

# The Technologies of Cloud-native Architecture

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# Overview



**Application architecture technologies**

**Application delivery technologies**

**Application infrastructure technologies**

**Application team technologies**

**Summary**



“Cloud-native software is built for scale, built for continuous change, built to tolerate failure, built for manageability.”

**Richard Seroter**



# Application Architecture Technologies

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# Cloud-native Application Technologies



**External config** including cloud-only services like Azure Key Vault, software like Hashicorp Vault, or Spring Cloud Config.

**Code-based microservices infrastructure** like Spring Cloud, Steeltoe, and Go Micro.

**API gateways** from public cloud providers, or software from Apigee and Mulesoft.

**Identity management technologies** including OAuth 2.0, OpenID Connect, and JWT.



# Cloud-native Database Technologies

Self-managed,  
OSS databases  
like PostgreSQL,  
MySQL, MongoDB,  
and Cassandra

Managed cloud  
databases from  
Amazon (RDS,  
DynamoDB),  
Microsoft (SQL  
Database,  
CosmosDB) and  
Google (Spanner)

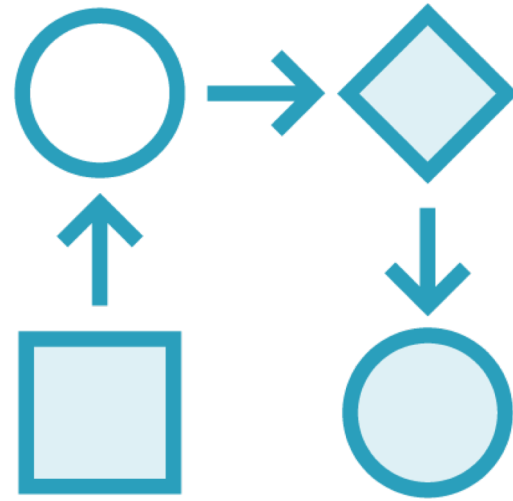
Self-managed or  
hosted application  
caches based on  
Redis,  
Memcached, and  
GemFire



# Cloud-native Messaging Technologies



Brokers like RabbitMQ,  
ActiveMQ, or NATS



Event stream  
processors like  
Apache Kafka, Apache  
Flink, or WSO2 Stream  
Processor



Cloud-based services  
like Amazon SQS,  
Google Pub/Sub, or  
Azure Event Hubs

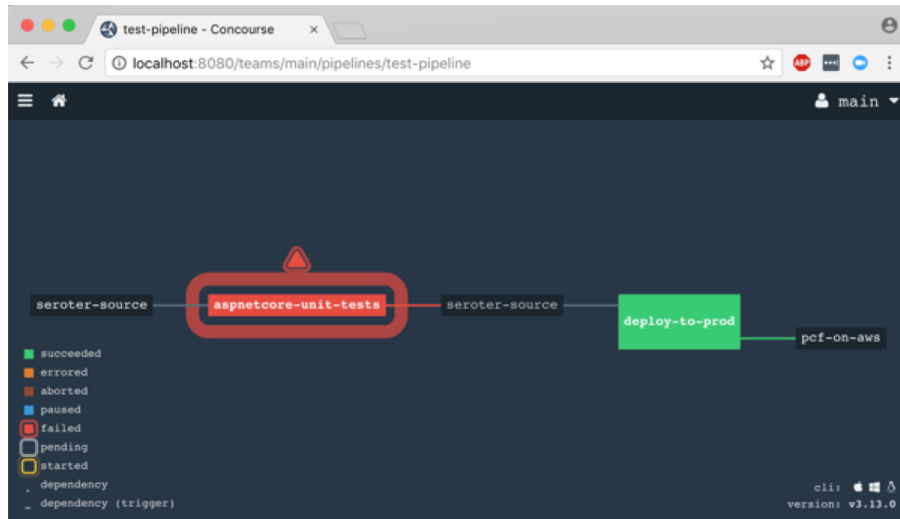
# Application Delivery Technologies

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# Continuous Integration Technologies



**Version control software** from GitHub, GitLab, VSTS Git, and BitBucket.

**Continuous integration workflow tools** like Jenkins, Concourse, Circle CI, TeamCity, AWS CodePipeline, and VSTS CI.



# Packaging and Deployment Technologies

**Artifact repositories like JFrog Artifactory, Sonatype Nexus Repository, and Apache Archiva**

**Package formats like Linux or Windows containers, and package managers like Helm**

**Use CI tools like Concourse or Jenkins, plus software like GoCD and Spinnaker**

**Enable feature flags with services like LaunchDarkly, and analyze post-deploy metrics with Dynatrace and New Relic**



# Application Infrastructure Technologies

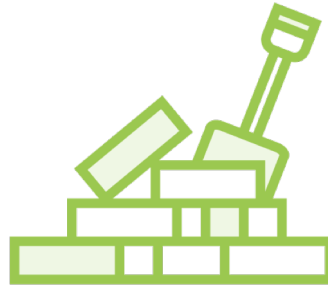
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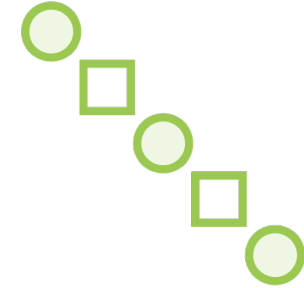
# Infrastructure Automation Technologies



Config management  
like Chef, Ansible



Create infrastructure  
with Terraform



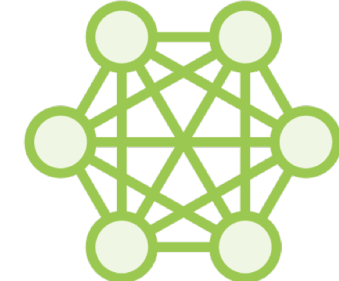
Build and manage  
systems with BOSH



Run containers with  
Kubernetes, Mesos, or  
Nomad



Automate app  
runtime with PaaS or  
FaaS



Microservices  
infrastructure with a  
service mesh



# Application Team Technologies

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# Collaboration Technologies



**Chat tools like Slack and Microsoft Teams.**

**Kanban boards using tools from Trello, RealtimeBoard, and Asana.**

**Shared access to logging and monitoring tools to pinpoint issues.**

**Video conferencing tools like Zoom, BlueJeans, Skype, and Google Hangouts.**



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