



Aptus

Crowdsource Your Way To Experience Insight

What is Aptus?

- Aptus is a Customer Experience SDK

Which can be integrated into any Android or iOS application.

- The Purpose of Aptus

Is to collect unique subscriber experience data directly from the handset – vital insights when evaluating true network performance. **The SDK collects no PII information**, only technical experience metadata.

- Data collected from Aptus

Is transferred automatically to the Livetime cloud, where it can be viewed and analysed via a web-based GUI.



Aptus

Why Aptus?

Lowering Costs... Increasing Revenues

CUT COSTS



Many operators are using crowdsourced data in place of more expensive testing practices such as drive testing. This helps to save a huge amount of resource.

Increase Revenues



Understand more about the behaviour of your users.
How is the take-up of new services among your users? Add capacity where you need to and keep customer retention high.

Increase Satisfaction



Improve customer experience across a range of metrics including NPS and CSAT. Gain the data you need to improve networks in-line with subscriber experience.

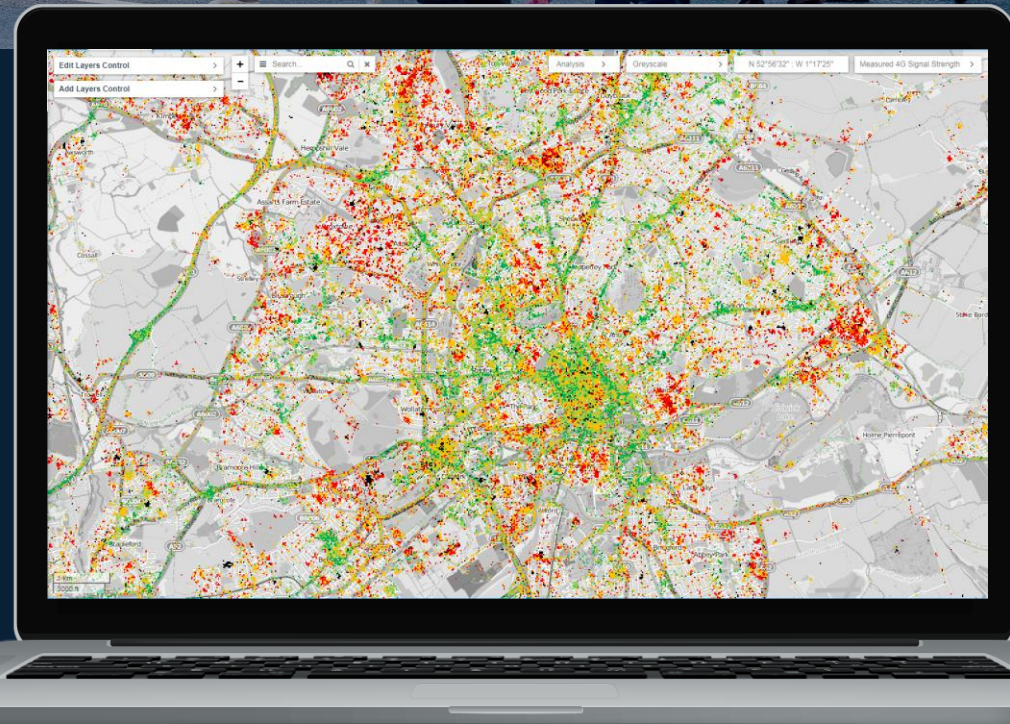
Crowdsourcing Network Performance

Aptus continuously monitors the network performance from subscriber handsets and reports any problems directly to the platform.

The network problems detectable by Aptus are:
Dropped Call, Problem Call, Emergency Only.

Utilising the data collected from Aptus, a vast range of reports can be made available analysing network performance.

Current reports include: Battery Usage, Customer Experience KQIs – per subscriber, Handset benchmarking, Coverage problem areas, Browsing experience, App experience.



Customer Experience Metrics



- Data Sessions

Has the subscriber used Facebook or accessed the internet through Chrome or Safari and how much data did they consume? Which apps have your subscribers used?

- SMS Events

How many SMSs have your subscribers sent or received? Are your subscribers receiving Roaming SMS's when they travel abroad?

- Call Events

Are your subscribers heavy users of your Voice network?
How is your radio network performing?

- Roaming

Which roaming partners are your subscribers connecting to when abroad?

- Wi-Fi Hotspot

Are your subscribers connecting to Wi-Fi hotspots?

Additional Features



Background Collection

Aptus will sit in the background of a device, collecting anonymous data without alerting the subscriber.



Customer Behaviour

New information measured:

- Light sensor
- Proximity sensor
- User activity



Dual SIM Collection

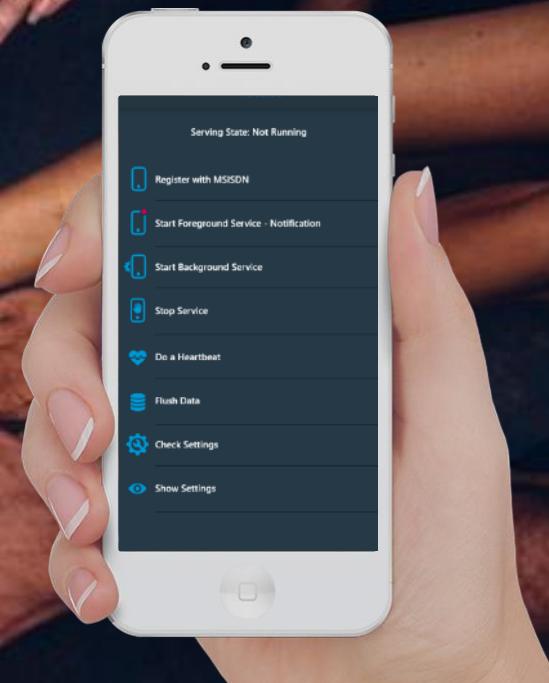
Aptus will measure data from two SIMs simultaneously. This will enable benchmarking analyses among other features.



International Roaming Experience

- Detect international roaming state
- Background data testing disabled
- Information stored in device until WiFi or return to home network

What is Aptus Collecting for you?



Device	Mobile Service	Wi-Fi	Context
<ul style="list-style-type: none">• Handset model• Handset manufacturer• OS Version• Kernel Version• IMEI SV• SIM MCC/MNC• Dual SIM	<ul style="list-style-type: none">• Technology• RSRP• RSRQ• SNR• CGI• Neighbour cells• Mobile data APN• Operator Name	<ul style="list-style-type: none">• Hotspots in range• Connected hotspot• BSSID• SSID• Signal strength• Channel	<ul style="list-style-type: none">• Timestamp• GPS location• Network location• Screen on• Battery level• Device language

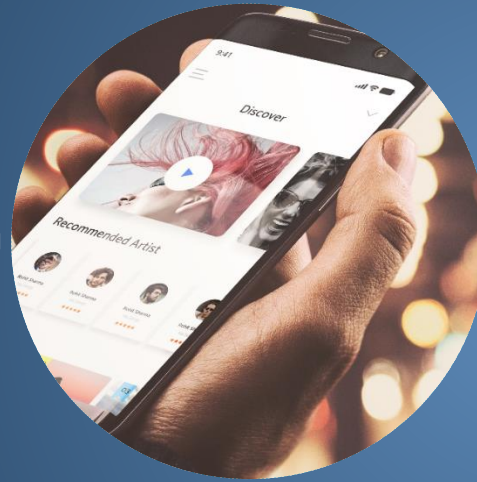
More than 130 fields collected with every sample.

How to deploy Aptus



CEXP API Library

Metricell will provide the API library along with relevant documentation to your application engineers.



Integrate into app

Your app engineers will integrate the API into your pre-existing application enabling the data collection functionalities.



Provide to subscribers

An update is sent to your subscribers notifying them of an update applied to your app or will automatically update if the subscriber has this enabled.

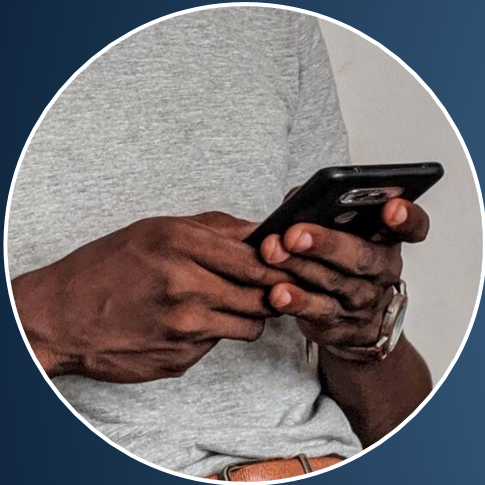


Metrics pushed to LiveTime

All Aptus installations can be assigned to a profile on the LiveTime platform. Profiles can be used to create reports and analyse data.

Time to deploy: 2 weeks

Aptus Insights



A Network Fit for Purpose

Unique source of subscriber experience e.g. streaming video, browsing the web.



In-Building Coverage Problems

Identification of in-building coverage problems and potential infill site locations.



Subscriber "fallen-off" the Network

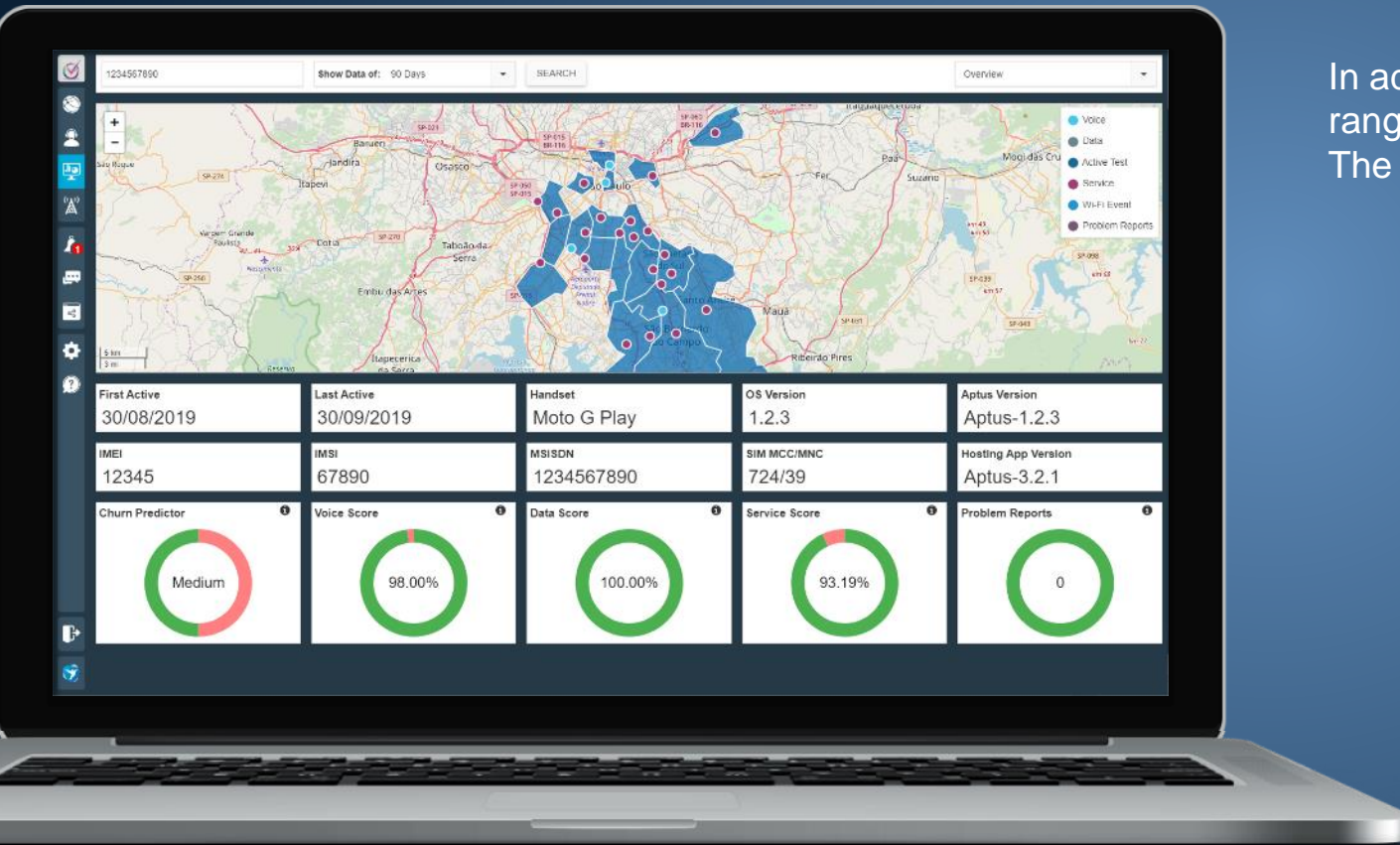
Identify when the subscriber has "fallen-off" the network and pinpoint coverage holes.



Supporting Data

The metrics captured by Aptus aid the resolution of Customer Support Incidents.

Making Use of the Data



In addition to the KQIs, Aptus collects a variety of metrics ranging from Data Sessions to Application Usage. The data can assist the operator in a number of ways including:



Providing additional information to a customer trouble ticket.



Increase the understanding of customer problems. For example Dropped Calls or battery consumption.



Profile each subscriber to understand their demands for your network.

For example...Network Planning



Crowd data can be used to support planning of cell deployments.



Advantages of crowd data:

- High precision location resolution: 5 meters.
- Contextual information: Screen on/off, data usage, location activity.



SmartNetwork specialised views: crowd density and crowd mobility



You are in full control of the data collection, including number of subscribers, number of samples and number of data tests.



Remove bias by randomizing testing.



Confidence analysis designed for crowd data.



Overview: Departmental Benefits

Departments across the operator's business can derive great value from Aptus experience data...especially when correlated with a range of complimentary data such as your OSS KPIs, CRM/ticketing systems or any other sets...



Performance Teams

Gain a greater understanding of regional performance and where problems occur...



Radio Planning Teams

Understanding indoor/outdoor discrepancies, locations of poor experience



Operations Teams

MQA data can act as an early warning system to help proactively identify areas in the network where customers are complaining



Marketing Teams

Correlation of experience, segmentation opportunities and NPS scores for Marketing Teams



Optimisation Teams

Automatically identify common optimisation issues such as Sleeping Cells

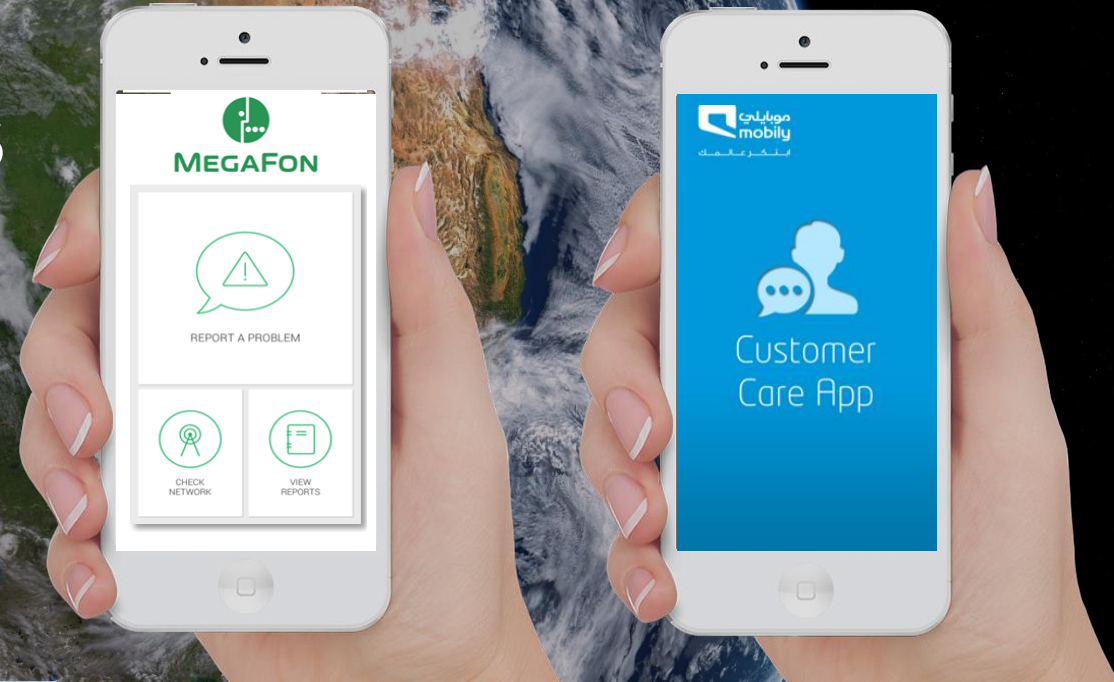


Customer Experience Management Teams

Increased level of insight into subscriber usage and behaviour patterns

Aptus Additional Features and Celcom Success

Metricell can also provide (via an SDK) a range of value added features that can be directly integrated your app that utilise the functionality included within Aptus as well as some additional features:



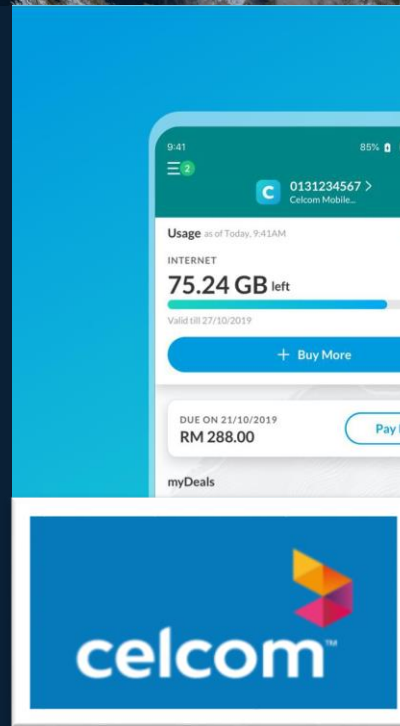
Self Care – enable your subscribers to self diagnose their network problems



Problem Reporting – provide your subscribers with a voice to express how they are experiencing the network



Network service checks – a series of network tests including Data Speed, SMS, Web Browsing and Video Streaming



After successful internal testing, Celcom have now implemented Aptus into their “C-Life” customer-facing account management application. This app allows users to manage their accounts, find stores, stream entertainment, check roaming conditions, and more.

With Aptus embedded within the app, Celcom now enjoy a wealth of experience information coming in from all over Malaysia helping them to drive targeted optimisation, close customer queries faster and massively reduce the amount of drive testing they have to undertake for diagnosis and fault identification.

FAQs

- **How much data does Aptus use?**

All of the data collected from Aptus is heavily compressed before being sent to the cloud. We would expect an average user to use approximately ~2-5Mb per month, but this can be reduced depending on the deployment requirements.

- **Is Aptus available on iOS?**

While Aptus can collect a wider range of experience information from Android handsets, it can also be implemented into iOS applications.

- **What is the battery impact of Aptus?**

Aptus on default settings consumes between 0.15%-0.50% p/h depending on subscriber activity. Battery consumption rates will be impacted depending on the remote configuration settings applied.

- **What do my subscribers have to do?**

Nothing, once Aptus has been integrated into the 3rd party application and installed the subscriber just has to continue using their handset as they normally would.

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