

Asteroid selects Arista for innovative Internet Exchange Point service that delivers agility, performance and reliability at a breakthrough price point.

Highlights

Challenge

Asteroid wanted to build a new type of Internet Exchange Point (IXP) services that combined better self-service options and automated provisioning while keeping costs down.

Solutions

- Arista 7280R Family Switches
- Arista EOS®

Results

- IXP services that are one of the lowest cost services based on price versus bandwidth
- Faster provisioning capability with extensive self service capabilities
- Flexible service offering scaling from 10Gb to 100GB with seamless port bonding
- Complete turnkey IXP solution developed by Asteroid for datacentres and IXP's operators
- Long term Arista Networks product roadmap fits with expected evolution of the Asteroid service

With a leadership team of highly experienced industry veterans, Asteroid delivers a new type of Internet exchange platform, which through a proprietary set of tools gives control back to customers while reducing costs but without compromising performance and reliability. Through innovative software and Arista Networks extensible operating system, Asteroid has created a breakthrough product for established data centre owners, IXP operators and others to provide lightweight and low cost IXP services.



Project Background

Internet exchange points (IXPs) are a vital part of the physical network through which major Internet service providers (ISPs) and Content Delivery Networks (CDNs) exchange Internet traffic between their networks. As demand for Internet capacity and corresponding bandwidth has grown, IXPs have needed to respond with more flexible services while constantly driving down price.

As Andy Davidson, CTO for Asteroid, an innovator in the IXP space explains, “The wholesale cost of connectivity has dropped around 4000% over the last decade and each year service providers are being pushed by their customers to offer more bandwidth for the same budget.”

Davidson, who also serves as a board member of the European Internet Exchange Association (Euro-IX), and was formerly both a wholesale buyer and seller of connectivity explains that as the market has grown many of the longstanding issues have remained.

Challenge

“Even as the Internet has given us more agile and accelerated modes of working, many of the inherent processes around provisioning and scaling connectivity have been left behind,” he quips, “For example, why does it take weeks to set up a service? Why can’t customers, often with very technical staff, manage self-provisioning and monitoring? Why can changes only be made during business hours? – it was many of these frustrations that led the founders Remco van Mook, Andy Davidson, and Nurani Nimpuno to set up Asteroid with a goal to offer a better way to deliver an IXP offering.”

At the heart of the Asteroid vision was the goal, “to do one thing and do it the way it’s supposed to be done. And do it better than anyone else,” explains Davidson, “That meant going back to the original concepts of truly local interconnection, not getting distracted by metro-wide connectivity, transport, or cloud services.”

To achieve this aim required smarter software, married with more flexible hardware, to deliver service offerings designed to meet key price points that would make Asteroid attractive to customers.

Led by CEO Remco van Mook, Asteroid began developing a new software stack to drive its service delivery goals with one of Europe’s key Internet hubs as an initial target.

Solution

“One of the key goals was to build a system from the ground up that was not dependent on legacy architectures,” explains Davidson, “Through the use of automation and software on our core switches, we could eliminate many of the time consuming and costly steps around provisioning that would allow us to not only reduce cost, but also deliver services with more flexibility and speed.”

Davidson also envisaged a platform where many of the elements could be offered as self-service to customers along with much more detailed telemetry and monitoring.

“We knew that using a closed, traditional switch vendor would have been a challenge and that a merchant silicon-based switch running Linux would offer us much more flexibility,” says Davidson.

Although there were several options on the market, Davidson had previously implemented three large projects with Arista Networks switches that had given him a deep insight into the platform. “We knew that Arista met the port density, performance and price point and that its Extensible Operating System (EOS) would be a good fit for our software elements,” he explains. “But what was just as important was that the roadmap we discussed with senior executives gave us confidence that the next generation of products would provide a good price versus performance delta to allow us to roll out new points of presence in more cost constrained markets.”

Arista was an early decision and as Davidson explained this helped across the development process. “We ran virtualised instances of the switches to speed up the development process,” he explains, “we could also take it on a laptop to show customers – EOS offered a full API which allows us to build a lot of features into our software stack that ultimately reduce the number of people involved and time taken to deliver the service.”



The initial deployment used the Arista 7280R series, which are purpose built around a flexible arrangement of 10/25/40/100GbE ports with up to 12 terabits per second throughput and Ultra-deep packet buffer up to 32GB. All Arista products including the 7280R Series runs the same Arista EOS software binary image simplifying network administration with a single standard across all switches. Arista EOS is a modular switch operating system with a unique state sharing architecture that cleanly separates switch state from protocol processing and application logic.

In September 2017, Asteroid launched its first IXP at the Nikhef Data Centre in the Science Park in Amsterdam, one of the world's most network-dense locations. The IXP allows customers access to a major low latency gateway to the continent reaching 80% of Europe within 50 milliseconds.

"Our IXP service is one of the lowest cost services within this location, and just as importantly we can provision incredibly quickly," says Davidson, "For many of our customers, speed is critical, but they also want access to monitoring and telemetry and if they need to make changes, our self-service tools allow them to carry out tasks such as port provisioning, route server connections, and reverse DNS. That would require delays or additional resources with almost every other IXP."

Conclusion

In terms of performance and reliability, the Arista platform has delivered on both fronts, “and the openness of the platform means that we are not locked in – which is vital for us – the software we have created is portable to another Arista series and this gives us a great deal of long term confidence.”

The success of the initial Amsterdam deployment has led to other data centre providers approaching Asteroid to deliver its methodology and software as a service.

The first of these opportunities is the McAllen Data Center (MDC), a leading colocation provider on the US-Mexico border, which has brought in Asteroid to help it build the first Internet exchange point (IXP) in South Texas. Using the Asteroid lightweight software platform and Arista switches, MDC now offers MEX-IX, an IXP that enables local traffic exchange, improves network performance, reduces latency, and cuts the need for costly transit arrangements. Asteroid continues to work with other partners to enable similar deals on a global scale.

“We have worked well with the team at Arista,” says Davidson, “They have been helpful and honest about where the technology is going and, for us this openness will help us to meet our goal of doing one thing and doing it the way it’s supposed to be done!”

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