Case Study: Streamlining Device Management for a Leading European Retailer

Automating CPE Operations Across Multiple Countries with Cloud ACS

Introduction

When a retailer grows beyond national borders, its IT infrastructure often grows in complexity, too. What begins as a simple local network becomes a patchwork of different systems, access rules, and security requirements – all of which need to stay synchronized and always online.

That was the challenge facing one of Europe's leading retail chains. With thousands of stores across multiple countries, each with its own operational structure and IT team, managing a large network of **FRITZ!Box routers** had become increasingly difficult.

The company needed a way to standardize configuration, automate firmware updates, enforce consistent security, and regain visibility – all without disrupting daily operations.

That's when they turned to AVSystem's Cloud ACS – a cloud-native platform designed for distributed enterprises. Cloud ACS offers seamless compatibility with FRITZ!Box routers, making it an ideal fit for their uniform device fleet.

Challenge

Managing a vast, multi-country network of FRITZ!Box routers required a unified, scalable, centrally controlled solution – one that could deliver strong security while still accommodating local operational needs.

Each country required its own access policies and subdomains, and the lack of central automation created multiple challenges:

- ☑ Ensuring secure access for each region's IT team
- ☑ Monitoring FRITZ!Box devices across all markets

- ☑ Performing mass firmware upgrades without manual work
- ☑ Quickly responding to connectivity issues with unified visibility

Manual processes were time-consuming, error-prone, and made standardization nearly impossible.
It became clear the organization needed a centralized management platform – one solution to automate everything while still giving each region appropriate access and control.

Solution

AVSystem's Cloud ACS provided exactly that: a carrier-grade, SaaS-based Auto Configuration Server built for large-scale, distributed deployments.

Supporting both **TR-069 (CWMP)** and **TR-369 (USP)**, Cloud ACS delivered a unified environment for provisioning, monitoring, and troubleshooting – with full interoperability for the retailer's FRITZ!Box routers.

Cloud ACS enabled the retailer to achieve:

- ☑ Centralized management for all routers through a single cloud platform
- ☑ Country-specific access control through dedicated subdomains
- ☑ Automated firmware upgrades for secure, consistent operations
- ☑ Continuous device monitoring for faster issue resolution
- ☑ REST API integration for seamless communication with internal tools

This created a secure, scalable foundation that unified device operations across borders while keeping local teams empowered.
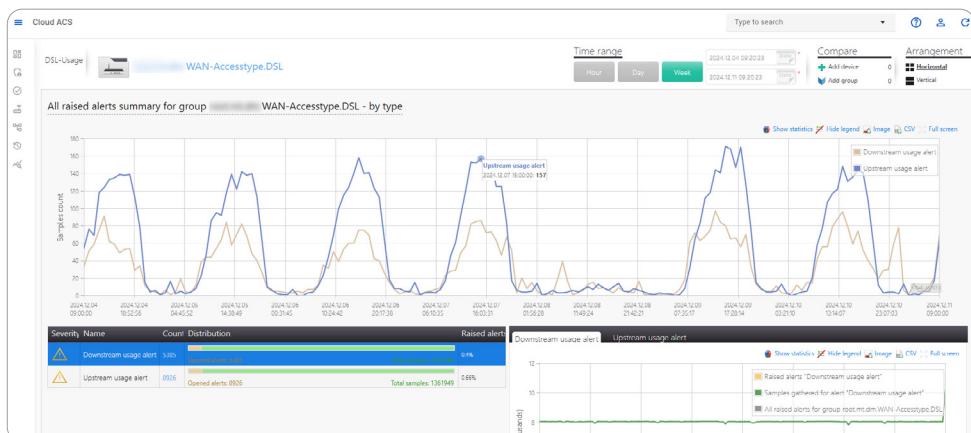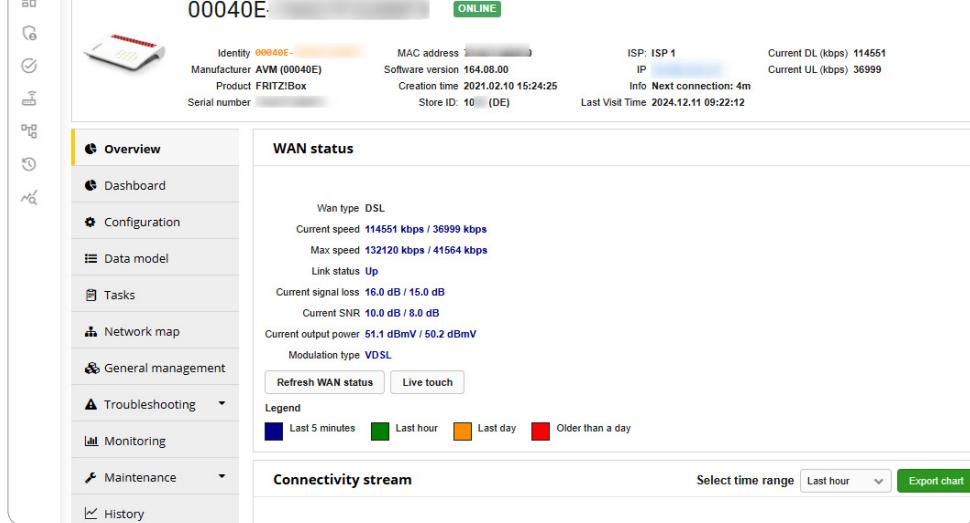
Cloud ACS

00040E- ░░░░░░░░░░ `ONLINE`

Identity **00040E-** ░░░░	MAC address ░░░░░░░	ISP: **ISP 1**	Current DL (kbps) **114551**
Manufacturer **AVM (00040E)**	Software version **164.08.00**	IP ░░░░░░░	Current UL (kbps) **36999**
Product **FRITZ!Box**	Creation time **2021.02.10 15:24:25**	Info **Next connection: 4m**	
Serial number ░░░░░	Store ID: **10** ░ **(DE)**	Last Visit Time **2024.12.11 09:22:12**	

- 🌐 **Overview**
- 🌐 Dashboard
- ⚙ Configuration
- ☰ Data model
- 🗐 Tasks
- ⛏ Network map
- 🦾 General management
- ⚠ Troubleshooting ▾
- 📊 Monitoring
- 🔧 Maintenance ▾
- 📈 History

WAN status

Wan type	**DSL**
Current speed	**114551 kbps / 36999 kbps**
Max speed	**132120 kbps / 41564 kbps**
Link status	**Up**
Current signal loss	**16.0 dB / 15.0 dB**
Current SNR	**10.0 dB / 8.0 dB**
Current output power	**51.1 dBmV / 50.2 dBmV**
Modulation type	**VDSL**

Refresh WAN status **Live touch**

Legend

🟦 Last 5 minutes 🟩 Last hour 🟧 Last day 🟥 Older than a day

Connectivity stream

Select time range | Last hour ▾ | **Export chart**

Implementation

The rollout was completed in a matter of months through a streamlined, low-risk process:

- ☑ **Integration:** All FRITZ!Box routers were connected to Cloud ACS and organized into country-specific domains for controlled access.

- ☑ **Customization:** Security settings and operational policies were adapted to reflect the retailer's internal governance.

- ☑ **Deployment:** Centralized monitoring, mass firmware management, and alerting were activated across every market.

Because Cloud ACS is cloud-based, no additional hardware, installation, or on-site interventions were required. The deployment was performed entirely remotely – ensuring fast adoption and zero disruption to store operations.

Results

Greater efficiency

Routine administrative work – configuration, firmware upgrades, diagnostics – became fully automated.

Lower costs

Centralized operations eliminated manual effort and minimized maintenance overhead.

Improved uptime

Continuous monitoring helped detect and resolve connectivity issues before they impacted store performance.

Scalability

The platform smoothly supported thousands of devices and expanded effortlessly as new stores opened.

Enhanced security

Subdomain-based access ensured each region operated within a secure, isolated environment.

Uniformity across regions

Standardized templates ensured every device, everywhere, followed the same policies, reducing misconfigurations.

Importance

In modern retail, network reliability is critical. Every checkout terminal, kiosk, warehouse system, and in-store Wi-Fi point depends on a stable and secure connectivity layer.

But as networks scale, manual device management becomes a bottleneck – creating inconsistencies, security gaps, and unnecessary operational costs.

Cloud-based automation solves this problem.

Cloud ACS gives retailers:

- ☑ Full lifecycle management for routers and access points
- ☑ Visibility into connectivity and device performance
- ☑ Secure, multi-tenant access for distributed teams
- ☑ Proven compatibility with **FRITZ!Box routers**, ensuring plug-and-play operations

For retail IT directors, Cloud ACS becomes a strategic enabler – ensuring consistency, security, and scalability without additional infrastructure.

Conclusion

By moving to Cloud ACS, this European retailer transformed its network operations. Managing thousands of FRITZ!Box routers across multiple countries became centralized, automated, and effortless.

With automation, scalability, and deep operational visibility, Cloud ACS ensures secure and consistent performance – from the data center to every store shelf.

On-premises ACS

A platform to fulfill the most diverse needs of:

- Data governance
- Security
- Deployment strategy
- Business process integration & network automation

Infrastructure

- Solution delivered on customized network & hardware architecture, designed per customer requirements (including: bare metal, VMs, private or public cloud)

Cloud ACS

Flexible SaaS to accelerate your growth:

- Ready to use from day 1
- Pay as you grow, start with a single CPE
- No need for any hardware investment
- Free regular system upgrades, with the latest roadmap features

Infrastructure

- Public cloud hosted in Google Cloud Platform
- Site-to-site VPN
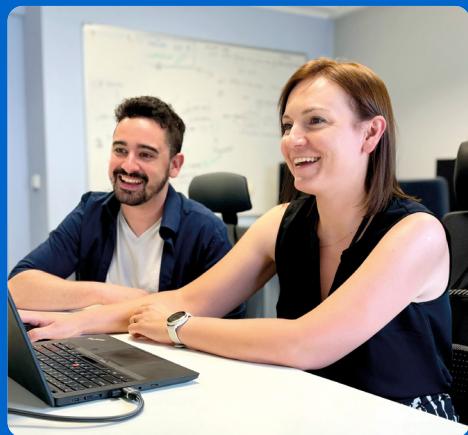
AVSystem

Broadband services management and assurance on truly open standards.

AVSystem was founded in 2006 with a focus on providing automation solutions for connected device ecosystems. The CSP product portfolio covers end-to-end broadband services management, from service activation, through assurance, to in-home WiFi experience monitoring. With clients ranging from local internet service providers to multinational telco operators, utilizing all access technologies and multiple vendors, we know how much openness matters. Our goal is to create flexible and dynamic technology based on truly open standards: TR-069, TR-369, and LwM2M, accessible to everyone.

Learn more about CSP product portfolio

avsystem.com