

# Introducing Apache Ignite

---



**Edward Curren**

ENTERPRISE ARCHITECT

@EdwardCurren [www.edwardcurren.com](http://www.edwardcurren.com)





High performance

Memory centric

Big data

Real time



# Apache Ignite

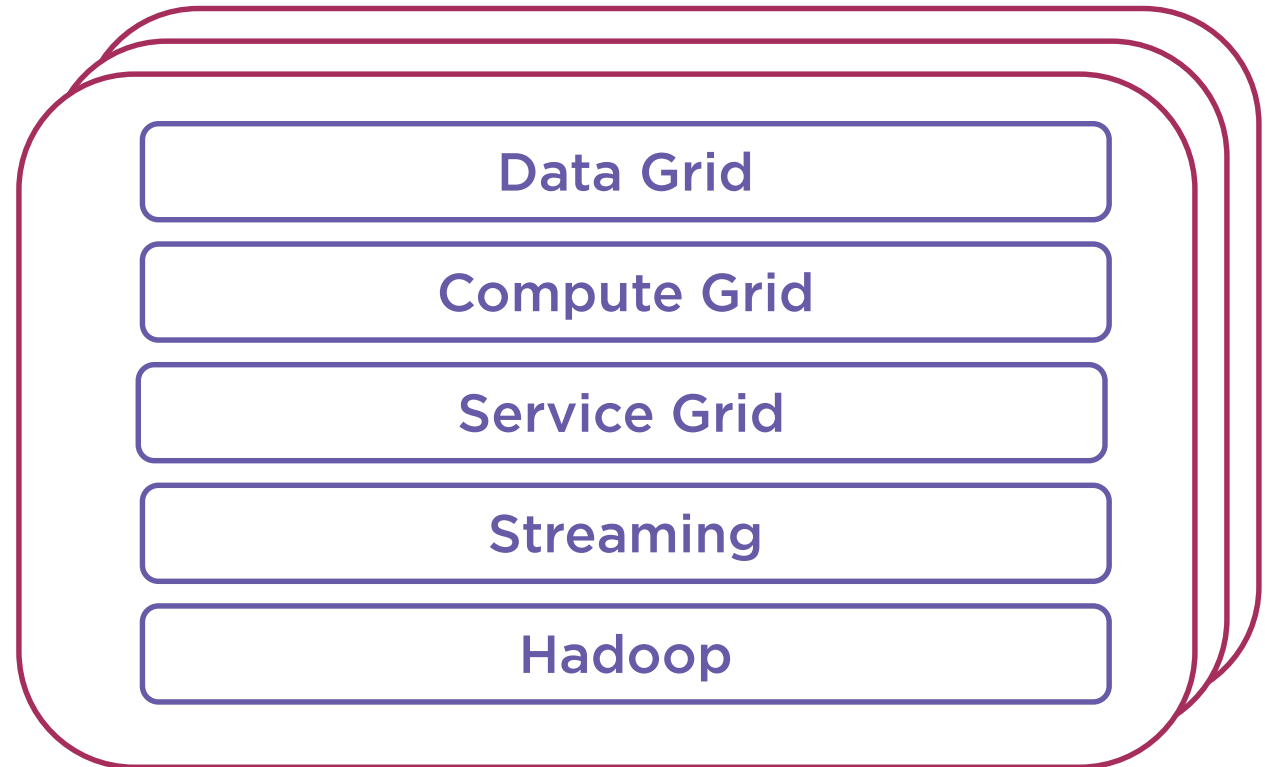


# Apache Ignite Framework



# Apache Ignite Framework

**Large Scale**  
**Distributed**  
**Memory Centric**



# Develop Build and Deploy



**Distributed in a single zip file**



**Other dependencies are added as needed**



**Fully integrated with Maven**



**Built on standard Java APIs**



# Overview



Memory & Disk

Durable Memory & Native Persistence

CAP Theorem

Data Structures

Deployment Options

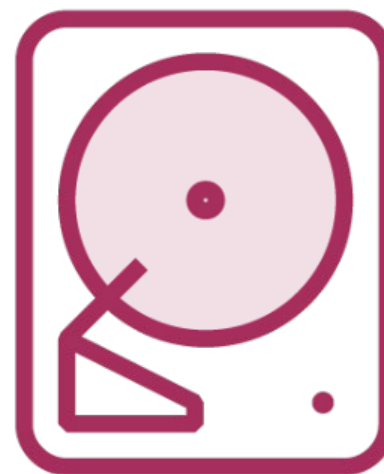


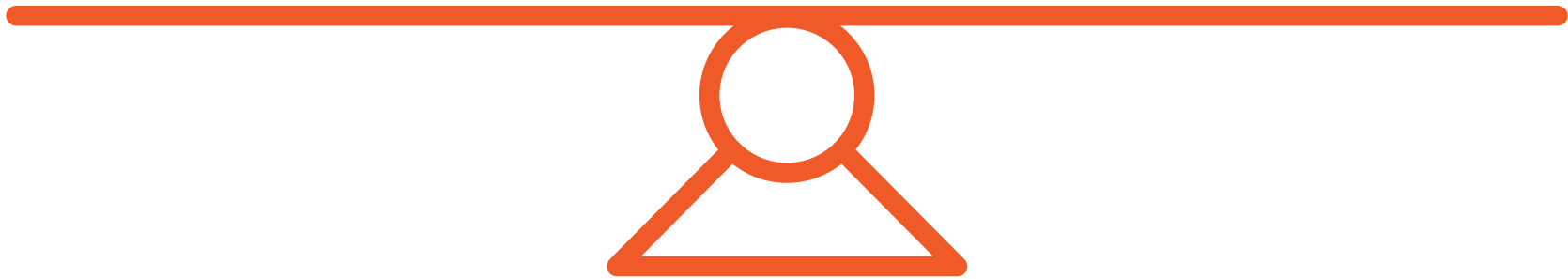
# Data Storage Locations

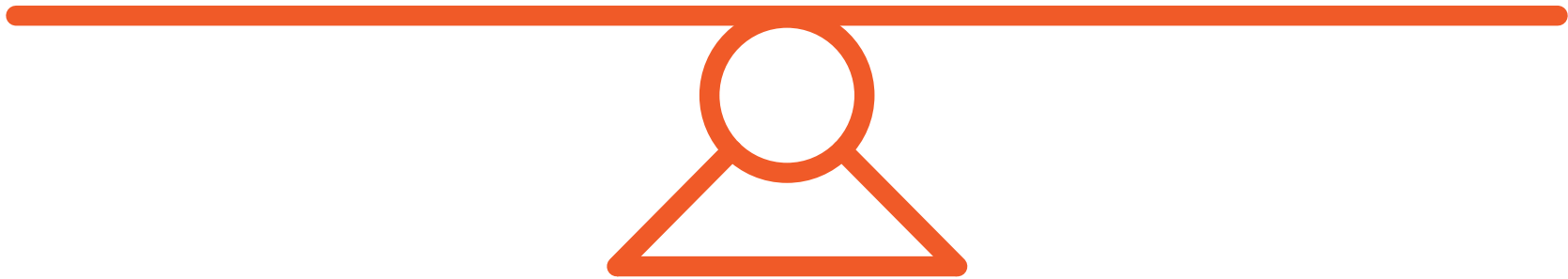
---

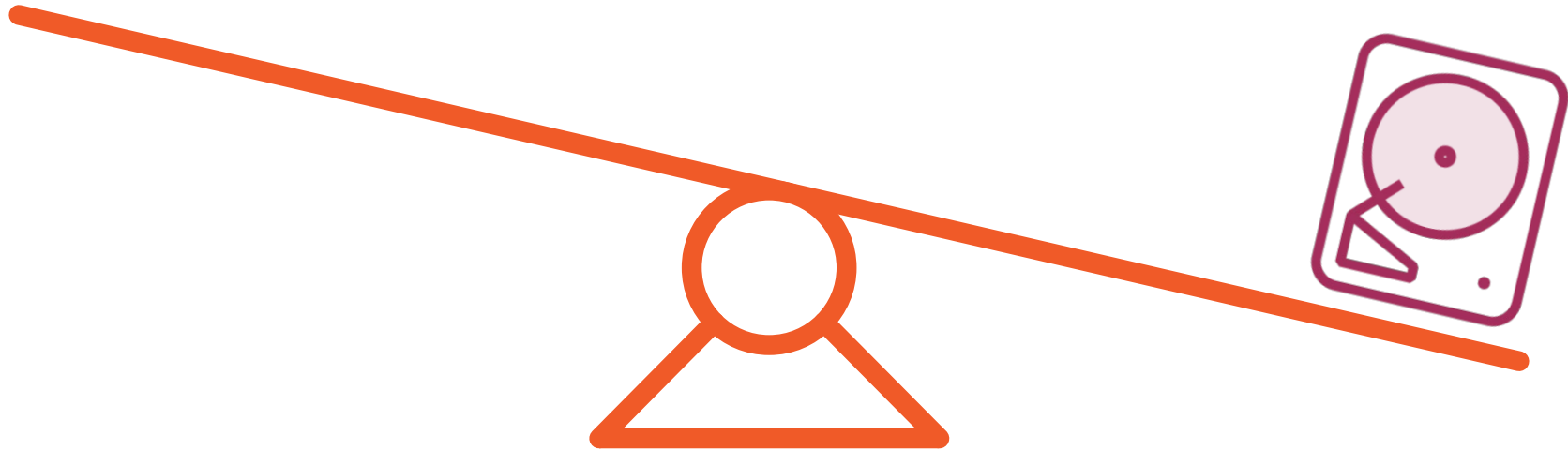
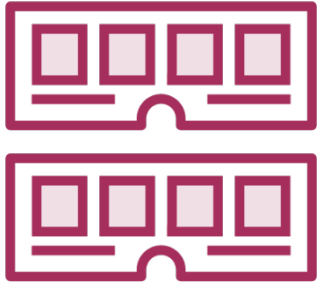


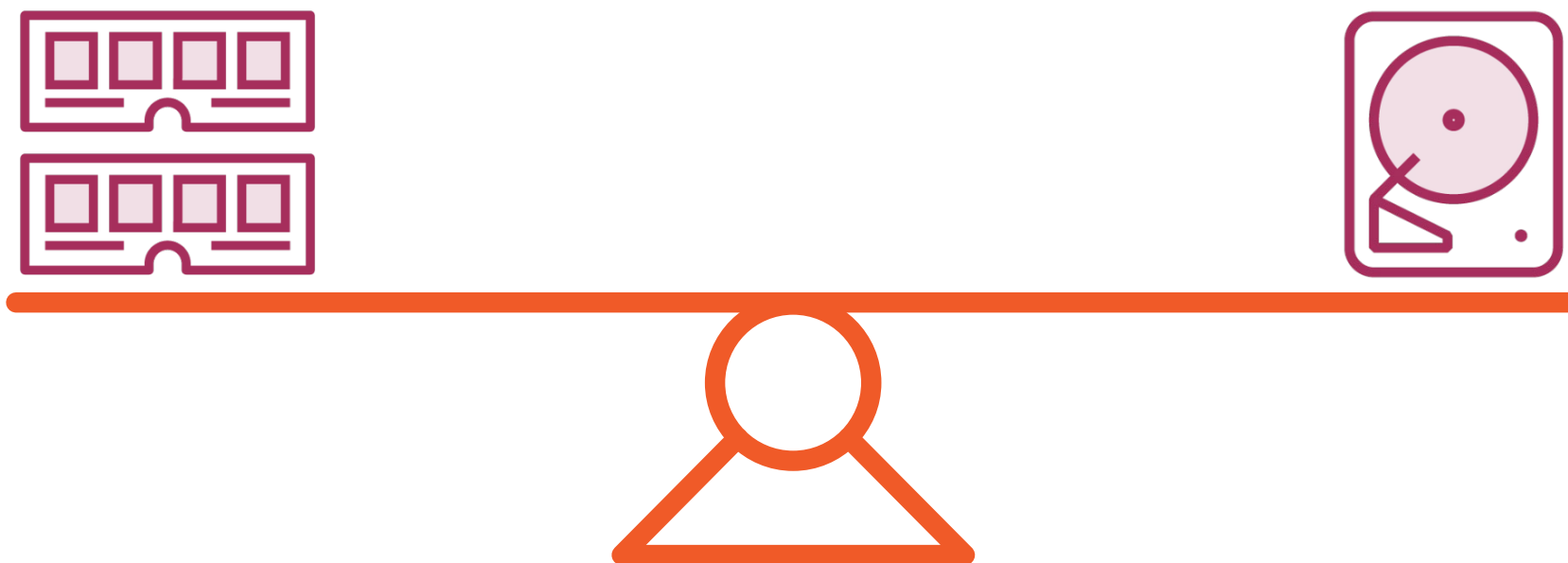












# Data Storage Models

**In-Memory**

**Disk-Centric**

**Memory-Centric**



# Data Storage Models

**In-Memory**

**Disk-Centric**

**Memory-Centric**



# Data Storage Models

**In-Memory**





# Bad



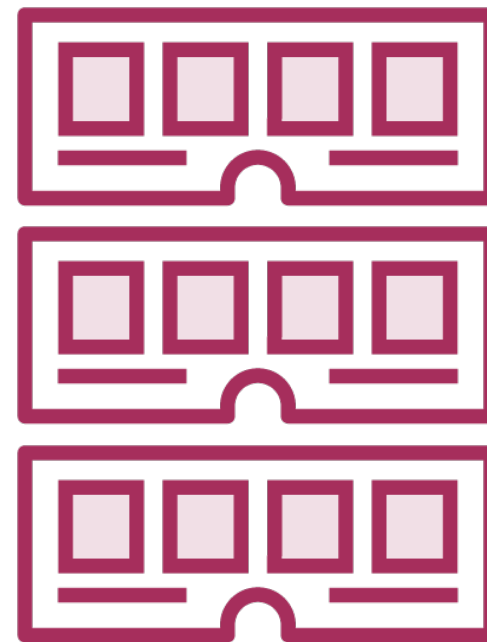
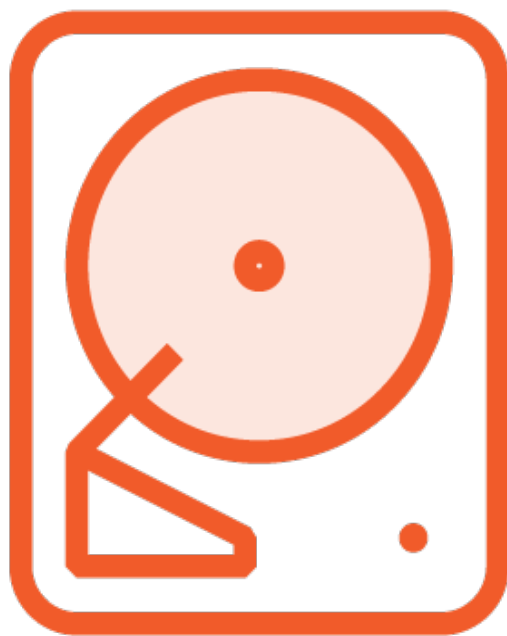
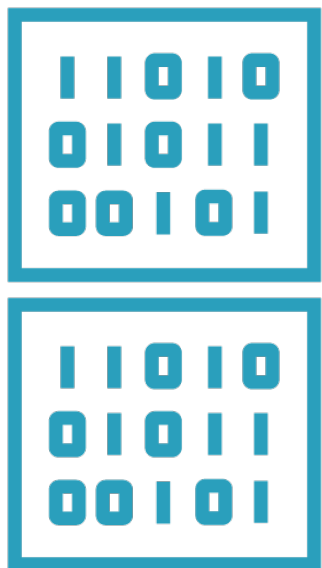
# Data Storage Models

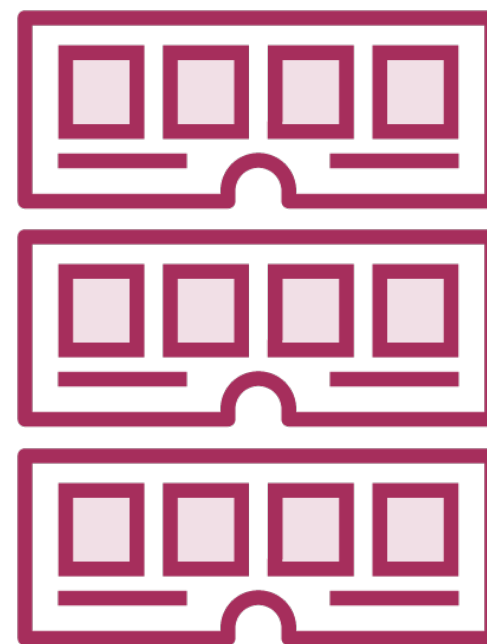
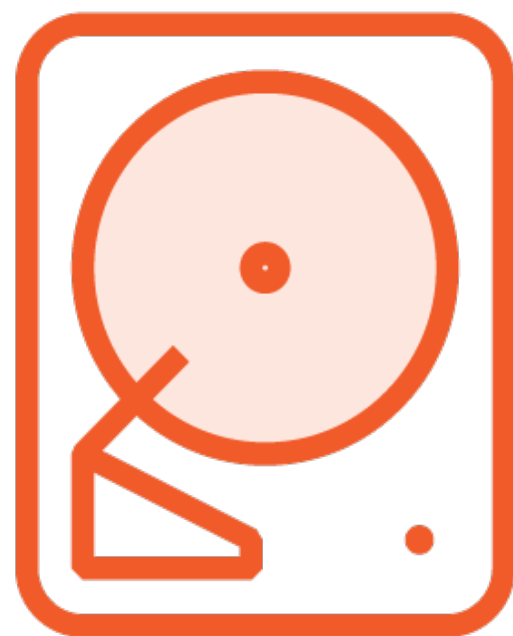
**In-Memory**

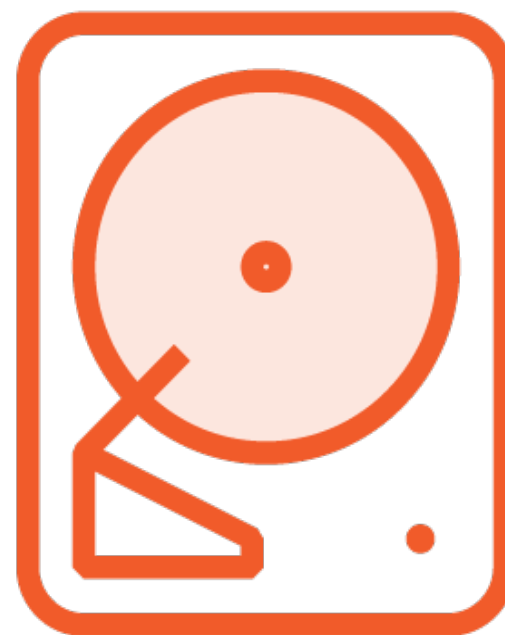
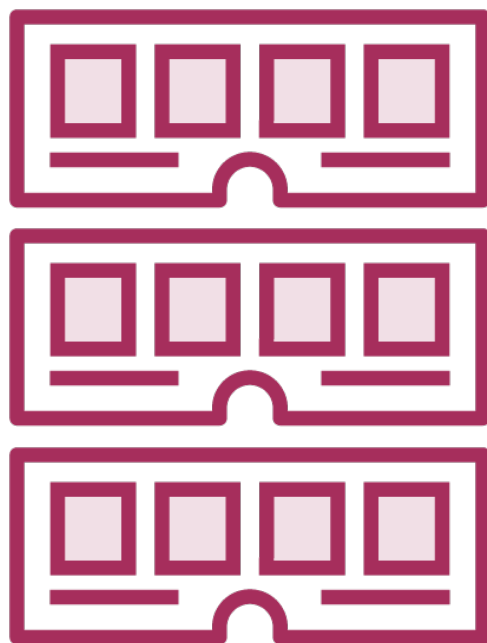
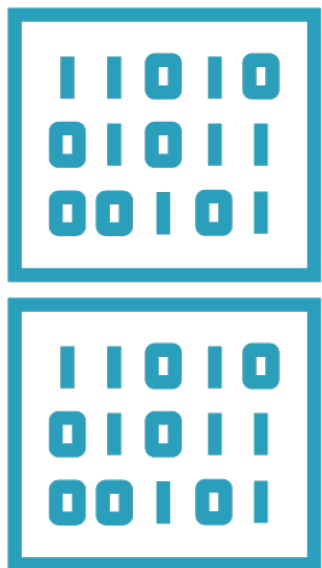
**Disk-Centric**

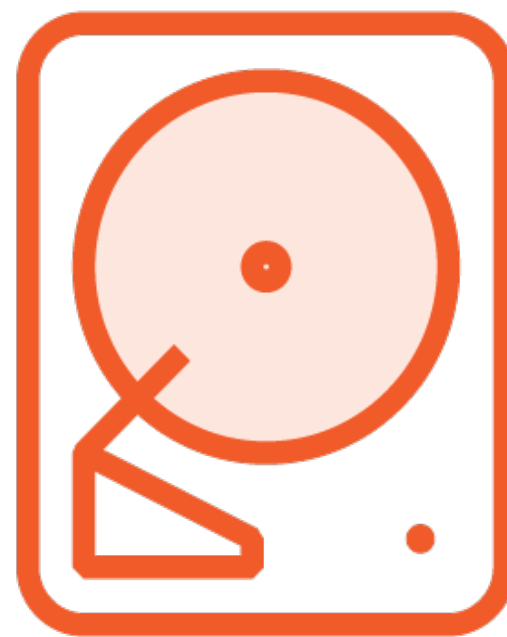
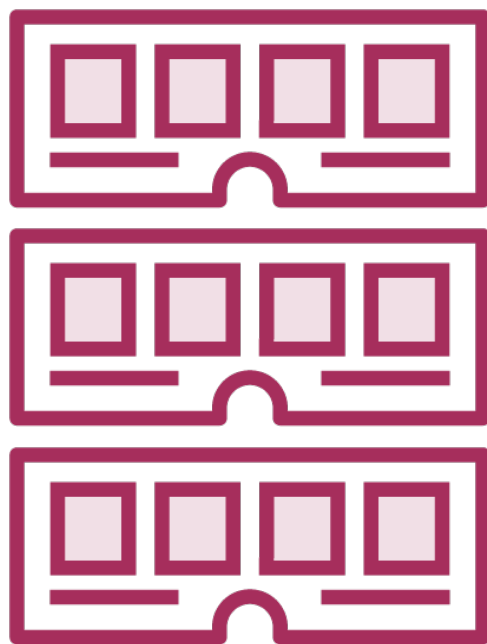
**Memory-Centric**











# Data Storage Models

**In-Memory**

**Disk-Centric**

**Memory-Centric**



Next Up

# The CAP Theorem

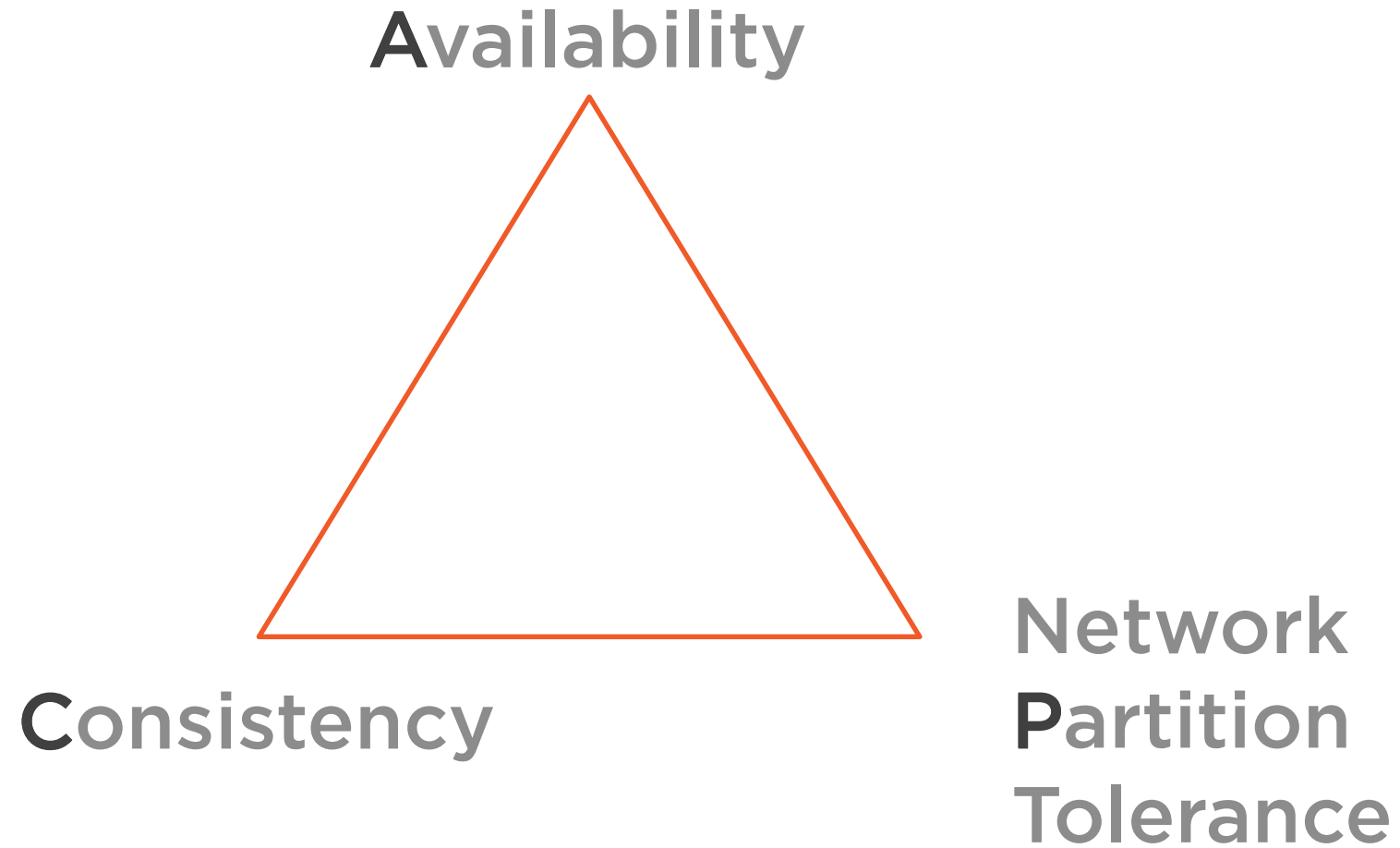


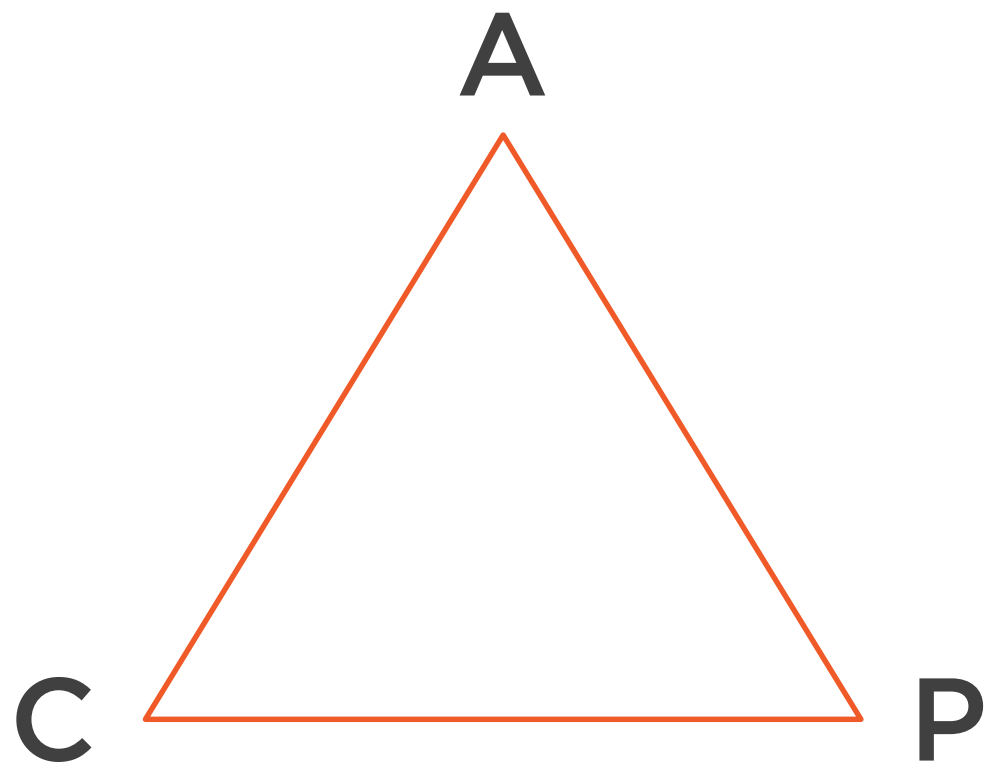


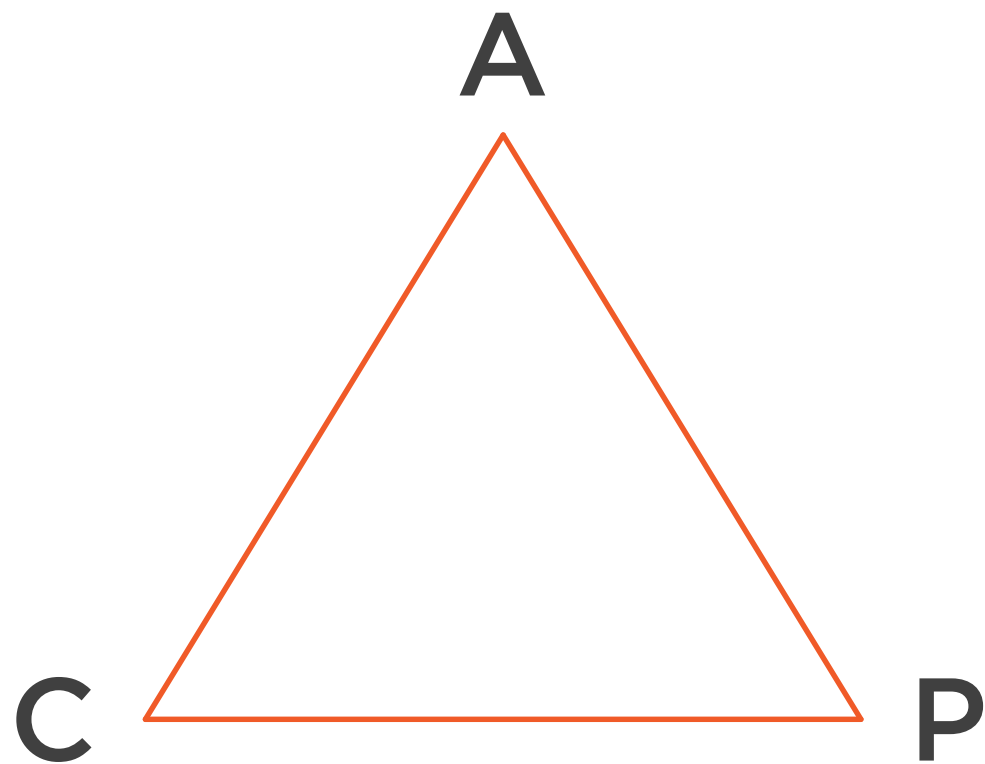
# The CAP Theorem

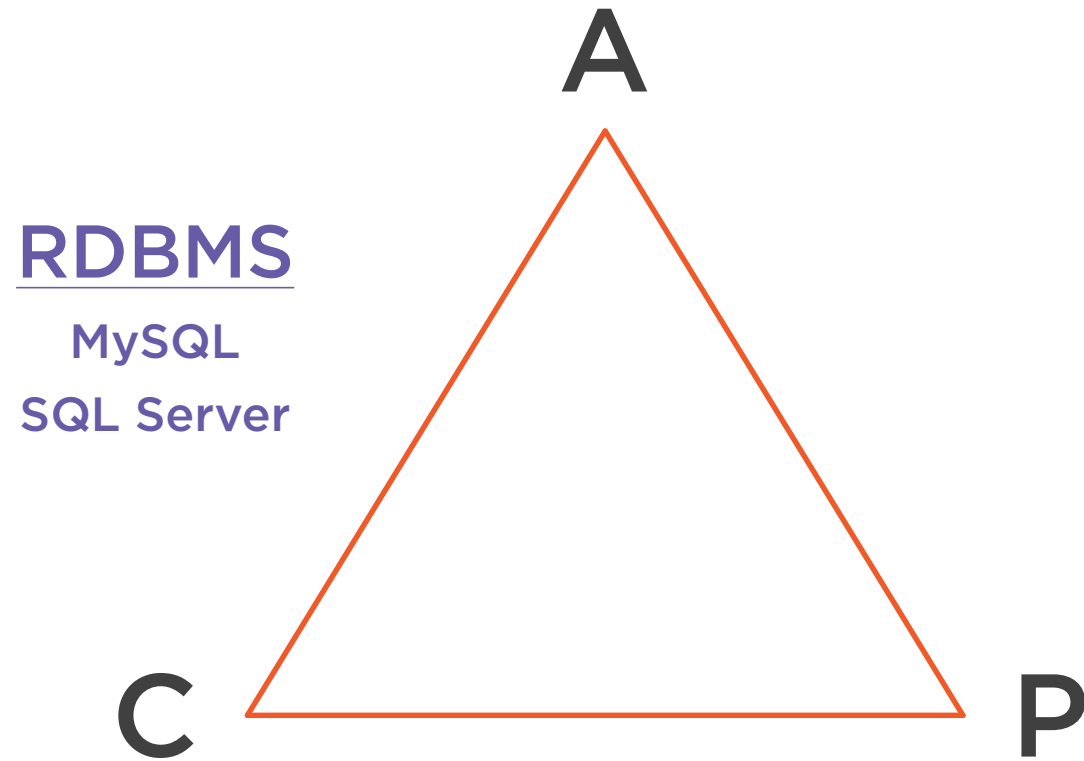
---

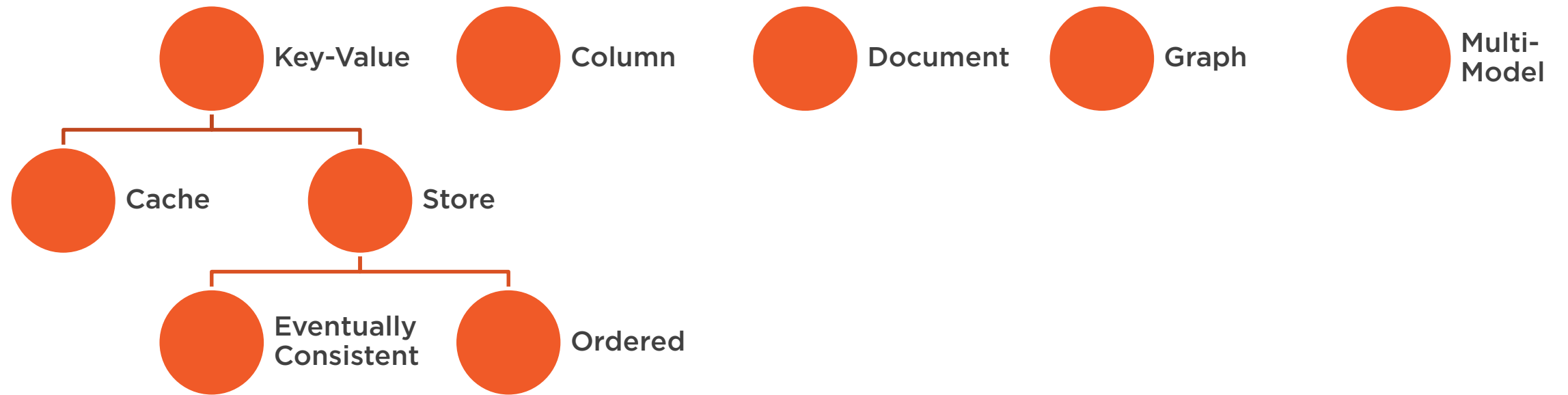


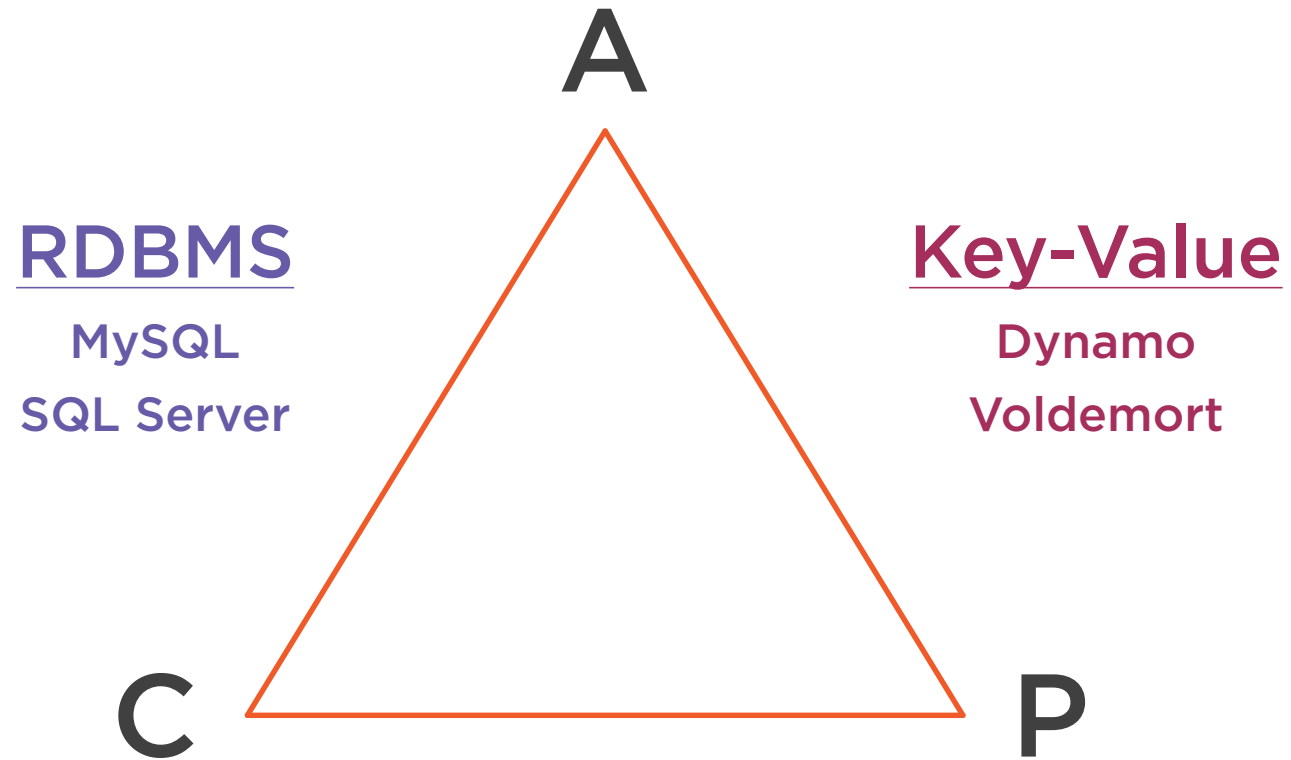


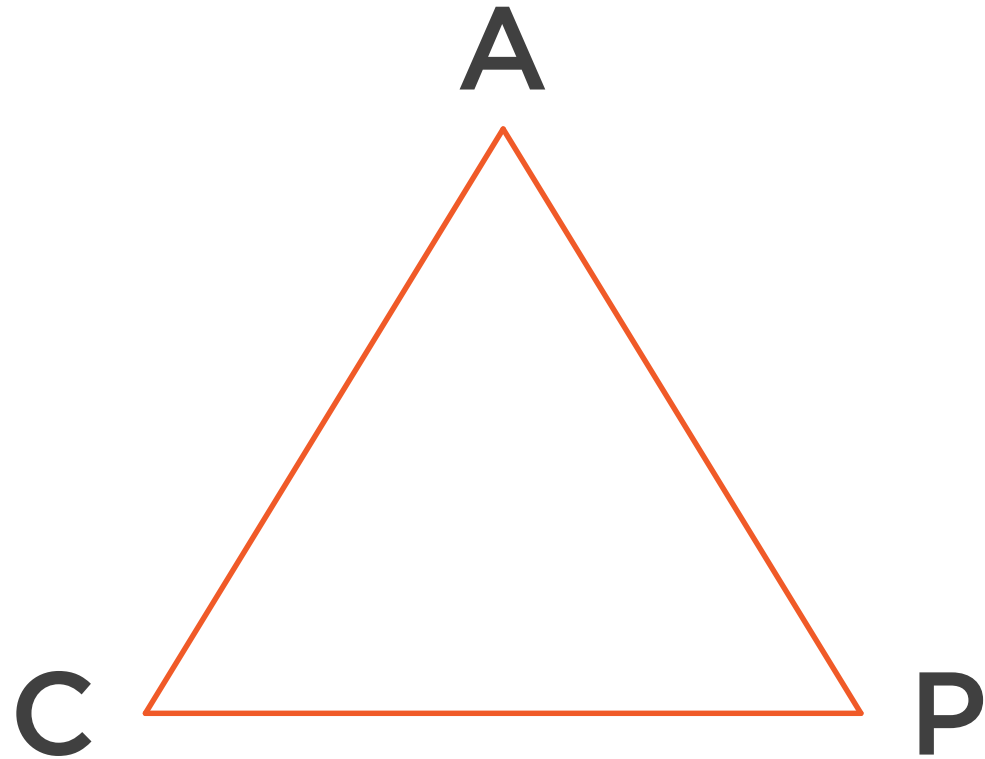












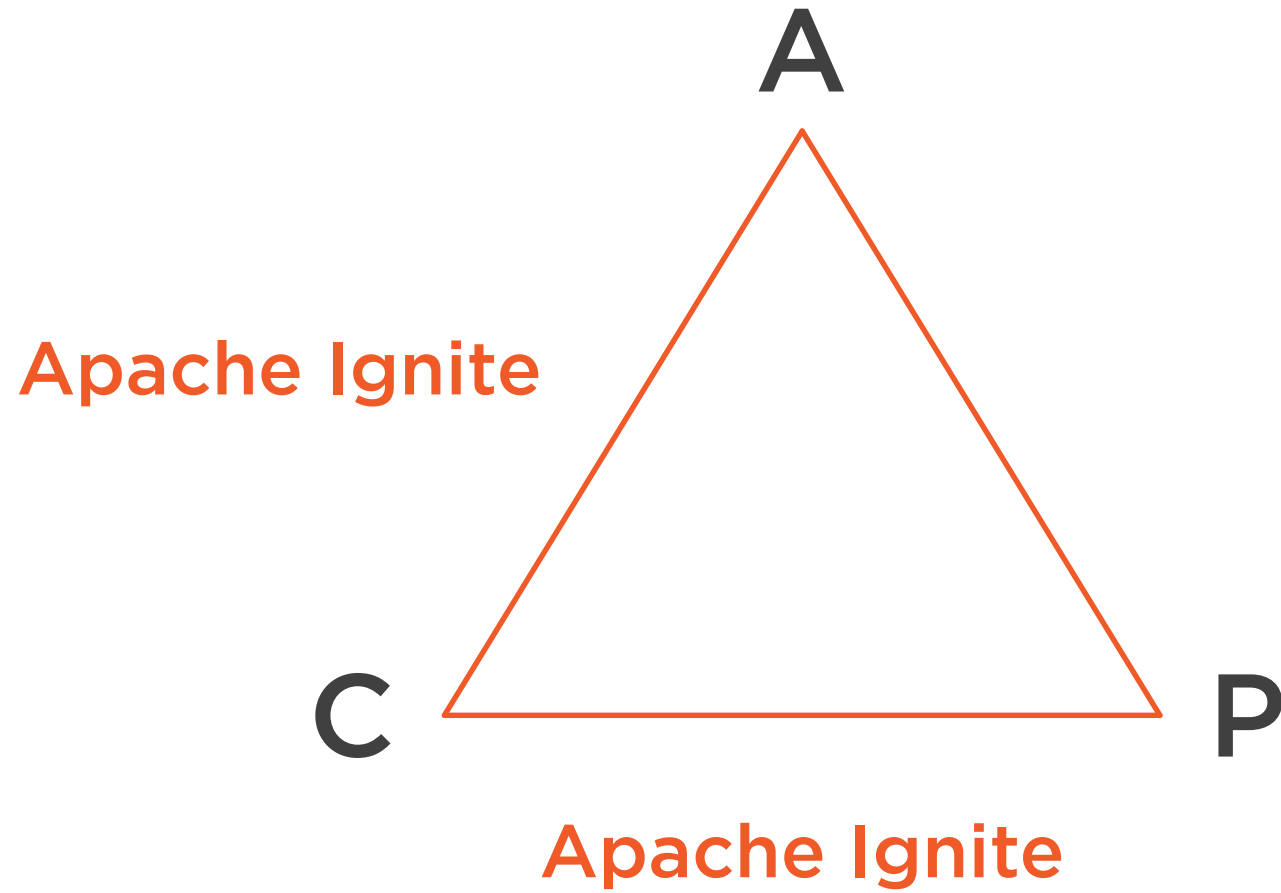
## Other NoSQL

Redis, MongoDB

Hbase, Hypertable







Up Next

# Durable Memory & Native Persistence

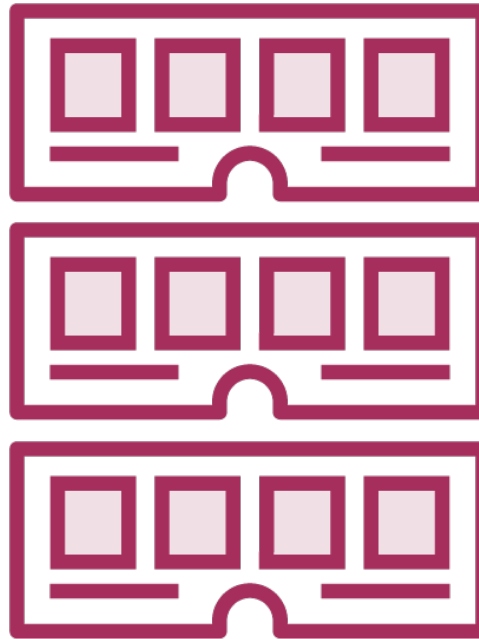
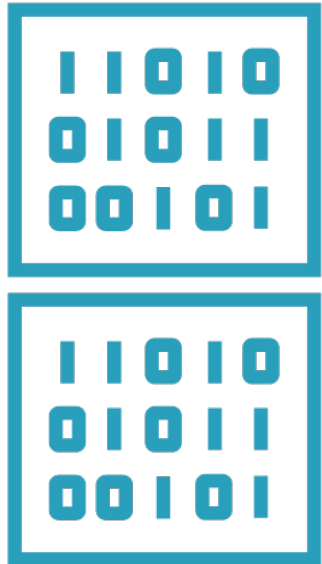


# Durable Memory & Native Persistence

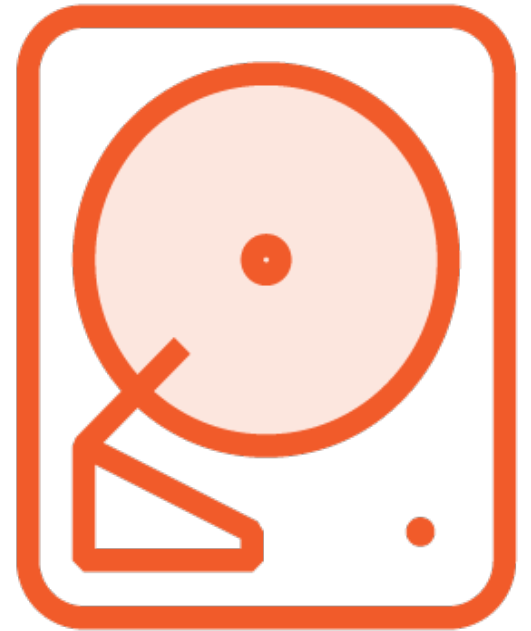
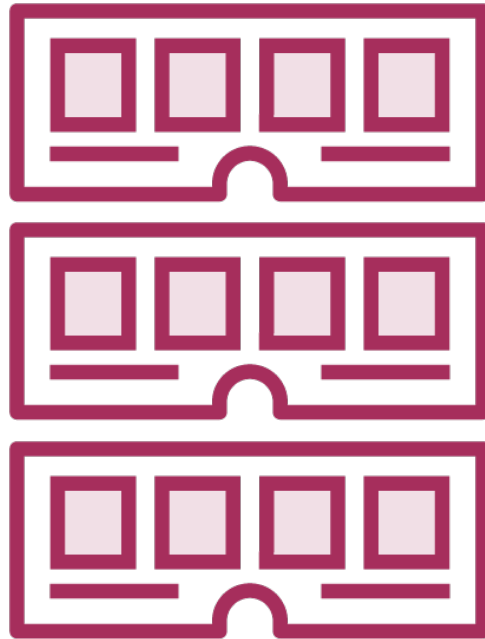
---



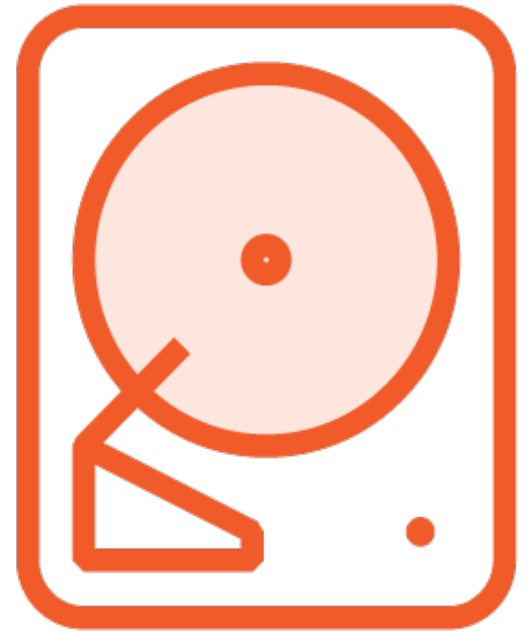
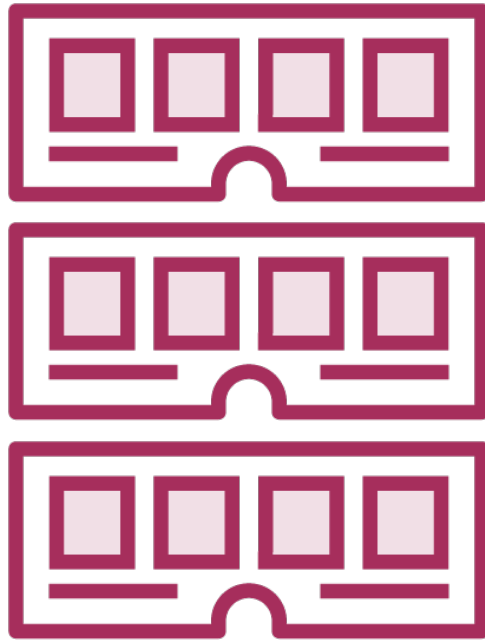
# In-Memory



# Memory-Centric



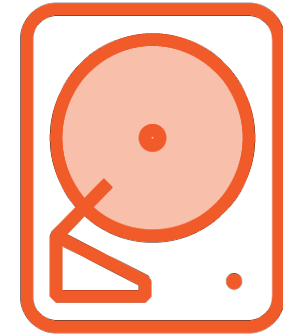
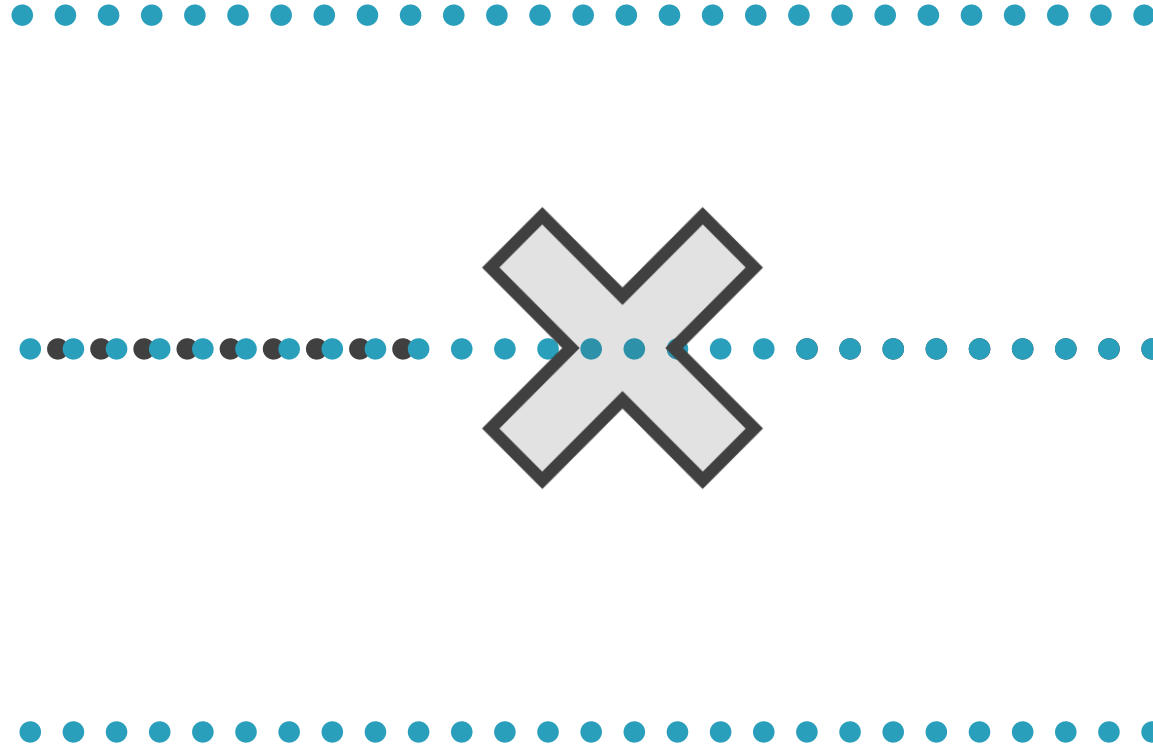
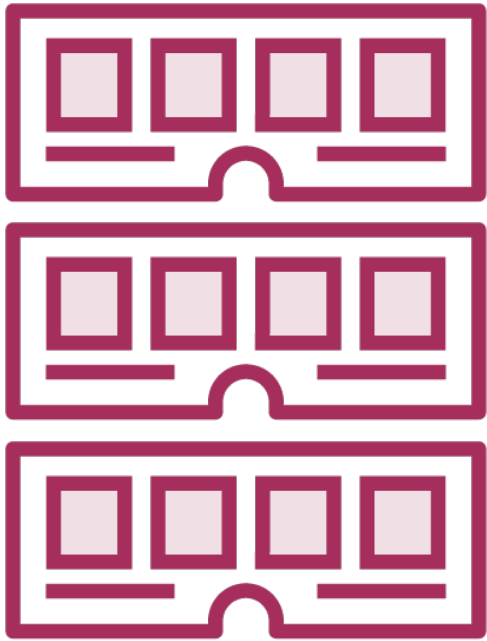
# Durable Memory

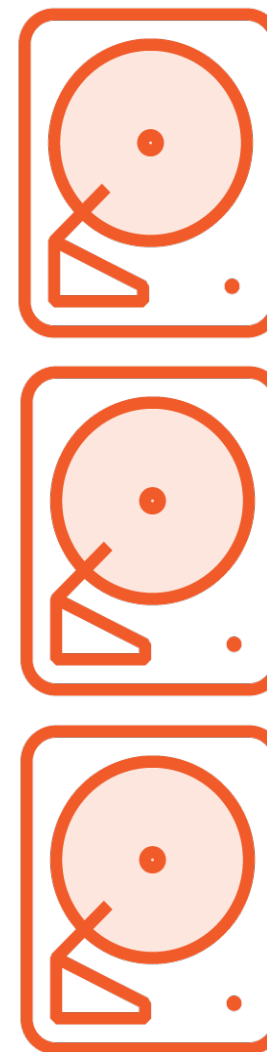
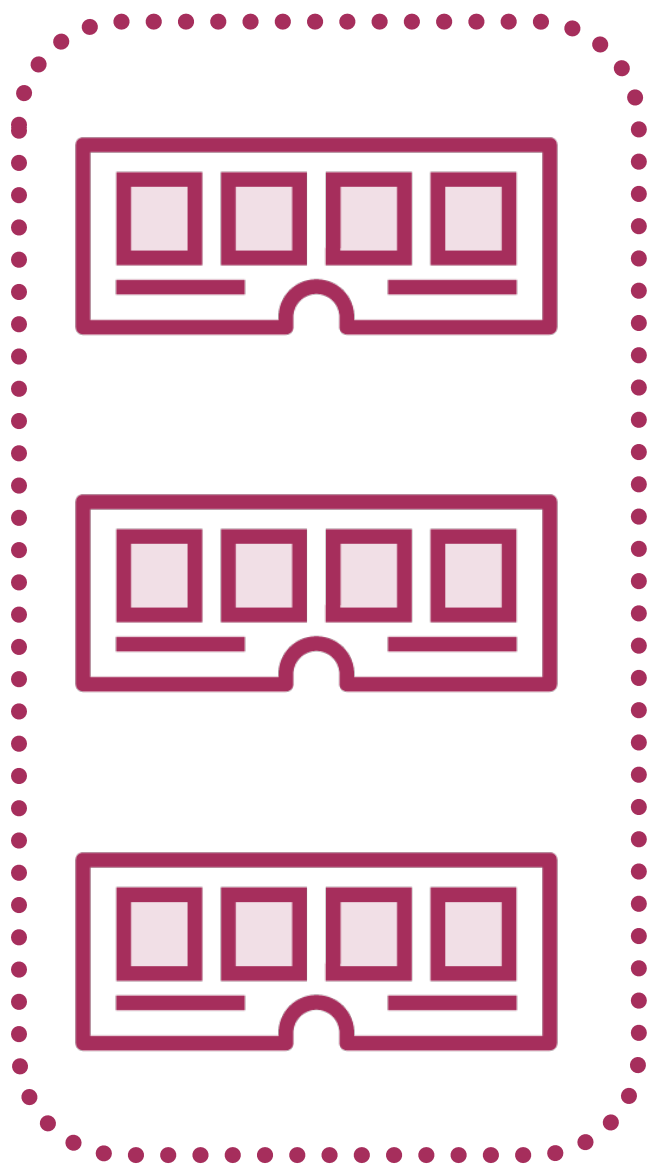


**Native Persistence**

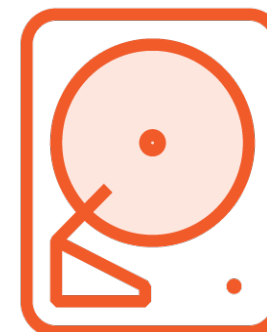
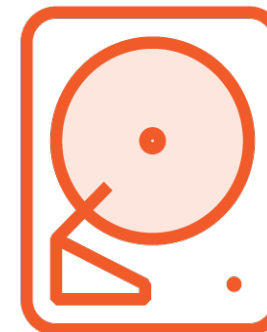
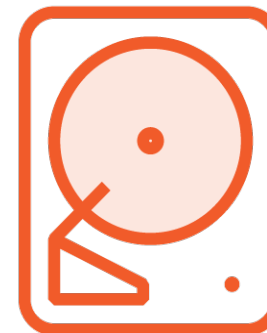


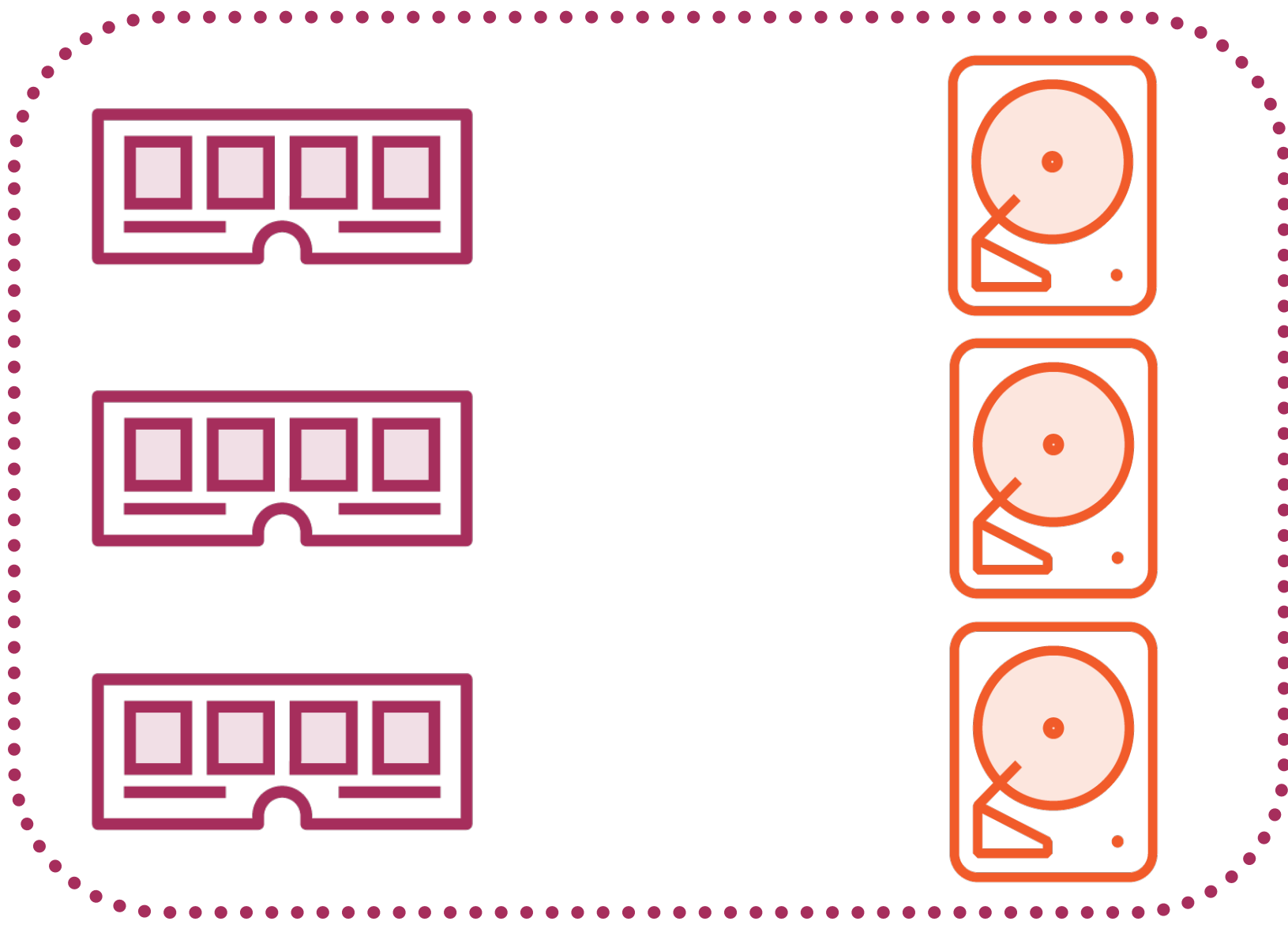
# Not Part of Storage











Up Next

Data Structures



# Data Structures

---



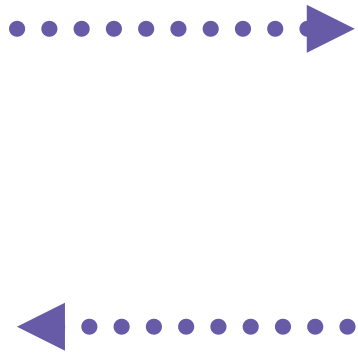


Mutex

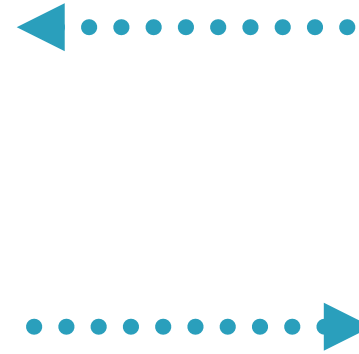
Semaphore

Lock Conditions

Thread Synchronization



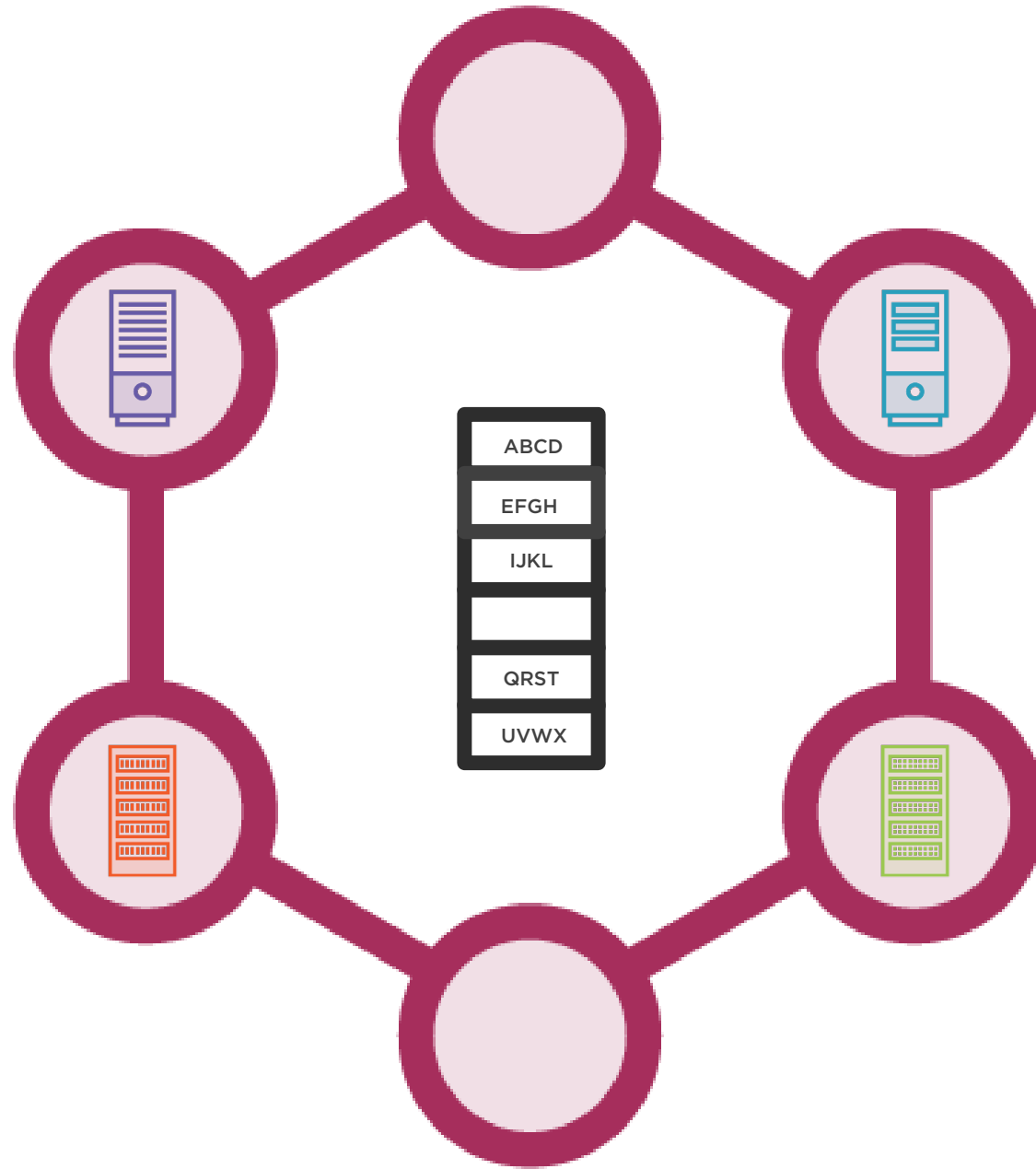
ABCD
EFGH
IJKL
MNOP
QRST
UVWX



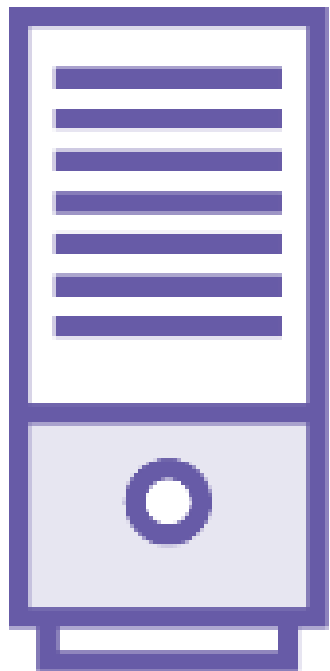


ABCD
EFGH
IJKL
QRST
UVWX





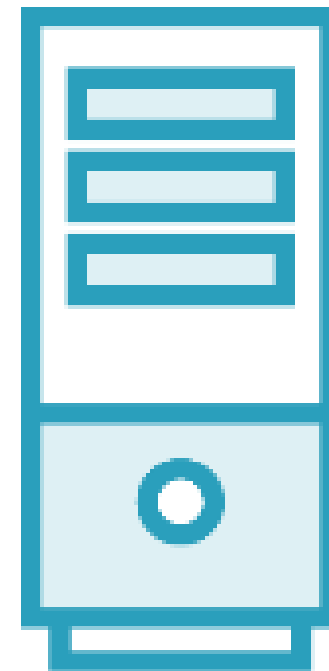


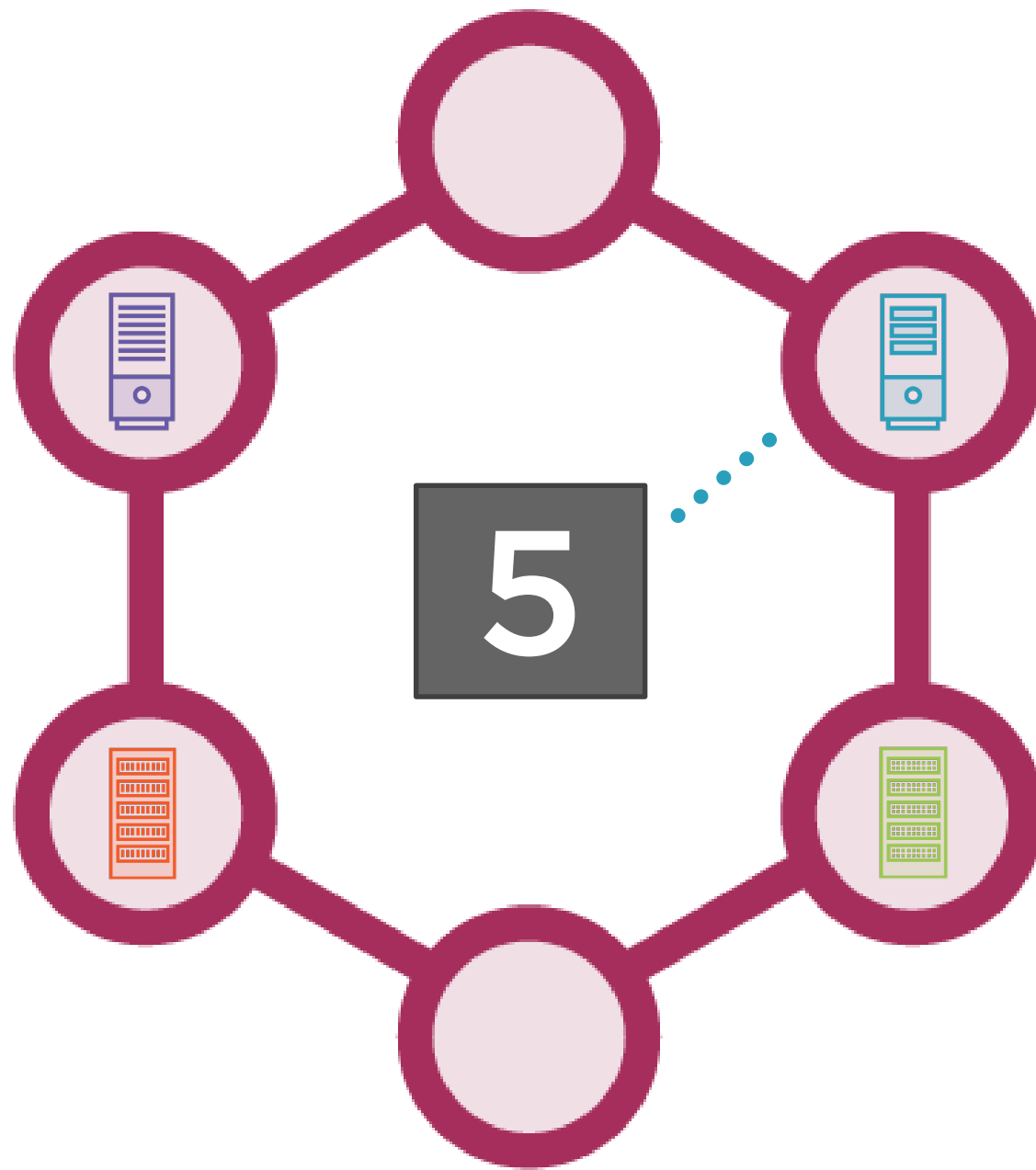


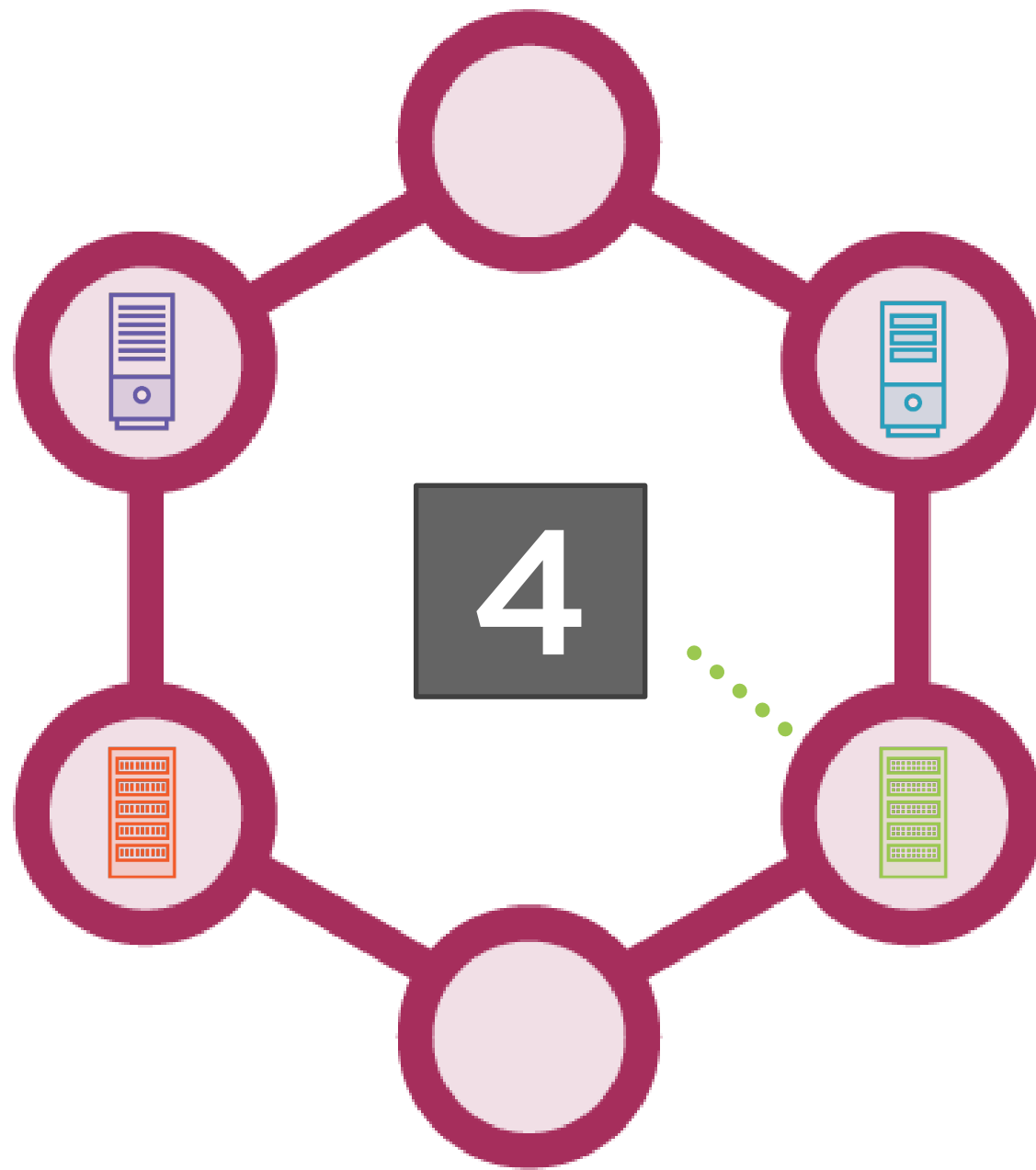
.....

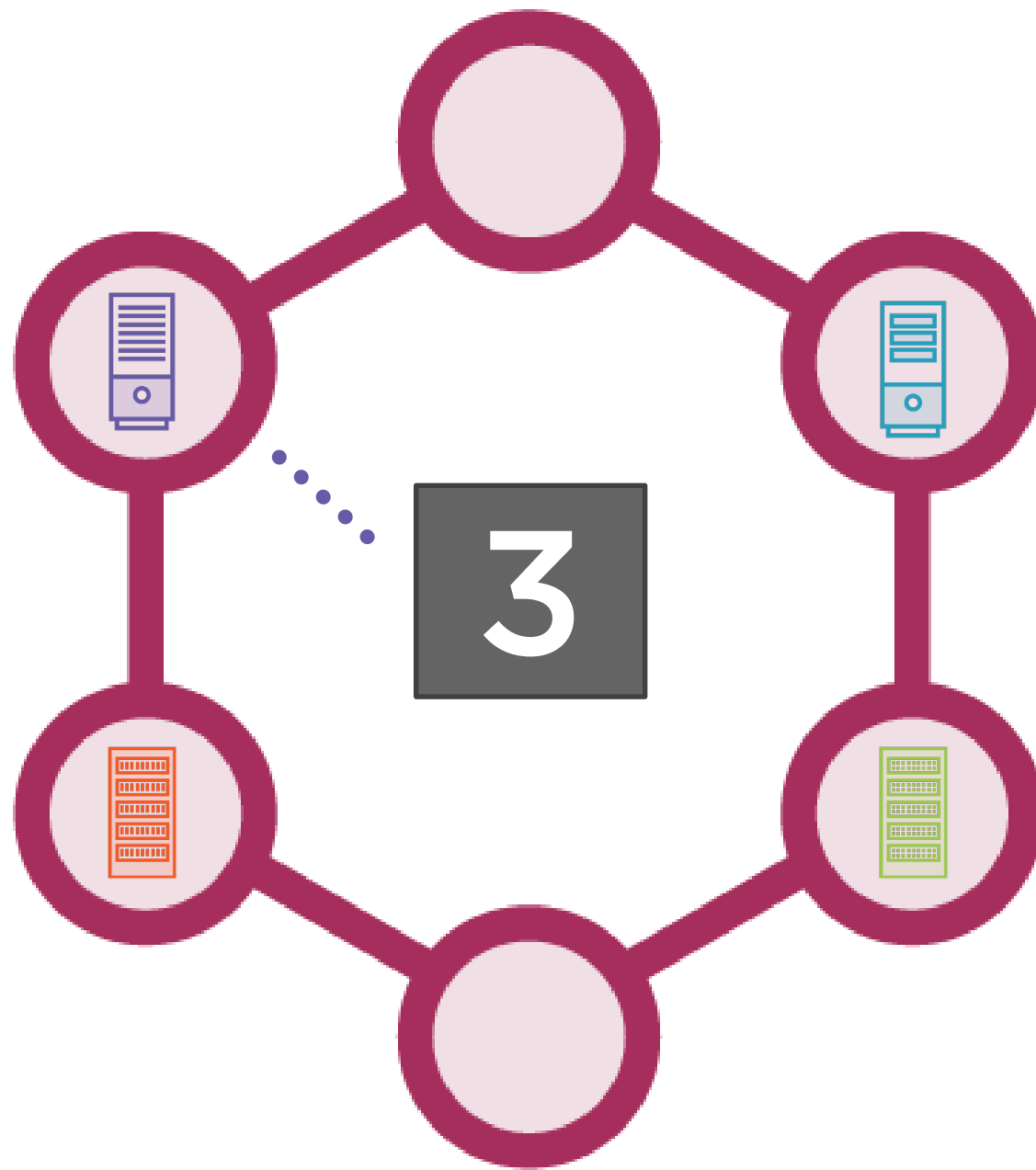


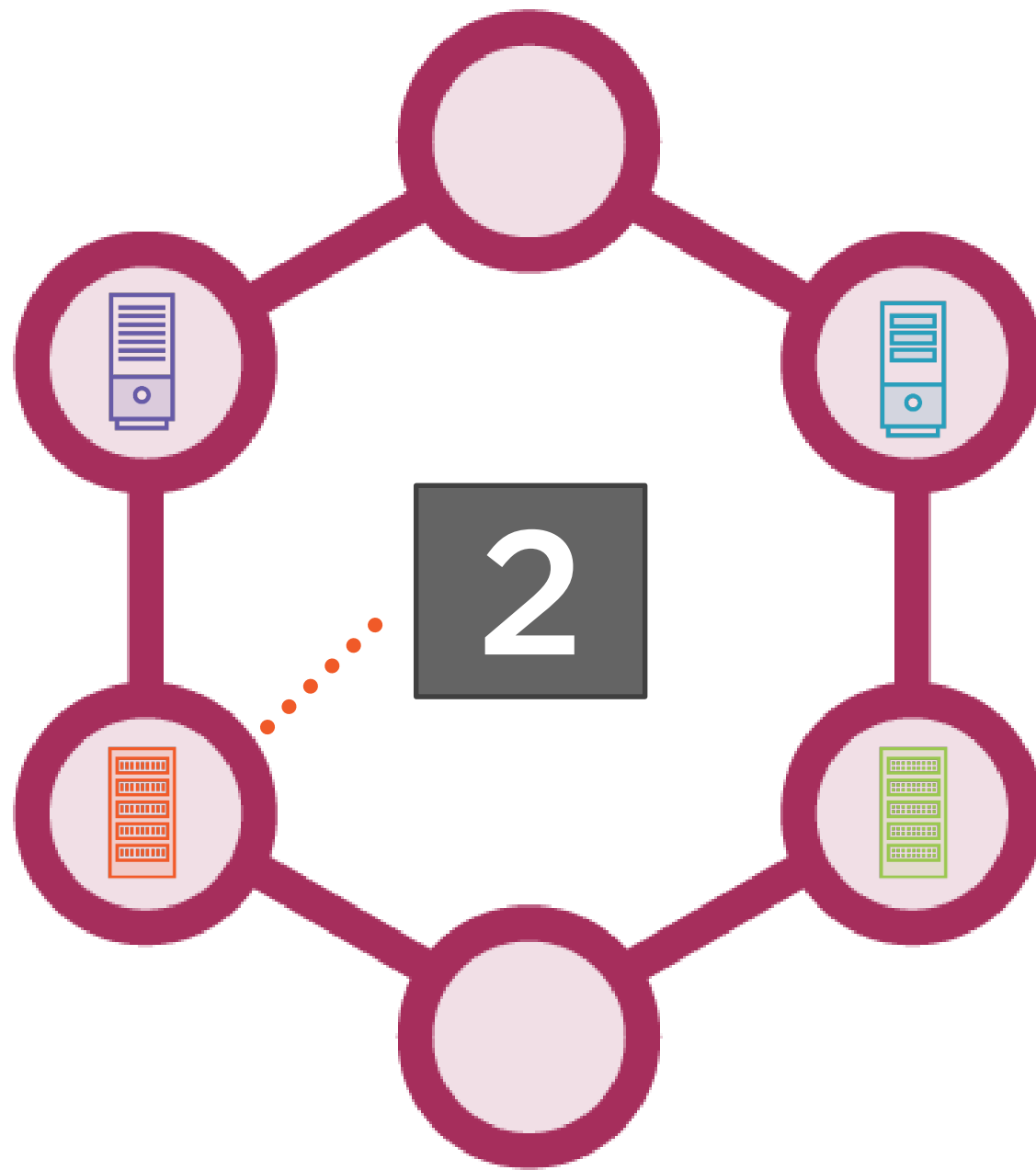
.....

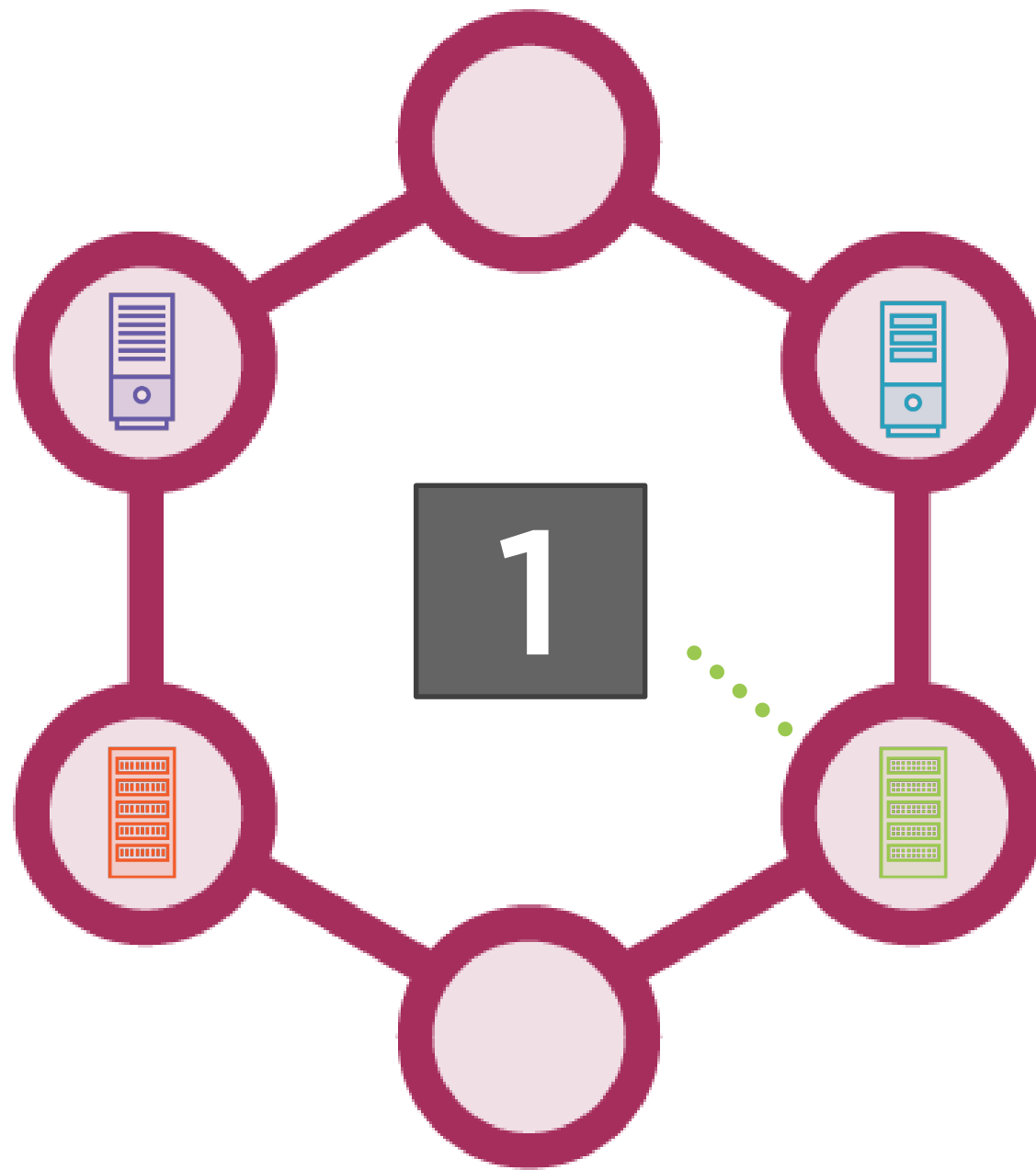




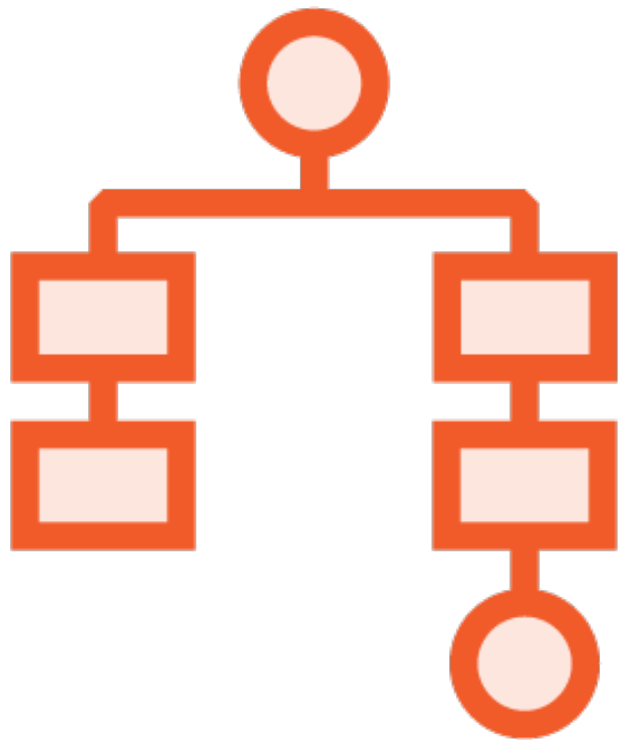








<https://apacheignite.readme.io/docs/data-structures>



Queue

Set

Atomic Types

ID Generator

Count Down Latches

Semaphores



Up Next

Deployment





# Deploying Ignite Clusters

---



# Deployment Options



**On Premise**



**In Cloud**



**Both On Premise and In Cloud**



# IP Finder

A pluggable class that enables Apache Ignite nodes to find each other by their IP address.



# Place holder slide for live action screen

<https://hub.docker.com/r/apacheignite/ignite/>





Configure the base image

Include the optional dependencies

Build our project

Start the Ignite node



Amazon Web Services

Google Compute

YARN

Hadoop

Mesos

Kubernetes



# Place holder slide for live action screen

<https://apacheignite.readme.io/docs/deployment>



# Up Next

Summary of the “Introducing Apache Ignite” module





# Summary

---



# Summary



Overview of Apache Ignite

The roles that memory and disk play

The CAP theorem

Durable memory and native persistence

Data structures

Deployment options

