zpe

The Definitive Guide to:

ZERO TOUCH PROVISIONING

What it is, how it works, and why your deployments need it.

DEPLOYING JUST ONE NETWORK IS TEDIOUS.

As your business grows and you set up new branch locations, your workload quickly multiplies. To deploy just a single network, you have to coordinate device shipments and staff travel plans. On-site provisioning eats up days' or weeks' worth of time, while the entire ordeal puts your data at risk and exposes you to human error.

Wouldn't it be great to deploy in an instant?

With **zero touch provisioning (ZTP)**, you can scale right alongside demand — without burdensome manual configuration. ZTP automates provisioning and deployment tasks, so you can safely set up many new networks with the push of a button.

Zero touch provisioning helps you:

- Secure your data — No more shipping pre-configured devices
- Cut your workload — No more manual CLI configurations
- Boost uptime — No more downtime due to human error

OVERVIEW

What is Zero Touch Provisioning?
Zero touch provisioning makes use of automation and scripting to automatically perform network configuration tasks. Instead of extensive manual work, ZTP allows you to simply connect your devices and then the network builds itself.

Why use ZTP?
Typical deployment methods are tedious and cumbersome, which make it difficult to scale. ZTP gives you the power to deploy on-demand — securely, quickly, and consistently, without having to tie up IT resources.

What does ZTP do for you?
For networking staff, ZTP eliminates the tedious and time-consuming manual configurations (which often lead to error-induced downtime). For your business as a whole, ZTP delivers a more nimble network edge that scales when and where you need it. ZTP increases the speed and security of each deployment, while reducing support costs.

Now that you know more about zero touch provisioning, let's compare it to common approaches you're likely familiar with.

MANUAL PROVISIONING

Manual provisioning exhausts your staff and your business.

There's so much work involved in manually provisioning and deploying networks. Getting on-site, performing installations and configurations, and maintaining deployments each come with a laundry list of tasks that drag down your organization. Scaling is slow and pulls away many resources.

Getting on-site
You're forced to risk your data's security by pre-staging or pre-configuring your devices. Shipping these appliances can be costly, too, especially when shipping large stacks across multiple locations that require screening through customs. On top of all this, you need to juggle IT staff schedules and travel plans to make sure you'll have on-site support for your deployment.

Configuring devices
Setting up your network can take days or even weeks, and means pulling staff away from more business-critical tasks. IT teams must connect to each device separately and manually input hundreds of command line interface (CLI) configurations. This tedious work slows down your deployment and also leads to the #1 cause of downtime — human error.

Maintaining deployments
A successful deployment requires adequate ongoing maintenance; otherwise, you're left to deal with sudden downtime. Keeping your network running means more on-site work that ties up critical staff, even for simple changes like firmware updates or patching. This manual configuration management can be a juggling act that causes inconsistencies and errors.

MINIMAL TOUCH PRIVISIONING

Minimal touch provisioning only solves part of the problem.

You may be familiar with **minimal touch provisioning (MTP)**, which removes some of the labor from manual deployments. MTP essentially improves the work involving CLI inputs. Instead of manually entering every line of code, IT staff have sets of pre-approved commands that they can simply copy and paste into the CLI. This saves time over manual provisioning, but comes with drawbacks:

MTP requires extensive testing
With minimal touch provisioning, you need to test your commands in a lab environment. Though this allows you to pinpoint and fix potential issues before deploying to production networks, this upfront effort doesn't completely eliminate the manual work required for each deployment.

MTP still requires on-site staff
Because MTP is merely a process improvement, everything else remains the same as with manual provisioning. You need on-site staff to manually input your pre-approved commands into each device. Your support costs and timelines remain.

MTP still exposes you to errors
Though your deployment staff have a set of commands to work with, MTP still leaves you vulnerable to human error. Fatigue can set in, distractions can occur, and you can be left troubleshooting where the configuration went wrong.

ZERO TOUCH PROVISIONING

Zero Touch Provisioning lets you breathe while you scale

Zero Touch Provisioning helps you scale the secure and easy way, thanks to automation and scripting. You no longer need to direct so many resources, and you can instead count on virtually hands-free provisioning. Every part of the deployment process — before, during, and after — is effortless when you automate with ZTP.

Getting on-site
You don't risk any data because you can ship 100% unconfigured devices. If these appliances become lost or stolen, your information remains safely under your control. And because ZTP requires only physical installation, you can simply put minimal (even inexperienced) staff on-site, which drastically cuts your support costs.

Tip: Save on shipping when you use Nodegrid's all-in-one appliances. Ship a single box that can handle all your network functions. Smaller stack, fewer shipments, lower costs.

Configuring Devices
Say goodbye to manual CLI input. ZTP is completely automated and features plug-n-play simplicity. All you need to do is rack, connect, and boot your devices, and ZTP's scripts do the rest. Your networks automatically build themselves consistently and accurately, eliminating human-induced errors that lead to downtime.
Tech: Nodegrid devices support IPv4 & IPv6, preferred languages like Perl, Python, & JSON, and protocols such as FTP, FTPS, and HTTPS. You get total flexibility for on-demand scaling.

Maintaining Deployments
Keeping each deployment running smoothly is simple and can be done remotely. ZTP lets you free-up staff thanks to automated updates, patching, and other changes. You can also store files in the cloud for configuration management that's as flexible as you are. Maintaining your network is no longer a hassle, because your network can care for itself.

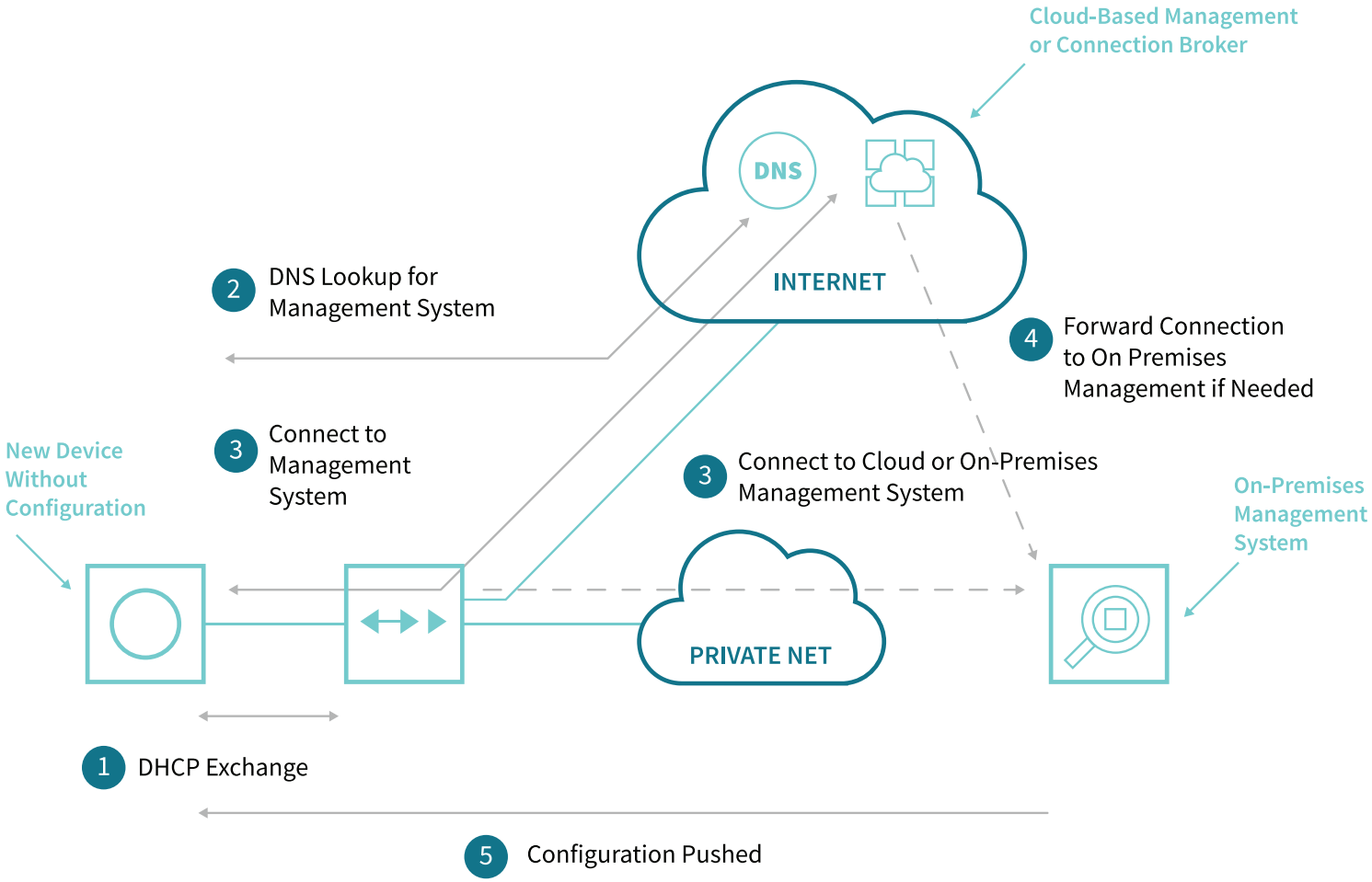
From start to finish and beyond, zero touch provisioning comes with many benefits. It helps you reduce support costs, eliminate errors & inconsistencies, and streamline every deployment.

But how does it work? Find out in the next section.

ZERO TOUCH PROVISIONING
WHAT GOES INTO IT?

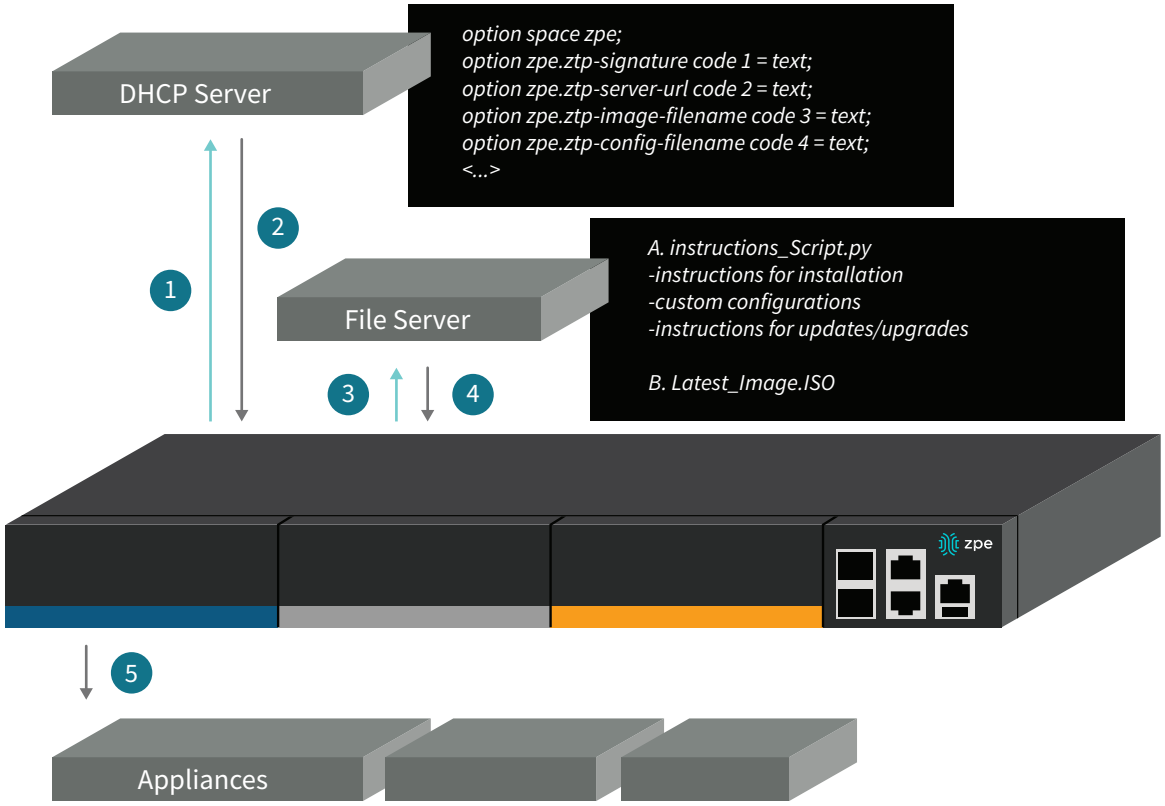
Zero touch provisioning uses automation and scripting to help you automatically deploy networks. However, it's not a completely hands-off solution that offers plug-n-play capabilities right from the start.

ZTP requires plenty of testing in a lab environment. This upfront effort ensures that your scripts will work properly to build your network configuration during deployment. In order to achieve this, it's best to use the right automation and scripting tools, and put in place a well thought out ZTP workflow.



ZERO TOUCH PROVISIONING
HOW DOES IT WORK?

Once you connect and boot a device, here's what goes on behind the scenes during zero touch provisioning:



1. The device sends a request to the Dynamic Host Configuration Protocol (DHCP) server.

2. The DHCP server identifies the device and sends instructions to the device.

3. Per instructions, the device sends a request to the Trivial File Transfer Protocol (TFTP) server.

4. The TFTP server verifies the request and allows the device to:

- Download configuration files
- Download latest software
- Execute scripts

5. The device pushes configurations to other devices based on the scripts.

ZERO TOUCH PROVISIONING
EVEN BETTER WITH ZPE SYSTEMS' NODEGRID

Nodegrid brings even more flexibility to zero touch provisioning.

- Supports IPv4 and IPv6
- Allows scripting via Python, Perl, JSON, Bash, & other languages
- Integrates with FTP, FTPS, HTTPS, SCP, and other protocols

Aside from offering powerful, consolidated devices, Nodegrid also delivers another key feature — the ability to push configurations to other devices. No matter which vendor appliances you use, you can connect them to Nodegrid devices to gain all the advantages of zero touch provisioning.

And after your initial deployment, you can connect to ZPE Cloud for hassle-free configuration management. Store config files, push changes, and implement any other adjustments to keep your network running.

Discover on-demand scaling with Nodegrid

Find out what zero touch provisioning can do for your organization.
Get in touch with our experts to find answers, schedule a demo, & see how you can scale without the stress.