CloudCheck

Deliver Real Quality of Experience to Wi-Fi Residential Subscribers

ASSIA

Self-Healing Wi-Fi Networks

Context-Based Cloud-Enabled Optimization

Real-Time   Historical   Analysis

Manage Residential Wi-Fi and Deliver the Ultimate in Subscriber Experience

The tremendous global adoption of Wi-Fi, driven by the growth of mobile, has created challenges in managing and experiencing Wi-Fi for both operators and subscribers in the home.

Bandwidth to the home is increasing with the availability of high speed Internet. As a result, broadband is no longer the bottleneck in delivering content and services to the home. Subscribers are accessing more services, content, and streaming over-the-top (OTT) video across more Wi-Fi devices, creating greater challenges in delivering the expected quality-of-experience (QoE) to subscribers who increasingly use Wi-Fi throughout the home.

These challenges will only become more pronounced. The world continues to become increasingly connected as new use cases and new classes of devices become ubiquitous. By 2020, the proliferation of wireless IoT devices is expected exceed 50 billion.[1]
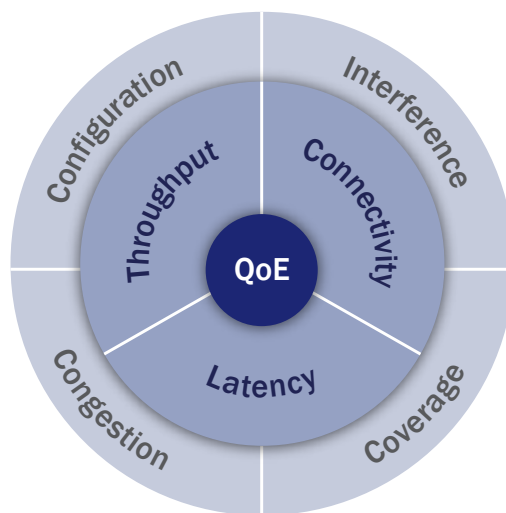
Operator Challenges in Delivering Subscriber QoE

CONGESTION-CROWDED NETWORKS

With more connected devices and more available bandwidth to the home, subscribers demand a high quality Wi-Fi experience in the home. The Wi-Fi experience can often suffer to many environmental factors, such as congestion, noise, and interference. These impairments impact the user's Wi-Fi experience measured by poor throughput, latency, and/or coverage as represented in Figure 1.

Denser urban environments such as multi-dwelling units (MDU) create additional challenges due to the proximity of users and the impact of the building on wireless penetration. Wi-Fi behavior is dynamic, with speed, interference, and noise affecting signal strength in real-time, and the effects of this constantly changing behavior can be challenging to mitigate.

LACK OF WI-FI VISIBILITY AND CONTROL

Today operators lack effective tools to efficiently assess subscriber Wi-Fi QoE, and diagnose and resolve Wi-Fi related issues. At the same time, subscribers cannot easily resolve issues without having to call their service provider.

This inability to diagnose and address Wi-Fi problems translates to high operating costs for the service provider due to ineffective or lengthy support calls, expensive truck rolls for on-site service, and replacement CPEs.

FIGURE 1. Real QoE.

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- Automatic diagnostics and self-healing of Wi-Fi networks to reduce operator care costs
- Real-Q technology
  - Real-time subscriber Quality-of-Experience (QoE) to the user device
  - Wi-Fi throughput measurements without software on the user device
- Rich server APIs for integrating into the operator OSS/BSS systems
- Mobile APP for field techs and subscriber self-care

Operator Service Costs Grow Exponentially for Wi-Fi Issues

1. Half of inbound technical related service calls today are due to problems in the Wi-Fi network*

2. In many cases a truck is dispatched to resolve the issue at customer premise**

3. All too often, hardware is replaced even though the issue is not hardware related

4. Too many repeat calls and dispatches until the issue is resolved

*According to data collected across global service providers
**Dispatches often exceed 30% of the Wi-Fi call rates

Introducing the CloudCheck Solution for Operators and Subscribers

Because of the challenges faced by service providers in delivering high Wi-Fi QoE to subscribers, a solution needs to address the mission critical needs of the operator as well as the subscriber.

CloudCheck is ASSIA's software platform to manage and optimize residential home Wi-Fi networks, enabling operators to deliver a Quality-of-Experience for their residential subscribers. The consumer benefits from improved network experience in the home while the operator reduces customer care costs.
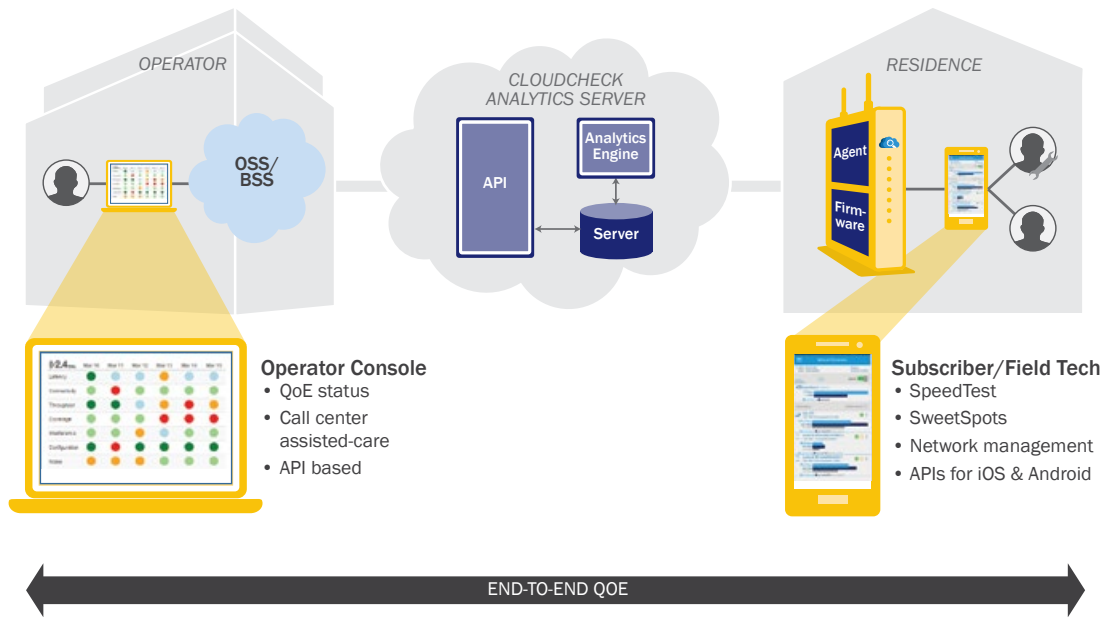
CloudCheck helps operators meet the needs of the Wi-Fi subscriber by delivering the best possible QoE, thereby increasing customer satisfaction and reducing support costs.

CLOUDCHECK SOLUTION COMPONENTS

CloudCheck is purpose-built for ISPs as the cost-effective universal solution to address the underlying Wi-Fi network issues affecting subscriber Quality-of-Experience. It scales to the entire subscriber network, and seamlessly integrates with existing operator care workflows.

The CloudCheck layered optimization architecture combines the advantages of both real-time diagnostics and decision-making with long-term analytics and optimization policies in the cloud. Furthermore, it is the only solution that supports real-time, historical and user context based QoE optimization, which is not achievable with other TR-069 based approaches.

Operator Benefits	Subscriber Benefits
Deliver a quality of experience to subscribers as measured by good throughput, high connectivity, and low latency	Enjoy Quality of Experience across all classes of service (video, data, voice) and across all devices throughout the home
Reduce operating expenses in related service calls, dispatches, hardware replacement	Minimize or eliminate lengthy technical service calls and field technician visits
Reduce customer churn. Heal and optimize networks so users do not experience gaps in service	Ensure Wi-Fi and the in-home networks always work as advertised

FIGURE 2. The CloudCheck platform consists of four key components to deliver end-to-end Wi-Fi QoE.

KEY CLOUDCHECK FEATURES AND BENEFITS

- **"Real-Q" Technology. Real-time, historical, predictive Wi-Fi QoE** analysis based on user context and measured performance of the Wi-Fi network. Ensures the subscriber's Wi-Fi experience is always optimal.

- **Real-time speed test capability** measures true broadband AND Wi-Fi speeds without any additional software required on the user devices.

- **"Beyond–the-Box" visibility and control.** Extends operator QoE beyond the RG to the end-user device. Other solutions cannot heal Wi-Fi issues on a per device level.

- **Auto Diagnosis** of problem areas in network such as low throughput, congestion, interference, poor coverage, and high latency that cause poor user experience.

- **Self-healing** of the Wi-Fi network for optimizing QoE.

- **Self-care and assisted-care** for subscribers, field techs and agents via a simple-to-use mobile app so that users can avoid making unnecessary service calls.

- **Software-only solution** ensures compatibility with existing and future back-end systems and vendor CPEs.

- **Hardware agnostic architecture** enables CloudCheck to work with any manufacturer's gateway device.

- **Highly scalable architecture** ensures performance and cost goals for subscriber networks of any size.

- **Cloud based** key computing elements and analytics to provide ease of upgrade and to reduce loads on residential networks and CPE.

- **Flexible APIs** offer capabilities and benefits to ISP operations in a highly adaptable and configurable manner, and tie to existing OSS/BSS, portals, and business intelligence systems.

- **Customizable report generation capabilities.** Analytics data is accessible with a set of essential built-in reports for the operator to view, analyze, and correlate data.
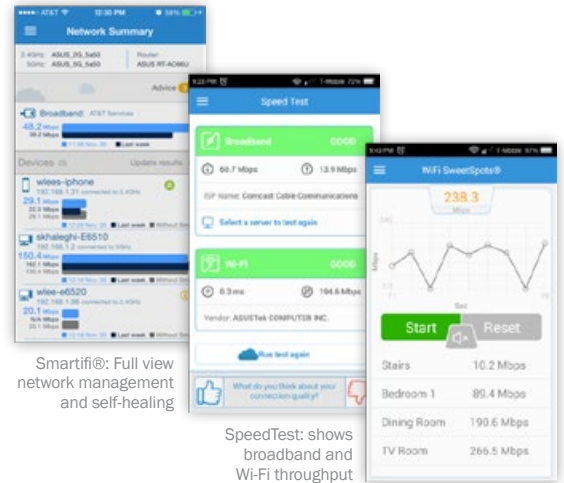
CLOUDCHECK ANALYTICS SERVER

CloudCheck Analytics utilizes cloud-based machine learning and deep analytics to evaluate historical and real-time conditions of the Wi-Fi environments and to make contextual based changes that are ideal for each node on the network. Status, updates, alerts and recommendations via console APIs or a CloudCheck mobile app help turn call center agents, field techs, and subscribers into Wi-Fi "experts" and provide assisted or self-care. Built-in and customizable reporting capabilities for analysis of end-to-end network behavior and performance.

Powerful reporting capabilities
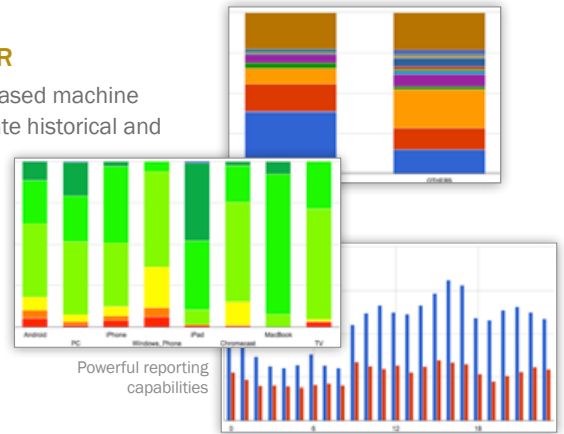
CLOUDCHECK APP

The CloudCheck APP allows the subscriber or field technician to become a Wi-Fi expert. Through this app, end-users and field technicians can interact with CloudCheck and optimize the Wi-Fi network environment. The app contains a SpeedTest for measuring true broadband and Wi-Fi throughput, SweetSpots for Wi-Fi signal strength measurements and Smartifi to manage the Wi-Fi network and automatically optimize Wi-Fi performance. The mobile app runs on APIs for both iOS and Android.

Smartifi®: Full view network management and self-healing

SpeedTest: shows broadband and Wi-Fi throughput

SweetSpots®: visually and audibly shows Wi-Fi coverage in Real-time

CLOUDCHECK AGENT

This lightweight agent is loaded on a home gateway device and measures and analyzes broadband and Wi-Fi throughput, as well as real-time Wi-Fi QoE. The agent uploads Wi-Fi information to the CloudCheck Analytics Server. The agent provides real-time reaction to the Wi-Fi environment and executes self-healing policies to optimize the network for best possible user experience.

EXPERT SYSTEM API

The CloudCheck API enables operators to gain both visibility and control of subscriber Wi-Fi environments by tying the CloudCheck services into the operators existing OSS/BSS systems and customer care workflows.

Customizable Customer Care GUI based on CC APIs

With CloudCheck, operators now have the visibility and control they need to ensure a world-class Wi-Fi subscriber experience.

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Contact
ASSIA today

+1.650.654.3400
or email
sales@assia-inc.com

ASSIA.

333 Twin Dolphin Drive
Redwood City, CA 94065
Tel: +1-650-654-3400
Fax: +1-650-654-3404
www.assia-inc.com

1 World Economic Forum, Is this the future of the Internet of Things?, November 27, 2015