



Motorola Whole-Home Service Assurance Solutions for Cable Operators





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Simplifying the Integrated Digital Home by Making Management of MSO-Deployed CPE — Including Set-tops, Cable Modems, Gateways, and eMTAs — Easier

Efficiently and Effectively Delivering Rich Media Experiences

The battle for the consumer will increasingly be won by service providers that deliver rich media experiences via broadband everywhere, optimized networks that offer the best customer experience. The successful delivery of triple-play and quad-play services requires the ability to deliver “my services” to subscribers—to provide consumers with “what I want,” “when I want it,” and “where I want it.”

The expanding portfolio of services offered to subscribers brings the welcome effect of increased average revenue per user (ARPU)—but at the cost of increased complexity and subscriber expectations for seamless service assurance for data, video, and voice services. Motorola offers innovative solutions that enable cable operators to assure the delivery of these services within the customer’s premises, while simplifying their management.

Given the right tools, cable operators can manage the delivery of digital services and remotely diagnose and resolve service assurance issues. They can reduce truck rolls and drive down operational costs by capturing information, correlating metrics from multiple device types, and implementing actionable policies that accelerate problem resolution. MSOs can improve customer satisfaction by proactively addressing problems as they arise, being able to offer to their customers the best service experience possible. With unified service assurance solutions, cable operators can better manage the customer experience and manage the health of an increasingly complex assortment of devices required to deliver high-value services within the home.

By deploying whole-home service assurance solutions from Motorola, cable operators can monitor the subscriber experience and effectively manage a full spectrum of consumer premises equipment (CPE) deployed in the home, including Motorola and/or third-party devices:

- Set-tops
- Cable modems
- Gateways
- eMTAs

Cable operators can also support value-added in-home services, like a home’s Wi-Fi® network. As MSOs deploy Wi-Fi enabled gateways, support demands will increase, with subscribers calling in for set up and Wi-Fi security assistance. With service assurance solutions from Motorola, cable operators can provide subscribers with self-service capabilities that address the most typical challenges. Additionally, Motorola solutions capture a vast amount of statistical information, correlate it, and present it via a simple and meaningful graphical user interface (GUI) so that customer service representatives (CSRs), operations personnel, field technicians, and installers can remotely monitor the service performance delivered to a population of subscribers or to a single device.

Cable operators can turn to Motorola for highly scalable whole-home service assurance solutions that deliver higher and more reliable service quality. They can drive down operational costs (OPEX) by reducing the need for truck rolls and automating customer service. Cable operators can benefit from service assurance for a broad range of digital offerings to simplify the digital home and provide greater value to subscribers.

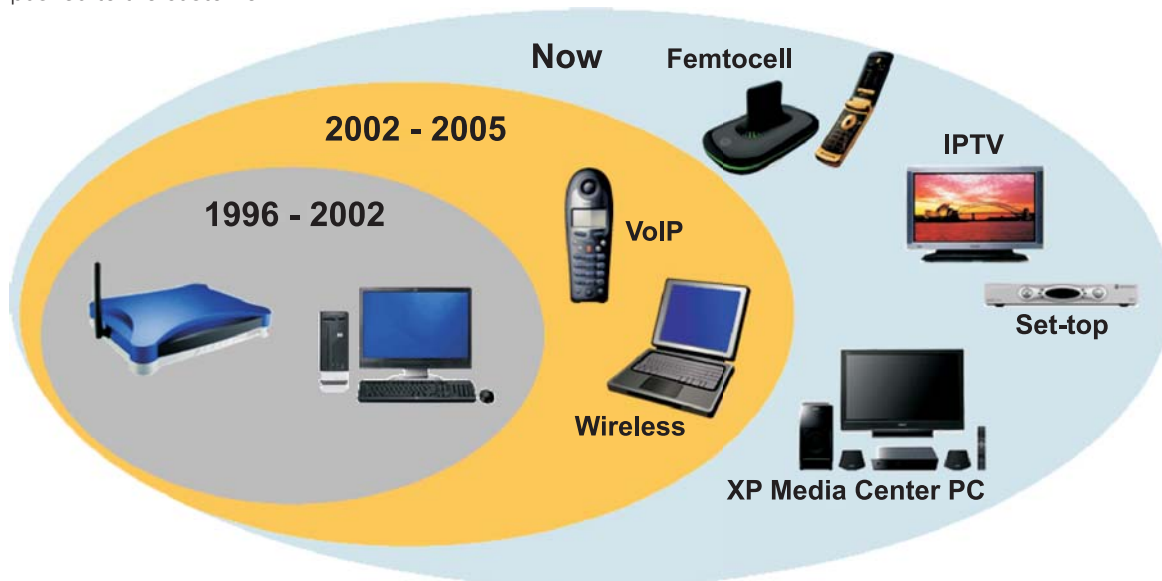
Managing the Cost of Complexity

Motorola estimates that the average cost of a customer service call is \$10, while the average cost of responding to an online web inquiry is only \$2. By deploying Motorola's service assurance tools to convert customer service phone calls to web-based queries, a cable operator can save 80 percent of the cost of each customer service interaction. And by further automating self-service, MSOs can potentially eliminate the costs of interacting with many customers by giving them the tools they need to help themselves.

Managing the complexity of whole-home solutions is a major challenge facing cable operators worldwide, as they compete with carriers to offer consumers bundled services. An all-IP home, for voice, video, and data, creates complexity issues that cannot be ignored. Cable operators face many challenges in managing the cost of complexity, including the following:

Representative Challenges	Examples
Support & Maintenance of Set-tops	Non-responder set-tops Non-functioning or poor functioning set-tops Segmenting the neighborhood
Time-Consuming Initial Installation	Physical installation Gateway configuration Client configuration Network validation
Post-Installation Return Visits	User errors Wi-Fi issues Slow performance
Service Activation & Provisioning	Upgrading users to new offerings requires truck rolls, i.e. VoIP Usually requires users to call Process takes too long for consumers
Long Support Calls	Customer cannot explain the issue Tools are not available to diagnose and resolve the issue Support expertise requirements are too high

Historically, service assurance was simple; a single device ran a single application to deliver a single service. Consumers typically did not have home networks and did not rely on multiple platforms deployed throughout their home. But with the delivery of rich multimedia services, this is no longer the case. The complexity of home networks has increased tremendously, and service providers cannot succeed if this complexity is pushed to the customer.



The increasing complexity to install and troubleshoot the home environment is becoming beyond the abilities of most residential subscribers.

Value-added monitoring and management of subscriber services can differentiate one service provider from another, and cable operators need the ability to deploy and monitor devices, networks, and services, while resolving service issues and delivering service-aware application support.

With competitive pressures and rising operations and support costs, cable operators need service assurance solutions that can help accelerate the delivery of personal media experiences, while improving customer satisfaction, lowering operational costs, and minimizing truck rolls. Subscribers—and service providers—require broadband experiences that are seamless and hassle free, despite increasing complexity in the service experience and its delivery. Adding remote management and support capabilities helps operators deliver a high-quality end-user experience, which is critical to ensuring customer satisfaction.

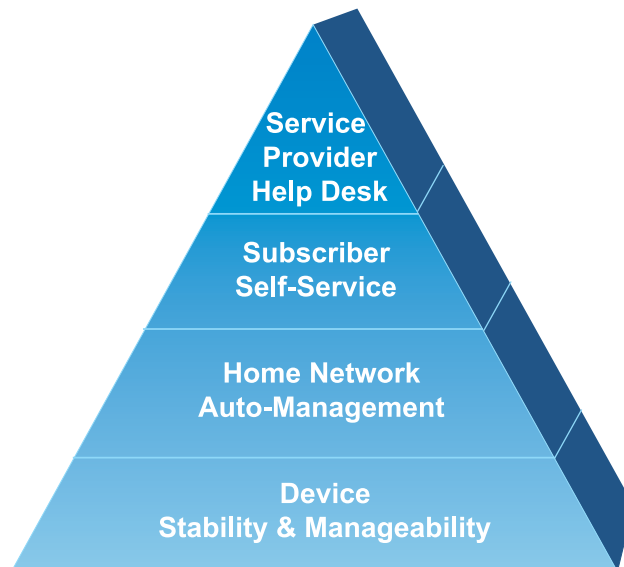
Integrated Solutions from Motorola to Simplify the Digital Home

Motorola offers innovative solutions that allow cable operators to assure the delivery of services to and in the digital home. Cable operators can rely on Motorola's service assurance solutions to help them demonstrate their accountability by consistently meeting or exceeding customer expectations, and by diagnosing and resolving problems in remote homes, online and in real-time, while constraining support costs. Motorola offers service assurance tools that provide a solutions-oriented approach to meeting subscriber expectations for whole-home service assurance, including:

- Tools to reduce costs and improve installation quality.
- Service provisioning and activation capabilities.
- Portals and applications to enable customers to tackle common problems themselves.
- Troubleshooting and monitoring solutions.
- The ability to incorporate back-end systems that enable cable operators to resolve customer issues quickly.

Motorola's flexible and scalable service assurance solutions provide reliable delivery and enable superior performance of diverse IP services from the set-top to the gateway through to the desktop and throughout the home. Designed for proactive management and support, service assurance solutions from Motorola equip cable operators with the right tools to efficiently and successfully provision, maintain, and support broadband services. Benefits of Motorola's service assurance solutions also include:

- Simplicity of setup and installation.
- Support for multiple devices across different access networks.
- Service integration into multiple OSS applications.
- The ability to deliver reliable, high-quality services over time.
- Security and permission-based access to remote PCs, devices, and platforms.
- The ability to drive down the cost of assuring consistent and reliable service delivery.
- The opportunity to increase user loyalty and proactively assure reliable end-to-end delivery of triple-play services.



Device Stability & Manageability is the foundation for service assurance. Interaction with devices is at the root of the customer experience. Cable operators must ensure that devices deployed throughout the home have the reliability, feature set, and manageability needed to meet customer expectations and enable efficient remote customer care.

Home Network Auto-Management is required to simplify the customer experience and allow subscribers to enjoy whole-home digital services without worrying about installation and maintenance. “It just works” is the perception that cable operators want to create for their subscribers.

Subscriber Self-Service provides the customer with all of the sophistication but none of the complexity of service assurance. Cable operators can improve customer satisfaction by providing subscribers with greater control over the service experience.

Service Provider Customer Care can be automated so that operational staff can quickly and effectively resolve support issues. Cable operators can swiftly diagnose, troubleshoot, and manage IP devices throughout the connected home, streamlining customer care and dramatically reducing the frequency and length of customer calls to the help desk.

Representative Challenges	Examples	Motorola Solutions
Support & Maintenance of Set-tops	<ul style="list-style-type: none"> • Non-responder set-tops • Non-functioning or poor functioning set-tops • Segmenting the neighborhood 	<ul style="list-style-type: none"> • Monitoring of set-tops • Data aggregation & correlation • NOC reports & diagnostics • Historic trending • Customer support UI diagnostics
Time-Consuming Initial Installation	<ul style="list-style-type: none"> • Physical installation • Gateway configuration • Client configuration • Network validation 	<ul style="list-style-type: none"> • Intelligent alternative home networking devices • Installation tools, i.e. Wizards • Automatic configuration
Post-Installation Return Visits	<ul style="list-style-type: none"> • User errors • Wi-Fi issues • Slow performance 	<ul style="list-style-type: none"> • Self-help portals for troubleshooting • Gateway and server based diagnostics
Service Activation & Provisioning	<ul style="list-style-type: none"> • Upgrading users to new offerings requires truck rolls, i.e. VoIP • Usually requires users to call • Process takes too long for consumers 	<ul style="list-style-type: none"> • Self-help portals for ordering, downloading, and activating a new service
Long Support Calls	<ul style="list-style-type: none"> • Customer cannot explain the issue • Tools are not available to diagnose and resolve the issue • Support expertise requirements are too high 	<ul style="list-style-type: none"> • Self-help portals help customer understand and resolve issues • Remote management solutions for gateways & home networks • Remote control solutions for PCs

The following are some of the powerful tools from Motorola that cable operators can rely on for implementing whole-home service assurance:

Motorola NBBS Remote Device Management Software Platform

The NBBS Remote Device Management Software Platform delivers device, service, and subscriber management capabilities across the broadband-connected home through the entire device lifecycle, including installation, configuration, bulk modifications, and trouble resolution. It allows cable operators to expand the monitoring solution to include the monitoring of set-tops and CPE platforms throughout the connected home. By deploying the Motorola NBBS Platform, cable operators can not only manage the broadband gateway and other devices, but can also understand the status of services on the home’s LAN network. NBBS provides a comprehensive, unified solution for managing CPE as well as an evolutionary approach to implementing whole-home video service assurance.

Device management can be broken down into a set of common, well-defined operations—which are both meaningful and appropriate—regardless of the device type. NBBS serves the function of being the gatekeeper for monitoring and interpreting events on the subscriber’s home network, and it ensures that devices, such as set-tops and home gateways, are configured correctly. It also provides a migration path toward monitoring and managing devices throughout the customer’s home network.

NBBS is a software solution for monitoring, maintaining, and troubleshooting subscriber equipment. It is a scalable software platform that enables operators to remotely access, configure, monitor, and troubleshoot a full portfolio of consumer devices, including gateways, modems, eMTAs, and set-tops. The NBBS platform allows cable operators to increase revenue by accelerating new service introduction, and service-aware provisioning capabilities simplify the activation of new IP video services.

Unique to NBBS is its field-customizable business logic. NBBS business logic enables automated scripting capabilities that allow cable operators to effectively and simply address variability and ad hoc needs. NBBS' policy-based business logic engine consistently ensures a high-quality personalized media experience for subscribers. By shifting common, highly utilized business logic to the remote device and services manager, unnecessary overhead and development efforts on the OSS can be avoided. This results in significant savings in infrastructure costs as well as major improvements in performance, time-to-market, stability, and the maintainability of the overall solution.

NBBS allows network operators to centrally remediate subscriber problems, including the ability to reset set-tops and monitor for dropped packets to ensure high-quality video delivery. It provides centralized service and device management for IP-based consumer equipment and enables zero-touch configuration and firmware updates. NBBS enables active monitoring of consumer equipment for the activation, management, and support of QoS-sensitive services, such as video and voice-over-IP (VoIP).

Motorola's Set-top Diagnostics Solution

Motorola's SmartStream Terminal Data Collector (STDC) platform delivers detailed performance metrics to enable high-quality, consumer video services via remote collection and presentation of set-top diagnostic information. It reports detailed diagnostic data so the cable operator can reduce OpEx and increase customer satisfaction.

The STDC solution includes a server at the cable headend and client software on consumer's set-top. It gathers critical information about the set-top population, as a whole, as well as the individual status of a single set-top. The diagnostic information is grouped into intuitive data sets, enabling CSRs and technical support personnel to quickly and easily debug a variety of device issues remotely. The data sets available in STDC make it a powerful and affordable diagnostic solution, enabling measurable QoS for delivery of broadcast video and interactive applications, such as video on demand (VOD) and switched digital video (SDV).

STDC brings an unprecedented level of visibility into the working performance of cable set-tops. Its remote capabilities mean operators can not only deliver better quality of support to their subscribers, but they can also reduce costs by saving on truck rolls. This optimized approach provides service assurance and enables cable operators to increase subscriber satisfaction and retention in an increasingly competitive market. STDC is scalable to multiple set-tops in a home as well as multiple output locations for report viewing.

It is easily bundled with Motorola's NBBS platform to provide QoS at the edge of the network. Together this service assurance solution suite is both flexible and customizable for those cable operators seeking a full device diagnostic system. It enables operators to remotely access, configure, monitor, and troubleshoot the full portfolio of consumer devices, home networks, and services.

Motorola eCare Web-based Interactive Call Center Application

Cable operators can gain further visibility within the connected home by also deploying Motorola eCare, a web-based interactive call center application that enables remote support for a subscriber's Windows® and/or Macintosh® computers. It reduces the cost of 1:1 customer support by enabling CSRs to assist customers anywhere in the world, by providing a powerful diagnostic and resolution toolset that includes remote control, text based chat, integrated customer surveys, file transfer, Managed Scripts, and more.

Motorola eCare is a client-server solution providing dynamic and effective communications through secure web browser connections. All end-user permissions for desktop interaction are stored in the secure embedded database that is part of the centralized server. The client portions are thin client browser add-ins that are dynamically populated as required, while the server may be utilized through Motorola's hosting service or installed within the cable operator's headend.

eCare uses standard HTTP and HTTPS protocols, for customer-technician communications, and implements XML over HTTPS, for integration with customer relationship management (CRM) applications and other external services. eCare's embedded database supports SQL queries and exports to other tools for those customers seeking a unified reporting structure for all their customer care applications.

From diagnostic sweeps to complex installations and configurations, eCare Managed Scripts provide a more versatile and efficient approach to incident resolution, further limiting the duration of the support session and improving both the agent and customer experience. Using just an Internet connection and a web browser, the CSR can see what the customer sees, operate the computer remotely, and push scripts to resolve support issues quickly and securely—the first time.

Conclusion

Unified management of cable operator devices on the home network allows MSOs to gain a differentiated advantage in the market, and Motorola provides the products, systems, and professional services that enable cost-efficient and reliable visibility into the integrated digital home. Cable operators can swiftly deliver high-quality data, video, and voice services to increase revenues, increase ARPU levels, improve service, and streamline troubleshooting, and they can build closer bonds with subscribers by enabling service assurance for robust triple-play and quad-play services delivered throughout the home. Motorola offers flexible solutions for service assurance across the entire customer lifecycle.

From the headend to the home, Motorola offers extensible service assurance solutions that allow MSOs to drive down OpEx, while enhancing customer service. For costs that amount to only pennies per subscriber for deploying Motorola service assurance solutions, cable operators can provide a more reliable and consistent experience for broadband video, data, and voice services.

Cable operators can minimize OpEx, by reducing truck rolls and providing CSRs with easy access to actionable diagnostic information; and they can automate responses to typical support issues by collecting and correlating data, and by defining automated response policies based on diagnostic information. Cable operators can improve customer service by increasing the reliability and consistency of triple-play and quad-play services, and they can more swiftly troubleshoot and resolve support issues so that subscribers can spend more time enjoying their broadband services and less time on the phone troubleshooting them.

Motorola has developed service assurance solutions based on a deep understanding of service provider environments and requirements, and our leading-edge service assurance technologies leverage industry standards and have been field-proven in commercial implementations worldwide.

Value-added monitoring and management of subscriber services can differentiate one service provider from another, and cable operators need the ability to deploy and monitor devices and services, while resolving service issues and delivering service-aware application support. By deploying Motorola's whole-home service assurance platform, cable operators can deliver high-quality QoS based IP services that increase revenue and ARPU levels, improve service and streamline troubleshooting, all while building build closer bonds with their subscribers.

For more information, please visit www.motorola.com/serviceassurance or contact your Motorola account representative.



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