CloudCheck® TruSpeed

June, 2018

Reliably Fast Broadband & Wi-Fi for the Home

6-1-2018

ASSIA Overview

- Who is ASSIA?
  - A fast-growing profitable cloud data-science software-solutions company
  - Enables reliably fast broadband & Wi-Fi for the home
- What problem does ASSIA solve?
  - Drive subscriber satisfaction up and service provider operating costs down
  - Eliminate disruptions to internet connectivity, reduce data transfer times, and improve quality of online-video experience driving down customer care costs, with big-data analytics and optimization
  - Significantly extends the life of costly existing copper infrastructure as well as optimizing fiber
- Where is it used?
  - Over 35 service providers around the world
    - AT&T, Telefonica, Deutsche Telekom, Charter, etc.
  - 100M+ connections and growing
- Why is ASSIA® the best?
  - Hardware-vendor agnostic (lower cost)
  - Cloud-Based Machine Learning
  - Essential IP enables highest performance

ASSIA® has patents and pending patents that cover all the products it sells into the marketplace and represented in this presentation

ASSIA

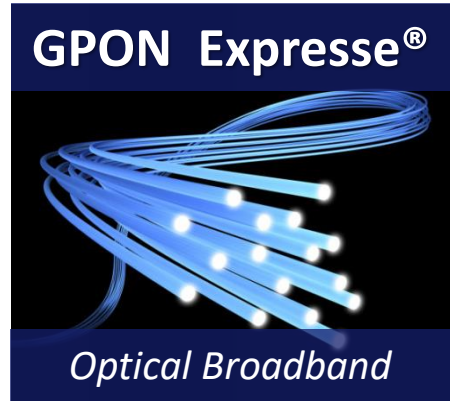
ASSIA Key Customers

ASSIA® Software Solutions

SOFTWARE SOLUTIONS

Driving Subscriber Satisfaction Up & Churn Down while Reducing Costs for over 30 Service Providers around the world

Market Leading Cloud Based Management, Diagnostics & Optimization serving over 100 Million Homes



Professional Services
Training, Analysis, Best Practice, More

IP & Technology Licensing
Fixed Line Broadband, Wireless, Wi-Fi

ASSIA® has patents and pending patents that cover all the products it sells into the marketplace and represented in this presentation

ASSIA

ASSIA Product Portfolio – An End to End Journey to Monitor QoE

EXPRESSE

cloudcheck

QoE Measurement

Wireline Connectivity Management

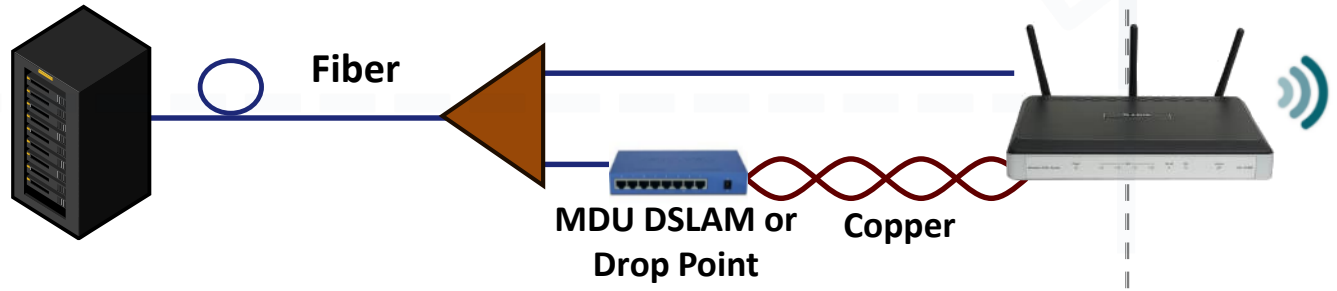
Fiber-to-the-Home / Premises (FTTH / FTTP)

Wireless Connectivity Management

Residential Wi-Fi

ASSIA's Expresse platform is the industry leading software solution providing Quality of Experience management, monitoring and optimization for "last-mile" broadband to the home

ASSIA's CloudCheck solution is a cloud-based diagnostics and optimization platform with consumer self-help tools designed to address the Quality of Experience problems associated with wireless home networks and IoT devices



GPON Expresse

DSL Expresse

CloudCheck Wi-Fi

TruSpeed

ASSIA has patents and pending patents that cover all the products it sells into the marketplace and represented in this presentation

ASSIA

The Operator Challenge

- Adoption of stringent rules ensuring advertised speeds are delivered (e.g. EU Net Neutrality regulation)
- Understanding the customer Quality of Experience
  - Impact of Operator's network vs in-home Wi-Fi
  - Impact of Wholesaler's network vs ISP's network
- Provide every end-user with accurate tool to understand its service performance

Operators need a scalable vendor-agnostic solution that provides accurate results and insights, and easily integrates with other network solutions

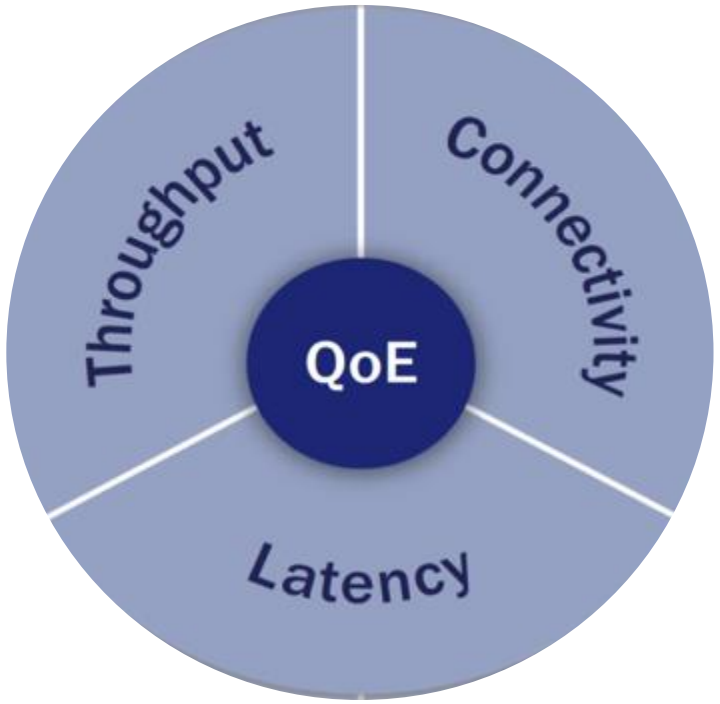
Limitations of Existing Approaches

Two main traditional approaches today:

- End user device-based measurements :
  - Does not segregate between Wi-Fi and End to End
  - Does not account for cross traffic
  - Does not account for connectivity (if you can't connect you can't test)
  - Not everyone is testing (likely very happy or very unhappy customers) introducing a bias

- Dedicated hardware probes limitations:
  - Can't be deployed on large/significant scale
  - Difficult to manage the tested population (enrollment)
  - No visibility on Wi-Fi
  - Introduce a new point of failure

Speed is the Main Proxy for the QoE



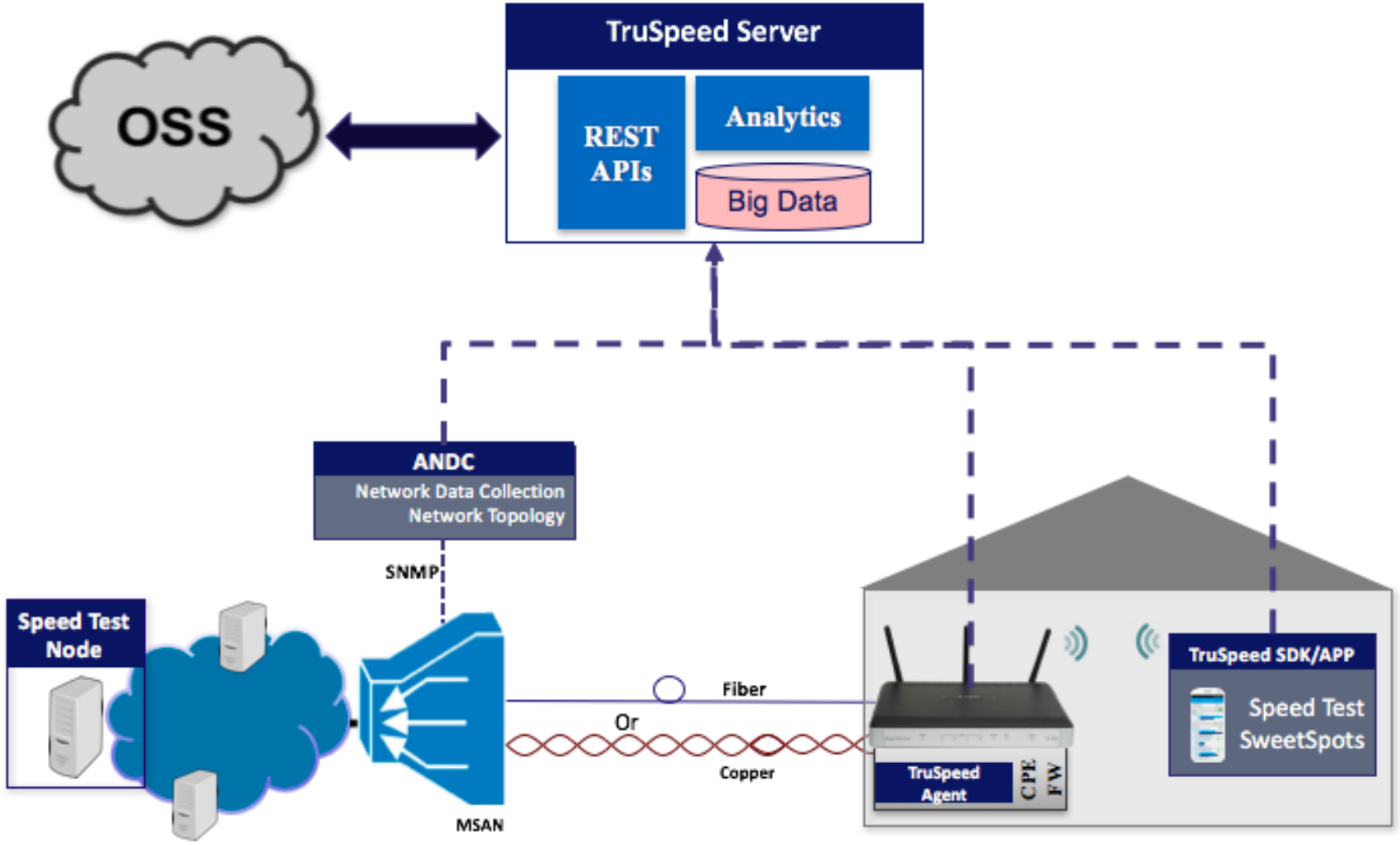
3 metrics are keys:

- Throughput
- Latency
- Connectivity (availability of the throughput)

They need to be measured :

- ➢ Automatically
- ➢ On a regular basis (to account for busy periods)
- ➢ Without impacting the end user experience

Introducing: CloudCheck® TruSpeed Architecture

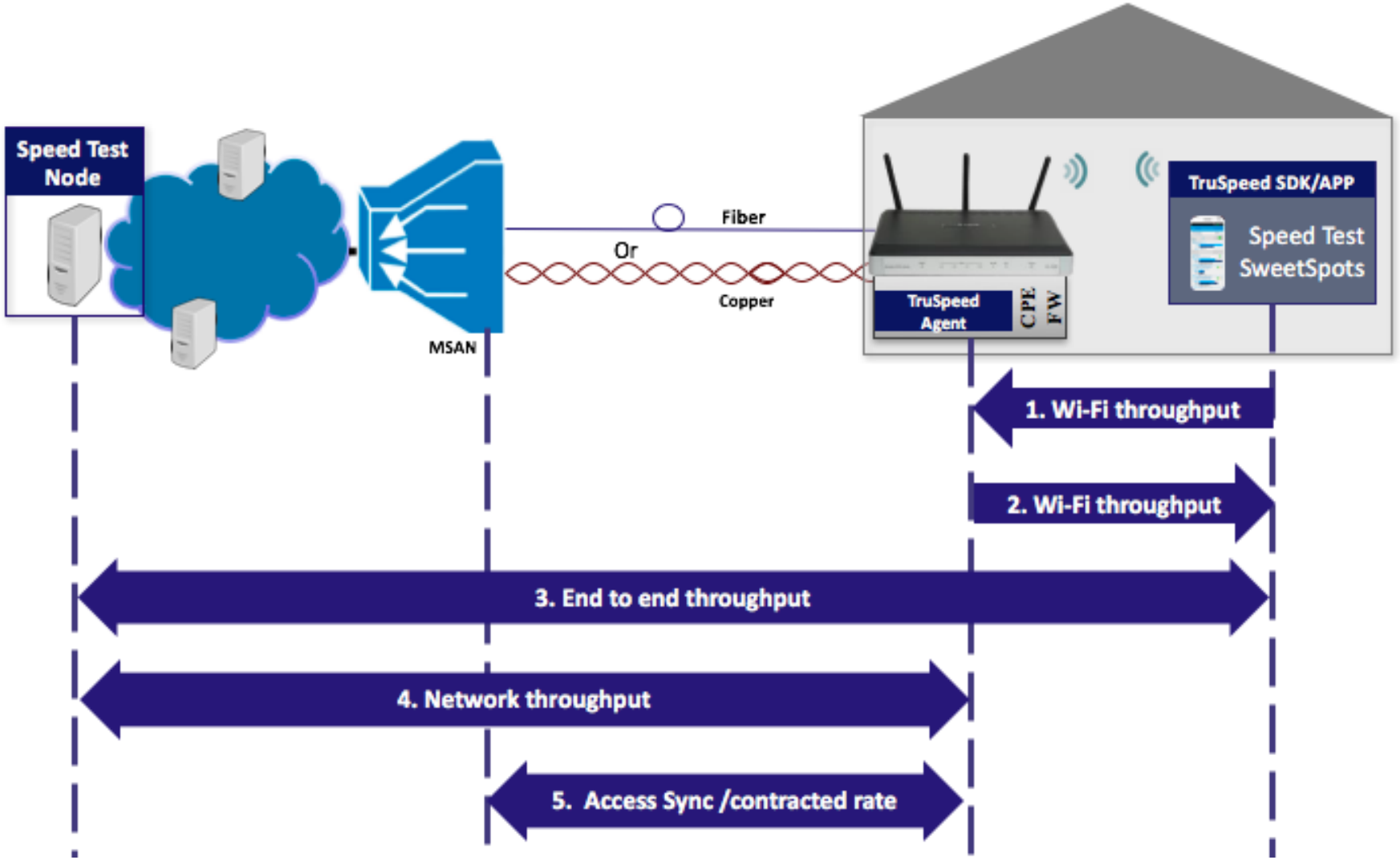


A cost effective software only solution based on:

- Lightweight agent for automatic testing
- APP for end user interface
- ANDC for network collection (option)
- Cloud Servers for storage, analytics and API
- Speed Test nodes

ASSIA

TruSpeed: A Tool to Measure the QoE



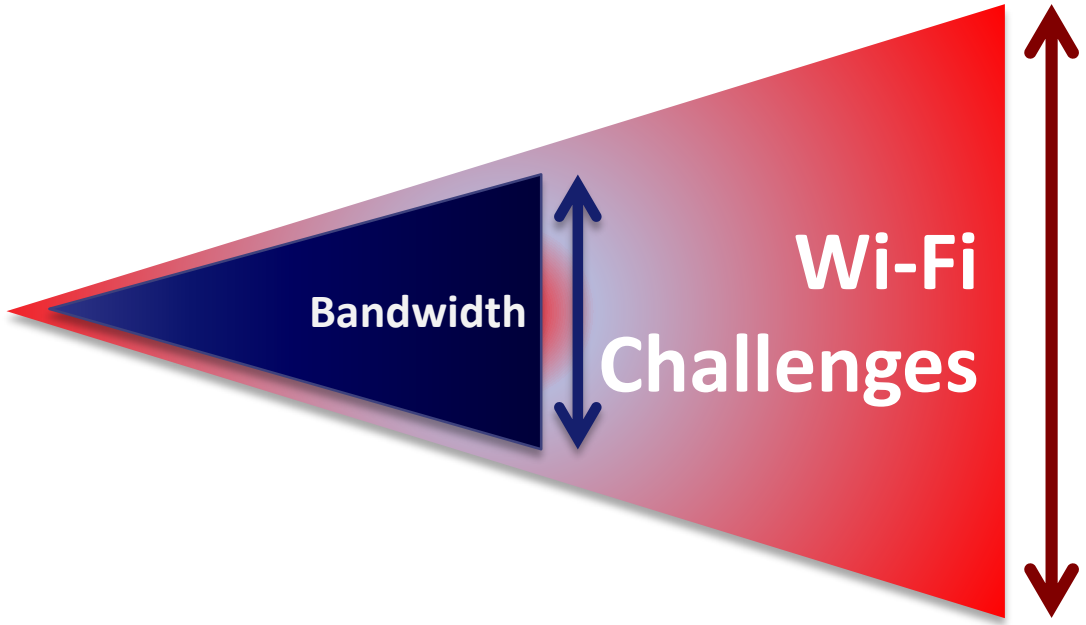
Visibility at 5 key segments of the network:

- In-Home Wi-Fi
- End to End
- Operator's network
- Access Synch

ASSIA

How TruSpeed Addresses the Wi-Fi impact

- Increased offered broadband bandwidth unveils Wi-Fi issues
- Wi-Fi is often the weak link of the end-to-end delivery
- Wi-Fi throughput measurement is critical



- ASSIA has developed a unique approach to measuring Wi-Fi throughput & latency with single ended testing

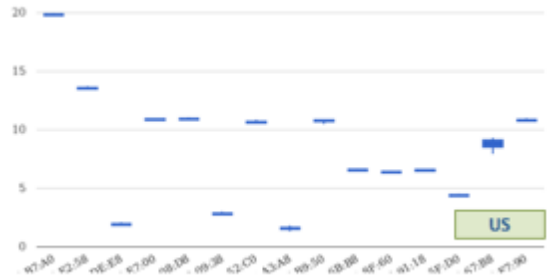
ASSIA

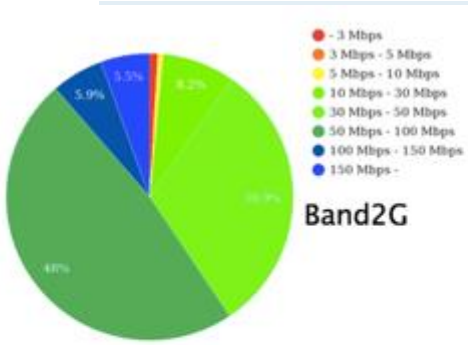
TruSpeed Modular Architecture

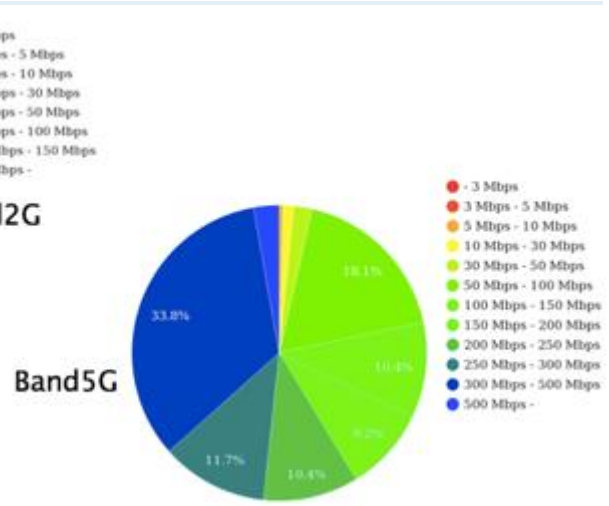
Comprehensive Measurements Across the Network

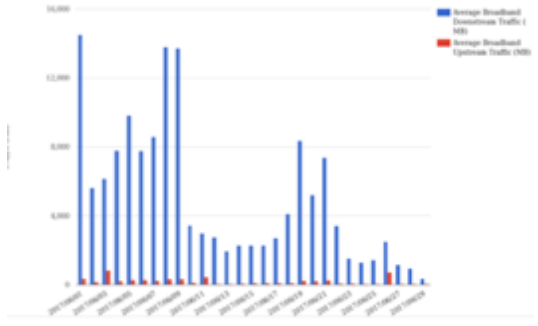
	TruSpeed SDK/APP	TruSpeed Agent	ANDC	TruSpeed Test node
1. WI-FI throughput(end user device)	X			
2. Wi-Fi throughput (agent)		X		
3. End to end throughput	X			X
4. Network throughput		X		X
5. Access Sync/Contracted rate			X	

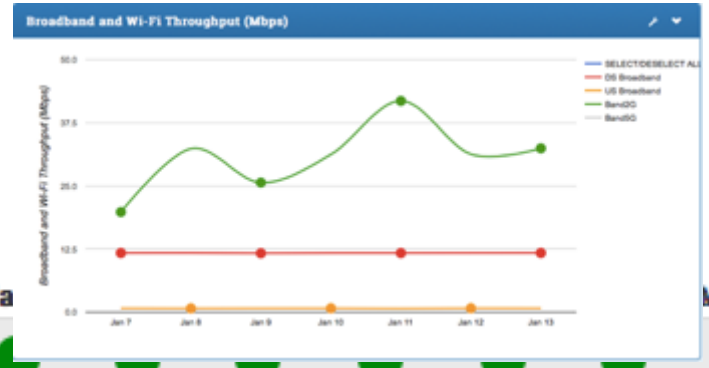
Powerful Analytics and Diagnostics











	ISP 1	ISP 2	ISP 3	ISP 4
Speed Fulfillment ratio (80th percentile)	>90%	Between 90% and 70%	Between 70% and 30%	<30%

Mature and Field Proven Technologies

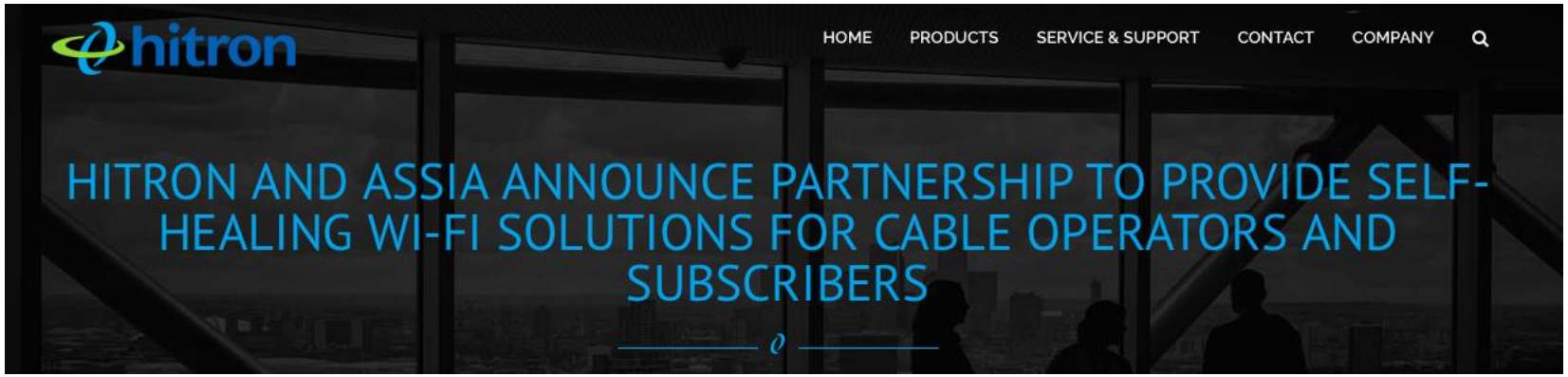
TruSpeed product leverages ASSIA's market leading CloudCheck Wi-Fi and Expresse technologies

ASSIA's CloudCheck® Wi-Fi Management Platform Now Supports Over 100 Gateway/Router Models

Telefonica Deploys ASSIA's CloudCheck® Wi-Fi Solution

Global Telecom Service Provider to use ASSIA® Cloud-Based Software to Manage Residential Wi-Fi across their Network

ASSIA



ASSIA

ASSIA Key Customers

Thank You

End of Presentation

ASSIA®

Reliably Fast Broadband & Wi-Fi for the Home

www.assia-inc.com