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Three Questions Every Board Should Ask Now

By: [Koroush Saraf - VP Product Management, ZPE Systems](#)

Digital services are like air. When they're available, the modern customer doesn't think about them. But when they're lacking, customers go into a frenzy trying to resume their day-to-day business. This expectation means an organization's revenue is tied very tightly to the reliability of the digital services it provides via its IT architecture. However, meeting business service level expectations proves extremely difficult because of the new reality of hybrid infrastructure. [ZPE Systems](#) recently worked with tech giants to solve this problem, and is now sharing this validated reference architecture in the form of a network automation blueprint.



Enterprises and service providers have widely adopted the cloud but remain heavily dependent on data centers, colocation facilities, branch offices, and edge networks to serve applications. In order to provide reliable digital services, IT teams face the challenge of maintaining a growing network of physical and virtual solutions—from servers and routers, to dedicated firewalls, remote sensors, smart building infrastructure, user experience monitoring applications, and a myriad of vulnerability assessment tools. There are too many locations and too many products that require too many experts to operate and secure. Add to it the [looming economic recession](#) and potential winter Covid lockdowns, and companies likely won't have enough staff to keep equipment operational.

Despite these obstacles, digital IT services must continue to support business in a reliable and secure fashion. Fortunately, industry tech giants have solved this problem with 'hyperautomation,' a concept Gartner recently defined as the right strategic recommendation for enterprises seeking reliable, secure, and scalable networks at lower operational costs. "Hyperautomation has shifted from an option to a condition of survival," said [Fabrizio Biscotti](#), Research Vice President at Gartner.



However, one problem persists: Gartner provides only the high-level direction for hyperautomation, rather than the practical implementation details or best practice architecture. This article aims to address this gap by sharing the network automation blueprint, a best practice reference architecture for implementing hyperautomation in today's hybrid infrastructure. One crucial best practice is to remove the anxiety of automation by completely separating the automation network from the production network, using Generation 3 serial consoles and out-of-band SD-WAN.

Business leaders are bracing for a winter recession

Companies including Apple, Google, and Netflix have slowed hiring this year and [cut staff outright](#). Market indexes such as the Dow are continuing to [plummet](#). Economists are predicting a winter recession, signaling to business leaders that now is the time to a Covid resurgence this winter that will infect up to [one million Americans per day](#), increasing the potential for lockdowns and shortages of IT personnel as the pandemic again moves through the population.

As CIO, you will need a plan for continuing operations and providing reliable digital services despite hiring freezes and limited staff presence. Your plan must answer these three questions that will come up at your next board meeting.

Question 1: Can you meet SLAs with a smaller workforce?

The IT workload has grown exponentially since infrastructure moved from centralized to decentralized. Many enterprises have migrated to the cloud and now deal with the complexity of managing a multi-cloud and hybrid infrastructure. The reality is that applications and data are now scattered in data centers, colocations, and branch offices, which house infrastructure such as servers, routers, branch gateways, SD-WAN, remote sensors, smart building infrastructure, user experience monitoring applications, and many other technologies. As the proliferation of 5G and edge computing enable workloads to be pushed to the edge, enterprises that offer digital services or web applications must maintain an increasing number of micro and nano edge data

centers. If belt tightening leads to hiring freezes, IT teams won't be able to add the help they need to maintain daily operations like managing configurations, recovering down equipment, and installing security patches.

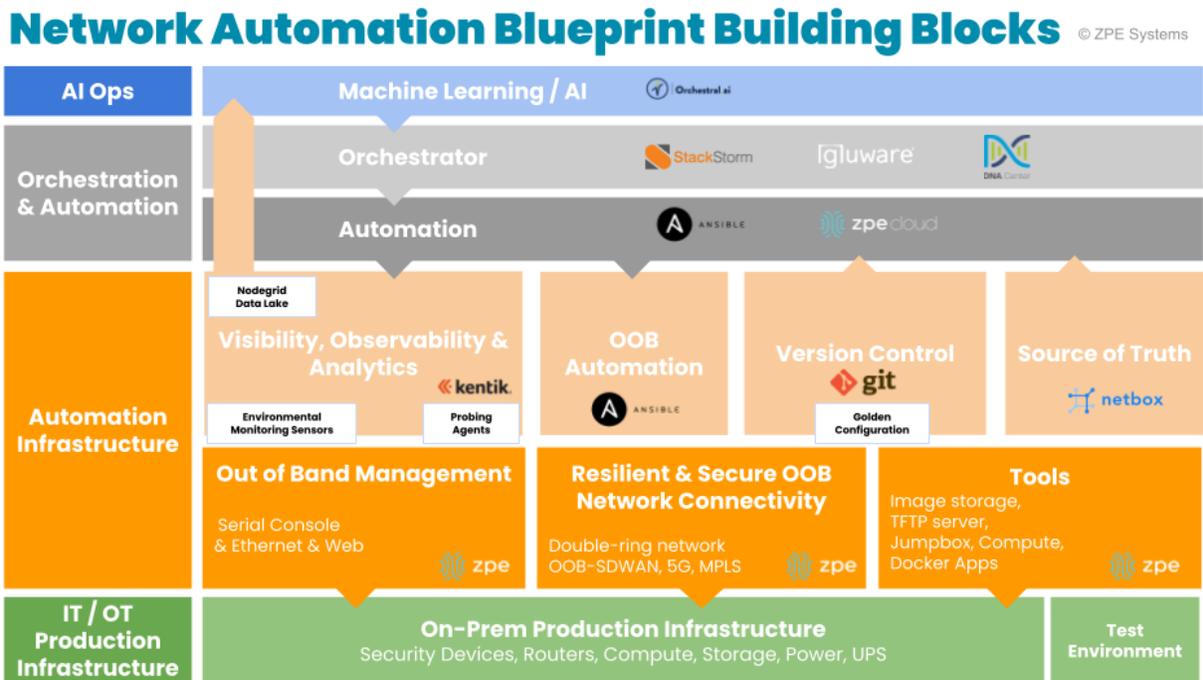


Figure 1: Network Automation Blueprint Building Blocks

Question 2: Can you maintain availability without physical site access?

The Covid pandemic left companies scrambling to find ways to accommodate normal operations and shift to a fully remote workforce. Many companies were unprepared and still struggle to adapt. Forrester's research states that in 2021, [IT organizations reported](#) that their highest priority was to improve digital work for employees, but 66 percent said they didn't have the capabilities to support the needs of remote and hybrid work for the next two years. IT organizations must prepare to accommodate flexible work well into the future, but this typically means employing a mix of local smart hands, third-party service providers, and remote management solutions that significantly inflate operating costs. Despite potential lockdowns, physical access is an existing challenge when equipment resides at remote locations that are costly, inconvenient, or dangerous to access.

Question #3: Can you keep weekly security configurations up to date?

Many security breaches occur not because patches don't exist, but because installing these patches might lead to unforeseen breakages. IT teams often run software that is years old and several major revisions outdated, and they dread the Friday upgrade that could potentially break

something and leave them troubleshooting during the weekend. These teams leave their business vulnerable to security exploits and the potential of incurring regulatory fines or penalties. This problem will only worsen when hiring is put on hold and physical site access is restricted.

Answer: Network automation following hyperautomation principles

Tech giants thrive on recessions and often come out stronger. These companies understand that they must empower their IT organizations during economic downturns by investing in digital transformation initiatives such as hyperautomation.

[Gartner](#) defines hyperautomation as a business-driven, disciplined approach that organizations use to rapidly identify, vet and automate as many business and IT processes as possible. Hyperautomation involves the orchestrated use of multiple technologies, tools or platforms, including:

- Artificial intelligence (AI)
- Machine learning
- Event-driven software architecture
- Robotic process automation (RPA)
- Business process management (BPM) and intelligent business process management suites (iBPMS)
- Integration platform as a service (iPaaS)
- Low-code/no-code tools
- Packaged software
- Other types of decision, process and task automation tools

The problem with implementing these types of high-level concepts is the high degree of ambiguity, given there is no correct reference design available. Vendors talk about the solutions they offer, but not about what the customer needs. A wide gap of information emerges as you descend from high-level analyst recommendations to practical implementation.

As CIO answering the three questions above, you need to know that you can successfully execute to hyperautomation using a validated reference design. Industry tech giants have been working on hyperautomation for the past ten years because their human IT resources can't match the large scale of their networks. The good news is that their efforts have resulted in next-generation

products from companies founded to solve this problem, and this solution ecosystem is now ready for any size company to implement hyperautomation.

Even more importantly, this has led to the development of a validated reference design called the network automation blueprint.

The Network Automation Blueprint

The network automation blueprint is made up of four major building blocks (see figure 1 on page 3) that create a management network design pattern to accommodate hyperautomation. These building blocks are:

IT/OT production infrastructure: this includes servers, switches, routers, and common production equipment.

Automation infrastructure: This is a truly independent network that enables automation to reach the production infrastructure in an out-of-band fashion. Customers call this the double-ring network (see figure 2). This layer often uses a combination of serial console and Ethernet connections, and also includes staging jump boxes, local storage, TFTP source of truth, and version control systems.

Orchestration and automation systems: This is where the desired outcome and playbooks are sourced from. The key is that the orchestration reaches the production systems through the independent out-of-band network to achieve the desired outcome.

AI Ops infrastructure: This layer receives rich information from observability platforms to make reactive and predictive decisions at scale. Using machine learning and artificial intelligence, this layer learns the network’s normal behaviors and pushes changes through the orchestration and automation layer.

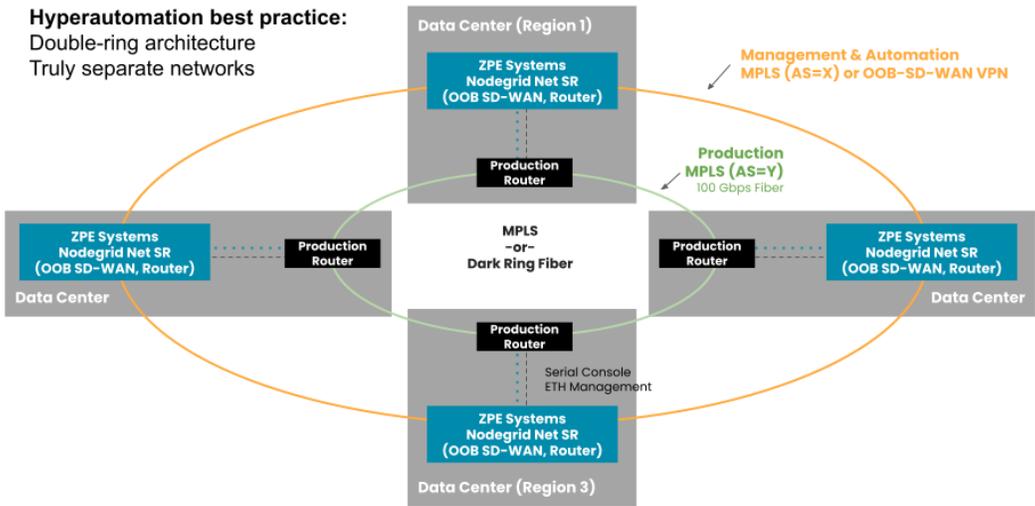


Figure 2: Dedicated automation network best practice known as double-ring architecture

[This blueprint](#) is the reference architecture validated to successfully implement Gartner's definition of hyperautomation, as well as meet the Open Networking User Group (ONUG) Orchestration and Automation recommendations. This blueprint gives you the necessary layers to confidently answer the three questions that will come up during your boardroom meeting, and outlines the practical steps required to achieve IT resilience.

Winter is looming: preparation strategies and tactics

Orchestration and automation are key to preparing IT infrastructure for lean operations this winter. By making orchestration and automation completely independent of the production infrastructure, IT teams can build hyperautomated environments while being able to safely recover from errors, much like having a network-wide 'undo' button. Despite limited staff and a hybrid/virtual workforce, this enables teams to:

- scale their efforts to reduce workloads and meet SLAs
- gain a full virtual presence and run local automation to maintain availability
- automatically push configuration and image updates to close security gaps and maintain compliance.

In order to meet customer expectations of high service availability, organizations are turning to hyperautomation to automate as many IT processes as possible. This requires CIOs to enable their teams with digital transformation initiatives that include technologies for hyperautomation. The network automation blueprint lays the groundwork for the management network design pattern required to accommodate this transformation and ensure business can provide reliable digital services despite the coming winter recession.

To prepare for the coming winter and operational challenges, download the complete network automation blueprint here <https://www.zpesystems.com/network-automation-blueprint>