



Is your network
iPhone 5 ready?

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SYNOPSIS

With smartphones becoming ever more feature rich and data intensive, mobile network operators need to assess whether their network is 'iPhone 5 ready'. Staying ahead of the next wave of new devices, features, apps and technologies is challenging because innovation doesn't stay still, traditionally forcing operators to take a reactive approach. However, with a clear understanding of their network readiness, operators can take proactive measures to ensure bandwidth requirements are available and enhance the customer experience, thus minimising churn rates.

The recently released J.D. Power and Associates' Wireless Smartphone Customers Satisfaction Study revealed that 67 per cent of smartphone users have downloaded social networking applications to their device and spent more than 100 minutes per week using those apps. With this kind of explosion in data demand showing no signs of abating, it begs the questions – is your network iPhone 5 ready?

This whitepaper examines the processes required to successfully prepare your network pre- and post the iPhone 5 launch. It also reviews the elements that should be considered, tools needed and the impact each will have on your network. A proactive process to ensure network readiness is exactly what is needed to meet your growing network demands and improve your subscribers' network experience.

INTRODUCTION

As is traditional, consumers around the world waited with bated breath for Californian firm Apple to release the next version in its flagship iPhone series. The latest handset features LTE connectivity, a larger display suited to widescreen video, and enriched applications such as FaceTime video calling over cellular networks.

Mobile network operators around the world are also holding their collective breath, for quite a different reason. They are hoping their networks can withstand the onslaught of data traffic driven by the iPhone 5 and devices boasting similar functionality.

One of the key features incorporated into the iOS 6 operating system is support for FaceTime calls over cellular networks, rather than solely over Wi-Fi. Carrying two-way streaming video is a significant challenge for network operators.

Analyst firm Informa Telecoms & Media conducted a Mobile Broadband Traffic Management Survey in 2011, which asked operators when they expected traffic demand to overtake network supply and cause congestion. With 42 per cent of operators viewing video traffic as a problem in 2011 and 38 per cent knowing it will impact their network in the next 12-24 months; there is a greater sense of urgency to identify a solution for the video traffic demand (the same traffic type delivered by FaceTime).

The introduction of the LTE capable iPhone 5 will paradoxically add to the operators' problems in the area of managing the subscribers' experience expectations. By providing subscribers with a taste of even greater bandwidth and improved latency with LTE, operators face the challenge of extending this enriched experience throughout their network, since LTE is being rolled out in phases and most likely will not cover as much territory as the existing 3G HSPA/HSPA+ networks.

As a result, even with the introduction of LTE networks, the growth in data traffic on mobile networks can be expected to reach saturation rapidly in areas of high demand. In addition to LTE network optimisation, enhancements to today's 3G/HSPA networks are a necessity to meet the needs of dense urban areas.

GLOBAL MOBILE VIDEO CALL USERS (MILLIONS)

2010	2011	2012	2013	2014	2015	CAGR
58.49	91.71	137.32	194.59	260.35	331.17	41.4%

Sources: Informa T&M

Readiness and Reactivity Processes

In order to determine whether or not your network is iPhone 5 ready, the operators should focus on pre and post iPhone 5 launch processes which include the following:

Pre-SmartPhone Launch Activities

- Capacity Planning
- Coverage and Quality Optimisation
- 3G UMTS Network Optimisation

Post-SmartPhone Launch Activities

- 4G LTE Network Optimisation
- Customer Experience Management
- Self Optimisation

Operators have to continue managing data traffic in their network to ensure that their existing network resources are being utilised to address the increase in load. Geographical traffic management based on the dynamics of data network usage is critical for the operators.

Network performance has been a prickly issue for many operators witnessing the mass adoption of smartphones first hand. Mobile providers are beginning to acknowledge that they lack an integrated view of their network performance. A centralised view that enables measuring and managing the subscribers' experience has become paramount to operators struggling to correlate real-time data and KPIs for visibility into the actual subscriber experience.

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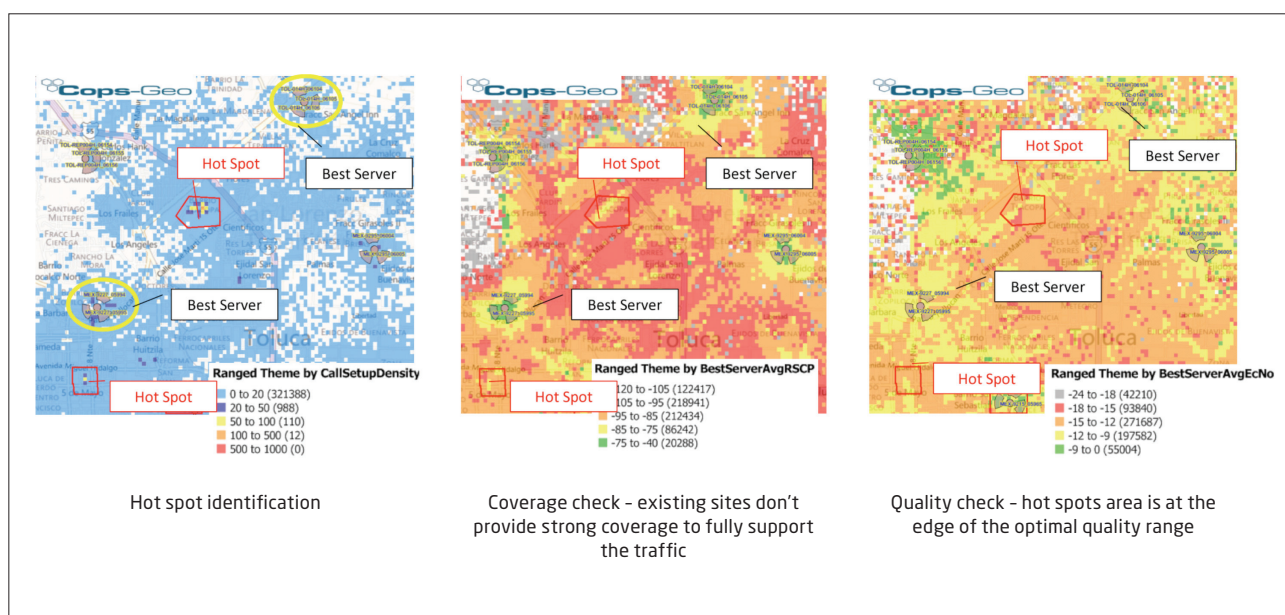
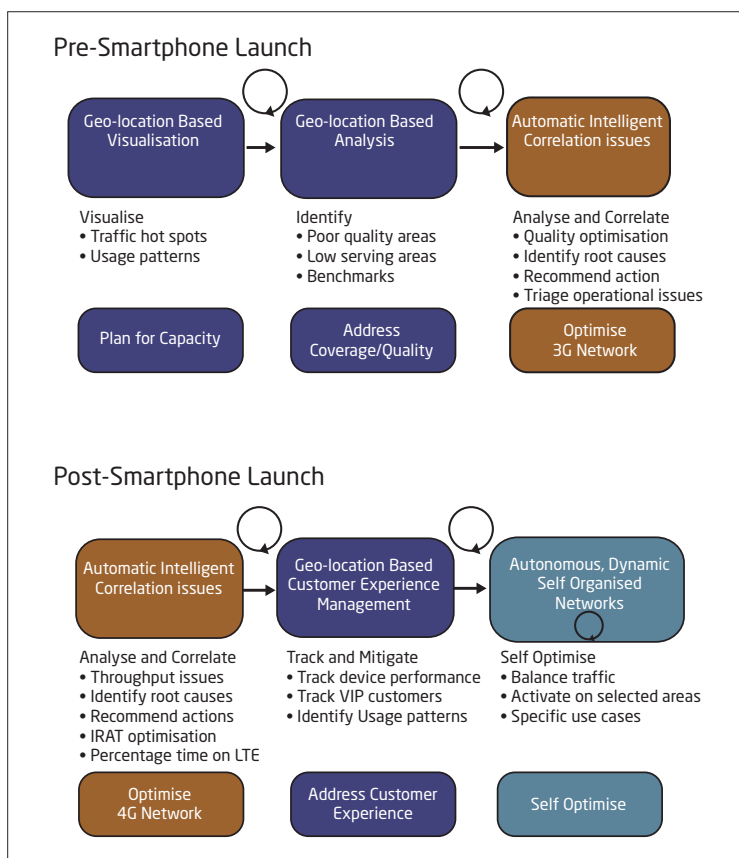
By monitoring service performance in real time and correlating various data feeds, operators can ensure that they are providing detailed background information about network behaviour that enables them to see what needs to be done to optimise network performance. Operators also have to consider that the LTE capable iPhone 5 is likely to pose problems when switching back to their 3G networks for voice.

Pre-SmartPhone Launch Process

Knowing which solutions to use when preparing for Pre-Smartphone launches is the key to successfully navigating network challenges and ensuring positive subscriber perceptions of your network.

Capacity Planning and Coverage

Geo-located plots based on mobile measurements can be used to identify the data traffic hotspots in the network. Specifically, traffic density maps can be used to show data hotspots. Operators can use the traffic density maps to plan for either the network busy hour, RNC busy hour or cluster busy hour. Geo-based coverage and quality plots help the operator in identifying areas of focus for planning and optimisation.



Traffic density, coverage and quality plots from COPS-Geo

3G UMTS Network Optimisation

The pre iPhone 5 launch procedures should be based on analysis and optimisation of the current network configuration with tools that replicate the thought processes of the operators' optimisation experts to significantly improve network quality.

Under traditional network management procedures, an optimisation engineer must analyse the network on a daily basis using a variety of separate tools to assess the various alarms and trouble tickets, before manually tweaking and optimising the network. This process has become more arduous and inefficient with each generation of mobile technology and with mature HSPA+ deployments in place and LTE on the near horizon, many players are looking to multi-vendor, multi-technology SON (Self Organising Network) implementations as a solution.

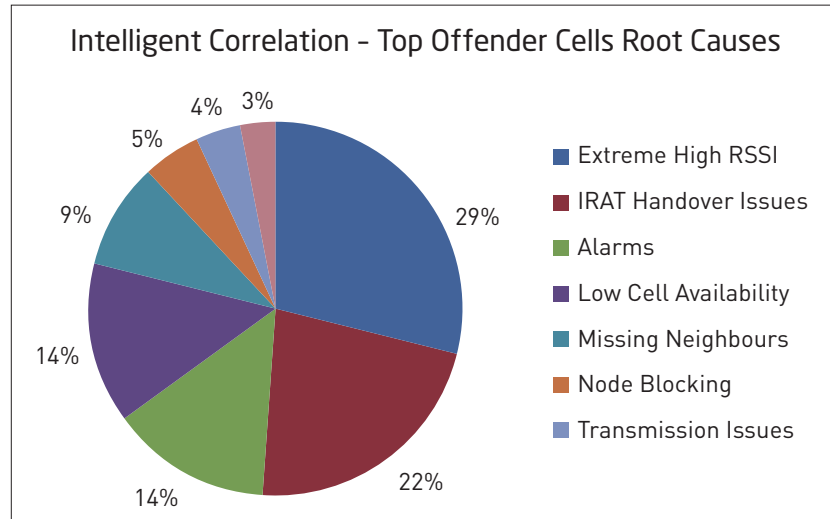
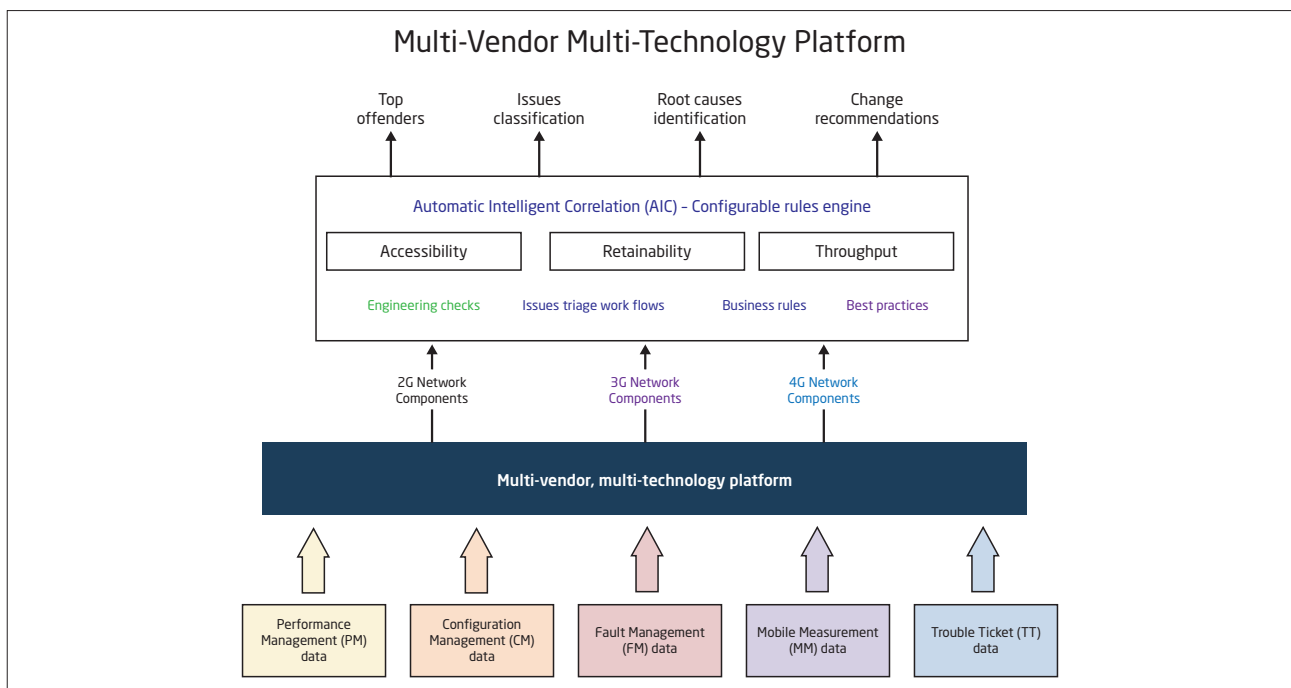


Chart: Root Causes from COPS-AIC

A multi-vendor, multi-technology SON solution makes use of network intelligence and correlation features in order to automate the configuration and optimisation of networks which lowers costs, and improves network performance and flexibility. The key element in a SON solution is its ability to support multi-vendor network environments, reducing time-consuming and error-prone manual processes, and increasing the efficiency of the network. Specifically an intelligent correlation module takes into account all the network data feeds (performance, configurations, faults, trouble tickets, mobile measurements) required to ascertain the root cause of poorly performing areas of the network. Additionally, operators can audit their network for various configuration and parameter setting distributions to address deviations from the recommended settings.



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Post-SmartPhone Launch Process

After successfully navigating the Pre-Smartphone Launch process, the next phase is to select solutions that proactively manage the subscriber experience and automatically mitigate traffic issues.

4G LTE Network Optimisation

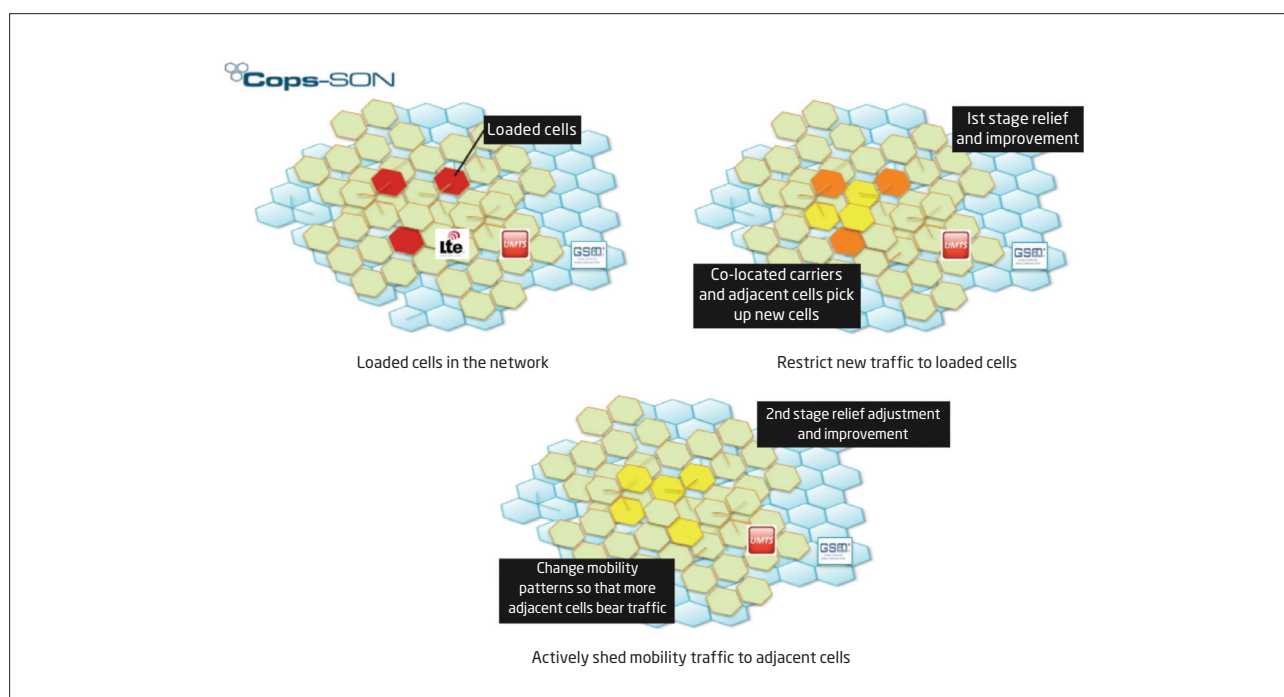
On 4G networks, operators need to address IRAT interaction dynamics. For example, operators who wish to maximise the throughput to the end users may want to make sure that the 4G mobiles stay as long as possible on the 4G network (percentage time on LTE) before handing down to the 3G network. This behaviour optimisation requires tweaking several parameters to balance load from a policy point of view.

Another critical aspect of data throughput optimisation is the quality of the signal. Unlike voice, data transfers on the radio network are very sensitive to quality variations. Operators need to be aware of the low quality areas and need to address this by optimising various quality related parameters both in 4G and 3G networks.

The same approach of using automatic intelligent correlation techniques used in the pre-launch phase can be used in the post-launch phase as well to identify several network optimisation related issues.

Self Optimisation

Once all the device issues have been addressed and the underlying network optimised, traffic balancing takes an important role. Operators need to have a proactive solution to identify congestion issues and then automatically take action to shift traffic to less congested cells. The goal for the operator is to use the existing resources in the best possible way while avoiding data issues. This can be achieved with Self Organising Networks (SON) solutions. It is imperative that the operator have SON not only for 4G LTE networks but also for existing 3G UMTS networks since the majority of traffic will still be carried on 3G networks for some time to come.

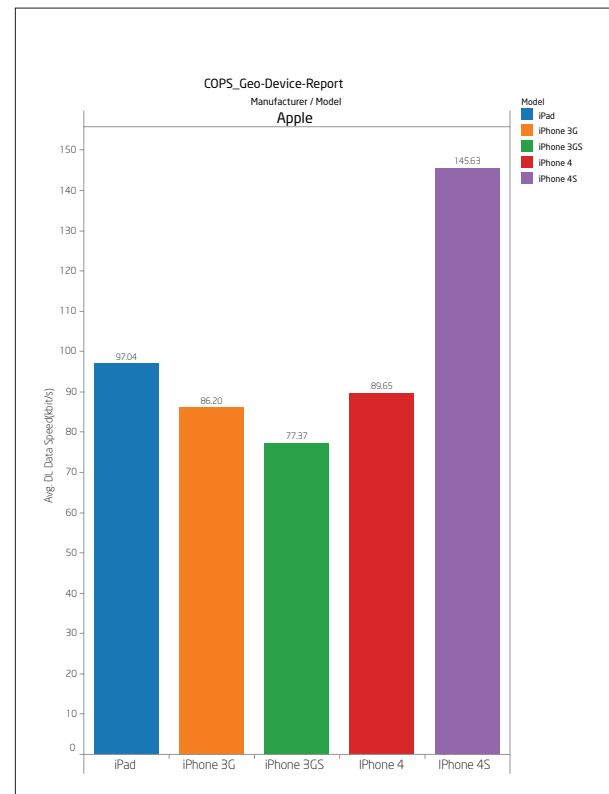


Load Balancing Approach in COPS-SON

Know the Subscribers' Experience

The second strand of the operators' process focuses on how a service provider fixes the issues highlighted in the wake of the iPhone 5 launch and ensures readiness for ongoing activities. One of the key elements in the post-launch process is geo tracking the performance of devices like the iPhone 5 and correlating the performance with subscriber complaints and network issues.

It is not enough to identify that a certain number or percentage of subscribers are experiencing poor service. Instead, operators need to be able to pinpoint the device or even specific settings that might be the source of the problem. For example, the way the iPhone 5 is configured could affect the experience of a particular customer segment. But without being able to correlate a number of disparate device statistics and network variables, an operator might not be aware that anything is amiss.



Apple phones and tablet comparison data COPS - Geo

Apple iPhone sales forecasts

Device type	2010	2011	2012	2013	2014	2015	2016
Apple iPhone sales (mil.)	47.30	83.78	98.45	108.95	118.22	124.68	127.69

Source: Informa T&M

Global mobile video call traffic

TRAFFIC MB P/A (MILLIONS)						
2010	2011	2012	2013	2014	2015	CAGR
8,960.42	15,147.29	24,790.89	194.59	38,449.96	80,122.09	55.0%

AVERAGE MB PER USERS PER MONTH						
2010	2011	2012	2013	2014	2015	GAGR
15.45	16.81	18.04	19.31	20.80	22.57	7.9%

Source: Informa T&M

CONCLUSION

With the introduction of the LTE capable iPhone 5, operators face the challenge of extending the subscribers' experience not only on their 4G LTE networks but also on their 3G UMTS networks.

Operators should establish pre and post smartphone launch processes for managing the impact of new smartphones on their wireless networks. It is imperative that the right set of tools are utilised in the correct sequence to achieve readiness for smartphone launches and to manage the subscribers' experience after the launch.

The presence of multiple radio technologies poses a challenge to operators when optimising for better subscribers' experience. Therefore, operators need to have a multi-technology approach to optimising 4G and 3G networks for a smooth transition.

In the Pre-Smartphone Launch process, Celcite's COPS™-Geo solution offers geo-located plots based on mobile measurements from the network that are used to identify the data traffic hotspots in the network. Geo-based coverage and quality plots also help operators to identify areas of focus for capacity planning and optimisation.

During the Post-Smartphone Launch process, COPS™-Geo helps operators to geo track the performance of devices like the iPhone 5 and correlate the performance with subscriber complaints and network issues.

Once all the device issues are resolved and the underlying network is optimised, traffic balancing is the next step in the process. Many tier one mobile operators deploy COPS™-AIC and COPS™-SON to identify congestion issues and then automatically take action to shift traffic to less congested cells. It is imperative that the operator have SON not only for 4G LTE networks but also for existing 3G UMTS networks.

When your network team successfully utilises the correct solutions to complete each step in the pre and post SmartPhone launch processes, your network is iPhone 5 ready.

Pre- and Post Smartphone launch activities

LAUNCH	ACTIVITIES	SOLUTIONS
PRE	Capacity Planning	COPS™ - GEO
	Coverage and Quality Optimisation	COPS™ - GEO
	3G UMTS Network Optimisation	COPS™ - AIC
POST	4G LTE Network Optimisation	COPS™ - AIC
	Customer Experience Management	COPS™ - GEO
	Self Optimisation	COPS™ - SON



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ABOUT CELCITE

Celcite is the world's leading provider of mobile network management and optimisation solutions for all mobile technologies including GSM/GPRS/EDGE BSS, UTRAN (WCDMA/HSPA +HSUPA PH2) and E-UTRAN (LTE). Its ground-breaking flagship product, COPS™ (Customised Optimisation and Self- Performing Solutions) was designed to meet the evolving demands placed on leading mobile operators worldwide. COPS™ currently manages and optimises over 1 million sectors using a single-click approach to find and resolve problems.

COPS™-Geo is a probe-less mobile terminal geo-location based analysis solution. It provides an innovative alternative to drive testing using geo-coded mobile measurement data to analyse wireless network data from the perspective of your customers. COPS™-Geo will significantly improve your customer perceived network quality by providing insight into actual subscriber experience for both voice and data.

COPS™-AIC is an automated rules engine that continuously takes in a variety of data types from the network such as performance counters, faults, trouble tickets, mobile measurements data and geo location data to correlate possible root cause analysis with poorly performing network elements. AIC separates real RF issues from others automatically. With executable scripts and trouble tickets, COPS™-AIC provides actionable solutions. This results in a massive gain in efficiency and allows engineers to focus their efforts on more advanced and proactive optimisation activities. COPS-AIC provides suggestion for parameter value changes for degraded sectors (per technology/vendor). More than 2 million daily checks are performed through automation and complex algorithms (for a typical 2,500 site dual technology network).

COPS-SON operates on a number of data sources such as site data, performance counters and mobile measurements, delivering modifications to the network automatically. COPS-SON provides automatic remedial actions for improvement of radio resource management, ANR, load balancing as well as cell outage compensation.

With a combination of extensive wireless experience and COPS, Celcite continues to help their clients achieve better than 70% improvement in engineering resource efficiencies, better network performance, enhanced customer satisfaction, and a higher ROI.

For more details about Celcite's powerful mobile network management and optimisation solutions, visit www.celcite.com or send an email to sales@celcite.com.

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