Provisioning

Making a server ready for operation, including hardware, OS, system services, and network connectivity

LinkedIn

Deployment

Automatically deploying and upgrading applications on a server

LinkedIn

Orchestration

Performing coordinated operations across multiple systems

LinkedIn

Configuration management

Management of change control for system configuration after initial provision; maintaining and upgrading the application and application dependencies

LinkedIn

Imperative/procedural

Commands necessary to produce a desired state are defined and executed.

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Declarative/functional

A desired state is defined, relying on the tool to configure a system to match that state.

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Idempotent

The ability to execute repeatedly, resulting in the same outcome

LinkedIn

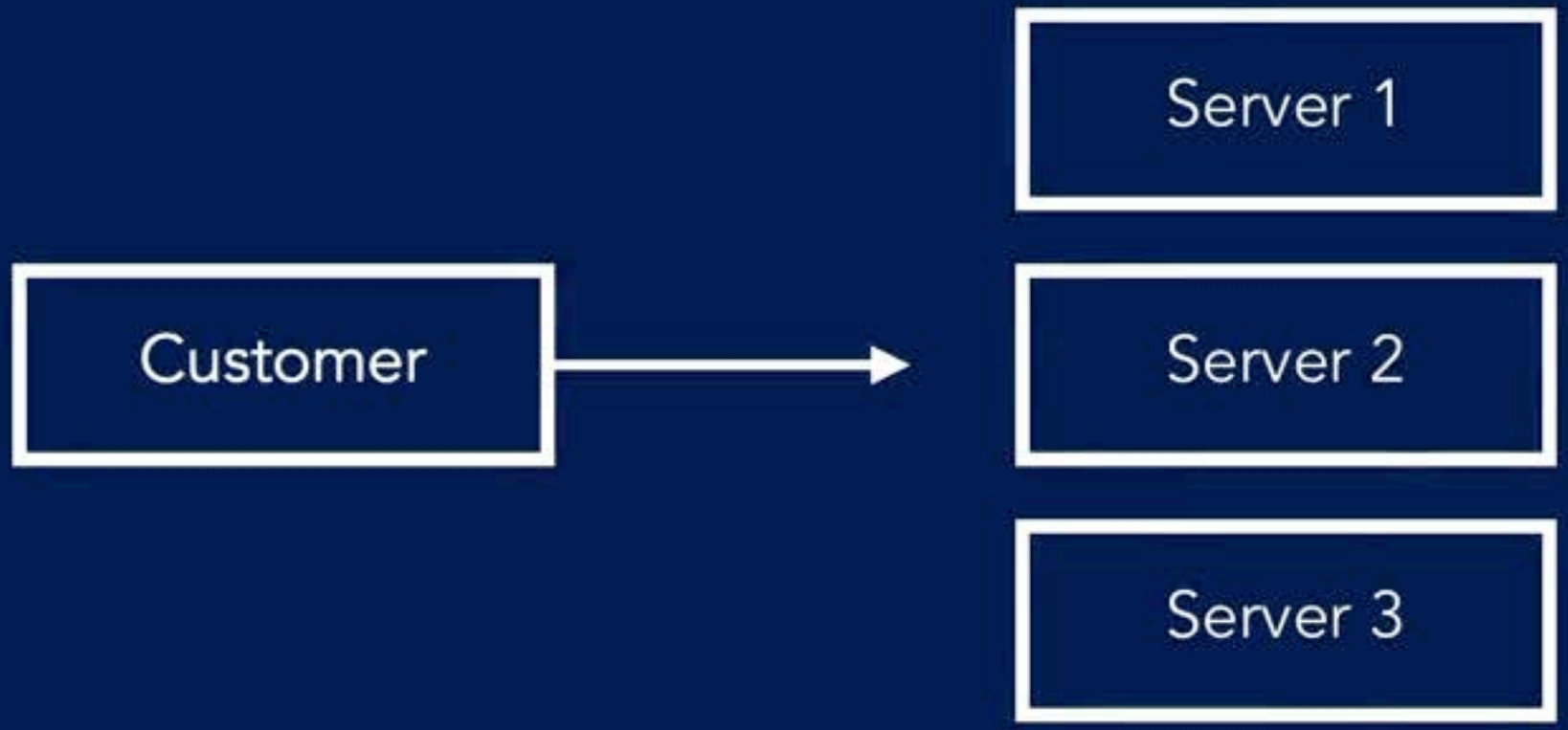
Self service

The ability for an end user to initiate a process without having to go through other people

LinkedIn

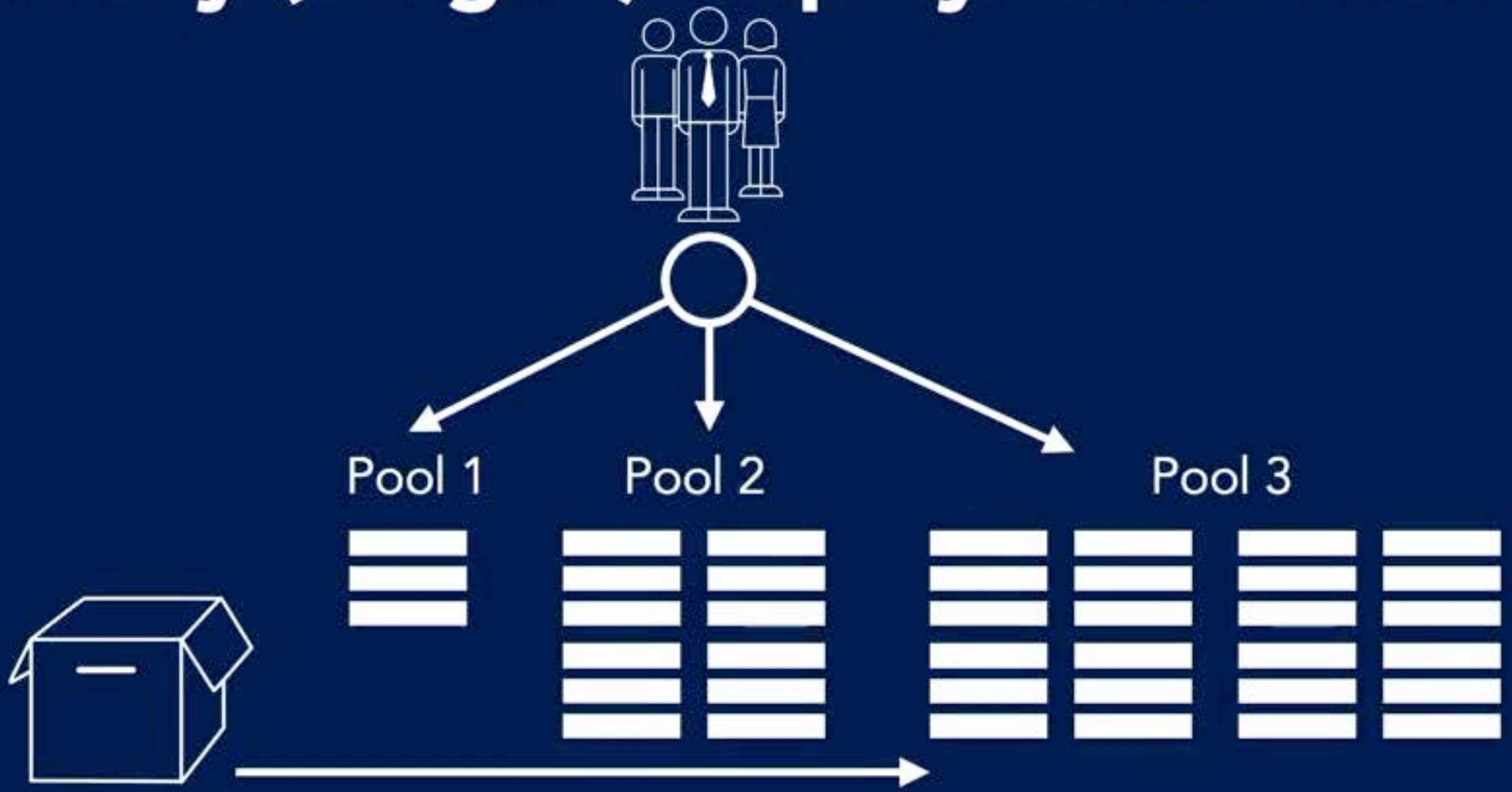
```
# Recipe:: default

include_recipe "build-essential"
include_recipe "apt"
include_recipe "git"

# install distro packages for building gems
['ruby1.9.1-dev', 'libxml2', 'libxml2-dev',
'libxslt-dev'].each do |pkg|
  package pkg do
    action :install
  end
end
```

LinkedIn



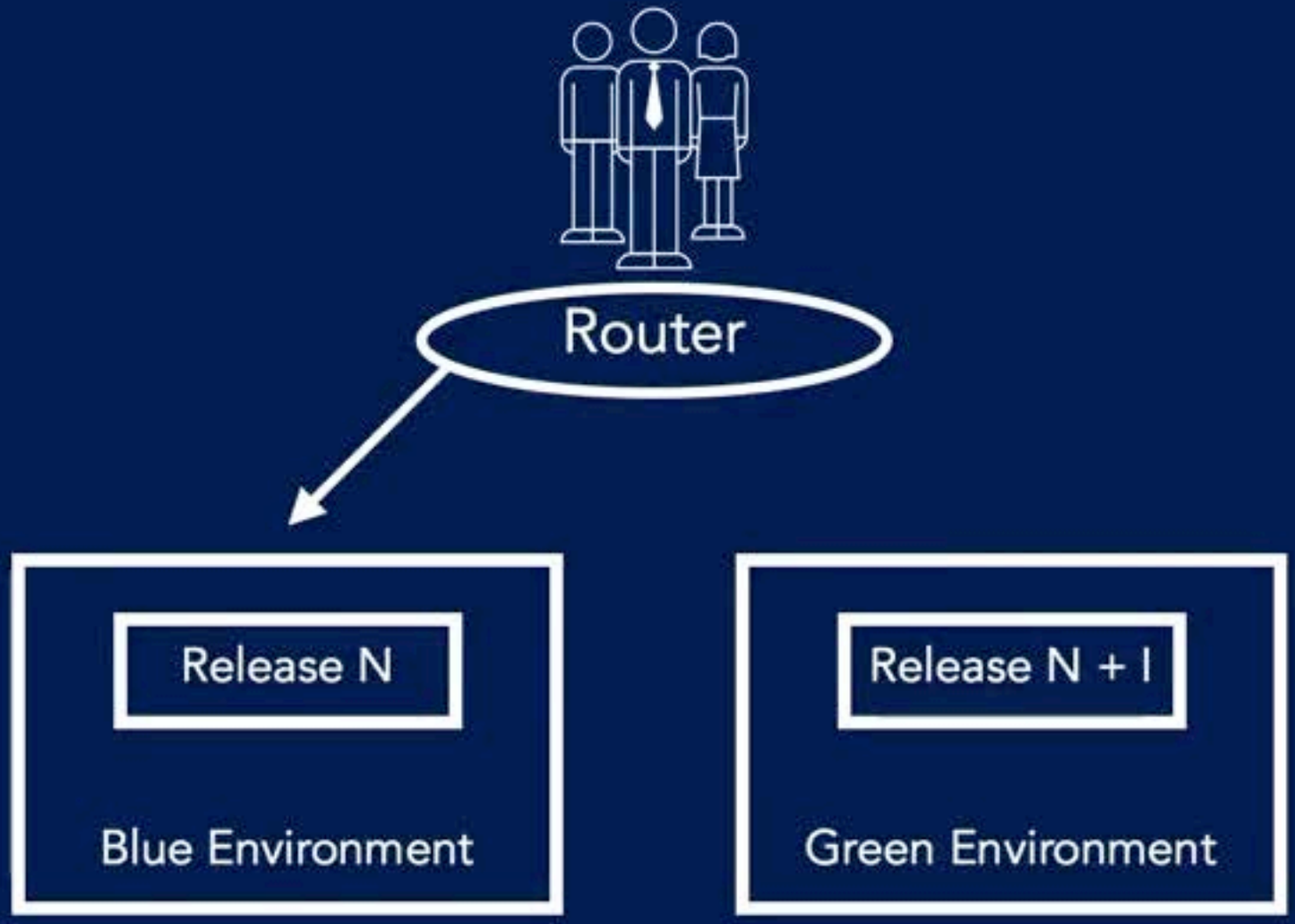
LinkedIn

Canary (Staged) Deployment Pattern



LinkedIn

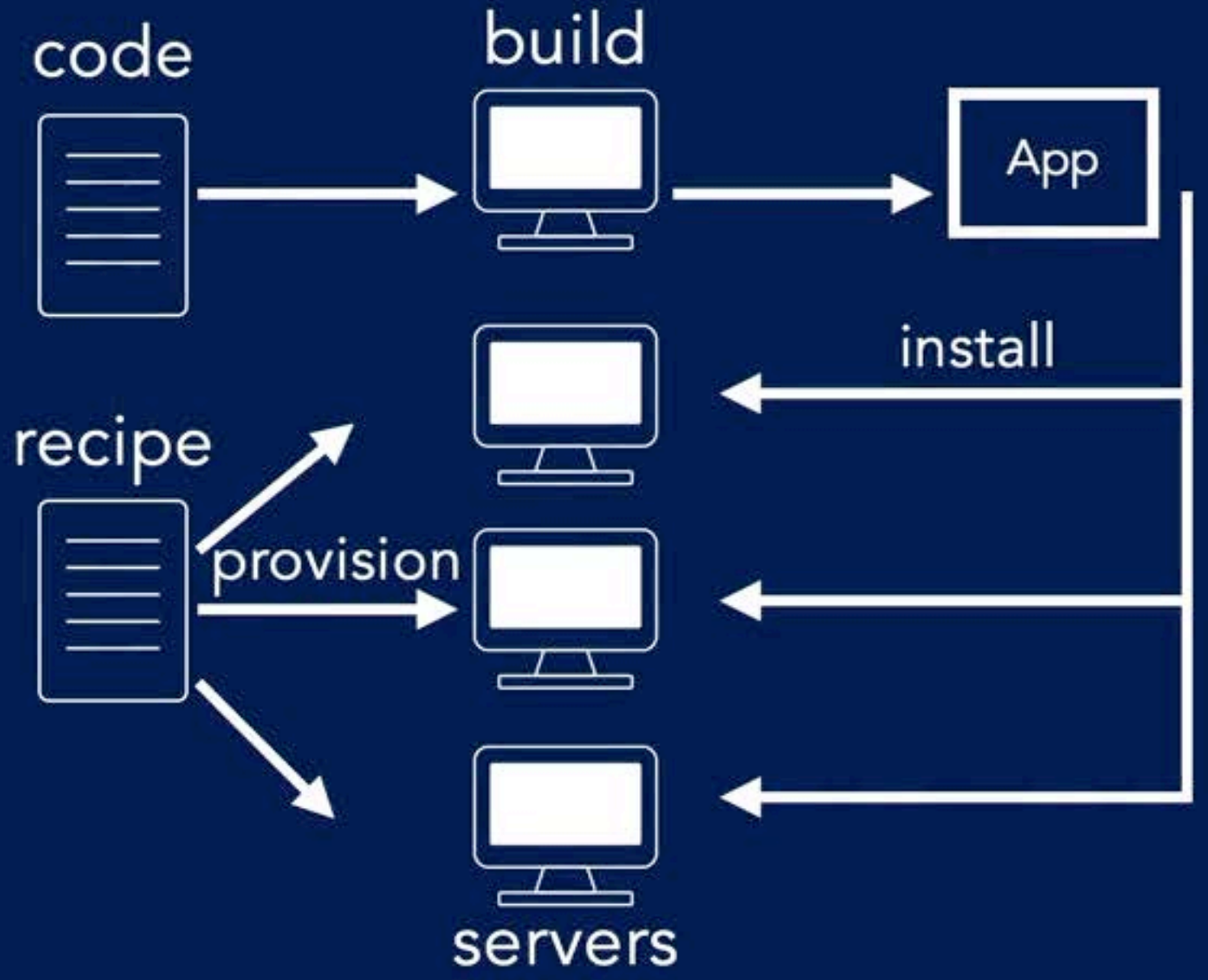
Blue Green Deployments

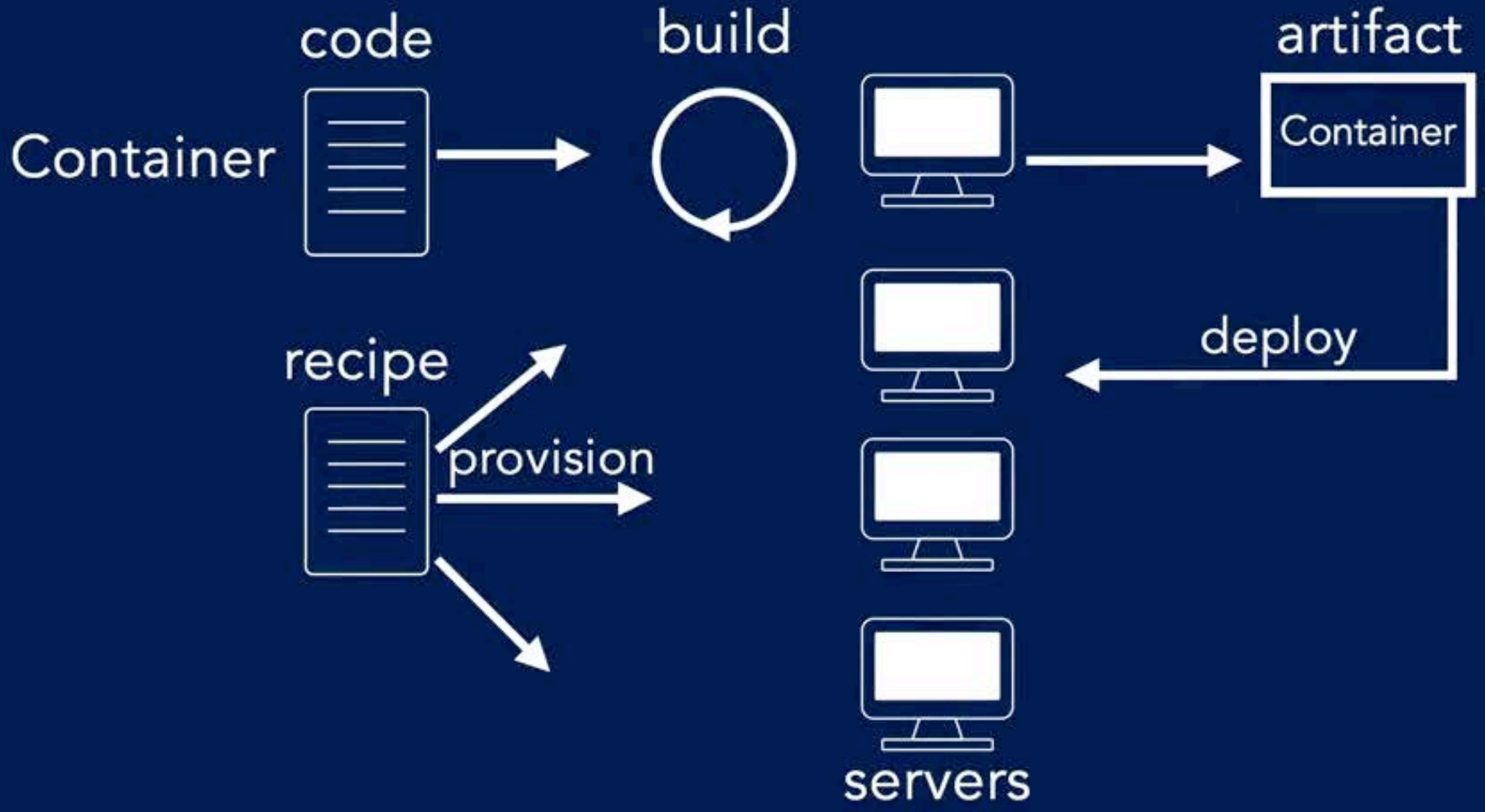


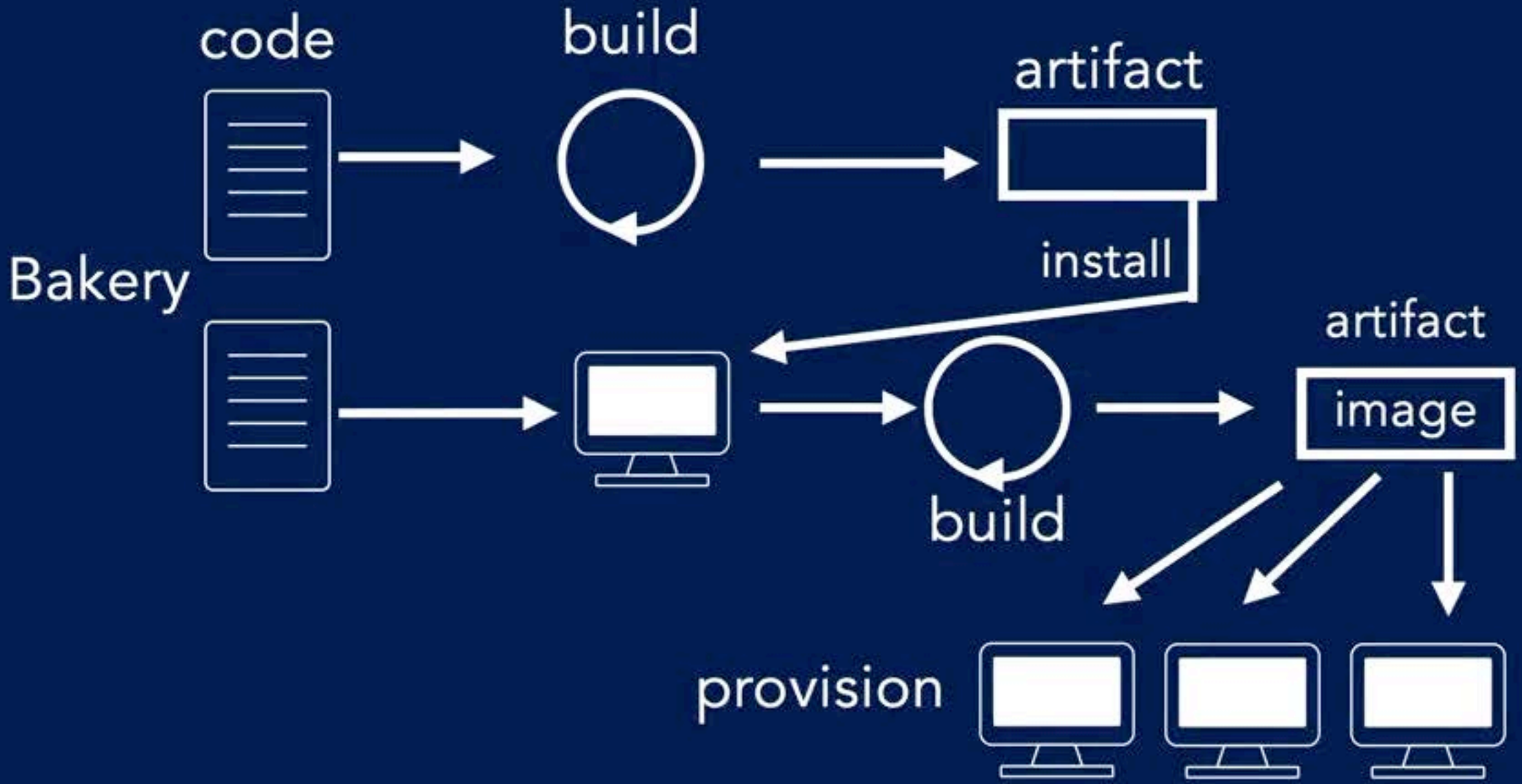
LinkedIn

DevOps Fundamentals

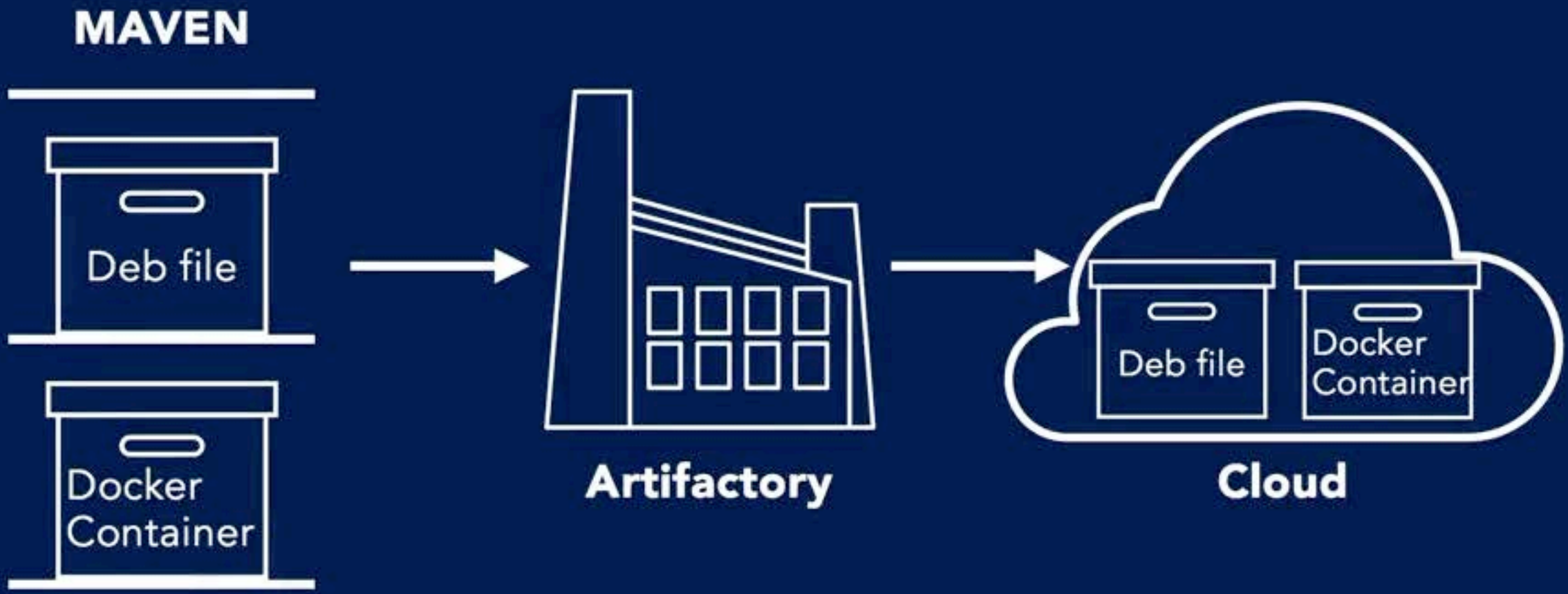
LinkedIn

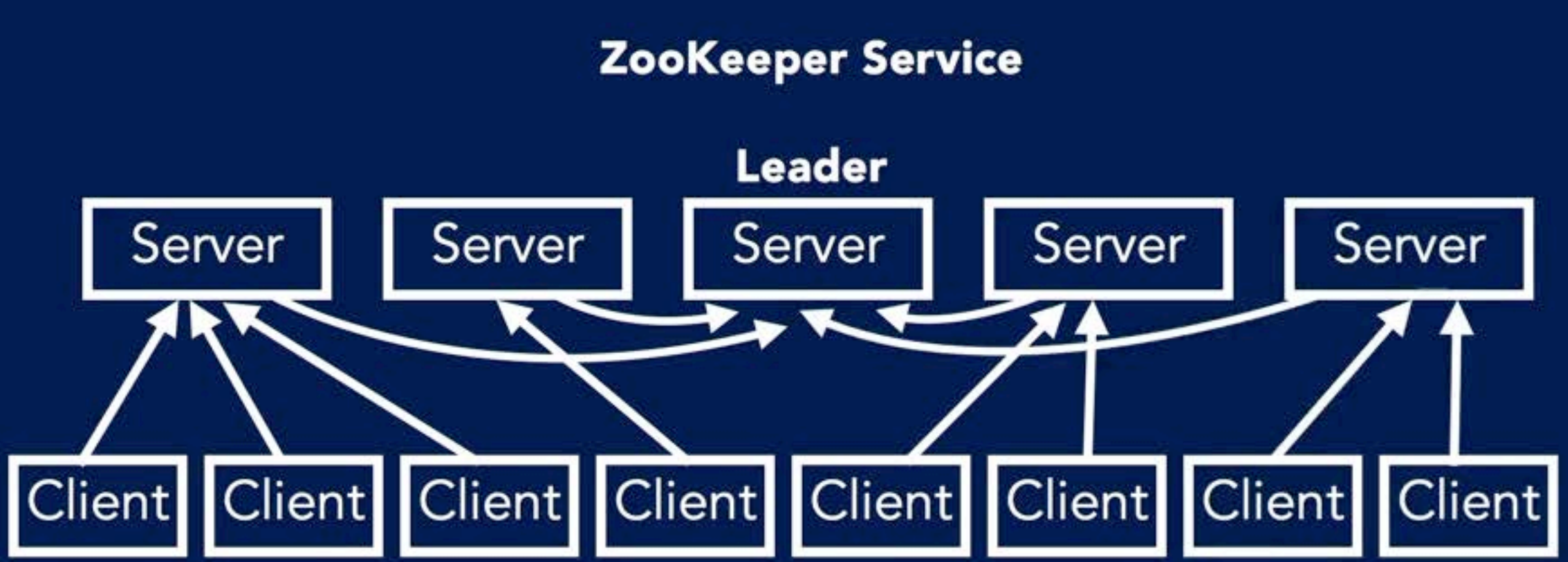

code
build
App
install
recipe
provision
servers

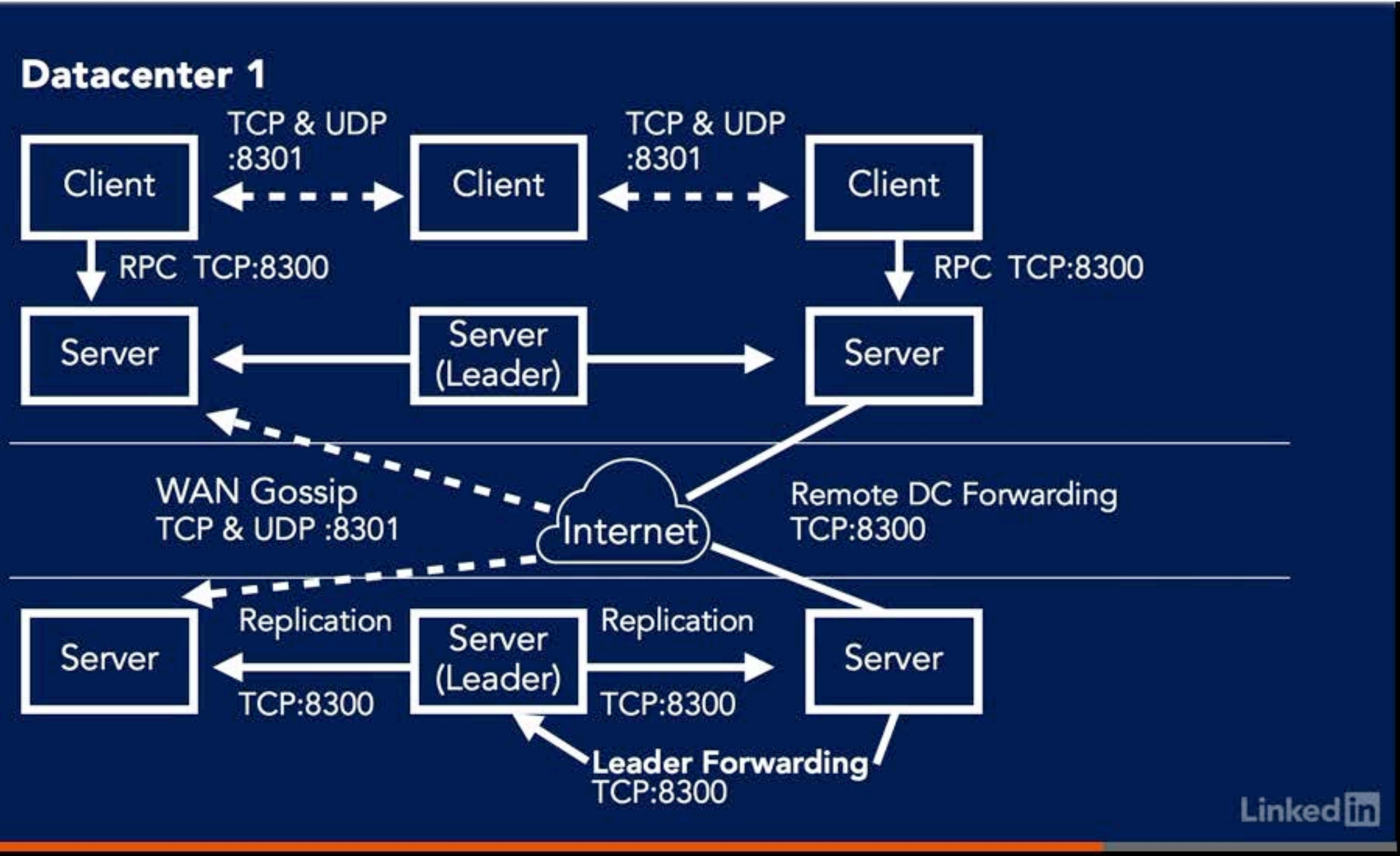

code
build
artifact
Container
Container
deploy
recipe
provision
servers


code
build
artifact
Bakery
install
artifact
image
build
provision

LinkedIn

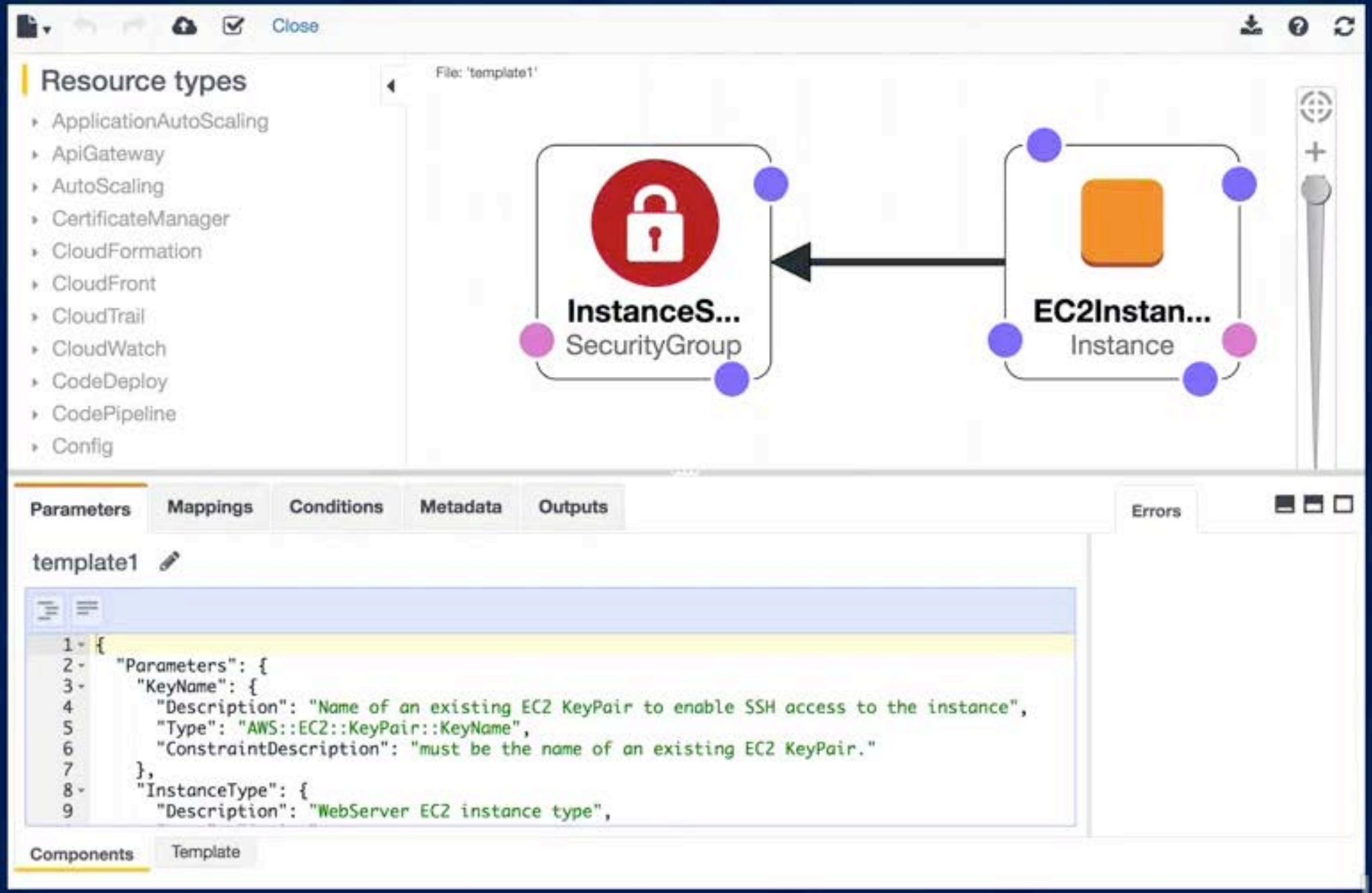

MAVEN
Deb file
Docker Container
Artifactory
Deb file
Docker Container
Cloud

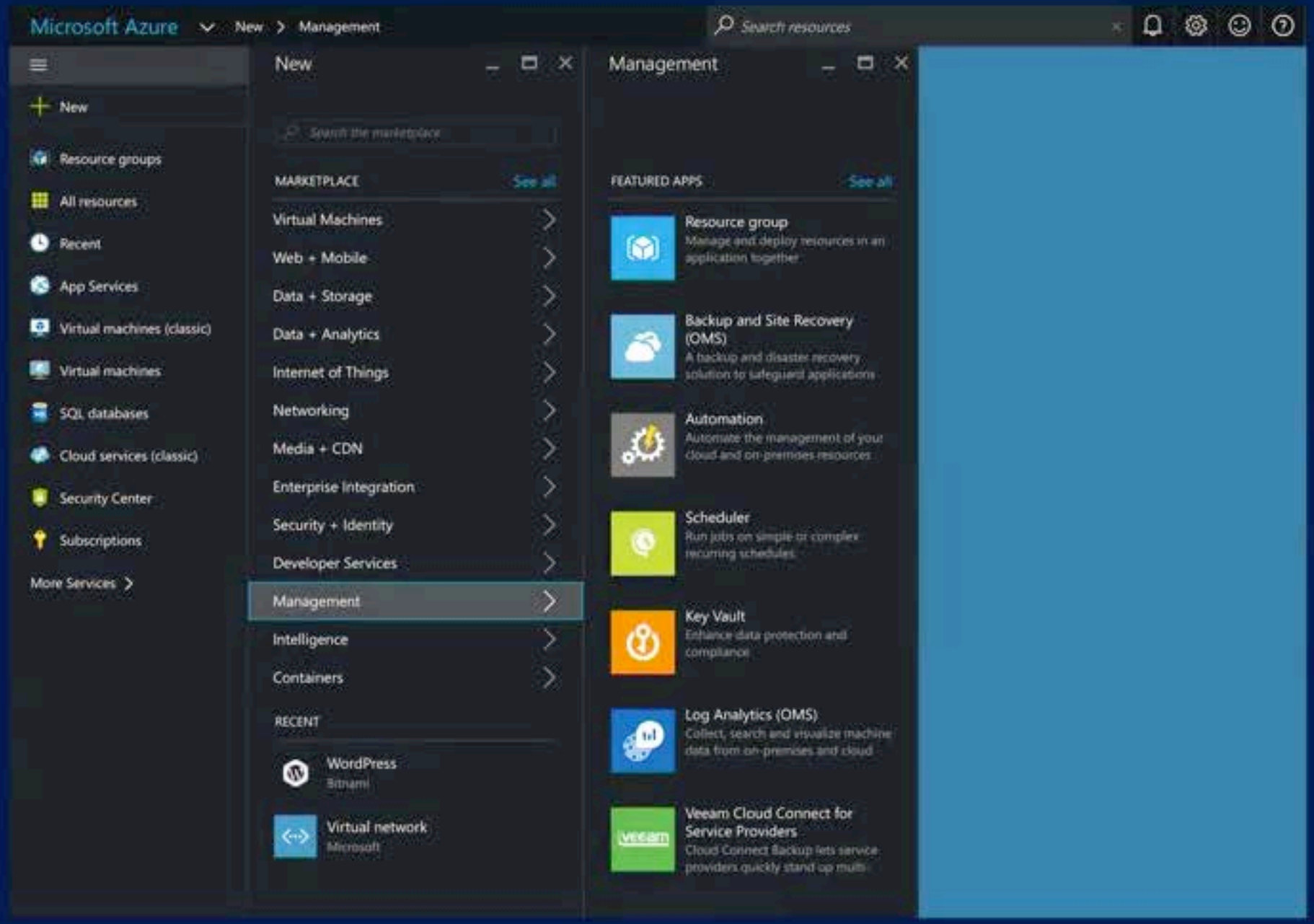

ZooKeeper Service
Leader
Server
Server
Server
Server
Server
Client
Client
Client
Client
Client
Client
Client
Client


Datacenter 1
TCP & UDP
:8301
TCP & UDP
:8301
Client
Client
Client
RPC TCP:8300
RPC TCP:8300
Server
Server
(Leader)
Server
WAN Gossip
TCP & UDP :8301
Internet
Remote DC Forwarding
TCP:8300
Replication
Replication
Server
Server
(Leader)
Server
TCP:8300
TCP:8300
Leader Forwarding
TCP:8300

DevOps Fundamentals

LinkedIn

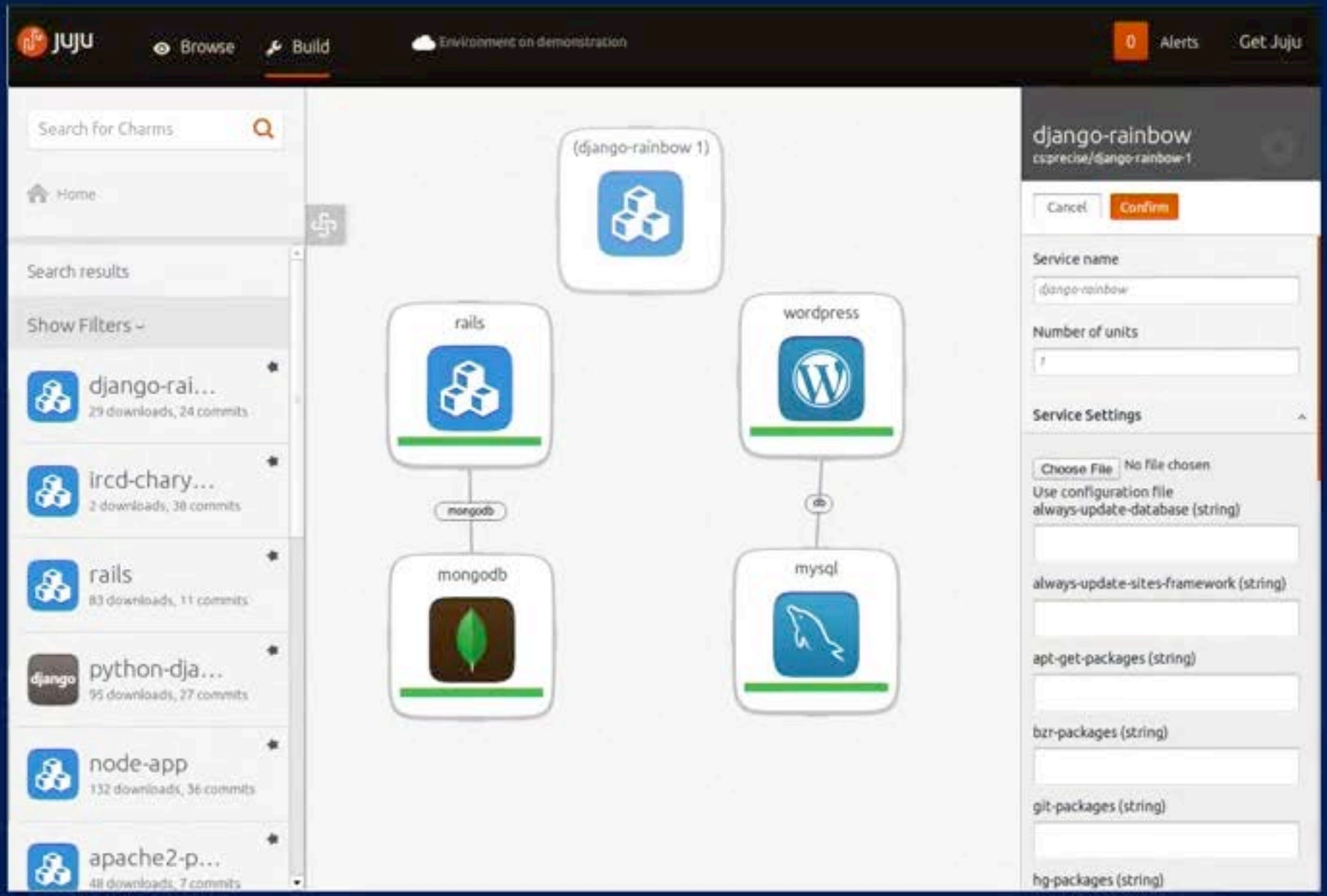

Close
Resource types
ApplicationAutoScaling
ApiGateway
AutoScaling
CertificateManager
CloudFormation
CloudFront
CloudTrail
CloudWatch
CodeDeploy
CodePipeline
Config
File: 'template1'
InstanceS...
SecurityGroup
EC2Instan...
Instance
Parameters
Mappings
Conditions
Metadata
Outputs
Errors
template1
{
"Parameters": {
"KeyName": {
"Description": "Name of an existing EC2 KeyPair to enable SSH access to the instance",
"Type": "AWS::EC2::KeyPair::KeyName",
"ConstraintDescription": "must be the name of an existing EC2 KeyPair."
},
"InstanceType": {
"Description": "WebServer EC2 instance type",
Components
Template


Microsoft Azure
New
Management
Search resources
New
Resource groups
All resources
Recent
App Services
Virtual machines (classic)
Virtual machines
SQL databases
Cloud services (classic)
Security Center
Subscriptions
More Services
New
Search the marketplace
MARKETPLACE
See all
Virtual Machines
Web + Mobile
Data + Storage
Data + Analytics
Internet of Things
Networking
Media + CDN
Enterprise Integration
Security + Identity
Developer Services
Management
Intelligence
Containers
RECENT
WordPress
Bitnami
Virtual network
Microsoft
Management
FEATURED APPS
See all
Resource group
Manage and deploy resources in an application together
Backup and Site Recovery (OMS)
A backup and disaster recovery solution to safeguard applications
Automation
Automate the management of your cloud and on-premises resources
Scheduler
Run jobs on simple or complex recurring schedules
Key Vault
Enhance data protection and compliance
Log Analytics (OMS)
Collect, search and visualize machine data from on-premises and cloud
Veeam Cloud Connect for Service Providers
Cloud Connect Backup lets service providers quickly stand up multi-

LinkedIn

```
resource "digitalocean_droplet" "web" {
    name = "tf-web"
    size = "512mb"
    image = "centos-5-8-x32"
    region = "sfo1"
}

resource "dnsimple_record" "hello" {
    domain = "example.com"
    name = "test"
    value = "${digitalocean_droplet.web.ipv4_address}"
    type = "A"
}
```

LinkedIn


juju
Browse
Build
Environment on demonstration
0
Alerts
Get Juju
Search for Charms
Home
Search results
Show Filters
django-rai...
29 downloads, 24 commits
ircd-chary...
2 downloads, 38 commits
rails
83 downloads, 11 commits
python-dja...
95 downloads, 27 commits
node-app
132 downloads, 36 commits
apache2-p...
48 downloads, 7 commits
(django-rainbow 1)
rails
wordpress
mongodb
mongodb
mysql
django-rainbow
cs:precise/django-rainbow-1
Cancel
Confirm
Service name
django-rainbow
Number of units
1
Service Settings
Choose File
No file chosen
Use configuration file
always-update-database (string)
always-update-sites-framework (string)
apt-get-packages (string)
bzr-packages (string)
git-packages (string)
hg-packages (string)

LinkedIn

Configuration Management

Chef

Puppet

Ansible

Salt

CFEngine

Packer

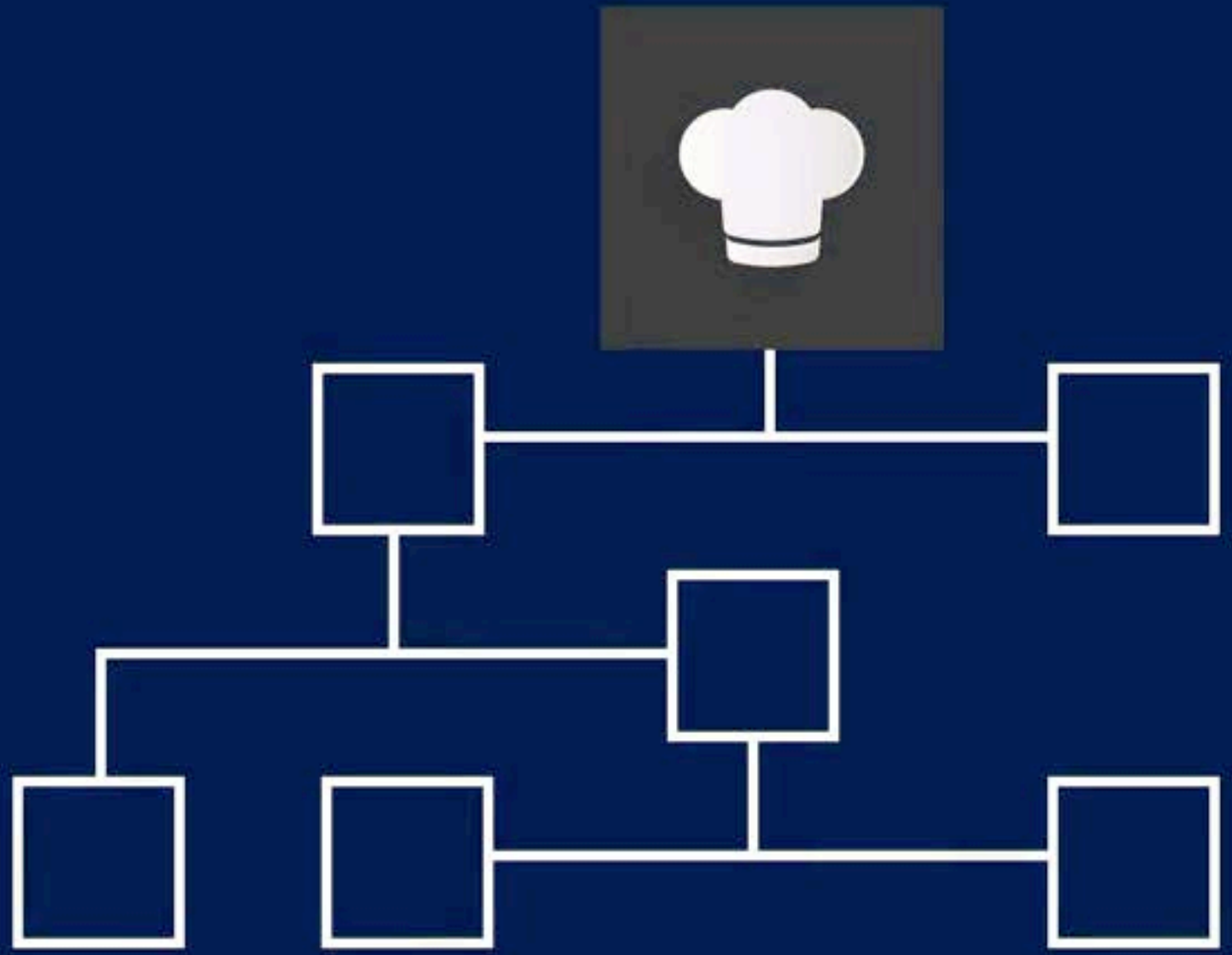
LinkedIn

Sample Chef Code

```
# install distro packages
['libcurl4-openssl-dev', 'libsqlite3-dev',
  'libyaml-dev', 'zlib1g-dev', 'ruby1.9.1-dev',
  'python-setuptools'].each do |pkg|
  package pkg do
    action :install
  end
```

LinkedIn

LinkedIn



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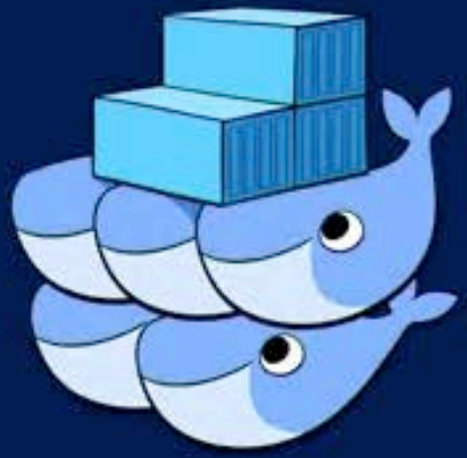
Services Directory Tools

etcd

ZooKeeper

Consul

LinkedIn



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Private Container Services

Rancher

Google Cloud Platform

Amazon Web Services ECS

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DevOps Fundamentals

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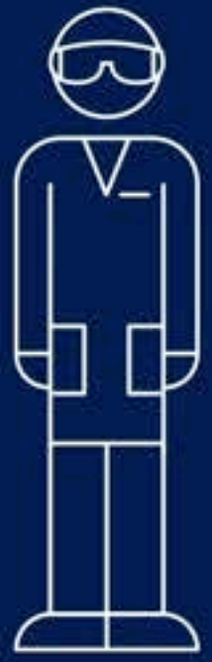
Color 1

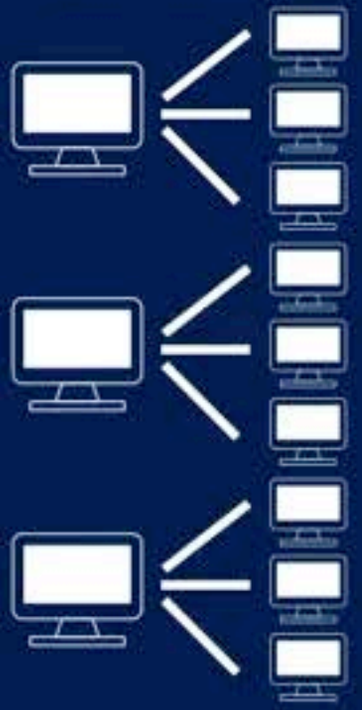
Development

Color 2



Unit and
Integration Testing

Color 3



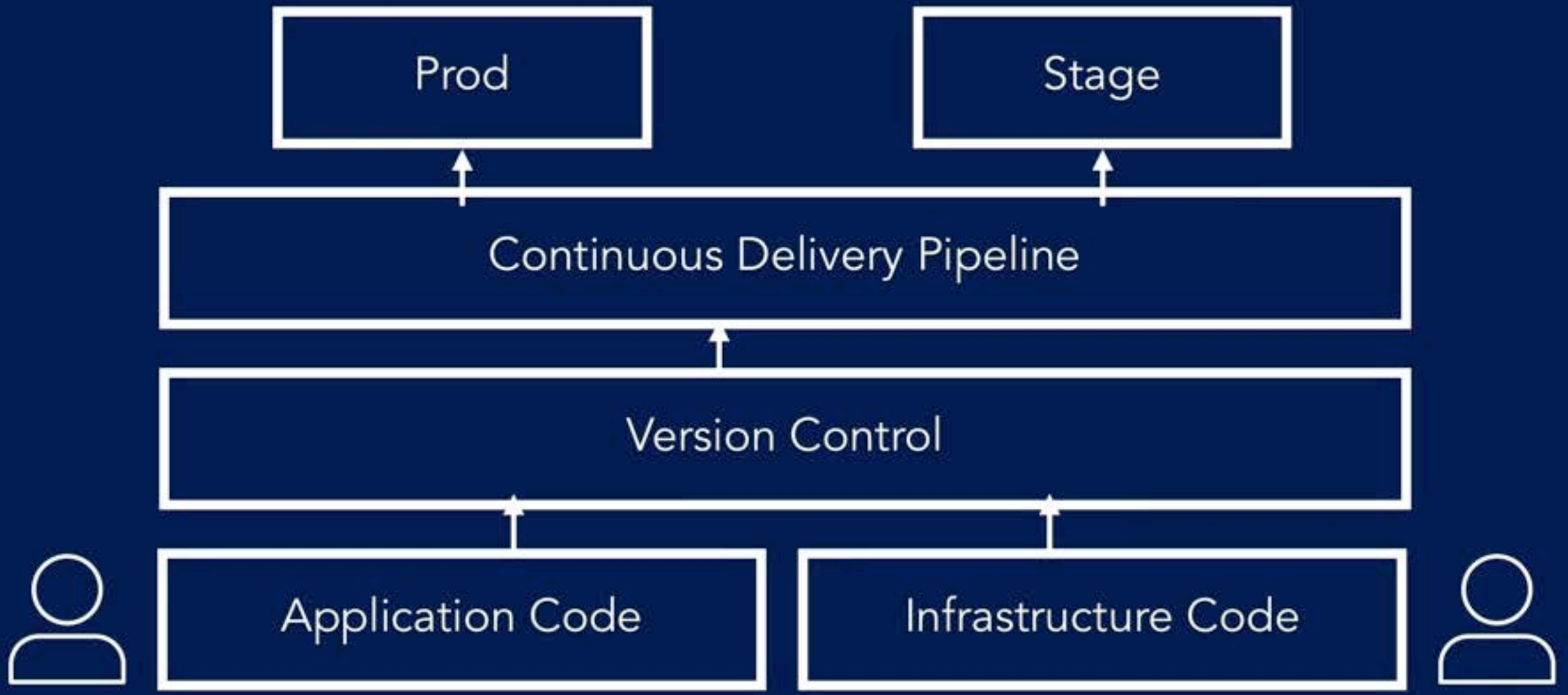
Deploy

LinkedIn

Sample Template for CloudFormation

```
{
  "AWSTemplateFormatVersion" : "2010-09-09",

  "Description" : "AWS CloudFormation Sample Template VPC_Single_Instance_In_Subnet: Sample template showing how to
create a VPC and add an EC2 instance with an Elastic IP address and a security group. **WARNING** This template creates
an Amazon EC2 instance. You will be billed for the AWS resources used if you create a stack from this template.",

  "Parameters" : {

    "InstanceType" : {
      "Description" : "WebServer EC2 instance type",
      "Type" : "String",
      "Default" : "t2.small",
      "AllowedValues" : [ "t1.micro", "t2.nano", "t2.micro", "t2.small", "t2.medium", "t2.large", "m1.small",
"m1.medium", "m1.large", "m1.xlarge", "m2.xlarge", "m2.2xlarge", "m2.4xlarge", "m3.medium", "m3.large", "m3.xlarge",
"m3.2xlarge", "m4.large", "m4.xlarge", "m4.2xlarge", "m4.4xlarge", "m4.10xlarge", "c1.medium", "c1.xlarge", "c3.large",
"c3.xlarge", "c3.2xlarge", "c3.4xlarge", "c3.8xlarge", "c4.large", "c4.xlarge", "c4.2xlarge", "c4.4xlarge", "c4.8xlarge",
"g2.2xlarge", "g2.8xlarge", "r3.large", "r3.xlarge", "r3.2xlarge", "r3.4xlarge", "r3.8xlarge", "i2.xlarge", "i2.2xlarge",
"i2.4xlarge", "i2.8xlarge", "d2.xlarge", "d2.2xlarge", "d2.4xlarge", "d2.8xlarge", "hi1.4xlarge", "hs1.8xlarge",
"cr1.8xlarge", "cc2.8xlarge", "cg1.4xlarge"]
,
      "ConstraintDescription" : "must be a valid EC2 instance type."
    },

    "KeyName": {
      "Description" : "Name of an existing EC2 KeyPair to enable SSH access to the instance",
      "Type": "AWS::EC2::KeyPair::KeyName",
      "ConstraintDescription" : "must be the name of an existing EC2 KeyPair."
    },

    "SSHLocation" : {
      "Description" : " The IP address range that can be used to SSH to the EC2 instances",
      "Type": "String",
      "MinLength": "9",
      "MaxLength": "18",
```

LinkedIn


Prod
Stage
Continuous Delivery Pipeline
Version Control
Application Code
Infrastructure Code

DevOps Fundamentals

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