

WHITEPAPER



A NEW ERA IN **INFRASTRUCTURE** EFFICIENCY.



Executive Summary

Infrastructure Operations (InfraOps) is emerging as a pivotal field within IT, especially for enterprises seeking to leverage the principles of DevOps for infrastructure management and provisioning. Our whitepaper delineates the transformative approach our company has developed to automate and stream line this domain. We show case a sophisticated process that not only expedites the provisioning of servers from days to minutes but also ensures consistent deployment methodologies and enhanced security protocols.

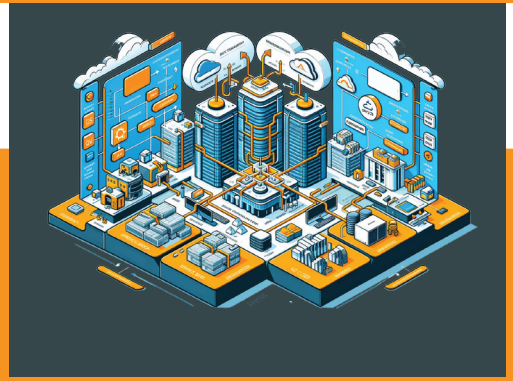
Introduction: Next Gen InfraOps

In the rapidly evolving enterprise environment, agility and speed are paramount. The traditional manual server provisioning methods are becoming a bottleneck for growth and efficiency. InfraOps aims to bridge this gap by applying DevOps principles to infrastructure management. By automating the provisioning and configuration of servers, InfraOps minimizes manual labor, reduces errors, and accelerates deployment, enabling IT to support business growth and innovation more effectively.

Challenges in Traditional Infrastructure Management

Historically, server provisioning has been fraught with manual steps, from setting up compute metrics and security to installing agents and applying patches. Another round of tasks may seek to ensure compliance or CIS hardening. Such processes are not only time-consuming, often taking weeks, but also inconsistent, leading to a significant drain on resources and potential for human error. Layer in various agents for cloud monitoring, anti-virus, security and you may even need to engage engineers from multiple disciplines within IT. We often find inefficient process fraught with delay and risks:

- Manual provisioning and configurations leading to extended timelines
- Security vulnerabilities due to manual processes
- Inconsistent deployment methodologies
- Increased risk of human error
- Numerous parties involved



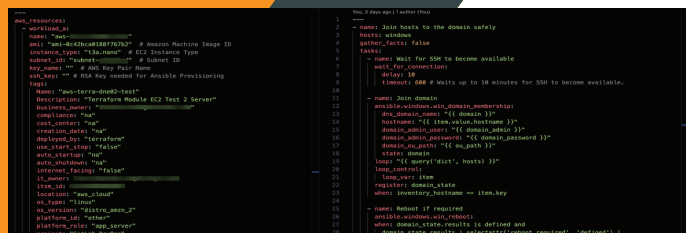
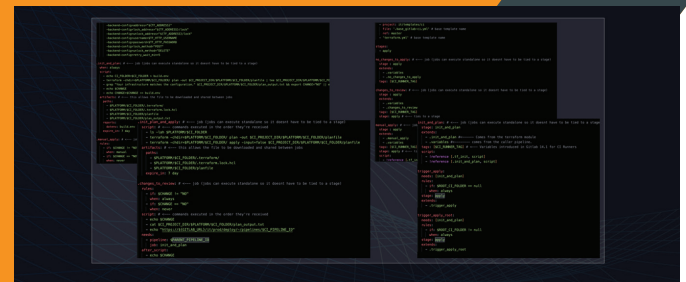
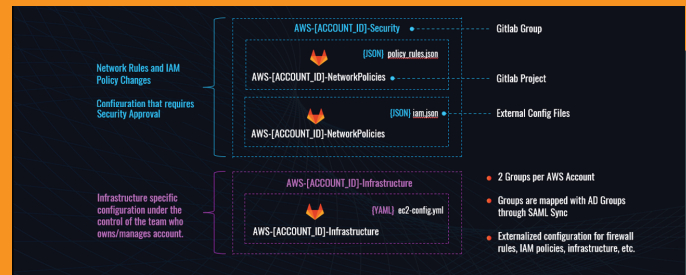
Our InfraOps Solution

Our solution redefines InfraOps where, at one customer, we reduced Windows and Linux server provisioning time from **8 days to just 15 minutes**. At the heart of this transformation is an automated pipeline, integrating Ansible Tower, Service Now, and GitLab CI/CD into a cohesive system that manages both high-frequency, low-effort tasks and low-frequency, high-effort activities with equal finesse.

Automated Server Provisioning: Reducing server provisioning time from 8 days to 15 minutes

Consistency and Standardization: Utilizing IaC to ensure repeatable & consistent deployments

Automation of DevSecOps: integrating security into the process to meet compliance from the outset



Process Overview

Infrastructure Operations (InfraOps) is emerging as a pivotal field within IT, especially for enterprises seeking to leverage the principles of DevOps for infrastructure management and provisioning. Our whitepaper delineates the transformative approach our company has developed to automate and stream line this domain. We show case a sophisticated process that not only expedites the provisioning of servers from days to minutes but also ensures consistent deployment methodologies and enhanced security protocols.

1. **Service Desk Integration:** The process begins with a service desk intake form, which upon submission, makes an HTTP POST to GitLab API to trigger the GitLab CI pipeline.

2. **GitLab CI Pipeline:** A pipeline definition orchestrates the deployment process, activated exclusively by changes to the main branch to maintain integrity. Commits of a driver based yaml file permit the pipeline to run, ensuring that only verified changes initiate provisioning.

3. **Terraform Execution:** Using Terraform, the pipeline initiates, plans, and applies configurations to provision EC2 instances. Custom Terraform modules read from a Cloudstak-defined YAML file to set up the instances according to specified parameters without any hardcoded user accounts or keys.

4. **Ansible Automation:** Post-provisioning, once the EC2 instances are ready, Ansible takes over. The instances undergo a bootstrapping process, where essential configurations, such as SSH setup and firewall rules, are applied. Following this, domain joins and agent installations are handled efficiently through additional playbooks.



Technological Framework

Infrastructure as Code IaC: Terraform scripts for provisioning and configuration

Configuration Management: Ansible for post-provisioning tasks and ongoing management

Continuous Integration/Continuous Deployment CI CD: GitLab for pipeline management

Future Direction

The system is designed with expansion in mind, ready to incorporate additional dynamic elements. By continually integrating the latest DevOps innovations, InfraOps stands ready to support the evolving demands of enterprise infrastructure. We are scheduled to expand into additional use cases. There are many areas that will benefit from this advanced tooling:

- Firewall requests
- User/Group Assignment
- Load Balancer provisioning
- Network provisioning
- And much, much more



Benefits of Our InfraOps Approach

Our Infra Ops approach brings several key benefits to enterprise IT:

Operational Efficiency: Dramatic reduction in manual labor and provisioning times, from days to minutes

Compliance: Automated processes minimize risk of human error and ensure consistent security measures

Security: Enhanced security posture with automated compliance checks and security agent installations

Cost Effectiveness: Reduction in operational costs due to automation and decreased manual intervention

Scalability: Makes it easier for businesses to scale operations up or down as needed with minimal effort

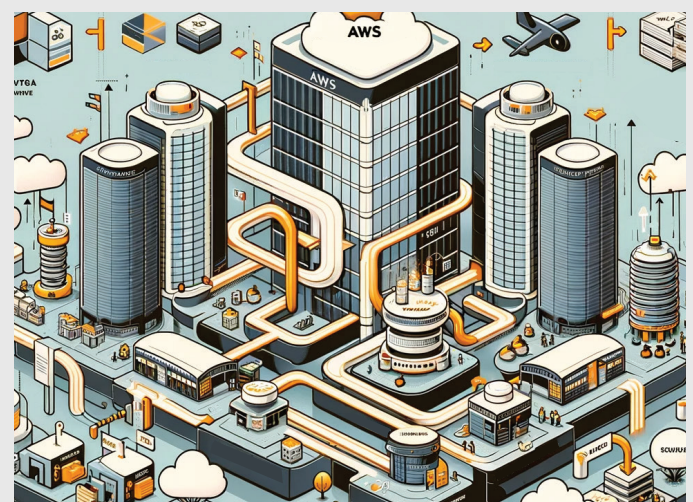
Quality Assurance: Consistency in deployments minimizes errors and increases reliability

Resource Optimization: Frees up IT personnel, allowing focus on strategic tasks

Consistency: Ensures uniform deployments with every instance

Conclusion

Our InfraOps methodology represents a significant leap in infrastructure management, providing IT leaders with the tools to enhance operational efficiency, bolster security, and ensure that their enterprise infrastructure meets the demands of modern business practices. By adopting our approach, companies can not only modernize their systems but also gain a competitive edge in their respective industries.





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Contact Us

For additional information and a detailed discussion on how our InfraOps solution can benefit your organization, please contact:

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