LepidaSpA enhances major Italian public administration network service with Arista Networks

Highlights

Challenge
A not-for profit, government sponsored ICT service provider needed to cost effectively expand its network capacity to meet growing demand.

Solutions
- Arista 7280 Series spine / leaf switches for high performance, low latency and scale
- Arista software driven cloud networking delivering standards based innovation including automated service provisioning

Results
- Increase in throughput while reducing latency
- Ability to easily scale to 100 Gbe links as demand grows
- Enabled new data transport service for ISP customers

Serving over 437 public entities across the Emilia-Romagna region of Northern Italy, LepidaSpA needed to expand its network capacity to meet growing demand and selected Arista Networks as the optimum platform offering performance and low latency with simple provisioning at scale.

Project Background

Established by a Regional Law in late 2004, LepidaSpA is responsible for the planning, development and management of ICT infrastructures and services for the Public Administrations within the Emilia-Romagna region of Northern Italy. Over the years LepidaSpA, has developed solutions for the enhancement of existing infrastructures, especially aimed at the reduction of Digital Divide for citizens and enterprises. For this activity LepidaSpA has signed agreements with Local Telecom Operators to whom it provides broadband or transportation at an affordable cost; to enable these operators to grow and provide increasingly efficient private services. LepidaSpA currently has 437 public administrations and public entities shareholders.

Challenge

The Lepida Network has undergone major upgrades over the years and now includes 64.000 Km of optic fibre, 2.700 Km of wired infrastructures and more than 2900 points of access to form a next-generation network with 2 Gbps guaranteed connectivity in the optical fibre points. The Lepida network is connected via a high capacity backbone to MIX Milan, AmsIX Amsterdam, DECIX in Frankfurt, LINX in London, FRANCEIX in Paris, LUCIX in Luxemburg, VSIX in Padoa, TOPIX in Turin and SIX in the USA.

Lepida utilises a core MPLS backbone connecting each regional customer, and border routers that connect 'outside' its network to these major European Internet Exchanges and 2 small Neutral Access Point, NAP, within the region (BOIX and FEIX). The network uses a switching Distributed NAP infrastructure to manage its own peering/traffic needs along with the needs of other small regional ISPs.

As the largest regional ISP, LepidaSpA manages the delivery of internet traffic for hospitals, schools, universities, municipality and other public buildings in Emilia Romagna Region. Over the last decade, internet traffic has grown considerably and was starting to reach the limits of its capacity. In 2018, LepidaSpA began a project to re-engineering its "outside" infrastructure in order to meet demands for more bandwidth and ports along with a reduction in latency plus improved reliability.
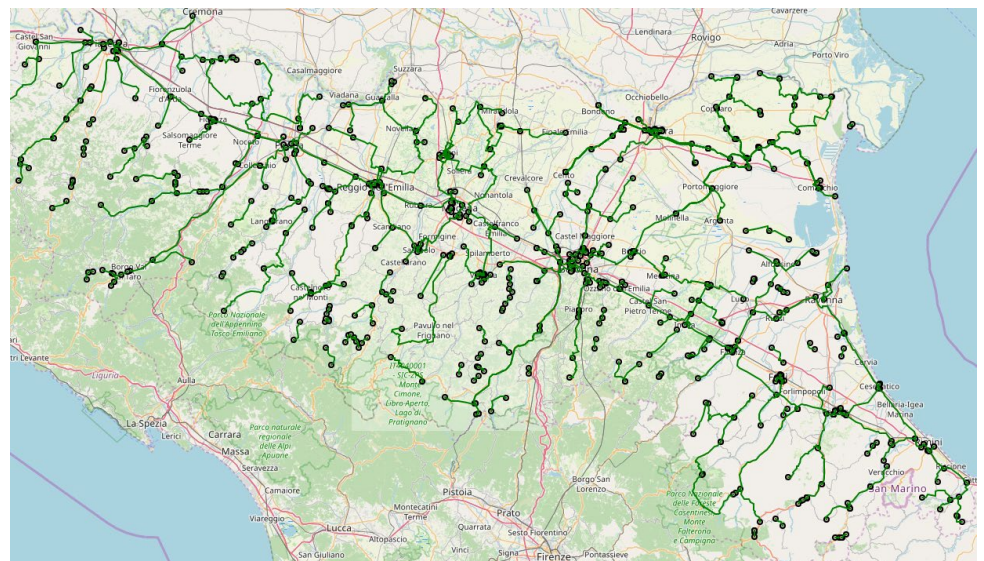
Solution

Following a detailed tendering process, LepidaSpA selected Arista Networks based on the combination of high port density and proven low latency capability that made it suitable for carrier grade internet traffic. Lepida selected 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.

"Arista offered the best combination of performance and feature for our needs while proving extremely reliable during our testing phase," explains Stefano Bonino, Head of Network Operations for LepidaSpA.

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.

Conclusion

"In order to have the maximum scalability we selected to use a L3 mesh backbone between switch and transport traffic using VXLAN encapsulation," explains Andrea Odorizzi, Head of Network Design, "This particular configuration offers the required flexibility and simple provisioning operation in order to provide effective network transport, for Lepida itself and our wholesale customer, between different Internet Exchange Meeting Points."

Arista 7280R were initially deployed in LepidaSpA IX locations at Bologna and Ferrara with a project to deploy more switches during 2020 at additional sites including VSIX, MIX, NAMEX and AMSIX.

"The use of Arista has proven a good choice for LepidaSpA," explains Stefano Bonino, Network Operations Manager, "We have the possibility to move to low cost 100Gbe uplinks and the switches have reduced packet loss, with low latency while maintaining a great deal of scalability. With the new upgraded infrastructure, we can now offer to our customer additional transport services while simplifying the provisioning process allows us to easily add new links and sites to our Distributed NAP to meet growing demand."
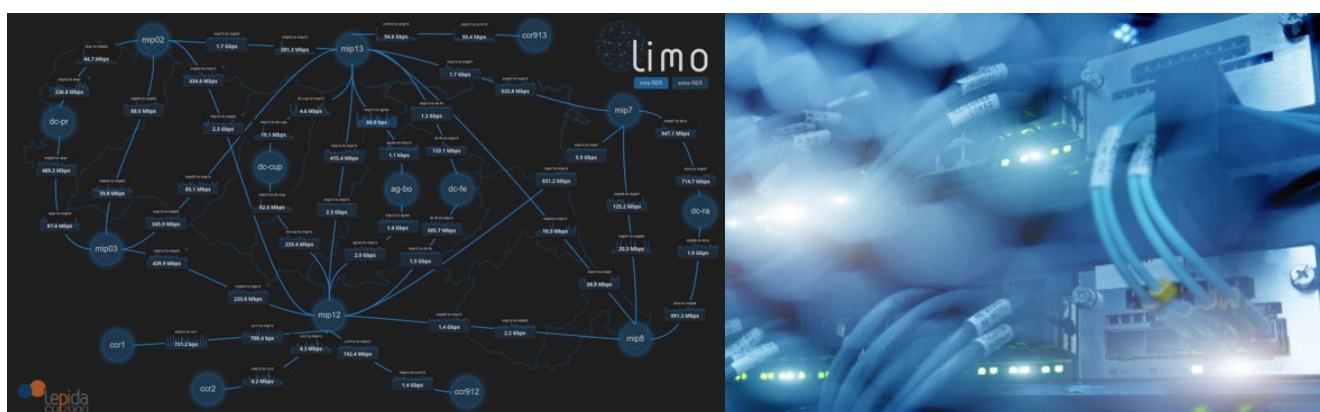
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