



Nodegrid Hive SR™

Deploy the turnkey, next-generation SD-Branch gateway for automated, fast, & flexible edge networking

Legacy SD-Branch solutions focus on connectivity. For your modern enterprise, you try to automate your complete NetDevOps pipeline to prevent downtime, gain predictability, and optimize services at the edge – only to have vendor lock-in weaken your efforts due to inadequate monitoring, lack of vertical integration, and flexible automation.

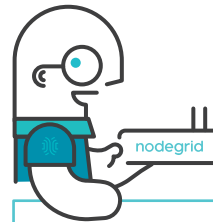
You need a solution that offers total freedom to address all of these problems, and that solution is the Nodegrid Hive Services Router™ (Hive SR, HSR).

With Hive SR, there are no more weak links when it comes to monitoring, integrating, and automating at the edge.

This low-cost yet fully secure box features open architecture that is compatible with all your infrastructure. You get a truly next-gen SD-Branch router that monitors physical and virtual assets; enables vertical integration across hardware and orchestration stacks; and helps you automate across solutions and environments, regardless of vendor.

Best of all, Hive SR comes with turnkey routing and firewall on first boot thanks to its default gateway profile. Simply power on the device to automatically set up a complete security and connectivity stack at the edge.

- Bring up your branch from scratch to fully functional, all with ZPE Cloud™ orchestration
- Operate custom or third-party services at the edge using the open x86_64bit CPU platform
- Monitor every piece of remote infrastructure – software, hardware, environmentals, user experiences – using an array of sensors, probes, centralized monitoring, & Nodegrid Data Lake
- Get world-class, next-gen out-of-band – the same used by tech giants to instantly reach, remediate, & recover IT assets from downtime
- Take advantage of ZPE Cloud's NetDevOps tools to automate roll-outs & roll-backs



The only 5-in-1 SD-Branch gateway

Hive SR is the next-generation SD-Branch gateway and addresses the gaps found in legacy SD-WAN. In one box, it combines five valuable capabilities including:

- Gateway mode out of the box, with cloud-based zero touch provisioning of connectivity, security, & third-party workloads
- Open Intel x86 architecture to support third-party VMs & container applications
- Full-featured NetDevOps automation at the edge, with rich orchestration from the cloud Next-generation out-of-band
- (NG-OOB) protected by Zero Trust Security Edge visibility via direct-connect
- USB environmental sensors & actuators

Deploy Effortlessly

The HSR is a compact and versatile 8-port branch gateway with the latest generation of WAN and LAN connectivity, including options for 5G/4G/LTE and Wi-Fi. Pair the HSR with ZPE Cloud for centralized management that maximizes your time and resource savings. When it's time to deploy sites and configuration changes, do it automatically via the cloud – even for externally attached end devices, or cloud security services such as Palo Alto Prisma Access, Netskope SASE Cloud Firewall, or Zscaler Zero Trust Exchange. Zero touch provisioning makes the HSR the ideal SASE/SSE branch gateway for frictionless deployments.

Gain True Multi-Vendor Freedom

Built on a multi-core Intel x86 CPU, the HSR gives you the freedom to run your choice of automation scripts, containers, and VMs. This openness, paired with extra memory and storage capacity, enables you to run third-party firewalls from trusted vendors like Palo Alto Networks or Fortinet, along with separate SD-WAN workloads and applications. You get compatibility with serial, USB, PDUs, servers, and all your infrastructure – without any gaps.

Bring NetDevOps Automation to the Edge

If you can't automate even one task, your automation pipeline breaks. But the HSR is purpose-built to serve as your IT jumpbox to use Zero Touch Provisioning via WAN, run automation scripts, and execute Ansible playbooks. **You get a complete orchestration platform that allows you to easily begin your NetDevOps journey – automating everything from deployments, to configuration changes and troubleshooting fixes.** The HSR is the ideal orchestration target to use with ZPE Cloud, which allows you to host and execute playbooks for your environment. Script and automate to prevent problems before they occur, and you can enlist ZPE Systems' Professional Services Team for help developing custom scripts.

Be There with Next-Gen Out-of-Band

When you do need to respond, Nodegrid's next-gen out-of-band makes it like you're physically there. Access, provision, and remediate switches, servers, SD-WAN, firewalls, power distribution units (PDUs), and even IPMI devices from anywhere in the world. For added visibility and control, the HSR also supports the full portfolio of Nodegrid's USB-type environmental sensors and actuators, along with ZPE Cloud Apps like Nodegrid Data Lake. Monitor airflow, temperature spikes, user experience metrics, application metrics, and much more. Graphs help you easily visualize KPIs to see inside your edge sites, and complex event processing and notifications alert you to any issues that need your attention.

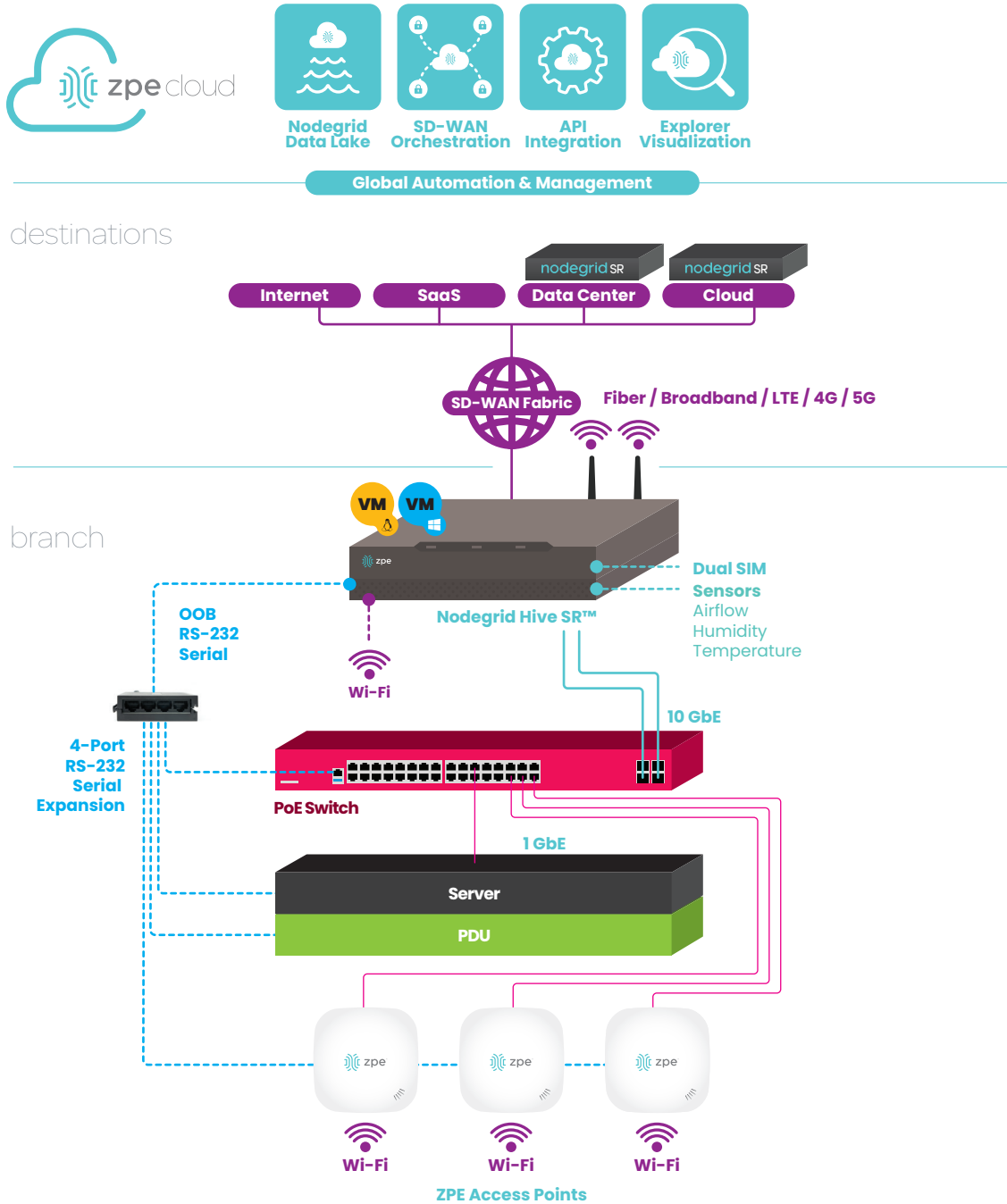
Stay Secure from the Ground Up

The HSR offers all this while making zero compromises on security. **This 5-in-1 branch gateway is hardened with a secure root of trust, which employs proper BIOS protection, TPM 2.0, geofencing, UEFI secure boot, and a signed OS.** You stay protected from the ground up using a platform that supports your approach to implementing Zero Trust Security.



How Nodegrid Hive SR compares

Product Features	SD-WAN & 5G Vendors	NGFW Vendors	Hive SR
Gateway Router	Yes	Yes	Yes
SD-WAN with AutoVPN	Yes	Yes	Yes
Built-in Wi-Fi	Yes	Yes	Yes
LTE 4G/5G	Yes	Yes	Yes
External Wi-Fi AP	-	Yes	Yes
External PoE Switch	-	Yes	Soon
Secure OOB	-	-	Yes
NetDevOps Provisioning	-	-	Yes
VM/Container/VNF	-	-	Yes
Zero-Trust HW	-	Weak	Yes
Sensors/ Actuators	-	-	Yes
Experience Monitoring	-	-	Yes
Firewall (L3/4)	Yes	Yes	Yes
NGFW Firewall (L7)	3rd-party SSE	Yes	3rd-party SSE



Next-Gen SD-Branch with Hive SR

Hive SR is the ultimate device to bring next generation SD-Branch. Its internal 5G/4G/LTE modem means you can easily deploy remote sites without a main connection. Its array of interfaces allow you to pair Hive SR with ZPE Systems’ wireless access points and Nodegrid environmental sensors, to automate entire deployments and gain next-gen out-of-band for your entire site.

Upon installation, Hive SR initiates a Zero Touch Provisioning process and automatically connects to ZPE Cloud. After secure, two-way authentication, Hive SR automatically pulls down its configuration. This automated seed of life can also extend to configure end devices, install third-party VMs, and activate service licenses, all under the direction of ZPE Cloud’s secure and complete orchestration.

Technical Specifications

Interfaces (Base Model)

- WAN: copper, fiber, & wireless
 - 2X GbE ETH on shared RJ45 or SFP/vDSL transceivers
 - 2X 10 Gbps cages for PON or SFP+ transceivers
 - 2X Cellular with Quad-SIM (5G/4G/LTE optional add-on SKU)
- LAN: copper & wireless
 - 4X 10/100/1000/2.5 Gbps RJ-45 with VLAN support
 - 1X Wi-Fi 6 (802.11ax optional add-on SKU)
- Serial & mini-USB console port
 - 2X USB 3.0 host type A for accessories

External Accessories (See SKUs)

- External dual-radio 802.11ac Wi-Fi AP (Access Point)
- 4-Port RJ45 Serial Expansion (via USB)
- vDSL FSP adapter
- USB sensors (temperature, humidity, air flow, GPIO, relay, smoke)
- Redundant power input Y-Cable

Managed Devices: Next-Gen Out-of-Band (NG-OOB)

Serial console ports, USB console, IP Management port, PDU, and IPMI devices

Wireless (Optional SKU)

- Latest generation IEEE 802.11ax Wi-Fi 6 compliant with 2 spatial streams in 2.4 GHz & 2 spatial streams in 5 GHz (2X2X2)
- Backward compatible with IEEE 802.11a/b/g/n/ac
- Devices can be connected to both 5 GHz + 2.4 GHz bands concurrently
- 2 TX/RX antennas connected through RP-SMA connectors
- TX Power 20dBm per chain
- Supports 160 MHz bandwidth (BW) in 5 GHz band & 40 MHz BW in 2.4 GHz band
- Cutting edge OFDMA modulations up to QAM-1024: Up to 3 Gbps connectivity (2.4 Gbps (2X2 5 GHz) + 0.6 Gbps (2X2 2.4 GHz mode))
- Explicit beamforming (with compressed feedback)
- LDPC / TX STBC / DL Multi User MIMO; DL & UL MU-OFDMA
- Energy saving Target Wait Time (TWT)
- Efficient high user & device density with 802.11ax BSS Coloring / Spatial Reuse
- No limits are placed on number of users or devices

Networking

- IPv4 & IPv6 (stateful + auto-configuration)
- DHCP server / client / relay (IPv4, IPv6)
- Multi-Tenancy (VRF)
- IPv4 & IPv6 tunneling
- Network address translation (NAT)
- Multi-cast
- VLAN

Routing

- BGP
- OSPF
- RIPv1, RIPv2
- VXLAN

IP Services

- QoS
- DHCP (Client & Server)
- NTP, global time zone, cellular tower time synchronization

Connectivity

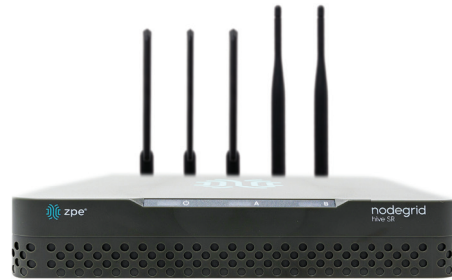
- Ethernet, VDSL, Bluetooth tethering, Wi-Fi hotspot, cellular 5G/4G/LTE, multiple cards (with failover & healthcheck)
- HTTPS, SSHv2; optional HTTP, Telnet, & SSHv1

Device View Options

Tree, Table, Geo Map, Node, & WEB Interface with search

Data Logging & Notifications

- Local port buffering: 20 MB per port
- Local, NFS, syslog, off-line data logging
- Timestamp & rotation for data logging
- Event destination: email, syslog, local, syslog, email, ZPE Cloud, Splunk & more
- Notification: syslog, email, ZPE Cloud, Splunk & more



System Management

- Extensible, automated control based on actionable real-time data
- Web GUI management portal, web console, Command Line Interface (CLI), Linux root shell, SNMP, RESTful API
- Zero Touch Provisioning (ZTP) via LAN/DHCP, WAN/ZPE Cloud, USB for configuration & firmware updates
- Multiple & customizable user levels of access
- Auto-discovery via network scan & custom probes
- SNMPv1,v2 & SNMPv3-v1 IPv4/IPv6 with MD5, SHA-224, SHA-256, SHA-384, SHA-512, DES, AES-192, AES-256
- Orchestration integration & automation: Puppet, Chef, Ansible, RESTful, ZPE Cloud & Nodegrid Cluster Feature / Manager
- File sharing via FTP, NFS, SSHFS, Windows Sharing, web file browser, ZPE Cloud
- Remote Procedure Call (RPC, gRPC)
- NetFlow, LLDP

Security

- Hardened device with BIOS protection, TPM 2.0, UEFI secure boot, signed OS, geofencing
- X.509 SSH certificate support, 4096-bit encryption keys
- Selectable cryptographic protocols for SSH OpenSSL3 & HTTPS (TLSv1.3, TLSv1.2, TLSv1.1)
- Selectable cypher suite levels: high, medium, low, custom
- IPsec, WireGuard, OpenSSL VPN with support for multi-sites
- Local, AD/LDAP, RADIUS, TACACS+, Kerberos authentication
- SAML2 SSO, DUO, Okta, Ping Identity, ADFS
- Two-factor authentication with RSA & DUO
- Local, backup-user authentication support
- User-access lists per port
- Group/role-based authorization: AD/LDAP, RADIUS, TACACS+, Kerberos
- Fine-grain & role-based access control
- Firewall: IP packet & security filtering, IP forwarding support
- MD5 / SHA system configuration checksum
- System event logging to file, syslog, email, ZPE Cloud, Splunk & more
- Custom security settings
- Strong password enforcement, Fail2ban

Operating System

Built-in x86_64bit Linux Kernel Nodegrid OS

Warranty

2-Year Limited Warranty

Power Specifications

- +12 VDC locking barrel jack, external desktop PSU w/ regional AC cord options
- Redundant power input (optional)
- Power consumption: 45W typical
- AC Power adapter (add-on), 100-240V~, 1.2A, 50-60Hz, Operating temperature: -25°C - 60°C

CPU & Storage

- Intel x86_64 Quad-Core
- 16GB Self Encrypted Disk (SED)
- 16 GB DDR4 DRAM

Physical

- Front/Rear Mounting Brackets
- Size (L X W X H): 200 X 256 X 44.00 mm (7.87 X 10.08 X 1.73 in)
- Weight: 1.3 kg (2.8 lb)
- Shipping Weight: 2.1 kg (4.6 lb)
- Shipping (L X W X H): 412 X 293 X 77mm (16.2 X 11.5 X 3.0 in)

Environmental

- Operation: 0 to 40° C (+32 to 104° F), 5-95% RH, non-cond.
- Storage: -40 to 70° C (-40 to 158° F), 5-95% RH, non-cond.

Ordering Information

Channel SKU	Description	CPU	Memory	Power	Special
ZPE-HSR416-Base-GW	ZPE Nodegrid Hive SR. WAN: 2X GbE on shared RJ45/SFP, LAN/WAN: 2X 10 GbE SFP+, LAN: 4X 2.5GbE RJ45, x86_64, 4-Core Intel CPU w/ QAT, 16GB DDR4, 16GB storage, 2X USB 3.0, Bluetooth, Console on shared USB/Serial, AC power adapter included. Gateway mode zero-touch out-of-box operation. Includes 90-day ZPE Cloud License. Go to ZPEcloud.com to activate. Purchase ZPE-CLOUD-SUB1Y-025 for 1-year license for 25 devices.	4 Cores	16GB	AC Adaptor	Base
ZPE-HSR416-W5-GW	ZPE Nodegrid Hive SR. Hive SR, WAN: 2X GbE on shared RJ45/SFP, LAN/WAN: 2X 10 GbE SFP+, LAN: 4X 2.5GbE RJ45, x86_64, 4-Core Intel CPU w/ QAT, 16GB DDR4, 16GB storage, 2X USB 3.0, Bluetooth, Console on shared USB/Serial, AC power adapter included. With addition of: Wi-Fi 5 (866Mbps 2X2 dual stream 802.11ac) & antennas. Gateway mode zero-touch out-of-box operation. Go to ZPEcloud.com to activate. Purchase ZPE-CLOUD-SUB1Y-025 for 1-year license for 25 devices.	4 Cores	16GB	AC Adaptor	Wi-Fi
ZPE-HSR416-4G-GW	ZPE Nodegrid Hive SR. WAN: 2X GbE on shared RJ45/SFP, LAN/WAN: 2X 10 GbE SFP+, LAN: 4X 2.5GbE RJ45, x86_64, 4-Core Intel CPU w/ QAT, 16GB DDR4, 16GB storage, 2X USB 3.0, Bluetooth, Console on shared USB/Serial, AC power adapter included. With addition of: 4G/LTE (CAT12) radio with dual-SIM. Gateway mode zero-touch out-of-box operation.	4 Cores	16GB	AC Adaptor	4G
ZPE-HSR416-4G-W5-GW	ZPE Nodegrid Hive SR. WAN: 2X GbE on shared RJ45/SFP, LAN/WAN: 2X 10 GbE SFP+, LAN: 4X 2.5GbE RJ45, x86_64, 4-Core Intel CPU w/ QAT, 16GB DDR4, 16GB storage, 2X USB 3.0, Bluetooth, Console on shared USB/Serial, AC power adapter included. With addition of: Wi-Fi 5 (866Mbps 2X2 dual stream 802.11ac) & antennas & 4G/LTE (CAT12) radio with dual-SIM. Gateway mode zero-touch out-of-box operation. Go to ZPEcloud.com to activate. Purchase ZPE-CLOUD-SUB1Y-025 for 1-year license for 25 devices.	4 Cores	16GB	AC Adaptor	4G Wi-Fi
ZPE-HSR416-4G-W5-D128G-GW	ZPE Nodegrid Hive SR. WAN: 2X GbE on shared RJ45/SFP, LAN/WAN: 2X 10 GbE SFP+, LAN: 4X 2.5GbE RJ45, x86_64, 4-Core Intel CPU w/ QAT, 16GB DDR4, 16GB storage, 2X USB 3.0, Bluetooth, Console on shared USB/Serial, AC power adapter included. With addition of: Wi-Fi 5 (866Mbps 2X2 dual stream 802.11ac) & antennas & 4G/LTE (CAT12) radio with dual-SIM & dedicated 128GB Disk2 for VM/Docker applications. Gateway mode zero-touch out-of-box operation. Go to ZPEcloud.com to activate. Purchase ZPE-CLOUD-SUB1Y-025 for 1-year license for 25 devices.	4 Cores	16GB	AC Adaptor	4G Wi-Fi Second Storage
ZPE-HSR416-5G-GW	ZPE Nodegrid Hive SR. WAN: 2X GbE on shared RJ45/SFP, LAN/WAN: 2X 10 GbE SFP+, LAN: 4X 2.5GbE RJ45, x86_64, 4-Core Intel CPU w/ QAT, 16GB DDR4, 16GB storage, 2X USB 3.0, Bluetooth, Console on shared USB/Serial, AC power adapter included. With addition of: Wi-Fi 5 (866Mbps 2X2 dual stream 802.11ac) & antennas & 5G LTE Sub 6E (CAT20) radio with dual-SIM & dedicated 128GB Disk2 for VM/Docker applications. Gateway mode zero-touch out-of-box operation. Go to ZPEcloud.com to activate 90-day free subscription. Purchase ZPE-CLOUD-SUB1Y-025 for 1-year license for 25 devices.	4 Cores	16GB	AC Adaptor	5G

Accessories

Channel SKU	Description
HSR-WMNT	ZPE Nodegrid Hive SR. Wall Mounting Kit
ZPE-HSR-PSU	ZPE Nodegrid Hive SR. Spare Power Supply
ZSFP-VDSL2	VDSL2 SFP Modem allows direct connection to telephone line for DSL WAN connectivity.
ZAP-5220	This ceiling mount Wi-Fi 5 access point is an enterprise-grade, dual-radio dual-band 802.11ac wave 2 indoor access point, designed specifically for high-density Wi-Fi environments. The combined performance of 2X2:2 MU-MIMO radios is 1.2 Gbps with no hard limit on device or user count.
USB-ETH-BYPASS	USB Ethernet port bypass enables high availability between two Hive Gateways in HA mode when sharing a single WAN ethernet modem. This Ethernet bypass module will detect a failure of one device & will passthrough the WAN connection to the secondary gateway device automatically.
USB-ETH-BYPASS-C	USB Ethernet configurable port bypass enables high availability between two Hive Gateways in HA mode when sharing a single WAN ethernet modem. This Ethernet bypass module will detect a failure of one device & will passthrough the WAN connection to the secondary gateway device under control of the software.

Support

ZPE-HSR-ALL-EW1G	ZPE Nodegrid Hive SR. 1Y 24X7 Gold Upgrade Support
ZPE-HSR-ALL-EW2G	ZPE Nodegrid Hive SR. 2Y 24X7 Gold Upgrade Support
ZPE-HSR-ALL-EW3G	ZPE Nodegrid Hive SR. 3Y 24X7 Gold Upgrade Support



NOTE: If you need more storage or other combinations please contact ZPE Sales: sales@zpesystems.com

