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How to use Infrastructure as Code for automated self-service AWS environments

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imseandavis

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About DevOps Institute

DevOps Institute's mission is to advance the human elements of DevOps by creating a safe and interactive environment where our members can network, gain knowledge, grow their careers, support enterprise transformation and celebrate professional achievements.

We connect and enable the global DevOps community to drive change in the digital age.

Become a professional member at www.devopsinstitute.com

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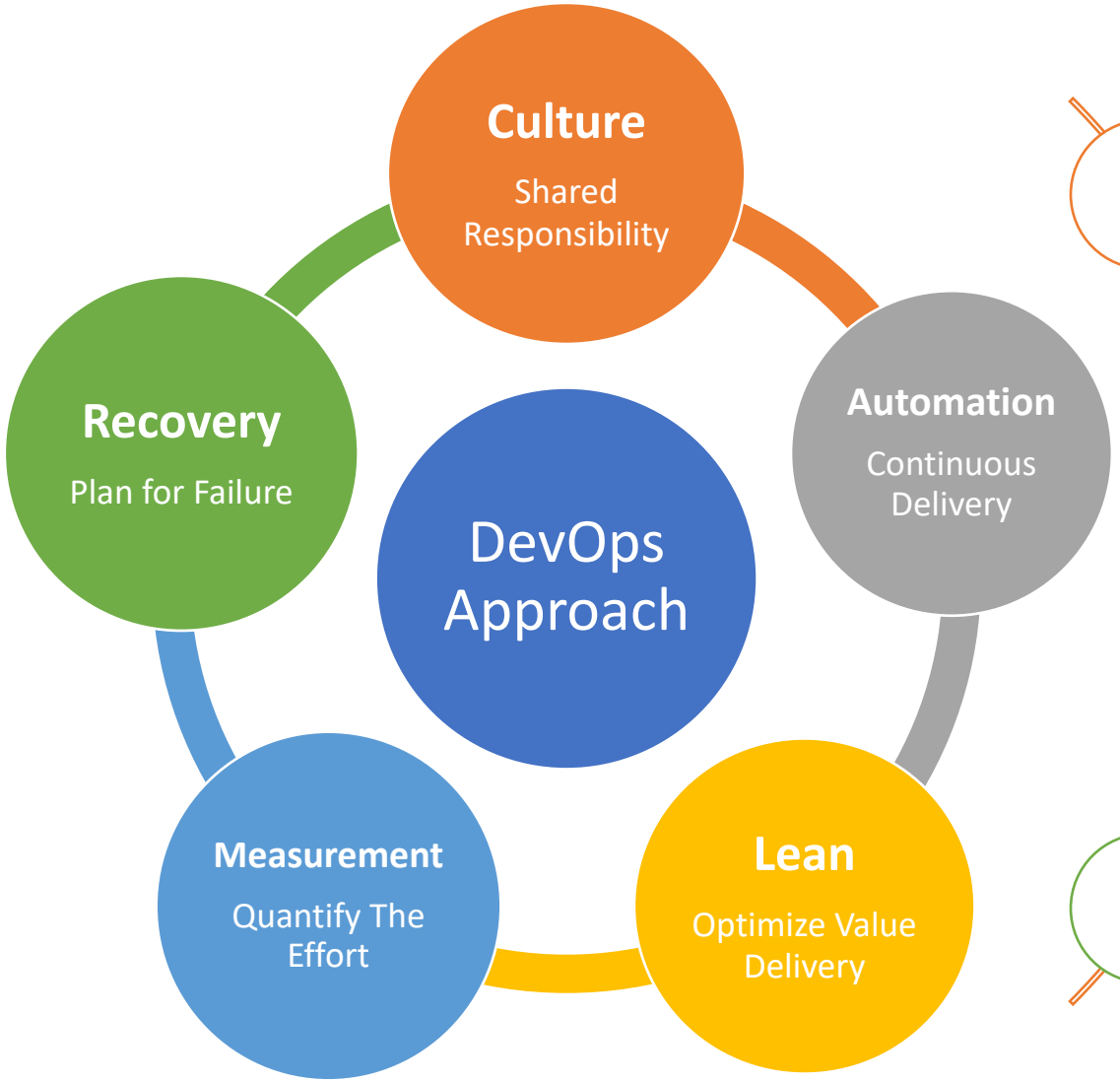
An Ideal Approach For Success



- Locality and Simplicity
- Focus, Flow, and Joy
- Improvement of Daily Work
- Psychological Safety
- Customer Focus

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Why Infrastructure as Code?

Focus

Allows developers to focus on coding, not provisioning infrastructure

Collaboration

Generates a shared bond between developers and engineering teams

Process

Leverages native development practices and templates

Separation of Duties

Idempotent and declarative templates prevent infrastructure configuration drift

Time

Automation reduces time to deploy, release, and scale infrastructure

Cost

Resource templates enable effective spot and reserved instance planning

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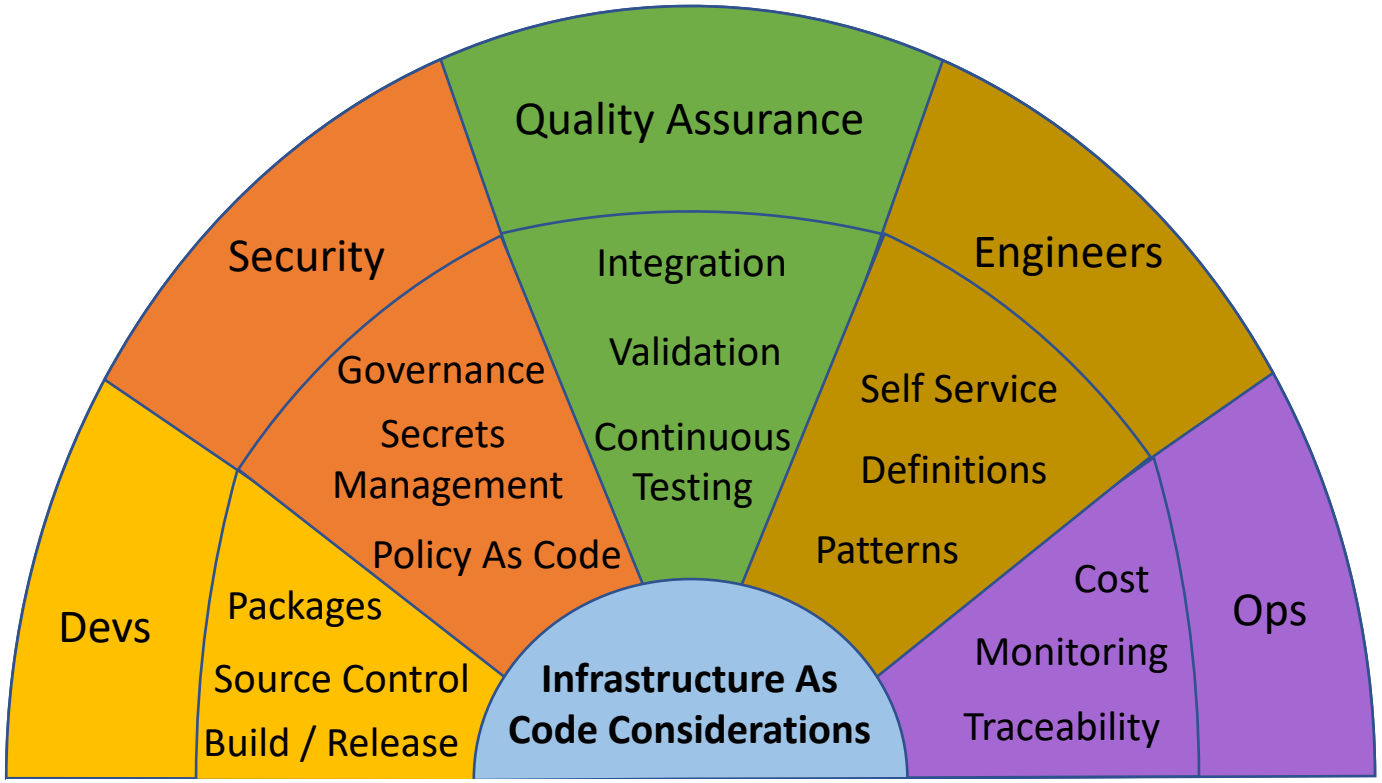
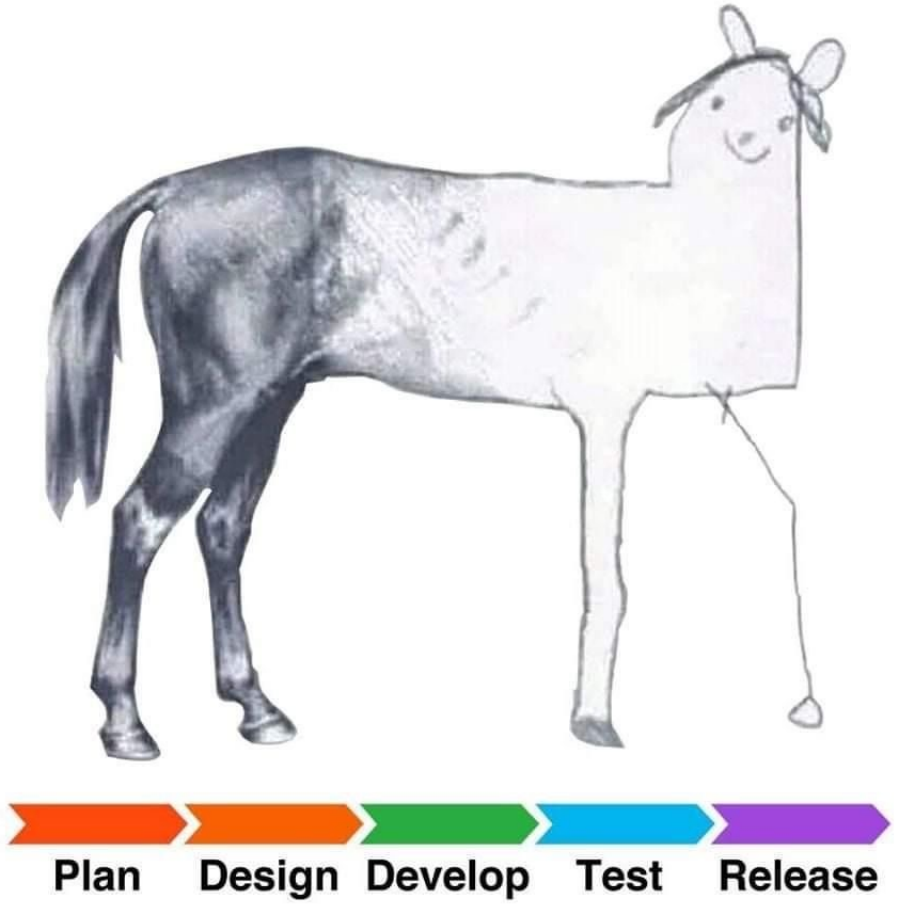
Orchestrating together





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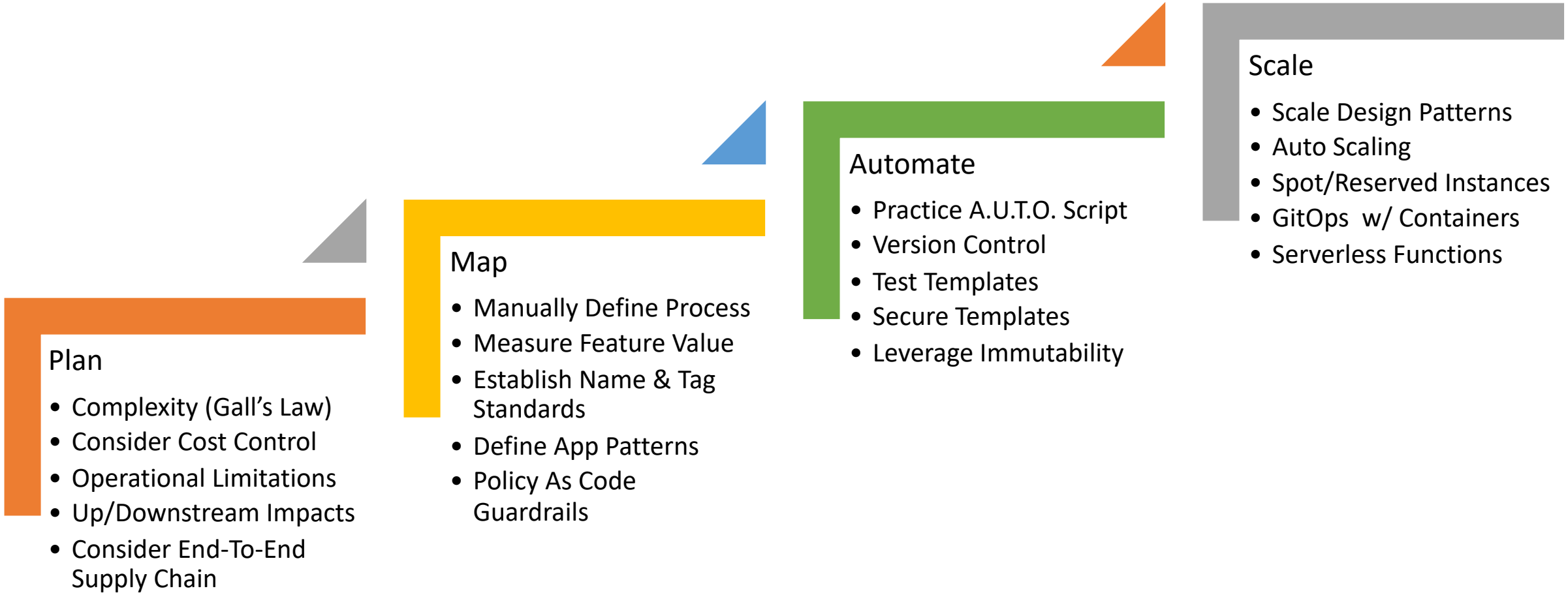
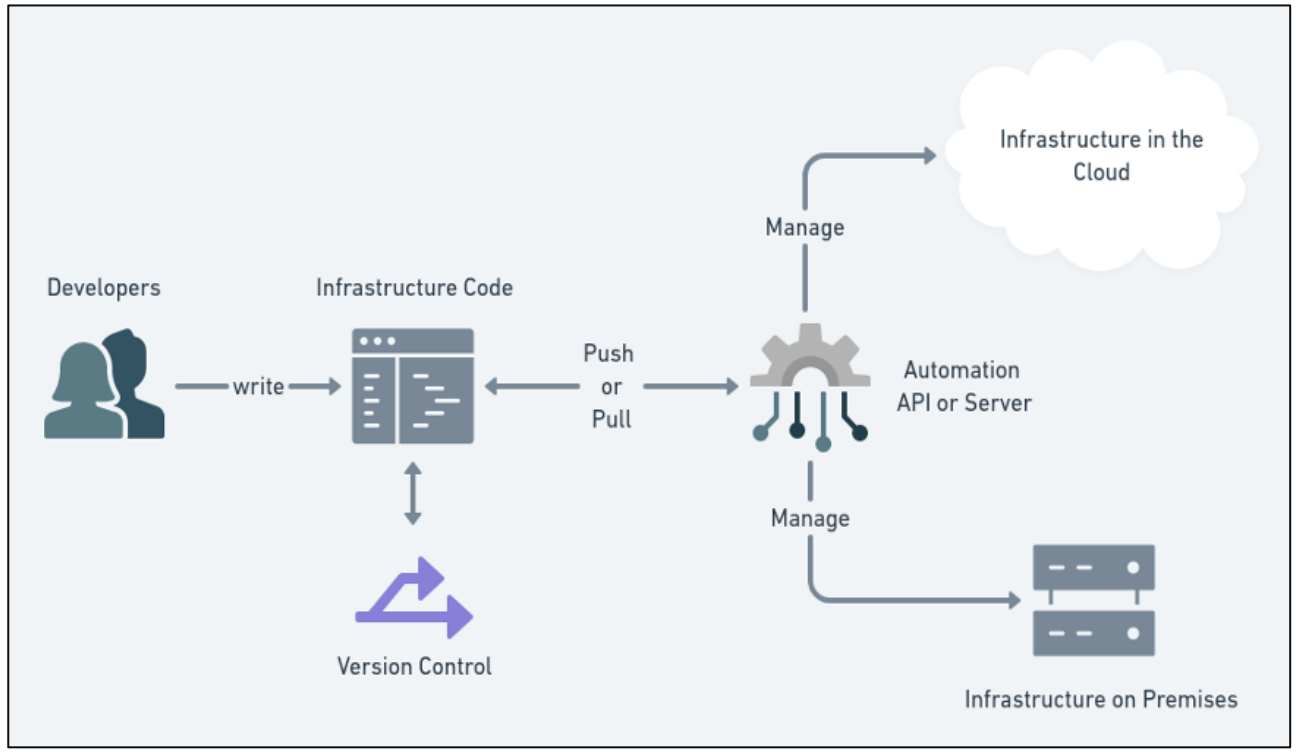
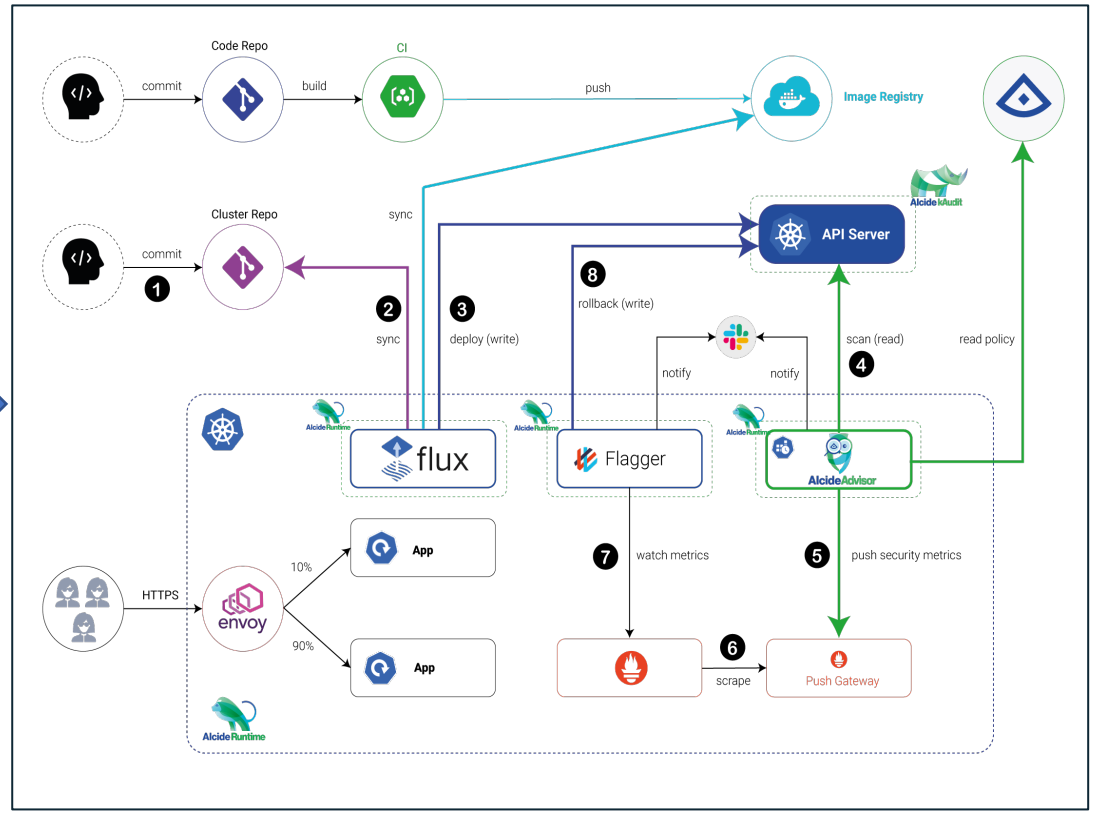
Leveraging Simplistic Design



Evolving Infrastructure as Code





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Infrastructure as Code Success Checklist

DevOps Done Right	Set A Baseline Of What Your Trying To Accomplish And Why It's Valuable To Ensure Alignment
Work Together	Involve All Teams Required To Plan, Build, And Run Your Pipelines
The Glue That Binds	Consider Every Component In The End-to-End Supply Chain And Tool Chains Required
Map, Then Automate	Map The Manual Steps, Then Determine The Greatest Automation Value.
Simplify And Secure	Define Environment Requirements and Differences Before Building Templates And Approval Flows
Measure, Measure, Measure	Avoid Vanity Metrics, Quantify The Impact Of Your Toolchains, And Share Your Progress With Stakeholders
Build For Reusability	Create Self Documenting Toolchains That Can Be Consumed And Reused By Any Team

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Chris Chapman
Partner Solutions Architect at AWS

You can’t build a house without the right tools

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AWS provides flexibility for DevOps teams to work with tools of their choice

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AWS Service Catalog

AWS CloudFormation

AWS CodePipeline

AWS Systems Manager

AWS Cloud Development Kit

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HashiCorp Terraform

CHEF

SALTSTACK

puppet

Quali

1,600+ vendors | 8,000+ products

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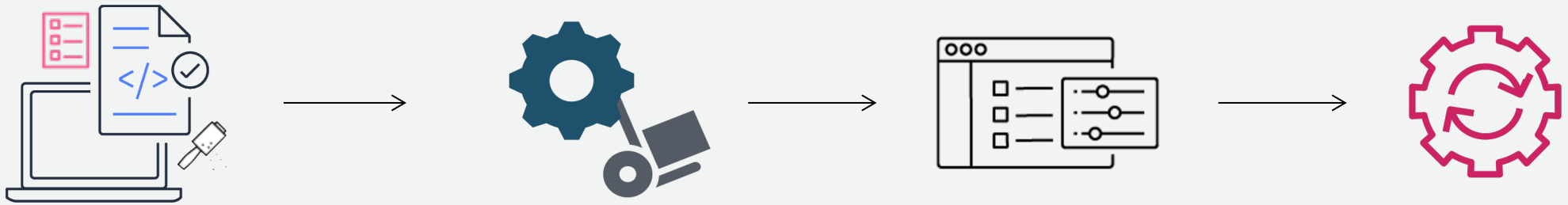
Steps for automating DevOps pipelines



1. Build your IaC templates
2. Automate deployment with template
3. Provide self-service
4. Automate the whole process of managing the IaC

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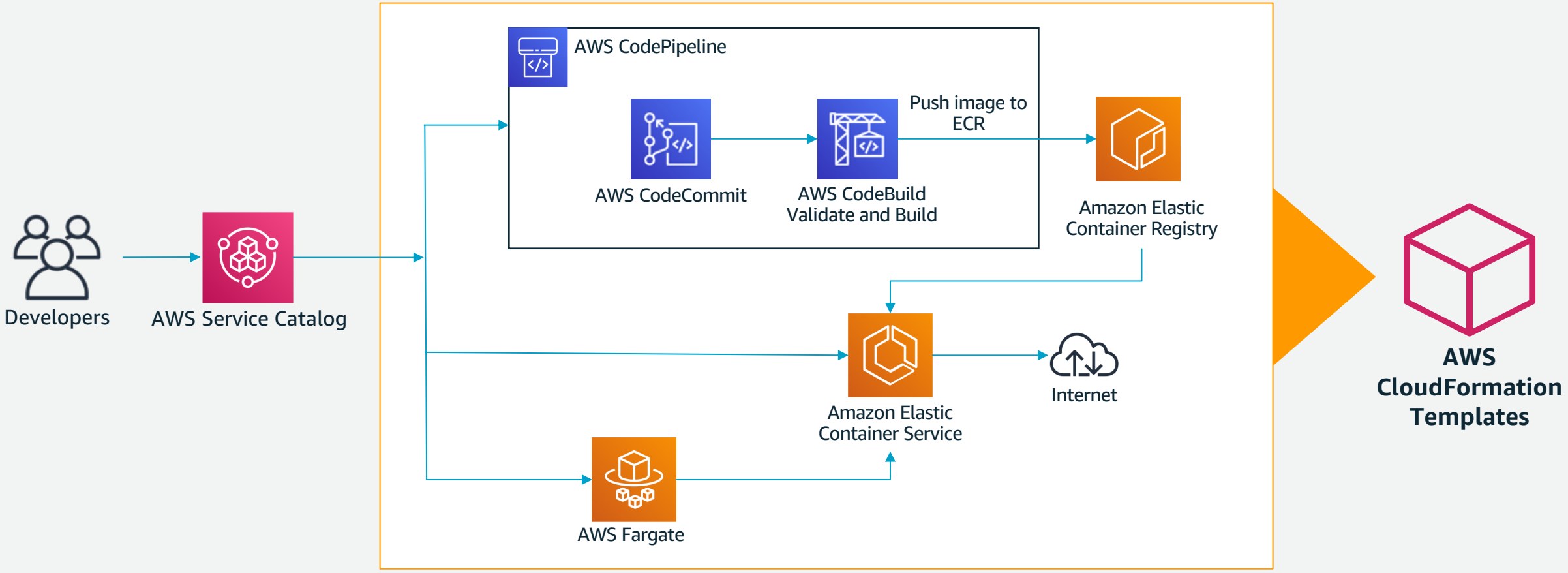
Self-Service tools for developers



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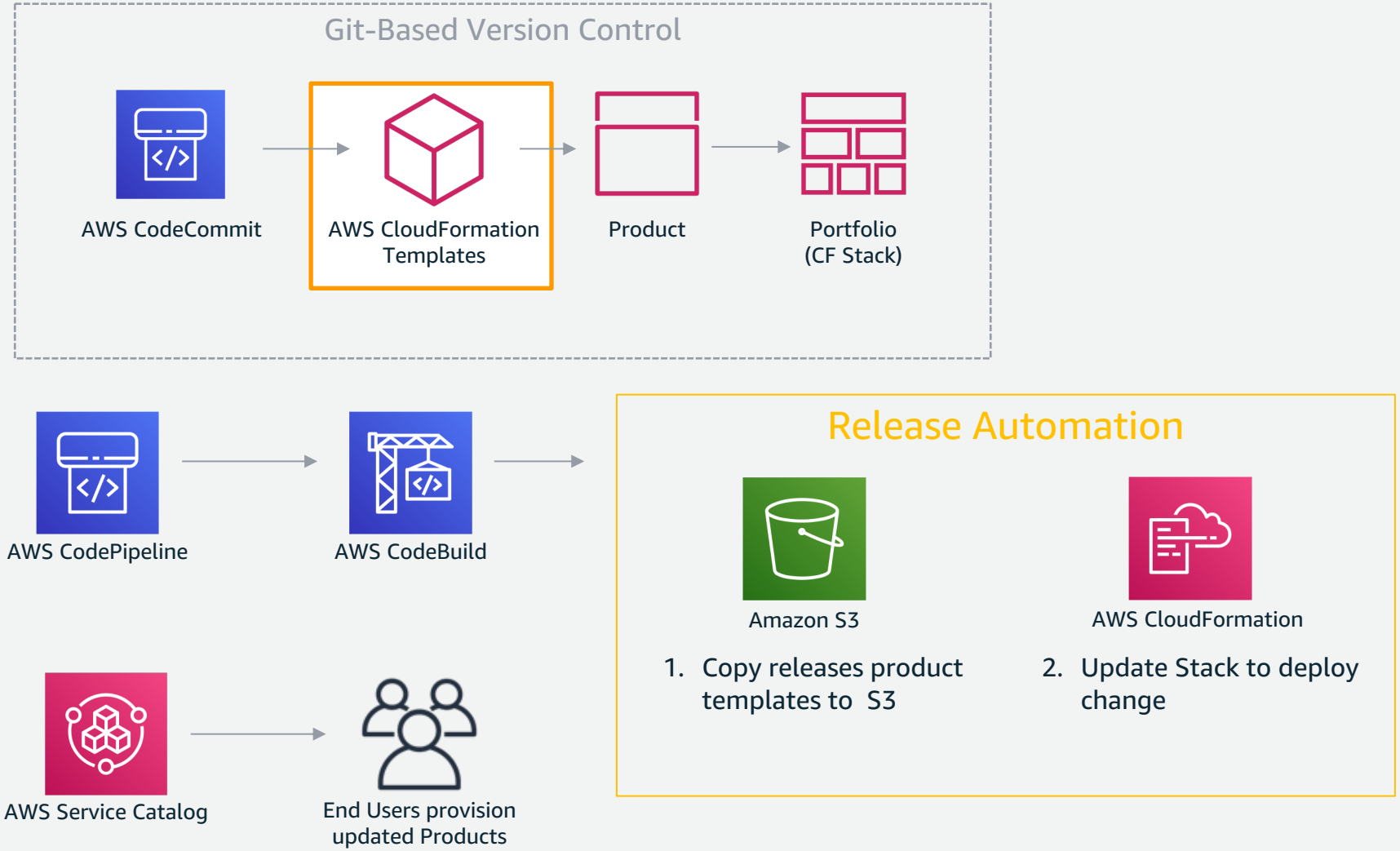
Automating self-service with AWS Service Catalog

Manage IaC templates with Source Control

1. Infrastructure Engineer checks in new template

2. AWS CodePipeline automatically picks up the change and starts a deploy

3. AWS CloudFormation updates the AWS Service Catalog portfolio and products



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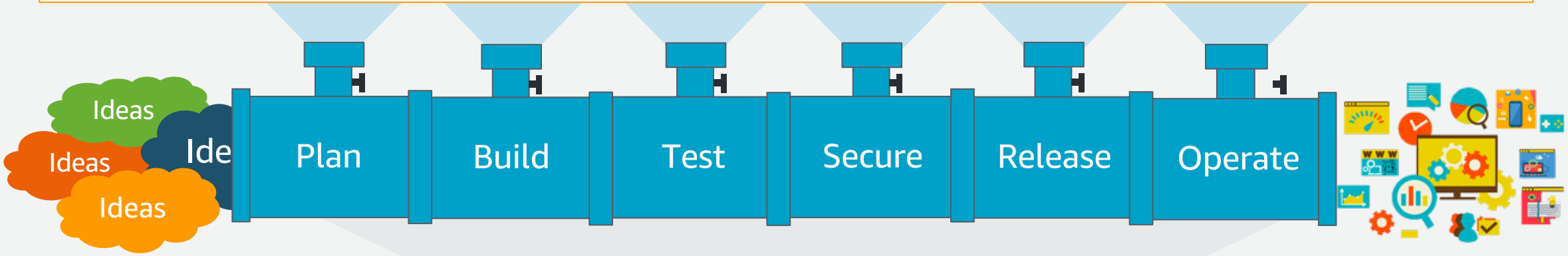
AWS Marketplace: Destination for third-party DevOps and IaC solutions to use with AWS

DevOps Core practices

Collaboration & communication
Microservices and everything-as-code
Continuous integration
Testing & quality management
Continuous delivery
Security & compliance
Monitoring & observability
Incident management



Sample AWS Marketplace solution providers

Quali
HashiCorp Terraform
CHEF
SALTSTACK
puppet
GitLab
armory
circleci
CloudBees.
harness
JFrog
PagerDuty
TRICENTIS
MICRO FOCUS
splunk>

1,600+ vendors | 8,000+ products

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AWS Marketplace: Destination for third-party DevOps and IaC solutions to use with AWS

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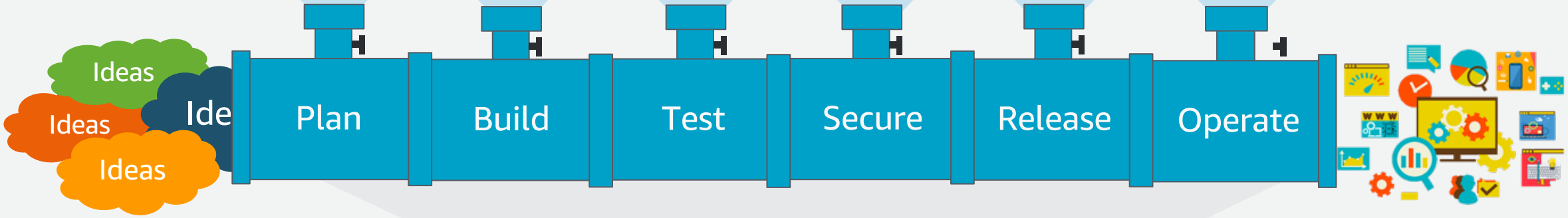

Sample AWS Marketplace solution providers

Quali · HashiCorp Terraform · CHEF · SALTSTACK · puppet

GitLab · armory · circleci · CloudBees · harness · JFrog · PagerDuty · TRICENTIS · MICRO FOCUS · splunk>

1,600+ vendors | 8,000+ products

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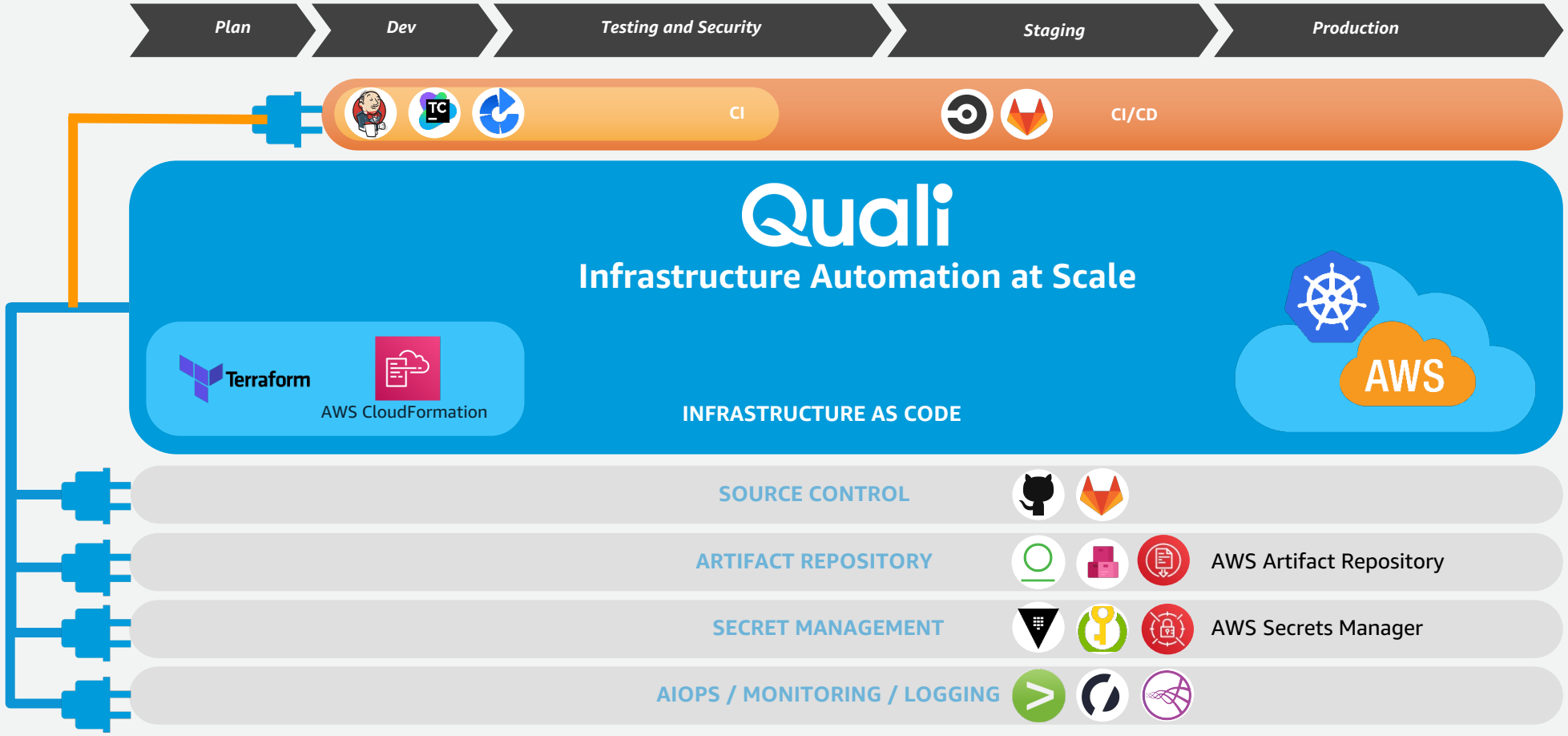
DevOps value stream platform

Infrastructure automation from development to production

Quali | CloudShell COLONY



Pre-built, pre-configured, battle-tested plugins to your existing ecosystems tools

- Infrastructure automation from dev to production
- Dev-centric and no-code self-service alternative
- Baked-in cloud cost control and compliance
- Free DevOps and platform teams with IaC without reinventing the wheel

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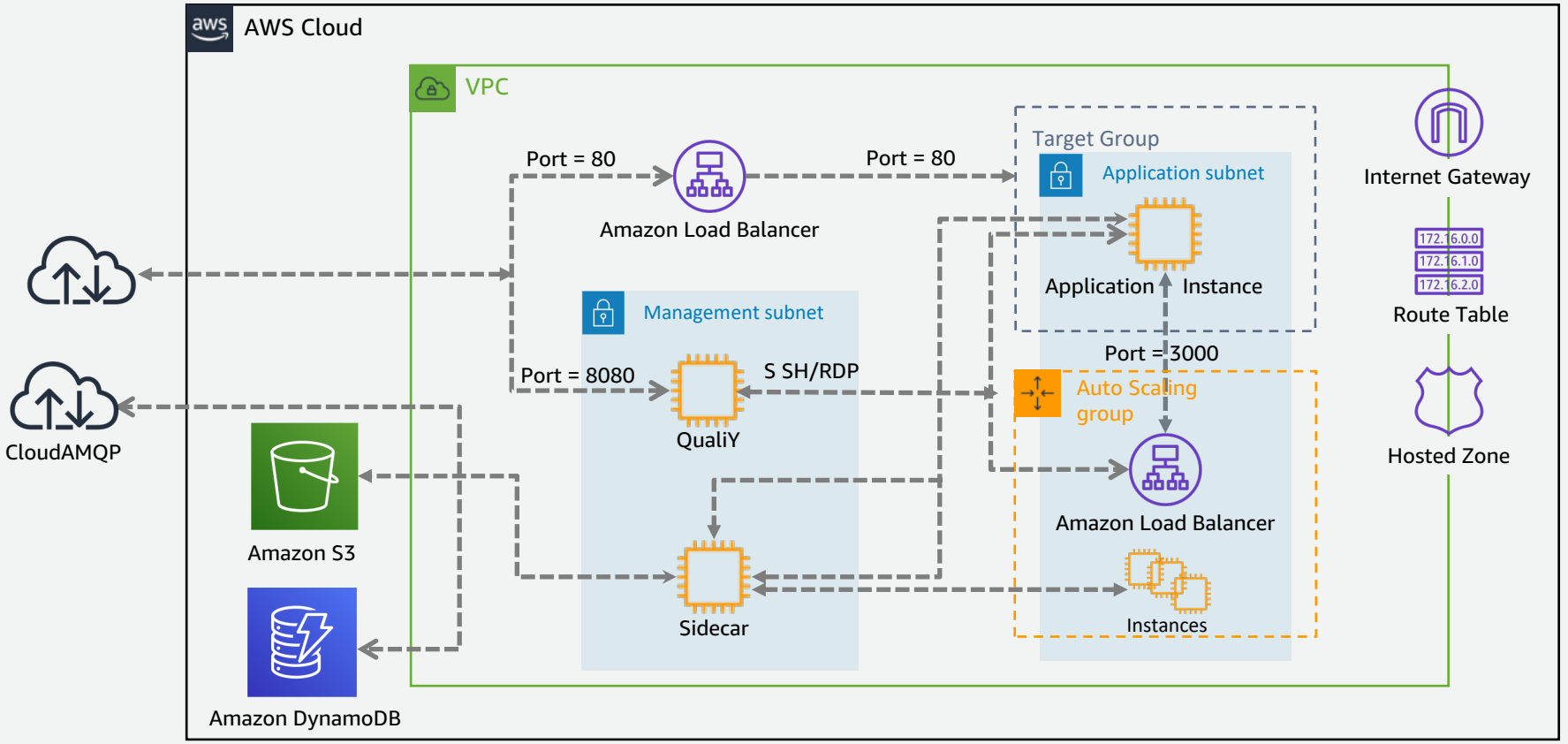
How Resident scales DevOps with AWS and Quali CloudShell Colony

Provided environments to global teams in under 5 minutes

Consume native AWS services

Increased development speed with dynamic environments



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How Resident scales DevOps with AWS and Quali CloudShell Colony

On-Demand Secure Environments throughout the release pipeline:

secure https://www

Development

Used for:
Feature Development,
Integration Tests (CI)

secure https://www

QA

Used for:
Manual QA Tests

secure https://www

Staging

Used for:
Product Review
Last mile Validation
Security tests

secure https://www

Production

Wovenly Resident
DREAMCLOUD Nectar

AWS Cloud

ChatOps Bot

Source Control

Artifact Repository

Pipeline

... and more

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Resident: Use case drill down – Self-service environments

slack

1

Pavel Eliav 13:29
deploy stage nectarsleep nectar-uk

Luther APP 13:29
Wait for it...

Deployment started! Stay tuned

Environment Ready!

Luther APP 13:34
Sandbox (ID - 5f0gmbtypb13c1):
API:
url - https nectarsleep.co.uk,
ssh - https://dreamcloud.cloudshellcolony.com/quali_y?link=%2Fapi%2Fspaces%2Fstaging%
WWW:
url - https nectarsleep.co.uk,
ssh - https://dreamcloud.cloudshellcolony.com/quali_y?link=%2Fapi%2Fspaces%2Fstaging%

Cloudshell COLONY

2

LAUNCHING \ DEPLOYING

Creating Infrastructure	Preparing Artifacts	Deploying Applications	Verifying Environment
100%	50%	0%	0%

There's no need to wait. We'll email you when the sandbox is ready.

SANDBOX PARAMETERS

Brand	nectar
Environment	qa
DomainName	nectarsleep.com

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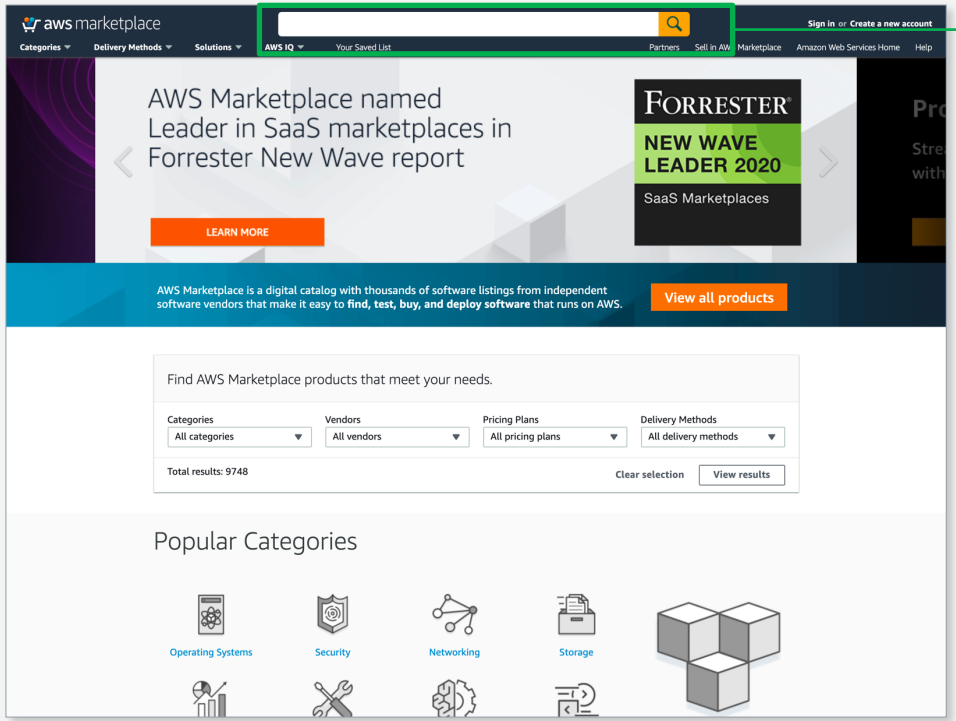
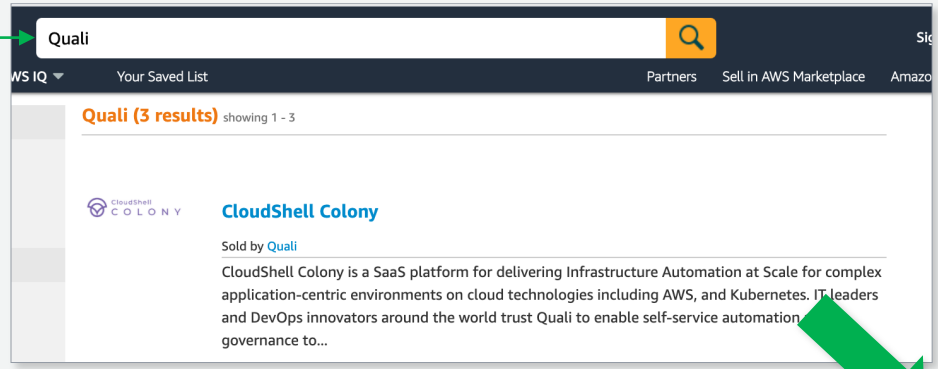
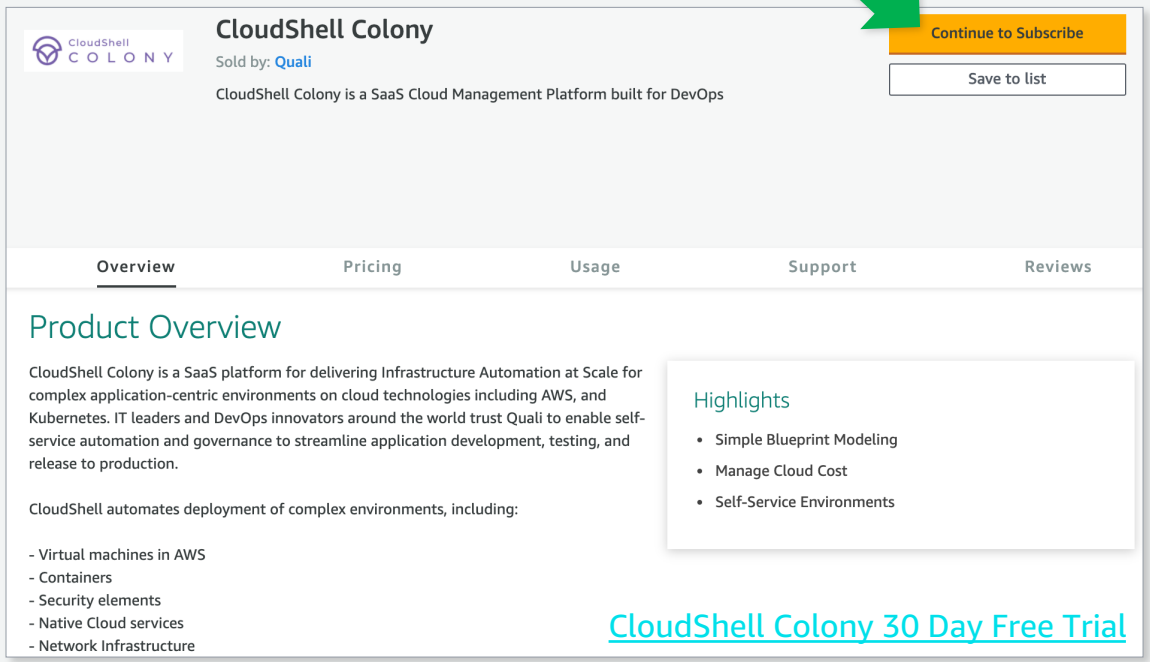
Quali Cloudshell Colony – new 30 day free trial

https://aws.amazon.com/marketplace







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AWS Marketplace can help you get started

Find

A breadth of DevOps solutions:

Quali
harness
HashiCorp Terraform
GitLab
CHEF
CloudBees.
puppet
New Relic.
SALTSTACK
circleci

Buy

Through flexible pricing options:

Free trial

Pay-as-you-go

Hourly | Monthly | Annual | Multi-Year

Bring Your Own License (BYOL)

Seller Private Offers

Channel Partner Private Offers

Deploy

With multiple deployment options:

AWS Control Tower

AWS Solution Catalog

AWS CloudFormation (Infrastructure as Code)

Software as a Service (SaaS)

Amazon Machine Image (AMI)

Amazon Elastic Container Service (ECS)

Amazon Elastic Kubernetes Service (EKS)

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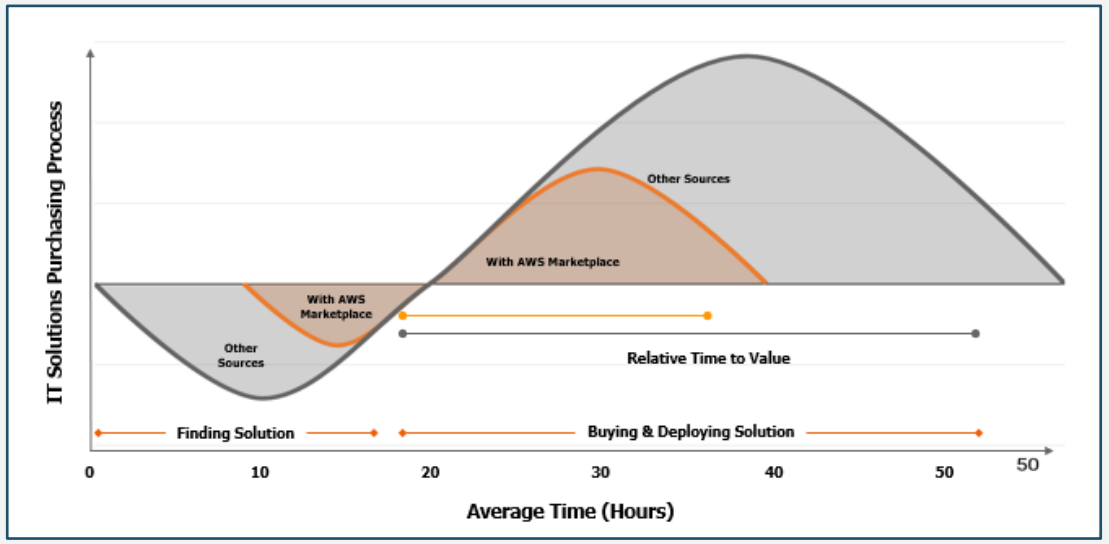
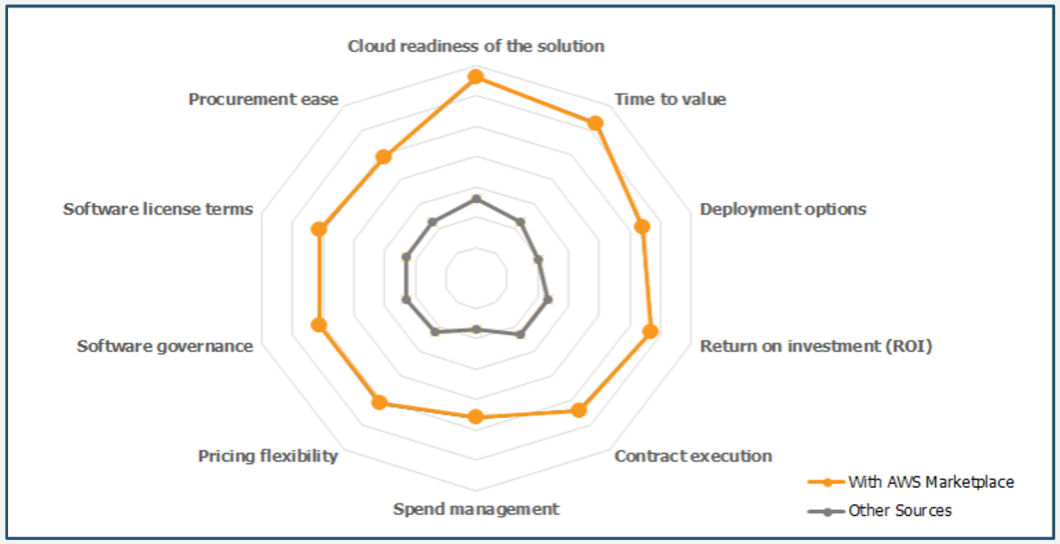
Why AWS Marketplace?

Find, buy, and deploy solutions quicker



IT decision-makers (ITDMS) cut their time in half using AWS Marketplace compared to other sources.

Make more satisfying purchases



ITDMS feel 2.4x better about purchasing using AWS Marketplace compared to other sources.

*Amazon Web Services (AWS) Marketplace surveyed 500 IT decision-makers (ITDMs) and influencers across the U.S. to understand software usage, purchasing, consumption models, and compared savings.

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Webinar summary

- Modernize your application development and speed up your time-to-market by leveraging Infrastructure as Code
- Provide self-service environments and pipelines to streamline application delivery
- Easily experiment with software using AWS Marketplace – without license lock-in

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