

IG Group continues technology innovation with Arista Networks

Highlights

Challenge

IG Group decided to upgrade its legacy three-layer network to a more advanced spine and leaf architecture to improve performance and reliability in support of web scale apps and future innovation around SDN

Solutions

- Arista 7280 Series spine / leaf switches for high performance, low latency and scale
- Arista Software Driven Cloud Networking delivering standard based SDN innovation
- Arista FlexRoute to reduce time taken for reprogramming failed routes to microseconds

Results

- Moved to Layer 3 spine and leaf architecture to improve performance and reliability
- Significant reduction in service disruptions
- Open, standards based architecture for cloud based design
- Significant reduction in complexity of the infrastructure by deploying best practices
- Arista has become an extension of IG's team.

As the global leader in financial spread betting, IG Group has continually harnessed technology to stay ahead of the pack and the transition to a newer networking architecture is part of an ongoing strategy to innovate for the future.





Project Background

IG Group is a global leader in online trading and the trusted partner for more than 195,000 clients. A FTSE 250 company with market capitalisation of over £3.1 billion, the Group has a long history of profitability and financial strength.

IG started in 1974 as the UK's original financial spread betting provider, introducing a completely new, accessible way for people to trade on gold, by defining it as an index. Since then, the Group's innovative, client-focused approach has enabled the business to grow, expand internationally and broaden its product range, and today IG is the world's No.1 CFD (contract for difference) provider as well as maintaining its considerable UK market leadership in financial spread betting.

Challenge

The Group's success has been founded on developing technology that is market leading and empowering for clients. IG was the first company in the sector to launch an online dealing platform, in 1998, and the first to launch a mobile app with live price streaming, in 2003. The company first offered a CFD on bitcoin in 2013. The business invests in developing new tools and features for its client-facing platforms – a continuous process that is directed by detailed research into clients' evolving needs.

In addition to its popular mobile apps, the Group has recently developed and launched a progressive web app (PWA) or mobile web platform. The PWA has been designed to provide clients with an optimised web-based experience when accessing the trading platform from mobile devices. It will also allow the business to release updates quickly and seamlessly, avoiding the delays inherent in traditional app store review processes. For more advanced and institutional clients, the business provides a range of professional technology, including a direct market access (DMA) platform, sophisticated technical analysis tools and web application programming interface (API) solutions.

The deep investment in technology also extends to the networking that underpins most of its day-to-day operations and longer-term strategic vision.

For many years, the IG network had been designed around a traditional three-tier (Three Layer) hierarchical network model, that consists of core routers, aggregation routers, and access switches. However, with rapid growth and increased demand placed on the network in terms of performance and reliability, senior IT leaders at IG Group began a process of upgrading the network to a new leaf and spine architecture.

'When choosing a vendor, our key criteria included the requirement for a standards based, cost effective infrastructure with no vendor lock-in and significantly improved reliability,' explains Darren Miller, Principal Network Engineer.

With a highly skilled internal networking team, IG Group evaluated several options before bringing a shortlist of vendor solutions in-house for lab testing ahead of conducting a small proof of concept.

Miller continues "In the end, Arista was a simple choice for us. Arista have fully supported IG throughout the entire process. It was clear that Arista offered many more benefits in terms of support for open standards, a compelling technology roadmap and an infrastructure that removed complexities.'

'There was also no steep learning curve due to Arista's single operating system across their entire platform of switches. This enabled us to simplify our design and remove many years of technical debt, allowing us to make changes and apply updates within a few minutes instead of the lengthy and complex process needed for our legacy network.'

Solution

With the need to deliver web scale apps plus the potential to benefit from software defined networking technologies, IG deployed the Arista 7280R Series Universal Leaf and IP Storage Networks that are specifically designed for next generation IP storage, Content Delivery, leaf and spine networks and Data Centre Interconnect.

The Arista 7280R Series fixed configuration switches combine dynamic and deep buffering for lossless forwarding with high density, internet scale table sizes and comprehensive L2 and L3 features. With up to 60 wire-speed 100GbE ports, each 7280R is capable of 12Tbps capacity while maintaining latency of under 4us.

To complement these core leaf/spine switches, IG Group deployed the Arista 7150 Series switches offering a 1RU platform and providing a unique combination of performance, advanced features and a balanced set of resources for low latency financial markets, HPC clusters and virtualised data centres.

The solution is part of the Arista Software Driven Cloud Networking (SDCN) that offers scalable MLAG for L2, ECMP for Layer 3 along with standards-based network-wide control, automation and analytics with deep containerisation and virtualisation support.

Although performance is a key metric, reliability is equally important. IG platforms and apps help clients to place almost 8 million transactions a month which translates to an average of over 380,000 transactions per day. Any type of downtime or sluggish performance of the network can have a major impact on company revenues and client satisfaction.

IG runs the Arista FlexRoute Engine, providing support for the full internet routing table, in hardware, with IP forwarding at Layer 3 and with sufficient headroom for future growth in both IPv4 and IPv6 route scale to more than 1 million routes. The innovative FlexRoute Engine with its patented algorithmic approach to building layer 3 forwarding tables on Arista 7280R Universal Spine and Leaf platforms is unique to Arista and a key enabler in calling these platforms routers.

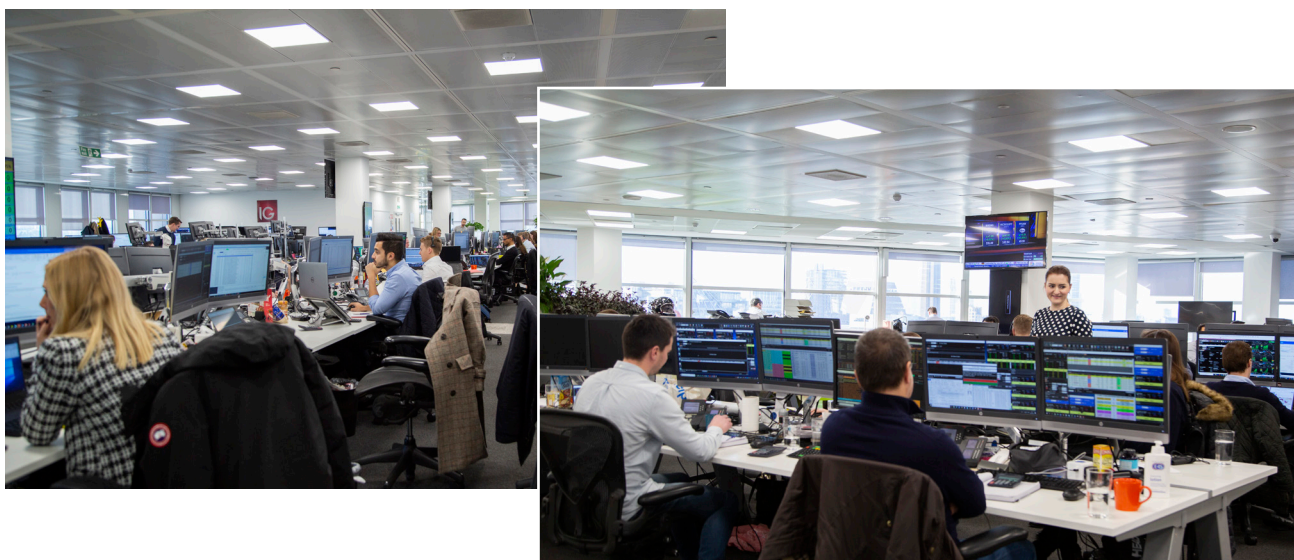
Conclusion

In 2018, IG concluded the initial upgrade of the network at its internal data centres and co-location data centres. However, this is an ongoing process and IG continues to successfully deploy the Arista solution across its entire network infrastructure supporting over 4000 servers within multiple data centres.

"IG is a rapidly moving business using modern software development methodologies, however, the legacy infrastructure was becoming the obstacle. The test of a successful infrastructure is that it should be invisible to everyone. With the legacy architecture this was not the case; there were numerous service disruptions and any changes made were cumbersome. However, since simplifying the design and deploying Arista we have not had one single service disruption. In addition, the IT team now have their weekends back!" said Miller.

IG were particularly impressed with how Arista builds and develops their software operating system. Arista EOS is a robust, programmable and innovative operation system, which features single software image across the entire portfolio.

Other benefits include the ability to use open standards that offer the flexibility to explore more SDN options and adapt its technology path into the future.



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