Hydrosat Training Sessions
AWS Cloud Services

UNDERSTANDING CLOUD CONCEPTS

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Overview

Understanding AWS Infrastructure

Reviewing the Shared Responsibility Model

Examining the Economics of the Cloud

Architecting Infrastructure on AWS

Supporting Your AWS Infrastructure

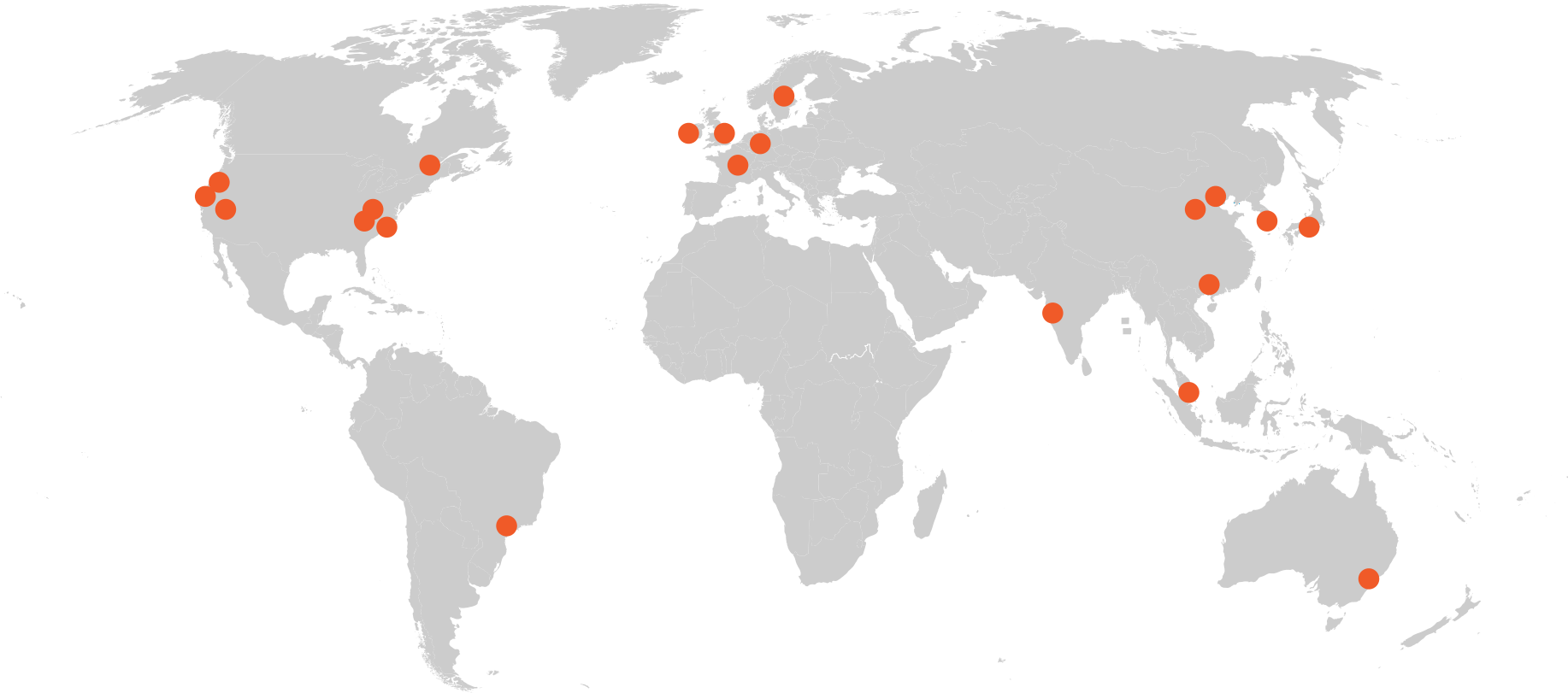
Regions

Availability Zones

Edge Locations

AWS Global Infrastructure

AWS Regions



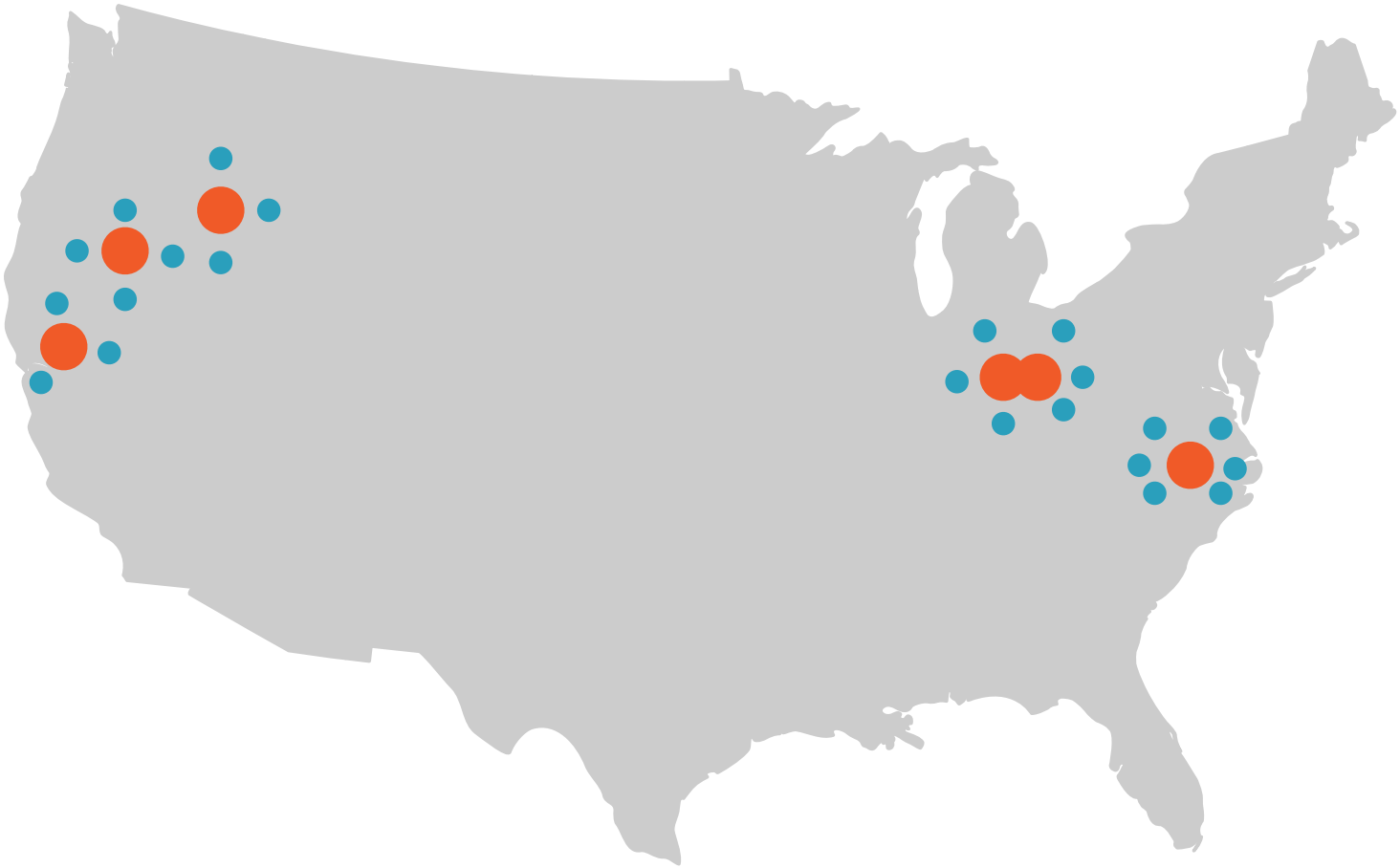
AWS Region

Based in a specific geographic region

Made up of two or more Availability Zones (AZ's)

Offers a specific subset of AWS services

US AWS REGIONS



REGION AVAILABILITY ZONE

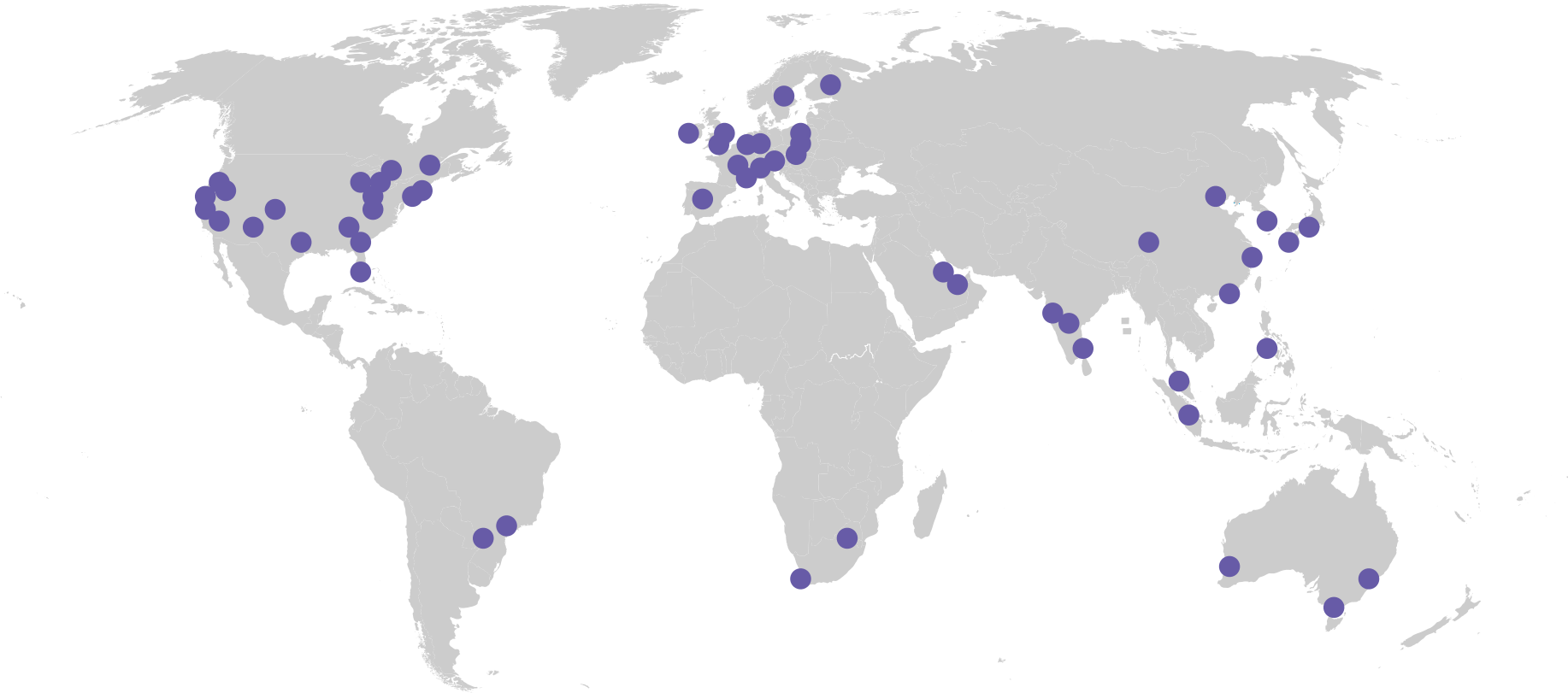
AWS Availability Zone

Made up of one or more data centers

Low latency communication between availability zones

Designed to isolate any failure to a single availability zone

AWS Edge Locations



AWS Edge Location

Used as nodes of a global content delivery network

Allows AWS to serve content from locations closest to users

Primarily used by Amazon CloudFront and related services

Shared Responsibility Model

“Security and Compliance is a shared responsibility between AWS and the customer.”

Amazon Web Services, Shared Responsibility Model

Shared Responsibility Summary

AWS Responsibility

AWS is responsible for the security of the cloud.

Customer Responsibility

The customer is responsible for security in the cloud.

Shared Responsibility Model

AWS Responsibility

Access & Training for Amazon Employees

Global Data Centers & Underlying Network

Hardware for Global Infrastructure

Configuration Management for Infrastructure

Patching Cloud Infrastructure & Services

Customer Responsibility

Individual Access to Cloud Resources & Training

Data Security & Encryption (both in transit and at rest)

Operating System, Network, and Firewall Configuration

All Code Deployed onto Cloud Infrastructure

Patching Guest OS and Custom Applications

The Economics of the Cloud

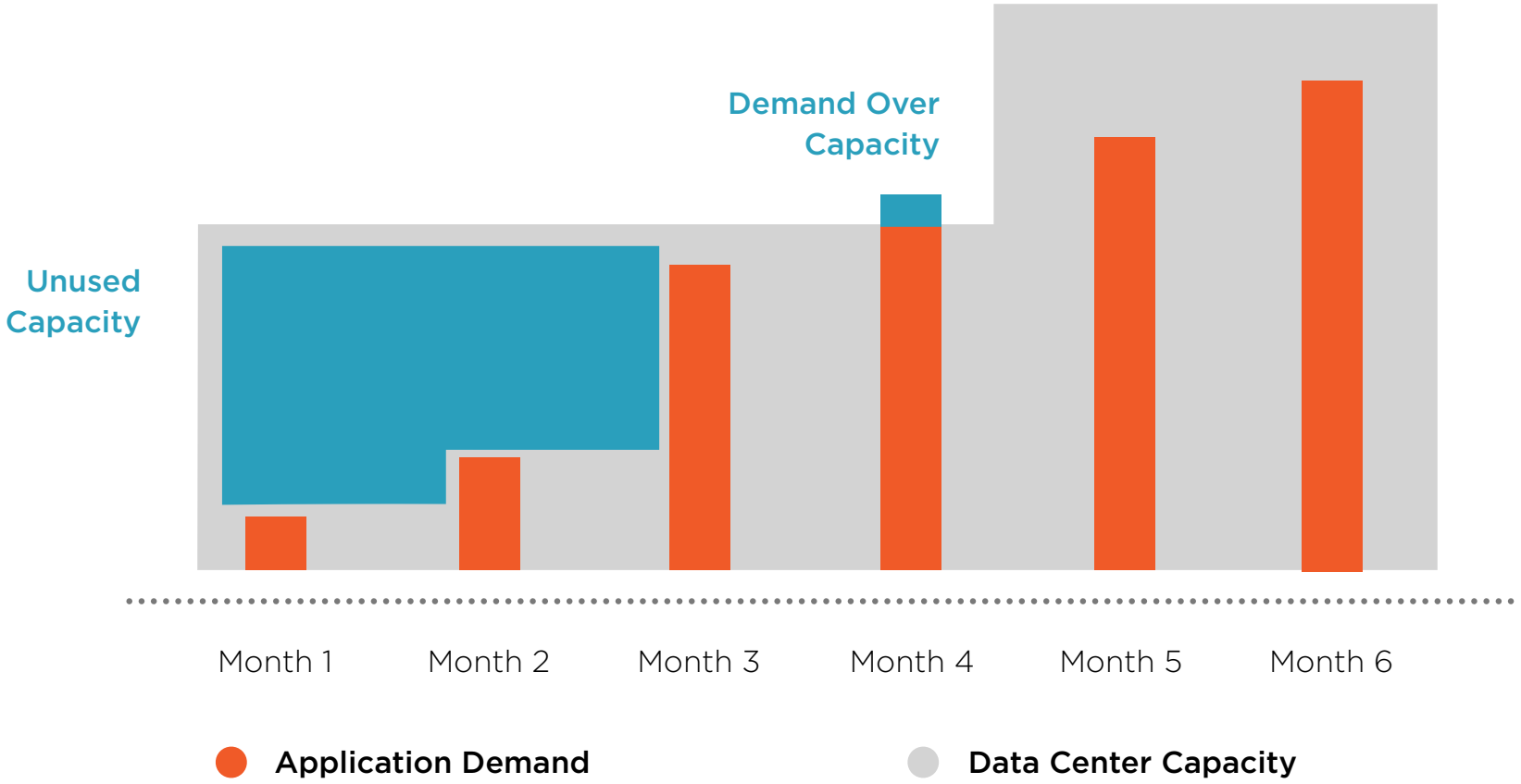
Capitalized Expenditure (CapEx)

When building a data center, an organization invests in upfront costs for the building, servers, and supporting equipment. This type of expense to attain a fixed asset is referred to as a **Capitalized Expenditure** or **CapEx**.

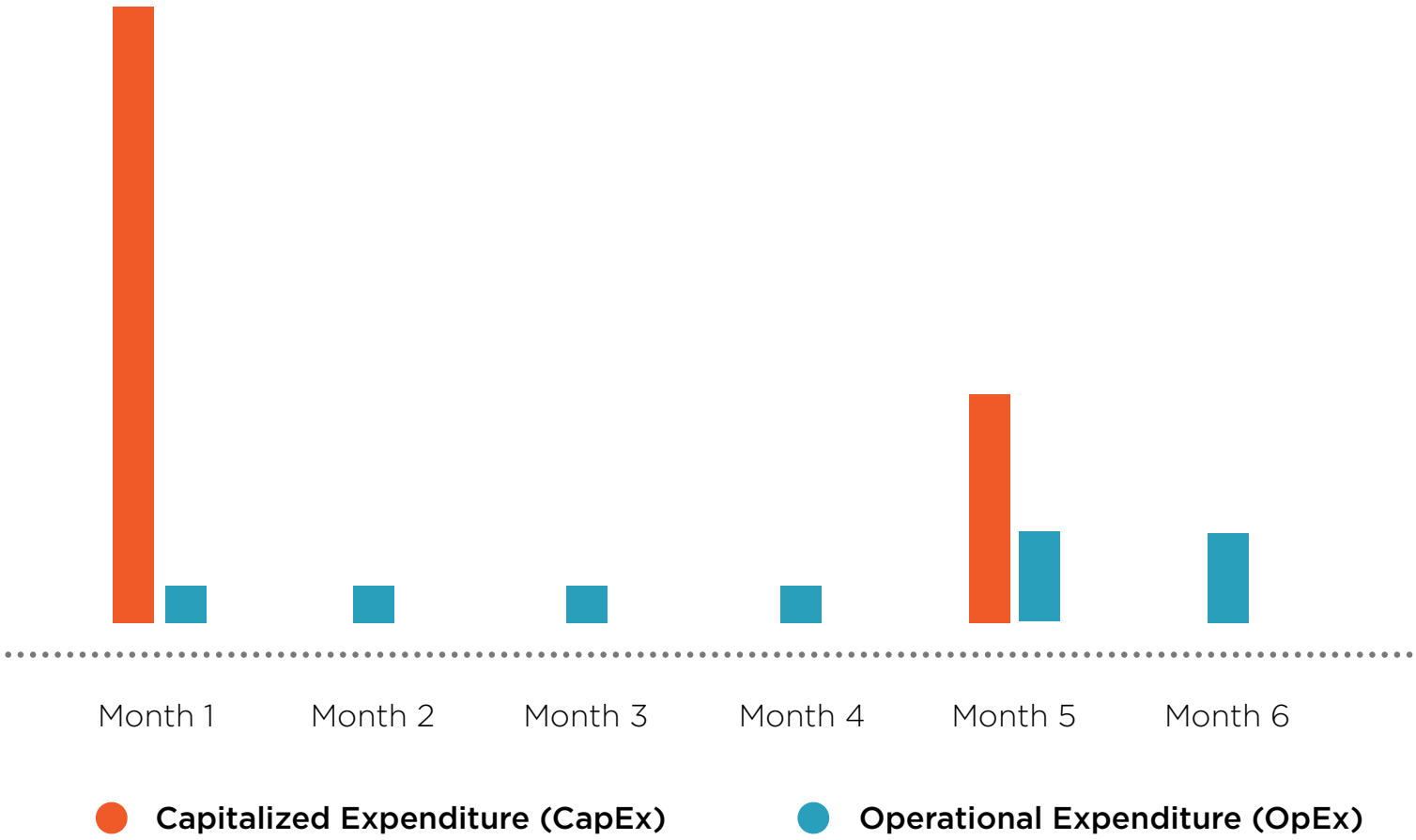
Operating Expenditure (OpEx)

The regular day to day expenses of a business are considered **Operating Expenditures** or **OpEx**. After the initial build of a data center, ongoing connectivity, utility, and maintenance costs would be considered OpEx.

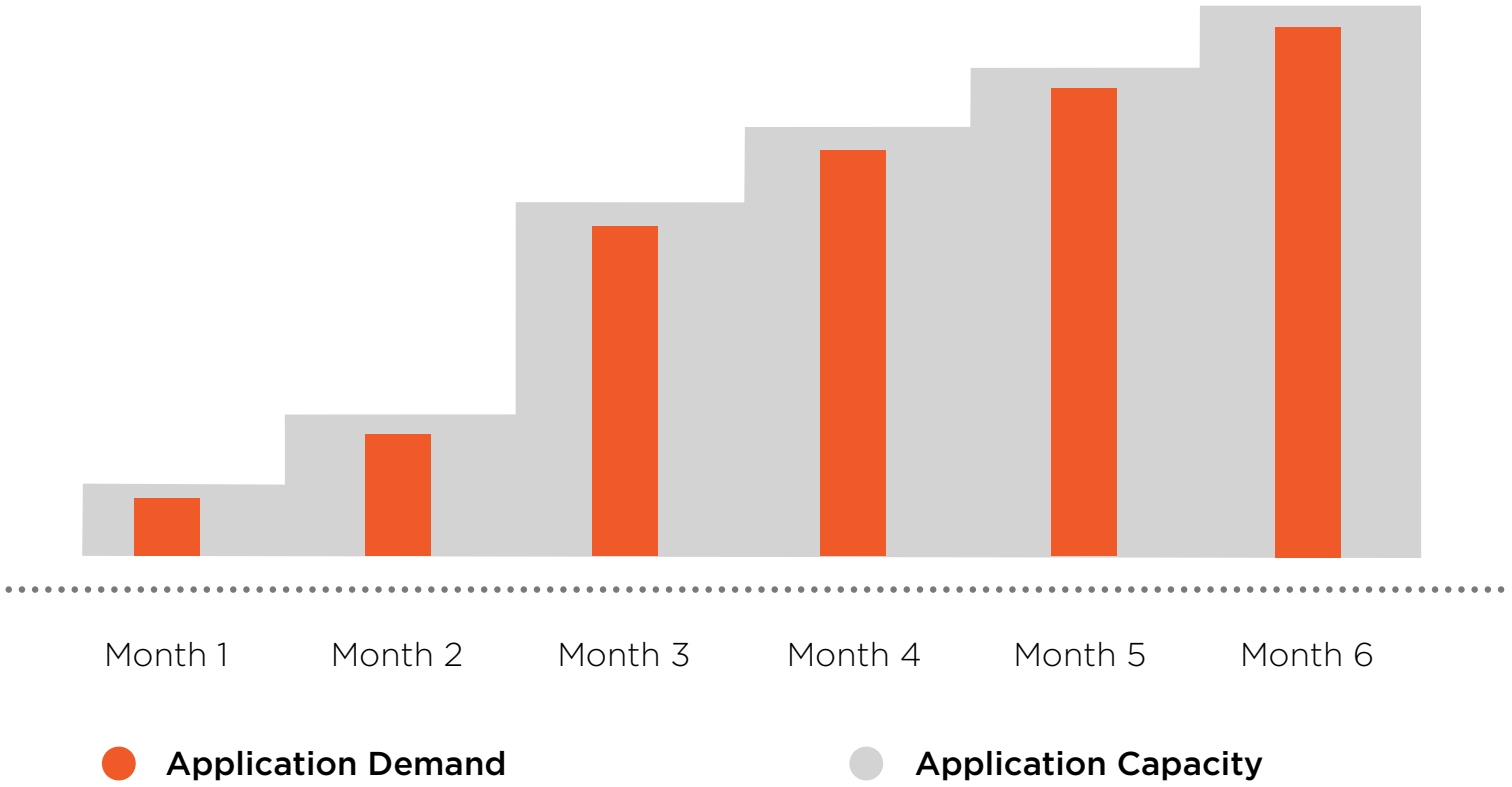
Handling Demand in Your Data Center



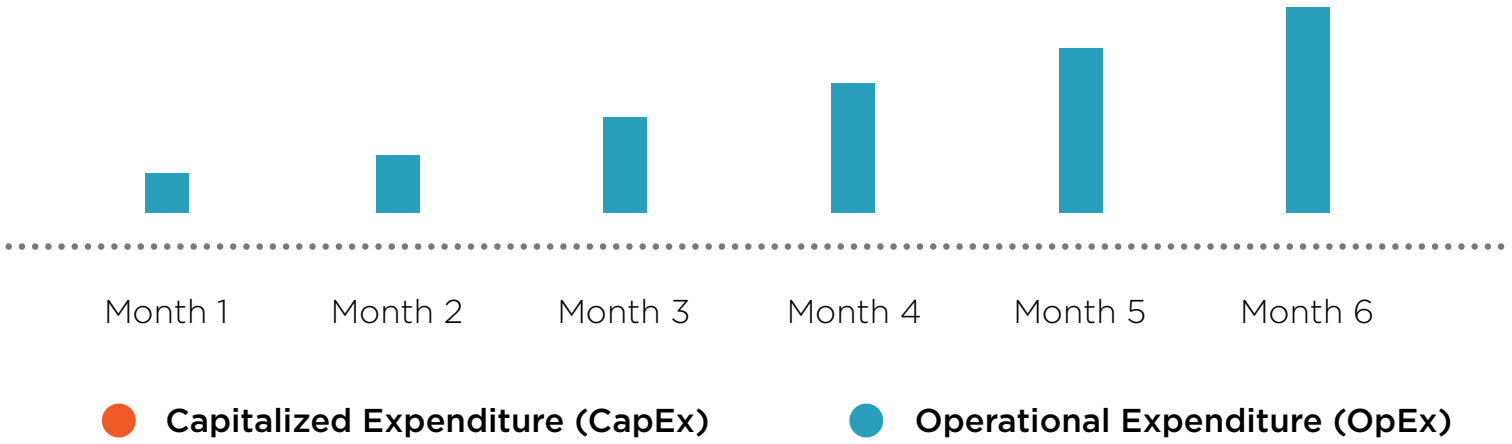
Building a Data Center



Handling Demand in The Cloud



Cost in the Cloud



Financial Implications

Manage Your Own Data Center

Large Up-front Costs (CapEx)

Potential for either Under-used Capacity or Unmet Demand

Increasing Capacity Takes Time and Additional Investment (CapEx)

Monthly Costs will Map to Predicted Infrastructure Needs

Leverage Cloud Infrastructure

No Up-front Investment

You Pay as You Go for Infrastructure (OpEx)

Capacity Scales to Meet User Demand and Can Be Provisioned Immediately

Monthly Costs will Map to User Demand

Predicting & Managing AWS Costs

AWS Cost Planning Tools

AWS TCO Calculator

Enables an organization to determine what could be saved by leveraging cloud infrastructure.

AWS Simple Monthly Calculator

Enables an organization to calculate the cost of running specific AWS infrastructure.

AWS Cost Explorer

User Interface for Exploring Your AWS Costs

Provides Breakdowns Including

- By Service
- By Cost Tag

Provides Predictions for the Next Three Months of Costs

Gives Recommendations for Cost Optimization

Can Be Accessed via API

AWS Organizations

Allows organizations to manage multiple accounts under a single master account

Provides organizations with the ability to leverage Consolidated Billing for all accounts

Enables organizations to centralize logging and security standards across accounts

Architecture on AWS

AWS Well Architected Framework

The Well Architected Framework is a collection of best practices across five key pillars for how to best create systems that create business value on AWS.

Pillars of the Well Architected Framework

Operational Excellence

Running and monitoring systems for business value

Security

Protecting information and business assets

Reliability

Enabling infrastructure to recover from disruptions

Performance Efficiency

Using resources efficiently to achieve business value

Cost Optimization

Achieving minimal costs for the desired value

Reliability on AWS

Fault Tolerance

Being able to support the failure of components within your architecture

High Availability

Keeping your entire solution running in the expected manner despite issues that may occur

AWS Disaster Recovery Approaches

Backup & Restore
Backups of systems are stored to restore in a DR event

Pilot Light
Minimal resources are setup in AWS to support a DR event

Warm Standby
Systems are running in AWS and can be scaled up for DR

Multi-Site
Systems are running in two regions and support users

Supporting Your AWS Infrastructure

AWS Basic Support

Provided for All AWS Customers

Access to Trusted Advisor (7 Core Checks)

24x7 Access to Customer Service, Documentation, Forums, & Whitepapers

Access to Personal Health Dashboard

No Monthly Cost

AWS Developer Support

Includes all Features of Basic Support

Business Hours Access to Support Engineers

Limited to 1 Primary Contact

Starts at $29 per month (tied to AWS usage)

AWS Business Support

Includes all Features of Developer Support

Full Set of Trusted Advisor Checks

24x7 Phone, Email, and Chat Access to Support Engineers

Unlimited Contacts

Starts at $100 per month (tied to AWS usage)

AWS Enterprise Support

Includes all Features of Business Support

Includes Designated Technical Account Manager (TAM)

Includes Concierge Support Team

Starts at $15,000 per month (tied to AWS usage)

Support Response Times

	Developer	Business	Enterprise
General Guidance	24 Business Hours	24 Hours	24 Hours
System Impaired	12 Business Hours	12 Hours	12 Hours
Production System Impaired		4 Hours	4 Hours
Production System Down		1 Hours	1 Hour
Business-critical System Down			15 Minutes

Summary

AWS Global Infrastructure

Cloud Economics

Architecting on AWS

Shared Responsibility Model

AWS Cost Tools

Support on AWS