Case Study

CoSPs
Network architects

Tier 1 Operator Deploys FRINX Machine* for Network Automation

Leading European communications service provider (CoSP) uses FRINX Machine to roll out a new business network with greater security and reliability; solution reduces business service activation time significantly.

FRINX

At a Glance

- One of FRINX' customers is a leading European telecom network operator
- Company has 5 million mobile, 4 million TV, 3 million fixed broadband internet and 2 million fixed telephony subscriptions[1]
- The operator's new service uses FRINX Machine to implement new service delivery or changes within minutes instead of hours

Businesses must react quickly to capture new opportunities; they are not content to wait weeks or months for new business voice and data services – or updates to these services. However, service deployment is a complex process, spanning multiple systems with separate management systems deployed across multiple domains, which can lead to roll out delays for updates or new services.

Until now, most communications service providers (CoSPs) manage this process manually requiring a dedicated effort to navigate complex and different configuration and orchestration software.

But many CoSPs are starting to realize the manual process may be a limiting factor to their enterprise revenue growth. According to consulting firm Deloitte's "The Age of Telecom Network Automation" white paper[2], "most CoSPs are overwhelmed by legacy infrastructure and proprietary hardware systems, severely restricting their ability to extract value from the deployment of new software applications, and ultimately slowing down innovation."

One example of the manual process is setting up new 5G services. CoSPs are facing a tremendous opportunity – estimated at $5.7 billion in 2024 by IDC[3] - to deploy private 5G services, but these services require a range of new technologies, including edge computing, and features such as quality of service, service level agreements, and network slicing. The new technologies and features expand the complexity of network deployments in addition to the work required to connect 5G radio access network (RAN) equipment at a base station which requires onsite personnel who have to manually complete the connectivity – a potentially error-prone task.

While CoSPs have the expertise to be market leaders in private 5G, they are being challenged by specialist firms to own this market. They need an advantage over these nimble competitors, and automated processes can help to avoid long deployment times that have the potential to open the door to the competition for private 5G networks.

Major FRINX Client Launches New Enterprise Service

A leading European CoSP chose FRINX Machine to automate the deployment of its new service that offers fixed, mobile and integrated communication and entertainment services to consumers and businesses. The new service enables customers that are moving or expanding to get their networks operational as quickly as possible. Customers can use a self-service system that puts them in charge of what services they order for the company or for their remote workers.

The CoSP could not use its manual service activation processes and meet its service level agreements (SLA), but with FRINX Machine, the service activation is done in just a few minutes. The operator customer is working with FRINX on automating the following network services:

1. Lifecycle and migration of business services
2. Cable modem termination system (CMTS) and remote PHY automation
3. Business CPE provisioning with zero touch provisioning of business services
4. Dynamic CMTS licensing
5. Transport network automatic provisioning (new install & capacity increases)
6. Automated network security audits

FRINX, a subsidiary of Elisa Polystar*, is an Intel® Network Builders ecosystem member and has been recognized as an Intel Network Builders Winners' Circle Gold member. The company's FRINX Machine, which runs on Intel architecture-based CPUs, helped the CoSP launch its new B2B services rapidly.

How the Operator Used FRINX Machine

The FRINX Machine is software that enables large scale automation of network devices, services and retrieval of operational state data from a network. The software allows CoSPs to decrease the time required to activate new business services from hours to minutes and to provide in-depth and real-time information about the systems and services that are deployed in a network.

CoSPs use FRINX Machine to provision and maintain services like network slices and VPNs, and to automate lifecycle operations on all services throughout the network. The software also provides access to network data to make operational decisions. By designing workflows, network managers can automate network processes. Tasks can be added or modified at runtime either programmatically or via APIs. FRINX Machine utilizes the power of machine learning (ML) to execute workflows allowing it to automate services for very large scale CoSP networks.

FRINX Machine is a cloud native (using Docker) software platform comprised of an event automation engine, a network controller and a resource manager that work together to automate the discovery and configuration of network services and devices. FRINX has built its solutions using open source libraries giving it access to a massive library of device drivers. The company has up streamed[4] a significant number of network device models for use with software such as OpenConfig. The network elements that make up the FRINX Machine are:

FRINX workflow manager is a workflow and event automation engine that utilizes open-source software components and creates and operates workflows that implement configuration changes. The software also gathers operational data from all deployed networks and clouds regardless of vendor. With workflow manager, CoSPs can create automated digital processes to allow deployment, expansion and operation of communications networks.

FRINX UniConfig is a state-less network controller that provides both management of configuration state and retrieval of operational states of all connected physical and virtual devices. FRINX UniConfig supports YANG models to accomplish both of these tasks. In addition, UniConfig can create workflows to test process automation configuration. UniConfig has a built-in data store that can be run in memory or with an external database.

FRINX UniResource is a resource manager for allocating network consumables like IP addresses, route distinguishers, VLANs and more. FRINX UniResource provides a graphical user interface (GUI) and a GraphQL-based API to create, read, update and delete assets.

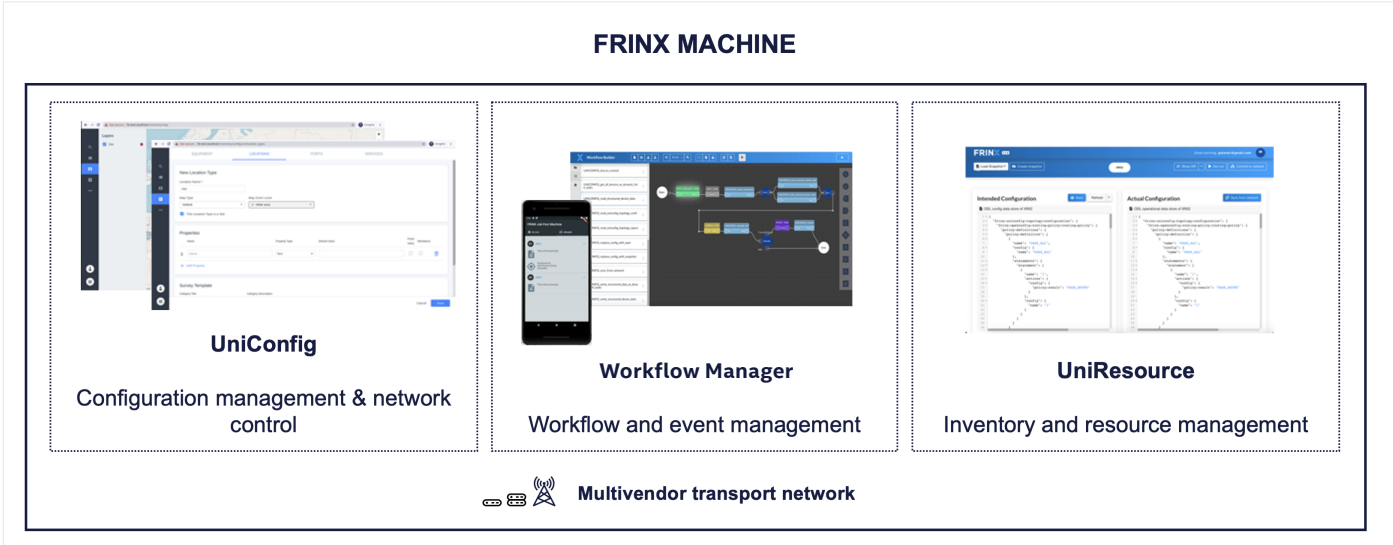

Figure 1. FRINX Machine has three main software components; UniResource, workflow manager and UniConfig.

Combined, these network functions make the FRINX Machine flexible enough to work in other use cases including device license management, security validation, cable access and passive optical networking (PON).

FRINX Machine provides workflow orchestration capabilities that allow users to combine multiple tasks into a workflow. FRINX Machine ships with a library of service workflows and device drivers that enable the control of heterogeneous networks. FRINX Machine leverages open source data stores like REDIS and Elasticsearch for persistence.

FRINX Client's New Service Uses workflow manager and UniConfig

The CoSP's service uses the FRINX workflow manager automation tool and FRINX UniConfig network controller for end-to-end zero touch provisioning (ZTP) service enablement across its network made up of systems from a wide range of vendors.

Customers using the service can add new locations to their secure corporate networks via a self-service portal with fully customizable services including internet and SIP trunk-based voice and home worker log-in facilities, all controlled via a central management environment. The service's flexible contracts allow companies to adapt to scale without being tied to licenses.

FRINX Machine Uses Intel for Performance

FRINX utilizes Intel® Xeon® Scalable "N SKU" processors for performance, especially for the UniConfig controller which needs rapid input/output (I/O) performance for communicating with network devices.

Intel Xeon Scalable processors feature a balanced architecture, optimized for many workload types and performance levels, all with the consistent, open, Intel architecture that delivers powerful performance from the edge the cloud. Intel Xeon Scalable "N SKU" devices support diverse network environments. These devices are available in a wide range of cores, frequencies, features, and power. With up to 36 cores, these CPUs offer low latency and higher base frequency for greater throughput for virtualized network functions and lower power for dense or constrained physical deployments.

When deployed at the edge, FRINX utilized the Intel® Smart Edge Open software toolkit for building edge platforms. The company was able to speed up development of edge solutions that host network functions with reference solutions optimized for common use cases powered by a Certified Kubernetes* cloud native stack.

Conclusion

To develop the unique network activation capabilities in its innovative new service, a FRINX CoSP client chose to automate its otherwise manual service deployment processes using FRINX Machine. Doing so, helps make the CoSP a leader in the trend toward using automation to manage service deployment of advanced services across complex, multi-domain and multi-vendor network infrastructures. FRINX Machine helps the CoSP to manage this process using open source elements and three software functions – workflow manager, UniConfig and UniResource – that can be used independently or combined for a complete solution. The system relies on performance from Intel Xeon Scalable processors and can be deployed at the network edge using Intel Smart Edge Open software.

CoSP network automation is growing and the FRINX Machine offers the functionality and Intel-based performance to deliver a solution to small or large networks.

Learn More

FRINX Homepage

Intel® Xeon® Scalable Processors

Intel® Network Builders

Notices & Disclaimers

[1] as of 12/31/2020

[2] https://www2.deloitte.com/content/dam/Deloitte/pt/Documents/technology-media-telecommunications/PoV_Network%20Automation.pdf

[3] https://www.idc.com/getdoc.jsp?containerId=prUS47318621

[4] https://github.com/FRINXio/cli-units

Intel technologies may require enabled hardware, software or service activation.
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Your costs and results may vary.

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