



# Driving Operational Excellence Through Infrastructure Automation

A software company providing managed services faced the common challenge of balancing operational excellence with security and efficiency in their client environments. Through strategic application of OpStack's core principles - Simplify, Standardize, Automate, and Monitor - they transformed their operations, reducing tenant provisioning time from months to a single day while tripling their capacity to onboard new clients, all without increasing team size.

## The Challenge

Managing complex client environments at scale requires streamlined, efficient, and predictable processes for development, deployment, and management of both infrastructure and applications. Each tenant deployment consisted of 10-50+ virtual machines and up to 64TB of storage across multiple environments (development through production). The infrastructure stack spanned numerous technologies including Cisco networking, Pure Storage, VMware, F5 load balancers, and more.

Key operational challenges included:

- **Complex Provisioning:** New tenant setup took 3 weeks to 6 months, lacking standardization
- **Resource Inefficiency:** 90% of team time consumed by repetitive operational tasks
- **Knowledge Risk:** Critical infrastructure knowledge held by individual SMEs
- **Manual Processes:** Template management, OS patching, and certificate handling required significant manual intervention
- **Limited Scalability:** Only able to provision 2 new tenants per year
- **Security as Afterthought:** Security requirements needed to be inherent in the automation process

The existing process relied heavily on manual operations and tribal knowledge — a direct contrast to OpStack's principle that there are too many applications, containers, and servers in the world to administer them one at a time.

# The Solution: The OpStack Way

The team embarked on a comprehensive automation initiative built on open-source tools including Ansible, AWX, and Netbox. The implementation followed OpStack's core principles:

## Simplify

- Consolidated multiple manual processes into a single automation platform
- Created unified workflows for infrastructure management
- Streamlined certificate management and OS patching processes

## Standardize

The implementation followed a structured approach:

- **Platform Design and Security Framework**
- **Network Security (Firewall)**
- **Network Infrastructure (Switches)**
- **Compute (UCS)**
- **VMware Networking**
- **DNS**
- **Load Balancing (F5)**
- **Storage**
- **Netbox Data Population**
- **VM Management**
- **Security Scanning**

## Automate

The platform enabled comprehensive automation across:

- **VM Template Management:** From ad-hoc updates to reproducible monthly builds
- **OS Patching:** Regular, automated maintenance independent of software updates
- **Certificate Management:** Fully integrated into provisioning workflow
- **Multi-environment Deployments:** Consistent across dev through production

## **Monitor**

The team continuously improved the platform through:

- Hardware compatibility updates
- Network architecture scaling
- Netbox data model improvements
- Ad-hoc infrastructure update capabilities
- Regular security and compliance checks

## **The Impact: Smart Business Results**

### **Operational Excellence**

- Reduced tenant provisioning time from months to one day
- Increased tenant onboarding capacity from 2 to 6 per year
- Maintained existing team size despite 3x growth in capacity

### **Infrastructure Management**

- Regular, predictable VM template updates
- Proactive OS patching independent of software updates
- Streamlined certificate management
- Automated multi-environment deployments

### **Security and Risk Reduction**

- Security requirements built into automation
- Critical knowledge captured in code
- Successful knowledge preservation demonstrated when key SME departed
- Consistent, reproducible processes
- Regular maintenance enabled by automation

## Key Lessons

1. **Start with Secure:** Security requirements were made inherent to infrastructure automation
2. **Simplification First:** Breaking down complex processes into manageable, automated components
3. **Standardization Matters:** Consistent processes across all environments reduced errors
4. **Automation is Smart Business:** Freed the team from repetitive tasks for higher-value work
5. **Continuous Monitoring:** Regular refinement based on operational feedback

## Conclusion

Through the application of OpStack's principles — Simplify, Standardize, Automate, and Monitor — the organization transformed its managed service operations from a manual, knowledge-dependent process to a scalable, efficient platform. The initiative demonstrates that automation is not just about efficiency; it's about driving operational excellence and security in your IT environment.