v1.10

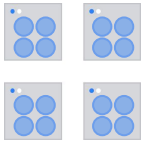
MODERN ENTERPRISE ARCHITECTURE

MESOSPHERE

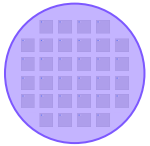
THE DATACENTER IS EVOLVING (AGAIN)

Mainframe

Physical (x86)



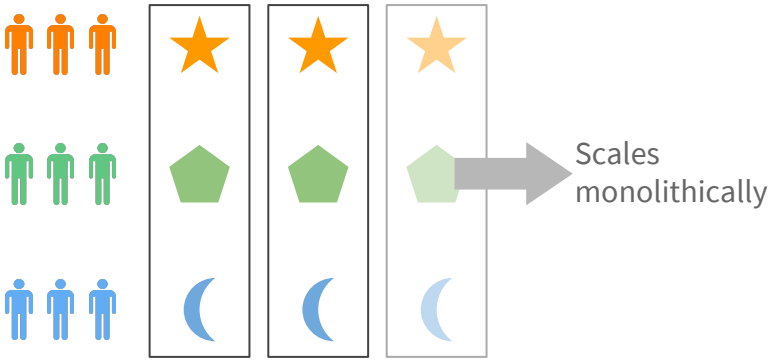
Virtual
server
partitioning



Cloud-native
infrastructure
aggregation

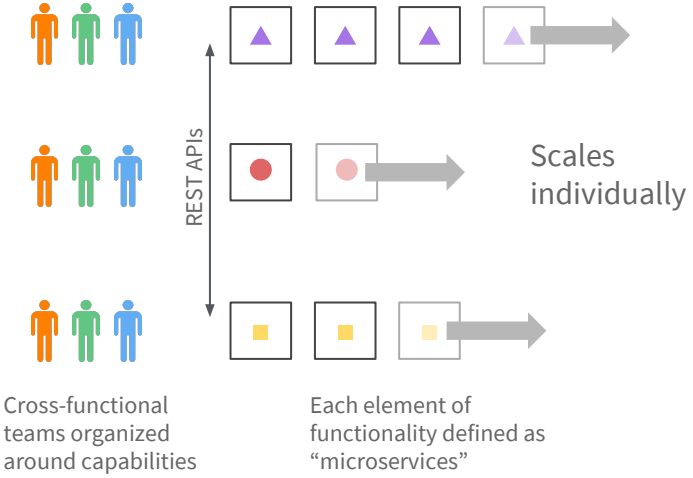
MICROSERVICES ARCHITECTURE

Traditional Architecture



Small number of large processes with strong inter-dependencies

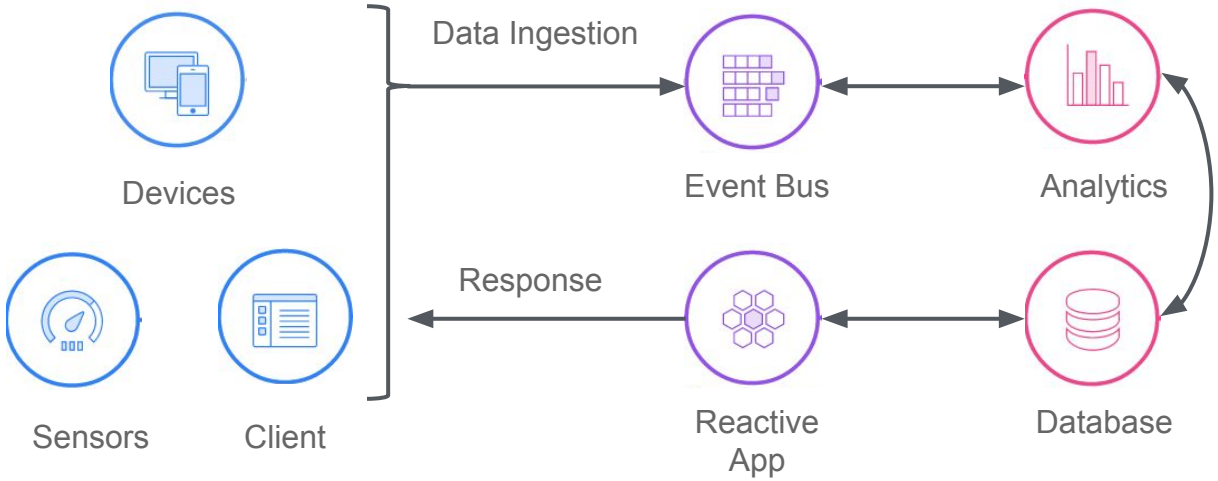
Microservices Architecture



Cross-functional teams creating new microservices without interdependencies

Modern Enterprise Apps

STATEFUL DATA BUILT-IN

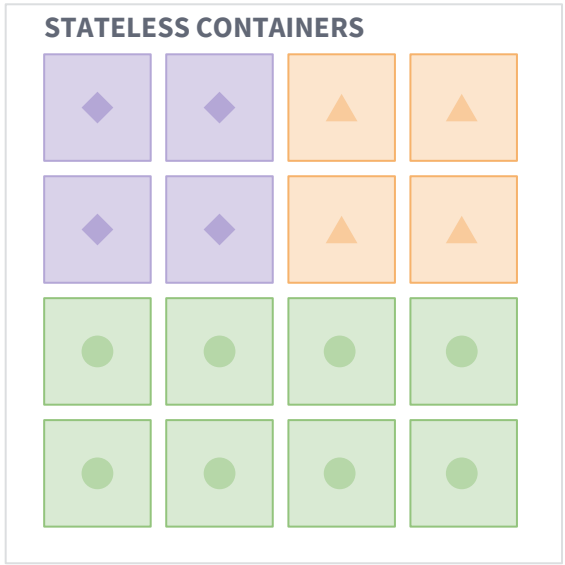


Use Case Examples

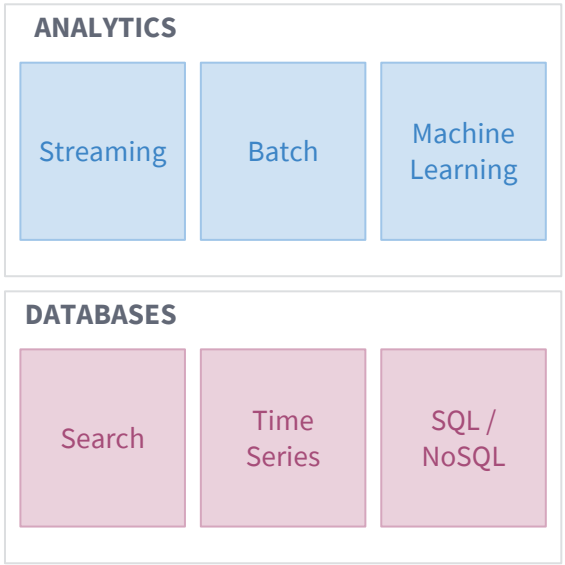
- Anomaly detection
- Personalization
- IoT Applications
- Predictive Analytics
- Machine Learning

THE MODERN ENTERPRISE APP

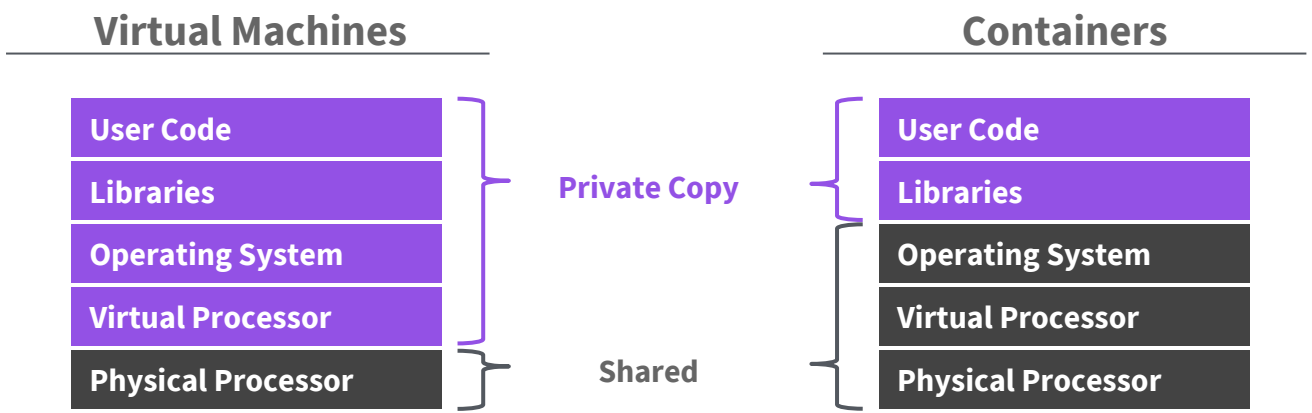
MICROSERVICES



BIG DATA SERVICES

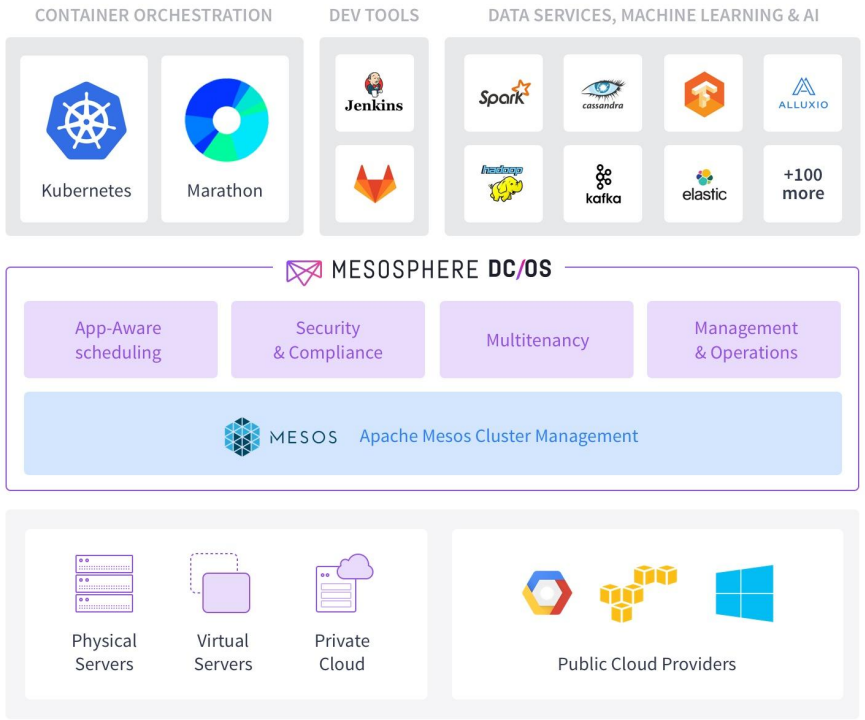


VIRTUAL MACHINES & CONTAINERS



Start time	30-45 seconds	< 50 ms
Stop time	5-10 seconds	< 50 ms
Workload density	1x	10 - 100x

MODERN APP PLATFORM



Broadest workload coverage
- Open & growing partner ecosystem
- 100+ Apps and platform services

Datacenter-cloud as a single computer
- Infrastructure Abstraction
- Distributed Apps Pooling
- Autonomous Operations

Hybrid Cloud Portability
- Cloud & time arbitrage

PRODUCTION PROVEN AT SCALE

2000 2010 2014 2015 2016 2017

Mesos: A Platform for Fine-Grained Resource Sharing in the Data Center

Benjamin Hindman, Andy Konwinski, Matei Zaharia,
Ali Ghodsi, Anthony D. Joseph, Randy Katz, Scott Shenker, Ion Stoica
University of California, Berkeley

Thursday 30th September, 2010, 12:57

Abstract

We present Mesos, a platform for sharing commodity clusters between multiple diverse cluster computing frameworks, such as Hadoop and MPI. Sharing improves cluster utilization and avoids per-framework data repli-

The solutions of choice to share a cluster today are either to statically partition the cluster and run one framework per partition, or allocate a set of VMs to each framework. Unfortunately, these solutions achieve neither high utilization nor efficient data sharing. The main

Hewlett Packard Enterprise

Microsoft

DC/OS

DELL EMC Reseller Program

DCOS Launched | DC/OS OSS Project

Mesosphere

Proprietary | Apache Mesos Project

Google Borg & Omega

facebook. Tupperware & Bistro

airbnb PayPal NETFLIX Microsoft Azure THE UNIVERSITY OF UTAH

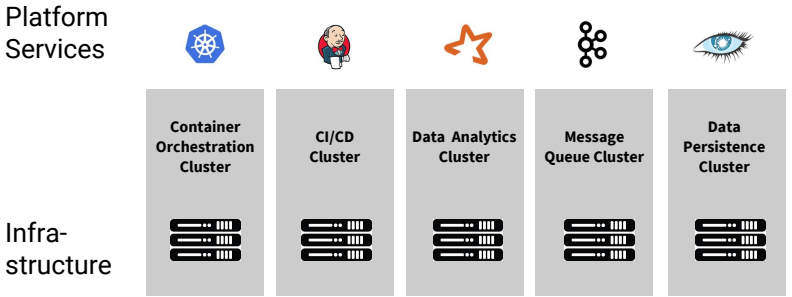
GROUPON verizon yelp ADP UBER

Bloomberg China unicom中国联通 SINOPEC H3C The Leader in New IT

DC/OS OPERATING MODEL

Traditional Approach:

Slow, Expensive, Hard



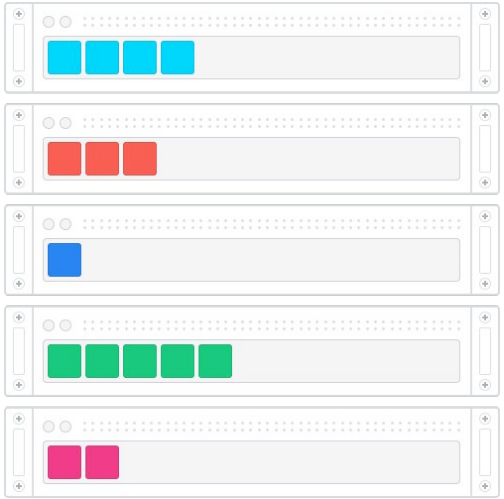
DC/OS Approach:

Datacenter-cloud as a single computer

Key capabilities:

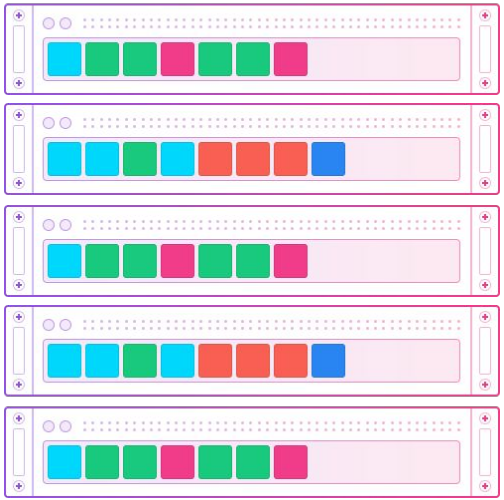
- Complete lifecycle automation of platform services
- Workload pooling and density optimization
- Multitenancy, high availability, multi-cloud portability

HYPERSCALE EFFICIENCY



Industry Average
12-15% utilization

Typical Datacenter
siloed, over-provisioned servers, low utilization



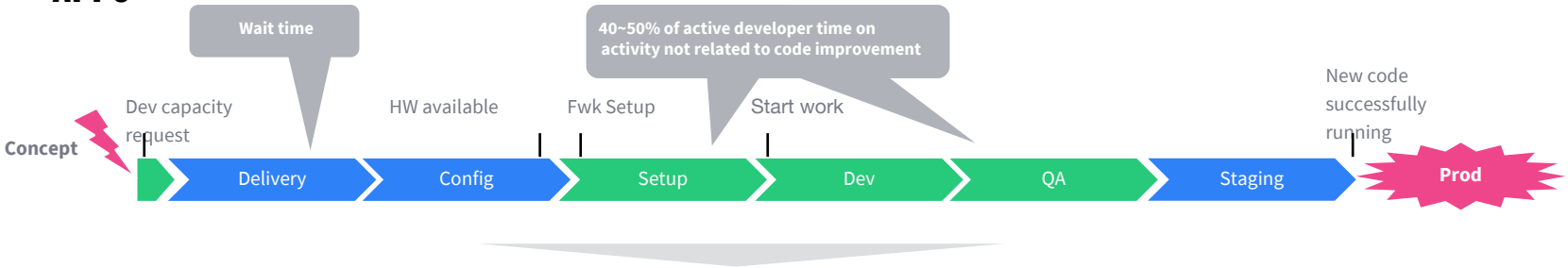
DC/OS Multiplexing
30-40% utilization, up to 96% at some customers

4X

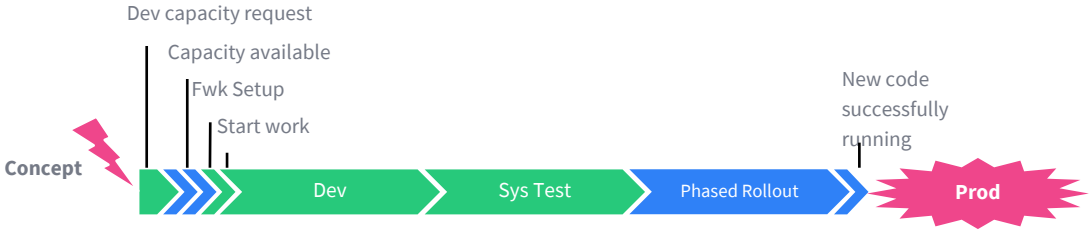
DC/OS Datacenter
automated schedulers, workload multiplexing onto the same machines

DEVELOPER AGILITY

TRADITIONAL APPROACH TO BUILDING MODERN APPS

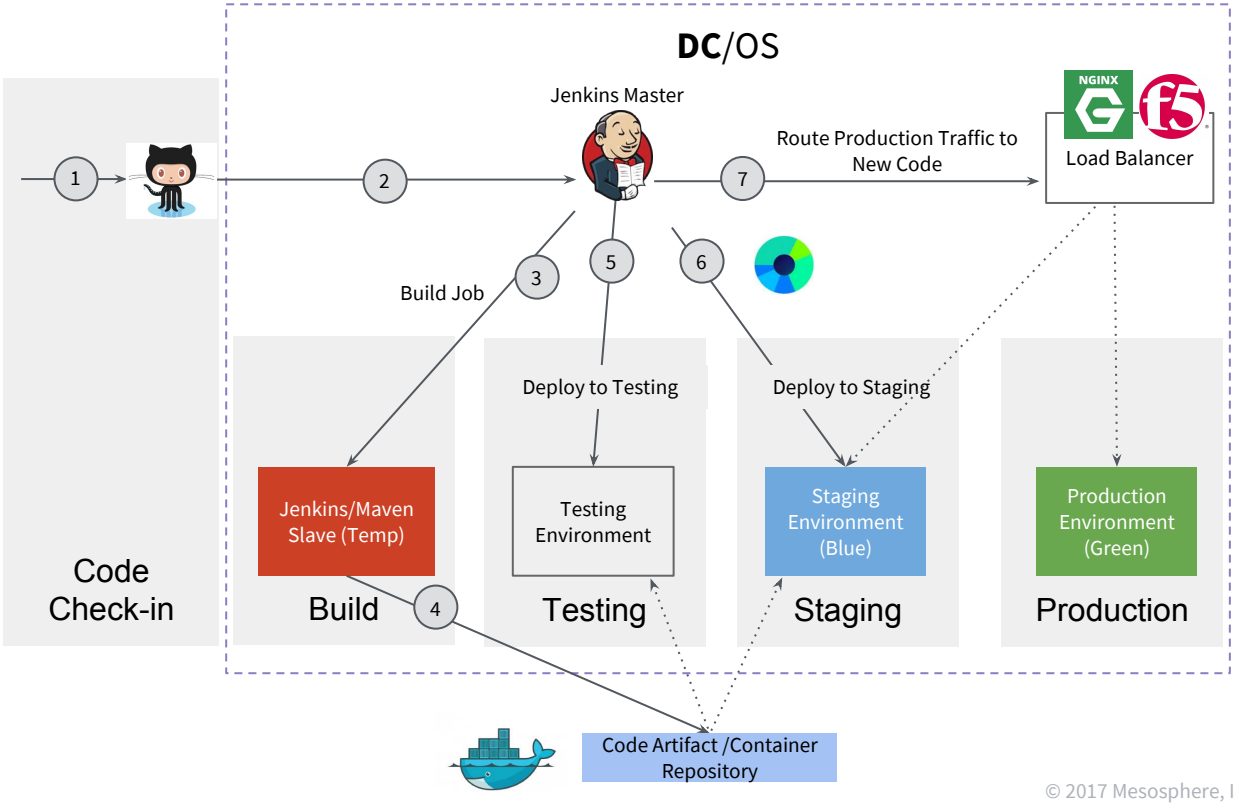


APPROACH WITH MESOSPHERE DC/OS



DC/OS enables CI/CD, without being prescriptive on code management or lifecycle automation tools

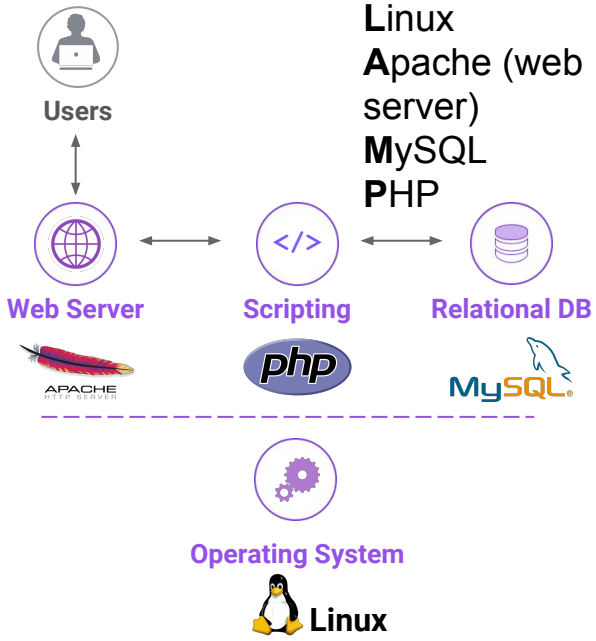
SIMPLIFIED CI/CD DEPLOYMENT



DATA AGILITY

LAMP Stack

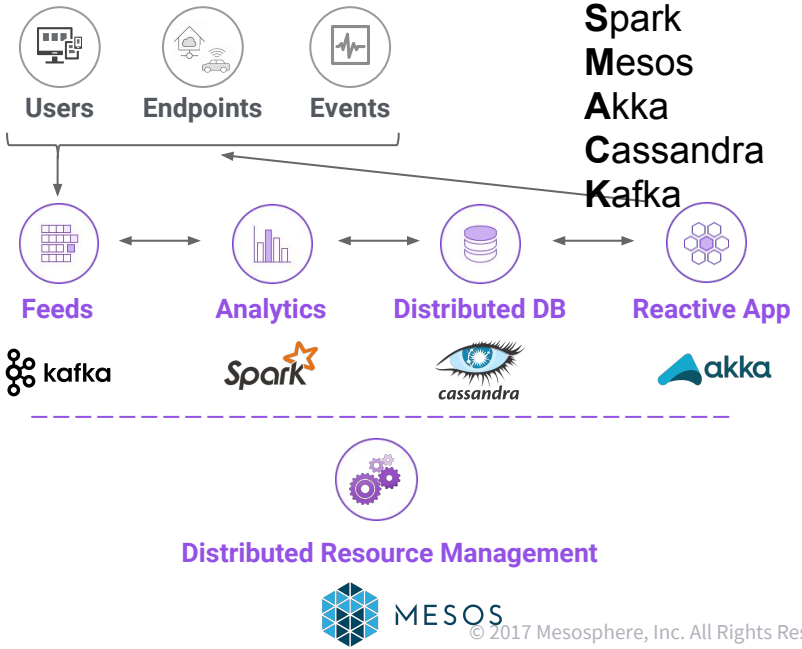
Enabling dynamic web applications



Linux
Apache (web server)
MySQL
PHP

SMACK Stack

Powering scalable real-time & data-driven applications



Spark
Mesos
Akka
Cassandra
Kafka

DATA SERVICES ON DC/OS

	MESOSPHERE DC/OS	AWS-specific services
ANALYTICS	Spark	Elastic MapReduce
STREAM INGEST	kafka	Kinesis
NOSQL	cassandra	DynamoDB
RELATIONAL DB	MySQL	RDS
SEARCH	elastic	CloudSearch
CACHE	redis	ElastiCache

ECOSYSTEM

DEVELOPER AGILITY

DATA AGILITY

HYPERSCALE OPERATIONS

CUSTOMERS

MESOSPHERE