

Telecom service provider Dycom gains agility for its DevOps pipeline and reliability for its infrastructure management

Company Summary

Dycom provides specialty contracting services to the telecommunications infrastructure and utility industries throughout the United States. It collaborates with customers to design and deploy scalable network infrastructures to meet the growing demand for ultra-fast broadband.

With a skilled network of over 15,000 employees, serving the nation from hundreds of field offices, Dycom supplies telecommunications providers with a portfolio of specialty services, including program management; planning; engineering and design; aerial, underground, and wireless construction; maintenance; and fulfillment services.



INDUSTRY

→ Telecommunications

SEGMENT

→ Private

REGION

→ NAMER

THE CHALLENGE Seeking resources to deploy and manage cloud DevOps and infrastructure lifecycle

DevOps combines software development (Dev) and operations (Ops) to increase the efficiency, speed, and security of software development and delivery compared to traditional processes. A DevOps approach can afford organizations a more nimble software development lifecycle, resulting in a competitive advantage.

Dycom had initiated a cloud strategy to both avoid cost overruns and gain efficiency in its DevOps lifecycle and had begun the process of migrating systems to Amazon Web Services (AWS). However, Dycom struggled in several key areas. Even before the migration, it was already having challenges managing the influx of work for the operations team set by their internal customer base, which needed near-constant support. The initial cloud migration was also stymied by difficulties recruiting and retaining local talent skilled in AWS cloud and DevOps processes to help migrate and manage the new cloud, sysadmin, network admin, and DevOps automation workloads. And without a detailed strategy to decrease costs while increasing its AWS usage, it didn't immediately gain cost efficiencies.

Additionally, ongoing maintenance and security was a critical issue. The number of unique stacks being used by Dycom required a number of specific AWS CloudFormation and Terraform reports, which required constant maintenance. Also, when Meltdown and Spectre, recently-discovered vulnerabilities found in processor chips, forced a redesign of operating systems software, Dycom needed to mitigate the vulnerability using in-line patching to enable work on personal computers, mobile devices, and in the cloud.

With these challenges of a crushing workload, a lack of local talent, a vague cost optimization strategy, and ongoing security threats, Dycom hadn't yet realized the cost nor process efficiencies promised by implementing an efficient, cost-effective DevOps cloud.

THE SOLUTION Deploying a scalable, cost-effective DevOps pipeline and infrastructure management on the AWS cloud

The CloudHesive team took on the consultative role of first understanding Dycom's current deployment process and then reproducing its entire process through a new set of tools and procedures. The CloudHesive team worked hand-in-hand with the internal Dycom team to become trusted advisors and a key partner.

The new DevOps solution included best practices for traditional deployment on AWS using CloudHesive's standard suite of solutions, including AWS CloudFormation templates for provisioning, Amazon Virtual Private Cloud (Amazon VPC), Amazon EC2, and Amazon Elastic Block Store (Amazon EBS), as well as Terraform for provisioning and Jenkins for DevOps automation.

CloudHesive also deployed and maintains custom AWS CloudFormation and Terraform templates as well as Stacks software pipeline version, all controlled in GitLab. All the deployments have been done via Jenkins and a third-party solution that CloudHesive has helped implement and manage.



To patch both on-premises software and AWS windows servers in the wake of recent security vulnerabilities, CloudHesive deployed AWS Systems Manager. To push in-line updates and patches to Linux servers across multiple distributions, CloudHesive implemented Ansible's application deployment functionality.

To address the larger issue of infrastructure lifecycle management, CloudHesive also provided a solution that enabled Dycom to put systems on a lifecycle policy based on a specific tag on each resource. The tag communicated to the system when each resource should be shut down and brought back online.

THE BENEFITS

Gaining agility for software development and reliability for infrastructure management

With the automated DevOps, security, and infrastructure training and solutions deployed by CloudHesive, Dycom has gained a cost-effective cloud solution for its agile software development as well as its infrastructure management. Its processes are now automated and repeatable, making the entire operation more agile and scalable.

Services that Drive Success

DEVOPS

- Deployment of AWS CloudFormation templates and Terraform for provisioning
- Deployment of Amazon Amazon VPC, Amazon EC2, Amazon EBS, and Jenkins for DevOps automation
- Deployment of AWS Systems Manager to patch on-premises software and AWS windows server
- Deployment of Ansible for in-line updates and patches to Linux servers
- Deployed AWS Systems Manager for infrastructure management
- Deployed Ansible for Linux updates and patches

Customer benefit summary

- Secure infrastructure management
- AWS well architected architecture
- Scalable, cost effective DevOps pipeline

AWS technologies used

- AWS CloudFormation
- Amazon Virtual Private Cloud (Amazon VPC)
- Amazon EC2
- Amazon Elastic Block Store (Amazon EBS)
- AWS Systems Manager

Third-party technologies used

- Packer
- Terraform
- Vault
- Consul
- Ansible
- Jenkins
- GitLab
- Stacks