

DATA SHEET



BENEFITS

HIGH SCALABLE, EASILY SCALABLE

A single SZ100 appliance can manage up to 1,000 APs, while 3+1 active clustering increases capacity up to 3,000 APs and 60K clients.

SUPERIOR AVAILABILITY

Active/active clustering delivers higher availability and resiliency than traditional N+1 standby. 3x fans further improve uptime.

COMPREHENSIVE EXPERIENCE MANAGEMENT

Visual Connection Diagnostics speeds and simplifies troubleshooting and client problem resolution while unique "super-KPIs" enable IT to more quickly detect and react to potential user experience degradation.

MULTI-VARIATE, ROLE-BASED POLICIES

Optional Ruckus Cloudpath integration lets IT to create rich location-, device- and user-based policy rules, enabling network segmentation based on real security and policy needs rather than on a one-size-fits-all approach.

CONTENT FILTERING

Easily create and enforce content policies to protect users from accessing inappropriate websites using URL Filtering.

SURVIVABLE CONFIGURATION AND REPORTING

The SZ100 can store up to 30 days of traffic statistics for built-in reports, and 14 days.

ADDITIONAL ADVANCED FEATURES

SmartZone also supports, rogue AP detection and mitigation, adaptive band balancing, load balancing, airtime fairness, hotspot and guest services, capacity-based admission control, and more.

The SmartZone™ 100 (SZ100) represents a new class of affordable and versatile WLAN controllers designed for enterprise deployment. Powered by the SmartZone OS, it addresses network challenges faced by enterprises of all types and sizes.

ENTERPRISE

Organizations must support accelerating demands on their WLAN infrastructure with the rise of Internet of Things (IoT) and Bring Your Own Device (BYOD). The need for employees and customers to have the best user experience is driving organizations in every vertical to adopt the best possible network infrastructure. The SZ100 allows all enterprises to deploy an affordable and highly resilient Wi-Fi network.

DISTRIBUTED AND REMOTE OFFICE

End-user quality-of-service expectations are on the rise. Capital equipment budgets are not. The SZ100 provides IT departments with intuitive, visual tools to centrally manage end-user experience in distributed and remote offices. Its active/active redundancy architecture provides the budget flexibility that comes from having no idle capacity.

Manage the network hierarchy for segmentation.

Quickly change scope and easily manage profiles.

Monitor and configuration workflows are fully integrated.

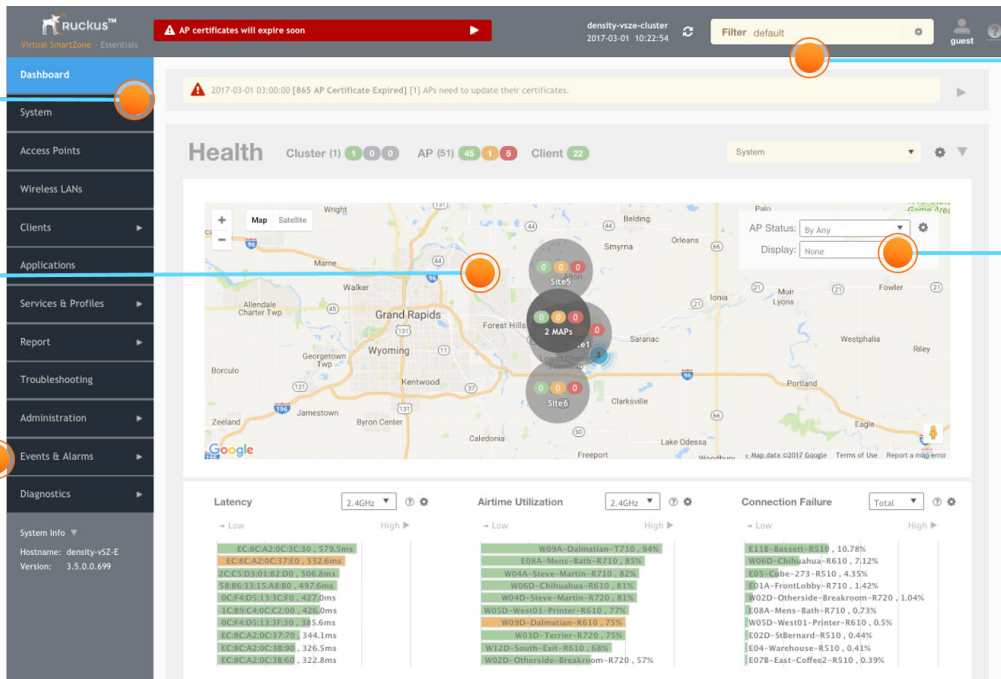
Name	Alerts	SSID	Auth Method	Encryption	Clients	Traffic
35-1X	0	35-1X	802.1X	WPA2	N/A	0
35-ARC	0	35-ARC	OPEN	WPA2	N/A	0
35-CP	0	35-CP	OPEN	NONE	N/A	0
35-DPSK	0	35-DPSK	OPEN	WPA2	N/A	0
35-PSK	0	35-PSK	OPEN	WPA2	1	4.5MB

Simplified and enhanced search functionality.

Completely redesigned dashboard experience.

Google maps integration and indoor floorplans

New menu structure with simplified navigation.



Global filter preserves admin context throughout menus and pages

Fresh layout, user interaction, and styling throughout.

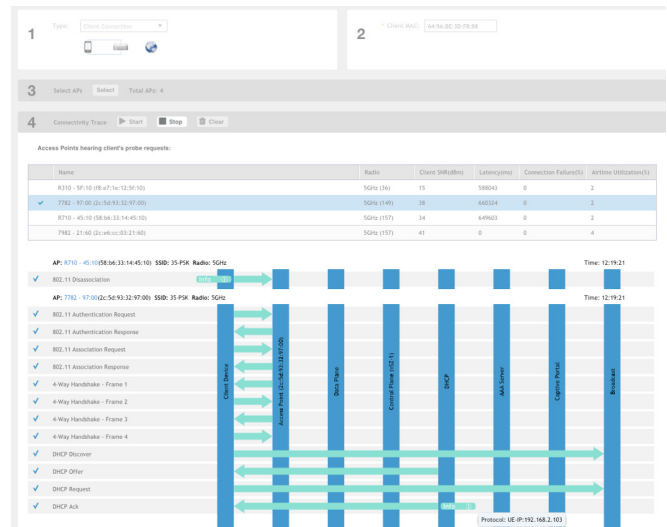
MANAGEMENT / OA&M

ADMINISTRATIVE DASHBOARD

The Dashboard is a customizable and contextually rich interface that reduces the time required to support large-scale networks. Consistent menus and consolidated and streamlined navigation shortens time to perform routine tasks such as AP configuration or monitoring actions. Configurable visual filter settings for the Dashboard personalize visual network alerts and WLAN statistics; settings are preserved throughout sub-pages. View maps, health and traffic analysis, spectrum analysis and more.

VISUAL CONNECTION DIAGNOSTICS

Visual Connection Diagnostics speeds and simplifies troubleshooting and client problem resolution. This troubleshooting tool allows an administrator to focus on a specific client device and its connection status. An intuitive interface tracks the step-by-step progress of the client's connection through 802.11 stages, RADIUS, EAP authentication, captive portal redirects, encryption key setup, DHCP, and roaming. Administrators can identify information in each step, like EAP type or IP address assigned and then pinpoint where in the process a failure occurs. This enhanced visibility helps determine the likely cause of client problems and, based on the failure stage, gives useful guidance for remediation. Visual Connection Diagnostics supports open, PSK, 802.1X, and WISPr networks.



A rich set of RESTful JSON and GPB streaming APIs enable the use of 3rd party configuration, monitoring, reporting and analytics tools. Each SmartZone controller supports access to a complete set of Wi-Fi network machine-level metrics enabling it to plug directly into existing automated backend systems and to provide a 'headless' interface for the WLAN infrastructure.

Public API support includes zone and WLAN details, AP group override settings and AP override settings. API improvements are supported by near real-time monitoring with data granularity as fine as three minutes. The real-time push streaming data driven framework enable SmartZone to deliver better report and management support.

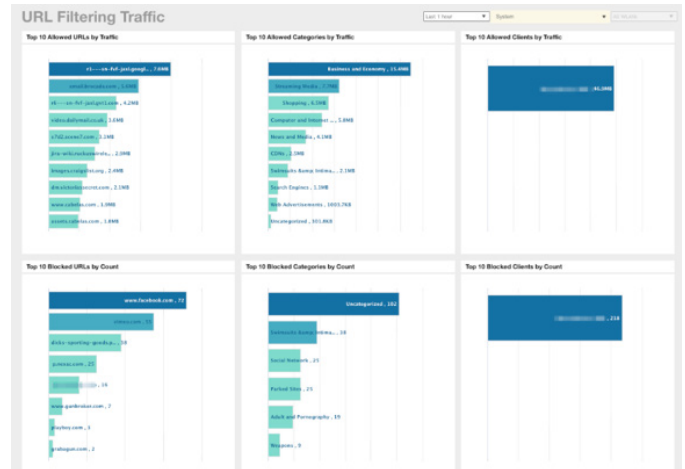
MULTI-ZONE CONTROL

Multi-Zone is used to segment the WLAN into independent organizational units. The SZ100 supports up to 1,024 zones enabling IT to create policies that group AAA, DPSKs, Hotspot portals, Bonjour policies, and WebAuth portals and assign them to one or multiple zones. Different zones can operate using different firmware versions or different country codes. Administrators can also upgrade AP zones independently from the controller software and manage APs with firmware up to two releases old. IT can update firmware one zone at a time or within a dedicated test zone before upgrading the entire network.

SECURITY AND POLICY

URL FILTERING

URL Filtering allows businesses to create and enforce content policies that protect users from inappropriate and harmful websites while maintaining access to allowed URLs. Policies are granularly applied at a wireless LAN or user group level with override whitelist / blacklist options. Rich dashboards provide real-time visibility into millions of URLs, classified into 83+ categories, being allowed or denied. Additionally, URL Filtering supports Safe Search for Google, YouTube, and Bing.



1G SmartZone Model



4X1G Ports

10 SmartZone Model



10G Ethernet Ports

Console Port



Power

3X Redundant fans

Dimensions



AUTOMATED ENHANCED CLIENT SECURITY / DPSK

Ruckus patented Dynamic PSK™ (DPSK) enhances client security by automating randomized passphrase keys for use with each device. The SZ100 supports 20,000 DPSKs, with up to 10,000 per zone. Group DPSK, user-specified passphrase and number-only DPSK further enhance client security in all settings.

Group DPSK allows IT to create a DPSK that can be shared by multiple different devices, with up to sixty-four Group DPSKs in a zone. Administrators can also specify a number-only DPSK, which makes guest or other "easy entry" scenarios more user-friendly.

WIDS / WIPS / ROGUE AP DETECTION

The SZ100 includes Wireless Intrusion Detection and Prevention System (WIDS/WIPS) functionality, enabling rogue AP detection. Rogue access points exhibiting malicious behavior such as spoofing the SSID or BSSID of a connected Ruckus AP are prevented from connecting clients to the network.

APs can be categorized as Ignore, Known, Rogue, and Malicious to minimize disruption towards allowed APs or lab equipment, and thus prevent the network from acting against these discovered APs. Classification rules enable rogue AP detection by SSID match, MAC OUI, and RSSI threshold.

ROLE-BASED POLICY MANAGEMENT

Granular role-based policies enable the creation of policy groups segmented by user role, domain, location, OS type, certificate status, VLAN and many more factors. Roles are assigned during the authentication phase of new user onboarding, then VLAN, OS, and L3-7 policies are assigned as desired. Policy enforcement actions include allow, deny, and rate-limit based on VLAN or VLAN pool and L3/L4 Access Control Lists (ACLs).

HOTSPOT 2.0 / PASSPOINT

Hotspot 2.0 enables 802.1x/EAP mobile devices to automatically discover, select and authenticate to APs for which a roaming arrangement exists. Hotspot 2.0 is automatic and requires no user intervention after proper device provisioning. Self-service provisioning can be accomplished by the Ruckus Cloudpath security and policy management platform.

ISOLATION WHITELIST

Administrators can manually configure a whitelist entry, either to add non-gateway devices such as printers or to allow additional gateway MAC addresses that may be required for load balancing or other functions. The isolation whitelist can be auto-only, manual-only, or auto and manual.

BONJOUR MANAGEMENT

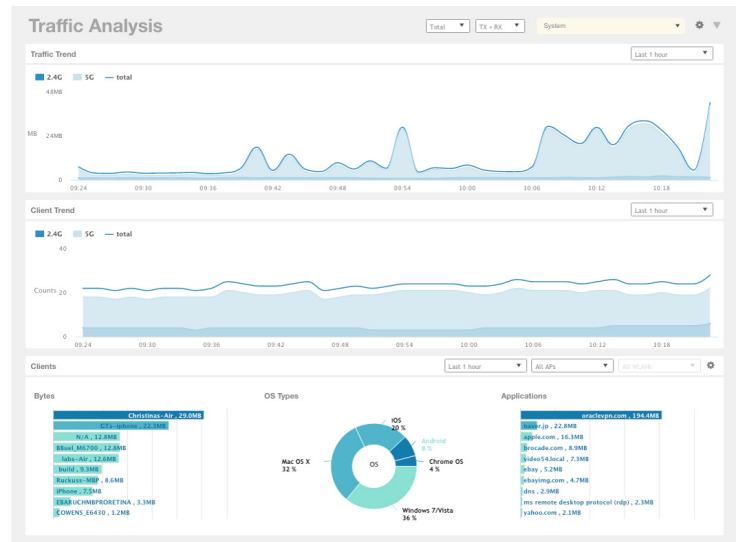
Bonjour Management enables the detection of Bonjour services (such as AirPlay, Apple TV and other Apple network services) and other mDNS-based services such as ChromeCast across VLANs and subnets for both wired and wireless networks. The SZ100 is preconfigured with common Bonjour service types, making Bonjour service detection automatic.

Bonjour Fencing allows administrators to control the physical area in which a given Bonjour-based service is discoverable. This is accomplished by mapping to nearby APs devices that are advertising Bonjour services and allowing only that AP or its neighbors to advertise the Bonjour record. This prevents users/devices from discovering Bonjour services that are not nearby and thus not relevant to their search.

NETWORK INTELLIGENCE

TRAFFIC ANALYSIS

Traffic analysis displays domain, zone, AP group, WLAN, and AP traffic and client trends over time. Quickly find the most heavily loaded AP or top network users and devices. View client OS types and application consumption. Filter statistics by band (2.4 GHz, 5 GHz, or both) and traffic direction (uplink, downlink, or both), and monitor client load over time.



INDOOR AND OUTDOOR MAPS

With Maps, centrally view all sites at the same time with Google Maps integration and display sites, floorplans and APs on the map. Simplify routine checkups of AP health on a site-by-site basis with one click. Inspect the status of APs across floorplans to find online, flagged, and offline APs. View health and traffic data for each AP to evaluate site performance. Administrators can choose an AP to view details like health status, IP address or other operational metrics. APs are color-coded by status, and administrators can overlay operational data—like operating channel, traffic, client count, airtime utilization—for each AP on the map.

LAYER 7 APPLICATION VISIBILITY AND CONTROL

Robust Layer 7 application recognition and control pinpoints top applications and top users, among other metrics. The SZ100 allows rate limiting, blocking and QoS actions by application to support organizational network usage policies. The application signature database is updated independently of SmartZone firmware upgrades, ensuring that administrators can always manage and control the latest applications.

SUPER-KPIS

Unique “super-KPIs” enable IT to more quickly detect and react to potential user experience degradation. SZ100 proactively monitors a core set of metrics that consistently correlate well with common problems, and presents a summary metric as a starting point for problem isolation. Using aggregate measurements that capture a broad range of problems associated to the Wi-Fi network simplifies troubleshooting by narrowing the scope and location of the problem. These holistic, proprietary, “super” metrics include Latency, Airtime Utilization, and Connection Failure.

RF COVERAGE HEAT MAP

The RF coverage heat map visually presents approximated signal strength per AP that is overlaid on top of any imported floor plan. This enables IT to quickly spot possible AP coverage gaps within the intended area.



AP HEALTH

AP health is a key indicator of user experience quality and with SZ100 this information is presented front-and-center. On the Dashboard, AP status is categorized based on health/performance thresholds defined by an administrator. On a map, APs are color-coded based on this status. SZ100 automatically identifies APs that cross performance thresholds and visually ranks the worst-performing APs. With this data and historical trend analysis, admins can easily compare individual APs with groups of APs to look for isolated trouble spots or identify broader patterns.

CLUSTER HEALTH

Monitor and flag cluster node status and keep critical cluster health alerts highlighted within the Dashboard through status symbols showing Green/Yellow/Red for each cluster node. Displays historical line charts and allows threshold settings for Cluster Health, spanning CPU, RAM and disk utilization, port/interface usage, and packet rates.

CLIENT HEALTH

Check on real-time client performance metrics, connectivity, and traffic. View client signal-to-noise ratio (SNR) and data rate, as well as historical traffic, to help troubleshoot connectivity problems.

TOPOLOGY HEALTH

The Topology view contained within the Dashboard uses a system hierarchy tree to enable easy identification of network problems inside domains, zones, and AP groups. Visually identify with Green/Yellow/Red status indicators nodes in the tree with offline APs or APs with poor performance that have crossed admin-defined performance thresholds.

SPECTRUM ANALYSIS

On-demand real-time spectrum analysis make use of existing radios within the AP, removing the requirement to have dedicated APs for spectrum reporting. Visualize RF spectrum by real-time energy, real-time utilization, density, energy

waterfall, and utilization waterfall. While an AP conducts a spectrum scan, clients are offloaded to nearby APs to minimize connection disruptions. In the case of APs with three radios, the 3rd radio can provide spectrum analysis of both 2.4 and 5 GHz bands without impacting client connectivity. Spectrum Analysis is supported on 802.11n, 802.11ac Wave 1 and Wave 2 APs.

REPORT GENERATION AND EXPORT

View rich statistics on subscribers (including client fingerprinting), APs, SSIDs, backhaul (mesh), and the SZ100 cluster itself, with granularity as low as three minutes. Reports encompassing durations of up to 30 days can be generated for a variety of key performance indicators (KPIs) and exported in multiple formats. For operators seeking richer information, the Ruckus SmartCell Insight (SCI) network analytics tool provides for long-term data storage, data analytics and more complex reports.

CONNECTIVITY

DISTRIBUTED CONNECTIVITY OPTIMIZATION

With an encrypted AP-to-AP communications protocol, managed APs discover neighboring APs over-the-air and build encrypted communication channels to share network load, operating channels, roaming and other relevant RF parameters. This enables smarter roaming and load balancing behavior and is supported on both IPv4 or IPv6 networks.

SMARTMESH WIRELESS BACKHAUL

Ruckus SmartMesh supports wireless backhaul redundancy by creating self-forming, self-healing mesh networks automatically with a single checked box on the administrative interface. With Ruckus APs and BeamFlex+ technology, APs adapt to changing conditions to further ensure a solid mesh connection between APs, making use of the 5 GHz band to backhaul AP traffic to a point where wireline facilities are available. Mesh backhaul configurations dynamically reconfigured to reroute traffic over different paths as conditions change.

ADAPTIVE BAND BALANCING

Real-time adaptive band balancing within AP radio bands help improve user and network performance as environmental factors change. Client-aware machine learning calibrates device load on a per AP and 2.4 vs 5 GHz radio band basis.

RADIO AND WI-FI OPTIMIZATION

- **BeamFlex+** - BeamFlex+ adaptive antenna increases every Ruckus AP's performance and range. Multiple antenna elements inside each AP manipulate RF patterns in real time to maximize, on a per packet basis, signal gain for each client, while accommodating changes in client device orientation. This technology mitigates noise related performance issues, and improves application flows especially for mobile devices.
- **ChannelFly** - The ChannelFly dynamic channel management technology in all Ruckus APs improves wireless performance in highly congested environments by dynamically switching a client to a better channel when the one it's using starts to degrade. This capability allows APs to automatically select the optimum 2.4 and 5

GHz channels to maximize performance and minimize interference. ChannelFly also supports a channel-change cost metric that refines client channel migration using channel capacity prediction models and initial learning and settling time updates.

- **Capacity-Based Admission Control** - To help ensure existing clients' quality of service during periods of heavy load, Ruckus APs implement a capacity-based client access control algorithm that declines connection requests from new clients if already-

ARCHITECTURE

SEPARATE CONTROL AND DATA PLANE

The SmartZone platform addresses deployment and latency constraints with traditional WLAN architectures by implementing a customized Local MAC architecture which places all essential WLAN services including authentication and association requests within the Ruckus AP. This enables all SmartZone controllers to separate control and management traffic from data traffic while optimization for both using SSH-based and GRE-based protocols, thus improving deployment flexibility and network latency.

A single SmartZone controller placed within a centralized data center can manage multiple remote sites without forcing all authentication requests or client data to tunnel through the SmartZone controller.

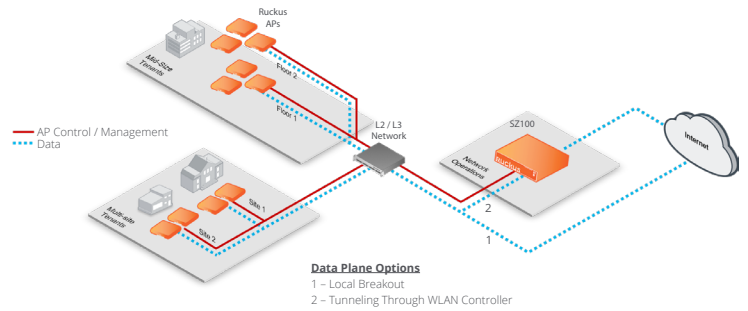
User traffic is delivered directly through the local L2/L3 network which improves latency between clients and services.

Branch office deployments and direct integration between APs and local IT infrastructure Active Directory, LDAP, RADIUS, DHCP, DNS, and Firewalls are also enabled.

Data encryption of payloads being transmitted over a public network connection, such as the Internet, are encrypted with SmartZone.

SCALABLE CLUSTER ARCHITECTURE

Active/active clustering delivers higher availability and resiliency than traditional N+1 standby. The architecture ensures redundancy and balances AP loading with cluster-wide management across data centers and zero idle controller capacity.



AP SURVIVABILITY

The SZ100 minimizes the impact of lost connectivity between the controller and the AP by placing essential WLAN services within the AP. WAN link outages or controller failures do not affect the normal operation of WLAN services.

OFFLOAD DHCP/NAT SERVICES

DHCP/NAT services are provided by the AP while the SZ100 centrally manages the AP and maintains through-NAT client visibility. This topology simplifies the replication of a WLAN configuration across multiple sites while minimizing capital expenditures associated with separate routers and DHCP servers.

SMARTZONE OS: COMMON FEATURES AND ATTRIBUTES			
<p>Active Clustering</p> <p>Ensures redundancy and balanced AP loading with cluster-wide management across data centers and zero idle controller capacity.</p>	<p>Separate Control and Data Planes</p> <p>Segment user traffic from management/control traffic for flexible deployment, higher security and lower-cost scaling and tunneling.</p>	<p>Flexible Tunneling</p> <p>Allows for distributed or centralized L2 tunneling on a per-WLAN or per-zone basis using Ruckus or 3rd-party data plane nodes.</p>	<p>Survivable AP Architecture</p> <p>In the event of backhaul outage, new APs and clients can be added and full WLAN functionality persists.</p>
<p>Visual User Interface</p> <p>Intuitive, graphics-intensive interface simplifies and speeds control and management tasks, while enhancing visibility.</p>	<p>Rich Northbound APIs</p> <p>RESTful JSON APIs enable the use of 3rd party configuration, monitoring, reporting and analytics tools.</p>	<p>Flexible Licensing</p> <p>Migratable, single-AP licenses ensure linear pricing, while intra-cluster sharing eliminates duplicate license costs.</p>	<p>Integrated Reporting</p> <p>Customizable reports with visual alerts and pivot-table functionality makes it easy to prioritize and respond to network conditions.</p>

PHYSICAL CHARACTERISTICS	
Power	<ul style="list-style-type: none"> AC input requirements: 250 Watts
Physical Size	<ul style="list-style-type: none"> 1RU: 438 MM (W) x 292.1 MM (D) x 44 MM (H); 17.25"(W) x 11.5"(D) x 1.73"(H)
Weight	<ul style="list-style-type: none"> 11.02 lbs (5 kilograms)
Ethernet Ports	<ul style="list-style-type: none"> 4 - 1GbE ports 2 - 10GbE ports
Environmental Conditions	<ul style="list-style-type: none"> Operating Temperature: 32°F (0°C) – 104°F (40°C)

CAPACITY	
Managed APs	<ul style="list-style-type: none"> Up to 1,024 With cluster: 3,000
WLANs (BSSIDs)	<ul style="list-style-type: none"> 2,048
Concurrent Stations	<ul style="list-style-type: none"> Up to 25,000 With cluster: 60,000

APPLICATIONS	
Hotspot	<ul style="list-style-type: none"> WISPr, Wi-Fi CERTIFIED, Passpoint™
Guest Access	<ul style="list-style-type: none"> Supported
Captive Portal	<ul style="list-style-type: none"> Supported
Mesh	<ul style="list-style-type: none"> Supported
Voice	<ul style="list-style-type: none"> 802.11e/WMM U-APSD

NETWORK ARCHITECTURE	
IP	<ul style="list-style-type: none"> IPv4, IPv6, dual-stack
VLANs	<ul style="list-style-type: none"> 4,000
Redundancy	<ul style="list-style-type: none"> 3+1 cluster redundancy
DHCP Server	<ul style="list-style-type: none"> Supported

MANAGEMENT	
Configuration	<ul style="list-style-type: none"> Web user interface, CLI, SNMP v1, v2, v3
AAA	<ul style="list-style-type: none"> RADIUS (primary and backup)
AP Provisioning	<ul style="list-style-type: none"> L3 or L2 auto-discovery Auto-software upgrade Automatic channel optimization
Analytics	<ul style="list-style-type: none"> SmartCell Insight allows for custom report generation with up to seven years of network data 30 days local storage for built in reporting

SECURITY	
Standards	<ul style="list-style-type: none"> WPA, WPA2, 802.11i
Encryption	<ul style="list-style-type: none"> TKIP, AES
Authentication	<ul style="list-style-type: none"> 802.1x, MAC address
User Database	<ul style="list-style-type: none"> Internal database up to 25,000 users External: RADIUS, LDAP, Active Directory
Access Control	<ul style="list-style-type: none"> L2 (MAC address-based) L3/4 (IP and Protocol based) L2 client isolation Management interface access control Time-based WLANs Device type access policies
Wireless Intrusion Detection (WIDS/WIPS)	<ul style="list-style-type: none"> Rogue AP detection / prevention Evil-twin/AP spoofing detection Ad hoc detection

MULTIMEDIA AND QUALITY OF SERVICE	
802.11e/WMM	<ul style="list-style-type: none"> Supported
Software Queues	<ul style="list-style-type: none"> Per traffic type (4), per client
Traffic Classification	<ul style="list-style-type: none"> Automatic, heuristics and TOS based or VLAN-defined
Rate Limiting	<ul style="list-style-type: none"> Supported
WLAN Prioritization	<ul style="list-style-type: none"> Supported
Client Load Balancing	<ul style="list-style-type: none"> Automatic

CERTIFICATIONS	
Certifications*	<ul style="list-style-type: none"> U.S., Canada, EU, China, Japan, Taiwan, Korea

* Please see price list for latest country certifications

PRODUCT ORDERING INFORMATION	
Model	Description
SmartZone 100 Smart WLAN Controllers	
P01-S104-XX00	<ul style="list-style-type: none"> SZ 100 - 4xGE Ports
P01-S124-XX00	<ul style="list-style-type: none"> SZ 100 - 2x10GE & 4xGE Ports
L09-0001-SG00	<ul style="list-style-type: none"> 1 AP license for SZ 100 to manage APs
L09-0001-RXGW	<ul style="list-style-type: none"> Soft GRE tunnel license from AP to 3rd party concentrator
902-0190-0000	<ul style="list-style-type: none"> 10GBASE-SR SFP+ Optical transceiver module

URL FILTERING	
S01-URL1-1LSZ	<ul style="list-style-type: none"> SmartZone URL Filtering 1 year subscription for 1AP
S01-URL1-3LSZ	<ul style="list-style-type: none"> SmartZone URL Filtering 3 year subscription for 1AP
S01-URL1-5LSZ	<ul style="list-style-type: none"> SmartZone URL Filtering 5 year subscription for 1AP
S21-URL1-1LSZ	<ul style="list-style-type: none"> SmartZone URL Filtering 1 year subscription for 1AP
S21-URL1-3LSZ	<ul style="list-style-type: none"> SmartZone URL Filtering 3 year subscription for 1AP
S21-URL1-5LSZ	<ul style="list-style-type: none"> SmartZone URL Filtering 5 year subscription for 1AP

PLEASE NOTE: When ordering SmartZone 100, you must specify the destination region by indicating -US, -EU, -CN, -IN, -JP, -KR, -SA, -UK or -UN instead of -XX.