Borealis Reduces Network Complexity and Builds a Future-Proof Infrastructure that Meets All Business Requirements

Summary

Company:
Borealis

Industry:
Chemical

Challenges:
- Reduce operational costs
- Improve security
- Increase service levels to the business
- Implement wireless connectivity with secure guest access

Selection Criteria:
Believing that standardization would help reduce complexity in the network, Borealis needed a scalable solution with a high level of redundancy and security.

Network Solution:
- EX Series Ethernet Switches
- WLC Series Wireless LAN Controllers and WLA Series Wireless LAN Access Points
- SRX Series Services Gateways and MAG6610 Junos Pulse Gateway
- SmartPass and Ringmaster

Results:
- Reduced operational costs through network simplification and standardization
- Provided full wireless connectivity with secure guest access
- Increased technical performance
- Created a future-proof network ready to meet all business requirements

As a leading provider of innovative solutions in the fields of polyolefins, base chemicals, and fertilizers, Borealis aims to proactively benefit society by taking on real societal challenges and offering real solutions. Borealis is committed to the principles of Responsible Care®, an initiative to improve safety performance within the chemical industry, and contribute to solve the world's water and sanitation challenges through product innovations and its CSR program, Water for the World.

Challenge

Borealis originally had a LAN infrastructure, operating from two data centers and providing connectivity across the business to its 6,500 employees across 12 European offices. As a business practice, Borealis benchmarks itself annually against peers and competitors in the industry to ensure that it is as efficient as possible in key business areas. During one benchmark exercise, it became clear that the network, although offering acceptable performance for the time being, was aging and couldn't support the growth the business was anticipating.

The existing network was also complex to run and manage. Total cost of ownership is a key performance indicator for Borealis, and the company saw the cost to support a growing network infrastructure growing. It also wanted to increase its IT service level and improve the time-to-market for delivering new solutions to the business. One of the business requirements was to provide wireless access in meeting rooms, which could be used by both staff and visitors. However, security is paramount, so guest access had to be managed separately from the main network to prevent any security breaches.

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Gert Lemmens, IT Process Owner IT office, Borealis

Selection Criteria

Since the existing network infrastructure was being run fairly cost-effectively but was not sustainable on a long-term base, Borealis used this as its benchmark for the new solution. Standardization was viewed as an effective way to reduce complexity in the network and lower operational costs. Above all, the solution needed to be scalable and provide a high level of redundancy and security.

Once the decision was made to replace the network infrastructure, Ivo Karremans, Borealis' information security officer, went through a detailed selection process. "We started with a feasibility study to determine exactly which technologies would stand the test of time with us, as well as help us reduce complexity and improve our security," says Karremans. "Following this, we had discussions with a number of vendors, including Juniper Networks, who partnered with Belgacom for this project. We liked the fact that Juniper and Belgacom clearly worked together so well. The people we met were very professional and it gave us the confidence we needed."

A proof-of-concept was run with two vendors to determine the technical capability of the proposed infrastructure and also fully understand the migration implications. This was done in an environment similar to the Borealis production environment in order to provide as close to a "real life" experience as possible. Gert Lemmens, IT Process Owner IT office, comments: "We felt the price/performance ratio which Juniper offered was the best value solution for us. We had also been very impressed with the individuals involved in the proof-of-concept, as they were very solution-minded professionals. This made a difference for us, as we felt confident we would work well together."

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Solution

The implementation of the new network took a phased approach, with the core network in the data centers moving over first, followed by a phased replacement of 1,000+ edge devices. A dual-core environment supports connectivity over the MPLS network and facilitates communication between the various locations and data centers. In the previous environment, two separate switches were used to provide communication between the office and industrial network traffic. These have been replaced by Juniper Networks® EX Series Ethernet Switches (the EX4500, EX4200, EX3300, and EX2200 models), where a single switch can provide this dual functionality. Multiple switches are still used, primarily to provide redundancy. "Reducing the number of elements in a network directly translates to reduced complexity and therefore operational savings, which is what we were looking for, as well as reduced capital expenditure," Karremans says.

IPsec VPN over the Internet provides full failover capabilities, while Juniper Networks SRX Series Services Gateways (the SRX650 and SRX240 models) provide the firewall functionality. As Lemmens explains: "All network traffic has to pass through the core, so full security and redundancy is very important."

Wireless connectivity for all of Borealis' meeting rooms in the various locations was included in the project as well. The wireless implementation needed to be separate from the internal network so that guest access could be accommodated without compromising security. Juniper Networks WLC Series Wireless LAN Controllers (WLC2800 and WLC800R models) support about 290 WLA522 Wireless LAN Access Points to provide seamless connectivity. Juniper Networks SmartPass is used to provide dynamic access control over all users and devices on the network, while Juniper Networks Ringmaster is used for network management. In addition, a large community of mobile users is supported through a high-quality and stable SSL VPN implementation, managed through Juniper Networks MAG6610 Junos® Pulse Gateway.

All switching, routing, and security network elements, as well as the wireless implementation, are managed through Juniper Networks Junos operating system. Having a single operating system reduces the time necessary to deploy new services, and it reduces network operational expenses. "Junos OS provides standardization. When we look at scalability and future upgrades, this can all be done in a more cost-effective manner. We are able to operate and manage the entire environment remotely," Karremans says.

Results

Borealis has experienced some technical performance improvements which, although not visible to the users, mean the system runs more smoothly. The network segregation between the office-based and industrial parts of the business has helped to improve security and redundancy, and Karremans feels the infrastructure is far more robust and able to cope with future business requirements. "This project was very much about risk avoidance," Karremans says. "Having an unsustainable, difficult-to-manage environment put us at risk of network downtime which could potentially cost millions. Our business-critical systems have to be available at all times, and we feel this infrastructure gives us this, and more."

Commenting on the user impact of the network redesign, Lemmens says: "With an IT-driven project like this, the ultimate measure of success is the number of complaints we receive from our end users. I'm really pleased to say that we didn't receive a single complaint throughout the entire migration process. There was no unannounced downtime, and clear communication was used to update users so that they knew exactly when equipment would be replaced. The one visible element of the migration has been the introduction of wireless access. This has been greatly appreciated, especially the secure guest access provision."

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Next Steps and Lessons Learned

Borealis intends to enhance security further with the introduction of port security. The company is also reviewing its server storage and backup strategy. With the improved network infrastructure, the LAN is now ready to be leveraged for backup services.

Mobility and mobile devices are also on the team's radar, as is the opportunity to use the network for VoIP and video conferencing. These services are much used within Borealis and are currently outsourced, providing another cost reduction opportunity.

As Karremans concludes: "We feel our network infrastructure can fully support the plans we have going forward. We regularly have strategic, architectural discussions with both Juniper Networks and Belgacom and feel the relationship we've built will take us far into the future."

For More Information

To find out more about Juniper Networks products and solutions, please visit www.juniper.net.

About Juniper Networks

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