Improving QoE With Better Device Management

An Incognito white paper
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QoE is more than just service assurance.

Abstract

Providing great Quality of Experience (QoE) is essential to retaining customers and maintaining revenue growth. To do this, operators must ensure that service quality meets, or exceeds, the expectations of the subscriber. But QoE is more than just service assurance; it's the sum of all customer experiences from purchasing and connecting, to supporting the ongoing subscriber lifecycle. As Internet penetration in mature markets approaches 100%, Internet Service Providers (ISPs) face immense pressure to deliver high QoE to each of their subscribers.

The need for robust and intuitive device management is driven by increasingly complex multi-device home networks. ISPs that want to improve subscriber QoE need a solution that can hasten service activation, support remote access, increase network insight, and simplify the process of issue resolution and firmware management. Today, there are a number of challenges that stand in the way.

Service Provider Challenges

When subscribers initiate new services there is an expectation for the process to be rapid and hassle-free. Subscribers want their devices to "just work" without having to read through a lengthy instruction manual. But often, an install technician needs to configure the home network, which increases install time and cost.

Gaining up-to-date home network metrics is another common challenge for service providers.

Gaining up-to-date home network metrics is a common challenge for service providers. Currently, service diagnostics tend to come from inconsistent streams of information, like third-party speed-test websites and scripted service calls. This serves little value when attempting to proactively resolve real network issues. Providers have tried gaining insight by searching through mountains of reports and spreadsheets, but these may not capture specific device details and can be inherently out of date. Without adequate network vision into the home, providers cannot easily

determine the root cause of issues, increasing subscriber frustration and support costs.

Fast issue resolution is crucial to providing high QoE to the subscriber.

Fast issue resolution is crucial to providing high QoE to the subscriber. There are many things that can go wrong between the gateway and on consumer devices such as tablets, phones, and laptops. Customer service representatives (CSRs) are called throughout the day to resolve subscriber issues, so when a subscriber calls in with a complaint about their service, a CSR needs insight into the entire home network to accurately troubleshoot an issue. Without this access, CSRs are forced to troubleshoot via canned script, increasing call handle times and disappointing customers.

Device configuration and evergreening is another ongoing struggle for service providers. When a device is first launched, standardized configurations are essential to ensuring reliable service. Changes to the transport network require changes to customer premises equipment (CPE) configurations to optimize performance, and over time, new device firmware may be required to address performance and security issues. ISPs that can't manage this fluid and dynamic network fall short of their subscriber's QoE expectations, increasing the chance of subscriber churn.

What can be done to resolve these common problems, and how can providers tackle the challenge of delivering great QoE throughout an ongoing subscriber lifecycle?

Broadband Options

Increasingly, protocols like TR-069 have become standard for new devices.

Traditionally, ISPs have had little to no insight into the customer home network. Protocols like Simple Network Management Protocol (SNMP) can be used for some management, but can be complicated, unreliable, and insufficient for delivering expected QoE. Increasingly, protocols like TR-069 have become standard for device monitoring and management. These protocols standardize device management processes and have the promise of improving subscriber QoE.

While these standards are necessary, they are not sufficient. Developing, provisioning, monitoring, and managing subscriber devices remains a complex job. Providers that want to ensure home network visibility and efficient device administration — which serves to support and enhance the subscriber QoE — must find a solution that can improve device and home network management.

The Incognito Solution

To deliver great QoE throughout the entire subscriber lifecycle, providers need an open, flexible, scalable device support and management solution.

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Incognito tackles common subscriber challenges by delivering:

- Accurate configuration and open-device support
- Zero-touch activation and rapid network connection
- Enhanced monitoring and KPI reporting capabilities
- Insightful home network diagnostics for better customer service
- Robust firmware management tools

TR-069 is the starting point for delivering a robust suite of capabilities that network administrators and CSRs need to deliver great QoE throughout the ongoing subscriber lifecycle.

Accurate CPE Configuration and Open Device Support

With constantly evolving and emerging devices, the need for a solution that can discover and support any device type is crucial to retaining subscribers and keeping QoE high. Incognito offers open device support, meaning operators can leverage the system's capabilities to discover and provision any previously unknown CPE.

The Incognito solution can rapidly activate and onboard new or existing devices, decreasing development time and getting CPE into the subscribers' hands faster.

An intuitive interface guides engineers along the process of device realization, allowing them to easily explore device capabilities, provision parameters, and then standardize configurations. The solution can rapidly activate and onboard new or existing devices, decreasing development time and getting CPE into the subscribers' hands faster.

Zero-Touch Activation and Rapid Network Connection

Easy device installation and service activation can help a provider establish confidence and trust with a subscriber straight away. Incognito onboards new subscribers quickly with automated configuration and enables subscriber self-install options.

Subscribers can toss out their instruction manuals and begin using services within moments of plugging in a new device. This zero-touch installation significantly lowers provider operational costs and boosts customer satisfaction.

HITRON BASE

General

Name
hitron base

Description

Priority
101

Created
17 Oct 2014, 07:10 am

Last Modified
17 Oct 2014, 07:12 am

Last Modified By
qacsruser

Parameters	5
Monitored Parameters	0
Device Groups	1

ASSOCIATED PARAMETERS

	Notification	Value
InternetGatewayDevice		
ManagementServer		
ConnectionRequestUsername	Not Set	admin
PeriodicInformEnable	Not Set	true
ConnectionRequestPassword	Not Set	admin
PeriodicInformInterval	Not Set	180
STUNEnable	Not Set	false

Figure 1a (left) - Standardize activation using automated configuration
Figure 1b (right) - Set parameter values and attributes for consistent provisioning

Enhanced Monitoring and KPI Reporting Capabilities

To keep QoE high throughout the subscriber lifecycle, providers need holistic and accurate network monitoring. Gaining network-wide vision by accessing the statistics of each connected device helps accomplish this. The Incognito TR-069 solution can collect rich diagnostics from every

The Incognito TR-069 solution can collect rich diagnostics from every in-home connection

in-home connection and makes information available through charts, graphs, and reports.

Understand overall network performance by creating dashboards with customizable Key Performance Indicators (KPIs). KPI monitoring is an essential part of making sure that business and service assurance objectives are met. Configurable alerts are generated by the KPI module when thresholds are exceeded to instantly notify administrators of a situation they need to address. Once network issues are discovered, a provider can proactively resolve those issues to lower service call volume and strengthen subscriber QoE.
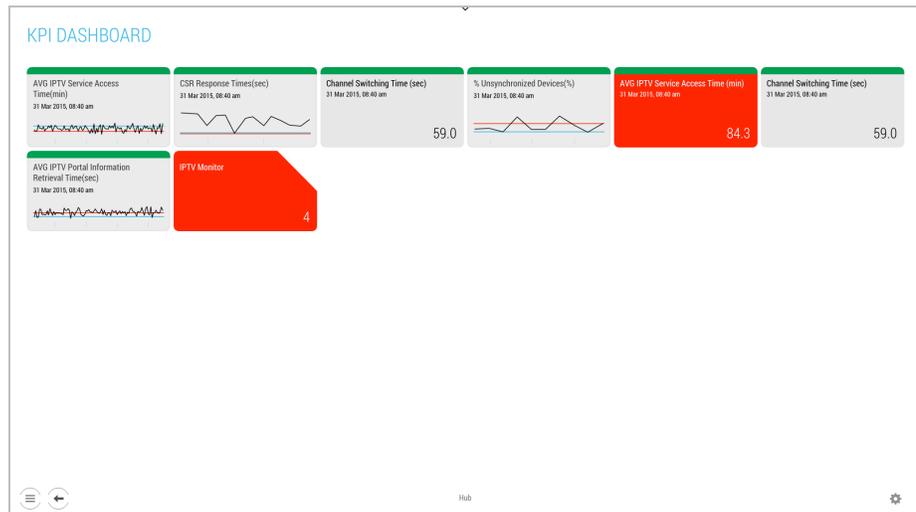

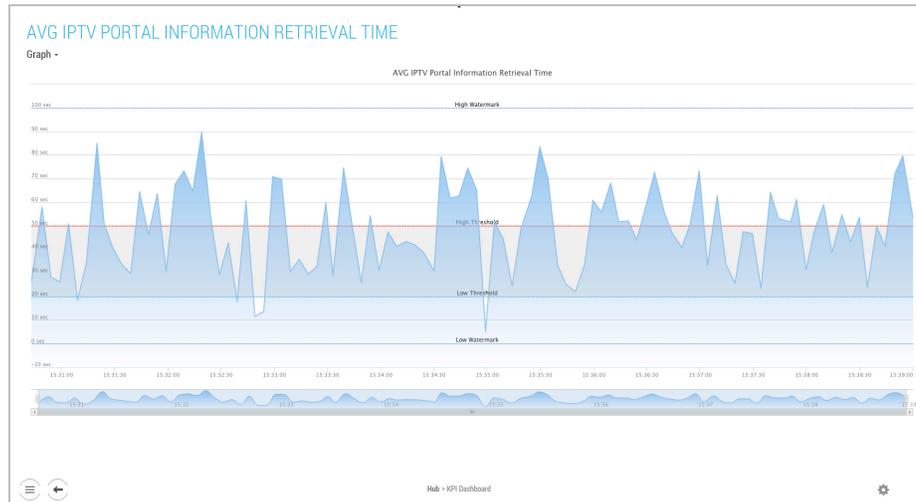*Figure 2a - Assemble KPIs into business-centric dashboards*

Figure 2b – Graph view of historical data points

Insightful Home Network Diagnostics for Better Customer Service

Because so much emphasis is placed on customer support throughout the subscriber lifecycle, Incognito has simplified the troubleshooting and resolution process. CSRs receive an intuitive dashboard that shows a real-

time view of the subscriber's home network, and active alerts show current device status. Service configuration parameters are also curated to enable only the functionality that the CSR needs, so issues can be resolved quickly.
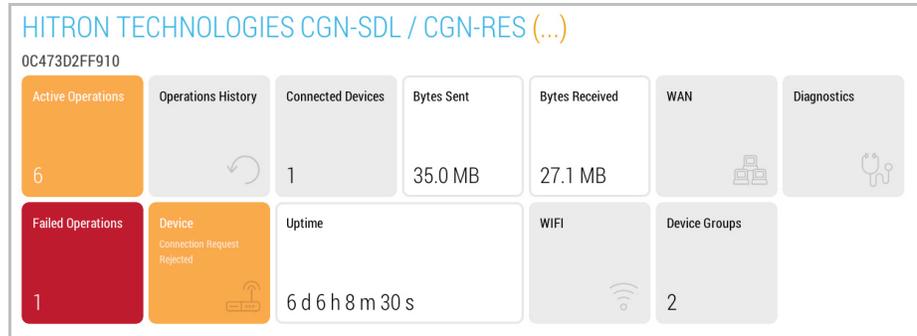

Figure 3 - *Configurable CSR dashboard helps resolve issues quickly*

Responsiveness to support calls accounts for a very large portion of the customer perception of QoE. The CSR dashboard ensures more issues are fixed on the first phone call, resulting in decreased call handle times, lower CSR training costs, and improved subscriber QoE.

Robust Device Management Tools

Keeping CPE up-to-date and issue-free will ensure that QoE remains high throughout a long-term subscriber's lifecycle. To deliver this, Incognito has reinvented the way ISPs manage firmware updates. Network engineers can easily scope the number of CPEs on their networks that have updates available using a firmware library and then select any number of devices to perform a test run. Once verified, firmware updates can be scheduled to run in either single or batch operations depending on business requirement. Administrators can resolve fallout in real time to improve update success rates.

> *Incognito has reinvented the way ISPs manage firmware updates.*

Figure 4 - *Organize and manage your CPE network firmware profile*

Automating this critical process helps maximize CPE investments and reduces the complexity of maintaining an evergreen network, optimizing overall performance for the subscriber.

Conclusion

As the number of IP-connected products within subscriber homes continues to rise, service providers must find a flexible and scalable solution to deliver high QoE throughout the entire subscriber lifecycle. Incognito has developed a connected home solution for device management that simplifies connectivity, provides holistic network vision, and ensures the ongoing optimization of subscriber home networks and devices. Improving QoE not only boosts customer loyalty, it increases profitability by reducing operational costs.

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