS based service capability, including VPLS as part of its portfolio. FLAG’s network benefits from the superior performance and reliability of the Juniper Networks M320, one of the industry’s most scalable, secure and reliable routers, which represents a strategic investment that supports current and emerging Layer 2 and Layer 3 services.

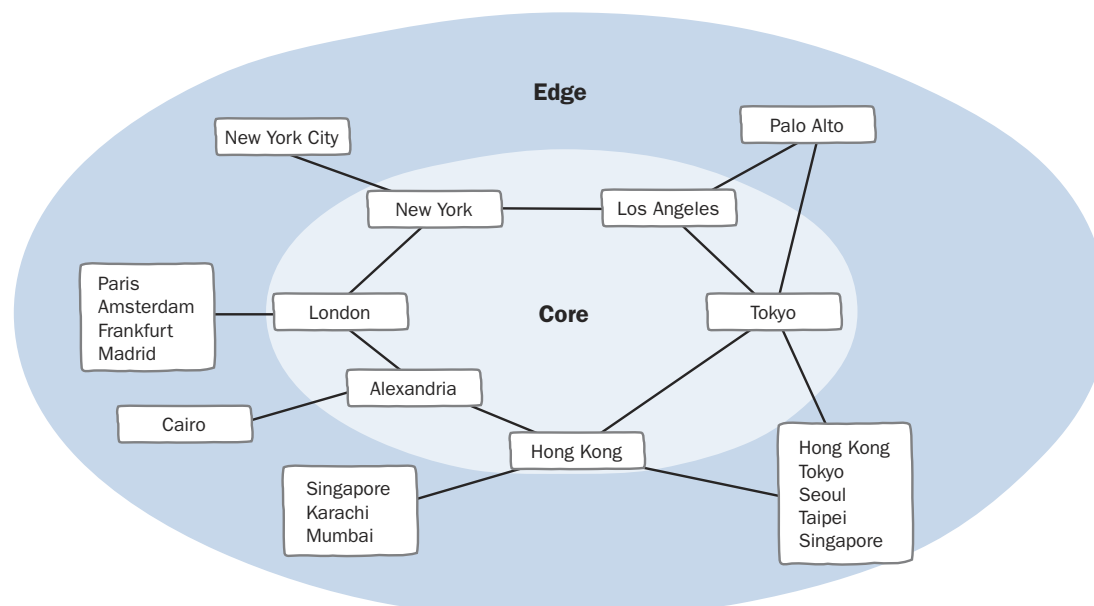
The M320 helps service providers migrate from Internet to Infranet by consolidating all services to a single IP/MPLS network. Infranets enable any customer application to automatically request the level of security, quality and bandwidth it requires from the network.

The M320 platform has enough reserve processing power to perform all the cross network setup needed to establish secure VPNs and rich VPN aware services such as encryption, multicast, firewall and more for enterprise customers. The result is an IP/MPLS platform that runs all current and future IP services and gives service level agreements [SLAs] for current layer 2 services such as ATM and Frame Relay traffic, and emerging layer 3 services such as Ethernet.

FLAG Telecom is pleased with the enhanced functionality and performance of the M320, as Ryan points out, “It has many more QoS functions in it. The M320 offers a rich set of IP QoS capabilities, based on 8 QoS classes per physical/ logical interface.

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**Ryan Sher**  
Director IP Engineering  
FLAG Telecom



In addition to this best-in-class solution, a key differentiator for Juniper Networks is its JUNOS software. As Ryan explains, “The good thing is there is only one version of JUNOS for everything – that’s nice. It is a big differentiator for them. You don’t have to have twenty different versions or flavours to give different services; they have one operating system, which works.”

JUNOS is a standards-based, modular designed operating system software which includes full routing and MPLS protocol suite, intelligent packet processing for greater security and offers the widest possible range of services for both IPv4 and IPv6.

The fact that there is a single version of JUNOS software to operate across all platforms means that FLAG Telecom can avoid the need to train staff across a range of operating systems. The use of a single software platform also allows for network management to be carried out efficiently by a smaller team. The improved productivity together with the solid reliability and scalability of the Juniper routing platforms represents a major contribution in helping FLAG Telecom to maintain competitiveness.

### Relationship with Juniper

FLAG’s relationship with Juniper is going from strength to strength.

Tim Gigg comments, “I think it’s very much a family relationship with Juniper, with the confidence to debate issues, but with a common goal. If I want something done then I ‘phone the account team and it gets done.”

Ryan supports this view saying “I really value the relationship, being a ‘phone call away and being able to reach the right people. Another thing about Juniper is the quality of technical skills in the organisation - this really stands out. Whoever you speak to is typically an expert, but if they can’t give you an answer, you can reach the person who writes the code, if necessary”.

The relationship between the two companies is further enhanced as Juniper trains FLAG’s engineers. FLAG is very keen that all its NOC and field engineers globally, wherever there is a Juniper platform deployed, have been on the Juniper course. Many of FLAG’s engineers are also working their way up through JNCIA to JNCIS and some even to JNCIE accreditation.

Tim added, “Another advantage of working with Juniper has been the continuity of people. We’ve had the same account manager since I’ve been here over the last three years. We’ve had the same team as well, so the same contacts within the group are strong.”

Ryan also commented, “I think people are happy when they see Juniper in the network as well - it has a good brand in terms of high performance, reliability and quality.”

### The Future

The completion of the IP Edge project has enabled FLAG to implement a future proof, highly scalable solution, offering 99.999% availability that will effectively grow with their service needs as they expand.

Looking to the future Ryan comments, “We’ve got a flexible and consistent architecture across the network so we can roll out our services on top of that much quicker than if we had multiple platforms and vendors.

In a nutshell, the project has given FLAG a scalable core network with high capacity links between all of our core PoPs that we can grow as we need to - we can grow the network ahead of demand.”

“We are developing the Infranet services through partners and also offering our global Ethernet services through our partners – this is end to end Ethernet anywhere in the world. Because of this project, we can now offer VPLS services taking Global Ethernet services to the next level, offering more flexibility and point to multipoint, multipoint to multipoint services.”

FLAG Telecom is 100% owned by Reliance Gateway, a member of the Reliance Group of Companies.



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