anuta networks

Infusing Speed in Italy's ultra-broadband community network expansion with ATOM

GARR, the Italian national computer network for universities and research, was looking for a better, faster way to meet their rapid growth requirements following the 'shift to digital' classroom mode post-pandemic. Their main objective was to provide high-performance connectivity and to develop innovative services for more than 2 million users– researchers, professors, students, and collaborators.
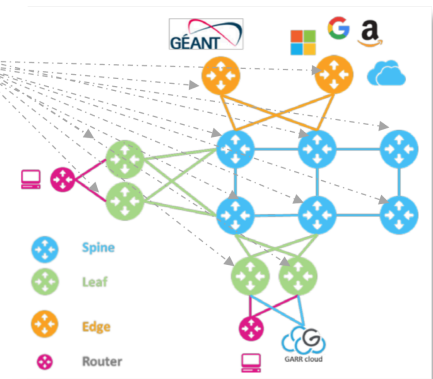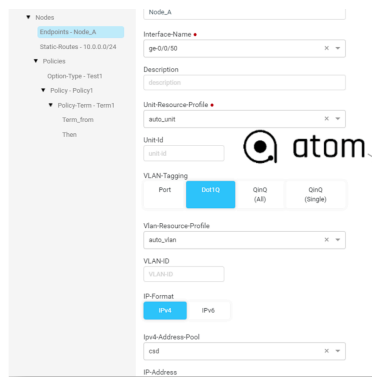
Service Orchestration with pre-and-post checks

Customer Profile

Company

Consortium GARR

Industry

Research (EMEA)

Avg network traffic in 2020

460 petabytes

Network backbone

3.1 Tbps

Fiber optics coverage

17,500 kilometers

Products used

PTX10004, PTX10008, PTX10016, PTX10001-36MR, MX10003, MX480, Juniper and Corero Joint DDoS Protection Solution

Technology Requirements

- L3 VPN and EVPN/MPLS provisioning with pre-checks, post-checks and validation across MX and PTX

- ZTP, Software Upgrade, Compliance, Inventory Management

Key challenges:

GARR with a rapidly growing consortium covering 17,500 kilometers and more than 1,000 locations throughout the country needed a reliable network architecture to meet the expansive pace as–

- Their network infrastructure with the leading-edge telecommunication recently connected numerous new sites, including universities, research centers, and medical institutions. This large-scale expansion called for an equally paced and vigorous network scaling.
- They faced multiple errors in their service provisioning, as the service validation in their conventional method required lots of manual intervention and time to determine if the service was provisioned correctly or not.
- Automating validation checks was their priority to reduce errors and outages in their vast network

The ATOM Solution

It was clear that automation was indispensable to meeting the GARR objective. Given the scale and speed requirements of the deployment, it was beyond the scope of the conventional approach of manually configuring and managing network devices using CLI. The company favored the Anuta ATOM due to its full integration, flexibility, and speed of delivery and deployment that it enables. Anuta ATOM, as part of the Paragon Portfolio, automated the MX and PTX routers from a simple GUI to continually deliver critical network services, including L3VPN, EVPN, etc.

Their 400-Gbps spine of the IP Clos fabric was comprised of Juniper PTX10001 and PTX10004 Packet Transport Routers. For the leaf and edge nodes to support data centers and the peering edge, they used Juniper MX10003, MX480, and MX204 Universal Routing Platforms. ATOM automatically generated the NETCONF payload to all these spine, leaf, and core routers once the operator entered the parameters for EVPN in the self-service portal.

ATOM fulfilled the requisite of greenfield deployment with multiple flavours of service models including validation of pre and post checks for their CLOS topology network. Furnishing the detailed device, platform, and regional level statistics in addition to the routing protocol and interface statistics. Moreover, allowing the operators to view & download comprehensive and detailed reports on performance, inventory, and operational and network compliance status.

Poised for acceleration– Going the distance with agility and flexibility

Due to the indirect impact of pandemic the traffic volumes spiked 60% in 2020 as students switched to video streaming mode for lectures, requiring huge bandwidth to support the cloud-based applications. ATOM helped manage the spike with accelerated greenfield deployments with the same staff by quickly onboarding all devices using Zero Touch Provisioning. By minimizing integration touchpoints, it reduced the provisioning errors significantly by automating MX software upgrades and compliance management.

GARR required high bandwidth availability for all its growth plans which ATOM proactively realized with on-demand scaling using containerized microservices architecture to deliver both scale and performance. It also reduced downtime by consolidating multiple dashboards into a single pane of glass to accelerate troubleshooting. By optimizing the time of skilled network operators, ATOM kept up with GARR's operational efficiency and allowed their lean ICT team to provision and manage their network with ease.