

nClouds | AWS Case Studies

CasperLabs

How nClouds helped CasperLabs expand its target customer base with an automated deployment solution that makes it easy for non-technical users to spin up a blockchain node on AWS.



CasperLabs

Industry

Blockchain, Software

Location

Zug, Switzerland

Challenge

CasperLabs needed a solution to enable non-technical users to launch a Casper node easily and join the blockchain.

Featured Services

DevOps, AWS Well-Architected Review, AWS Foundational Technical Review

About CasperLabs

CasperLabs, the developer of the codebase for the Casper Network, provides professional services and support for organizations building on Casper, the first enterprise-grade blockchain. Guided by open source principles, CasperLabs is committed to supporting the next wave of blockchain adoption among businesses and providing developers with a reliable and secure framework to build private, public and hybrid blockchain applications. To learn more, visit the casperlabs.io.

Benefits Summary



Automated
deployment process



Rapid expansion of
target customer base



Enhanced scalability
and security

CHALLENGE

CasperLabs needed a solution to enable non-technical users to launch a Casper node easily and join the blockchain.

CasperLabs is growing faster than ever due to the burgeoning interest in blockchain solutions. They wanted to expedite getting their product in the AWS Marketplace. To expand their customer base, CasperLabs needed a streamlined and easy-to-use deployment solution for non-technical users to spin up a blockchain node on AWS.

The CasperLabs team was rapidly scaling its operations and relied on nClouds' dedicated team of DevOps experts to ensure its infrastructure continued to perform seamlessly and reliably as activity on the network rapidly grew. They selected nClouds to help them develop an easy-to-use solution based on its DevOps expertise. With an eye to future growth, the CasperLabs team discussed with nClouds how they could collaborate to enable rapid expansion of its customer base.

CasperLabs leveraged several Amazon Web Services:

- **Amazon CloudWatch (CloudWatch)** - Monitors applications, responds to system-wide performance changes, optimizes resource utilization, and provides a unified view of operational health.
- **Amazon Elastic Compute Cloud (Amazon EC2)** - A platform that provides CasperLabs with secure, resizable compute capacity in the cloud.
- **Amazon Virtual Private Cloud (Amazon VPC)** - Enables CasperLabs to provision a logically isolated section on AWS where they can launch AWS resources in a virtual network that they define.
- **AWS CloudFormation (CloudFormation)** - Allows CasperLabs to treat its infrastructure as code, automate operations, and bring up new environments.
- **AWS Quick Start** - An automated reference deployment for key workloads on AWS. It launches, configures, and runs the AWS compute, network, storage, and other services required to deploy a specific workload on AWS, using AWS best practices for security and availability. It condenses hundreds of manual procedures into just a few steps.
- **AWS Systems Manager Session Manager** - An interactive shell and CLI that helps to provide secure, access-controlled, and audited Windows and Linux EC2 instance management. It removes the need to open inbound ports, manage SSH keys, or use bastion hosts.



I trust nClouds because of their deep DevOps expertise. I was impressed that they truly understood CasperLabs' objective and came up with a superior solution that enabled us to validate it quickly."

Ashok Ranadive,
Director of Professional
Services, CasperLabs

nClouds' Solution Architecture for CasperLabs

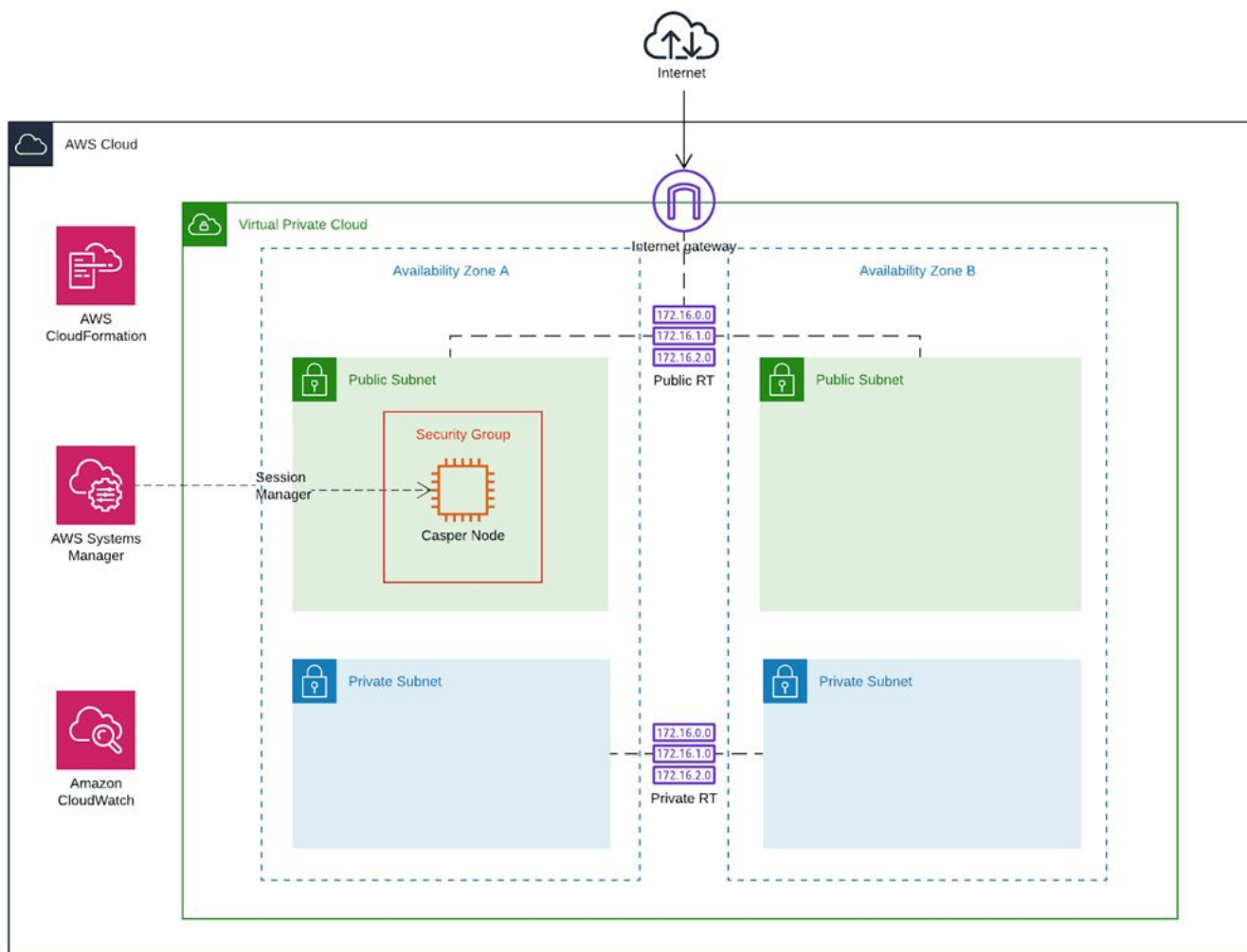
Casper's platform is used for building decentralized public blockchains. Nodes form the infrastructure of a blockchain. All nodes are connected and constantly exchange the latest blockchain data so all nodes stay up-to-date. The node software is run from the casper-node-launcher package. A node operator ensures that nodes run with enough resources to keep nodes stable. End users' node operators have an option to run Casper's node on their AWS account.

The objective of this project was to capture the necessary configuration steps in a CloudFormation Quick Start template to deploy and bootstrap a Casper node that can join the blockchain. The Quick Start mechanism automatically takes care of any AWS-resource level updates (such as changes in network settings, security groups, etc.) via new versions of CloudFormation templates that end users can apply via their AWS Console.

The infrastructure consists of an Amazon VPC with public and private subnets and an Amazon EC2 instance configured to bootstrap a Casper node. The Amazon EC2 instance also runs a CloudWatch agent that sends logs and metrics to CloudWatch. A CloudWatch dashboard monitors the node. The instance is configured so that the Session Manager can access the node. Everything is deployed using CloudFormation to provide an automated and repeatable process.

nClouds ensured that the components included within the scope of the AWS Quick Start template were built according to best practices laid out in an [AWS Foundational Technical Review \(FTR\)](#), a prerequisite for making the product available in the AWS Marketplace. An nClouds solutions architect performed the FTR as an [AWS Well-Architected Review](#) (with an FTR lens) toward the end of the project.

High-level architecture diagram:



The Benefits

Teaming with nClouds, CasperLabs now has the means to reach a vast target market for the Casper platform by providing users with a streamlined and easy-to-use mechanism to spin up a blockchain node on AWS. The project has yielded numerous benefits:



Automated deployment process

CloudFormation provides Casper users with an automated and repeatable deployment process.



Rapid expansion of target customer base

Blockchain works from powerful nodes. This solid and repeatable deployment approach is the perfect solution for outreach to mass audiences because it makes the technically challenging blockchain technology easily deployable for the non-technically adept user.



Enhanced scalability and security

Scalability and security are enhanced by Amazon EC2, Amazon VPC, and AWS Systems Manager Session Manager.

About nClouds

nClouds is a certified, award-winning provider of AWS and DevOps consulting and implementation services. We partner with our customers, as extensions of their teams, to build and manage modern infrastructure solutions that deliver innovation faster. We leap beyond the status quo.

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