

Inter.link selects Arista Networks for pan-European 400G connectivity to deliver industry leading energy efficiency and sustainability.

Highlights

Challenge

To build out the most energy efficient 400G network, Inter.link deployed a solution from Arista using an innovative design offering enhanced performance, reliability and scale while massively reducing energy consumption.

Solution

- Arista 7280R3 Series spine and leaf switches for high performance, low latency, and scale
- Arista EOS® software and API for seamless integration with automated provisioning portal
- Flexible device solutions offering 12 to 96 ports in 25/50/100/400G configurations

Results

- Industry leading with lowest energy consumption per gigabit design
- Helped achieve carbon neutrality in its first year
- 55% reduction in energy related OPEX costs
- Proven path to pan-European and international expansion

An innovator in network connectivity, Inter.link envisioned a new network architecture that aligned with its sustainability ethos without sacrificing on performance. To meet these goals, Inter.link selected Arista to successfully deliver a modern network architecture with state-of-the art technologies and seamless interoperability into its advanced automated provisioning platform. The new architecture achieved a staggering 55% reduction in energy related OPEX within the first year.



Company Background

Co-founded by Marc Korthaus and Theo Voss in 2021, Inter.link offers a Global 100G/400G network with exceptional connectivity to carriers, content providers, and internet exchanges. Korthaus and Voss had previously worked together to design and build an advanced fiber network in Berlin for a local connectivity service provider. The pair developed a friendship and shared a vision for a different type of service provider that balanced performance alongside a deep commitment to ecological sustainability.

The company has a bold mission statement: "Disrupting the network industry by providing better, sustainable, and automated connectivity to the Internet" with the commitment of being CO2 neutral. With hundreds of peer points, Inter.link aims to offer minimal latency and outperform larger Tier 1 and Tier 2 providers.

Challenge

With financial backing, the co-founders purchased the ISP network they had originally built and used it as the foundation for the creation of Inter.link with the goal of international expansion. "Lots of providers talk about becoming carbon neutral but we don't see much movement," explains Voss, "The problem is that these networks are not built from the ground up to be sustainable, so we decided from day one to put this at the heart of our strategy and company philosophy."

The newly designed network would use an efficient and scalable architecture with up to 400G connectivity within its core and from day one, it needed to deliver both high density with the lowest energy utilization. "Our goal was to become carbon neutral within 2 years which meant that our choice of networking supplier was of critical importance," says Voss.

There were also significant commercial benefits in designing its architecture to reduce energy consumption and space utilization within its data centers. Soon after Inter.link's infrastructure expansion in 2021, energy prices in Europe rose by 40% during 2022 because of the conflict in Ukraine - a major issue considering energy is the second largest OPEX cost for its highly automated network.

SUSTAINABILITY

B CORPORATION

At Inter.link, we are committed to being a leader in environmental sustainability. One way we demonstrate this commitment is by being a **B Corporation** certified company.

We are proud to announce that we achieved B Corp certification in June 2023 and became one of the first companies in our industry to achieve this distinction.

This certification, provided by global nonprofit organization B Lab, recognizes companies that have a minimum score of 80 on an assessment of social and environmental performance.

[Learn more about what B Corp certification means to us](#)





Solution

In late 2021, Inter.link issued an RFP and shortlisted the responses to just three vendors. “It was the usual trio of suppliers and spec sheets,” explains Voss, “But we really wanted to put the switches through some serious tests around performance, energy, scale-up and other factors such as heat profiles.” This began a 3-month design and test process using switches from all three vendors that resulted in a 130-page report that looked at every aspect of the proposed implementations. “An important value for us was the power usage per gigabit of capacity,” says Voss, “We also needed to understand how this would change as we scaled capacity at each PoP site to allow us to build a viable financial model to match against our growth plans.”

Another key consideration was ensuring interoperability with its in-house built orchestration platform that allows a high degree of automation and self-service provisioning to both reduce its operational costs and speed up time-to-service activation for its customers. “We looked at everything,” explains Voss, “Arista delivered performance that matched or exceeded the other vendors, but where it really shined was in the gigabit per watt category and also in the flexibility of deployment.”

The new architecture uses Arista 7280R3 Series devices that provide a combination of dynamic and deep buffers, high performance and full internet scale routing in high density and flexible fixed and modular configuration.

Available in a range of chassis from 12 to 96 ports across a mix of 25/50/100/400G combinations, the 7280R3 is designed for internet peering in lossless, two-tier designs, equally suited to the Universal spine or data center edge. In addition, all Arista products run the same Arista EOS® software and binary image simplifying network administration with a single standard across all switches.

Using the Arista 7280R3 platform, Voss estimated it would theoretically deliver a 45%-50% OPEX improvement over the other tested switches. With Arista chosen as its networking supplier, the Inter.link team worked closely with Arista engineers to deploy its solution to over a dozen PoPs including new sites in Frankfurt, Amsterdam, and Paris.

In parallel, Inter.link built its own self-service and automated provisioning engine that connects directly into the Arista network through Arista’s EOS API (eAPI) interface to allow applications and scripts complete programmatic control over EOS with a stable and easy-to-use syntax. Arista ensures that a command’s structured output will remain compatible with multiple future versions of EOS – a position that allows Inter.link to confidently develop critical automation platforms without compromising its ability to upgrade to newer EOS releases and benefit from additional features. This includes retrieving structured JSON data from Arista switches that has helped Inter.link to easily incorporate all nodes running EOS into network automation workflows, monitoring, and data center infrastructure management tools.

Conclusion

Inter.link is now serving commercial customers from 19 PoPs across 10 countries and is continuing its roll-out with new PoPs expected to open in Budapest, Asia, and the U.S. in 2024. Its auto provisioning portal is also up and running, and Voss estimates that the average time it takes for a customer to set up an on-net connection is under five minutes. "Our plan is to grow to around 100 PoPs over the next couple of years including our first in the US and Asia," he says.

With the Arista network now operational, Inter.link has also had a chance to evaluate if the theoretical energy savings and cost benefits were delivered in the real world. "Arista has actually exceeded our expectations," he says, "We essentially halved our CAPEX as well as OPEX costs compared to one of the alternative vendors we compared against. We have also decreased energy usage by around 55% and as a business, we have managed to become carbon neutral this year."

Many of these benefits stem from Inter.link transitioning away from a 100G to a 400G core that increases the bandwidth per RU from 3.2-3.6T to 12.8-14.4T / RU. The 400G core has also allowed Inter.link to reduce the number of optical fiber links, connectors, and patch panels by a factor of 4 when compared to 100G platforms for the same aggregate bandwidth.

With energy costs in Europe at record levels, the Inter.link commitment to sustainability and energy efficiency could not have come at a better time for the growing business. "The journey is not yet over," says Voss, "As we grow, we need to always focus on sustainability and we believe that as carbon taxes start to become a necessity for industries of all types, we are in the best place to not only serve our customers but also do our part to help the planet".



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