Virtual SmartZone – Data Plane

Scalable Virtual Wireless LAN Data Plane Appliance

DATA SHEET

BENEFITS

SECURE TUNNELED WLANS

Enables forwarding of user data traffic from Ruckus APs on a per WLAN basis through secure tunnels with support for NAT traversal.

HIGH SPEED PACKET PROCESSING

Data packet forwarding throughput of 1Gbps, 10Gbps or higher.

TRAFFIC FORWARDING RULES

vSZ-D supports local breakout of traffic as well as packet forwarding to 3rd party wireless gateways with support for L2oGRE and QinQ tunnels.

CENTRALIZED CONTROL

Deploy vSZ-D with the vSZ within a centralized data center, or remotely at tenant locations while maintaining centralized control over the entire wireless network.

DEPLOYMENT SIMPLICITY

The vSZ-D seamlessly integrates with the vSZ which makes network management easy and more flexible.

MINIMIZE CAPEX. MAXIMIZE PERFORMANCE.

The use of inexpensive commodity Intel servers along with the Intel DPDK framework provides high scale data packet forwarding while minimizing costs.

SERVICES

DHCP / NAT

DHCP services on the vSZ-D enable high-speed wireless client IP assignment, while NAT services help reduce mac-address scaling challenges on infrastructure switches.

LAYER 3 ROAMING

Distributed vSZ-D instances interconnect via Ruckus GRE tunnels enabling layer 3 roaming without the need for a separate mobility controller.

LAWFUL INTERCEPT

Support lawful intercept of encrypted traffic to maintain CALEA compliance on public or government-owned networks. Enable the mirroring of client traffic to a LIG (Lawful Intercept Gateway) over L2oGRE (Soft-GRE).

The Virtual SmartZone™ Data Plane (vSZ-D) is a wireless LAN data plane appliance in a virtualized form factor. Made to work seamlessly with the Ruckus Virtual SmartZone Wireless LAN Controller (vSZ), the vSZ-D enables secure tunneled WLANs from Ruckus APs while minimizing CAPEX spending and maximizing Wi-Fi deployment flexibility and scale.

Operators, ISPs and large enterprises can deploy the vSZ-D in a centralized data center with the vSZ, or at specific venues in a distributed topology.

MULTI-SERVICE AND MOBILE NETWORK OPERATORS

Operator deployment scenarios are among the most complex in the world, with some operators simultaneously delivering public access Wi-Fi, employee Wi-Fi and Wi-Fi as a managed service to their enterprise and small business customers. The vSZ-D with the vSZ allows operators to flexibly deploy tunneled WLANs that suit the unique requirements of each tenant scenario.

INTERNET SERVICE PROVIDERS

Capitalizing on the Wi-Fi-as-a-Service trend, service providers are creating new revenue streams while simultaneously helping customers manage their Wi-Fi, an increasingly complex network element. The multi-tenant-capable vSZ with the vSZ-D enables service providers to create and deploy sophisticated, multi-tier tenant offerings, even across geographic and commercial boundaries.

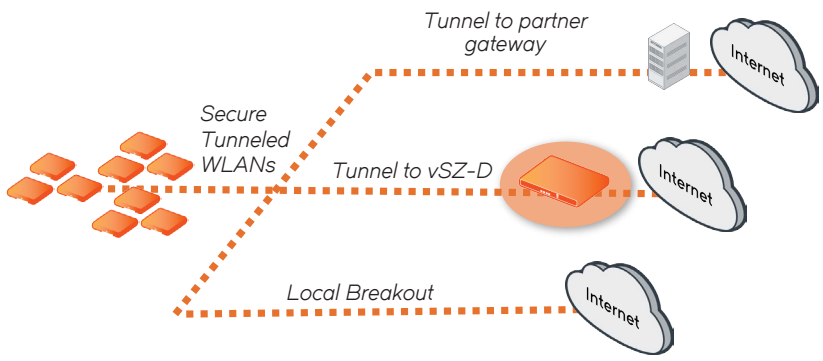
LARGE CAMPUS ENTERPRISES

End-user quality-of-service expectations are on the rise. Capital equipment budgets are not. The vSZ-D with vSZ provides IT departments mechanisms to manage end-user experience proactively with minimal touch points on the edge network equipment.

FEATURES

Secure Tunneled WLANs

The vSZ-D enables providers to isolate and securely tunnel Wi-Fi client traffic through any Ruckus Wi-Fi managed network. SmartZone managed Ruckus APs help isolate and tunnel traffic on the access network through the vSZ-D which is then directed to the Internet or tunneled to 3rd party gateways. This feature enables SmartZone managed WLANs to isolate guest traffic, forward Point-Of-Sale (POS) data securely, route Voice-Over-IP (VoIP) packets, and enable roaming across segmented layer 2 and layer 3 networks. Additionally, data tunneling flexibility reduces costs, single points of failure and throughput performance bottlenecks and is especially important when the service provider or enterprise operator do not have control over the backhaul links.



Data Scaling

vSZ-D scales to handle data traffic from 10,000 tunnels on a single instance to satisfy requirements of large service providers and enterprises. The vSZ-D is built on Intel's DPDK framework and architected to support data aggregation with encryption at large-scale with minimal data forwarding latencies. Licenses in throughput configurations of one (1) Gbps, ten (10) Gbps and Unlimited exist to properly scale as network needs change.

Centralized Management

Designed for flexibility, the vSZ-D can be deployed in a centralized data center along with the network controller or can be deployed at specific venues in a distributed architecture while managed by a centralized controller.

Private / Public Cloud

The vSZ-D can be deployed in a private cloud to support one network or in a public cloud to support hundreds or even thousands of managed WLAN networks. vSZ-D instances can run on open-source KVM hypervisor or VMware vSphere hypervisor.

vSZ-D Zone Affinity

Zone Affinity allows deployment of individual vSZ-D instances on a per site or regional basis. vSZ-D instances deployed at each site enables providers to manage remote sites from a central or regional data center where the SmartZone WLAN controller (vSZ) resides, while enabling data forwarding flexibility locally within the site.

DHCP / NAT

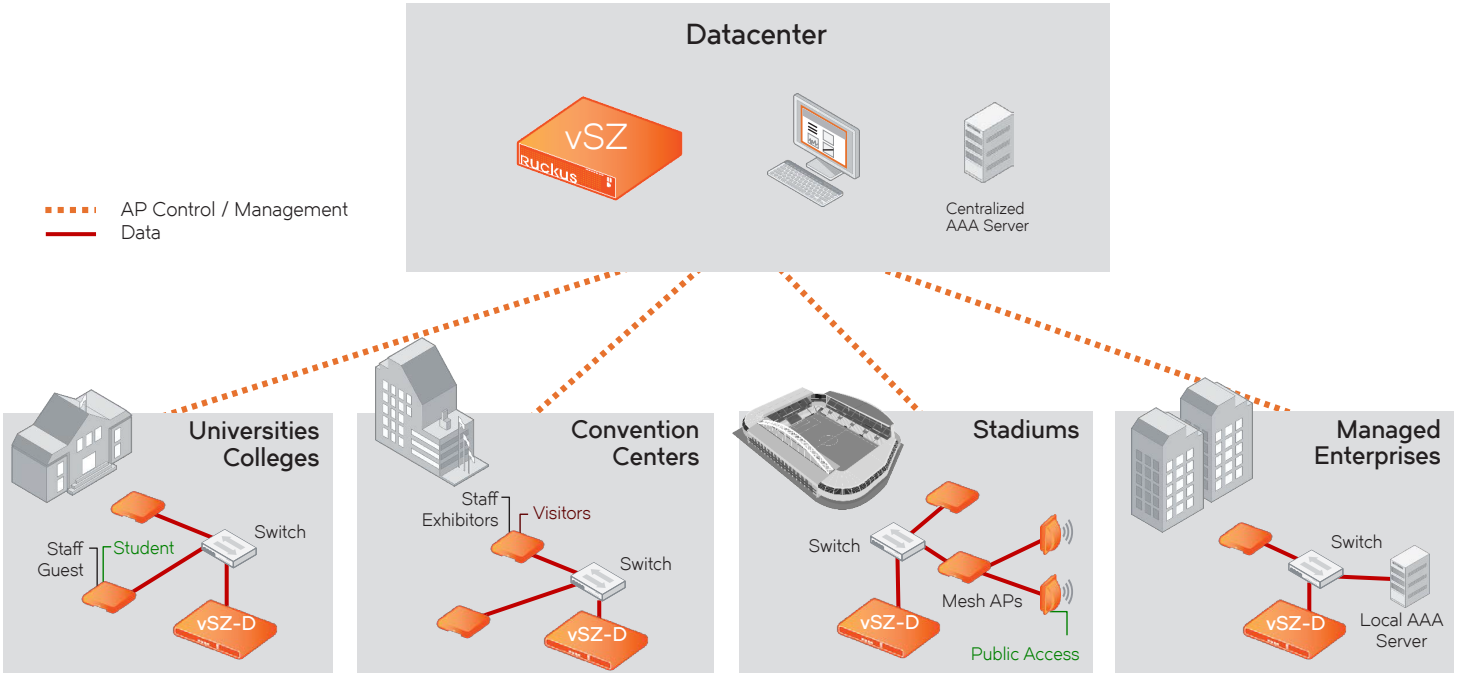
DHCP services incorporated into the vSZ-D enable high-speed wireless client IP assignment, while built-in NAT services help reduce mac-address scaling challenges on infrastructure switches. The DHCP server built in-line within the vSZ-D is useful in high-density deployments like stadiums, universities or mass transit stations where large numbers of clients continuously move in and out of Wi-Fi coverage causing repeated IP address assignment requests. NAT services reduce MAC-table lookups on up-stream switches which enhances network performance.

L3 Roaming

Distributed vSZ-D instances interconnect via Ruckus GRE tunnels enabling layer 3 roaming with client IP address preservation without the need for a separate mobility controller, saving costs.

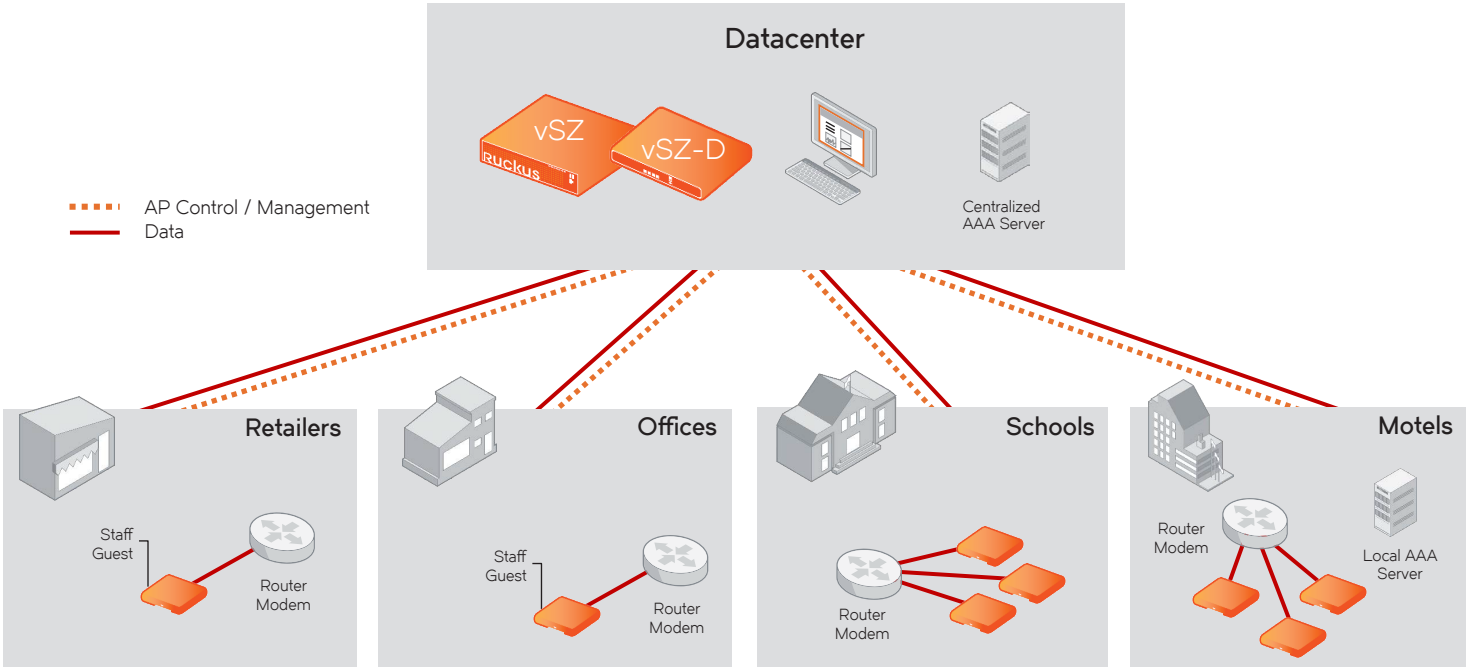
Lawful Intercept

Support lawful intercept of encrypted traffic to maintain CALEA compliance on public or government-owned networks. Enable the mirroring of client traffic to a LIG (Lawful Intercept Gateway) over L2oGRE (Soft-GRE). vSZ-D instances can be defined as a CALEA mirroring agent that forwards encrypted traffic for lawful compliance.



Distributed Date Plane Deployment

Well suited for large campus, high-density venues, and multi-site enterprises. Connect tenant traffic locally to the Internet by distributing vSZ-D remotely, while placing the vSZ controller in the data center for centralized management.



Centralized Data Plane Deployment

Well suited for managed services providers targeting medium-size enterprises. Deploy vSZ-D alongside the vSZ controller in the data center for centralized data plane aggregation from all sites.

KEY FEATURES	
Hypervisor support	• VMware • KVM
Dynamic data plane scaling	• Supports 1Gbps, 10Gbps or even higher throughput capacities
Integration with vSZ controller	• 10 vSZ-D instances per vSZ instance • 40 vSZ-D instances per vSZ cluster of 4 instances • Each vSZ-D runs as an independent virtual machine instance that is managed by the vSZ controller
Redundancy	• Update to 4 instances in N+1 Active/Active mode
Flexible Configuration	• Encrypted tunnel aggregation from all types of WLANs (Captive portal, 802.1x, HS2.0), VLANs, DHCP Relay, NAT traversal
Services	• DHCP Server / NAT • Layer 3 Roaming • Lawful Intercept (CALEA)
Northbound Tunnels	• L2oGRE, QinQ

PHYSICAL REQUIREMENTS	
Hypervisor support	• VMWare Esxi 5.5 and later OR KVM (CentOS 7.0 64bit)
Processor	• Intel Xeon E55xx and above. Recent Intel E5-26xx chips are recommended
Number of cores	• Minimum 3 cores per instance dedicated for Data plane processing. DirectIO mode for best data plane performance. vSwitch mode for flexibility and service chaining.
Memory	• Minimum 6 Gb memory per instance
HDD	• Hard Disk 10 Gb per instance
NICs that support Intel DPDK	• Intel NICs iab, ixabe • 82576, I350 • 82599EB, 82599, X520 (The above have been validated in Ruckus Labs)

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MODEL	DESCRIPTION
Virtual Data Plane (vSZ-D) (Orderable with SZ 3.2 and above software releases)	
L09-vSZD-WW00	• Virtual Data Plane 3.2 or newer software virtual appliance, 1 instance (includes throughput upto 1 Gbps)
L09-vSZD-BW10	• Virtual Data Plane Bandwidth Upgrade - 1 instance ADD ON (throughput upto 10 Gbps)
L09-vSZD-BWUL	• Virtual Data Plane Bandwidth Upgrade - 1 instance ADD ON (No throughput cap)
Virtual Data Plane (vSZ-D) additional features (Orderable with SZ 3.5 and above software releases)	
L09-vSZD-SVCM	• Virtual Data Plane – Services (CALEA Mirroring) – 1 instance ADD ON
L09-vSZD-SVL3	• Virtual Data Plane – Services (L3 Roaming) – ADD ON – Needs minimum 2 instances
WatchDog Support for Virtual Data Plane (Orderable with SZ 3.2 and above software releases)	
S02-VSZD-1L00	• Partner WatchDog Support - vSZD-RTU, 1 Gbps Throughput 1 YR
S01-VSZD-1L00	• End User WatchDog Support - vSZD-RTU, 1 Gbps Throughput 1 YR
S02-VSZD-1LBW	• Partner WatchDog Support - vSZD-RTU, 10 Gbps throughput 1 YR
S01-VSZD-1LBW	• End User WatchDog Support - vSZD-RTU, 10 Gbps throughput 1 YR
S02-VSZD-1LUL	• Partner WatchDog Support - vSZD-RTU, no throughput cap 1 YR
S01-VSZD-1LUL	• End User WatchDog Support - vSZD-RTU, no throughput cap, 1 YR
S02-VSZD-3L00	• Partner WatchDog Support - vSZD-RTU, 1 Gbps Throughput 3 YR
S01-VSZD-3L00	• End User WatchDog Support - vSZD-RTU, 1 Gbps Throughput 3 YR
S02-VSZD-3LBW	• Partner WatchDog Support - vSZD-RTU, 10 Gbps throughput 3 YR
S01-VSZD-3LBW	• End User WatchDog Support - vSZD-RTU, 10 Gbps throughput 3 YR
S02-VSZD-3LUL	• Partner WatchDog Support - vSZD-RTU, no throughput cap 3 YR
S01-VSZD-3LUL	• End User WatchDog Support - vSZD-RTU, no throughput cap, 3 YR
S02-VSZD-5L00	• Partner WatchDog Support - vSZD-RTU, 1 Gbps Throughput 5 YR
S01-VSZD-5L00	• End User WatchDog Support - vSZD-RTU, 1 Gbps Throughput 5 YR
S02-VSZD-5LBW	• Partner WatchDog Support - vSZD-RTU, 10 Gbps throughput 5 YR
S01-VSZD-5LBW	• End User WatchDog Support - vSZD-RTU, 10 Gbps throughput 5 YR
S02-VSZD-5LUL	• Partner WatchDog Support - vSZD-RTU, no throughput cap 5 YR
S01-VSZD-5LUL	• End User WatchDog Support - vSZD-RTU, no throughput cap, 5 YR
WatchDog Support for Virtual Data Plane additional features (Orderable with SZ 3.5 and above software releases)	
S02-VSZD-1LCM	• Partner Support vSZD CALEA Mirroring 1 Yr
S01-VSZD-1LCM	• End User Support vSZD CALEA Mirroring 1 Yr
S02-VSZD-1LL3	• Partner Support vSZD L3 Roaming 1 Yr
S01-VSZD-1LL3	• End User Support vSZD L3 Roaming 1 Yr
S02-VSZD-3LCM	• Partner Support vSZD CALEA Mirroring 3 Yr
S01-VSZD-3LCM	• End User Support vSZD CALEA Mirroring 3 Yr
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S02-VSZD-5LL3	• Partner Support vSZD L3 Roaming 5 Yr
S01-VSZD-5LL3	• End User Support vSZD L3 Roaming 5 Yr

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