Ruckus®
Simply Better Wireless.

data sheet

KEY FEATURES/BENEFITS

Scalability
Grow your Wi-Fi network with ease through tens of thousands of APs, hundreds of thousands of subscribers, and tens of Gbps of aggregate traffic.

Active/active flat cluster architecture for resiliency
Hot-swappable and redundant hardware level component architecture combined with the SCG 200's distributed and replicated software intelligence ensures highly available Wi-Fi control, management, and gateway services.

Traffic steering
The SCG 200 supports trusted WLAN access into the mobile packet core using 802.1x/EAP authentication along with 802.11i for airlink encryption per 3GPP Release 11. The SCG can also offload non-mobile traffic directly to the Internet.

Hotspot 2.0 roaming support
The SCG 200 supports the Wi-Fi Alliance Hotspot 2.0 release 1 specification, which enables mobile devices to automatically discover and select AP's for which a roaming arrangement exists. Hotspot 2.0 also requires that mobile devices authenticate using 802.1x/EAP with 802.11i for airlink encryption.

Authentication support
The SCG 200 supports authentication via EAP-SIM, EAP-AKA, EAP-TLS (x.509) and EAP-TTLS (username and password). The SCG also supports authentication via WISPr and captive portal technology.

Support for third-party APs
When the WLAN gateway function is enabled, data traffic originating from non-Ruckus access points can be tunneled through the SCG 200 to the mobile packet core. This creates a single point of control for aggregation, enabling vendor agnostic policy control enforcement.

Network partitioning and wholesaling
The SCG 200 supports the partitioning of the network to enable the wholesaling of SSIDs to other operators. It also supports partitioning of the network within a single operator to support network administration boundaries.

SmartCell™ Gateway 200

CARRIER CLASS WLAN CONTROLLER WITH 3GPP WLAN GATEWAY SUPPORT

The Industry's Most Scalable and Versatile WLAN Platform
The SmartCell Gateway (SCG) 200 represents the first in a new category of scalable and versatile WLAN controllers with support for 3GPP compatible WLAN gateway functionality. It has been designed to eliminate the difficulties operators are experiencing with building and managing large-scale WLAN networks and integrating them into the mobile packet core.

Awarded the "Best Mobile Broadband Technology" by the GSMA, the Ruckus SmartCell Gateway 200 is capable of supporting tens of thousands of Ruckus or non-Ruckus Wi-Fi access points, hundreds of thousands of subscribers, and in excess of 20 Gbps of throughput. We have extended the traditional WLAN controller by adding support for 3GPP WLAN gateway functionality, along with the kind of scale that is required for carrier class deployments.

The SCG 200 serves both SIM and non SIM-based clients using carrier friendly authentication protocols, such as 802.1X/EAP (which is standard on all smartphones). When this is combined with policy-based data traffic steering, operators can optimize the forwarding of all user traffic. When backhauling to the mobile packet core, the WLAN gateway implements the trusted WLAN access approach that was standardized by 3GPP in Release 11. This work is based on the SaMOG (S2a Mobility over GTP) program in 3GPP that utilizes 802.1x/EAP for authentication and 802.11i (AES) for airlink encryption, both of which are standard on today's smartphones. The SCG 200 will also support untrusted WLAN access, which was first standardized in 2006 as part of the I-WLAN program in 3GPP and uses TTG/PDG technology.

The SCG 200 platform features a unique NEBS-3/ETSI compliant, dynamically scalable clustering model that maintains carrier-class availability and resiliency through active-active clustering by incorporating a distributed and replicated database optimized for real-time data management.

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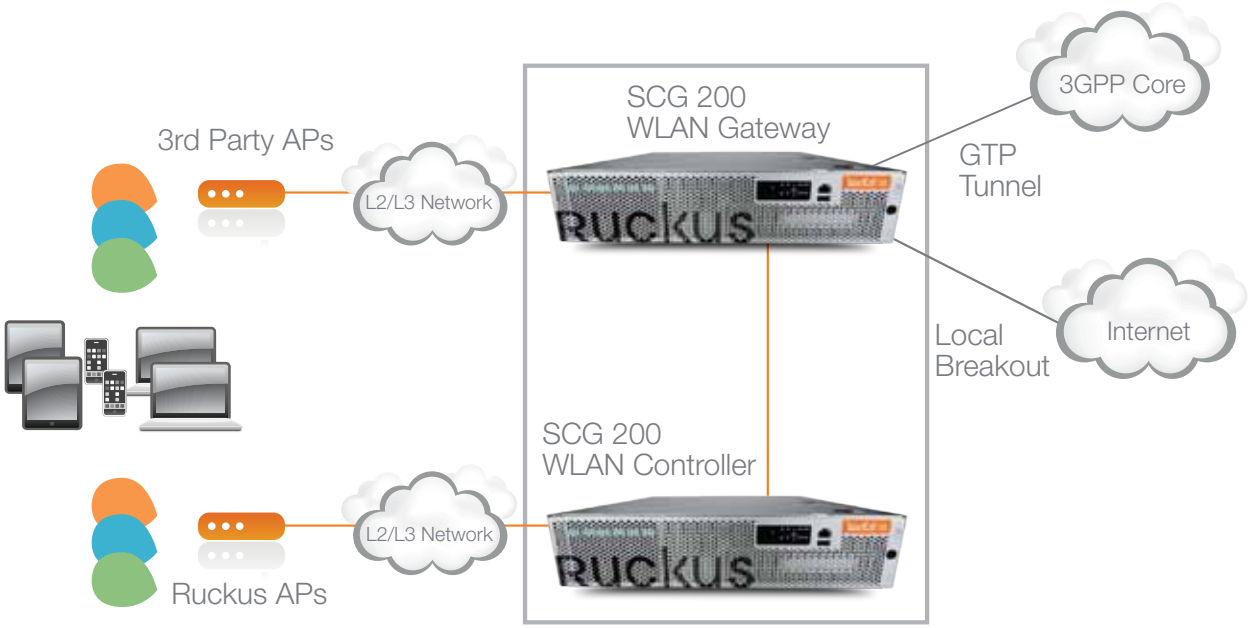
The SmartCell Gateway 200 can support both the WLAN Gateway and WLAN Controller functions running on the same platform at the same time, or these functions can run on separate platforms for maximum deployment flexibility.



Unrivaled Flexibility and Versatility

The SCG 200 provides both WLAN controller and WLAN gateway functionality integrated into a single compact platform and managed as a single entity, which reduces the number of boxes that must be deployed and managed. This approach accelerates the return on investment and reduces the cost of on-going operations. The WLAN controller function can also be split out from the WLAN gateway function and they can run on separate platforms. The WLAN controller can also interoperate with WLAN gateways from 3rd party suppliers, which provides the network operator with a great deal of deployment flexibility.

Highly Scalable WLAN Controller

The SCG 200 can function as a very large-scale WLAN controller that can manage tens of thousands of Ruckus APs. The SCG 200 provides feature-rich management including control over their self-organizing smart networking behaviors such as RF management, load balancing, adaptive meshing, and backhaul optimization. The SCG 200 also allows operators to dynamically configure and manage network and subscriber QoS/policy rules, in addition to being able to authorize, account and bill Wi-Fi users. The following are some of the capabilities that are enabled by the WLAN controller function.

Wi-Fi Subscriber Management

Users can access Wi-Fi networks using a wide variety of devices including smartphones, feature phones, laptops, tablets, digital cameras, etc. For mobile devices the SCG 200 supports authentication via EAP-SIM or EAP-AKA to the HLR/HSS subscriber database in the mobile packet core. EAP-SIM is used with 2G devices and EAP-AKA is used with 3G/LTE devices. Connectivity to the HLR/HSS can be via the SIGTRAN interface on the SCG 200, or through a AAA server.

For non-mobile devices like laptops and tablets, the SCG 200 can support authentication via EAP-TLS or EAP-TTLS. The former uses x.509 digital certificates and the latter is based on username and password. The use of digital certificates enables a seamless authentication experience that is very similar to what is found in the cellular world.

The SCG 200 also supports traditional captive portal based login with ability to integrate to either an external or internal captive portal along with support for automatic portal based login via WISPr 1.0. This more traditional approach to providing secure large-scale hotspot deployments includes support for features such as HTTP proxy capability, and large scale walled garden rules.

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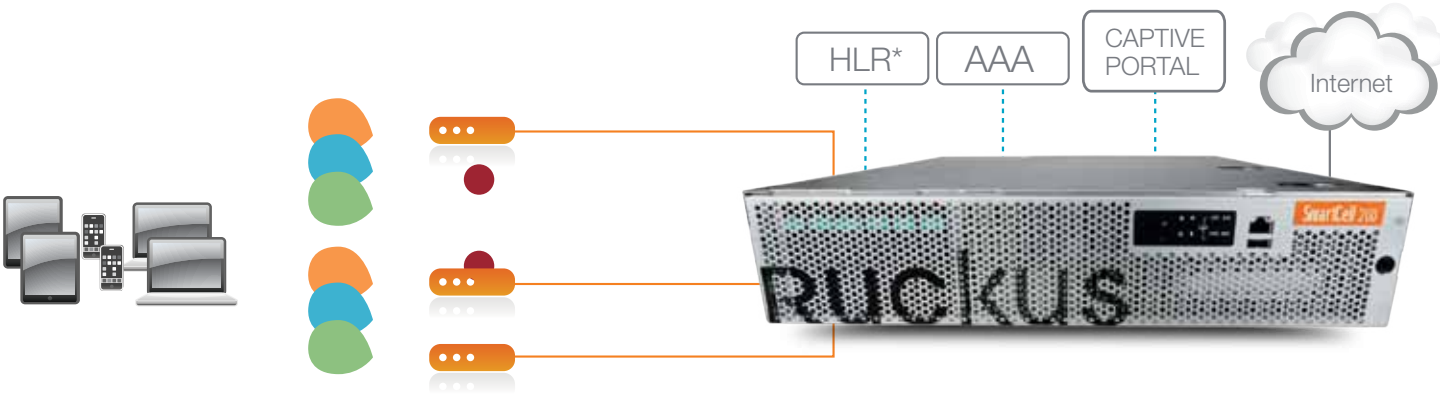
The SCG 200 can authenticate subscribers via WISPr using captive portal technology or with 802.1x/EAP authentication via EAP-SIM, EAP-AKA, EAP-TLS, and EAP-TTLS. For the first two EAP variants, credentials can be passed to the HLR/HHS using either the SIGTRAN interface or a AAA server.



Wi-Fi Subscriber Services

The SCG 200 provides services for traffic that is being handed off to the Internet. One of the most important services is subscriber billing. This enables the operator to monetize their Wi-Fi network using either RADIUS based accounting or 3GPP standard CDRs in S-CDR or W-CDR formats, which can be transferred to an external Charging Gateway Function (CGF) via the Ga interface, with the SCG 200 acting as a charging trigger function (CTF). The SCG 200 also supports a policy interface via the 3GPP Gx interface to an external PCRF (policy and charging rules function).

Wi-Fi Radio Access Management

The SCG 200 supports a variety of radio network control techniques of which the most important is ChannelFy™. This algorithm allows AP's to automatically select the appropriate 2.4 and 5GHz channels so as to maximize performance and minimize interference. When properly deployed, ChannelFly can double the capacity of a WLAN network in a high-density environment. The SCG 200 also manages dynamic mesh deployments that make use of the 5 GHz band to backhaul AP traffic to a point where wireline facilities are available. Mesh backhaul configurations can be dynamically reconfigured to reroute traffic over different paths as conditions change.

Seamless Low-Latency Wi-Fi Handoffs

The SCG 200 supports seamless handoff as subscribers move from one Wi-Fi AP to another in the coverage area of the controller. It is not necessary for the user to re-authenticate as they move about. Their credentials are passed from access point to access point. Handoffs are performed rapidly and there is no impact on the application.

Hotspot 2.0 Support

Hotspot 2.0 enables seamless network discovery and selection along with seamless authentication using 802.1x/EAP. It represents the future of Wi-Fi roaming and has picked up a tremendous amount of support from within the wireless industry. The SCG 200 supports Hotspot 2.0 by enabling Ruckus AP's to exchange information with Wi-Fi devices pre-association. The information that is exchanged includes details on roaming consortiums that are support by that AP as well as information on backhaul capacity and loading. The Wi-Fi device then selects the best available AP and begins the authentication process. Hotspot 2.0 is automatic and requires no user intervention.

3GPP Standard WLAN Gateway

The SCG 200 supports the backhauling of traffic to the mobile packet core using both trusted and untrusted WLAN access. The SCG 200 fully supports all applicable 3GPP standards for WLAN gateways including 3GPP TS 23.402 (6-2012). The benefits in backhauling traffic include access to the full set of services that are found in the mobile packet core including billing (post and pre paid), policy, lawful intercept, content filtering, deep packet inspection (DPI), parental controls, global roaming, NAT, firewall, DNS, etc. It also enables operators to have the same level of control over their Wi-Fi RANs as presently exists for their 3G/4G RANs. The 3GPP backhaul function utilizes GTP (GPRS Tunneling Protocol) v1/2 tunneling as well as PMIP (Proxy Mobile IP) based tunneling.

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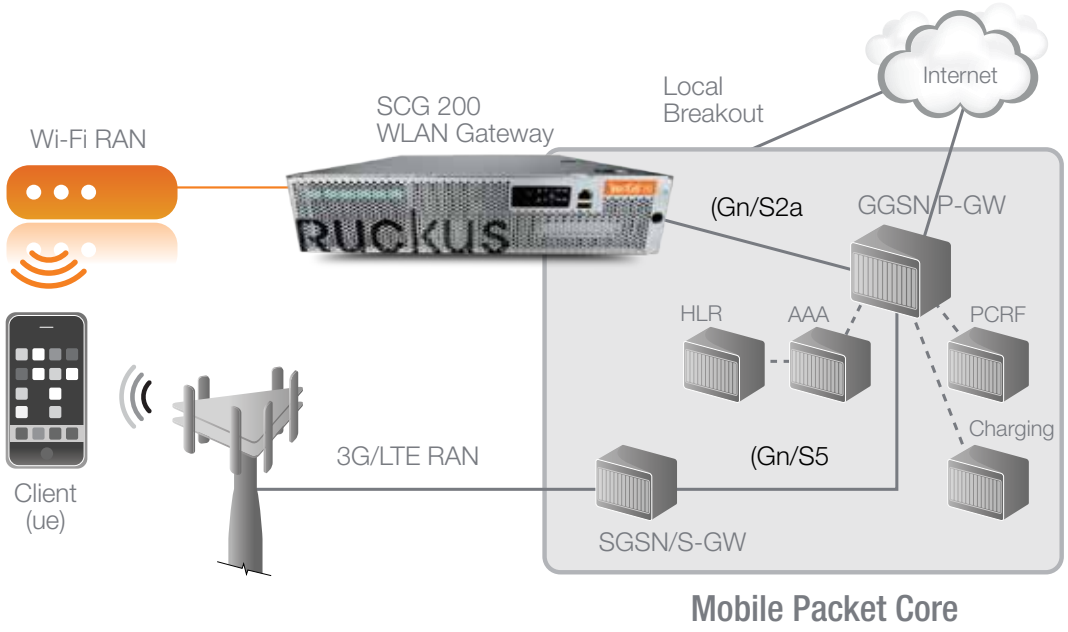
The SCG 200 when operating as a WLAN Gateway, backhauls traffic to the mobile packet core using 3GPP trusted wireless LAN access. This approach enables a true HetNet experience where subscribers get the same services and the same experience regardless of the radio access technology.



Support for 3GPP Trusted WLAN Access

This approach makes use of 802.1x/EAP and 802.11i technology both of which are standard on mobile devices. 802.1x/EAP provides for secure authentication using either the SIM and USIM credentials that are found on most mobile devices. 802.11i provides for Wi-Fi airlink encryption using AES (advanced encryption standard). The latter is of great importance when accessing Wi-Fi services in a public hotspot. The trusted WLAN access approach also gives the mobile operator full visibility and control over the Wi-Fi RAN. This is very similar to the experience that operators enjoy with their 3G/4G RANs and includes capabilities like QoS (quality of service) and policy control.

Support for 3rd Party APs

The SCG 200 unifies user authentication and data traffic originating from non-Ruckus access points. This enables a single point where network level vendor agnostic policy controls can be applied and KPIs (key performance indicators) can be generated. It also allows operators to uniformly set policies for traffic steering, such as offloading non-SIM traffic at the SCG 200 and tunneling all other traffic back to the mobile packet core. It also provides a single point for generating user data records for statistical analysis and charging.

Operations and Administration (OAM)

Element Management System

With the built-in EMS, the SCG 200 supports rapid deployment and eliminates the need for separate and expensive management systems. The built-in EMS provides user-friendly full-fledged FCAPS support and can be easily integrated with existing OSS/BSS systems via a variety of interfaces ranging from traditional SNMP or CLI based interfaces to web programming friendly secure API based methods (RESTful JSON).

Statistics, KPIs and Reports

The SCG 200's built-in EMS provides rich near real-time statistics on subscribers (including client fingerprinting), APs, SSIDs, backhaul (Mesh), and the SCG 200 cluster itself. Reports ranging from hours to years can be generated for a variety of key performance indicators (KPIs) and exported out in multiple formats. For operators seeking richer information, Ruckus also provides an (optional) Wi-Fi Analytics appliance for long-term storage, sophisticated data mining and analysis, and richer complex reporting, allowing operation teams to leverage dedicated external reporting systems to generate complex reports.

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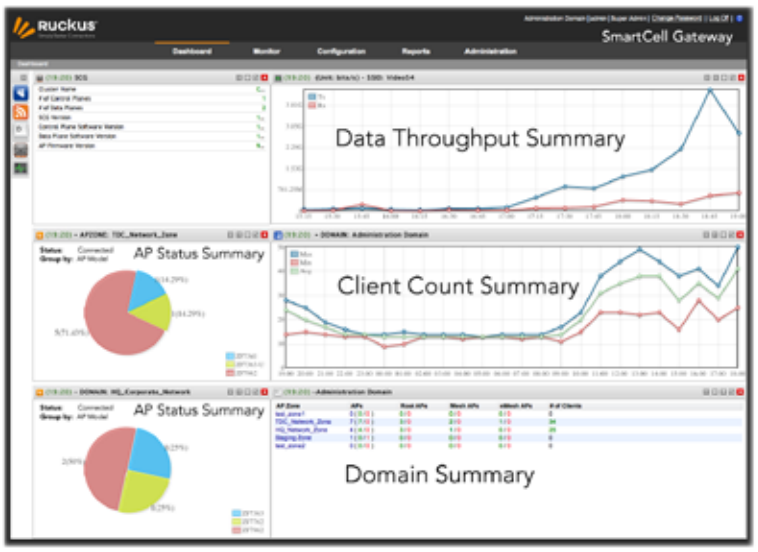

Inspired by real-world experience with carriers operating some of the world's largest Wi-Fi networks, the SCG's element management system provides a wealth of detailed controls, statistics, reporting, and troubleshooting tools, along with northbound interface options for integration into carrier network management systems.

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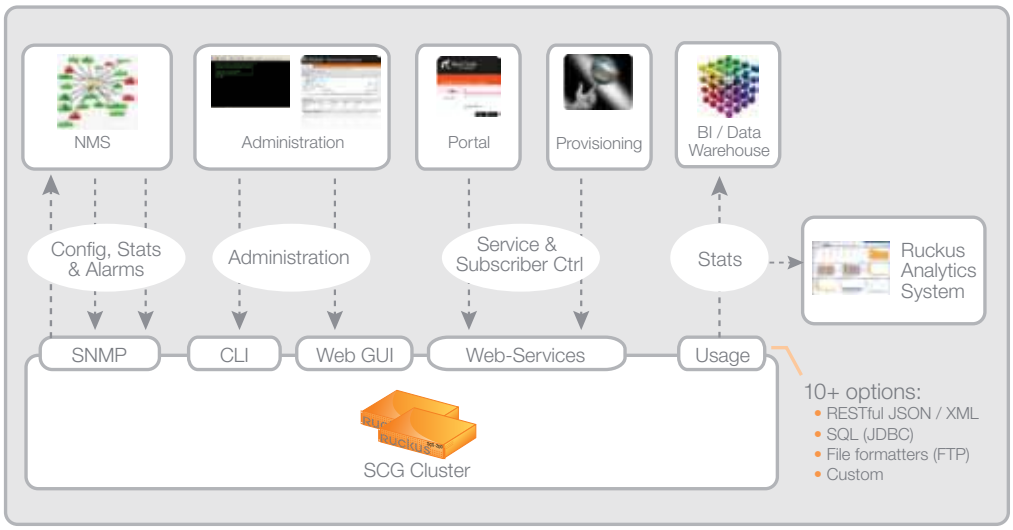

Wholesale/MVNO operations

The SCG 200's fully functional GUI provides concurrent role-based access control (RBAC) for viewing the Wi-Fi system resources and performance. With the support of partitioning for access in a secure manner, the SCG allows Wi-Fi service providers to wholesale SSIDs to other service operators such as MVNOs, and to enable MVNO admins to administer and monitor only the SSIDs over which they have control.

Future Evolution

The SCG has been designed for future technology evolution without requiring disruptive hardware upgrades. Instead, new functionality can be added with In-Service Software Upgrades (ISSU). This software-based upgradable design allows an operator to deploy an SCG 200 as a Wi-Fi controller (only) and then later add Wi-Fi gateway support.

Specifications

PHYSICAL CHARACTERISTICS	
POWER	• Dual (redundant) AC or DC hot-swappable power supplies • DC input requirements - Voltage: -48 to -60VDC - Current: 13A • AC input requirements (auto-range) - 50/60Hz - 100 to 127VAC/maximum current 6A - 200 to 240VAC/maximum current 3A
PHYSICAL SIZE	• 2RU rack mountable • 8.76 cm (H), 43.53 cm (W), 50.8 cm (D)
WEIGHT	• 40 lbs. (18.14 kilograms)
CONNECTIONS	• Control: Six 10/100/1000 Mbps RJ-45 ports • Data: Four 10 GigE data ports • Serial ports, RJ-45 (one front, one back)
LED DISPLAY	• Supported (see user guide)
FANS	• Six redundant, field-swappable fan sets
ENVIRONMENTAL CONDITIONS	• Operating Temperature: 41°F (5°C) – 104°F (40°C) • Operating Humidity: Up to 95% Non-condensing at 73°F (23°C) – 104°F (40°C)

SUPPORTED CONFIGURATIONS	
MANAGED APs	• Up to 10,000 per SCG
CONCURRENT MOBILES (UEs) / STATIONS	• Up to 100,000 tunneled concurrent sessions per SCG
WLANs	• 6,144 per SCG
CONTROLLER EXPANSION	• Up to 4 controllers in 4/4 active mode, supporting non-disruptive capacity expansion. Future releases will validate larger clusters.
CONTROLLER REDUNDANCY	• Distributed data preserving with 3:1 redundancy

KEY FUNCTIONALITY	
DATA OFFLOAD	• Trusted WLAN Access using 3GPP TS 23.402 (802.1x/EAP) • Untrusted WLAN Access using 3GPP TS 23.234 (TTG/PDG) • Local offload of traffic directly to the Internet
AUTHENTICATION PROTOCOLS	• Open, 802.1x/EAP, PSK, WISPr, WPA, WPA2-AES, WPA-TKIP, WEP • Fast EAP-SIM re-authentication • EAP-SIM, EAP-AKA, EAP-AKA' over WLAN for 802.1x Wi-Fi Locations with the SCG AAA-Proxy functionality enabled
AAA SERVICE	• Incorporates on-board EAP-server enabling SIGTRAN based authentication with external HLR/HSS • RADIUS (AAA) PROXY
WISPr SUPPORT	• WISPr 1.0 authentication
ELEMENT MANAGEMENT	• Secure multi-operator login (RBAC) • Large scale (bulk) AP management tools • Configuration audit trails • Alarm and event notification (SNMP V2 / V3) • Extensive statistics and reporting • Integrated on-board remote accessible EMS • RESTful APIs (JSON) • CLI

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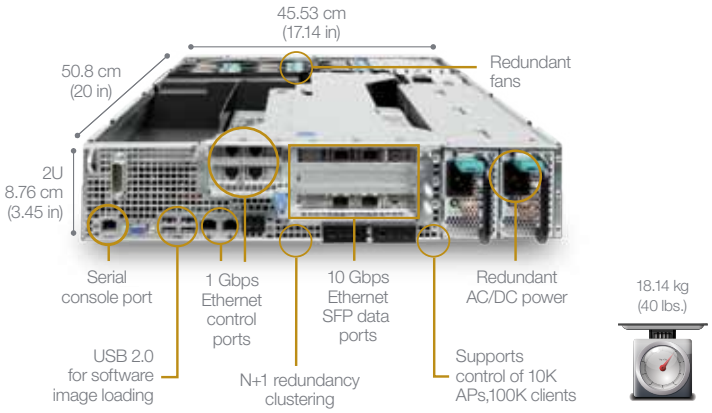

Product Ordering Information

MODEL	DESCRIPTION
SmartCell Gateway 200 Carrier Scale Wireless Controller	
901-S20J-XX10/00	SmartCell Gateway 200 available in AC or DC redundant power supplies option. Each unit comes with four (4) 10 Gbps dedicated data processing units and up to six (6) 1 GigE ports providing redundant control, signaling and out-of-band network interface capability.
Ruckus Access Point Management Licenses	
909-0100-SG00	SCG License supporting 100 Ruckus APs
909-0500-SG00	SCG License supporting 500 Ruckus APs
909-001K-SG00	SCG License supporting 1,000 Ruckus APs
909-010K-SG00	SCG License supporting 10,000 Ruckus APs
Ruckus TTG/PDG Bundled Licenses	
909-001K-SG0A	License for 1K data tunnels to 3GPP GGSN/PGW
909-010K-SG0A	License for 10K data tunnels to 3GPP GGSN/PGW
909-050K-SG0A	License for 50K data tunnels to 3GPP GGSN/PGW
909-100K-SG0A	License for 100K data tunnels to 3GPP GGSN/PGW
909-500K-SG0A	License for 500K data tunnels to 3GPP GGSN/PGW
909-001M-SG0A	License for 1M data tunnels to 3GPP GGSN/PGW

PLEASE NOTE: When ordering, you must specify the destination region by indicating -US, -IL, or -WW instead of XX.

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