

Automated NGINX Deployment on Remote Sites

with FusionLayer and NGINX

A White Paper by FusionLayer Inc.

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By FusionLayer Inc, September 2025.

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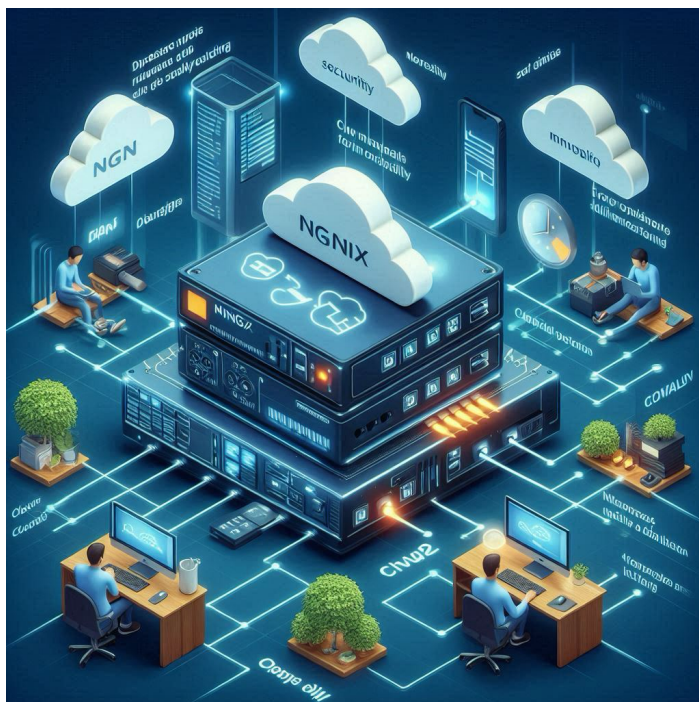
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1. Introduction

NGINX is a high-performance, open-source web server, reverse proxy, and load balancer designed for handling high concurrency with low memory usage. Originally developed to address the C10k problem, it efficiently manages numerous simultaneous connections through an asynchronous, event-driven architecture. Beyond serving static content, NGINX is widely used for caching, SSL termination, and microservices routing, making it a popular choice for modern web applications.

NGINX enhances cloud application portability by acting as a reverse proxy and load balancer, enabling seamless traffic distribution across multiple cloud environments. Its configuration flexibility allows for dynamic service discovery, API gateway functionalities, and container orchestration integration, making it ideal for microservices architectures. With built-in caching, SSL termination, and multi-cloud or hybrid deployment support, NGINX ensures applications remain scalable, secure, and highly available across diverse cloud platforms.

Deploying NGINX for cloud application portability on remote sites presents business challenges such as increased operational costs, compliance complexities, and the need for skilled IT resources to manage diverse cloud environments. Additionally, ensuring consistent performance, security, and seamless integration across multiple remote locations can hinder scalability, slow deployment timelines, and impact business agility.



Credit: Microsoft Designer, 2025

2. FusionLayer Xverse

FusionLayer Xverse is a next-generation, cloud-native automation platform designed to accelerate the deployment of security and infrastructure services at the network edge. By integrating secure device onboarding, AI-driven service catalogs, and zero-touch automation, Xverse enables organizations to roll out new services in minutes rather than weeks. This innovation empowers businesses to scale their edge cloud environments seamlessly while enhancing cloud application portability, security, and AI-driven automation.

FusionLayer Xverse addresses the operational challenges of deploying network and security functions across remote sites by automating service provisioning with AI-powered workflows and zero-touch deployment. Its cloud-native architecture ensures seamless integration across distributed environments, reducing manual configuration errors and significantly improving deployment efficiency. With centralized management and real-time visibility, Xverse enhances security, scalability, and operational performance, making remote network deployments more reliable and cost-effective.

By adopting FusionLayer Xverse, businesses can accelerate service deployment, reduce operational costs, and strengthen security across remote locations. Its AI-driven automation and zero-touch provisioning streamline operations, enabling faster time-to-market and improved resource efficiency. With centralized control and seamless multi-cloud integration, organizations can scale their infrastructure effortlessly while ensuring compliance, resilience, and high availability in today's dynamic digital landscape.

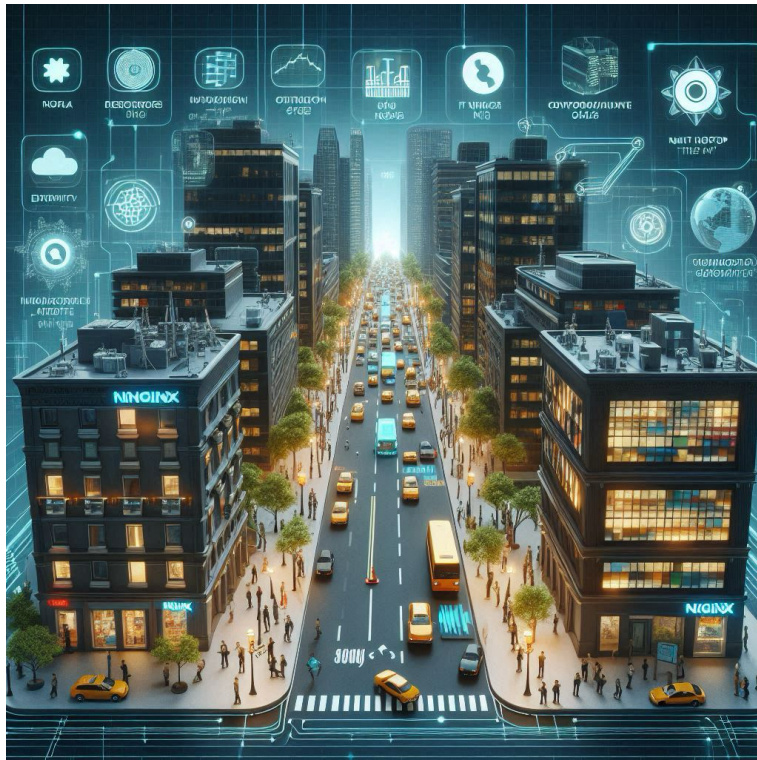
3. Automated Deployment of NGINX on Remote Sites

Through discussions with enterprise customers using NGINX as part of their business infrastructure at remote sites, FusionLayer identified a recurring challenge: IT departments often take months to deploy and configure new NGINX instances in locations without on-site IT staff. This delay leads to significant opportunity costs, including reduced productivity and missed business advantages due to slow response times. To address this, a more efficient, automated approach is essential.

FusionLayer Xverse is a hosted service that streamlines onboarding new physical devices operating at the network edge. Designed with security in mind, it enables device onboarding over the public Internet, allowing enterprises to deploy NGINX-based applications and services on virtually any industry-standard x86 device in minutes. By leveraging Xverse, organizations managing large IoT fleets and edge computing environments can cut deployment times from weeks to minutes while reducing costs by over 90%.

By adopting FusionLayer Xverse for edge infrastructure deployment and management, enterprises can simplify the running of infrastructure and security services at remote sites:

- Secure onboarding of new devices at remote sites
- Intuitive drag-and-drop deployment of applications and services
- Comprehensive lifecycle management, including observability and updates



Credit: Microsoft Designer, 2025

4. Proof-of-Concept Testing

To validate the effectiveness of FusionLayer Xverse in deploying NGINX for cloud application portability at remote sites, FusionLayer partnered with Supermicro to conduct a Proof-of-Concept (PoC) test. The objective was to evaluate the automated deployment and configuration of NGINX instances at remote edge computing locations. The PoC environment included:

1. A FusionLayer Xverse system running on a managed platform in Germany.
2. NGINX software was onboarded to the FusionLayer Xverse service catalog.
3. Supermicro AS-1115S-FWTR edge devices with pre-installed SZTP clients operating in Supermicro's test labs in the Netherlands.

Before testing, the FusionLayer engineering team configured Xverse to automate the installation and configuration of NGINX software. To establish connectivity, remote site devices were required to connect to a VLAN with public Internet access.

The PoC test plan followed a structured two-step approach:

1. Boot up a new Supermicro device at the remote site. Upon startup, the device securely connects to the Xverse service over the public Internet for automatic onboarding.
2. Automated deployment of NGINX. Once securely instantiated, NGINX software is deployed on the remote Supermicro device through a simple drag-and-drop action in the Xverse service catalog. Xverse then automatically uploads, installs, and configures the software, enabling a fully zero-touch deployment.



Credit: Microsoft Designer, 2025



5. Results

As a result of the PoC test, FusionLayer Xverse, running in Germany, successfully onboarded a new Supermicro device booted in the Netherlands and deployed the NGINX instance on the remote device in under 30 seconds. According to observers, this set a new world record for the fastest deployment and activation of new NGINX instances at remote sites in a different country.

6. Conclusion

The Proof-of-Concept testing demonstrated that FusionLayer Xverse significantly accelerates the deployment of NGINX for cloud application portability at remote sites, reducing provisioning times from weeks to mere seconds. By automating onboarding, installation, and configuration, Xverse eliminates operational bottlenecks, cutting costs and improving business agility. This successful test validates FusionLayer Xverse's efficiency and sets a new benchmark for rapid, secure, scalable edge infrastructure deployment across geographically distributed environments.



About FusionLayer

FusionLayer is a network automation and management platform streamlining modern IT and telecom network provisioning, orchestration, and security. It provides advanced IP Address Management (IPAM), DNS, and network automation solutions, enabling organizations to efficiently manage complex, multi-cloud, and edge computing environments. By automating network infrastructure, FusionLayer reduces manual errors, enhances security, and ensures real-time visibility and control. It is a crucial tool for enterprises and service providers seeking to scale their digital operations with agility and reliability.