AVSYSTEM

CSP

Customer Experience Management Platform

In-Home Experience and Access-Layer Visibility in One Platform, on Truly Open Standards

The Challenge

For communication service providers (CSPs), broadband quality now drives support costs and churn, not just technical metrics. In recent household research, **68%** of subscribers reported Wi-Fi problems in the past year, **51%** would switch providers if issues aren't resolved quickly, and **77%** expect their operator to prove coverage works in every room*.

Yet when connectivity degrades, subscribers rarely know where the problem starts. Each vague "my internet is slow" complaint becomes a support call that relies on guesswork if agents lack visibility into both the home network and the access layer. Technicians are frequently dispatched for issues that could have been solved remotely.

The baseline of avoidable interventions is roughly **~$410k/10,000-subscribers** in annual cost exposure before factoring in any hardware replacements.

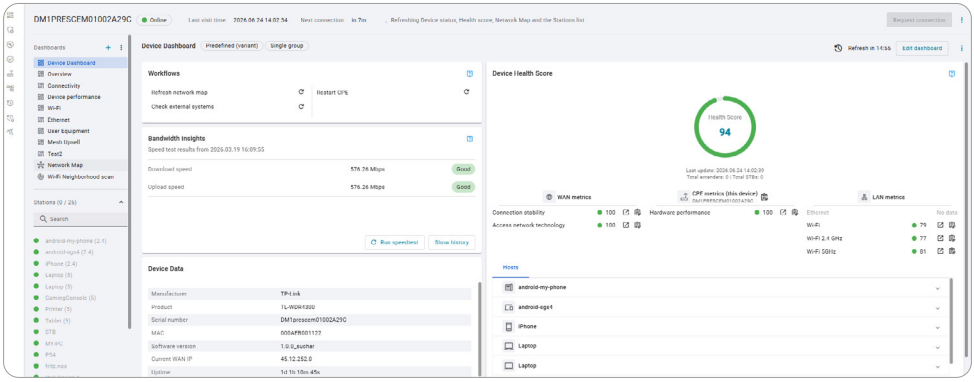
Most tools see only one side of the experience: in-home Wi-Fi solutions miss access-layer faults, and access-layer monitoring misses what happens inside the home. Proprietary, agent-based approaches add integration complexity and lock operators into a single hardware ecosystem, resulting in partial visibility, slower diagnosis, and weaker operational control.

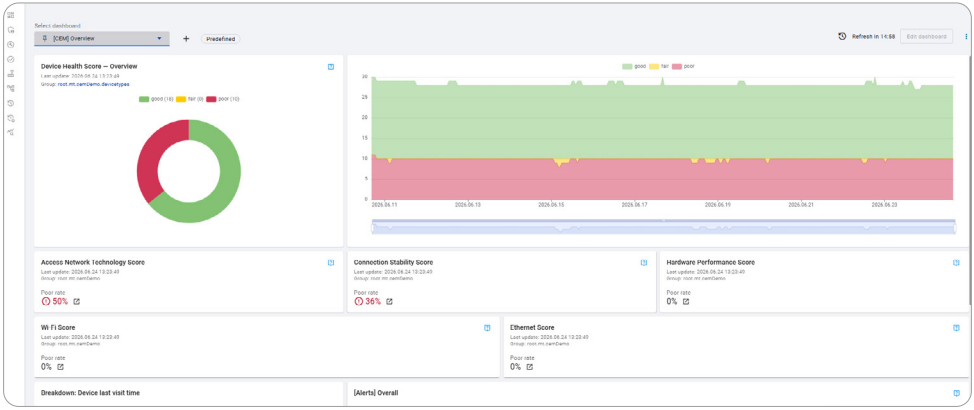
* Source: Ookla Speedtest Pulse (ookla.com/speedtest-pulse)

Platform Overview

AVSystem's Customer Experience Management (CEM) Platform is an operator-facing intelligence and workflow layer for broadband customer care and network operations. It turns fragmented CPE health, Wi-Fi, and access-layer telemetry into actionable insight for first-line agents, second-line/NOC teams, and management by combining in-home experience and access-layer visibility in a single view.

Sitting on top of device management, CEM runs as a continuous operational loop: measure, analyze, recommend, and act. It visualizes device and network conditions, identifies root causes, and turns them into concrete next steps. Key features include health scoring, guided troubleshooting, network-map diagnostics, manager dashboards, intervention analytics, and mesh-upsell targeting. Data & insights may be fed into existing ticketing systems and subscriber apps, through: REST, Kafka integration ensuring insights reach agents inside the tools they already use.





One Platform, Three Perspectives

First-line agents

Faster diagnosis and structured resolution: A device health score summarizes the CPE's condition in one clear indicator, with subscores pinpointing the exact problem area. A mesh-aware network map, recommendation-driven troubleshooting, and historical context replace guesswork with a repeatable path from complaint to fix.

Managers and second-line teams

Fleet-wide insight and root-cause analysis: System-wide dashboards surface installation-wide issues. Teams can compare groups, firmware versions, and subscriber populations, track intervention trends, and highlight mesh-upsell candidates.

Subscribers

Visibility and self-service: Through CEM's end-customer API, operators can extend their own subscriber apps with technical insight. This includes device and connection status, a view of connected equipment, basic access control, and Wi-Fi settings (such as SSID/password changes or suggested channel switches), allowing simple issues to be resolved without a call. Richer, app-native self-care is delivered by the companion Wi-Fi Experience Mobile App.

Core Capabilities

Single-device intelligence:
The agent's starting point. A health score condenses the device condition into one indicator, and subscores isolate where the problem lies (Wi-Fi, access, stability, hardware, or Ethernet). Historical KPI visibility distinguishes one-off glitches from recurring patterns, and recommendations are tied to observed conditions rather than generic scripts.

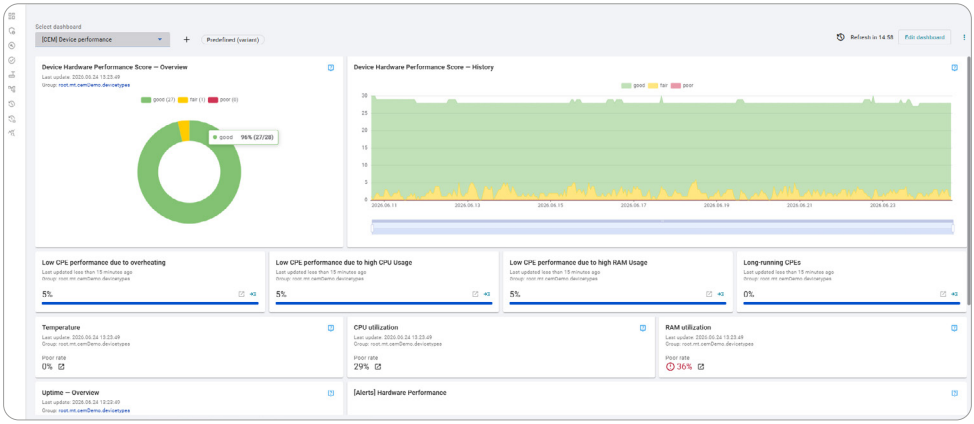
Network map and topology:
A mesh-aware map makes the home network understandable at a glance. It displays main access points, extenders, and connected devices, complete with per-link signal quality and station device-type recognition. This helps agents explain issues in plain language and spot dead zones.

Guided troubleshooting:
CEM turns a vague complaint into a next best action: identify the issue, understand the root cause, and take the right step to resolve it—often remotely. Step-by-step workflows cover common scenarios like devices crowding a congested 2.4 GHz channel, poor signal with high noise, or an overloaded, unsecured network.

Wi-Fi optimization and proactive improvement:
Includes on-demand and periodic channel selection with guided channel changes, plus monitoring of how well devices balance across bands and mesh nodes. Separately, coverage-gap identification pinpoints dead zones, providing the basis for targeted, data-backed mesh upsells.

Manager dashboards, reports, and analytics:
Group performance dashboards reveal broader network patterns. Alerts combine severity, impact, and anomaly data. Teams can drill down from issue clusters to affected devices and compare subgroups to expose weak firmware, model-specific behavior, or regional patterns. Exportable reports support operational reviews.

Open APIs for integration:
A REST API feeds CEM scores and recommendations into existing ticketing systems and operator applications. This backend integration API is distinct from the subscriber-facing mobile app.



Differentiators

In-home and access-layer visibility in one view

CEM brings CPE health, Wi-Fi performance, and access-layer KPIs together in a single interface. Coverage spans FTTx, FWA, HFC, and xDSL, subject to the data each network and CPE exposes.

Open standards, no proprietary CPE agent

CEM operates over TR-069, TR-369/USP, and Bulk Data using the TR-181 and TR-098 data models, with no vendor agent installed on the device. This avoids the device-side software and certificate management that agent-based Wi-Fi platforms require.

Integration with existing tooling

CEM exposes health scores, root-cause analysis, and recommendations through a REST API so output can feed directly into an operator's existing ticketing systems and subscriber apps.

Data-based cost reduction and upsell

The telemetry that shortens diagnostics and reduces truck rolls also identifies coverage gaps, supporting both a lower cost-to-serve and targeted upgrade offers.

From guided intelligence to predictive automation

Today, CEM applies guided intelligence (health-score classification, proactive issue detection). Moving forward, this strategic direction extends toward predictive automation: ML-based health scoring, intervention prediction, a next-best-action engine with churn-risk scoring, and natural-language troubleshooting via AI/LLM integrations.

Agentic-AI ready

CEM exposes performance and experience data through extensive MCP (Model Context Protocol) interfaces, making it ready today for third-party agentic LLM integration. This enables Level 4 autonomous operations, where AI agents diagnose and resolve common CPE issues in natural language with minimal human intervention.

Subscriber Self-Care: Wi-Fi Experience Mobile App

A companion white-label mobile app that brings CEM-powered insight directly to subscribers under the operator's own brand. Key use cases include:

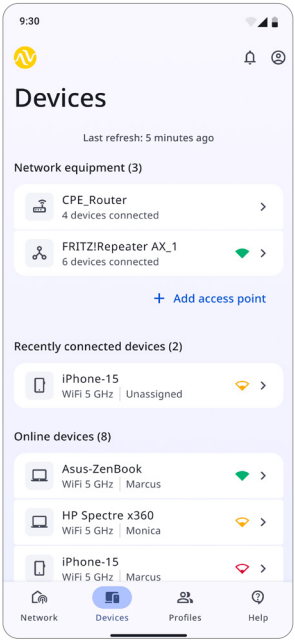
Network mastery:
A clear picture of home-network performance.

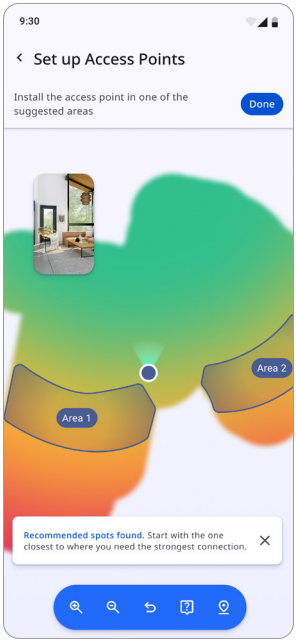
Control:
Manage connected devices, parental controls, and security policies.

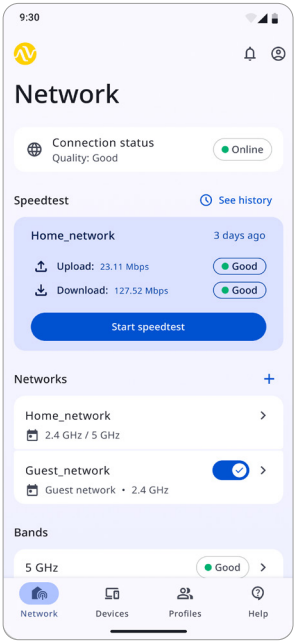
Instant diagnostics:
Real-time checks on service quality.

Guided and premium value:
Step-by-step self-service fixes plus personalized mesh-upgrade recommendations.

The app extends the self-service story beyond API integration, giving operators a branded channel for diagnostics, subscriber engagement, and premium upsells.

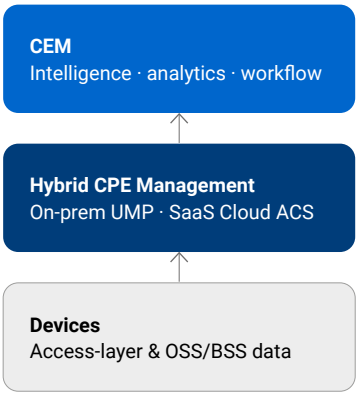






Platform Fit and Deployment

CEM runs on AVSystem's Hybrid CPE Management foundation—the layer that communicates with and collects data from devices. It is available as an on-premises UMP or as a SaaS-based Cloud ACS. On this basis, CEM adds its intelligence, analytics, and workflow layer to visualize and orchestrate data. Both deployment models suit heterogeneous, multi-vendor environments.



Business Benefits

CEM shifts customer care from a pure cost center into a growth tool. By resolving underperforming services faster and more consistently, operators can increase first-contact resolution, reduce the frequency of technical interventions, and lower Wi-Fi-related churn without proprietary hardware lock-in. Simultaneously, coverage-gap and quality data surface genuine mesh-upsell opportunities, turning support interactions into credible upgrade conversations.

Expected improvement baseline:

Up to **83%** fewer truck rolls	**~17%** reduction in Wi-Fi-related churn	**~7%** mesh-upsell conversion across the base	**~$410k** in annual cost exposure per 10,000 subscribers

About AVSystem

AVSystem is a global leader in telecommunications software, trusted by over 130 operators in 60+ countries to securely manage more than 50 million connected devices. We equip broadband providers with an end-to-end operations and assurance portfolio, covering zero-touch service activation, carrier-grade IP address management, multi-vendor device lifecycle governance, network service assurance, and subscriber-facing Wi-Fi experience management. Whether serving Tier-1 telcos or agile regional ISPs, AVSystem delivers the automation and open-standards technology required to scale modern broadband networks.

Learn more about CSP product portfolio

avsystem.com