

Picturemaxx

Highlights

Challenge

Data replication between sites became problematic on Leonix's old legacy network switches and storage equipment, with unacceptable levels of latency throughput constraints.

Solutions

- Arista 7000 Family Switches
- Arista EOS®
- Coraid EtherDrive

Results

Latency reduced by 65%; improved scalability; increased headroom for planned growth.

About Leonix



Leonix is a French based Telecom operator established in 2004 with the aim of providing a unique premium service by integrating innovative communication control technology alongside dedicated optical fibre connectivity. The company offers highly flexible network and IP telephony solutions with unquestionable reliability.

Since launching in 2004, Leonix has become an early pioneer in the deployment of software based PABX technology and extended features at an enticing price point. This strategy has proven successful with an average of 30% annual growth over the last decade with a customer community covering 1200 successful installations and over 10,000 users.

Project Background

When Leonix launched in 2004, its core philosophy was to offer French businesses a better alternative to running their own on-premises PABX and break the reliance on inflexible telephony service suppliers.

Recognising the criticality of delivering telephony services, the company has always built its platforms with a high degree of resilience. Since launch, it has deployed its racks of servers and switches into highly available co-located data centres and utilised multiple data pathways to ensure continuity of service. To allow Leonix to meet its rapid growth, the telecoms provider also became an early adopter of virtualisation technology. The ability to reduce over provisioning through the rapid deployment of virtualised servers for IP telephony and other applications has helped the firm to remain ultra-competitive. This VM focused strategy also forms a vital part of its disaster recovery position.

With the business growing rapidly, Leonix has also invested in dedicated dark fibre to link its systems located at key data centre sites both within and outside Paris. These links help the telecoms provider route telecoms traffic and also provide dedicated capacity to enact its disaster recovery position.

Leonix synchronously replicates data required for its systems between multiple sites. This strategy ensures that if one site should become unavailable for any reason, the alternate sites can quickly spin up new virtual machines based on the replicated data sets. However, as traffic volumes and numbers of virtual machines have grown; the data replication between sites had proven problematic on its old legacy network switches and storage equipment. This legacy infrastructure had started to exhibit unacceptable levels of latency and was reaching throughput constraints. With Leonix expected annual growth of around 30% into the near future, in mid-2013, the company started approaching a number of solution providers and technology vendors to suggest an alternative network and storage architecture.

As Bruno Veluet, CEO of Leonix explains, "For us, services availability is our number one priority. Our customers rely on us to deliver telephony and application accessibility so any outage can damage their business and our hard earned reputation – so the new solution needed to be absolutely reliable and able to grow in line with our business." Leonix clients include Le Figaro, a highly regarded international media organisation, engineering firm Mitsubishi Electric and contract catering firm Elior to name but a few that require 24/7 telephone and network availability.

Solution

Leonix approached several suppliers including HP, Cisco and Brocade and several local multi-vendor specialist partners. "We looked at a number of potential solutions from a cost, performance, complexity and scalability perspective," explains Veluet, "We needed to ensure that what we bought on both the network and storage side were compatible, provided a path for strong future growth and also offered the type of innovative thinking that Leonix has always embraced."

Veluet also brought in Alyseo, an ICT services provider that stood out due to a core team with over 10 years' experience working within telecommunication environments. As Sébastien Scuiereb, Commercial Director, VP Sales for Alyseo explains, "We looked at the problem in a purely subjective fashion and it was clear with the requirement for lowest latency and high throughput, a solution built around Arista switches would offer a good fit – more so when you look at the progressive nature of Leonix and its rapid growth."

The inclusion of Coraid as the storage solution paired with Arista switches also provided a significant advantage. Coraid's EtherDrive provides low latency, high bandwidth data transfer between hosts and storage, using a thin protocol layer directly on top of Ethernet. In addition, it pools individual systems together into a single platform – a true scale-out solution for unpredictable, chaotic data growth. By eliminating protocol layers, unnecessary processing and utilizing Ethernet congestion avoidance algorithms, Coraid EtherDrive storage enables near-baremetal performance using Arista's ultra-low-latency 10GbE switches that is faster than many Fibre Channel and iSCSI storage arrays.

The solution also offered a significantly lower price point than any another combination prompting Veluet to invite Alyseo to develop the new network connectivity and high availability solution between its two data centres separated by a dedicated 35km dark fibre link. To ensure that the migration would be entirely seamless, Alyseo created a replica of the Leonix data centre environment and optical link within its own labs in Paris. In this simulated environment, Alyseo built, configured and tested the new Arista based network infrastructure and Coraid storage. "We created the virtual machines and application layer and then ran simulated traffic through our design to ensure that latency and throughput met the expected results," says Yacine Kheddache, Technical Director for Alyseo.

Compared to the legacy networking infrastructure, the move to Arista dramatically reduced latency by 65%. In addition, the scalable Arista features (MLAG for example) provided enough headroom to meet projected growth easily over the next 5 years. "We also simulated outages with cable pulls, power failures and traffic anomalies to test the failover and rebuild capability," explains Kheddache. "The solution worked flawlessly over that 12 week test period so in June, we ran two half day sessions to implement the preconfigured switches and storage into racks at the data centres and then spent another week doing VM migration, testing and admin training."

From start to finish, the entire project had taken just 3 months and had delivered a design that would ensure performance, availability and allow Leonix to also expand its range of cloud and application delivery services.

Conclusion

However it was in September of 2013 that the success of the system was really highlighted when a major power outage impacted an entire co-location datacentre used by Leonix. The incident meant total loss of primary and backup power which immediately shut down its servers and all the other co-located tenants. "This is the worst case scenario for us and even though we had architected high availability and dual paths for our racks, a rare incident such as total power failure was exactly why we had invested in the Arista upgrade just 8 months earlier."

Because of the active and continual data synchronisation between sites, the NOC team at Leonix were able to spin up replacement virtual machines at its alternate site allowing the restoration of telephony and application services in a matter of minutes. The data sets were identical to within just a few seconds of operation and in the worse cases telephony disruption lasted just 5 minutes. "In fact, we had zero complaints because unless you were on a call when the power outage took place there was no difference in service when we switched our VM over to the alternate datacentre," says Veluet.

In total, over 50 virtual machines were almost instantly spun up and services for the client resumed as normal. As a precaution, Leonix waited several days after power was restored at its impacted datacentre to begin the rebalancing of its VM workload between sites. "In a way, it's maybe an advantage that we have gone through such as incident as it proves that even as the victim of a complete site failure, we were still able to deliver our service to our clients," says Veluet, "It is also a testament to the solution from Alyseo and technologies from Arista and Coraid that it worked as planned without any surprises."

Looking forward, Leonix is examining how it can further utilise the extended features of the Arista platform such as orchestration and automation of its VM workload. "However, this is more a future idea, but having this possibility within the heart of our network, and the ability to extend the capability of our switching platforms without having to go through another major hardware upgrade sits well with our current business plans and future strategy."

For more information on Arista Networks, please visit www.arista.com.

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