

# Leveraging Chef™ Tools with the A10 Lightning Application Delivery Service for Agile, DevOps-based Deployments

**Create recipes to automate, set up, configure and deploy cloud applications and infrastructure using Chef and the A10 Lightning Application Delivery Service (ADS) for continuous operations of production environments.**

As the pace of innovation accelerates and customer needs evolve, businesses leveraging cloud infrastructure are becoming increasingly agile. Gone are the days when development cycles inside enterprises followed waterfall models and once- or twice-per-year train releases. With shortening application life cycles, IT vendors are switching to agile application development and delivery models, resulting in agile DevOps practices.

A fundamental principle of DevOps is to treat infrastructure the same way developers treat code. Application code has a format and a syntax. If the code is not written by the rules, applications cannot be created. Code is typically stored in a version management system that logs history of code, development, changes and bug fixes.

When code is compiled, we expect the build to be repeatable and reliable. Until recently, the rigor of application code had not necessarily been applied to infrastructure. Frequently, application infrastructure is provisioned using manual processes and the created environments are not always repeatable, reliable or consistent.

Further, operations needs to help deliver applications in a consistent, repeatable and reliable manner. Not all configurations are either defined in a declarative way or stored in a version management system. Several of these can be addressed through automation of the underlying infrastructure.

ADS provides a DevOps-friendly method of creating and maintaining infrastructure. It provides services that enable creation, deployment and maintenance of infrastructure in a programmatic way, and deployment of application services in a predictable manner. Although it supports numerous DevOps principles and practices that IT departments can capitalize on to improve business agility, this solution brief focuses on leveraging those capabilities with DevOps-friendly tools such as Chef.

## Automated Deployment with Chef

Continuous deployment/delivery is a critical concept in DevOps deployments. Its primary goal is to enable the automated deployment of production-ready application code. The A10 Lightning Application Delivery Service takes this to the next level by leveraging big data-style analytics and user data to improve continuous delivery.

Applications have different lifecycles. Some are deployed multiple times a day and some are updated once a year. The industry has made significant progress toward automating application development with various DevOps tools (e.g., GitHub and Jenkins).

However, automating application delivery infrastructure has always been a challenge. In IT organizations, multiple applications with various lifecycles are front-ended by legacy application delivery solutions, which have a centralized configuration store.

When applications evolve, making appropriate configuration changes or even doing blue-green traffic testing for a specific application involves extensive planning via ticketing processes. This may lead to unnecessary lead times and, in some cases, even production downtime.

## Integrating Chef for Continuous Operations

With Chef integration, the A10 Lightning Application Delivery Service addresses this precise challenge.

DevOps teams use Chef Recipes to automate, set up configure and deploy the A10 Lightning Application Delivery Service. When used in conjunction with Jenkins and Chef, ADS enables continuous operations of production environments.

The solution is purpose-built in the cloud for accelerating and securing cloud applications. It leverages microservices architecture and the elastic nature of the cloud to enable low-latency elastic cloud application delivery in OpenStack, AWS and other public and private cloud environments.

It has two core architectural component:

- The A10 Lightning Application Delivery Controller (Lightning ADC) operates in the data plane and is responsible for enforcing application delivery policies.
- Residing in the control plane, the A10 Lightning Controller is a hyper-scale centralized application services controller responsible for the management and control of application delivery policies, and processing of application analytics.

Together, they optimize application delivery within a variety of cloud applications and infrastructure.

With A10 and Chef integration, recipes drive new production releases without downtime. The lightweight Lightning ADCs are deployed in front of an application, providing application infrastructure services on a per-application basis.

The solution provides a tenant user interface that makes the deployment process very easy. But this whole process can also be done with Chef and Jenkins as well. Lightning ADCs are programmable both at the control plane and data plane. Deploying Lightning ADC clusters at the front-end of applications is straightforward and supports continuous deployment.

Extend recipes and integrations to enable continuous deployment and blue-green testing all the way up to the microservices level, where modern applications are being built.

## How is it done?

DevOps may use Chef and Jenkins to trigger new application server instance creation. When a new application software instance is up and running in the Jenkins workflow, Chef Recipes can automate creation of Lightning ADCs instances and insert the necessary configuration logic by leveraging A10's REST-based APIs. This helps simplify the provisioning of load balancing, SSL, security policies and traffic rules. Individual services in a microservices-based application architecture can also be continuously upgraded, using blue-green deployment models, without any service disruption or solution downtime.

### Built for DevOps and Programmable Architectures

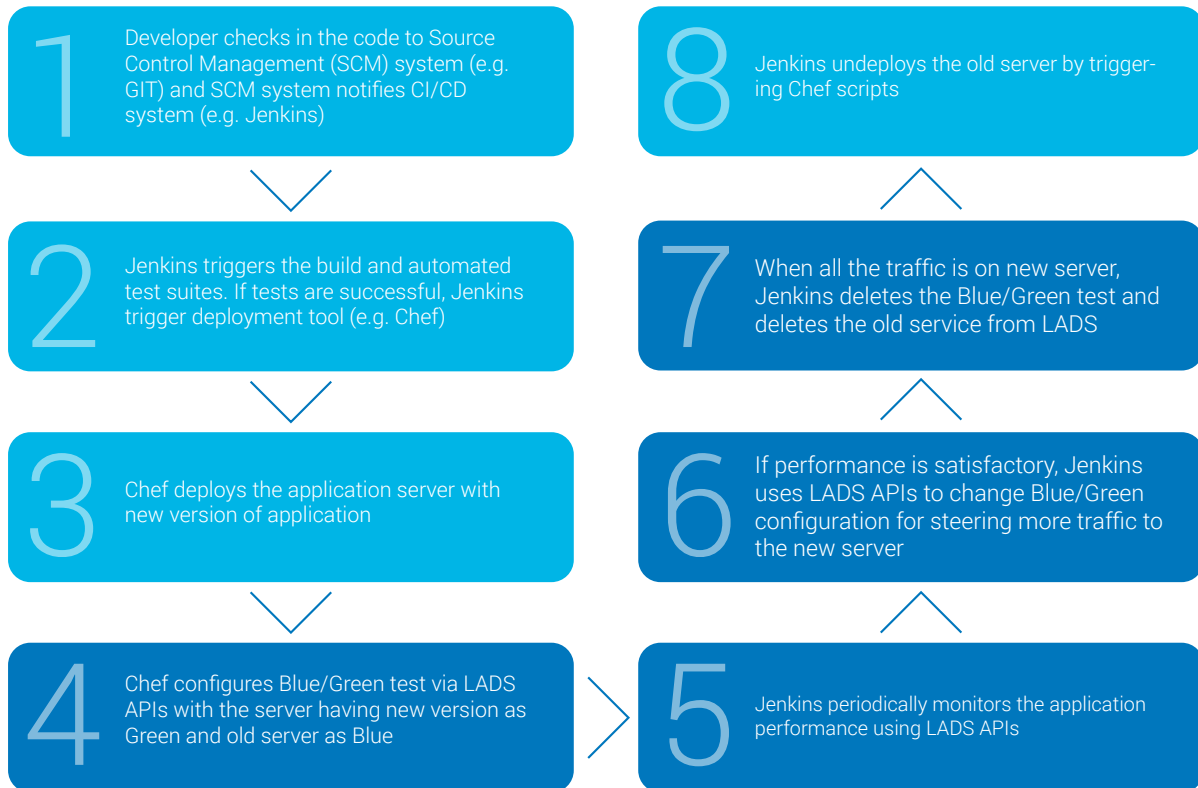
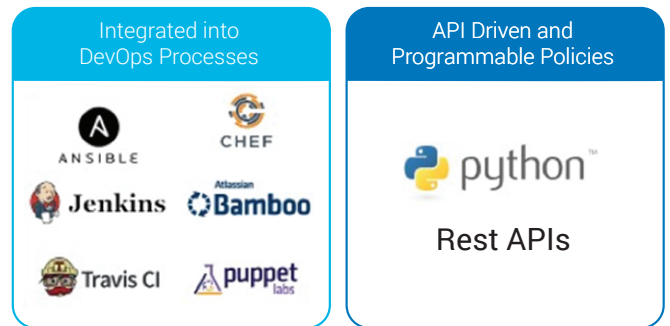


Figure 1: Agile application deployments with Chef and the A10 Lightning Application Delivery Service (ADS)

DevOps engineers can take a quick look at the API documentation available [here](#) at the A10 API Explorer (login required).

The A10 Lightning Applications Delivery Service works across multiple regions in public clouds. Reduce the latency in processing application flow by automating deployment of runtime pods per region.

## About A10 Networks

A10 Networks is a leader in application networking, providing a range of high-performance application networking solutions that help organizations ensure that their data center applications and networks remain highly available, accelerated and secure. Founded in 2004, A10 Networks is based in San Jose, California, and serves customers globally with offices worldwide. For more information, visit: [www.a10networks.com](http://www.a10networks.com)

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