WINDTRE

Italy's mobile fixed provider scales up with a distributed services architecture

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Double-digit traffic growth demands a future-proof network architecture

Consumers' mobile lifestyles, digitalization of business, and the acquisition of a standalone 5G provider are driving dramatic demand for mobile and internet services at WINDTRE. One of Italy's top service providers, WINDTRE offers 5G mobile services to more than 97% of its subscribers.

To scale efficiently, WINDTRE took an innovative approach to network design. WINDTRE is migrating to a distributed services architecture for its IP network edge, followed by an IP backbone refresh, to deliver greater capacity, resiliency, and a lower total cost of ownership.

Overview

Challenge

"We wanted to evolve our fixed and mobile networks for the next five to 10 years," said Giulio Signorelli, Head of Fixed, Transmission, and IP Engineering at WINDTRE.

WINDTRE's network capacity was strained as mobile traffic in Italy has grown an average of 28% per year for the last four years. WINDTRE needed to address capacity and performance challenges to support more subscribers, devices, and traffic while meeting its TCO and sustainability goals.

Transformation

"Moving to a distributed services architecture with Juniper will allow us to expand capacity to meet our subscribers' needs," said Signorelli.

WINDTRE is transforming its network with Juniper. It is adopting a distributed services architecture for its edge network, followed by an upgrade of its core, internet gateways, and network termination points. The resulting high performance Juniper network will be primed for scalable growth, multiservice agility, and security with a clear pathway to 400GbE.

Outcomes

Market success	5G leadership	Scalable growth
23.7M	**97%**	**28%**
Mobile subscribers as of September 2024	Of WINDTRE subscribers covered by 5G	Average growth rate for mobile traffic in Italy over the last four years

Solution and implementation

Juniper PTX10008 Router

Juniper PTX10004 Router

Juniper MX10004 Router

Juniper MX960 Router

Juniper MX2020 Router

Juniper SRX4600 Firewall

"We see **no limits to our capacity to grow** our network and our business."

Danilo Lanzoni
IP Engineering Manager,
WINDTRE

Distributed services enable network agility and simplify operations

Juniper's distributed services Edge architecture is enabling WINDTRE to scale mobile, internet, and other digital services more efficiently and with greater reliability. In this approach, each POP is based on spine node aggregating different leaf service nodes dedicated to different functions (BNG, CGNAT, DGW).

WINDTRE uses Juniper's PTX10008 as a spine gateway POP node to allow an easy scale of the whole POP architecture thanks to the platform's ability to deliver high capacity and unyielding throughput performance.

Juniper's flexible MX960 and MX10004 platforms are used as broadband network gateway (BNG) leaf nodes, allowing the future evolution toward a disaggregated approach with a separated control plane running as cloud-native application and user plane component that continues to run on Junos OS on a dedicated hardware platform (BNG CUPS model). With upgrades of existing MX960 routers with new line cards to support higher traffic volumes and security requirements, WINDTRE investment in Juniper solutions and operational expertise are preserved. MX10004 routers are instead deployed in new edge locations and where the WINDTRE needs to increase the capacity per subscribers.

Juniper MX2020, MX10004 routers, and ACX7024 routers are used for the data center gateways and PoP aggregation.

The SRX4600 platform is used to perform Carrier Grade Network Address Translation (CGNAT) to preserve WINDTRE's IPv4 addresses and efficiently support the growth of subscribers and devices.

Finally, in mid-2025, WINDTRE plans to upgrade the core network to 100GbE/400GbE with Juniper PTX10008 to accommodate traffic growth from the edge.

Sirti Digital Solutions, a leader in digital and sustainable transformations, is leading the design, deployment, configuration, and maintenance of the WINDTRE network using Juniper routing, switching, and firewalls in the edge and core networks.

Key takeaways and outcomes

> "Supporting WINDTRE is a point of pride for us at Sirti Digital Solutions, and we are pleased that our synergy with Juniper Networks has led to this achievement. We believe in **forming successful partnerships with leading market players**, enabling us to deliver cutting-edge digital services."
>
> **Massimiliano De Carolis**
> CEO, Sirti Digital Solutions

A network that pushes boundaries

With Juniper and Sirti Digital, WINDTRE can meet double-digit traffic growth today and be adaptable with a future-ready network that is high performance, has scalable capacity, and is operationally efficient.

"We don't know what will happen in the future, but we feel ready for it with Juniper," said Signorelli.

Greater scalability and redundancy

With a distributed services architecture, WINDTRE has a scalable pool of resources to accommodate dynamic growth and be resilient in the event of unforeseen disasters. "We have more redundancy and reliability than ever before," said Danilo Lanzoni, IP Engineering Manager at WINDTRE.

A lower expected TCO

Juniper solutions deliver the scalability, power efficiency, and a path to 400GbE that WINDTRE needed. "We can achieve our TCO goals with Juniper," said Lanzoni.

Ready for continued growth

PTX and MX routers provide an easy path to 400GbE and the flexibility to support core and edge use cases. Juniper routers bring scalability and support multiple services that can add to WINDTRE's current diverse offerings.

More information

Learn more about Juniper's cloud-grade, future-ready platforms

To learn more about Juniper 5G network solutions, visit
https://www.juniper.net/us/en/solutions/5g-networking.html

For technical information on Juniper's BNG CUPS architecture, visit
https://www.juniper.net/documentation/us/en/software/bng-cups/release-notes/juniper-bng-cups-release-notes-24-2/juniper-bng-cups-release-notes-24-2.pdf

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