



data sheet



SmartCell™ Insight

ENABLING WI-FI REPORTING AND ANALYTICS

Ruckus SmartCell Insight (SCI) is the industry's first Big Data Wi-Fi analytics and reporting engine purpose built to help service providers make informed business decisions regarding the operation of their Wi-Fi networks. It makes use of Big Data technology and storage innovations found in columnar database repositories, which greatly enhance the scale and performance of a system when used to process historical data.

The Ruckus SCI platform transforms traditional network reporting into a vital business tool, collecting, analyzing, parsing, presenting, and storing unprecedented amounts of user, traffic, session, and location information. Data from the largest networks can be stored and retrieved for 5 to 7 years, or more.

Ruckus SCI collects and aggregates statistics from hundreds of thousands of Ruckus Access Points (APs), providing Key Performance Indicators (KPIs) such as upstream and downstream traffic, number of sessions, unique clients, or even the throughput customers can expect to achieve over periods of time on a per-AP basis, and filtered by time as well as a wide variety of other metrics.

Armed with such a vast repository of data and analytics, service providers can now quickly and easily determine, like never before, who is on their Wi-Fi network, what they are doing, when they are doing it, and from where. This can be extended to provide location-based analytics and application recognition, both of which will greatly enhance the value of this kind of technology.

This real-time and historic data is analyzed by the Ruckus SCI and graphically displayed in an easy to understand format with a wide variety of views and customized reports. The data gathered by Ruckus SCI details essential network statistics such as traffic usage, client and session measurement, network changes, network latency, and inventory.

For example, customers can get reports on the amount of traffic flowing through the network or a portion of the network, all the way down to the individual AP. This has never been possible before on such a large scale as required by service providers worldwide, who are dealing with millions of devices.

The Ruckus SCI makes use of a one step process that enables a quick, easy, and painless installation. The system can be deployed virtually anywhere within service providers' infrastructures, integrating directly with existing OSS and BSS systems via northbound APIs.

BENEFITS

Scalable

The SmartCell Insight platform brings Big Data technology to carrier Wi-Fi reporting and analytics through its ability to process huge amounts of network performance data.

Flexible

Generates reports locally and can export data to upstream OSS and BSS systems for maximum operator flexibility.

Standard Reports

Includes a collection of standard reports on network inventory, subscriber and session management, traffic, and network operations.

Custom Reports

Any industry standard browser can be used to create custom reports by utilizing KPIs (Key Performance Indicators) that the network exposes to the SmartCell Insight platform.

Ease of Use

Can run natively on a server on RHEL/CentOS, which enables the system to be deployed quickly and scale to any level necessary based on network size.

Extensible

SmartCell Insight will add capabilities in the areas of predictive analytics, location-based analytics, and network health.

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FIRST BIG DATA WI-FI REPORTING AND ANALYTICS
ENGINE PURPOSE BUILT FOR SERVICE PROVIDERS

Ruckus SmartCell Insight (SCI) enables the following key capabilities:

- Custom reporting and comparison of KPIs such as capacity, performance of the network relative to traffic, packets & sessions, and CPU/Memory statistics.
- Aggregation & correlation of Session Detail Records based on metrics like session start/stop times, session duration, device OS type (e.g. iOS, Android), traffic sent, SNR values, connected APs and other similar data. Future capabilities include correlating the above data with specific location data to gather awareness of consumer devices, which have transited the Wi-Fi network.

With Ruckus SCI, operators are now empowered to tune their network infrastructure with instant and useful analytics about their data networks and services that can be enabled through using an intuitive and easy to use Web 2.0 drag & drop interface.

Standardized SCI Reports

SmartCell Insight ships with a set of standard reports that address the most common use cases faced by today's service providers. These reports are grouped into inventory management, network operations, subscriber and session management, and traffic collection. There is an easy to use and elaborate filtering mechanism built into the SCI that allows service providers to get more targeted results. Reports are provided in both a graphical form as well as the actual data where applicable. These reports can be printed, emailed, or copied to a PDF file. The following section looks at sample reports from each category.

Traffic Reports

Traffic reports include: access point traffic, client potential throughput, throughput estimate of clients, top APs by traffic volume, and top client devices by traffic volume. (Figure 1)

Subscriber and Session Management Reports

Traffic reports include: client fingerprint (iOS, Android, Windows, etc.), client health, number of sessions, number of unique devices, session bytes transferred, session duration, and top clients by traffic volume. (Figures 2 & 3)

Operational Reports

Operational reports can be used to look at how the various elements in the network are performing. The options here include: access point response time, controller hardware utilization, top 10 AP reboots, top 10 APs with the most topology changes, and top 10 APs with the longest response times.

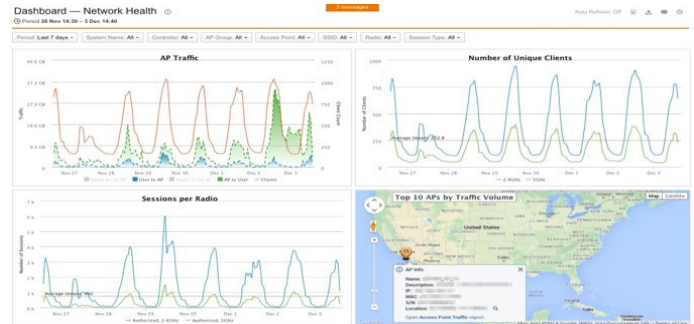


Figure 1. In this report we see the clients in the network that are generating the most amount of traffic. This can also be filtered to specific APs, controllers, etc.

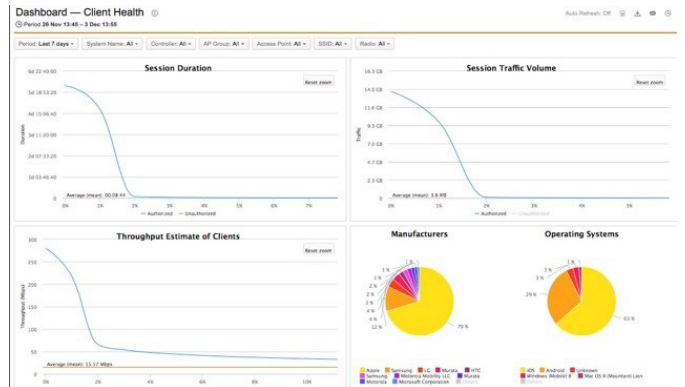


Figure 2. Show the aggregate number of unique clients in the network at any point in time. This can also be filtered using a wide variety of criteria.

Inventory Reports

Inventory reports provide a mechanism to easily keep track of all the Wi-Fi assets in the network. These reports can be used to provide: access point inventory, WLAN controller inventory, and session inventory.

Customized Reports

These are easily generated from any industry standard browser, and can be used to highlight specific use cases in the network. These custom reports make use of a long list of KPIs that the network equipment will expose to the SmartCell Insight platform. This greatly enhances the usability of the SCI as it allows different organizations within the service provider to display data in ways that are very meaningful to their particular situation. The custom report designer uses a very intuitive drag and drop interface allowing any user to have reports in a matter of minutes. (Figure 4)

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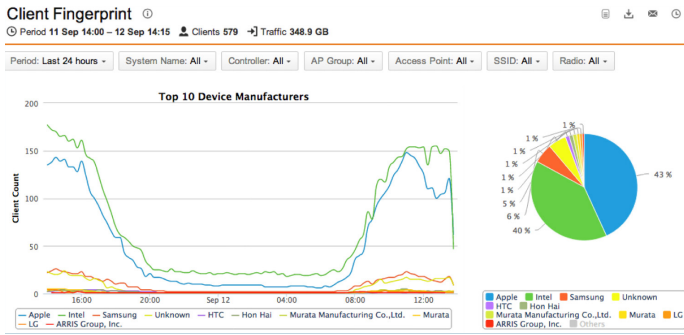


Figure 3. Shows the aggregate traffic volume for all AP's in the network. This report shows the list of all currently reachable APs in a Wi-Fi network that are connected to a specific WLAN controller during a given time interval. These inventory reports can be filtered in many different ways to provide the view that is of greatest value to the service provider.

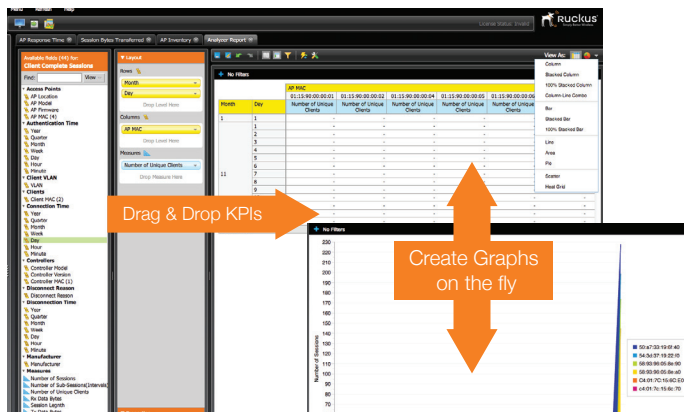


Figure 4. Custom reports allow the user to select the desired KPI and then orient that information for display by column or by row. The presentation of the results can be quickly changed by the intuitive drag and drop interface as necessary.

Greater Network Visibility

Getting the most from a carrier Wi-Fi network, once deployed, requires clear visibility into its performance and user activity, both at a very granular level of detail as well as aggregated to measure global trends spanning many years.

SCI leverages two emerging trends:

The first involves mobile Internet usage patterns, RAN strategies, and service models all of which are evolving rapidly. The visibility required to address these changes must extend beyond typical short-horizon EMS/NMS health and statistics to enable long-term trend analysis that supports network and service evolution planning. With exploding volumes of users, devices, traffic, and access points, these two requirements spell a real scaling challenge for any network measurement and assessment tool.

The second involves the emergence of Big Data brought to market by many popular applications that facilitate the collection, storage, and efficient retrieval and analysis of data. These technologies, in the SCI, have been brought to the management of network equipment resulting in a comprehensive offering that can facilitate additional capabilities in future releases.

The Ruckus SmartCell Insight represents a whole new approach to measurement and assessment, designed specifically to provide the visibility, trends analysis, and raw scale required to manage a successful carrier Wi-Fi network. The design of SmartCell Insight is informed by our experience powering the world's largest and most advanced Wi-Fi networks.

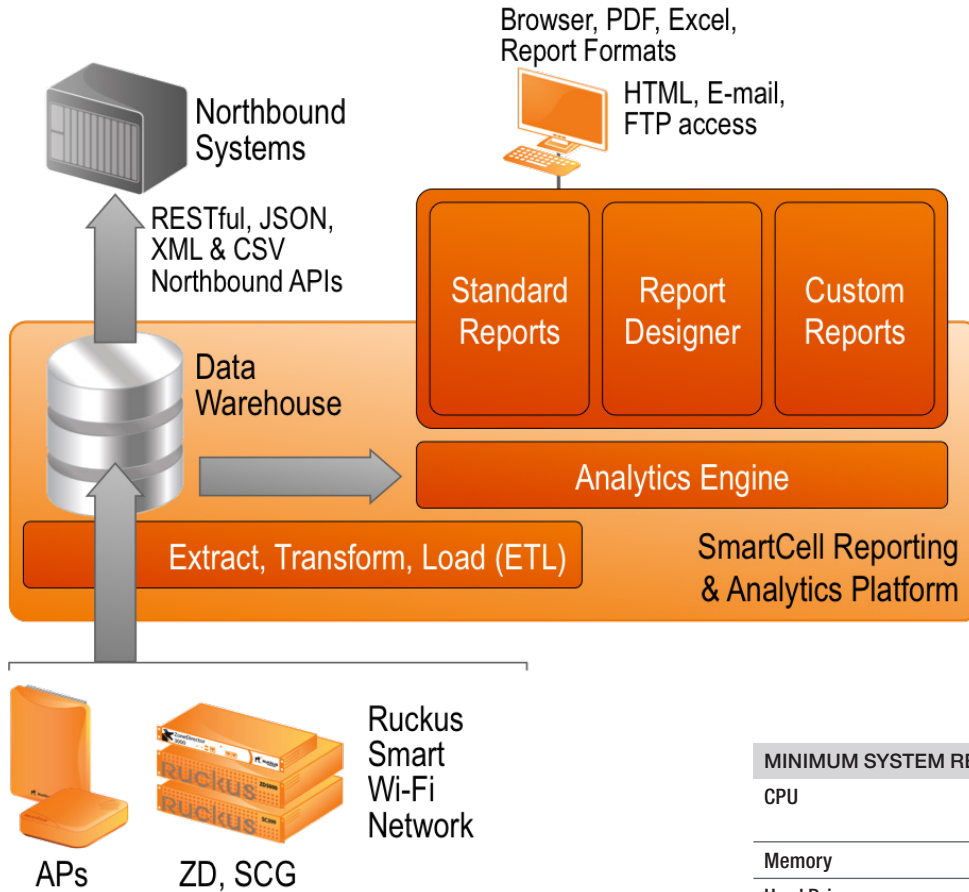
SCI System Architecture

The SmartCell Insight architecture consists of an ETL (Extract, Transform, Load) function that pulls statistics from Ruckus network elements and loads them into a data warehousing function that can easily store data for multiple years. The data warehousing function uses Columnar Database Technology, which has been highly optimized for analytics and historical reporting. It makes use of aggressive compression to handle Big Data applications, very high performance when accessing that data, and the ability to have a large number of users simultaneously accessing the system. Stored data can then be processed locally and used to generate a wide variety of reports. It can also be sent to an upstream OSS/BSS system for more specific processing. The APIs that are supported include JSON, XML, RESTful, and CSV. In follow-on releases, we will add additional capabilities such as location analytics, predictive analytics, and network health monitoring.

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Figure 5. Ruckus SmartCall Insight Architecture.



Predictive analytics allows the operator to identify locations in the network that will start to become overloaded in the near future, and allow the operator to take preventive action. Location analytics make use of data on how users move through a particular building or venue to more highly optimize the user experience.

MINIMUM SYSTEM REQUIREMENTS	
CPU	<ul style="list-style-type: none"> • 2x2.4 GHz or higher • 4 Cores
Memory	• 48 GB RAM
Hard Drive	• 4 TB
Operating System	• CENTOS/RHEL

Product Ordering Information

Model	Description
SmartCell™ Insight	
901-SCIP-0000	SmartCell™ Insight application use rights
909-SCIL-0000	SmartCell™ Insight license to manage one AP