



# data sheet



## BENEFITS

**Serves as the single point to collect statistics and aggregate metrics from all Ruckus network equipment**

A single view of all network activity on all Ruckus equipment in the network

**Satisfy regulatory requirements by archiving massive amounts of data in an Enormously scalable database**

Enables data to be stored for weeks, months, or even years to satisfy a wide variety of network, business, and regulatory requirements

**Search and Analyze data from Archive**

This enables reports to be generated in real-time to aid in network operations

**Ease of Use — Runs on VMware**

Enables the application to be deployed quickly and scale to any level necessary based on network size

**Standard reports**

Get started quickly using a wide variety of common use cases including the most heavily loaded points in the network and network uptime

**Custom reports**

Easily generated from any industry standard browser and can be used to highlight specific use cases in the network

# SmartCell™ Insight

## ENABLING WI-FI REPORTING AND ANALYTICS

**Complete Reporting and Analytics Engine Purpose Built for Carrier-Grade and Enterprise Wi-Fi Service Infrastructure**

### Overview

SmartCell Insight (SCI) is a massively scalable reporting and analytics engine, designed to collect data from Ruckus network equipment, analyze that data, and then present it using a wide variety of standard and custom reports.

### Off-the-shelf value and easy to use

SmartCell Insight runs on VMware for maximum deployment flexibility and improved Time To Value. To facilitate immediate value, it ships with pre-built reports that solve the most common use cases faced by Engineering, Operations, and Planning organizations. These reports cover themes such as traffic usage, client and session measurement, equipment uptime, network latency, etc. For example, some of the reports can highlight the most heavily utilized devices by both the number of subscribers as well as traffic load. If these reports are not sufficient or need to be tweaked, then additional reports can be generated on site.

Using any standard browser, network operators can create reports on the fly and get a deep insight into any Key Performance Indicator (KPI) that network equipment exposes to northbound systems. For example, compare subscriber equipment distribution (i.e., iPhone vs. Android vs. Windows Phone) market share growth today compared to last month or last year.

### Capabilities

SmartCell Insight can collect data from the entire line of Ruckus Access Points (APs) along with the Zone Directors (ZDs), FlexMasters (FMs), or the SmartCell Gateways (SCG). This data can be aggregated in an offline columnar database, which has been optimized for very high volume data retention and quick response time. Ruckus SmartCell Insight can provide a feed to upstream OSS/BSS applications using a wide variety of interfaces. This allows for further analysis of data collected in the Wi-Fi RAN by upstream systems.

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FIRST GLOBAL WI-FI REPORTING AND ANALYTICS ENGINE PURPOSE BUILT FOR SERVICE PROVIDERS AND ENTERPRISES

## Sample Reports



## 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.

Operators need this level of visibility to assess the network's achievement of their business objectives. These include user experience metrics, traffic load on the Wi-Fi RAN, network uptime, etc.

SCI leverages two emerging trends: Firstly, Mobile Internet usage patterns, RAN strategies, and service models are all evolving rapidly, so the visibility required to address these questions 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 radio nodes deployed, these two requirements spell a real scaling challenge for any network measurement and assessment tool.

Secondly, 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 SCI, have been brought to the management of network equipment resulting in a comprehensive offering that can facilitate additional capabilities in future releases.

Ruckus' development of SmartCell Insight, in the same way with the SmartCell Gateway, is 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.

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## Benefits and Use Cases for the SmartCell™ Insight System

BENEFITS		USAGE
<b>Capacity Management</b>	<ul style="list-style-type: none"> <li>Identify and augment the network equipment that is saturated</li> <li>Repurpose network devices that are under-utilized</li> </ul>	Access Points with the... <ul style="list-style-type: none"> <li>Most &amp; least subscribers</li> <li>Most &amp; least traffic (Tx &amp; Rx)</li> <li>Traffic &amp; subscriber growth trends</li> <li>Busy Hour utilization</li> </ul>
<b>Service Management</b>	<ul style="list-style-type: none"> <li>Quantify service usage in terms of traffic and subscribers</li> <li>Identify Service Availability gaps</li> <li>Report on Service Uptime</li> </ul>	<ul style="list-style-type: none"> <li>Perform Service-level usage analysis</li> <li>Correlate APs with provisioned SSIDs</li> </ul>
<b>Subscriber Management</b>	<ul style="list-style-type: none"> <li>Identify the subscribers that are consuming the most network resources</li> <li>Subscriber behavior</li> </ul>	<ul style="list-style-type: none"> <li>Subscribers with the most               <ul style="list-style-type: none"> <li>Bandwidth usage</li> <li>Number of Sessions &amp; Session Duration</li> </ul> </li> <li>Applications / websites usage</li> <li>Subscriber device profile</li> </ul>
<b>Performance Management</b>	<ul style="list-style-type: none"> <li>Identify potential issues before they become customer impacting</li> <li>Identify customer Quality of Experience issues</li> </ul>	<ul style="list-style-type: none"> <li>Identify Access Points that are not being used at the same rate as their peers</li> <li>Monitor network latency</li> <li>Which devices are experiencing the most channel or topology changes</li> </ul>
<b>Global Trends</b>	<ul style="list-style-type: none"> <li>Identify the network trends</li> </ul>	<ul style="list-style-type: none"> <li>What rate is network bandwidth/session length growing?</li> <li>What rate is subscriber device market share growing?</li> </ul>

### Key Assessments

- Network capacity, carried traffic, and utilization
- User experience (getting on the network, connection speed — simple high/low/average & CDF views)
- User activity (devices, applications, sessions, bandwidth)
- SON behaviors (channel changes, meshing, band steering, load balancing, ATF)
- Network operating conditions (interference sources)
- Usual network mechanics (uptime, alarms, jitter, latency, etc.)
- Capability to view stats at multiple layers (AP, radio, SSID) and session.

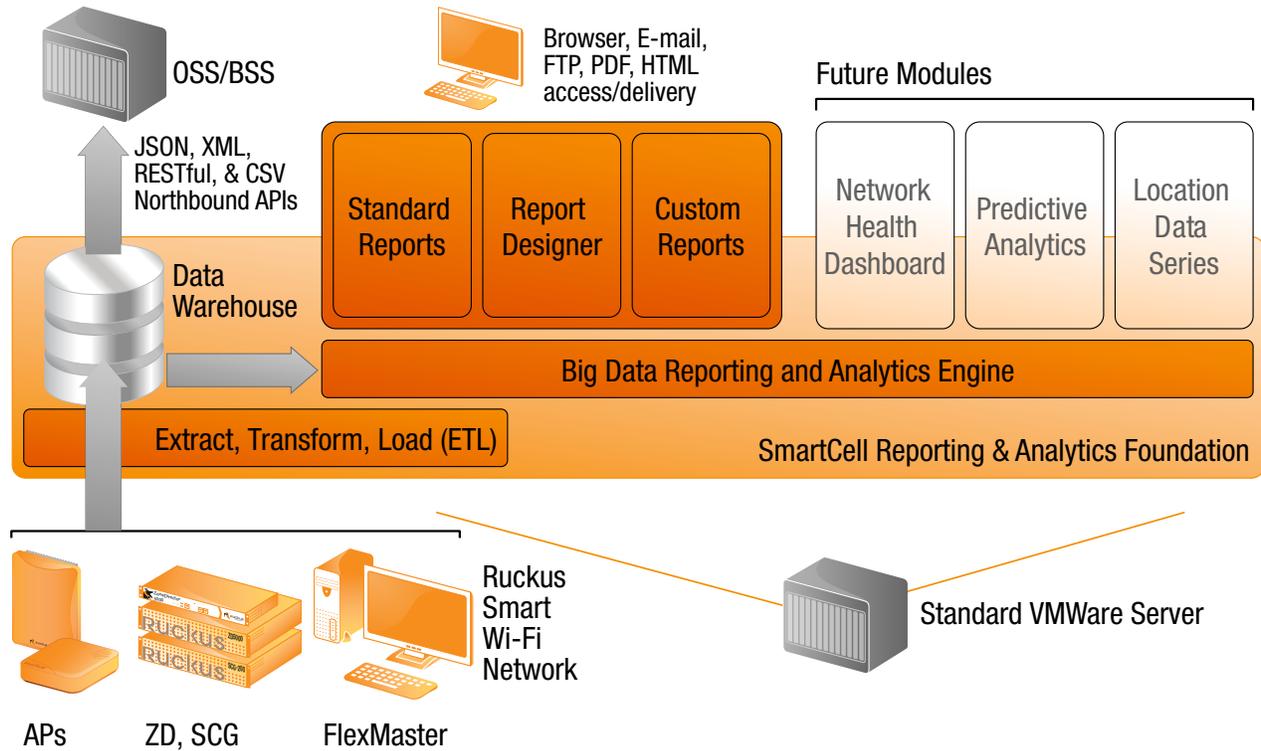
### Use Cases

- Report on KPIs including items that are exposed by the AP, including the key ways to measure capacity, performance of the network including traffic, packets & sessions,
- Compare metrics with: different days / times, busy hour analysis, and short or long term averages / peak values
- Find outliers with TopN type reports to find the best / worst of each type
- Search capabilities to look for specific subscribers, devices, etc
- Aggregate like items
- Find subscribers with good / bad performance on an aggregate (CDF) level or on a per-session level

# SmartCell™ Insight

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SmartCell Insight System Architecture



## Detailed Inventory View

The SmartCell Insight architecture consists of an ETL function that pulls statistics from various Ruckus elements in the network and loads them into SCI. From here the data is loaded into a warehousing function that can easily store data for months or years. That data can then be processed locally and exposed to applications to provide a wide variety of reports and/or it can be sent to an upstream system for more specific processing. The interfaces that are available include JSON, XML, RESTful, and CSV. In follow-on releases, we will add additional capabilities such as location, predictive analysis, and network health.

### MINIMUM SYSTEM REQUIREMENTS

CPU	<ul style="list-style-type: none"> <li>• 2x2.4 GHz or higher</li> <li>• 4 Cores</li> </ul>
Memory	<ul style="list-style-type: none"> <li>• 48 GB RAM</li> </ul>
Hard Drive	<ul style="list-style-type: none"> <li>• 4 TB</li> </ul>
VMware	<ul style="list-style-type: none"> <li>• ESXi 5.0 or higher</li> </ul>

### Product Ordering Information

Model	Description
<b>SmartCell™ Insight</b>	
901-0001-SC10	SmartCell™ Insight application use rights
901-0001-SC11	SmartCell™ Insight license to manage one AP