CIQUAL
Customer Insight

On-Device Customer Insight

…all networks, all locations, at all times
…actionable insights from the User Device

Public Information

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On-Device Solution Overview

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Mobile Performance Data

Device Data

Customer Feedback Questionnaires

Your App Usage Data*

Optimised for low battery use, small payload, data security

Client packaged as part of your Mobile App

Device-based Client

Proven, scalable client-server solution

Data storage and processing

Cloud-based Server

Advanced Helpdesk

Mobile Intelligence Reporting

Flexible Data Visualisation

Web-based User Interface

Measuring user QoE

….. After price, poor QoS is the #1 source of user dissatisfaction

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End-to-end User Experience of a Service

Cable / DSL
(Home Fixed Broadband)

Enterprise VPN

Commercial Wi-Fi
Network (Wi-Fi Offload)

2G/3G/4G
Mobile Network

Roaming Partner
Mobile Networks(200+)

On-Device roams with the customer providing constant visibility of user experience

Measure at the customer device for the most realistic view of the end-to-end user experience

MyOp: Customer Service Deployment

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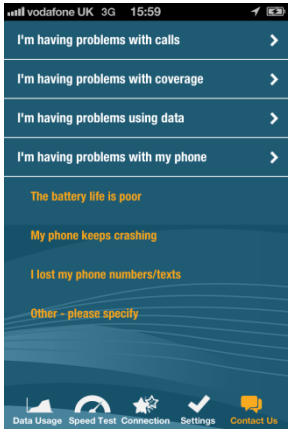
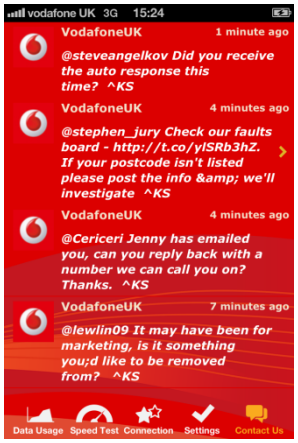
Use MyOp deployed on the next generation smartphones to enhance consumer engagement





Billing & Usage → **Quality Of Service** → **Customer Care** → **Marketing**

- *Minutes*
- *Texts*
- *Data Usage*
- *Current Tariff*

- *Throughput*
- *Technology*
- *Delay*
- *Predictive QoS*

- *Pro-Active Texts*
- *Twitter*
- *Pro-Active Care*
- *Roaming Alert*

- *Target Offers*
- *Best Tariff*
- *Renewals*
- *News*

Customer engagement

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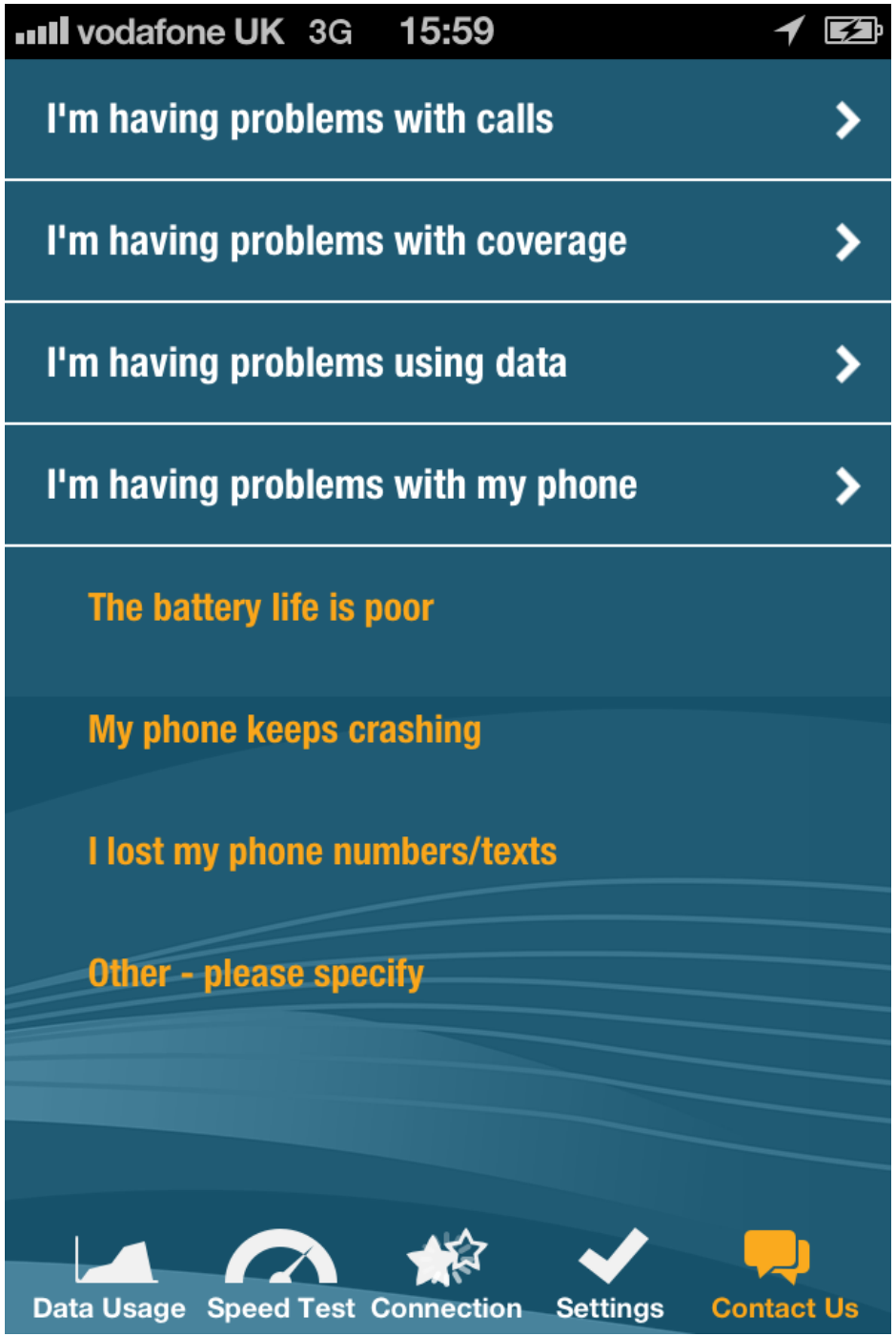

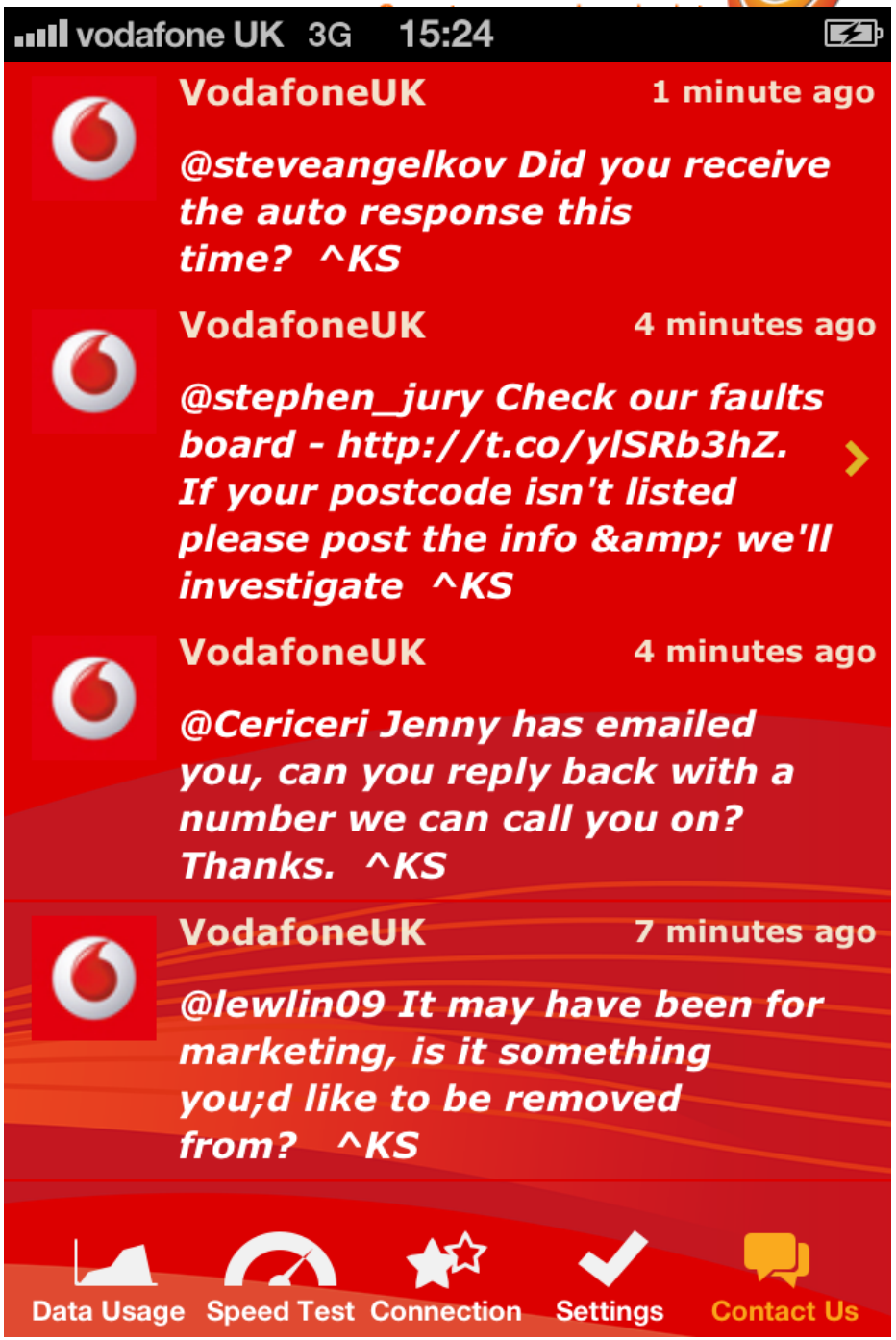

Technical Support Process

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Unresolved Performance issues Circulate Through Support Tiers, as Tier 1 & Tier 2 Staff have limited visibility of the customer environment, session history and end-to-end network state

Improved tools for Support can significantly reduce call handling times, escalations, repeat calls and overall fault handling times.

User Experience Data – Wider Benefits

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"Hard" Benefits

Reduced Support AHT

21% AHT Saving
Faster Call Handling in T1 & T2

Reduced Repeat Calls

13% Reduction in Repeat Calls
Objective Data Reduces Checking

Faster Fault Tickets Closure

57% Reduction in MTTR
Accurate Data – faster fault analysis – Churn

Reduced Rebates

Expect Decrease in SMB Post Cancellation Rebates

"Soft" Benefits

Improved Customer Experience

Care agents can now confirm & validate customer issues – Churn impact

Enhanced Marketing Intelligence

Comparative data on device performance, actual user behaviour in geographic zones

Real-World User Performance Data

Every user is a drive tester – confirmation of Test Data

Per-user Visibility

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Tier 1 Interface
Usage and Performance summaries per user

View Live User Sessions

Tier 2 Interface
Detailed record of each mobile session

Enterprise-Level Visibility

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Enterprise Select

Name | Tier | Priority

A-E

- A-Enterprise
- B-Enterprise
- C-Enterprise
- D-Enterprise
- E-Enterprise

F-J

Search:

Overview

Contact Name	A. Contact
Contact Number	+XX2221118888
Contact Email	contact@ent.com
Account Tier	Gold
Satisfaction Rating	Low

2008 | 2009

Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov | Dec

Monthly Quarterly

Mobile Broadband Availability

Number of Devices	8045
Number of Active Devices	4937 (61%)
Number of Sessions	46554
Number of VPN Sessions	30234 (65%)

Enterprise Performance

	Avg.	Target	Result	Trend
Service Availability	98.6%	>97.5%	98.6%	↑
Data Rate (>=1MB DL)	345 kb/s	>95% @ >200 kb/s	97.8%	↑
Latency	0.44 secs	>98% @ <1.5 secs	98.2%	–
Loss	0.79%	>98% @ <1%	97.8%	↓

Service Performance - External

		Service Availability			Connect Time			
		Target	Result	Trend	Average	Target	Result	Trend
Web	google.com	> 98%	99.2%	↑	2.4 secs	>99% @ <5.0secs	99.7%	↑
	amazon.com	> 98%	99.5%	↑	5.4 secs	>99% @ <10.0secs	99.7%	↓
Mail	googlemail	> 99%	99.4%	↓	0.97 secs	>98% @ <2.0secs	95.9%	↑

Service Performance - Enterprise

		Service Availability			Connect Time			
		Target	Result	Trend	Average	Target	Result	Trend
Web	Home Page	> 99.8%	98.9%	↓	3.2 secs	>99.5% @ <8.0secs	99.7%	↑
Mail	POP3	> 99.0%	97.3%	↑	0.65 secs	>98% @ <2.0secs	98.2%	↓
	SMTP	> 99.0%	98.9%	↑	1.01 secs	>98% @ <2.0secs	99.7%	↑

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LTE Performance & Usage Package

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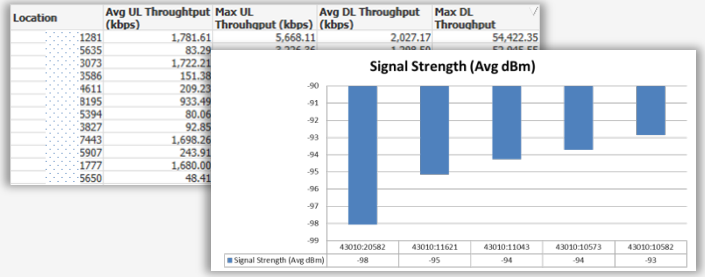
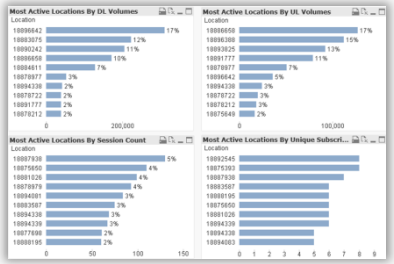
- Prioritise cell locations which need LTE performance improvement
- Identify locations of static extreme downloaders
- Identify and resolve issues with OTT service performance (Facebook, Netflix etc)
- Individual device-related issues identified & solved
- Customer usage patterns help set monthly inclusive data bundles
- Benchmark overall LTE user experience

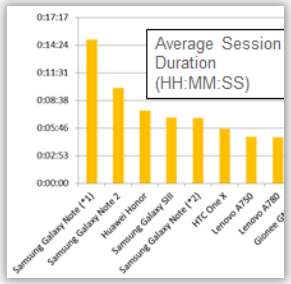
Cell Performance Ranking

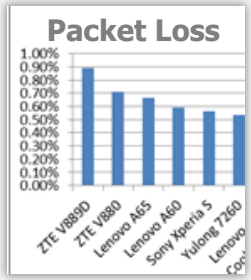


Cell Usage Report

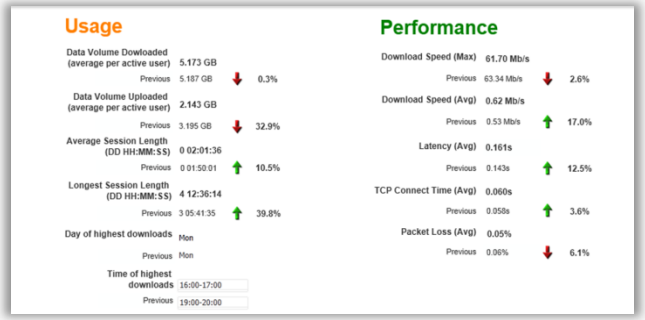


Device Performance & Usage Report

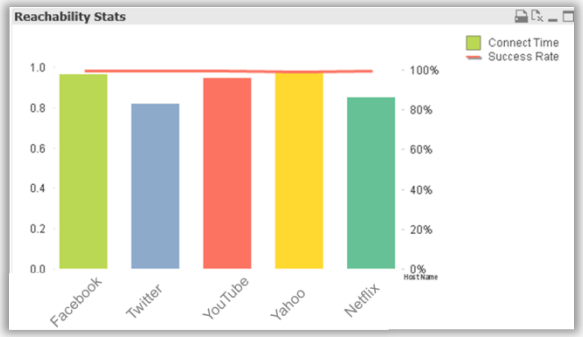




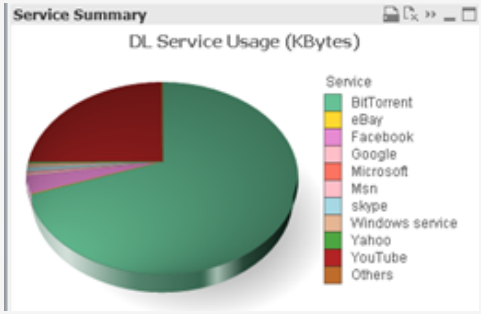
Customer Experience Dashboard



Service Performance Report



Service Usage Report



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Worst Per-Cell Radio Performance

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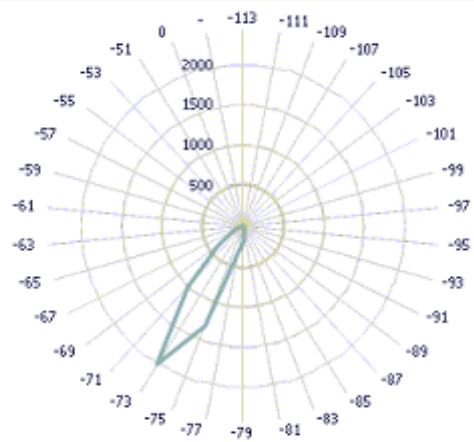
Good Cell

Select : 3G Access Technology Category
- HSDPA
- UTRAN

3G Location (LAC:Cell ID)
- 65050:489

3G RSSI - Frequency x Location Analysis



RSSI Analysis (By Location)

Location (LAC:Cell-ID)	Max Signal Strength Indicator	Median Signal Strength...	80% Signal Strength Indicator
65050:489	0.00	-73.00	-71.00

RSSI Analysis (By Operator)

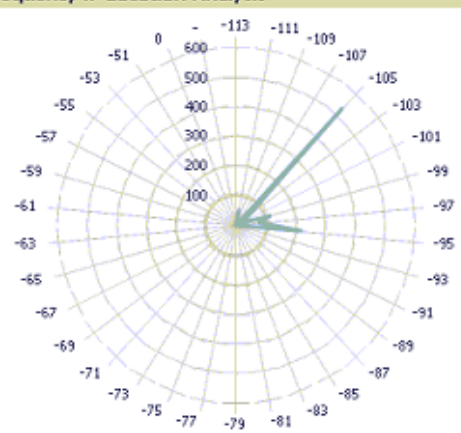
Network	Max Signal Strength Indicator	Median Signal Strength...	80% Signal Strength Indicator
Unknown	0.00	-73.00	-71.00
Vodafone	-67.00	-73.00	-71.00

RSSI Analysis (By Modem)

Modem Model	Max Signal String Indicator	Median Signal String Indicator	80% Signal String Indicator
K3520	0.00	-73.00	-71.00

Bad Cell

requency x Location Analysis



RSSI Analysis (By Location)

Location (LAC:Cell-ID)	Max Signal Strength Indicator	Median Signal Strength...	80% Signal Strength Indicator
61363:60305	-95.00	-105.00	-95.00

RSSI Analysis (By Operator)

Network	Max Signal Strength Indicator	Median Signal Strength...	80% Signal Strength Indicator
Unknown	-99.00	-105.00	-105.00
Vodafone	-95.00	-103.00	-95.00

RSSI Analysis (By Modem)

Modem Model	Max Signal String Indicator	Median Signal String Indicator	80% Signal String Indicator
K3520	-95.00	-105.00	-95.00

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Poor QoS is an inhibitor to the growth of mobile service revenues

…all networks, all locations, at all times
…actionable insights from the User Device

After price, poor QoS is the #1 source of user dissatisfaction

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The future of mobile, OTT revenues!

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It's a "One Web" World

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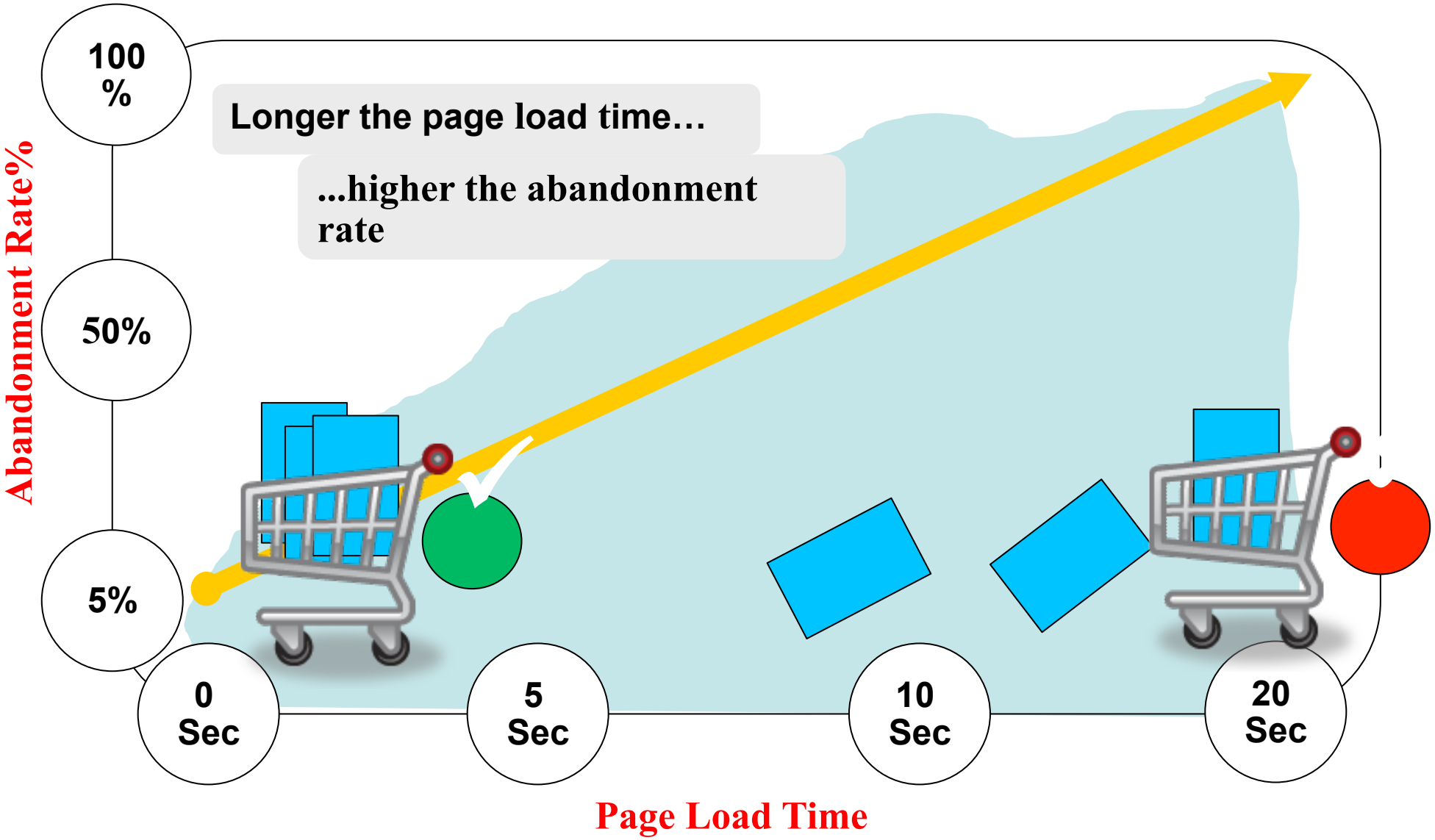

Mobile Banking: Increasing consumer confidence

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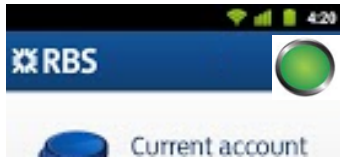
Provocation:

- Significant percentage of customers frustrated using mobile banking
- Lack of consumer confidence in mobile internet connections a major reason for restricted take-up of mobile banking
- Bank has Mobile banking as a strategic initiative

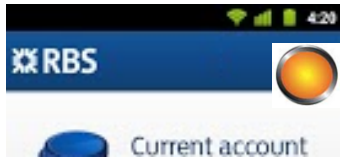
QoE Utility

Proposal:

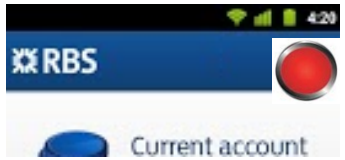
- **Offer the consumer 'Best' connectivity available**
- **"Bank – Don't Bank" traffic light in their mobile banking apps which identifies the current mobile connection is of sufficient quality that this customer can confidently complete their mobile banking transaction?**
- **Educating and empowering the customer to make intelligent mobile banking decisions**



Make Payments



Check Balance



Don't Bank

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Improving Media Player experience?

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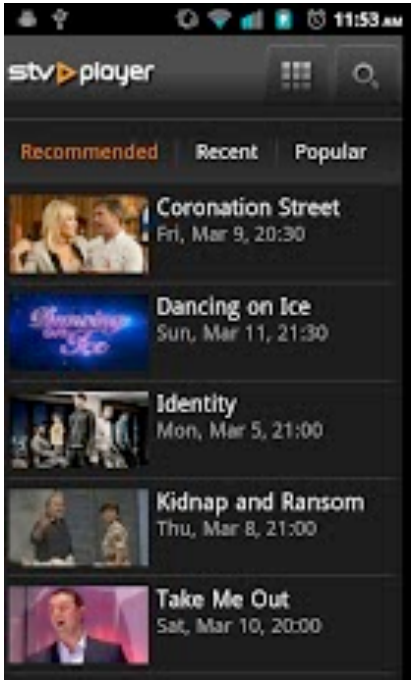
Provocation:

- Is the feedback on iStore and Google Play negative and impacting your brand?
- Has poor service experience (inability to connect to a network, poor network quality, connection breaks/drops, picture distortion, blocky low quality picture, poor streaming quality) been a major reason for customers stopping use of your Player?
- Is your video Ad completion rates an issue?



QoE Utility

Proposal:

- **'Best' connection possible to increase video Ad completion rates**
- **Would you value a "Stream – Don't Stream" traffic light in your Player which identifies the internet connection is of sufficient quality that this customer can confidently stream their content?**
- **Would empowering the customer to make intelligent streaming decisions be useful to your brand?**

Stream

Temporary issue

Don't Stream

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QoE Utility: Predictive Performance

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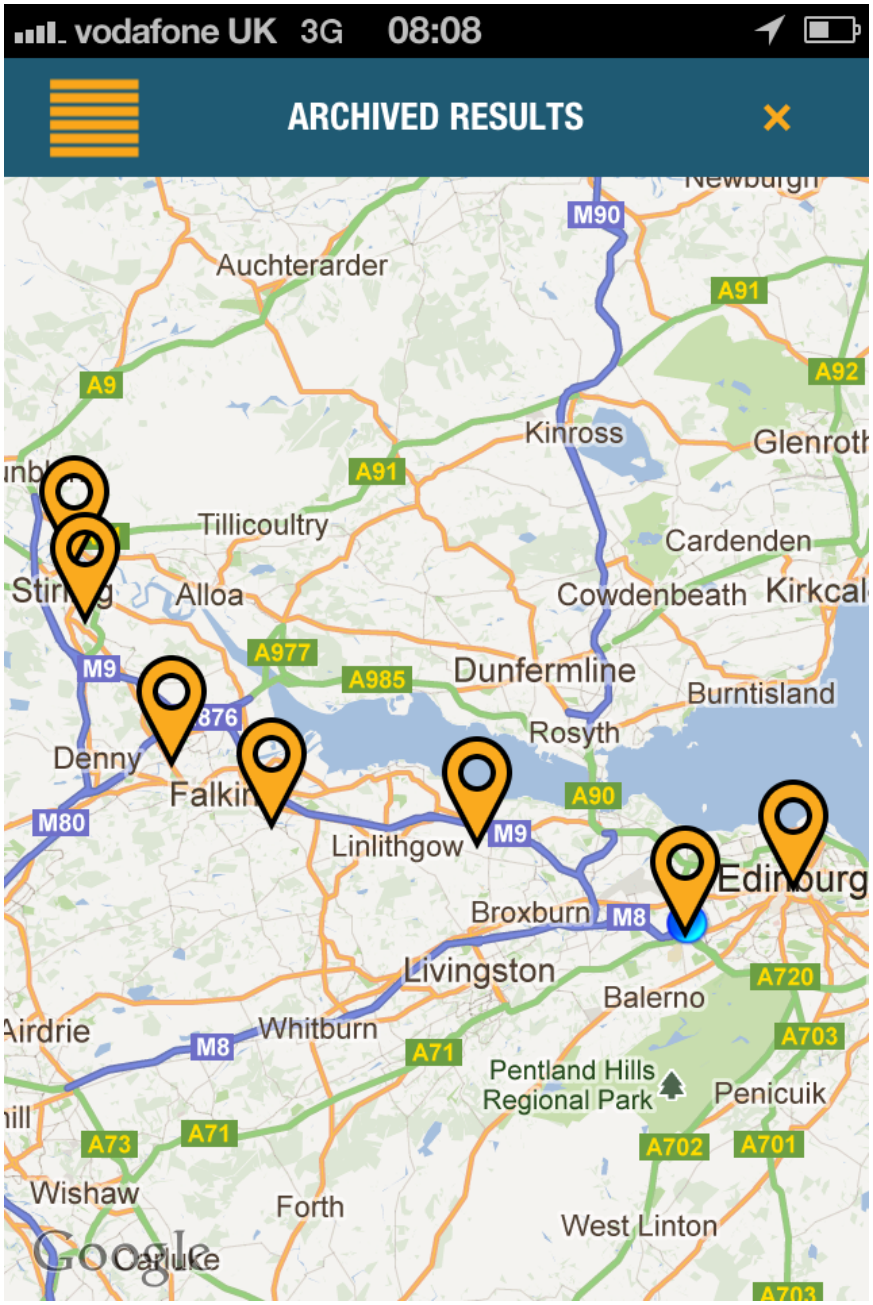

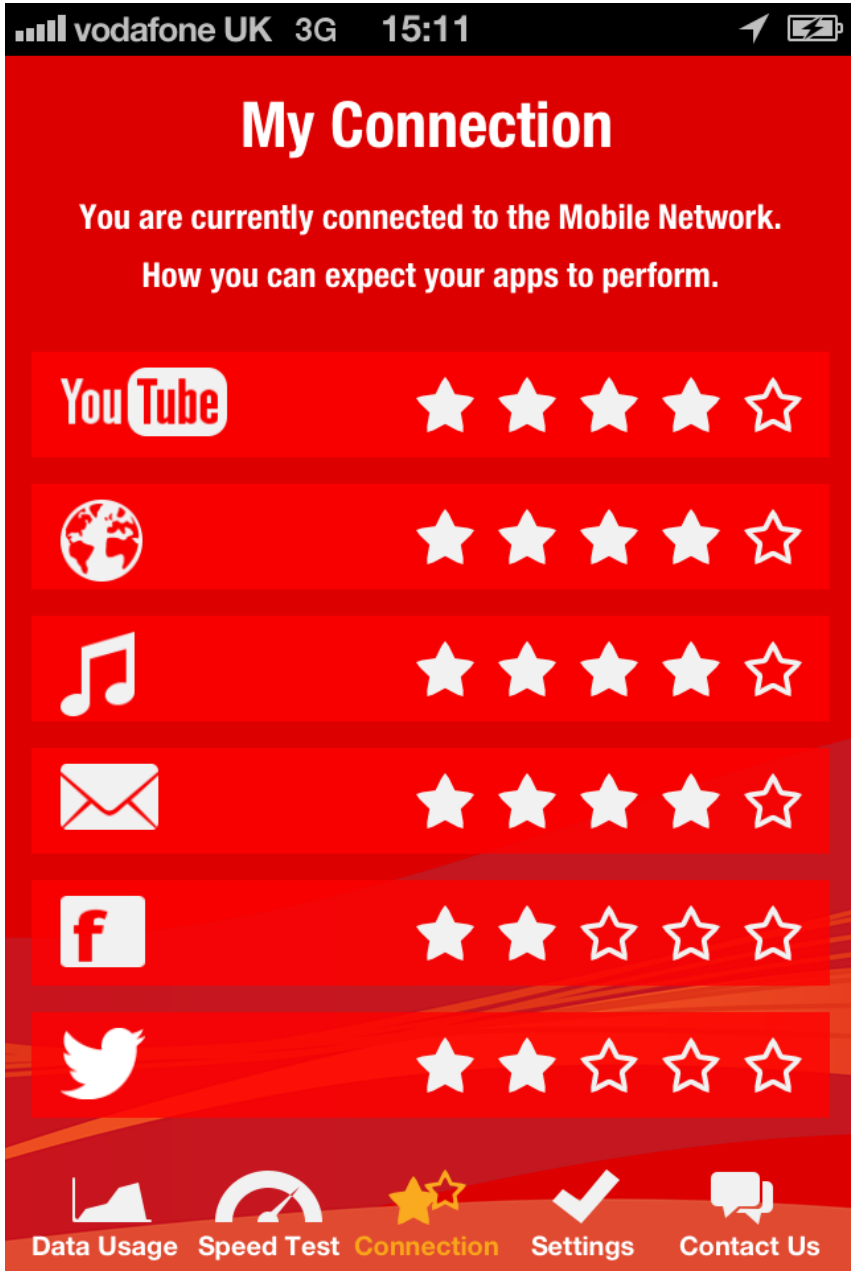

QoE Utility: Ensuring 'BEST' consumer connection

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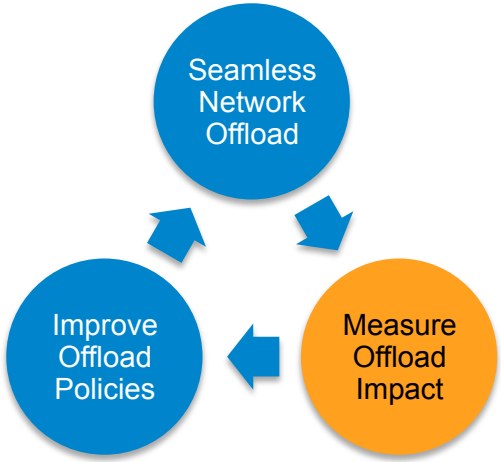
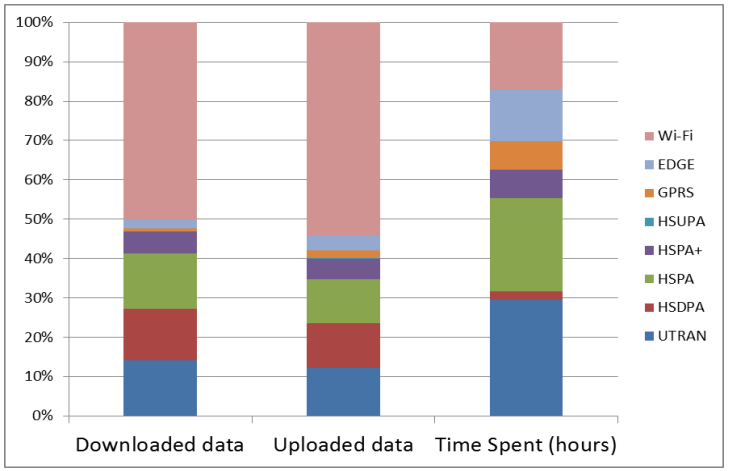
Challenge
To measure the experience of Android smartphone users offloaded to Wi-Fi and prepare improved offload policies

- "Mobile Onload" when Wi-Fi deteriorates?
- Are current 'time-of-day' and 'loaded cell' policies offloading the desired volume of traffic?
- Should policies based on the 'value' of traffic be introduced?



Solution
Deploying the Ciqual Online Reports interface, this major US Operator has visibility of the user experience as its customers are offloaded to Wi-Fi partner networks



Business Case: In Progress

- Operator exploring revenue share with OTT players (e.g. Netflix)
- LTE Network CAPEX versus Wi-Fi wholesale costs
- Roaming SLAs with Wi-Fi Partners

Standards!
‘Best connection and On-Device QoE’

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- ‘EAP specifies many ways of doing Authentication. I can't see how it can be used to make decisions on Wi-Fi offload, unless there is some **proprietary** stuff on the network …’

- ‘In the long term I guess the **proprietary** WiFi offload business will go away as we **converge** on "standard" ways of doing things’

- ‘Integrating our **QoE utility** into the plethora of content and MyOp application types require common **standards** to accelerate roll out and be cost effective’

- **This won't happen any time soon though!**

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THANK YOU