



Customer at a glance:

- Major European Tier 1 mobile operator
- More than 20M subscribers
- 4M equipped with 3G handsets
- GSM, GPRS and UMTS networks
- 60 RNCs and 15 SGSN monitored
- 2 competitive offers :
  - 3G-dongles
  - Unlimited Mobile Internet
- 1st position in QoS for the last 4 years according to country regulator

Benefits:

- Benchmark and select the best performing terminals
- Accelerate data service adoption through top QoE
- Detect badly performing handsets
- Increase negotiation power towards handset makers

## Benchmark & Select Best Performing Handsets

### Challenge: Benchmark and select best performing handsets

With the tremendous expansion of multimedia smartphones and the surge in data services, operators are today faced with the challenge of **optimising both their 2.5 and 3G networks**.

On the other hand, **subscribers' QoE expectations are growing** and users who experience poor mobile quality often blame the network. This is not necessarily the case: **faulty handsets can be responsible** for some of these problems.

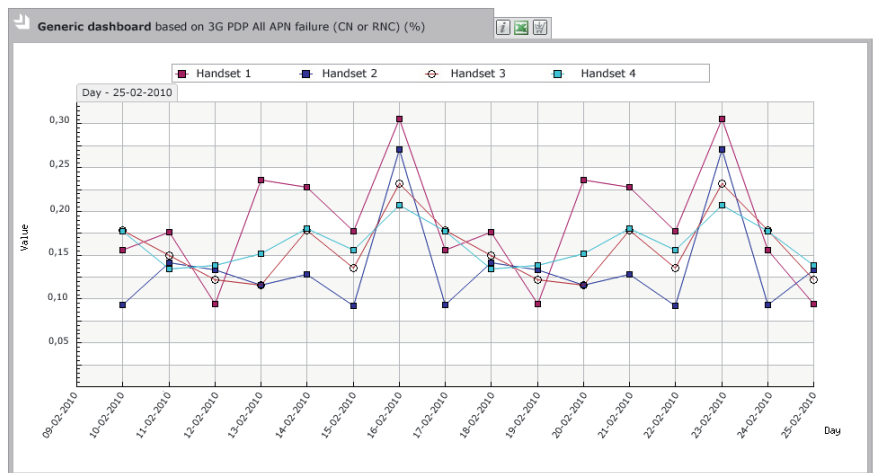
### "improve quality of experience"...

The **quality** of handsets is therefore becoming increasingly important in order to deliver a **unique user experience**. Unfortunately, operators are finding it more and more difficult to test mobile device performance before market launch.



This is why one of Astellia's customers, a major European operator selected our Handset Profiling Solution.

In order to **increase mobile service use and revenues**, the operator was looking for a solution that could **improve quality of experience** and **accelerate** mobile entertainment and business data service adoption. This was only possible if the **whole value chain** consisting of multimedia content, wireless networks and mobile handsets was in line. **Astellia's solution is designed to tackle all these challenges.**



Example of handset performance benchmark

# Astellia Handset Profiling Solution

## The Astellia Solution

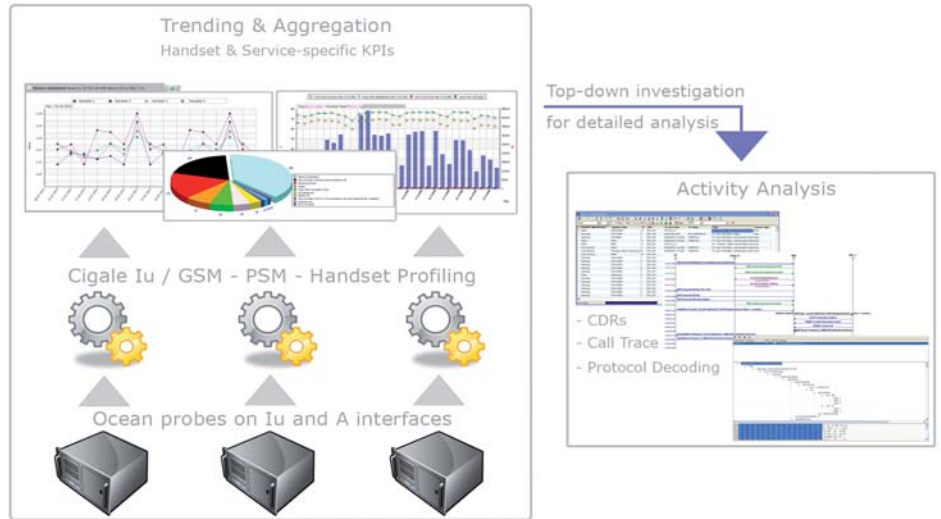
The Astellia Handset Profiling Solution deployed includes:

- Trending & Aggregation for trend analysis and reporting
- Handset profiling for handset specific KPIs
- Packet Service Monitoring providing QoE KPIs
- Activity Analysis for detailed investigation (CDRs, SDRs, multi-interface call trace and protocol decoding)
- Ocean probes capturing data from the A and Iu interfaces

## Examples of Key Quality Indicators per type of handset

- Service scope :
  - Video streaming,
  - Web browsing,
  - Email,
  - MMS services,
  - Ftp .
- Service accessibility and retainability
- Web portal download time
- % of video streaming sessions with image freezing, pixilation or audio loss
- % of MMS received or sent in more than 45 seconds considered as too long
- Time and throughput to download voluminous emails

## Solution architecture



## Astellia Ocean Probes

In order to feed the Handset Profiling application, Ocean Probes are deployed in 4 different regions on **both 2G and 3G interfaces** covering 30 BSCs and 10 RNCs with particular attention to **business districts**. They collect data (signalling and user plan) from every active customer allowing **true visibility of individual handset performance** on the network.

## Handset & Service Specific KPIs

Astellia's expertise in customer-centric Key Quality Indicators is widely recognized as the industry standard. This strong experience and know-how is built on **10 years of partnerships** with hundreds of mobile carriers. These KQIs are designed to measure network and service performance from an **end-user perspective** and to help operators **optimise network, multimedia content and handset selection**.

## Trending & Aggregation

The application aggregates data from the various regions where the probes are deployed. It **calculates the QoS and QoE** based on real customer experience for **voice and data services per type of handset**. It is used for high level reporting such as handset benchmarking, distribution and trend analysis.



## Activity Analysis

In addition to Trending & Aggregation reporting, Activity Analysis is used to perform **detailed investigations**, to **troubleshoot quality regression** due to badly performing handsets and to **identify root causes** based on individual calls and data sessions. Through a **top down investigation approach**, customer support can precisely localise the faulty handsets with their tac number.

# Typical Use Cases



## Accelerate data service adoption

Our client quickly understood that being able to measure any handset performance **across the whole network** would be a precious asset for accelerating mobile data service adoption and revenue.

In 2008, the operator decided to enhance the **existing probe-based solution** with the **Astellia advanced Handset Profiling module**. The company has been using it since, in addition to 'handset active testing tools' and 'test in labs' which are not considered as fully representative or reliable.

## Ensure roaming compatibility

The operator uses the Astellia solution on a regular basis in the 2 main airports.

The objective is to check that handset models used by roamers are **compatible** with its network and thereby **optimise in-bound roaming revenue**.



Ensure compatibility of roamers' handsets

## The iPhone Case



Since the introduction of the iPhone®, the operator's marketing team has been using the Astellia solution to **measure the penetration of all new iPhone Operating Systems** as they are released. This benchmarking means that the operator can recommend the **best performing OS** on its e-portal.

The operator has also gained a more in-depth understanding of **iPhone user behaviour** and usage. For example, by identifying the most widely used applications (emails, video-streaming, web browsing, etc.), as well as the most popular websites (Facebook™, Google™, Flickr®, ...) **per type of handset**.

"The rapid success of smartphones such as the iPhone has had a **considerable impact** on the stability of the network", says Hervé Miot, 3G Specialist at Astellia. "The fact that the 3G network is near saturation means that data traffic has to be **redistributed accordingly** between available network layers (HSDPA / Edge / GPRS). Consequently both 2G and 3G network resources now need to be managed and optimised conjointly. The key radio metrics provided by HPG are critical in the optimisation of both 2G and 3G network capacity, coverage and intersystem mobility."

## Troubleshoot quality regression

The solution, based on a **top-down investigation approach** is also used on a daily basis by the **optimisation and customer support teams** to troubleshoot quality regression due to low performing handsets. Our customer was particularly interested in targeting business professionals and roamers who are a **key and growing market segment**. In order to do so, the operator decided to focus its handset analysis in the main **business districts and airports** in the capital city.

## Benchmark handset performance

Today, handset profiling is considered as a strategic solution for the operator. It **generates reports for the board of directors and the marketing team** in order to **benchmark and select** the best performing terminals to trigger enhanced mobile data service usage.

# Benefits



## Detect poorly performing handsets

Handsets with wrong settings or infected by viruses can be responsible for **network congestion and poor quality of experience** resulting in negative word of mouth and revenue leakage. Using the Astellia solution, our customer is now able to **identify quickly and precisely** any faulty handsets responsible for problems such as call drops, MMS failures, weak mobility, image pixilation or video freezing.

## Increase data service revenue

The use of handset profiling has **greatly improved** the **quality of experience** delivered to subscribers and leveraged data usage. By choosing and distributing the best mobile terminals, the operator offers **better comfort of use, fast access to data services** and **greater interaction with multimedia content**. Mobile broadband is now considered as a strong alternative to fixed Internet lines.

## Strengthen negotiation power towards handset makers

With these **reliable and valuable statistics**, marketing and procurement teams can establish the **most appropriate business and technical decisions** for handset vendors. These decisions could include for example the decision to stop distributing a specific handset model, requesting discounts or demanding corrective software updates.

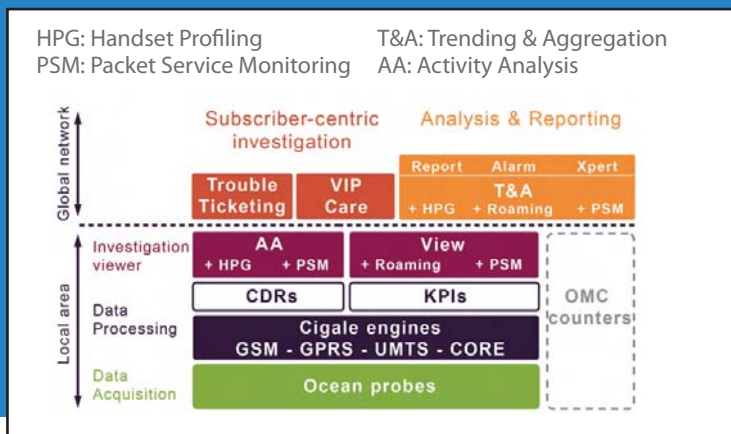
## Select best performing terminals

With the growing number of handsets launched on the market, their **advanced capabilities** and the rolling out of **mobile applications**, it is increasingly challenging for operators to test each terminal precisely.

Using the Astellia solution for its handset validation process, our client achieves **greater efficiency, reducing** new handset time to market. The operator can follow up the introduction of new terminals, compare their performance based on a **comprehensive list of handset and service-specific KPIs** and select the best mobile devices.

# All-in-one Astellia solution

Modular & scalable  
Probe-based



Astellia is a leading company in mobile network optimisation operating on a global scale since 2000.

Astellia helps more than 175 mobile operators and equipment vendors to maximize their network performance.

Thanks to the Astellia solution they can deliver top Quality of Service (QoS) and Quality of Experience (QoE) to their subscribers.



ZA du Plessis - CS 27241 - 35772 Vern sur Seiche cedex - France - Tel. +33 (0)2 99 04 80 60 • Fax: +33 (0)2 99 04 80 61 • infos@astellia.com

<b>Paris</b> France Tel. +33 1 40 86 09 72	<b>New York</b> USA Tel. +1 646 375 2435	<b>Singapore</b> Singapore Tel. +65 6372 3538	<b>Beirut</b> Lebanon Tel. +961 382 6008	<b>Rio de Janeiro</b> Brazil Tel. +55 21 9380 1861	<b>Johannesburg</b> South Africa Tel. +27 83 309 9602	<b>Mumbai</b> India Tel. +91 22 3953 0534
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