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Branch Deployment Best Practices

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Best practices for deploying and managing software and devices in remote office branch office (ROBO) situations depend on prior test and validation, staging of configurations and images in the cloud, and automated deployment capabilities in the field.

ZPE Systems and its Nodegrid software, Services Router device family, and cloud configuration and deployment services can simplify and streamline remote deployment needs. Why send IT staff out into the field when ZPE Systems provides the tools and technologies to handle everything remotely?

Out-of-band management, aka OOBM, plays a vital role in modern IT operations of all sizes and scales. Indeed, OOBM is rightly viewed as "mission critical" for headquarters operations and data centers. But OOBM is also vital to satellite IT operations—most notably for remote offices and branch offices (ROBOs). Though individual ROBOs may accommodate many employees, such employees might not include necessary support staff. This means that network maintenance and management is often hard to come by and available only occasionally.

> ZPE Systems provides a complete architecture to support remote and branch office deployments.

Though the lack or scarcity of a local IT presence in branch and remote offices may sound troubling, it need no longer be a concern. Why? Because ZPE's solutions are tailor-made to keep branch and remote offices humming, and to address needs for ongoing, always-available IT access, support, and services.

ZPE offers a potent combination of capabilities that include:

- Robust, highly available, and secure remote access links and technologies (which keep working even if WAN links or remote networks fail or become unavailable).

- Zero Touch Provisioning (ZTP), which lets IT staff install, set up, and configure computers and other equipment remotely and quickly with no need for time-consuming manual provisioning.

- Highly automated tools to assist set up and provisioning activities at branch and remote locations, including bare-metal installs for computers and devices using KVM and remote access.

- SD-Branch solutions that combine cloud-based services and an easy to ship, install, and configure "office-in-a-box" for easy ROBO deployment and configuration.

- SD-Branch also supports Secure Access Service Edge (SASE) computing, and thus, can host virtualized applications for routing, security, traffic management, and more on ZPE appliances at the ROBO location.

NodeGrid, ZPE Cloud, and SR Devices

ZPE Systems provides a complete architecture to support remote and branch office deployments, which depends on three components:

- **Nodegrid** for Branch Networks takes ZPE Systems OOBM expertise from the data center and extends it to ROBO locations. The Nodegrid platform enables organizations to establish a 24/7 remote virtual presence throughout local networks. Nodegrid offers a perfect branch platform that provides branch users with the same enterprise-grade security features and access protocols they've long enjoyed in the data center.

- **ZPE Cloud** is a cloud-based branch IT device provisioning and deployment service that offers ZTP, eliminates opportunities for compromise via device theft, supports quick scaling and fast branch deployment, and offers a quick reset and reconnect feature should branch devices go offline or need a configuration refresh.

- **SR Devices** comprise a collection of ZPE Systems appliances collectively known as the "Intelligent Branch" arm of the Nodegrid appliances. This includes four different SR models, of which the Link, Bold, and Gate varieties are designed specifically for ROBO deployment. SR devices support OOBM, enable cloud-based provisioning and deployment, and extend remote access and control to all devices on the networks they serve.

With these elements in place, organizations can take a deliberate and well-thought-out approach to branch and remote office deployment without unnecessary false starts, missteps, or delays. This consists of the following steps:

1. Build and test at HQ/development center

2. Pre-position and stage deployment images in the cloud

3. Use Nodegrid's remote access to interact with SR devices at the branch:

   a. Roll out images

   b. Push updates

c. Configure and provision client equipment

d. Turn users loose

In fact, ZPE Systems offers extensive automation support, which helps streamline, simplify, and speed up branch deployments, while also making them more reliable and less subject to error (thanks to extensive prior testing and troubleshooting during Step 1, and use of tested, working scripts in Step 3).

TYPICAL BRANCH REQUIREMENTS

Without ZPE Systems and its remote staging and deployment tools and services, IT teams would likely have to visit branch locations regularly and spend several person–days on site. They might also be called in from time to time to handle troubleshooting, device updates, or to address security breaches. This steals people and resources away from more productive uses, and adds to the expense and effort necessary to support branch locations. This doesn't scale, either; the more ROBO locations, the more time it takes to service and support them. ZPE Systems helps organizations break free from this vicious cycle. To avoid sending people into the field, ZPE offers consolidated devices that support automation, ZTP, and remote OOBM.

> Instead of sending specialized staff onsite to handle installation, configuration, updating, and so forth, local staff can simply plug devices in.

How does this work? The ZPE Systems SD-Branch solution uses centralized Nodegrid management software in concert with Nodegrid SR devices at the remote sites. These provide access from HQ or other central IT locations to branches, with no need for staff to travel or work onsite to solve problems or push updates.

PUTTING SD-BRANCH IN PLACE

ZPE's Nodegrid SRs only need to be plugged in, turned on, and connected to the network. That is, configuration and testing can be performed in a lab environment. Further, deploying in any ROBO location is easier thanks to automation and scripting (self-configuration, plug-n-play, and more). Instead of sending specialized staff onsite to handle installation, configuration, updating, and so forth, local staff can simply plug devices in. Once turned on, those devices use ZPE Cloud to connect to the NOC and automatically set themselves up using a pre-staged, ready-to-run configuration.

> With the Nodegrid software, remote access using network links or OOBM makes managing branch networks a snap.

After this initial setup, all remaining tasks and activities are conducted remotely. Such capability comes thanks to ZPE's mighty OOBM capabilities, which enable alternate access paths into equipment and devices, even in the face of WAN or LAN problems or failures. As long as a backup link to the SR devices works, admins from another location can put a ROBO site back into working order using KVM and that backup link.

Best Remote Deployment and IT Practices

The SD-Branch solution lets organizations put OOBM to best use and handle IT services remotely. For best results, organizations should install, set up, and configure target equipment that matches field units in their test labs first. Once those are properly configured and ready to run, they can use the Nodegrid software to store an image in the cloud that matches the target ROBO site completely. Then, when the equipment is deployed into the field, a local employee can plug it in, hook it up to the network, press the reset button, and the automated recovery facility will take it from there. It's as close to zero touch as modern technology allows.

With the Nodegrid software, remote access using network links or OOBM makes managing branch networks a snap. IT staff in the NOC or at HQ or data center operations can log into the ROBO location. They can then use ZPE Cloud, NFV, and automation tools to monitor network health and throughput, set up and provision new user equipment,

push updates or patches, troubleshoot problems or issues, and more. Typical usage scenarios include dealing with network difficulties or Wi-Fi outages via OOBM backup links, and addressing network performance issues through troubleshooting and repair (or by replacing damaged configurations with known, good working images from the cloud).

> Organizations can run policy-based security and usage software in their ROBO locations to better control and manage user access and behavior.

The ZPE SD-Branch solution also supports running virtual machines or containers in properly equipped ROBO SR devices. These runtime environments can deliver typical hyperconverged infrastructure (network-compute-storage) resources at the branch for local processing and edge computing uses. This means that organizations can install and run SASE capabilities in branch locations.

The list of Prevalidated Virtualized Applications that run on SR devices comprises over 20 entries, including: cyber security, SDN, firewalls, OSes, routers, IoT, IP cameras, management, and automation, plus even more applications can be supported through Docker. Given that guest OSes include three Linux versions and Windows, which themselves can host countless compatible applications, the possibilities are endless. Organizations can run policy-based security and usage software in their ROBO locations to better control and manage user access and behavior. **Figure 1** shows the runtime architecture that a fully equipped Nodegrid SR device enables at a ROBO location.

Making the Most of ZPE Cloud

Organizations that use Nodegrid SR devices along with ZPE Cloud can put this combination to excellent use. They can develop and test device configurations and client images in their test labs, then store those configurations and images in the cloud. This lets them easily deploy (or redeploy as a way to short-circuit extended troubleshooting sessions) configurations and images to branch locations. In fact, ZPE's automation tools used in this environment are what makes ZTP fast and easy.

Visit ZPE Systems to learn more about SD-Branch, ZPE Cloud, Nodegrid, and the SR family of branch office networking devices.
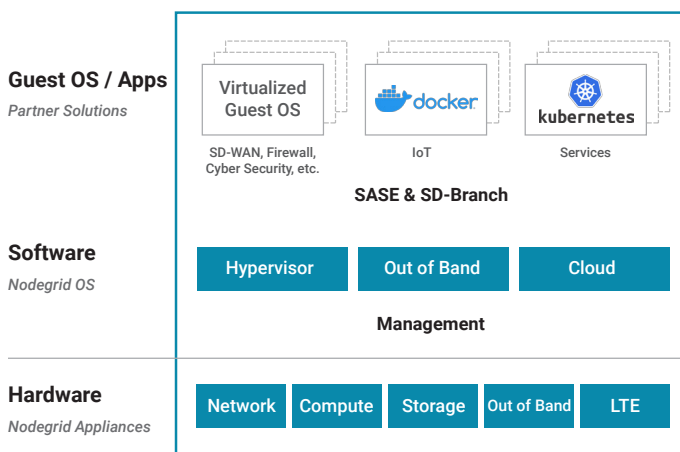

Figure 1: The Nodegrid SR devices can deliver a full range of hyperconverged infrastructure capabilities in a ROBO location, including hypervisors and containers, with applications or services running as installed and configured