

ServAssure[®] NXT - Alarm Central

Proactive Discovery and Resolution of Impairments in Cable Access Networks



PRODUCT OVERVIEW

Ensuring the quality, reliability and performance of the cable access network is vital for Service Providers to deliver consumer satisfaction, differentiate their services and to realize the benefits from investments in network upgrades. There are several factors that affect a customer's experience positively or negatively. One of the critical areas is how Service Providers efficiently manage their network operations. To manage efficiently means to be proactive and prioritize the right set of network problems that enable technicians in fixing customer problems before they negatively impact experience or to restore services quickly, both leading to a better experience.

Cable Operators deploy their services to customers over a Hybrid Fiber Coaxial (HFC) plant. The HFC network spans millions of miles of cable deployed over actives and passives to the customer's home and is a complex environment that is further affected by environmental changes like temperature, etc. Hence, for Cable Operators to manage their operations efficiently, actions must go beyond just collecting data from the network and instead include proactively providing technicians with actionable insights. For example by including the root cause(s) to major network issues, the focus shifts from analyzing the data to fixing the problem immediately.

ARRIS's decades of experience working with Cable Operators coupled with our extensive RF expertise has led to the development of ServAssure NXT - Alarm Central for automating the identification and prioritization of existing and potential service impairments using patented algorithms. Alarm Central provides a proactive and repeatable process that enables plant maintenance and outage teams to more accurately perform their jobs, so service is more predictable and the business is more successful in delivering a superior customer experience. Through advanced correlation and analytics, Alarm Central allows Operators to focus on what is most important by creating an environment where impairments are discovered and resolved proactively. To accomplish this, ServAssure NXT - Alarm Central has three modules: Proactive Manager, Outage Manager, Intelligent Spectrum Analyzer and PreEQ.

Alarm Central - Proactive Manager allows Operators to proactively detect service impairments and trends – allowing resolution before an outage occurs. Complex patented correlation analysis is performed on telemetry from subscriber devices: DOCSIS® pre-equalization data is heavily leveraged as a key performance indicator (KPI) and the analytics engine uses other KPIs (CER, SNR, FEC, Spectral Response, Channel Frequency), along with proven radio frequency (RF) troubleshooting techniques, to locate the source of the impairment.

Alarm Central - Outage Manager uses DOCSIS device status and HFC network topology to correlate service outages in the HFC plant. The goal of this module is to detect service outages in almost real-time, identify the root cause and location of the outage, and automatically notify plant maintenance teams to resolve the outage. Rules exist to allow filtering small outages, lightly penetrated regions, issues that do not persist, correlation to various parts of the cable plant topology, and special situations around multiple dwelling units/ buildings.

Alarm Central - Intelligent Spectrum Analyzer provides Cable Operators an easy way to inspect signal performance and better prepare for a DOCSIS 3.1 launch without rolling a truck. A simple click on the device starts a session, using the cable modem (depending on modem specifications) as a test point. Full visibility up to 1.8 GHz spectrum allows Operators to find intermittent noise at a subscriber home, isolate impairments to a specific node bus leg, or quickly detect problems including Roll-off/ tilt, LTE interference, and adjacency. Advanced features, including Peak Hold, Spectrum-zoom, and the ability to view multiple cable modems simultaneously, give Operators a high-value interface that saves Operators time and money.

PreEQ - As cable networks evolve, and many diverse services such as telephony, data, video, business and advanced services (e.g., tele-medicine, remote education, home monitoring) are carried over them, the demand for maintaining a high level of reliability for services increases. To achieve such high reliability, operators have to fix problems before they have any impact on services. PreEQ is a ServAssure NXT Proactive Maintenance module designed to help technicians determine HFC plant issues within greater accuracy based on data derived from the pre-equalization information available on each modem and channel combination on a fiber node. This data is designed to show where pairs of defects exist in an HFC network that cause reflections and echoes in the upstream direction. By examining the adjustments the Cable Modem Termination System (CMTS) sends to the modems to correct these defect pairs, a technician can infer where the defects exist and the distance between them.

ADDITIONAL FEATURES

Near Real-Time Outage Detection (less than 5 minutes to detect) allows Operators to provide a superior customer experience by not only informing customers about outages before they call, but in several cases significantly reducing the time to restore services.

The ability to **Filter Proactive and Outage Alarms** based on the area of responsibility held by the technician allows the Operator to further achieve efficiencies by prioritizing on the alarms with the highest severity.

Modulation Switching indicators enable Operators to better understand and troubleshoot major quality/ capacity swings in their network.

Further Automation in Ingesting Topology so that bad data in one file does not compromise the existing data in the system. If the threshold for successful ingest is not met, the file is not ingested.

Enhanced Usability with icons indicating acknowledgement of Alarms with comments as well as several enhancements to the **Timeline and Graphs**.

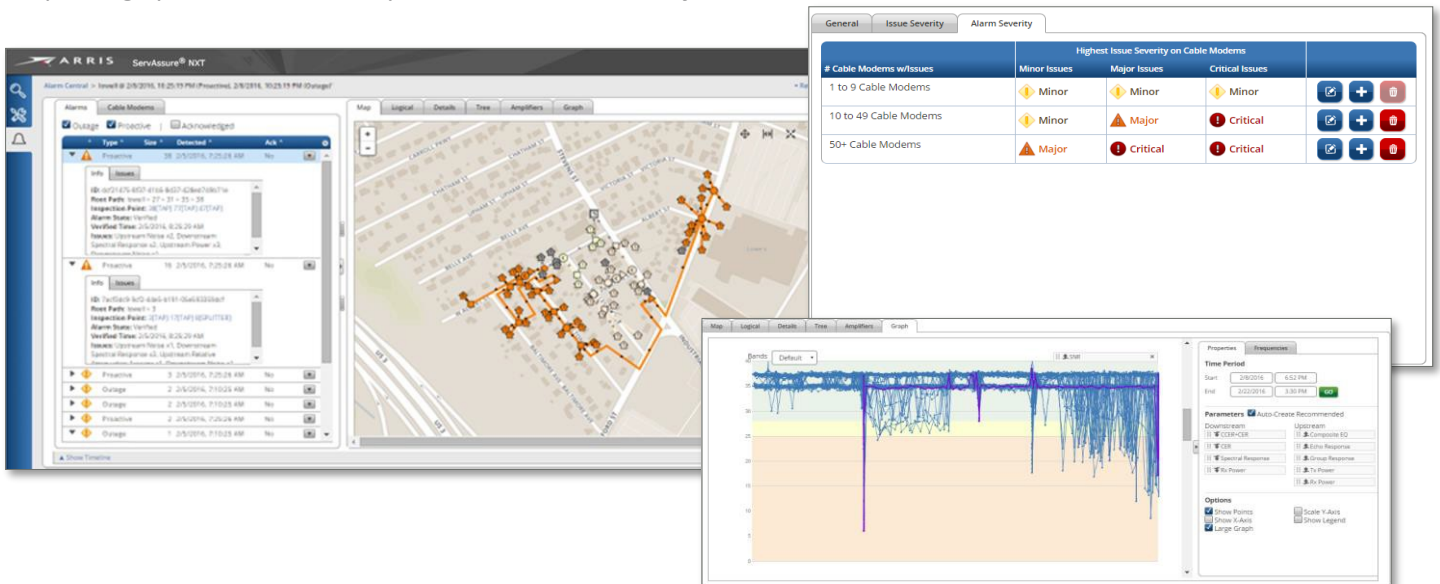
BUSINESS VALUE SUMMARY

- Improved customer experience
 - Fewer call center calls based on proactive maintenance
 - Higher service take rate due to high performing HFC plant
- Reduce number of plant maintenance truck rolls
 - by correlating related symptoms to common source of impairment
- Reduce number of residential truck rolls
 - trouble calls identified as part of a plant issue
- Reduce trouble calls and increase subscriber Quality of Experience (QoE)
 - by finding/ resolving issues before service is affected
- Reduce MTTR (Mean-Time-To-Restore)
 - through reduction of time spent locating and fixing plant issues



FEATURES AT A GLANCE

- **Near real-time outage detection** Fix customer outages before they call
- **Automated alarm verification** to eliminate false positives and improve operational efficiency
- **Real-time problem verification** to avoid repeat truck rolls
- Proactively addresses amplifier issues affecting multiple customers
- Improved alarm propagation including **above the fiber node** for accurate root cause detection
- Improve OPEX with better **isolation** of plant vs. in-home issues
- Alarm Central can be integrated with 3rd party tools to create an **automated end-to-end ecosystem**
- Improving operational efficiency with **enhanced usability**



CUSTOMER CARE

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