



ServAssure™

Advanced



ServAssure™ Advanced is a suite of applications specifically designed to provide operators with comprehensive analysis, reporting, monitoring, and management for DOCSIS networks. ServAssure Advanced offers complete data-collection compatibility with multiple vendors and transforms raw data into meaningful information to help operators take control of cable's last mile. In addition, operators can proactively find, assess and manage HSD and VoIP quality.

ServAssure™ Advanced Overview

Integrated network control and analysis

ServAssure Advanced features integrated network control and analysis applications that enable broadband service providers to manage and control CableLabs® DOCSIS® services, bandwidth, and devices on broadband networks while speeding deployment of new IP services. With patent-pending "finger-printing" and normalization technology, ServAssure Advanced offers complete data collection capability with multiple vendors and support for multiple DOCSIS standards. With virtually no up front hardware costs, ServAssure Advanced is also available as a hosted service for smaller to mid-size MSO's interested in the network and DOCSIS® device monitoring platform.

Access Service Assure—monitors DOCSIS networks, reports on faults and performance, and uniquely provides expert recommendations regarding preventative maintenance actions.

X-Ray Service Analyzer—isolates and resolves customer issues by providing real-time and historical data about DOCSIS customer premise equipment (CPE), supporting interfaces, and CMTS.

Bandwidth Usage Reporter—accurately identifies DOCSIS CPEs and reports and analyzes broadband consumption.

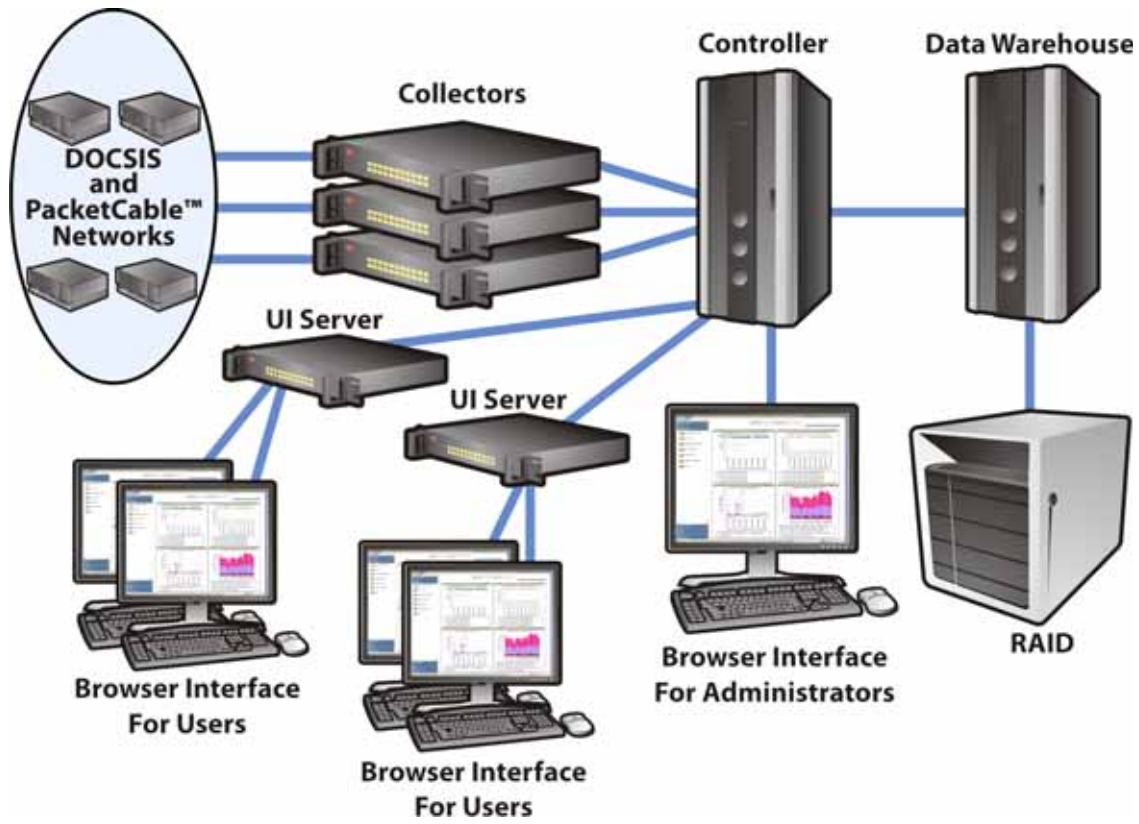
VoiceAssure™—complete VoIP service lifecycle management solution, from initial network analysis and optimization to on-going fault and performance management and capacity planning.

Topology Light—provides advanced insight into the unique experience of your customers.

Network Optimizer—improves network capacity and performance via continual expert network analysis, significantly reducing capital and operational costs.

ServAssure Advanced Platform Options—include a variety of platform options designed to complement the DOCSIS® and PacketCable™ Networks control and analysis features of the integrated product suite.

ServAssure Advanced HouseCheck Connector—provides an open interface to enable third-party systems like a CSR application or workforce management system to request a health-check of all devices in a subscriber's home and create birth certificates for the equipment. Only devices currently monitored by a ServAssure Advanced module can be included in the house check (Cable modems, media terminal adaptors and Scientific Atlanta DAVIC based set-top converters).



ServAssure Advanced Platform Architecture

Access Service Assure

DOCSIS network monitoring and preventative maintenance

Visibility, Analysis, and Preventive Maintenance Recommendations

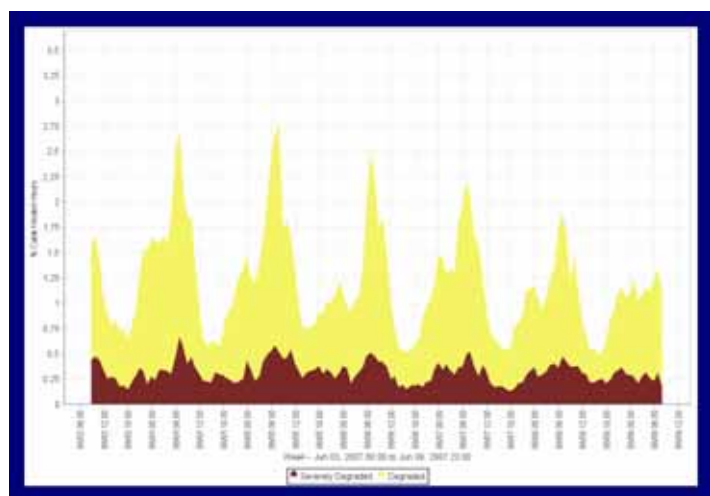
Access Service Assure (ASA) provides MSOs with the first software solution for monitoring broadband cable networks down to the device level. ASA monitors millions of devices to ensure maximum performance and availability. Combining comprehensive network data collection and correlation capabilities, ASA isolates and prioritizes problems before providing quick and efficient recommendations to resolve the issues. Traffic and connectivity data gathered are used to create a unique measure of subscriber experience represented on a single screen via network health summaries.

Benefits

- Provides complete view of network health based on proven analysis
- Detects degraded performance, outages, and other network problems
- Identifies most severe issues that impact subscribers
- Offers prioritized problem resolution based on cost and operational impact
- Features personalized views to address specific user needs
- Includes configurable reports for in-depth trending, analysis, and modeling of network information
- Delivers time-sensitive network events via email
- Provides historical view to enable quick diagnosis of difficult subscriber issues
- Comes with SDK that works with standards-based interfaces and shares data with existing operations and business support systems
- Experience unmatched performance with proactive network management

Health Summaries for Measuring Customer Experience

ASA correlates and analyzes all traffic and connectivity measurements to create a unique measure of subscriber experience and service availability represented on a single screen via network health summaries. With these summaries, MSOs can measure network availability based on Degraded Modem Hours (DMH) and Severely Degraded Modem Hours (SDMH). When service quality drops below what the customer would reasonably expect to the point where it does not work or becomes poor enough it is not used, it is considered unavailable. For example, DMH means that



Customer Experience Summary

network issues are causing the most QoS-sensitive application to fail, including VoIP and streaming. SDMH means that network issues have caused the majority of applications to become unavailable. Network health summaries enable you to:

- Identify the most severe problems on the network and where the most customers are impacted for the longest time

- View a list of CMTSs and interfaces sorted for traffic- or connectivity-related issues
- Get detailed recommendations in order of least cost or operational impact
- Compare relative performance of markets and hubs

Customized Network Reports

More than 60 custom-built reports offer in-depth trending, analysis, and modeling of DOCSIS networking information. You can configure these reports by topology, time, threshold, number of devices, or priority to provide analysis on:

- Upstream and downstream cable and NSI utilization
- Carrier to noise ratios
- Correctable and uncorrectable codeword errors
- Receive and transmit power
- Path loss
- CM and CMTS resets

Timely Events

Recognizing the importance of immediate notification of network problems, ASA comes with a flexible, real-time mechanism for delivering critical network events. You can subscribe to personalized events, which are delivered to your ASA inbox or multiple e-mail addresses. These 30-plus events cover key indicators of network problems, such as high and extremely high:

- Upstream or downstream CER
- CM resets, offline CMs, and CM flapping
- Utilization
- Path loss or TX power
- CMTS resets or unavailability

MSO Needs/ASA Solution

MSO Need	ASA Solution
Proactively improve network reliability	Triage where the biggest customer-impacting problems are, when they occur, and the root cause
Reduce errors and improve resolution time	Automates network fault isolation
Increase customer satisfaction and measure and report on network status	Provides standard units of measure that represent customer experience
Improve time to repair	Provides real-time notification of critical network events
Reduce non-revenue generating truck rolls	Improves fix-agent escalation and deployment
Enable thorough DOCSIS information polling without impacting overall network performance	Efficient collection with negligible network impact

X-Ray Service Analyzer

Access real-time and historical information on individual CMTSs and MTAs

Isolate and Resolve Customer Issues

X-Ray Service Analyzer (XSA) provides MSOs with detailed views of the location, configuration, settings, and network performance of any cable modem and MTA on their network. XSA is the only software offering to provide real-time and historical data for the cable modem as well as the interface and CMTS supporting that device. MSOs can now react and escalate quickly, reducing mean time to repair with focused fix agents.

With XSA, you can finally obtain instant access to real-time and historical information about an individual cable modem and MTA in a single application, rather than piecing together the same data from individual tools that only provide bits of information.

Benefits

- Identifies the location of all individual cable modems and MTAs
- Polls all elements in the broadband cable network and leverages existing information
- Provides an instant snapshot of the current status of individual cable modems and MTAs
- Features reports for detailed analysis of individual cable modems and MTAs over time
- Enables clear data presentation for comparison and correlation
- Allows ad-hoc SNMP access to cable modems and MTAs
- Reduce mean time to repair with a total view of individual cable modems and MTAs, supporting interfaces and CMTSs - both real-time and historical.

Data Collection and Analysis

The ServAssure Advanced platform data collection engine periodically polls all elements in the broadband cable network. All data collected from the network is checked for integrity and persisted for further processing and analysis. XSA also analyzes this data and collects real-time data to:

- Pinpoint specific cable modems and MTAs in the network topology
- Perform configuration and statistical analysis
- Provide historical and real-time reports

Real-Time Viewing

With real-time viewing, XSA provides an on demand snapshot of the current status of a specific cable modem or MTA, the supporting interfaces, and the CMTS. With this complete view of all the key elements providing service to a particular subscriber, you now have all the information needed to make sound analysis, including:

- Topology
- Configuration settings
- Performance
- Customer LAN
- CMTS data
- HFC channel
- Spectrum analysis for supporting CMTSs

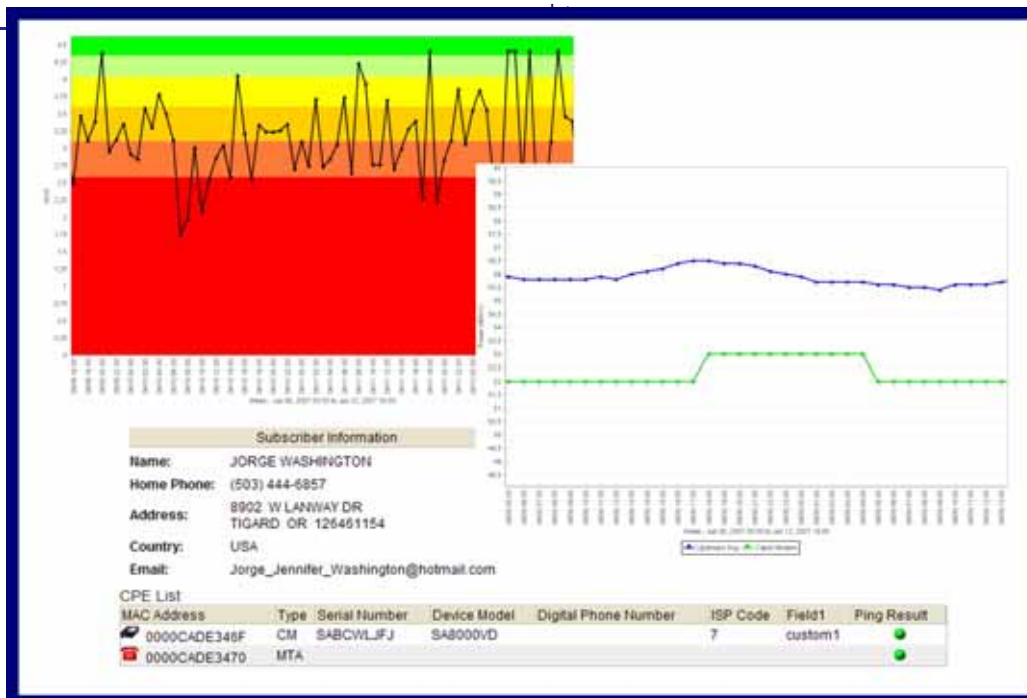
Historical Viewing

With historical viewing, XSA offers guidance in resolving specific network issues by providing the historical status and performance of the network, cable modem, and MTA equipment. XSA includes historical reports that enable detailed analysis of individual cable modems and MTAs over time based on user-configurable variables, including hour, day, week, month, quarter, and year. Displayed in a single browser window for at-a-glance comparison and correlation, these reports include:

- Upstream RX and TX and path loss
- Active, offline, and total CMs on upstream
- Upstream CER, CCER, and CNR and downstream CER, CCER, SNR, and RX
- Total consumption for CM and all CMs on the same upstream and CM consumption over time
- Utilizations of interfaces and CPU

MSO Needs/XSA Solution

MSO Need	XSA Solution
Locate any cable modem or MTA in the network	Provides cable modem and MTA topology resolution
Obtain status, configuration, and performance of individual modems/MTAs and the supporting interfaces and CMTS	Offers real-time view of individual cable modems and MTAs
Immediately access multiple detailed historical reports and trending and analysis	Offers historical view with reporting and analysis of individual cable modems and MTAs, the supporting interfaces, and CMTS (no waiting for new data to be collected)
Gain instant ad-hoc access to cable modems and MTAs for direct SNMP queries and other analysis tools	Features SNMP browser, ping, reset, trace route to CM and Internet, spectrum analysis
Avoid multiple ad-hoc tools	Provides single, comprehensive source of cable modem and MTA



X-Ray Service Analyzer

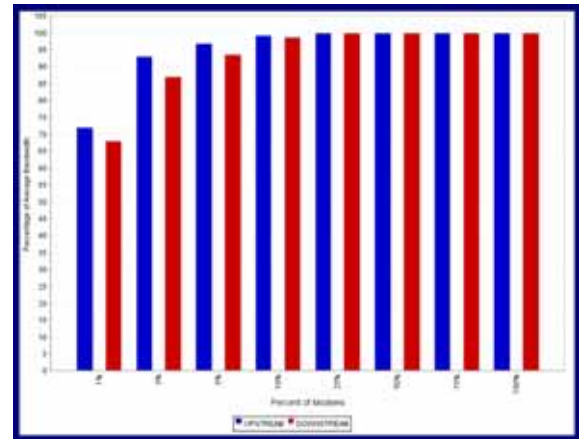
Bandwidth Usage Reporter

DOCSIS CPE bandwidth consumption analysis

Control Bandwidth Consumption and Reduce Revenue Leakage with Complete and Accurate Reports

Bandwidth Usage Reporter (BUR) is designed specifically for bandwidth management on broadband cable networks with up to millions of devices. BUR stops "revenue leakage" by transparently collecting and accurately identifying all devices on the network, and quickly identifying the heaviest bandwidth consumers and misprovisioned unauthorized devices. Now, MSOs can obtain an instant inventory of the cable modems on their network and their associated bandwidth consumption patterns, provisioned class of service, and QoS configuration.

BUR uses the collected data to analyze the bandwidth consumption and QoS configuration activity of each cable modem in hourly increments. With its comprehensive and configurable reporting, BUR quickly identifies and locates the top users on the network with unprecedented accuracy. This reporting functionality can be used to design tiered service offerings and abuse policies that more effectively fill the demand curve and allow more efficient use of the available capacity.



**Overall Network
Bandwidth Distribution**

Benefits

- Analyzes network data and automatically identifies all elements in the network to stop "revenue leakage"
- Details bandwidth consumption at a granular level to help control costs and improve performance
- Includes extensive bandwidth usage reports for comprehensive analysis and reporting of bandwidth consumption
- Enables operators to deploy tiered services to create incremental revenues with data collection and bandwidth policy
- Captures consumption data while maintaining consumer privacy
- Identifies invalid cable modems and resolves conflicts
- Enables users to configure reports to obtain the analysis and bandwidth information relevant to their position
- Manage bandwidth consumption and reduce "revenue leakage" with comprehensive and accurate reporting

Delivering Real-World ROI

BUR is deployed in production across several top MSOs. A major US cable operator installed BUR to analyze, report, and manage bandwidth consumption on a per-subscriber level. The operator sought to gain a better understanding of how they were utilizing network resources across a portion of the subscriber base.

BUR tracked the bandwidth consumption of more than 35,000 subscribers over a month to determine the following:

- 951 subscribers used more than 10GB of data per month
- Only 5% of subscribers consumed 73% of upstream capacity and 54% of downstream capacity
- 1,153 cable modems were not reported in billing system
- Non-standard modem bandwidth configurations were found on the network

Continuous Data Collection and Unprecedented Analysis

BUR uses the continuously collected data to enable MSOs to understand per-subscriber bandwidth consumption of each modem with pinpoint accuracy—without invading a subscriber’s privacy or deploying new hardware to the network. DOCSIS 1.0 Class of Service or DOCSIS 1.1 QoS parameter sets can be associated with modems and consumption. This granular detail of bandwidth consumption enables MSOs to:

- Manage service abuse
- Control bandwidth costs
- Improve overall network and service performance

Comprehensive Reporting

BUR comes with out-of-the box reports and graphs to provide MSOs with valuable information on bandwidth issues. Now, MSOs can immediately determine which subscribers are using the most bandwidth during peak hours, locate modems that are in violation of fair-use policy, and more with reports such as:

- Cable modem consumption downstream and upstream graphs
- Threshold cable modem consumption downstream and upstream tables
- Cable modem average data rate over time graphs
- Consumption by service class

Configurable Reports for Maximum Flexibility

Because the majority of the reports are configurable, ServAssure Advanced users get the analysis and bandwidth information that is most relevant to their job. Now, users can tailor reports to their specific objectives by:

- Topology
- Threshold
- Upstream, downstream, both, and sort

MSO Needs/BUR Solution

MSO Need	Bandwidth Usage Reporter Solution
Stop revenue leakage caused by heavy users and misprovisioned unauthorized devices	Transparent data collection and accurate identification of all devices on the network
Design tiered service offerings and abuse policies for effective and efficient use of available bandwidth capacity	Comprehensive and configurable Bandwidth reporting capabilities
Improve overall network and service performance	Granular detail of bandwidth consumption - without invading a subscriber's privacy or deploying new hardware on the network

VoiceAssure

Meeting customer demands for quality voice and VoIP service satisfaction

Complete VoIP Service Lifecycle Management

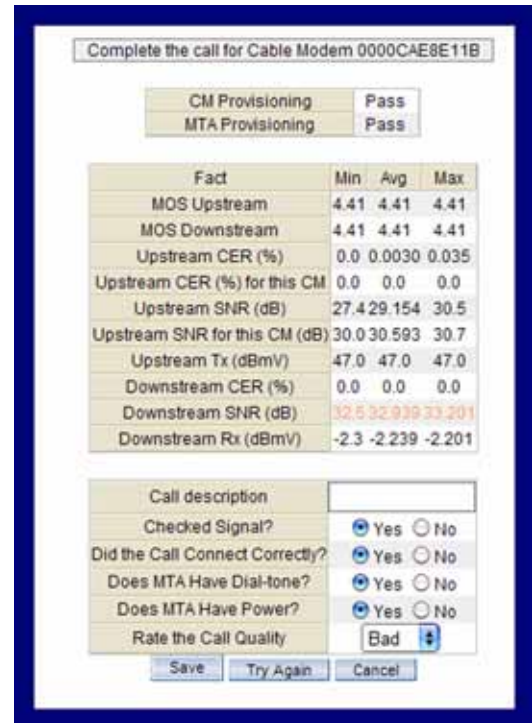
VoiceAssure offers MSOs complete VoIP service lifecycle management from initial network analysis and optimization to ongoing fault and performance management to capacity planning. VoiceAssure enables operators to view and manage critical health metrics for quality and capacity management of their IP networks and IP telephony-based services. To enable quick time to market and efficient management of next-generation services, operational management systems must focus on service and service assurance versus traditional network monitoring solutions. VoiceAssure is leading the evolution from managed networks to managed services.

VoiceAssure facilitates the delivery of fast, flawless VoIP installations and troubleshooting for continued QoS and customer satisfaction. With easy to use and simple service views, VoiceAssure helps operators determine in real-time where VoIP will work problem-free. Having real-time instant access to continually updated operational information enables operators to efficiently deploy, provision, and communicate with customers as well as establish maintenance processes for quality service and service assurance.

VoiceAssure incorporates cable/telephony standards, research, and best practices to provide operators with user-friendly tools to proactively identify and manage VoIP service issues and ongoing maintenance concerns.

Benefits

- Maximum bandwidth utilization to reduce costs without sacrificing quality
- VoIP traffic visibility for current consumption and future capacity planning
- Comes with SDK that enables VoIP data exchange with other systems
- Measure VoIP network quality, identify problem areas and apply recommended fixes, plan for future capacity needs
- VoIP represents a tremendous opportunity to further leverage your network investment. Based on its unique technical characteristics and the extremely high expectations customers have for voice service quality and reliability, it also represents a huge challenge.



**Installation Certificate
(Handheld Application)**

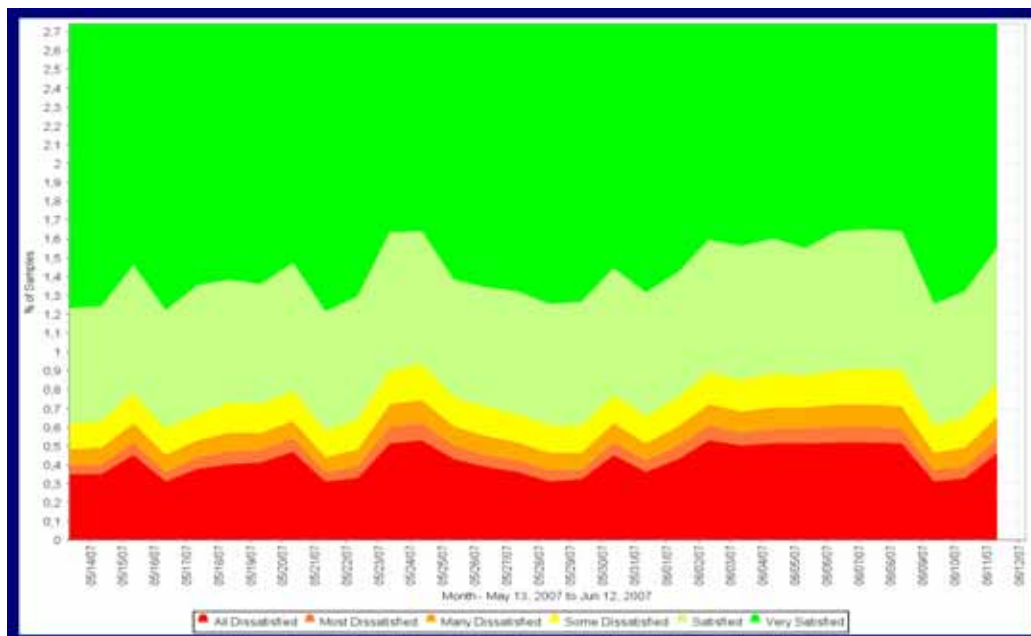
Pre qualifying the Entire HFC Physical Plant for VoIP Launch Suitability

VoiceAssure uses measured plant behavior to predict the experience of a voice subscriber placing a call over a specified portion of the network. Prediction of the subscriber experience is accomplished by computing a Mean Opinion Score (MOS) using the ITU-T G.107 E-model and measured network parameters. VoiceAssure provides operators with a distribution of likely MOS through user-selectable interfaces over user-selectable time frames. Proactively predicting the effect of mixing VoIP with best-effort traffic aids in capacity management. Is your HFC plant capable of supporting a VoIP launch while providing the high quality data services your customers expect? VoiceAssure pre qualifies HFC plant capabilities with characterizations that assess both quality and capacity.

Pre qualifying Specific Geographic Areas for VoIP Launch Suitability

As MSOs continue to roll out VoIP, offering services to specific portions of the network based on geographical definitions is a key consideration. The current public switched telephone network (PSTN) footprint is virtually always specified in terms of rate centers, and therefore, MSOs may need to base VoIP service areas on geographical destinations other than the HFC plant. VoiceAssure allows MSOs to utilize geographic portions of the HFC plant, like specific rate centers, and provides users with data that identifies portions of the physical plant that may require attention prior to launch and throughout deployment. Pre qualification ensures effective VoIP installations and less repeat truck rolls by avoiding failures and extended unsuccessful sessions while at the customer's premise.

Understanding the impact of voice traffic on best-effort data services is an important part of capacity planning and ongoing management. VoiceAssure enables MSOs to monitor deployment growth and changing voice and data traffic patterns as well as predict capacity for new voice customers based on time-proven standards such as Erlang B. Close integration with the ServAssure Advanced product suite enables MSOs to scale capacity proactively before bandwidth becomes short and customers experience degraded services.



Voice Quality Distribution Over Time

Viewing VoIP Data from the Enterprise to a Single MTA

Delivery of VoIP service relies heavily on complex application infrastructures with many operations management requirements. To effectively manage VoIP service quality, MSOs will need a single holistic management solution that provides an end-to-end view of all the critical service components that make up the broadband services infrastructure.

As cable operators aggressively embrace the VoIP evolution, strategies that enable phased roll-outs and logically planned deployments will help to ease the strain on operational and human resources. VoiceAssure allows users to select any logical grouping of HFC components from a single interface all the way up to an enterprise view, aggregating the entire monitored physical plant. This capability provides users with instant visibility of the progress of VoIP deployments in a specified area, division, region, or if desired, enterprise-wide. Operators may also use this feature to access at-a-glance views that determine the number and distribution of MTAs on a single cable modem termination system (CMTS) or interface.

MSO Needs/VoiceAssure Solution

MSO Need	Voice Assure Solution
Understand network's ability to support VoIP	Full network analysis based on MSO's specific VoIP quality, performance and reliability requirements
Location of VoIP network impairments	Identifies VoIP network issues and provides recommendations to resolve them
Ensuring a competitive and high-quality VoIP service	Optimizes network bandwidth and tracks VoIP performance to identify, isolate and resolve congestion
Growing network capacity with VoIP subscriber base and call volume	Monitors traffic patterns and call volume to ensure sufficient capacity

Network Optimizer

Tap into unused bandwidth and increase network capacity

Network Optimizer enables MSOs to control capital and operational costs by creating additional capacity from existing networks by providing recommendations for optimizing CMTS configurations. Now, MSOs can tap into unused bandwidth and increase network capacity while efficiently using current infrastructure and spectral resources without purchasing new CMTSs.

Network Optimizer uses data collected to analyze network capacity and performance. The unique expert analysis, device-specific recommendations, and full configuration change tracking and management provides MSOs with a cost-effective and innovative solution for maximizing the capacity and performance of their existing broadband networks.

Benefits

- Collects data from across the entire network for expert analysis
- Provides high-level view of overall network capacity and performance
- Identifies increased or severe congestion and prioritizes optimization recommendations for the various interfaces
- Helps delay purchase of new CMTSs by recommending how to apply new network capacity
- Enables detailed tracking and comprehensive management of configuration changes
- Comes with an SDK that works with standards-based interfaces and shares Network Optimizer data with existing systems
- Tap into unused capacity and increase network bandwidth

Delivering Real-World ROI

Many top MSOs in production deployments and trials have realized the benefits of Network Optimizer. Several of these deployments included detailed analysis of performance gains and operational efficiencies comparing the ServAssure Advanced Network Optimizer's impact to a static experimental control group and an MSO typical operations group of CMTSs and customers.

These comparisons include objective third-party validation tools and trouble ticket analysis yielding typical results:

- Increased DOCSIS network capacity by 87% without additional spectrum or modulation through higher efficiency
- Increased DOCSIS network capacity by 229% with additional incremental spectrum and modulation optimizations
- Eliminated service slowdowns by 100%
- Reduced average latency by 56% and peak latency by 90%
- Reduced degraded customer experiences by 94%
- Improved efficiency of 99% of test network segments
- Reduced number of non-revenue generating truck rolls by 7%

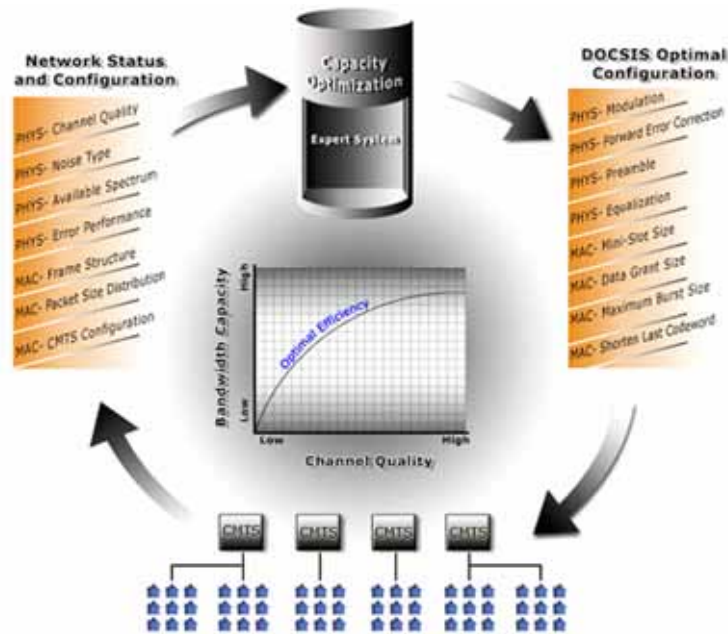
Comprehensive Data Collection and Expert Analysis

Using the connectivity, traffic, and configuration data collected, Network Optimizer identifies network areas that are experiencing increased or severe congestion or errors, and then prioritizes the interfaces that would benefit most from optimization.

Reliable Network Capacity Recommendations

Once the MSO identifies the congested interfaces, Network Optimizer generates a list of configuration recommendations that are based on the data collected and analyzed over specific networks. These recommendations can help MSOs avoid purchasing CMTSs by leveraging unused bandwidth. CMTS upstream and downstream configuration improvement recommendations include:

- Modulation profile changes
- Symbol rate/channel-width adjustments
- Forward error correction and interleave settings
- Mini-slot, max burst, and other MAC efficiency adjustments
- Recommendations on power levels



Capacity Optimization

Optimal CMTS Configuration

Recommendations and Flexible Tracking

Network Optimizer is the only application that reduces the time, cost, and complexity of CMTS configuration management through a complete set of recommendations. In a push of a button, Network Optimizer provides a list of least-cost recommended CMTS settings. Understanding that a single configuration is not effective for all interfaces, Network Optimizer affords MSOs the flexibility to track, analyze, and manage the configuration changes.

MSO Needs/Network Optimizer Solution

MSO Need	Network Optimizer Solution
Tap into unused bandwidth and increase network capacity with efficient use of current infrastructure and spectral resources	Provides expert analysis and optimization recommendations for existing CMTSs - no need to purchase new hardware
Reduces the time, cost, and complexity of CMTS configuration management	Provides a list of least-cost recommended CMTS configuration settings with the flexibility to track, analyze, and manage configuration changes

ServAssure™ Advanced Platform Options

The ServAssure Advanced Platform is a distributed infrastructure comprising of one central Platform Controller and one or more StarNodes. Each StarNode implements services that collect, filter, and analyze information from the CMTSs assigned to the StarNode and from the CMs supported by those CMTSs. The StarNode sends this information to the Platform Controller for storage in its Data Warehouse. ServAssure Advanced includes a variety of platform options designed to complement the DOCSIS network control and analysis features of the integrated product suite:

Operational Efficiencies

Operational efficiencies can be gained by operators who use the data extracted by the ServAssure Advanced Data Export Connector to proactively address possible service, bandwidth and capacity issues before they affect the end user. Additionally, operators looking to generate new revenue streams can use the information provided by the ServAssure Advanced Data Export Connector—when teamed with the ARRIS Policy Service Manager—to create new service offerings based on subscriber bandwidth consumption, threshold capabilities, and/or bandwidth on demand.

The Trap Connector

Supports a variety of network connectivity and traffic events and enables operators the flexibility to customize event thresholds, state transitions and trap payload parameters.

The Web Service Connector

Streamlines integrations with third party applications by providing an open interface to both real-time and historical data elements of the DOCSIS® network that can be easily incorporated into consumer call center applications.

- The WSC brings together performance and fault management information with call center data allowing operators to dramatically reduce the possibility of service disruption to end users in the home. The design of the WSC addresses the performance needs of both centralized and distributed organizations, enabling an operator's support organization to reduce truck rolls, increase support technician productivity, and improve customer satisfaction.
- Pre-integrated with the ARRIS Mobile Workforce Manager (MWM), the WSC enables Technicians with MWM supported handhelds to send commands to ServAssure Advanced and perform whole house checks before leaving the subscriber's home. The whole house check is a snap-shot from ServAssure Advanced X-Ray Service Analyzer and includes creation and storage of CPE birth certificates.

The Billing Connector

The interface enabling ServAssure Advanced to correlate CPEs, topology elements, and plant data with subscriber and account information, thus providing better proactive and reactive troubleshooting of network issues.

- External applications provide billing data to the Billing Connector as outlined by the Billing Connector interface specification. Transport elements are optional, but recommended as they are linked to the subscriber and enable ServAssure Advanced to provide a drill-down device to subscriber correlation in the plant hierarchy.

The CE Router

Helps streamline operations for operators with multiple instances of ServAssure Advanced by managing Web Service Connector requests. The web service request doesn't need to know what instance of ServAssure Advanced is managing a device because the CE Router has the ability to transparently route web service requests from a central call center to multiple ServAssure Advanced instances.

The ServAssure Advanced HouseCheck Connector

Leverages the ServAssure Advanced Web Service Connector to provide an open interface to enable third-party workforce management systems to request real-time whole house checks for the following customer premise equipment (CPE)—cable modems (CMs), media terminal adapters (MTAs), as well as DOCSIS and Scientific Atlanta set-top converters (STBs). A whole house check provides detailed data about the performance levels of the CPEs in a subscriber's home while also allowing for the creation of a CPE birth certificate.

Third-party workforce management systems may require additional feature development to create, commit, recall, store, and display birth certificates, but these features are available "out of the box" with the MWM HouseCheck™, an integrated collaboration between ARRIS's ServAssure Advanced and Mobile Workforce Manager (MWM).

The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice. ARRIS, the ARRIS logo, C3™, C4™, CableEdge®, Cadant®, C-COR®, CHP Max®, Cornerstone®, CXM™, D5™, Digicon®, Flex Max®, Keystone™, MONARCH®, n5™, nABLE™, NSM®, nVision®, PLEXIS®, Regal®, ServAssure™, TeleWire Supply®, Touchstone®, VoiceAssure™, and WorkAssure™ are all trademarks of ARRIS Group, Inc. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and the names of their products. ARRIS disclaims proprietary interest in the marks and names of others. © Copyright 2008 ARRIS Group, Inc. All rights reserved. Reproduction in any manner whatsoever without the express written permission of ARRIS Group, Inc., is strictly forbidden. For more information, contact ARRIS.

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