

# Puppet Enterprise Enables DevOps Practices for Automation of AWS Environments

**White Paper**

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# Introduction

Adopting Puppet Enterprise and DevOps practices can accelerate your organization's migration to Amazon Web Services (AWS). In this paper, we offer details of how Puppet Enterprise helps you automate management of your cloud environments while providing a consistent and reliable approach to provisioning and configuration management. You can securely drive change with confidence, test updates before they are rolled out, and reduce the risk of errors and downtime.

Whether your company is considering a migration to the AWS Cloud from a strictly on-premises environment, seeking to adopt a hybrid infrastructure, or hoping to automate your current cloud presence to improve reliability and consistency, Puppet Enterprise can help you meet your business needs.

# Simplify AWS Cloud migration with Puppet Enterprise and DevOps practices

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Migrating to AWS shouldn't be a manual process. In fact, it's hard to realize the agility benefits of AWS if you're provisioning and configuring your AWS infrastructure manually.

If you're already using Puppet Enterprise in your on-premises environment, it's fast and easy to get up and running on the AWS Cloud by leveraging your existing Puppet configurations. You can use Puppet to:

- Consistently provision and configure AWS infrastructure, from VPCs to EC2 Instances.
- Automatically remediate misconfigurations of critical AWS components, such as security groups.
- Get visibility into what's changed.

Puppet Enterprise lets you define your infrastructure as code, which is a core DevOps practice. Once your infrastructure is defined as code, you can deploy it anywhere, and use the same configurations to handle workloads across all of your environments. This reduces the complexity of simultaneously managing your AWS infrastructure, on-premises servers, and hybrid clouds.

Puppet Enterprise simplifies how you define, deliver, and manage the configurations required to run the applications in your AWS environments, allowing you to automate, standardize, and streamline the management of your AWS compute, storage, and network resources — all in the same easy-to-use declarative language. Puppet Enterprise also lets you scale workloads more efficiently. Enterprises like [1-800-Flowers.com](https://1-800-Flowers.com) automate tens of thousands of resources across multiple operating systems and environments.

Puppet Enterprise gives you full visibility into what you have running on AWS, and across all your other environments. You can view any changes to your infrastructure, plus enforce security policies, prove compliance, and simplify the auditing process. Puppet also gives you the foundation for your DevOps practices, allowing you to implement a standard and consistent way to test application code and environment configurations simultaneously, so you can save time and optimize the utilization of resources.

# Adopt Puppet Enterprise with ease in the AWS Marketplace

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Puppet and AWS have partnered to make it easy to find and launch Puppet Enterprise directly from the [AWS Marketplace](#). You have two options for running Puppet Enterprise on AWS: choose a flexible pay-as-you-go license, or bring your own existing Puppet Enterprise license to the AWS Cloud, so you can deploy and manage your AWS instances with Puppet Enterprise from the start.

## **Pay-as-you-go license**

Pay only for what you use, with no upfront costs or long-term investments. This option offers you the flexibility of using your existing AWS purchase agreement to buy Puppet Enterprise directly from AWS. It's easy to get started, because the Puppet Enterprise Amazon Machine Image (AMI):

- Comes with Puppet pre-installed, and Puppet is automatically and securely configured while booting your EC2 instance.
- Includes scripts to automate common tasks and configure Puppet Enterprise to manage nodes wherever they live — in your on-premises or offsite data centers, EC2, or other cloud providers.

The Puppet Enterprise AMI is the fastest and easiest way to adopt automation for your cloud projects from the get-go, without committing to a long-term contract.

## **Bring your own license**

If you are already a Puppet Enterprise customer, this option makes it easy to bring your own license to the AWS Cloud and deploy, using the AMI available in the AWS Marketplace. Read the [User Guide](#) for instructions on how to launch the AWS Marketplace Image.

No matter which option you choose, Puppet Enterprise helps you reduce the cost of deployment. If you're managing your AWS environments (development, test, production, etc.) manually, much of your time will be spent making manual updates to ensure these environments closely match production. Puppet Enterprise lets teams model each environment once, and update them all instantly and automatically. Your teams will be able to manage more infrastructure and deploy more frequently — all without increasing headcount.

# Puppet Enterprise addresses challenges before they become costly problems

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Key challenges that organizations face when trying to realize the full value of operating in the cloud include:

- Managing infrastructure at scale
- Simultaneously managing cloud, on-premises, and hybrid environments
- Security and compliance
- Lack of visibility

By adopting Puppet Enterprise and DevOps practices, you can overcome these challenges and optimize your AWS environment rapidly, reliably, securely, and at scale. Here's how.

## **1 Managing infrastructure at scale without a consistent, automated approach to provisioning and Day Two management is risky. You risk downtime from inconsistent server configurations, reduced velocity due to manual configuration and remediation, and costly failed audits.**

Puppet Enterprise addresses these challenges and risks by enabling you to define your infrastructure as code on the AWS Cloud, and in your on-premises and hybrid environments. Because Puppet is infrastructure as code, it can be versioned, peer-reviewed, and tested. It is also self-documenting, and can be used to prove compliance.

Puppet removes the risk of human error from the provisioning process by providing a repeatable and consistent way to provision new instances. This makes it trivial to scale out infrastructure during peak times, as the business demands. Puppet also automatically remediates unauthorized changes to minimize the risk of downtime. Automating with Puppet Enterprise enables a small team to effectively manage hundreds or even thousands of instances, giving the team time back to make improvements to the system, rather than just managing it.

## **2 Simultaneously managing cloud, on-premises, and hybrid environments without a standardized method for managing your entire infrastructure results in proliferation of tools and scripts, and inability to readily move workloads between environments.**

Adopting the standardized management platform and common language used by Puppet Enterprise enables you to manage your AWS environment and on-premises data centers in a consistent way. When you migrate your workloads to the cloud, you're able to leverage your existing Puppet configurations to reliably manage your cloud infrastructure. You can also take advantage of the Puppet AWS module to consistently provision, configure, and manage instances. This extends automation across all your environments.

## **3 Enforcing security policies and compliance requirements throughout your entire IT portfolio can be difficult when it's managed by multiple people and teams. An environment lacking automation can lead to costly and uncertain audit results.**

Ensure your security policies are enforced and compliance requirements are met consistently across all of your environments with Puppet Enterprise. If unauthorized changes occur, they are automatically remediated by Puppet, which then generates a report to show you what was changed. Organizations migrating to AWS are particularly sensitive about security and compliance, and Puppet provides assurance that these policies are continually enforced.

Many Puppet Enterprise customers use it as a compliance engine to ensure all applications — whether running on the cloud or in their on-premises environment — meet security and other requirements at all times.

## **4 Having a lack of visibility across your AWS Cloud, on-premises, and hybrid environments presents its own set of problems, and often means you are not sure what you are running.**

To make changes with confidence, you need full traceability and transparency into those changes. The robust reporting capabilities of Puppet Enterprise give you visibility into any changes that were made, when they happened, and who made them. This lets you troubleshoot errors more quickly and effectively, and further reduce time to recovery.

# Puppet Enterprise brings reliability and consistency to AWS

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Puppet and AWS have partnered to make it easy to find and launch Puppet Enterprise. The Puppet AWS module allows you to provision the following AWS resources:

- EC2 instances
- Elastic Load Balancing (ELB)
- Amazon VPC
- Amazon Route53 DNS
- Auto Scaling
- Security Groups

With Puppet Enterprise, you know exactly what is going on with all your software on AWS, and you get the automation you need to deliver more software at a faster rate, while maintaining quality, security, and compliance. Puppet provides a common language that allows you to establish DevOps practices by defining your infrastructure as code. You simply describe the end state of your infrastructure and Puppet makes it so, which ensures increased agility, consistency, and reliability.

When code workloads are launched, Puppet makes it possible for multiple development teams to work simultaneously, and it integrates seamlessly with several version control systems. On AWS, the Puppet Enterprise AMI has multiple scripts that automate common tasks to make setup easy, working in conjunction with AWS CloudFormation templates as the recommended deployment method for Puppet Enterprise. These templates are used for multi-availability zone configuration, failover, load balancing and log codes, and ensures they are established without incident.

Another benefit of using Puppet Enterprise on AWS is the Puppet Enterprise console. The console provides a single management platform to control and enforce consistency across hybrid cloud environments. It gives you full visibility into the state of your infrastructure, whether that infrastructure lives on-premises or on the cloud. As a result, your cloud teams have greater control and situational awareness of the software they run and deliver.

# Puppet Enterprise: platform overview

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Puppet Enterprise is the leading platform for delivering and operating constantly modern software because of these core elements:

## **Availability and scale**

As the AWS environment you manage grows, Puppet Enterprise manages it all by adding more Puppet servers. This not only ensures performance at scale, but availability as well, and makes certain that your AWS Cloud code is effectively distributed to all servers, no matter how large or fast you scale.

## **Core components**

Built on a proven and widely adopted DevOps platform, Puppet Enterprise includes the building blocks and core technologies you need to help deliver and operate your environment and applications on AWS, on-premises, and in hybrid cloud environments.

## **Integrations and modules**

Many modules are built by Puppet and its technology partners to automate some of the most fundamental and critical parts of your infrastructure. Most organizations use multiple tools to manage their cloud infrastructure, and Puppet Enterprise makes sure all key automation technologies work together.

## **Platform security**

Security is a core tenet of the Puppet Enterprise platform, and is built in. All services communicate with two-way peer verification at every step. Trusted facts allow you to safely make assumptions about a host's role in the infrastructure, and Puppet's mature disclosure process means every vulnerability disclosure receives a swift and thorough response



# Puppet Enterprise: capabilities

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The Puppet language is easy to read and provides a common platform for all technical team members. It lets you easily and automatically deliver, update, monitor, and secure your distributed applications and global infrastructure across all your AWS environments.

## **Automated provisioning**

Automate Day One provisioning of infrastructure with Puppet Enterprise, and you will get your business services up and running faster. No more delays of days, or even weeks, to implement the applications your business depends on.

## **Configuration automation**

Eliminate your reliance on time-consuming manual processes and scripts for managing your infrastructure by automating the configuration of your machines and software with Puppet Enterprise.

## **Visualization and reporting**

Gain visibility into the changes being made in your infrastructure with reporting that identifies changes as they occur, providing at a glance all the detailed information you need about how your applications are configured.

## **Code management**

You can easily propose changes, review, test, and deploy configurations across all of your environments by adopting an infrastructure as code methodology. This consistency assures that your code is developed and tested in environments closely aligned to production, for more successful deployments.

# DevOps practices

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To lay the foundation for adopting DevOps practices on AWS, define your infrastructure as code, and get better, deeper collaboration between development, operations, InfoSec, and networking. Adopting DevOps culture and practices on the cloud is key to aligning your software delivery cadence with your organization's goals — and key to organizational success.

While DevOps is not a fixed methodology, automation and a collaborative culture are the foundation for accepted DevOps practices, which include:

- Measuring the things that have an impact on your organization's goals.
- Making those measurements are visible to everyone.
- Using a shared set of tools.
- Including all teams in the software delivery process from the earliest planning stages.

Automation is at the core of many DevOps practices because it helps you move faster without sacrificing stability or security. Now is the time to take advantage of automation and proven practices to drive your team — and deployments — forward, using Puppet Enterprise on AWS.

This partnership amplifies the best of both platforms, making it possible to deliver technology changes faster, release better software — and do it all more frequently, with confidence.

DevOps practices, tools, and processes make your business more agile, eliminating silos and improving collaboration across teams. Use them to automate the entire software delivery cycle, from core infrastructure through applications, with Puppet Enterprise on the AWS Cloud, and you'll free up time to work on projects that deliver more business value to your organization.

Employing these practices will increase reliability as you decrease cycle times, so you can move fast and with confidence. Puppet Enterprise ensures consistency across dev, test, and production environments so when changes are promoted, you know they're consistent and your systems are stable.

# Infrastructure as code

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Organizations looking for faster deployments treat infrastructure as code that can be managed with the same tools and processes software developers use — for example, version control, continuous integration, code review, and automated testing. These are common DevOps practices that let you make changes to your AWS infrastructure more easily, rapidly, safely, and reliably. And these DevOps practices allow you to continuously deliver quality software that pleases your customers.

Because Puppet Enterprise treats infrastructure as code, you can define the desired state of your AWS environment, and what you want it to do. Puppet then automatically enforces that desired state, and remediates any unexpected changes. You can deploy faster, with greater reliability, because you no longer require manual intervention at every stage of the deployment process.

Puppet Enterprise also helps you with compliance. By defining your infrastructure as code and employing version control with Puppet, you can establish a clear audit trail with detailed reports on the state of your AWS environment. This allows you (and your management team) to easily see who changed what, and when, with the built-in ability to automatically remediate out-of-policy changes back to the desired, compliant state.

# Automation for successful migration

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In closing, if your organization is operating solely from an on-premises data center but considering a migration to the AWS Cloud, automating your environment with Puppet Enterprise before migrating will make the process much smoother, and eliminate a lot of pain. Puppet will cut the time your team spends on manual updates, deployments, and the unplanned work of putting out fires, and help you quickly make the leap to the AWS Cloud, so you can transform the way you do business.

We've made it as easy as possible to adopt Puppet Enterprise on AWS quickly, so you can start realizing the benefits of cloud. And no matter where you are working, Puppet is available to help, with facilities in six countries on four continents. We're looking forward to hearing from you!

## Contact Us



### About Puppet

Puppet is driving the movement to a world of unconstrained software change. Its revolutionary platform is the industry standard for automating the delivery and operation of the software that powers everything around us. More than 35,000 companies — including more than 75 of the Fortune 100 — use Puppet's open source and commercial solutions to adopt DevOps practices, achieve situational awareness and drive software change with confidence. Headquartered in Portland, Ore., Puppet is a privately held company with more than 500 employees around the world. Learn more at [puppet.com](https://puppet.com).



### About AWS

For 10 years, Amazon Web Services has been the world's most comprehensive and broadly adopted cloud platform. AWS offers more than 90 fully featured services for compute, storage, databases, analytics, mobile, Internet of Things (IoT) and enterprise applications from 42 Availability Zones (AZs) across 16 geographic regions in the U.S., Australia, Brazil, Canada, China, Germany, India, Ireland, Japan, Korea, Singapore, and the UK. AWS services are trusted by millions of active customers around the world monthly -- including the fastest growing startups, largest enterprises, and leading government agencies -- to power their infrastructure, make them more agile, and lower costs. To learn more about AWS, visit <https://aws.amazon.com>.