amazon web services™

Ahead in the Cloud

with Amazon Web Services

Matt Wood

TECHNOLOGY EVANGELIST

Hello.

Thank you.

amazon.com

Consumer business

Seller business

amazon web services™

Decades of experience

Operations, management and scale

Programmatic access

Unexpected innovation

Blinding flash of the obvious


amazon
web services™

5 years young

Compute	Storage
Databases	Services & Support

4

Cloud concepts

Foundations

4

Maximising value

Security in the Cloud

Cloud concepts

Or: five things I wish I'd known
before getting started

1. Signing up

On the web

Amazon Web Services [SP]

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100% Memcached compatible.

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Sep 18, 2011	Announcing Windows support for Amazon EC2 Cluster Compute and Cluster GPU instances	Sep 08, 2011	Announcing the AWS Toolkit for Visual Studio
Sep 15, 2011	AWS FISMA Moderate	Sep 07, 2011	AWS Mobile SDKs Exit Beta With Support for Credential Management

RSS

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Products & Services

Compute
- Amazon Elastic Compute Cloud (EC2)
- Amazon Elastic MapReduce
- Auto Scaling

Content Delivery
- Amazon CloudFront

Networking
- Amazon Route 53
- Amazon Virtual Private Cloud (VPC)
- Elastic Load Balancing
- AWS Direct Connect

Get Started

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- Security & Compliance
- Economics Center
- Case Studies
- Service Health Dashboard
- Solution Providers
- Videos & Webinars
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Products & Services

Compute
Amazon Elastic Compute Cloud (EC2)
Amazon Elastic MapReduce
Auto Scaling

Content Delivery
Amazon CloudFront

Networking
Amazon Route 53
Amazon Virtual Private Cloud (VPC)
Elastic Load Balancing
AWS Direct Connect

Free tier

For new customers

750 hours of compute

10Gb network storage

Free tier

5Gb
Simple Storage Service

SimpleDB, queues,
notications

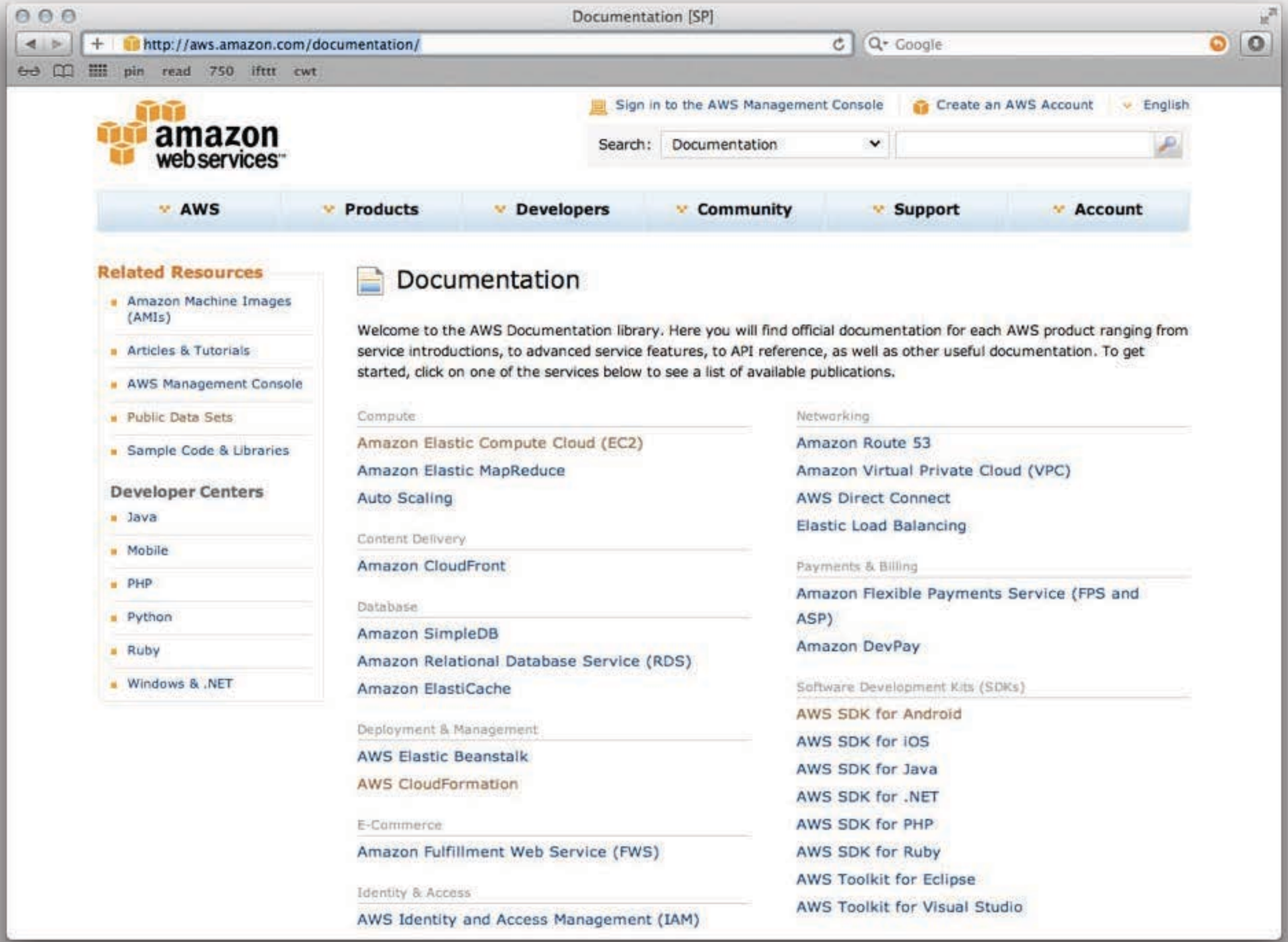
2. Interacting

API driven

REST

API driven

SOAP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Documentation
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Compute
Amazon Elastic Compute Cloud (EC2)
Amazon Elastic MapReduce
Auto Scaling
Content Delivery
Amazon CloudFront
Database
Amazon SimpleDB
Amazon Relational Database Service (RDS)
Amazon ElastiCache
Deployment & Management
AWS Elastic Beanstalk
AWS CloudFormation
E-Commerce
Amazon Fulfillment Web Service (FWS)
Identity & Access
AWS Identity and Access Management (IAM)
Networking
Amazon Route 53
Amazon Virtual Private Cloud (VPC)
AWS Direct Connect
Elastic Load Balancing
Payments & Billing
Amazon Flexible Payments Service (FPS and ASP)
Amazon DevPay
Software Development Kits (SDKs)
AWS SDK for Android
AWS SDK for iOS
AWS SDK for Java
AWS SDK for .NET
AWS SDK for PHP
AWS SDK for Ruby
AWS Toolkit for Eclipse
AWS Toolkit for Visual Studio

CLI

ec2-run-instances

ec2-terminate-instances

SDK

Java

Ruby

.Net

SDK

iOS

PHP

Android

Management console

AWS Management Console [SP]

https://console.aws.amazon.com/s3/home?

Google

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AWS Management Console

Matt Wood | Help

Elastic Beanstalk | S3 | EC2 | VPC | CloudWatch | Elastic MapReduce | CloudFront | CloudFormation | RDS | ElastiCache | SNS | IAM

Buckets

Create Bucket | Actions

- android-video
- aws-assets
- aws-slides
- aws-wp-assets
- awscontent-logs
- byexample-logs
- cf-templates-xthrnrzfznsj-ap-n
- cf-templates-xthrnrzfznsj-ap-s
- cf-templates-xthrnrzfznsj-eu-w
- cf-templates-xthrnrzfznsj-eu-w
- cf-templates-xthrnrzfznsj-us-e
- cf-templates-xthrnrzfznsj-us-w
- cloudformation-intro
- cm-affd0ae6878c69f98c86d6d5
- coffee-shop-images
- elasticbeanstalk-us-east-1-545
- hpc-video
- my-website
- mza
- rails-sdk
- ruby-sdk
- supercomputing

Select one of your buckets to the left to look at the objects it contains, or to upload objects into it.

 | Feedback | Support | Privacy Policy | Terms of Use | An amazon.com company

Linux

Certificate based root access

```
mza$ ssh -i web/us-east/aws-web.pem
root@ec2-204-236-247-169.compute-1.amazonaws.com
Last login: Wed Jun 22 11:15:20 2011 from 82.26.6.99

       __|  __|_  ) CentOS
       _|  (     /    v5.4
      ___|\___|___| HVMx64

  Welcome to an EC2 Public Image
                        :-)

[root@ip-10-17-135-244 ~]#
```

Windows

Administrator access

Administrator

Windows 2008
Add feature...

Computer

Windows 2008
Enable Rem...

Internet Explorer (64-bit)
Windows Contacts
Windows Update
Accessories
Administrative Tools
Component Services
Computer Management
Data Sources (ODBC)
Event Viewer
iSCSI Initiator
Local Security Policy
Memory Diagnostics Tool
Reliability and Performance Monitor
Security Configuration Wizard
Server Manager
Services
Share and Storage Management
Storage Explorer
System Configuration
Task Scheduler
Windows Firewall with Advanced Securit
Windows Server Backup
Windows System Resource Manager
Terminal Services
Back

Start Search

Administrator

Documents

Computer

Network

Control Panel

Administrative Tools

Help and Support

Run...

Start

Initial Configuration T...

ITComparison.com (Bl...

Administrator: Comm...

Windows Server Backup

Untitled - Notepad

6:00 AM

3. Storage options

Ephemeral storage

Included with compute

Ephemeral storage

Lost at termination

Not backed up

When it´s gone,
it´s gone

Elastic Block Store

Network attached

Mount as volume

Elastic Block Store

Snapshot

Persistent

Persistent

Root partitions. Mount as volumes.

S3

Highly durable

Highly available

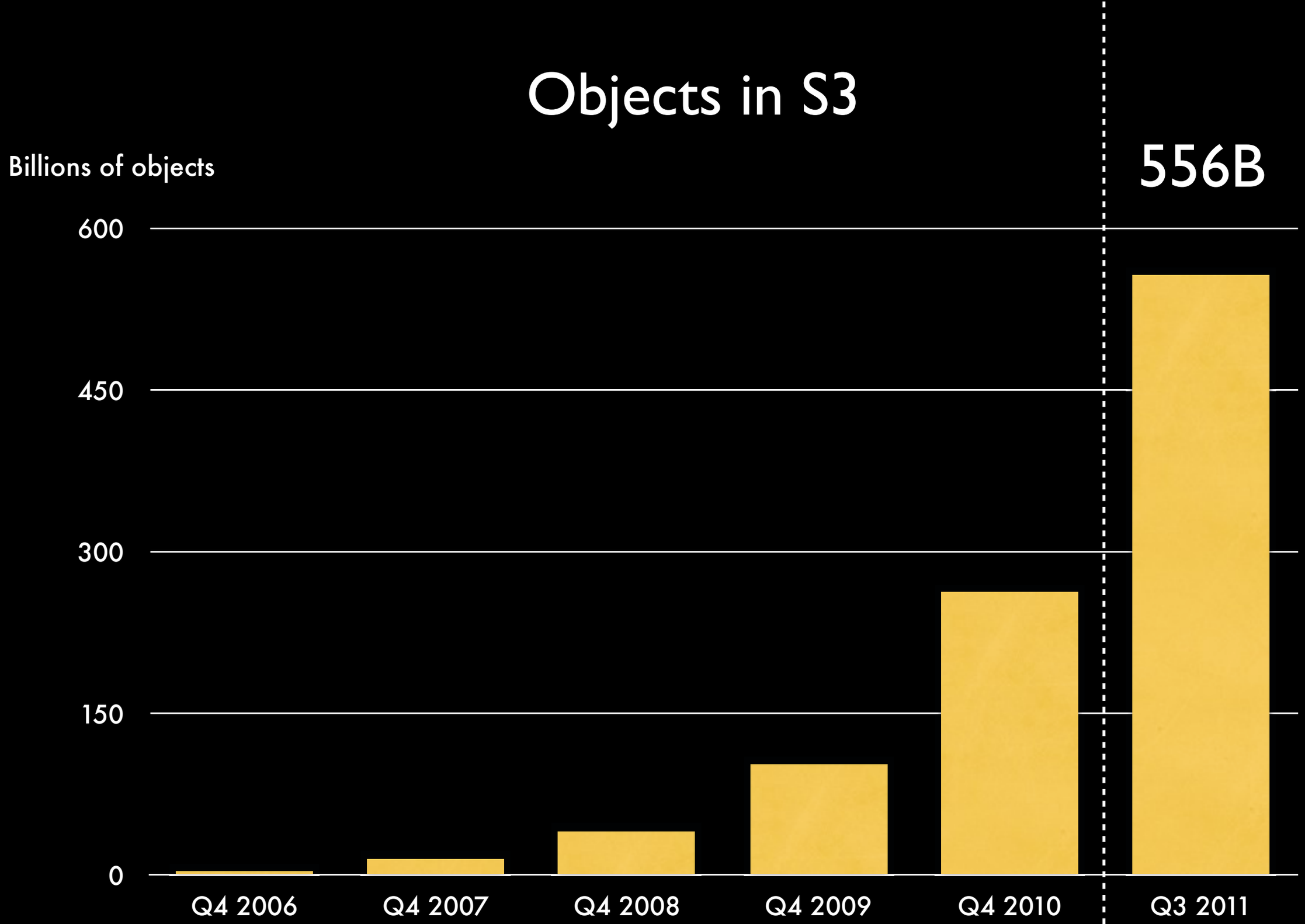
S3

Tolerant to two simultaneous failures

99.999999999%

durability

Objects in S3



370,000 peak

transactions per second

4. Payment options

Pay as you go

6b/month

ECU/hour

No minimum

No subscriptions

Pricing tiers

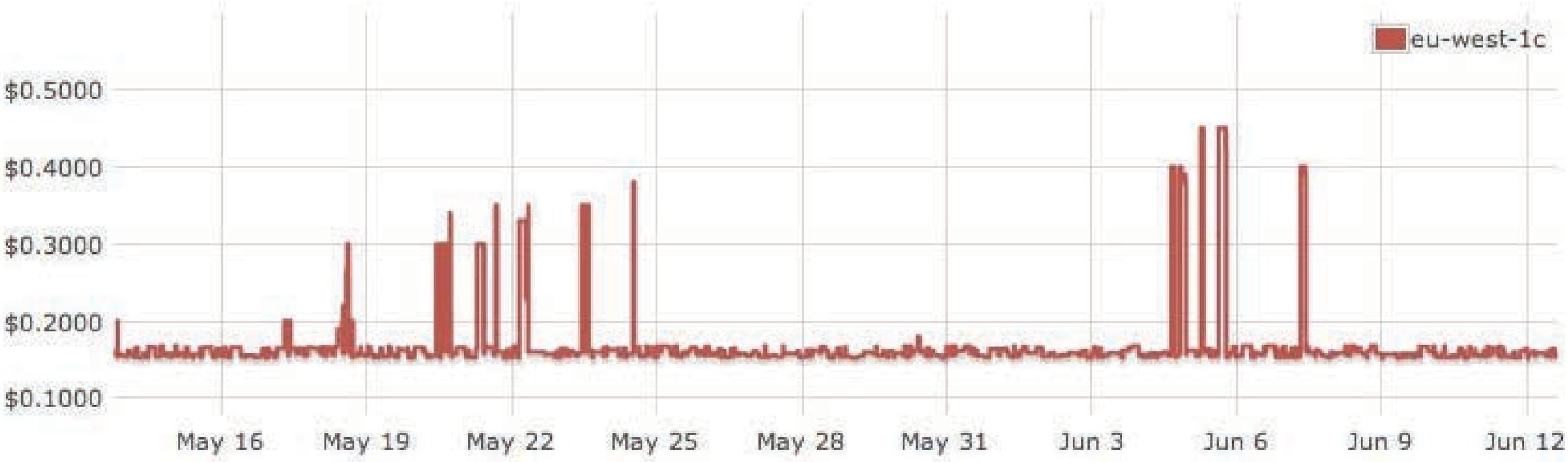
Consolidated billing

Options

On-demand

Reserved capacity

Spot instances



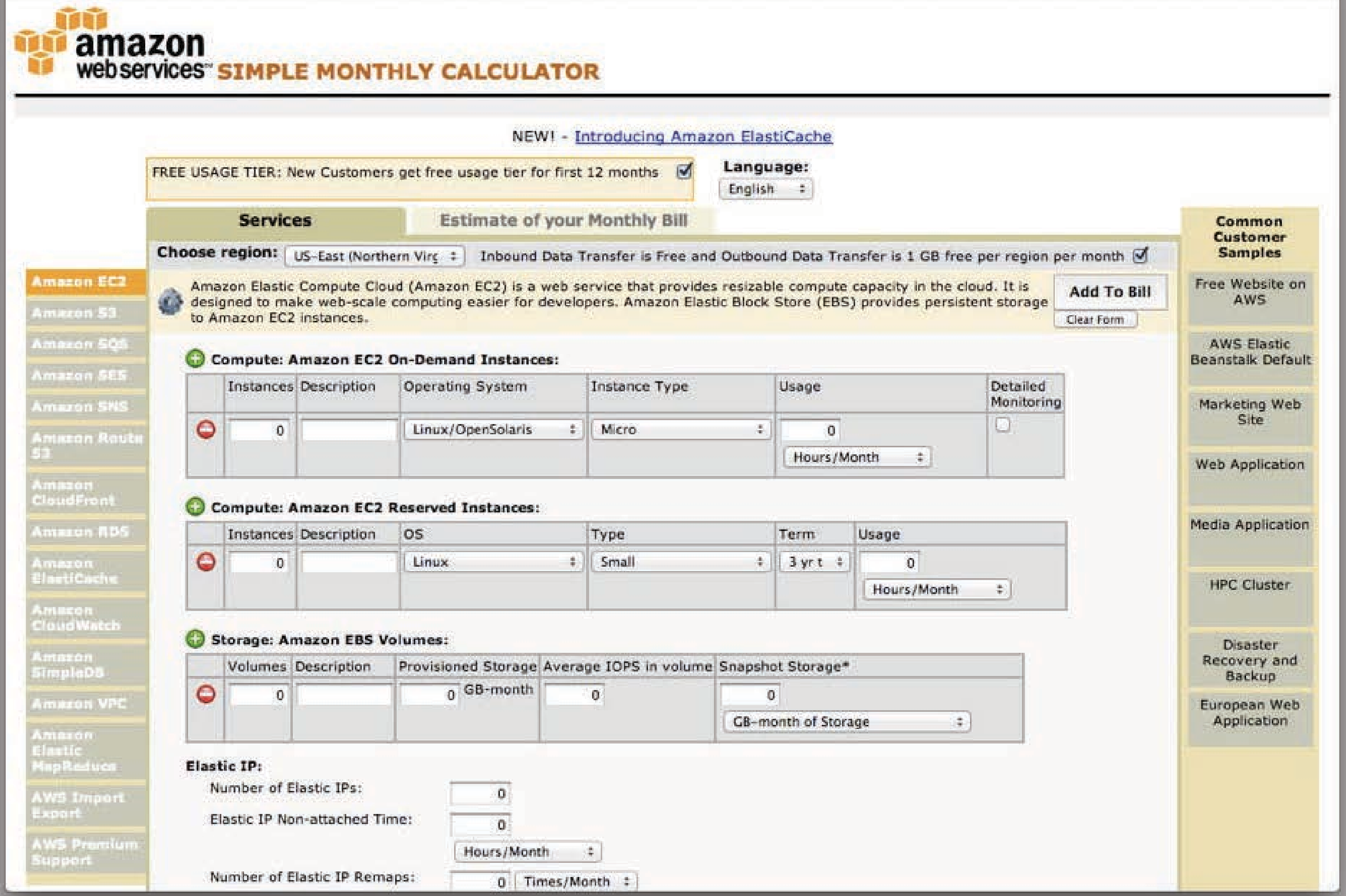
On-demand: $0.57 per hour

Bandwidth

Free inbound

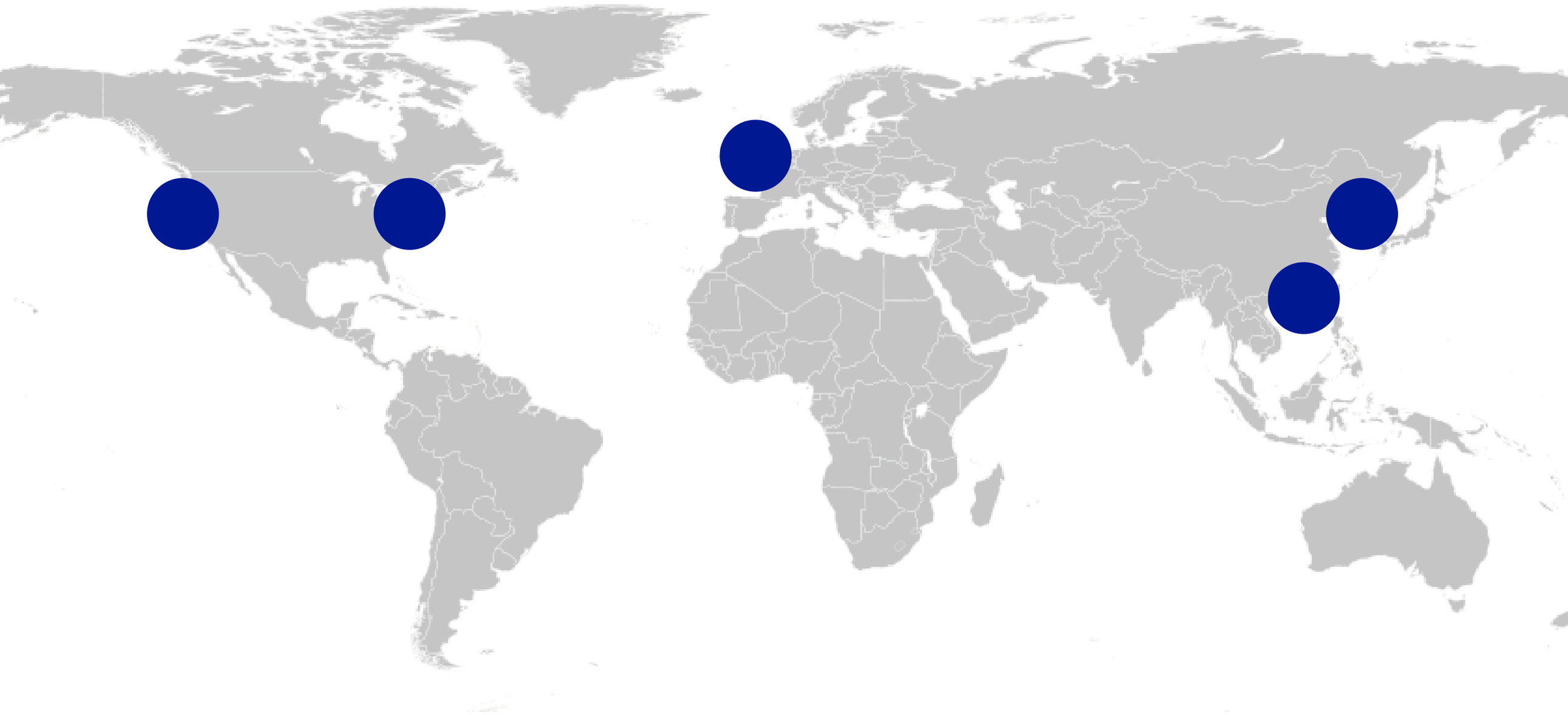
Reduced outbound

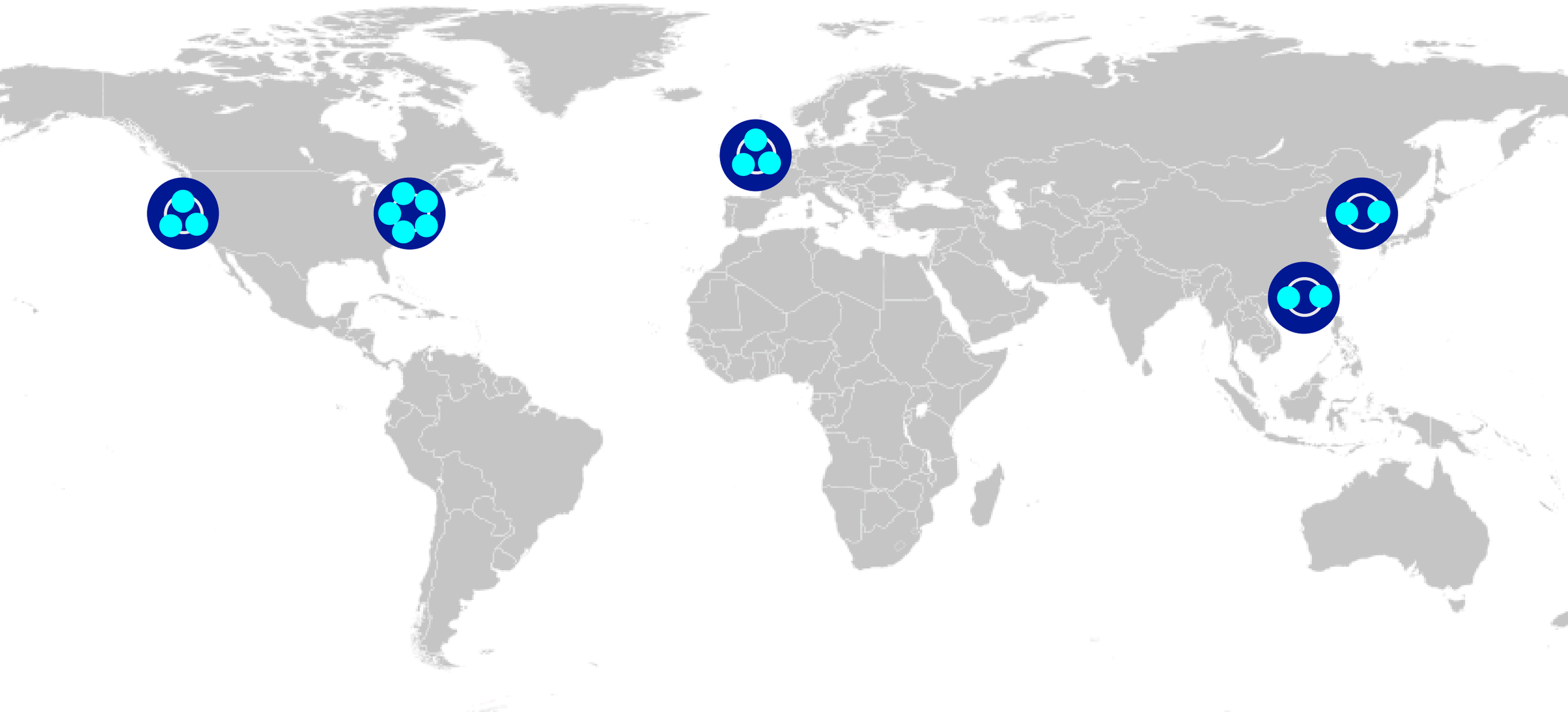
Pricing calculator



calculator.s3.amazonaws.com/calc5.html

5. Availability Zones





us-east

us-west

eu-west

ap-southeast

ap-northeast

eu-west-1a

eu-west-1b

eu-west-1c

Foundations

Compute

Elastic Compute Cloud

Windows + Linux instances

Instance sizes

Micro

High memory

High CPU

Instance sizes

Standard

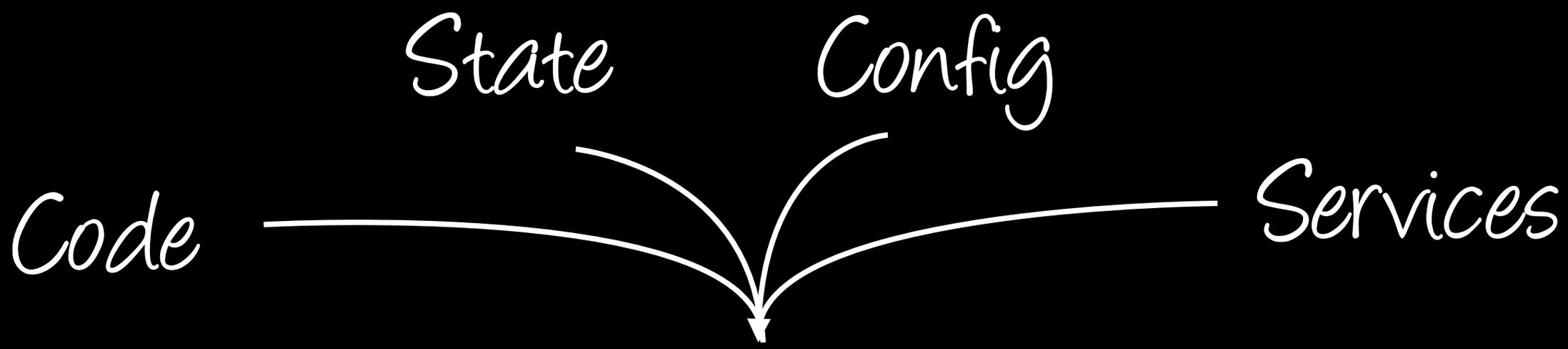
Cluster Compute

Dual “Nehalem”

1.7Tb disk

HVM

Amazon Machine Image



Amazon Machine Image

ami-219387e

Pre-configured

Custom

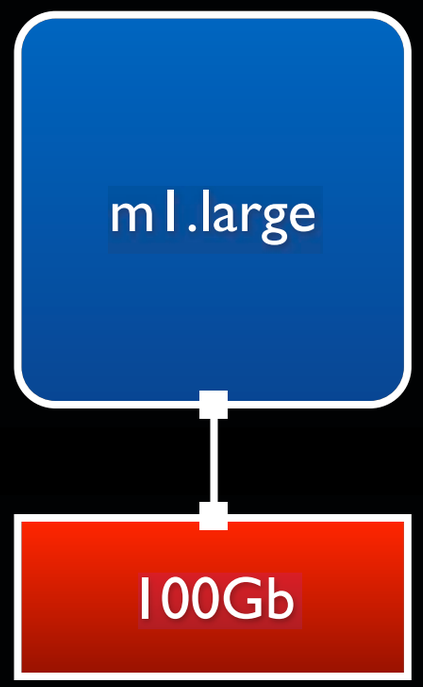
Private

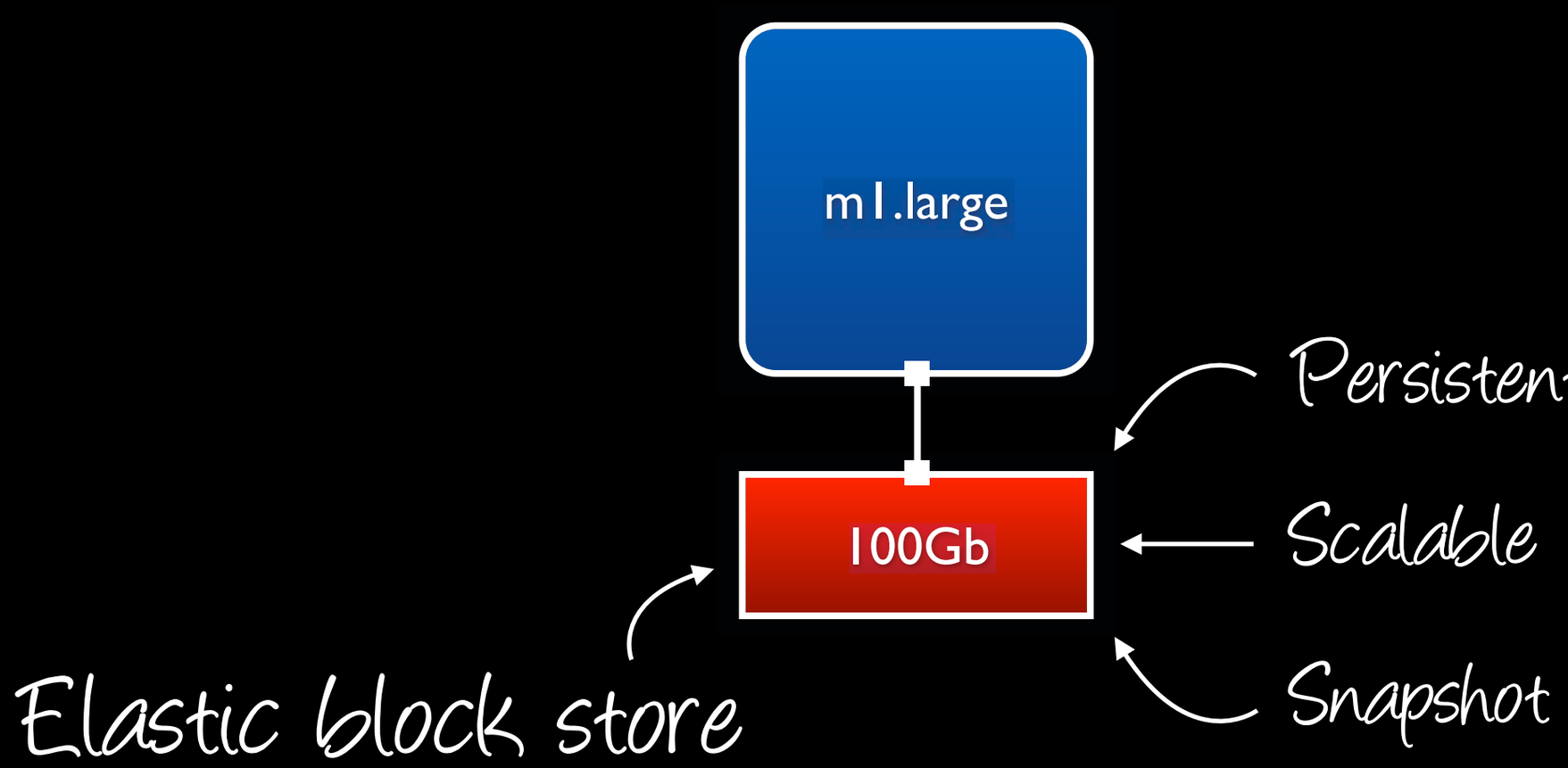
Custom

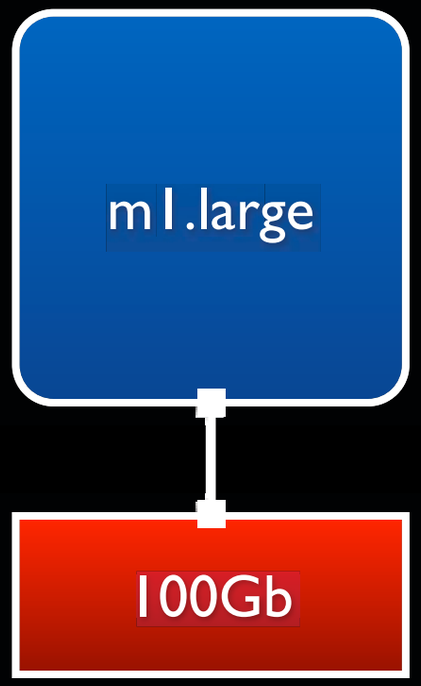
Public

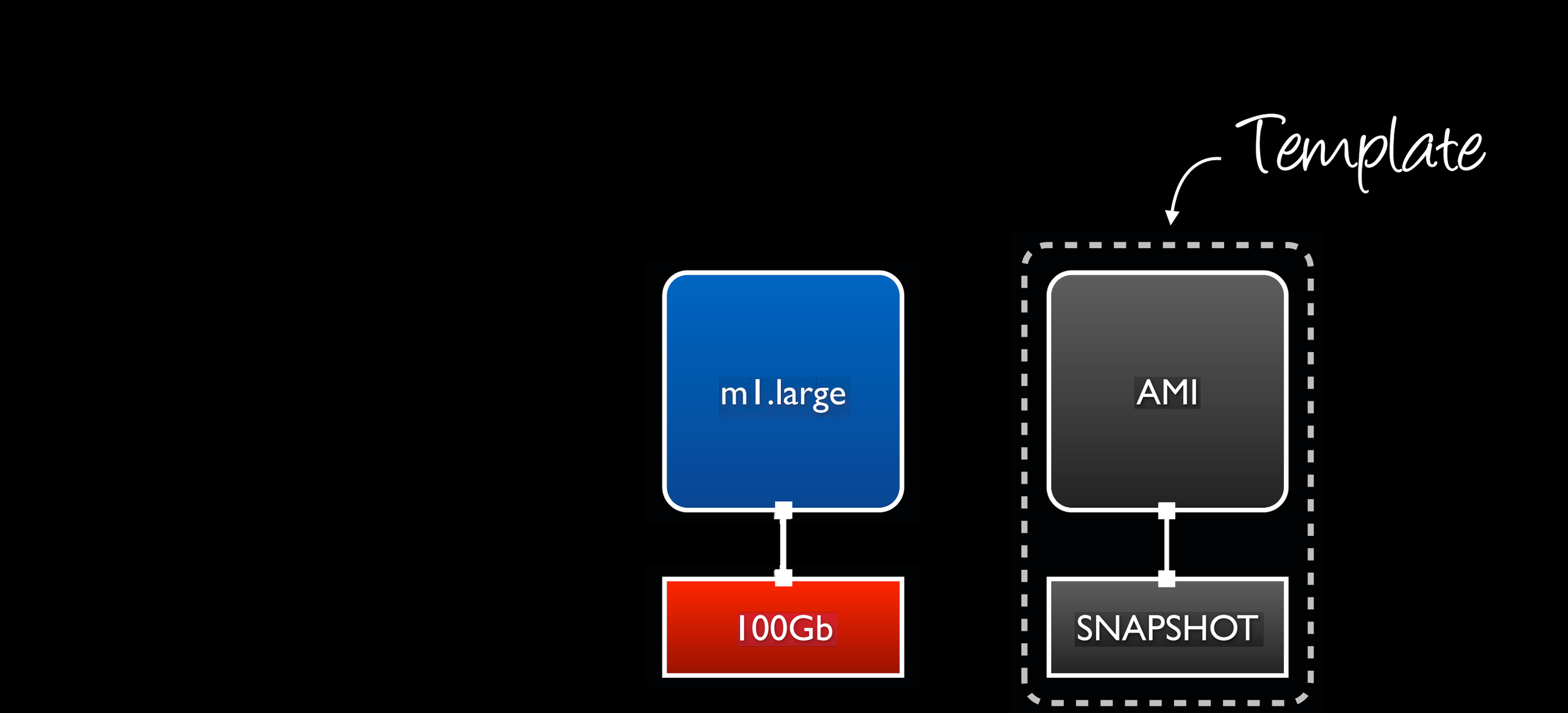
Elastic Block Store

m1.large

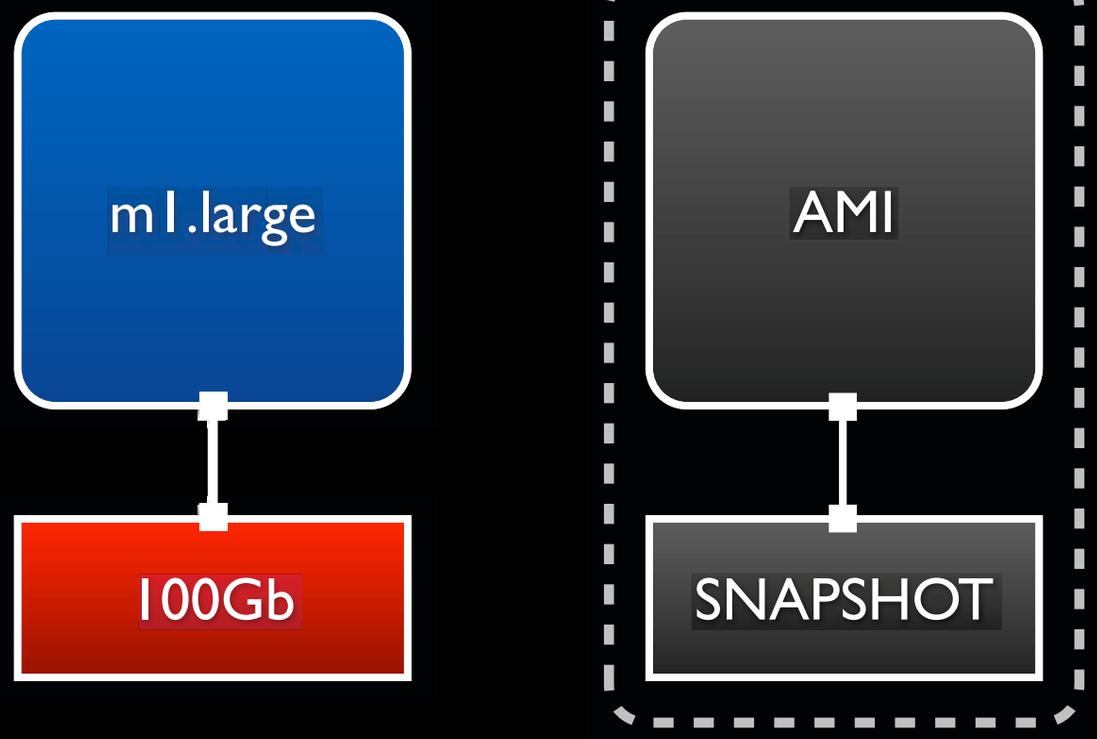

m1.large
100Gb


m1.large
100Gb
Persistent
Scalable
Snapshot
Elastic block store

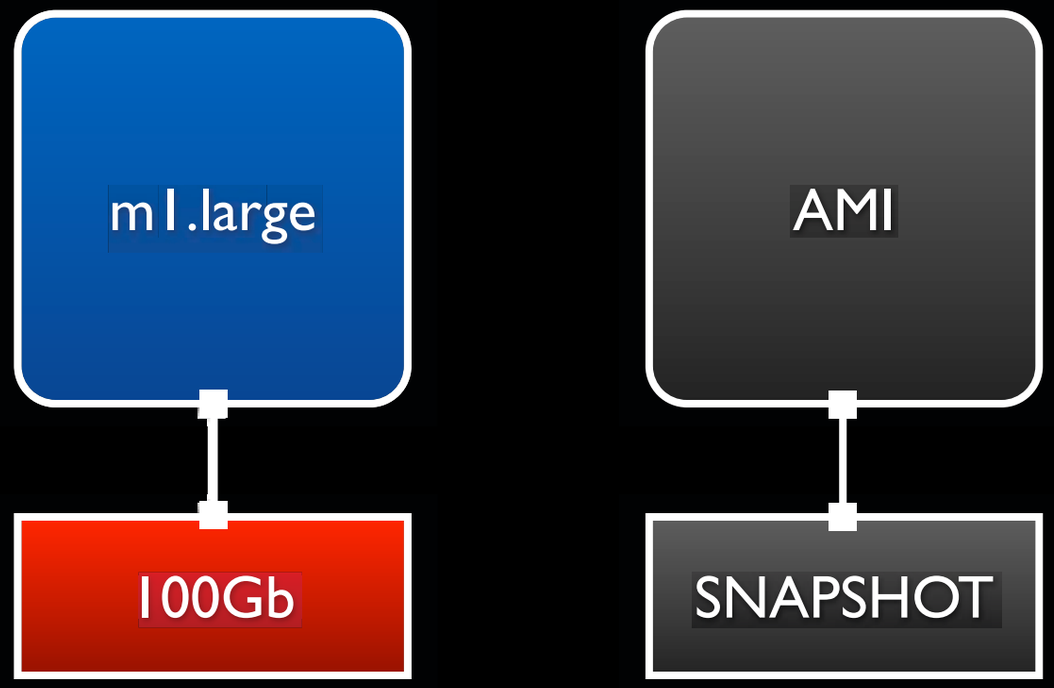

m1.large
100Gb

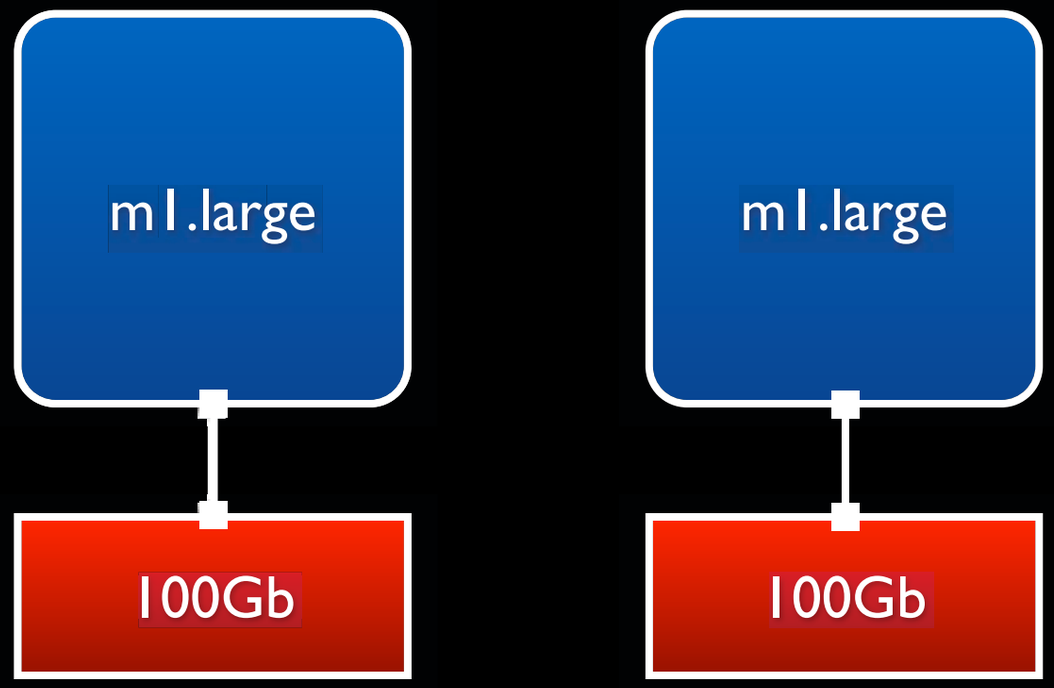

Template
m1.large
AMI
100Gb
SNAPSHOT

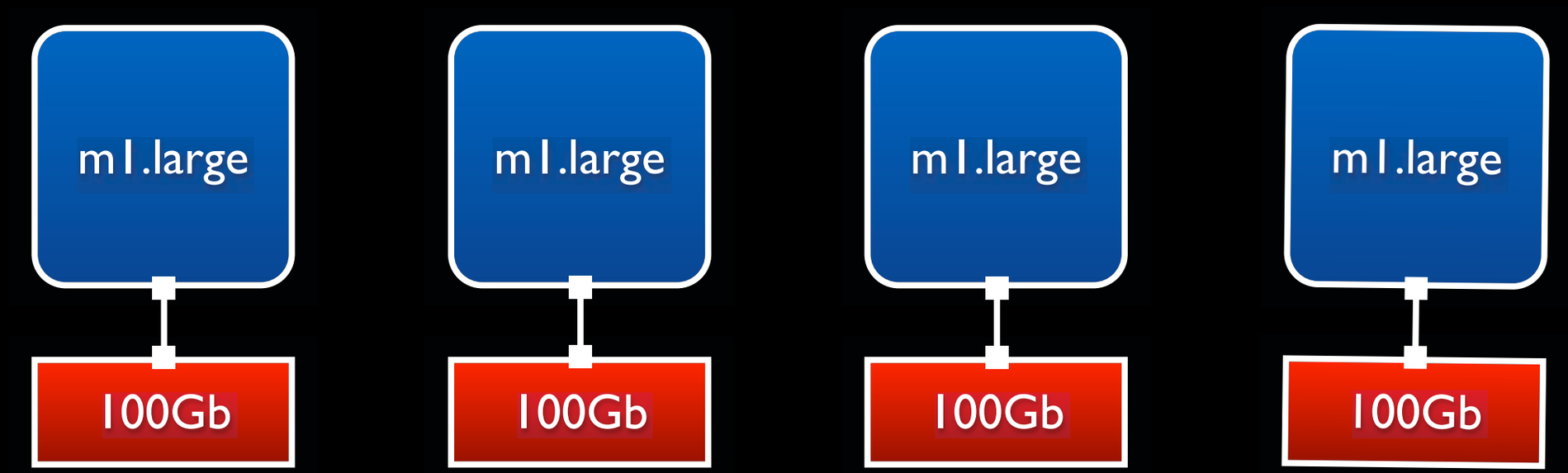
Template

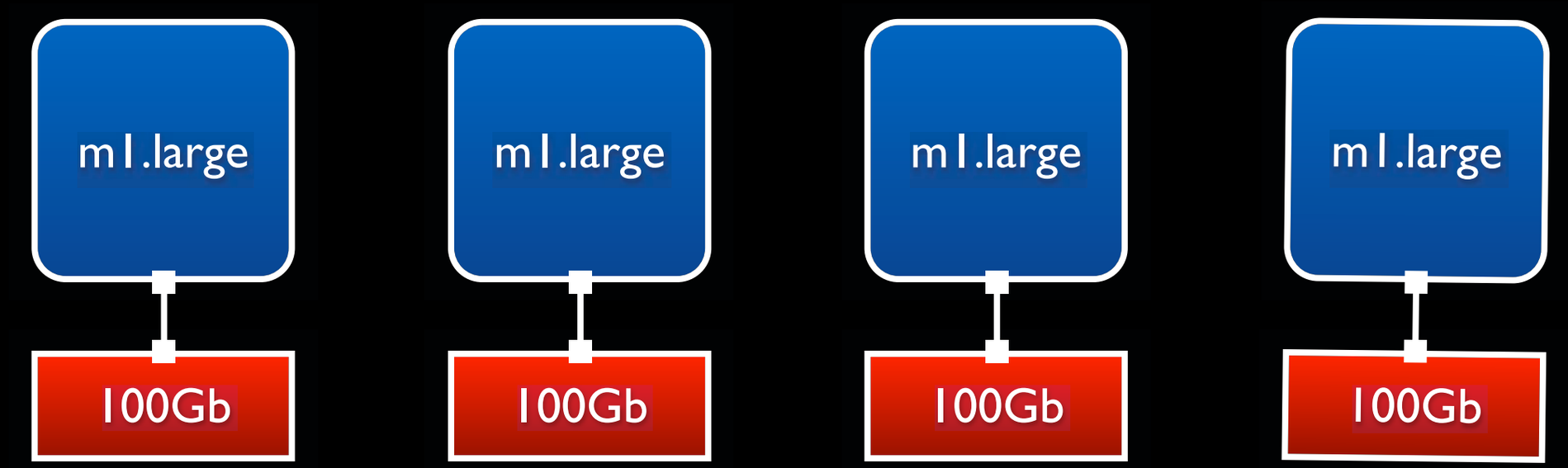


Private,
stored securely


m1.large
AMI
100Gb
SNAPSHOT


m1.large
m1.large
100Gb
100Gb


m1.large
m1.large
m1.large
m1.large
100Gb
100Gb
100Gb
100Gb


m1.large
m1.large
m1.large
m1.large
100Gb
100Gb
100Gb
100Gb

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Navigation

Region: US East

- EC2 Dashboard

INSTANCES
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- Spot Requests

IMAGES
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- Bundle Tasks

ELASTIC BLOCK STORE
- Volumes
- Snapshots

NETWORKING & SECURITY
- Elastic IPs
- Security Groups
- Placement Groups
- Load Balancers
- Key Pairs

Amazon EC2 Console Dashboard

Getting Started

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

Launch Instance

Note: Your instances will launch in the US East (Virginia) region.

Service Health

Current Status	Details
Amazon EC2 (US East - N. Virginia)	Service is operating normally

View complete service health details

My Resources

You are using the following Amazon EC2 resources in the US East (Virginia) region:

- 0 Running Instances
- 0 Elastic IPs
- 0 EBS Volumes
- 0 EBS Snaps
- 0 Key Pairs
- 1 Security G
- 0 Load Balancers
- 0 Placemen

Related Links

- Documentation
- All EC2 Resources
- Forums
- Feedback
- Report an Issue

Request Instances Wizard

Cancel

CHOOSE AN AMI — INSTANCE DETAILS — CREATE KEY PAIR — CONFIGURE FIREWALL — REVIEW

Choose an Amazon Machine Image (AMI) from one of the tabbed lists below by clicking its **Select** button.

Quick Start | My AMIs | Community AMIs

Basic 32-bit Amazon Linux AMI 1.0 (AMI Id: ami-08728661)
Amazon Linux AMI Base 1.0, EBS boot, 32-bit architecture with Amazon EC2 AMI Tools. **Root Device Size:** 10 GiB — Select

Basic 64-bit Amazon Linux AMI 1.0 (AMI Id: ami-2272864b)
Amazon Linux AMI Base 1.0, EBS boot, 64-bit architecture with Amazon EC2 AMI Tools. **Root Device Size:** 10 GiB — Select

SUSE Linux Enterprise Server 11 32-bit (AMI Id: ami-e0a35789)
SUSE Linux Enterprise Server 11 Service Pack 1 basic install, EBS boot, 32-bit architecture with Amazon EC2 AMI Tools preinstalled; Apache 2.2, MySQL 5.0, PHP 5.3, Ruby 1.8.7, and Rails 2.3. **Root Device Size:** 15 GiB — Select

SUSE Linux Enterprise Server 11 64-bit (AMI Id: ami-e4a3578d)
SUSE Linux Enterprise Server 11 Service Pack 1 basic install, EBS boot, 64-bit architecture with Amazon EC2 AMI Tools preinstalled; Apache 2.2, MySQL 5.0, PHP 5.3, Ruby 1.8.7, and Rails 2.3. **Root Device Size:** 15 GiB — Select

Getting Started on Microsoft Windows Server 2008 (AMI Id: ami-c5e40dac)
Microsoft Windows Server 2008 R1 SP2 Datacenter edition, 32-bit architecture, Microsoft SQLServer 2008 Express, Internet Information Services 7, ASP.NET 3.5. **Root Device Size:** 30 GiB — Select

Request Instances Wizard

Cancel

CHOOSE AN AMI | INSTANCE DETAILS | CREATE KEY PAIR | CONFIGURE FIREWALL | REVIEW

Choose an Amazon Machine Image (AMI) from one of the tabbed lists below by clicking its **Select** button.

Quick Start | My AMIs | **Community AMIs**

Viewing: Amazon Images | hvm ami | 1 to 2 of 2 Items

AMI ID	Root Device	Manifest	Platform	
ami-7ea24a17	ebs	amazon/EC2 CentOS 5.4 HVM AMI	Cent OS	Select
ami-aa30c7c3	ebs	amazon/EC2 CentOS 5.5 GPU HVM AMI	Cent OS	Select

Request Instances Wizard

Cancel

CHOOSE AN AMI | INSTANCE DETAILS | CREATE KEY PAIR | CONFIGURE FIREWALL | REVIEW

Provide the details for your instance(s). You may also decide whether you want to launch your instances as "on-demand" or "spot" instances.

Number of Instances: 1 **Availability Zone:** No Preference

Instance Type: Cluster Compute (cc1.4xlarge, 23 GB)

Launch Instances

EC2 Instances let you pay for compute capacity by the hour with no long term commitments. This transforms what are commonly large fixed costs into much smaller variable costs.

Request Spot Instances

Launch Instances Into Your Virtual Private Cloud

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Request Instances Wizard

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CHOOSE AN AMI | INSTANCE DETAILS | CREATE KEY PAIR | CONFIGURE FIREWALL | REVIEW

Number of Instances: 1

Availability Zone: No Preference

Advanced Instance Options

You can choose to launch Cluster Compute Instances in a placement group by either providing a new name for one to be created or selecting one of your existing placement groups. You can also choose to enable CloudWatch Detailed Monitoring or enter data that will be available from your instances once they launch.

Placement Group: Create new placement group... cluster

Strategy Cluster

Monitoring: Enable CloudWatch detailed monitoring for this instance (additional charges will apply)

User Data:

base64 encoded

« Back

Continue

Request Instances Wizard

Cancel

CHOOSE AN AMI ✓ | INSTANCE DETAILS ✓ | CREATE KEY PAIR | CONFIGURE FIREWALL | REVIEW

Public/private key pairs allow you to securely connect to your instance after it launches. To create a key pair, enter a name and click **Create & Download your Key Pair**. You will then be prompted to save the private key to your computer. Note, you only need to generate a key pair once - not each time you want to deploy an Amazon EC2 instance.

○ Choose from your existing Key Pairs

◉ Create a new Key Pair

1. **Enter a name for your key pair:*** amazon-hpc (e.g., jdoekey)
2. **Click to create your key pair:*** **Create & Download your Key Pair**

Save this file in a place you will remember. You can use this key pair to launch other instances in the future or visit the Key Pairs page to create or manage existing ones.

○ Proceed without a Key Pair

« Back

Continue

Request Instances Wizard

Cancel

CHOOSE AN AMI ✓ INSTANCE DETAILS ✓ CREATE KEY PAIR ✓ CONFIGURE FIREWALL REVIEW

Security groups determine whether a network port is open or blocked on your instances. You may use an existing security group, or we can help you create a new security group to allow access to your instances using the suggested ports below. Add addional ports now or update your security group anytime using the Security Groups page. All changes take effect immediately.

○ Choose one or more of your existing Security Groups

◉ Create a new Security Group

1. Name your Security Group: HPC

2. Describe your Security Group: Security settings for HPC applications

3. Define allowed Connections

Application	Transport	Port	Source Network (IPv4 CIDR)	Actions
SSH	TCP	22	All Internet	Remove
Select...	-	-	All Internet Change	Add Rule

« Back

Continue

Amazon VPC | Amazon Elastic MapReduce | Amazon CloudFront | Amazon RDS | Amazon SNS

Security Groups

Create Security Group | Delete | Show/Hide | Refresh | Help

Viewing: All Security Groups

1 to 2 of 2 Items

	Name	Description
☑	HPC	Security settings for HPC applications
☐	default	default group

1 Security Group selected

Group Name: HPC

Description: Security settings for HPC applications

Allowed Connections:

Connection Method	Protocol	From Port	To Port	Source (IP or group)	Actions
SSH	tcp	22	22	0.0.0.0/0	Remove
Custom...	--			HPC	Save

Amazon S

Navigatio

Region:

- EC2 Das

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- Elastic I
- Security
- Placeme
- Load Ba
- Key Pair

Refresh

pts

up

roups

Request Instances Wizard

Cancel

CHOOSE AN AMI | INSTANCE DETAILS | CREATE KEY PAIR | CONFIGURE FIREWALL | REVIEW

Please review the information below, then click **Launch**.

AMI: Cent OS AMI ID ami-7ea24a17 (x86_64) Edit AMI

Number of Instances: 1
Availability Zone: No Preference
Instance Type: Cluster Compute (cc1.4xlarge)
Instance Class: On Demand — Edit Instance Details

Placement Group: cluster
Strategy: cluster
Monitoring: Disabled
User Data: — Edit Advanced Details

Key Pair Name: amazon-hpc — Edit Key Pair

Security Group(s): HPC — Edit Firewall

Launch

pin read 750 ifttt cwt

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- Elastic IPs
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- Placement Groups
- Load Balancers
- Key Pairs

My Instances

Launch Instance | Instance Actions | Reserved Instances | Show/Hide | Refresh | Help

Viewing: All Instances | All Instance Types | 1 to 1 of 1 Instances

Name	Instance	AMI ID	Root Device	Type	Status	Security Groups	Key Pair Name
	i-142d7e79	ami-7ea24a17	ebs	cc1.4xlarge	pending	HPC	amazon-hpc

0 EC2 Instances selected

Select an instance above

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d Balancers
Pairs

My Instances

Launch Instance | Instance Actions | Reserved Instances | Show/Hide | Refresh

Viewing: All Instances | All Instance Types | 1 to 1 of 1 Instances

	Name	Instance	AMI ID	Root Device	Type	Status	Security Groups	Key Pair Na
☑		i-142d7e79	ami-7ea24a17	ebs	cc1.4xlarge	running	HPC	amazon-hpc

Kernel ID:	-	**Monitoring:**	basic
AMI Launch Index:	0	**Elastic IP:**	-
Root Device:	/dev/sda1	**Root Device Type:**	ebs
Block Devices:	/dev/sda1=vol-9b78bcf3:attached:2010-12-03T13:40:52.000Z:true		
Lifecycle:	normal		
Public DNS:	ec2-75-101-217-74.compute-1.amazonaws.com		
Private DNS:	ip-10-17-53-51.ec2.internal		
Private IP Address:	10.17.53.51		
Launch Time:	2010-12-03 13:40 GMT		
State Transition Reason:			

My Instances

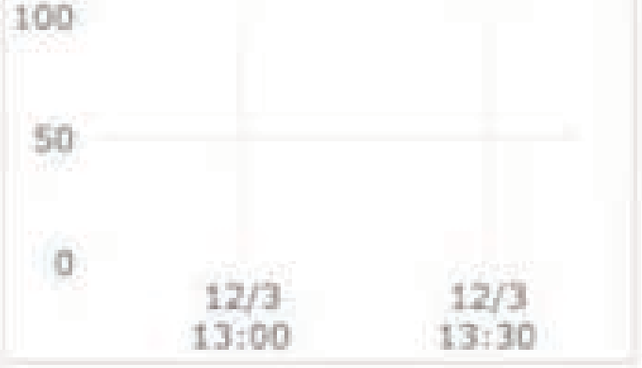
Launch Instance | Instance Actions | Reserved Instances | Show/Hide | Refresh

Viewing: All Instances | All Instance Types

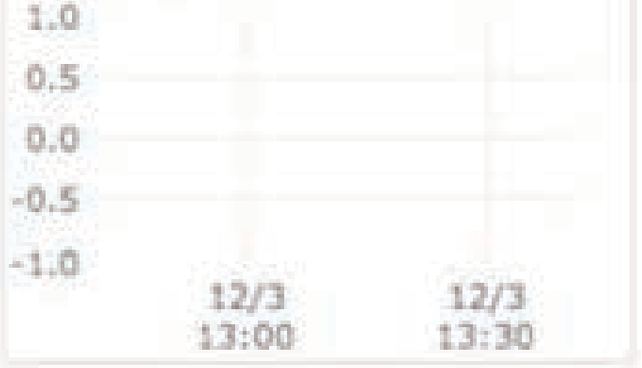
1 to 1 of 1 Instances

Name	Instance	AMI ID	Root Device	Type	Status	Security Groups	Key Pair Name
	i-142d7e79	ami-7ea24a17	ebs	cc1.4xlarge	running	HPC	amazon-hpc

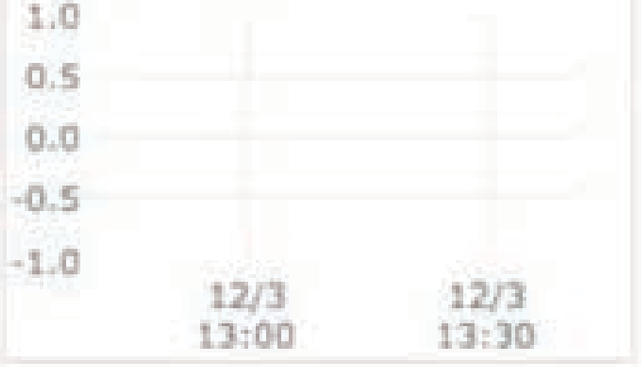
Avg CPU Utilization (Percent)



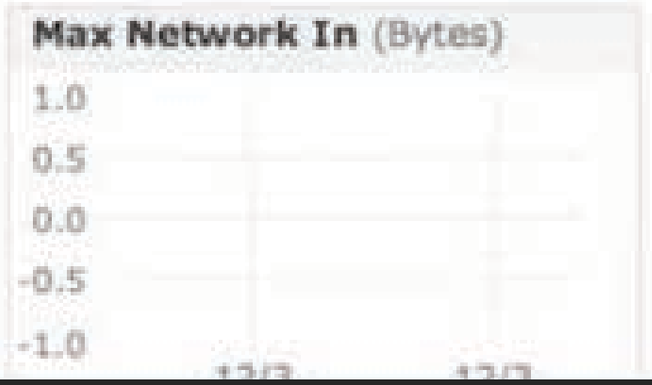
Avg Disk Reads (Bytes)



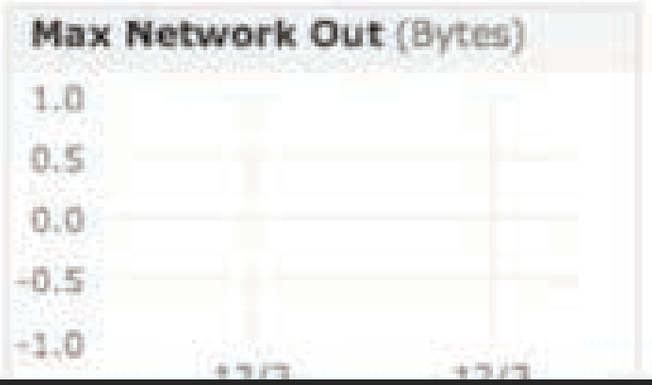
Avg Disk Writes (Bytes)



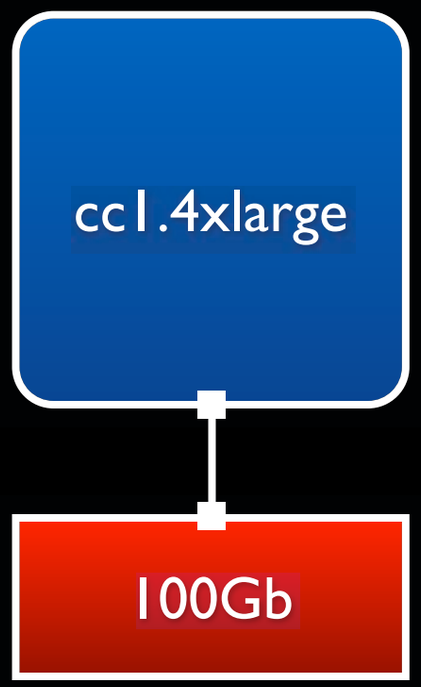
Max Network In (Bytes)



Max Network Out (Bytes)



cc1.4xlarge


cc1.4xlarge
100Gb

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Amazon S3 | **Amazon EC2** | Amazon VPC | Amazon Elastic MapReduce | Amazon CloudFront | Amazon RDS | Amazon SNS

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EBS Volumes

Create Volume | Delete | Attach Volume | Detach Volume | Create Snapshot | Show/Hide | Refresh | Help

Viewing: All Volumes

1 to 1 of 1 Items

	Name	Volume ID	Capacity	Snapshot	Created	Zone	Status	Attachme
☐		vol-9b78bcf3	20 GiB	snap-1099e578	2010-12-03 13:40 GMT	us-east-1a	in-use	i-142d7e7

0 Elastic Block Store Volumes selected

Select a volume above

EBS Volumes

Create Volume | Show/Hide

Viewing: All Volumes

Name	Volume ID	Capacity	Snapshot	Created	Zone	Status
	vol-9b78bcf3	20 GiB	snap-1099e578	2010-12-03 13:40 GMT	us-east-1a	in-

Create Volume Cancel

Size: 100 GiB

Availability Zone: us-east-1a

Snapshot: ---- No Snapshot ----

Cre

ttt cwt

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EBS Volumes

Create Volume | Delete | Attach Volume | Detach Volume | Create Snapshot | Show/Hide | Refresh

Viewing: All Volumes

1 to 2 of 2 Ite

	Name	Volume ID	Capacity	Snapshot	Created	Zone	Status
☑		vol-4179bd29	100 GiB	–	2010-12-03 13:41 GMT	us-east-1a	available
☐		vol-9b78bcf3	20 GiB	snap-1099e578	2010-12-03 13:40 GMT	us-east-1a	in-use

1 Elastic Block Store Volume selected

Elastic Block Store Volume: vol-4179bd29

Description | Monitoring | Tags

VolumeId:	vol-4179bd29	**Capacity:**	100 GiB
Snapshot:	--	**Created:**	2010-12-03 13:41 GMT
Zone:	us-east-1a	**Status:**	available

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EBS Volumes

Create Volume | Delete | Attach Volume | Create Snapshot | Show/Hide | Refresh

Viewing: All Volumes

1 to 2 of 2 Item

Name	Volume ID	Capacity	Snapshot	Created	Zone	Status
		100 GiB			us-east-1a	available
					us-east-1a	in-use

Attach Volume Cancel

Volume: vol-4179bd29 in us-east-1a

Instances: i-142d7e79 in us-east-1a

Device: /dev/sdh

Windows Devices: xvdf through xvdp
Linux Devices: /dev/sdf through /dev/sdp

Attach

Mount, and away you go...

Oracle

Oracle E-business suite

Oracle Database 11G

Oracle Fusion middleware

Oracle

Oracle Enterprise manager

Oracle Enterprise Linux

Oracle on RDS

Licence on EC2

Oracle

Use existing licences

Days to minutes

Certified

+

supported

SAP

Rapid Deployment Solutions

SAP BusinessObjects

SAP

Licence for EC2

Use existing licences

Storage

Simple Storage Service

Files in directories

Objects in buckets

http://s3.amazonaws.com/bucketname/objectid

http://bucketname.s3.amazonaws.com/objectid

https://s3.amazonaws.com/bucketname/objectid

https://bucketname.s3.amazonaws.com/objectid

Large objects

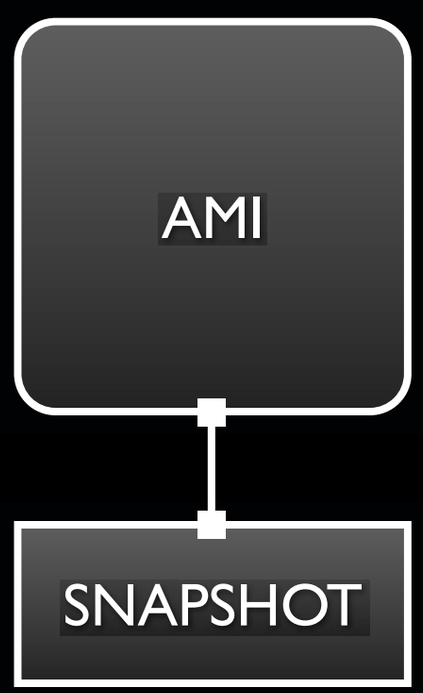
5Tb

Import/Export

S3 websites

Databases

Flexibility



Packaged + ready to roll

Oracle 11g

32 and 64 bit

IBM DB2

32 and 64 bit

SQL Server

32 and 64 bit

PostgreSQL

and EnterpriseDB

AWS Management Console

https://console.aws.amazon.com/ec2/home?region=us-west-1

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Amazon EC2 Console Dashboard

Getting Started

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

Launch Instance

Note: Your instances will launch in the US West (N. California) region.

Service Health

Current Status	Details
Amazon EC2 (US West - N. California)	Service is operating normally

View complete service health details

My Resources

You are using the following Amazon EC2 resources in the US West (N. California) region: Refresh

- 0 Running Instances
- 0 Elastic IPs
- 1 EBS Volume
- 0 EBS Snapshots
- 1 Key Pair
- 3 Security Groups
- 0 Load Balancers
- Error

Related Links

- Documentation
- All EC2 Resources
- Forums
- Feedback
- Report an Issue

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AWS Management Console

https://console.aws.amazon.com/ec2/home?region=us-west-1#s=LaunchInstanceWizard

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Request Instances Wizard

Cancel

CHOOSE AN AMI — INSTANCE DETAILS

Choose an Amazon Machine Image (AM … utton.

oracle-corporation

Quick Start | My AMIs | Community AMIs

Viewing: All Images | oracle-corporation | 1 to 6 of 6 Items

AMI ID	Root Device	Manifest	Platform	
ami-4f69380a	instance-store	oracle-corporation-linux-us-west-1/enterprise-linux-ami/64-b	Other Linux	Select
ami-51693814	instance-store	oracle-corporation-linux-us-west-1/enterprise-linux-ami/32-b	Other Linux	Select
ami-5b69381e	instance-store	oracle-corporation-linux-us-west-1/enterprise-linux-ami/64-b	Other Linux	Select
ami-6d693828	instance-store	oracle-corporation-linux-us-west-1/enterprise-linux-ami/32-b	Other Linux	Select
ami-936c3dd6	instance-store	oracle-corporation-linux-us-west-1/enterprise-linux-ami/32-b	Other Linux	Select
ami-f96c3dbc	instance-store	oracle-corporation-linux-us-west-1/enterprise-linux-ami/64-b	Other Linux	Select

Free tier eligible. This AMI will not incur additional costs when used with a free tier instance.

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https://console.aws.amazon.com/ec2/home?region=us-west-1#s=LaunchInstanceWizard

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Groups

Request Instances Wizard

Cancel

CHOOSE AN AMI | INSTANCE DETAILS | CREATE KEY PAIR | CONFIGURE FIREWALL | REVIEW

Provide the details for your instance(s). You may also decide whether you want to launch your instances as "on-demand" or "spot" instances.

Number of Instances: 1 **Availability Zone:** No Preference

Instance Type: High-CPU Medium (c1.medium, 1.7 GB)

Termination Protection: Prevention against accidental termination.

Note, launching a **t1.micro** instance requires that you select an AMI with an EBS-backed root device.

Launch Instances

EC2 Instances let you pay for compute capacity by the hour with no long term commitments. This transforms what are commonly large fixed costs into much smaller variable costs.

Request Spot Instances

« Back

Continue

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y Groups

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Request Instances Wizard

Cancel

CHOOSE AN AMI ✓ | INSTANCE DETAILS ✓ | CREATE KEY PAIR ✓ | CONFIGURE FIREWALL ✓ | REVIEW ○

Please review the information below, then click **Launch**.

AMI:	Other Linux AMI ID ami-51693814 (i386)	Edit AMI
Number of Instances:	1	
Availability Zone:	No Preference	
Instance Type:	High-CPU Medium (c1.medium)	
Instance Class:	On Demand	
Termination Protection	Disabled	Edit Instance Details
Monitoring:	Disabled	
Kernel ID:	Use Default	
RAM Disk ID:	Use Default	
User Data:		Edit Advanced Details
Key Pair Name:	aws-1	Edit Key Pair
Security Group(s):	default	Edit Firewall

« Back

Launch

AWS Management Console

https://console.aws.amazon.com/ec2/home?region=us-west-1#s=Instances

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My Instances

Launch Instance | Instance Actions | Reserved Instances | Show/Hide | Refresh | Help

Viewing: All Instances | All Instance Types

1 to 1 of 1 Instances

Name	Instance	AMI ID	Root Dev	Type	Status	Security Groups	Key Pair Name
empty	i-80b9f9c4	ami-51693814	instance-s	c1.mediur	pending	default	aws-1

0 EC2 Instances selected

Select an instance above

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AWS Management Console

https://console.aws.amazon.com/ec2/home?region=us-west-1#s=Instances

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oad Balancers
ey Pairs

My Instances

Launch Instance | Instance Actions | Reserved Instances | Show/Hide | Refresh | He

Viewing: All Instances | All Instance Types | 1 to 1 of 1 Instances

	Name	Instance	AMI ID	Root Dev	Type	Status	Security Groups	Key Pair Name
☑	*empty*	i-80b9f9c4	ami-51693814	instance-s	c1.mediur	running	default	aws-1

running

1 EC2 Instance selected

EC2 Instance: i-80b9f9c4

Description | Monitoring | Tags

AMI ID:	ami-51693814	**Zone:**	us-west-1b
Security Groups:	default	**Type:**	c1.medium
Status:	running	**Owner:**	545609309072
VPC ID:	-	**Subnet ID:**	-
Source/Dest. Check:		**Virtualization:**	paravirtual
Placement Group:		**Reservation:**	r-446a0200

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Configure, optimise

Snapshots + backup

Relational Database Service

MySQL

Oracle

Relational Database Service

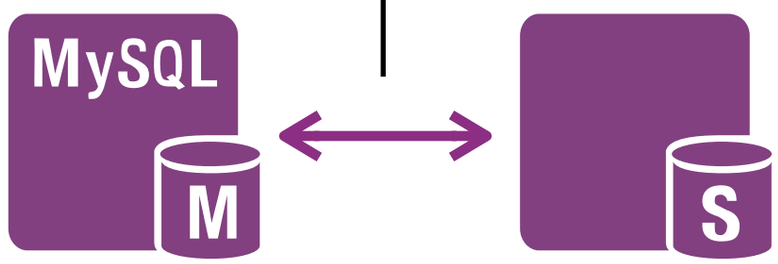
Managed

Rapid

Scalable storage

Scalable instance

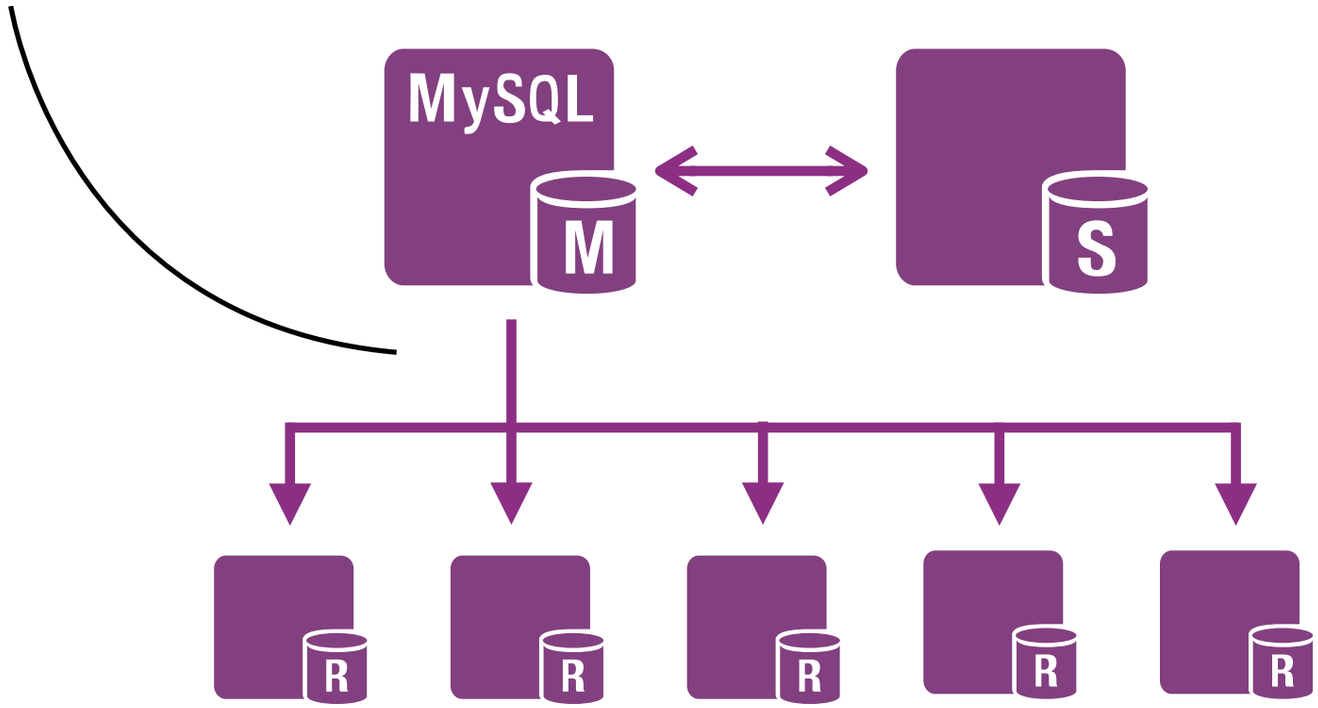
Synchronous replication



eu-west-1a eu-west-1b

High availability. Multi-AZ.

Asynchronous replication



Read replicas

Remove the

“muck”

Extra services

Simple Queue Service

Simple Notification Service

Elastic

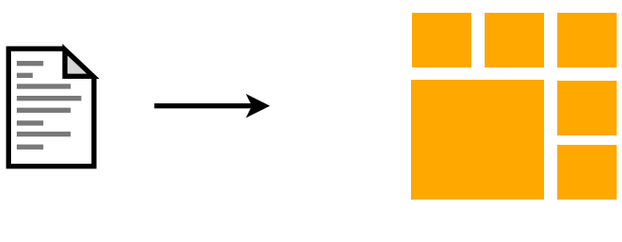
MapReduce

S3

Input data

S3

Input data



Code

Elastic MapReduce

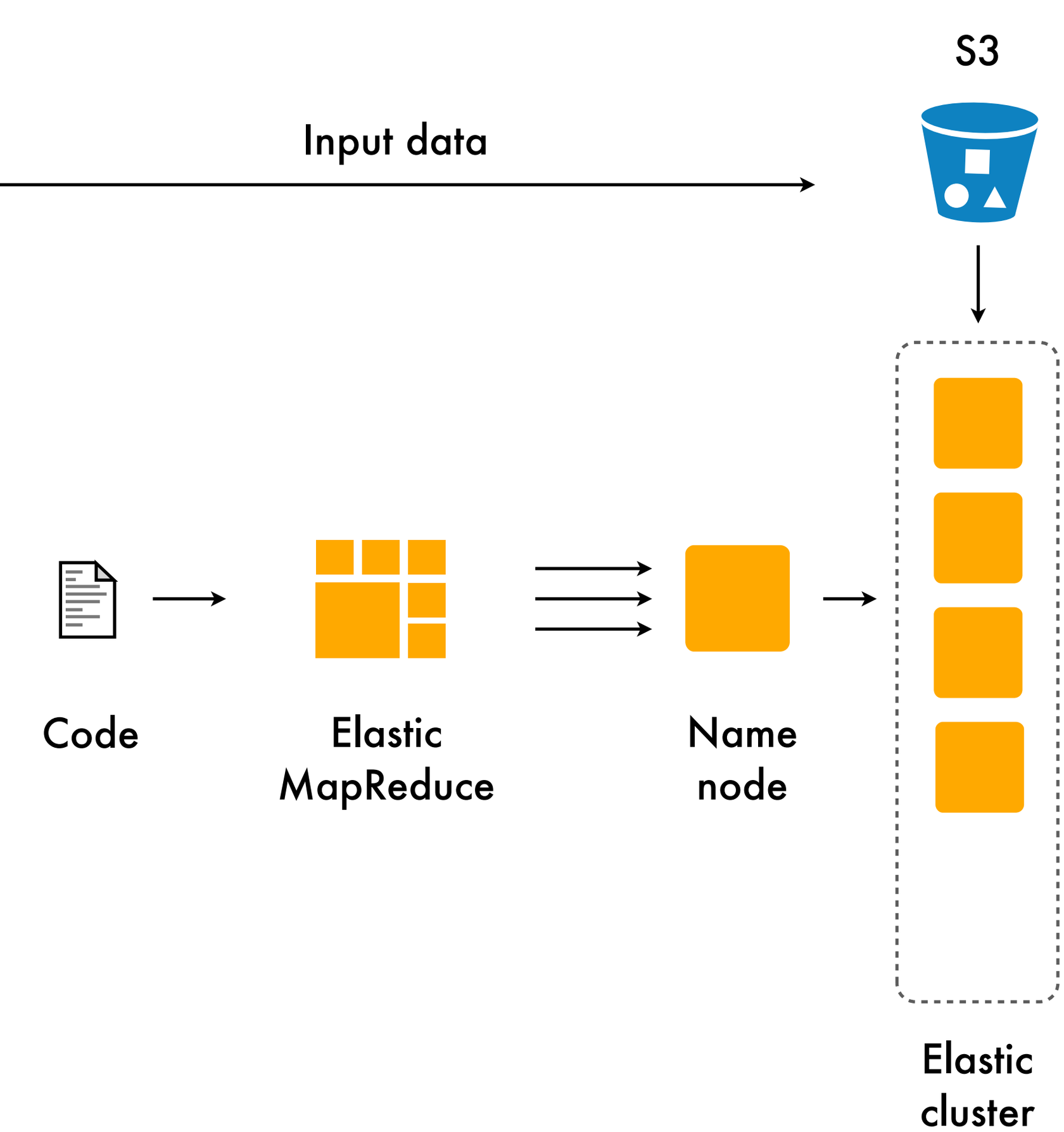
S3

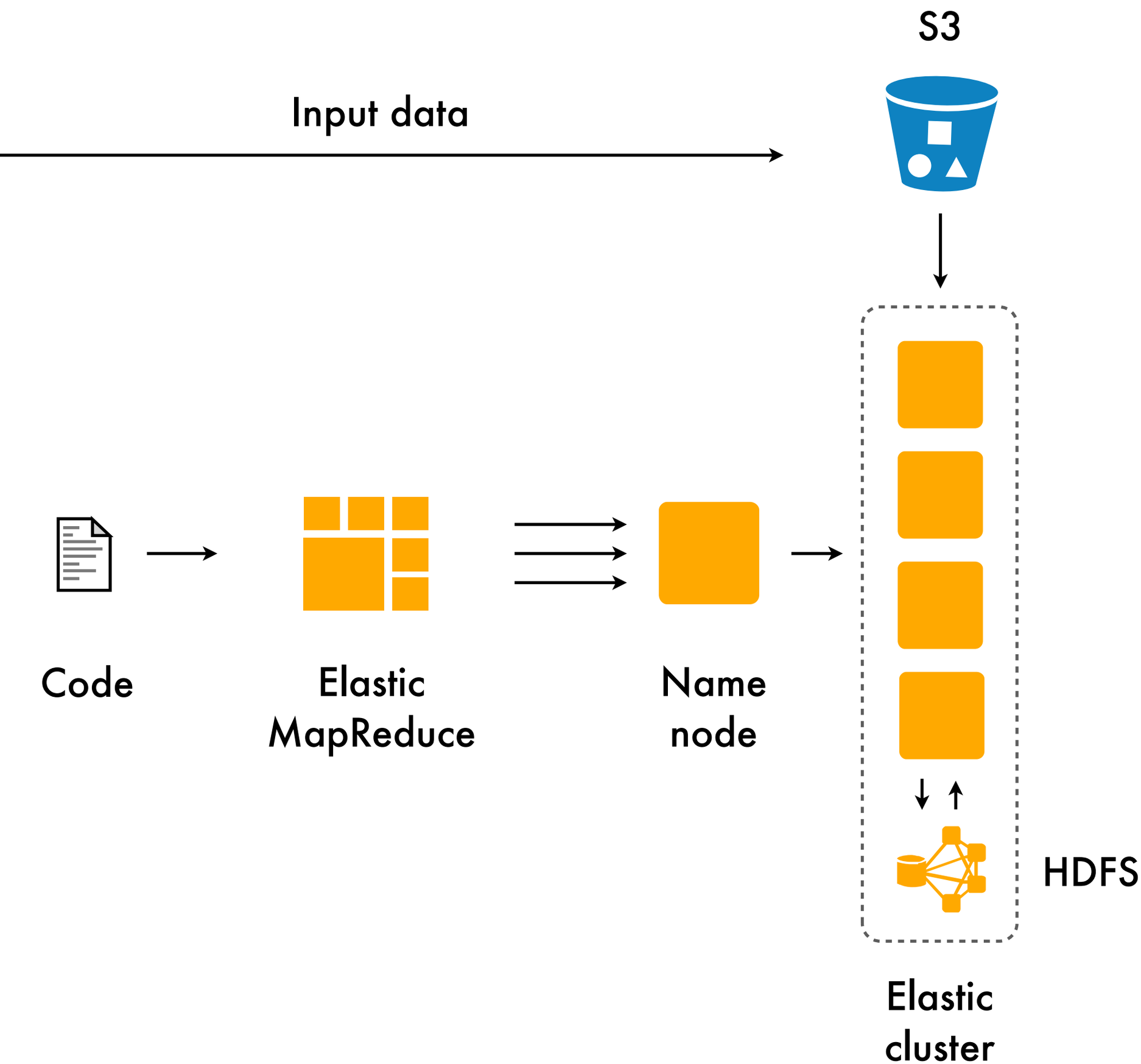
Input data

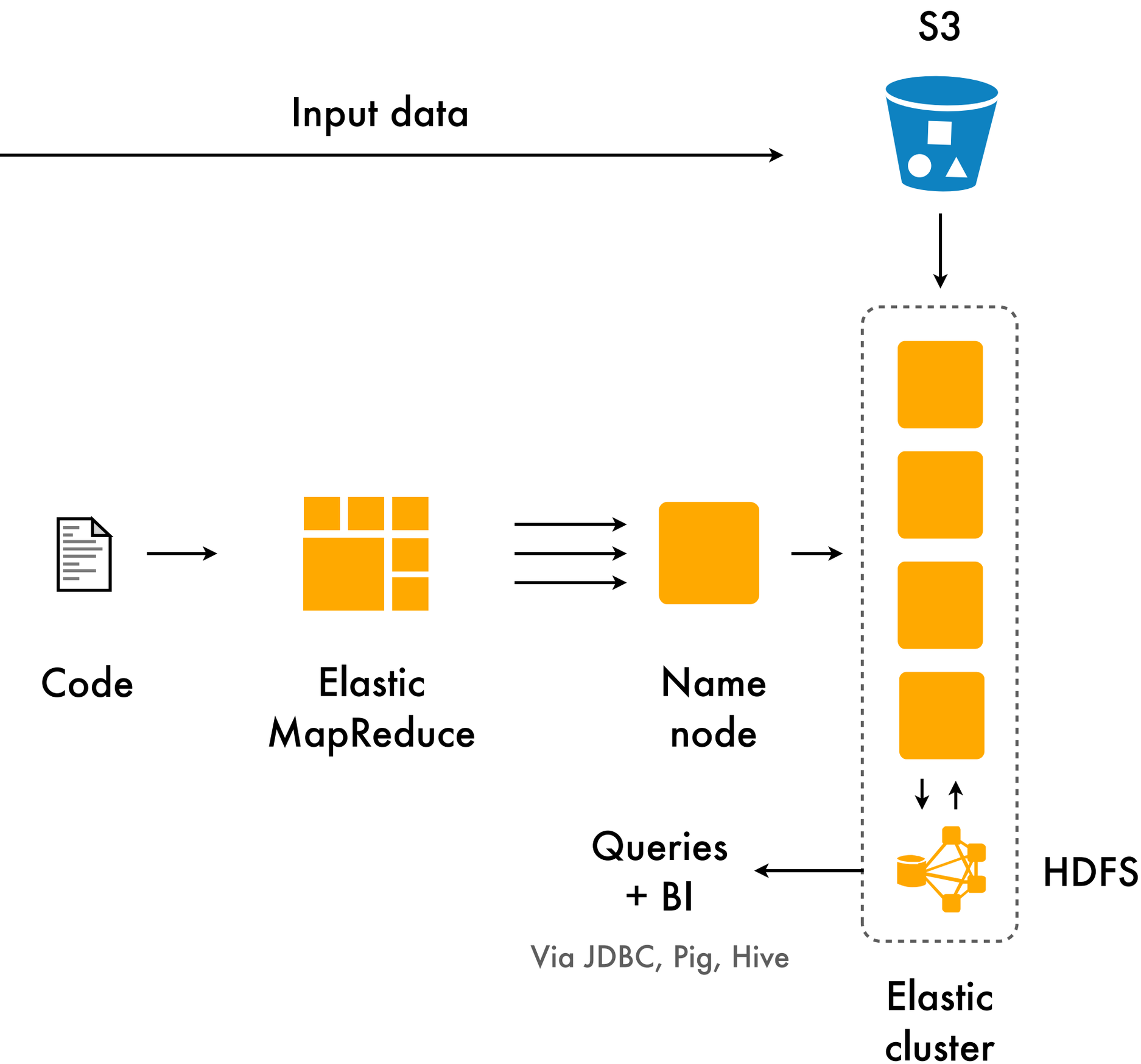
Code

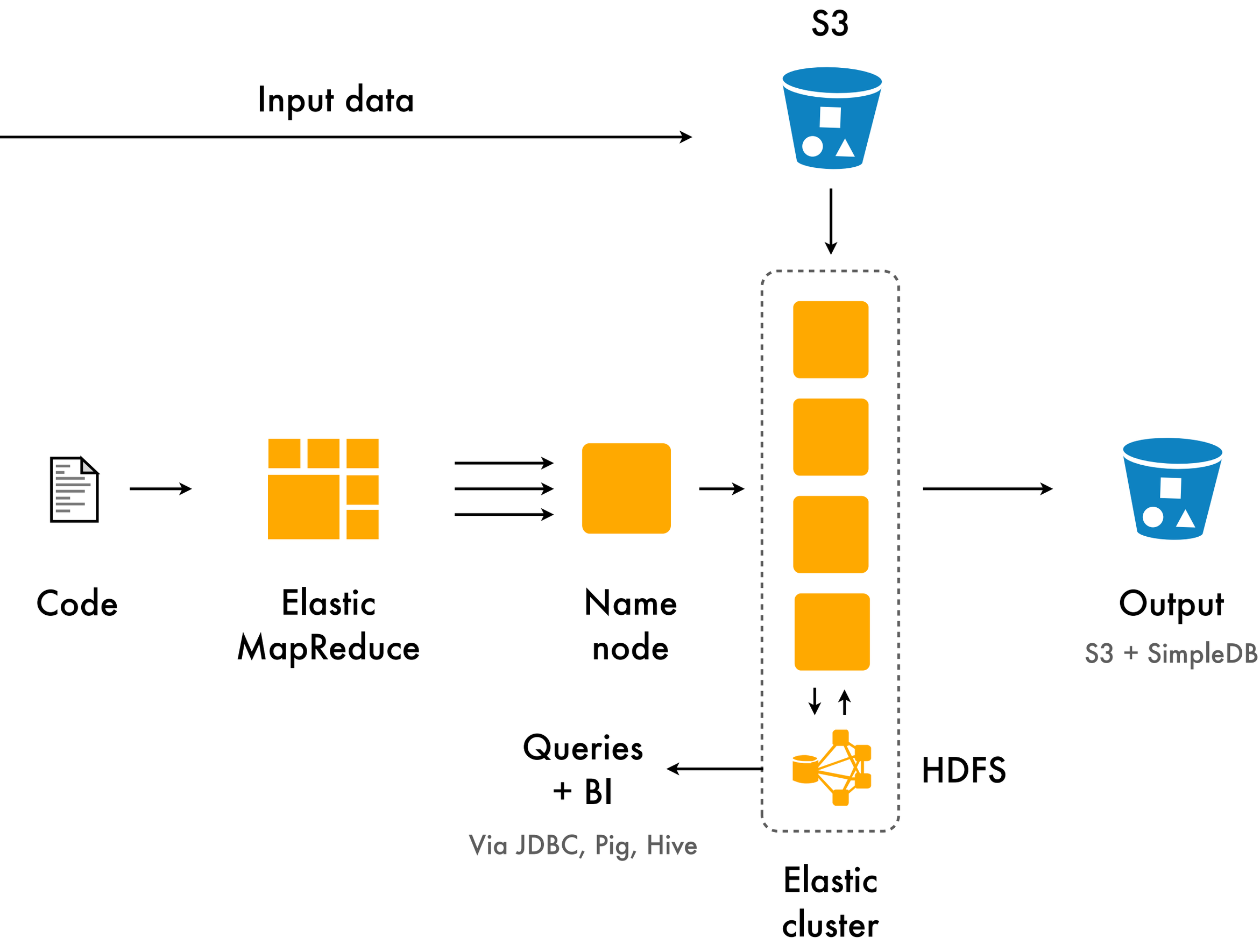
Elastic MapReduce

Name node


S3
Input data
Code
Elastic
MapReduce
Name
node
Elastic
cluster


S3
Input data
Code
Elastic
MapReduce
Name
node
HDFS
Elastic
cluster


S3
Input data
Code
Elastic
MapReduce
Name
node
Queries
+ BI
Via JDBC, Pig, Hive
HDFS
Elastic
cluster


S3
Input data
Code
Elastic
MapReduce
Name
node
Output
S3 + SimpleDB
Queries
+ BI
Via JDBC, Pig, Hive
HDFS
Elastic
cluster

S3

Input data

Elastic
MapReduce

Output

S3 + SimpleDB

Undifferentiated heavy lifting

Platform grows with you

Premium support

Bronze, Silver, Gold, Platinum

Maximising Value

Elasticity

Design for elasticity

Horizontal scale

"Everything fails, all the time"

Werner Vogels

Build for failure

Build for availability

Treat your data as your royal garden

Compute as an interchangeable resource

Auto-scaling

Elastic Load Balancer

Choice of instance sizes

Elastic by default

SimpleDB, SQS, SNS, S3

Automatic

Applications in the cloud

3 tiers

Code

Configuration

Application tier

Application tier

Code

Configuration

Service tier

Operating system

Integration settings

Launch configuration

Services + configuration

Application tier

Code

Configuration

Service tier

Operating system

Integration settings

Launch configuration

Services + configuration

Infrastructure tier

AMIs

Architecture

Multi-AZ

Scaling rules

Security groups

Middleware

Value baked into each tier

Value in application

Value in service tier

Optimisation

Configuration

Value in service tier

Technology choices

Value in infrastructure

Engine room

Optimised

Value in infrastructure

Scalable

Fault tolerant

Automation maximises this value

Automate everything

CloudFormation

Template

Define a full infrastructure stack

Auto-scaling

RDS

EC2

SNS

SimpleDB

SQS

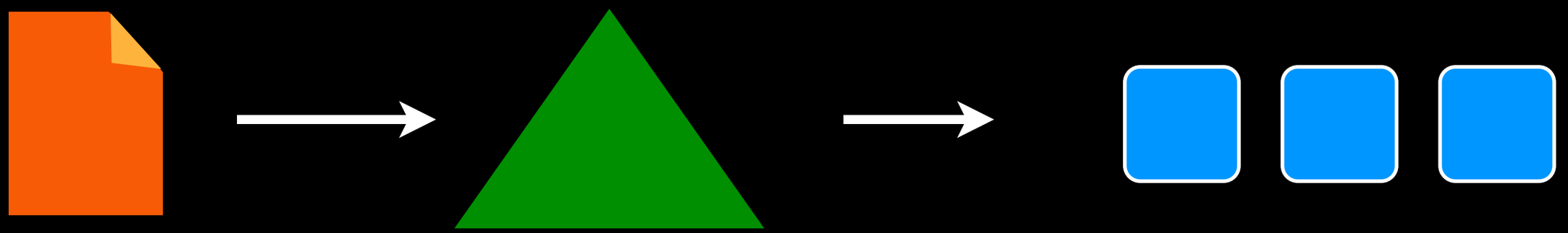
Resources

Elastic Beanstalk

CloudWatch

Security groups

Tags



Template

CloudFormation

Provisioned resources

Complete definition

Atomic

Idempotent

Free

Only pay for the provisioned resources

JSON

Plain text

Perfect for version control

JSON

Validate-able

Declarative language

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

  "Description" : "Create an EC2 instances",

  "Parameters" : {
    "KeyName" : {
      "Description" : "Name of an existing EC2 KeyPair to enable SSH access to the instance",
      "Type" : "String"
    }
  },

  "Mappings" : {
    "RegionMap" : {
      "us-east-1" : {
          "AMI" : "ami-76f0061f"
      },
      "us-west-1" : {
          "AMI" : "ami-655a0a20"
      },
      "eu-west-1" : {
          "AMI" : "ami-7fd4e10b"
      },
      "ap-southeast-1" : {
          "AMI" : "ami-72621c20"
      },
      "ap-northeast-1" : {
          "AMI" : "ami-8e08a38f"
      }
    }
  },

  "Resources" : {
    "Ec2Instance" : {
      "Type" : "AWS::EC2::Instance",
      "Properties" : {
        "KeyName" : { "Ref" : "KeyName" },
        "ImageId" : { "Fn::FindInMap" : [ "RegionMap", { "Ref" : "AWS::Region" }, "AMI" ]},
        "UserData" : { "Fn::Base64" : "80" }
      }
    }
  },

  "Outputs" : {
    "InstanceId" : {
      "Description" : "InstanceId of the newly created EC2 instance",
      "Value" : { "Ref" : "Ec2Instance" }
    },
    "AZ" : {
      "Description" : "Availability Zone of the newly created EC2 instance",
      "Value" : { "Fn::GetAtt" : [ "Ec2Instance", "AvailabilityZone" ] }
    },
    "PublicIP" : {
      "Description" : "Public IP address of the newly created EC2 instance",
      "Value" : { "Fn::GetAtt" : [ "Ec2Instance", "PublicIp" ] }
    }
  }
}
```

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

  "Description" : "Create an EC2 instances",

  "Parameters" : {
    "KeyName" : {
      "Description" : "Name of an existing EC2 KeyPair to enable SSH access to the instance",
      "Type" : "String"
    }
  },

  "Mappings" : {
    "RegionMap" : {
      "us-east-1" : {
          "AMI" : "ami-76f0061f"
      },
      "us-west-1" : {
          "AMI" : "ami-655a0a20"
      },
      "eu-west-1" : {
          "AMI" : "ami-7fd4e10b"
      },
      "ap-southeast-1" : {
          "AMI" : "ami-72621c20"
      },
      "ap-northeast-1" : {
          "AMI" : "ami-8e08a38f"
      }
    }
  },

  "Resources" : {
    "Ec2Instance" : {
      "Type" : "AWS::EC2::Instance",
      "Properties" : {
        "KeyName" : { "Ref" : "KeyName" },
        "ImageId" : { "Fn::FindInMap" : [ "RegionMap", { "Ref" : "AWS::Region" }, "AMI" ]},
        "UserData" : { "Fn::Base64" : "80" }
      }
    }
  },

  "Outputs" : {
    "InstanceId" : {
      "Description" : "InstanceId of the newly created EC2 instance",
      "Value" : { "Ref" : "Ec2Instance" }
    },
    "AZ" : {
      "Description" : "Availability Zone of the newly created EC2 instance",
      "Value" : { "Fn::GetAtt" : [ "Ec2Instance", "AvailabilityZone" ] }
    },
    "PublicIP" : {
      "Description" : "Public IP address of the newly created EC2 instance",
      "Value" : { "Fn::GetAtt" : [ "Ec2Instance", "PublicIp" ] }
    }
  }
}
```

Headers

Parameters

Mappings

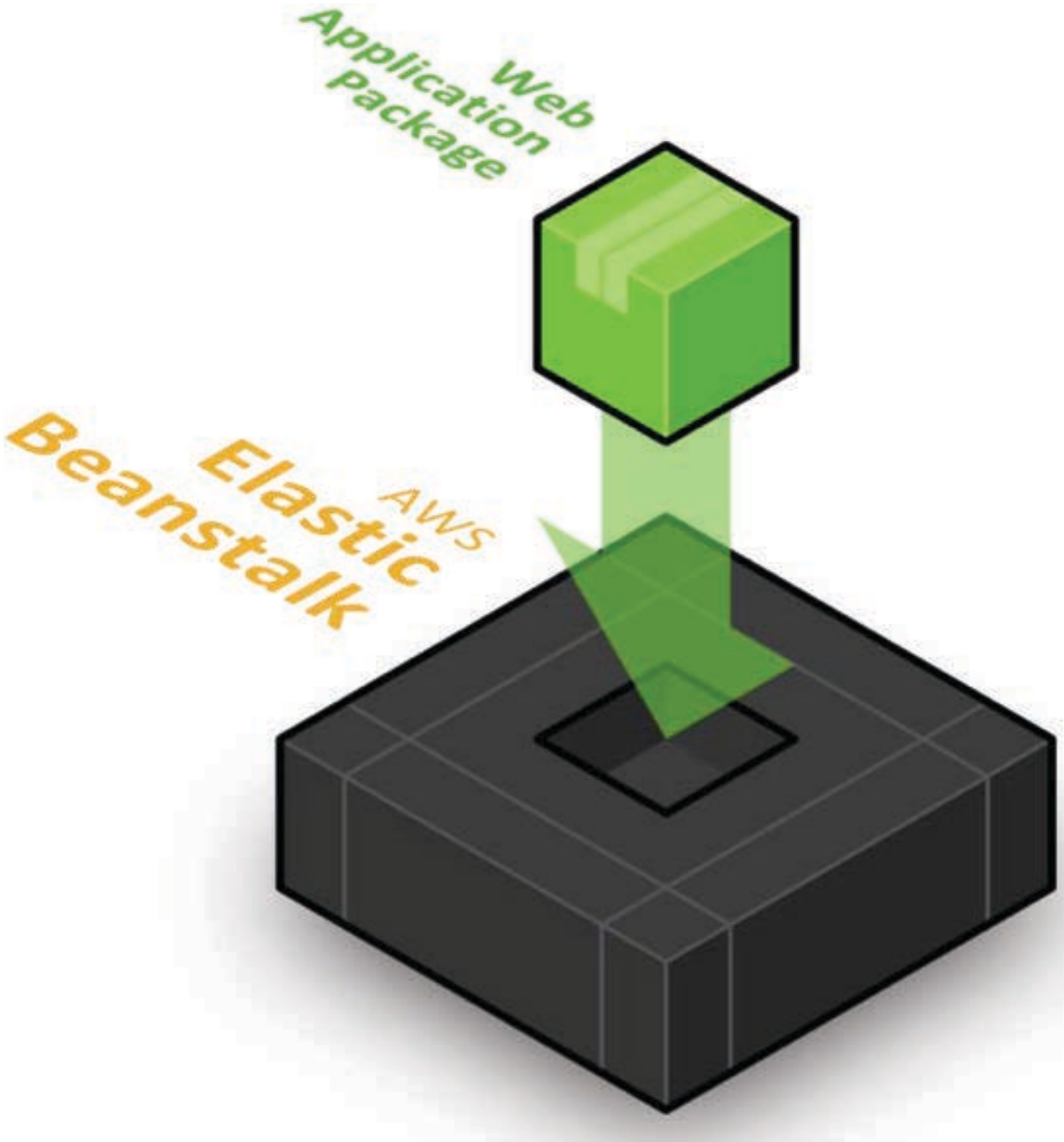
Resources

Outputs

Elastic Beanstalk

Java web applications

Upload WAR


Web
Application
Package
AWS
Elastic
Beanstalk

Your Application

Application Service

Java Web Platform

HTTP Service

Tomcat

Language Interpreter

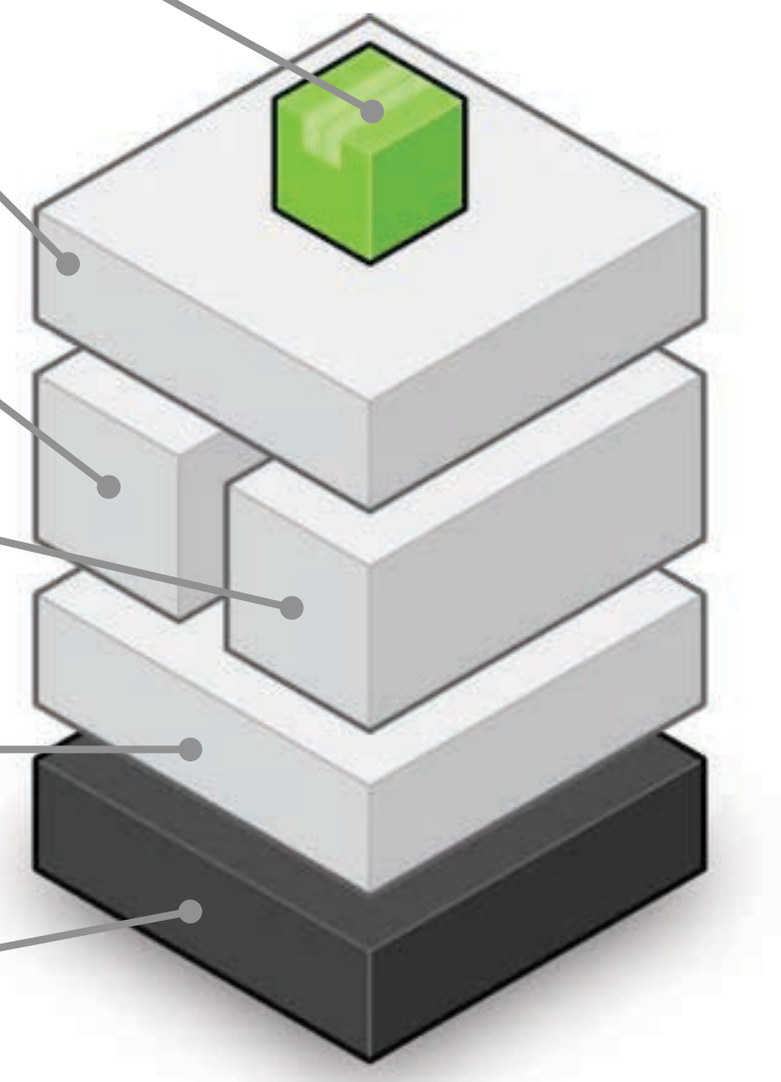
Java

Operating System

Linux

Server

Amazon EC2



Best practice

Highly available

Customisable

Flexible

Free

Only pay for the provisioned resources

Monitored

Insight

CloudWatch

Free

5 minute resolution

Detailed monitoring

1 minute resolution

CPUUtlization
DiskReadBytes
DiskReadOps
DiskWriteBytes
DiskWriteOps
NetworkIn
NetworkOut
DatabaseConnections
FreeStorageSpace
ReadLatency
ReadThroughput
SwapUsage
WriteLatency
WriteThroughput

Custom metrics

Price aware

Mix On-demand, Reserved Capacity and Spot

Relate to business metrics

Cost per user

Cost per operation

White papers:

aws.amazon.com/whitepapers

~~Premature~~

~~optimisation~~

Maximise value

Security in the Cloud

Shared

responsibility

Requirement based access

Certification

ISO 27001

+

SAS 70 Type II

PCI DSS

Level 1

Control objectives

Security organisation	Employee lifecycle
Logical security	Secure data handling
Physical security	Environmental safeguards
Change management	Incident handling
Data integrity	Availability and redundancy

DDOS

Man in the Middle

IP spoofing

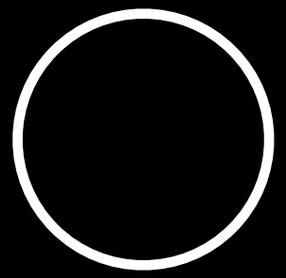
Data access control

Detailed logging

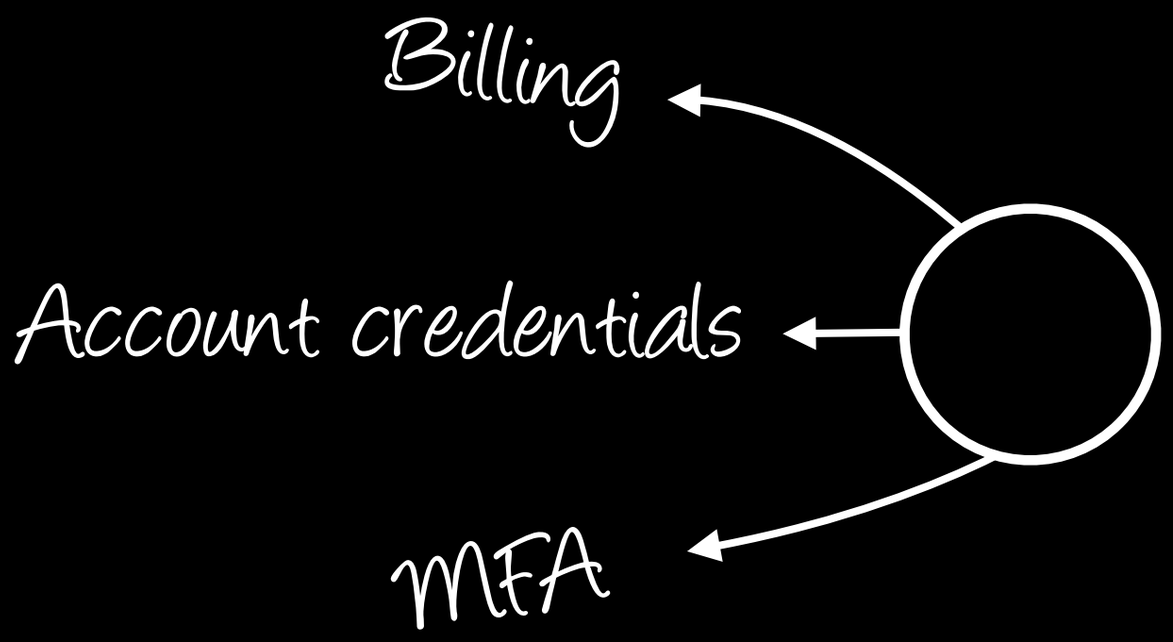
Data stays local

Identity and access control

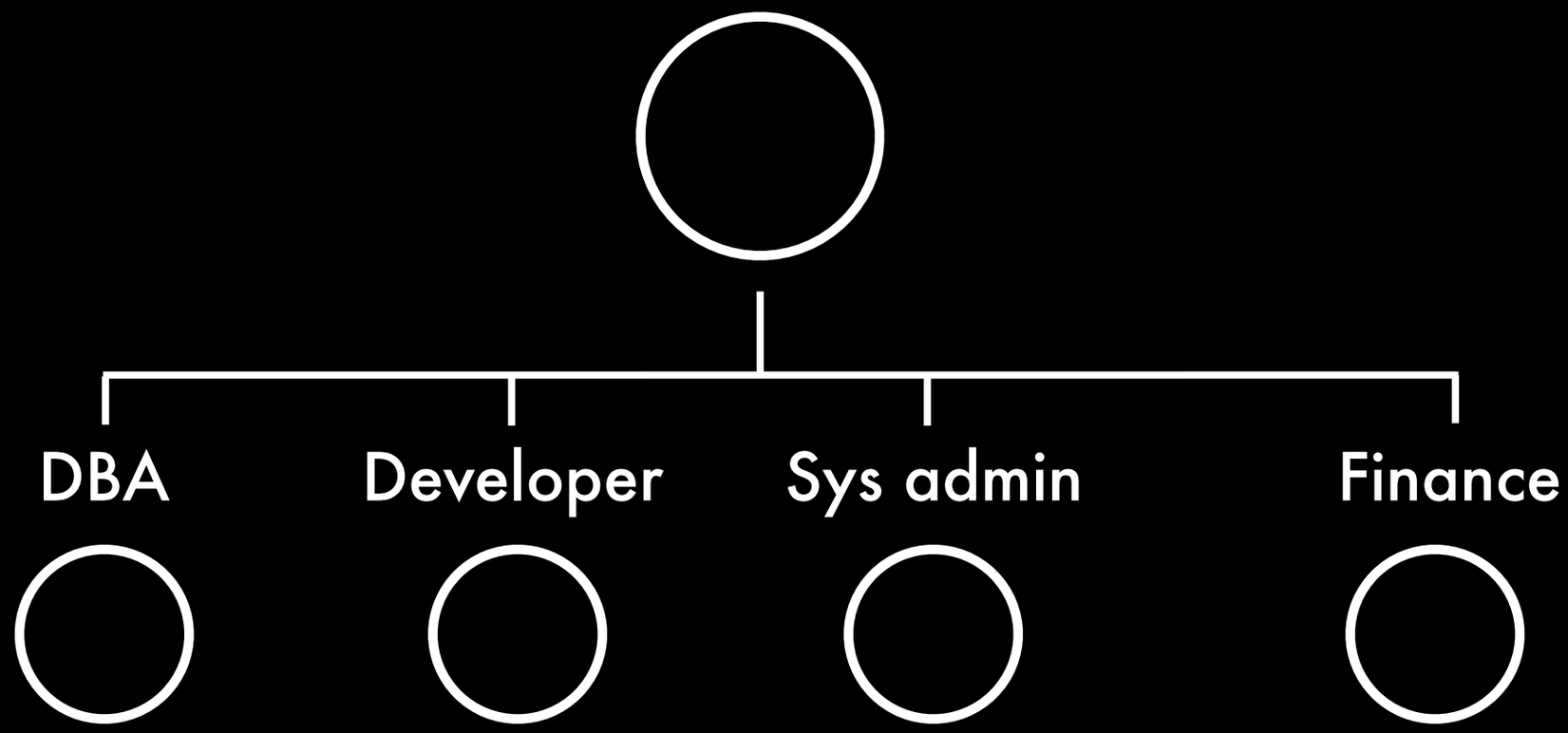
API level rights management

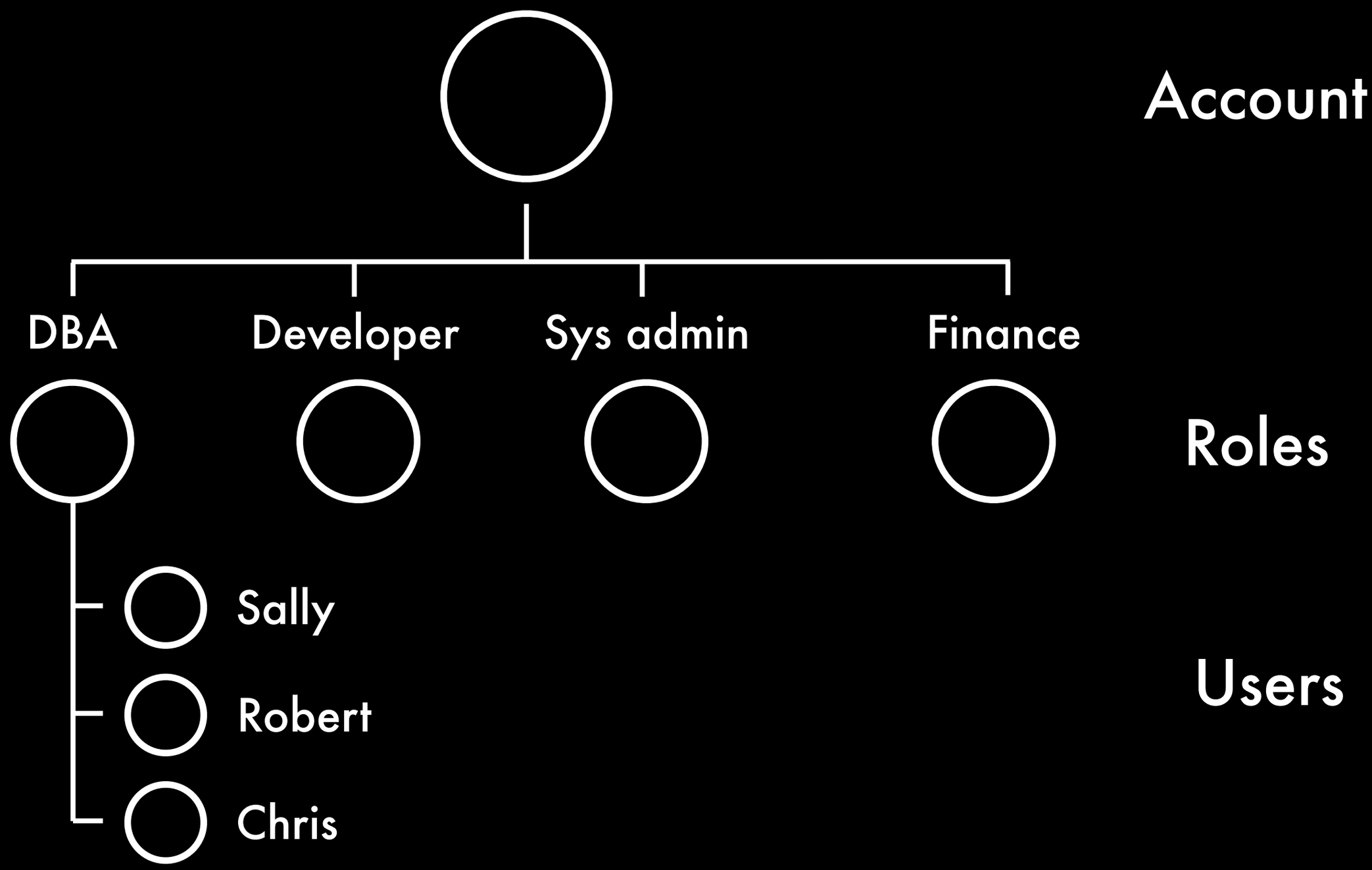


Account



Account


Account
DBA
Developer
Sys admin
Finance
Roles


Account
DBA
Developer
Sys admin
Finance
Roles
Sally
Robert
Chris
Users

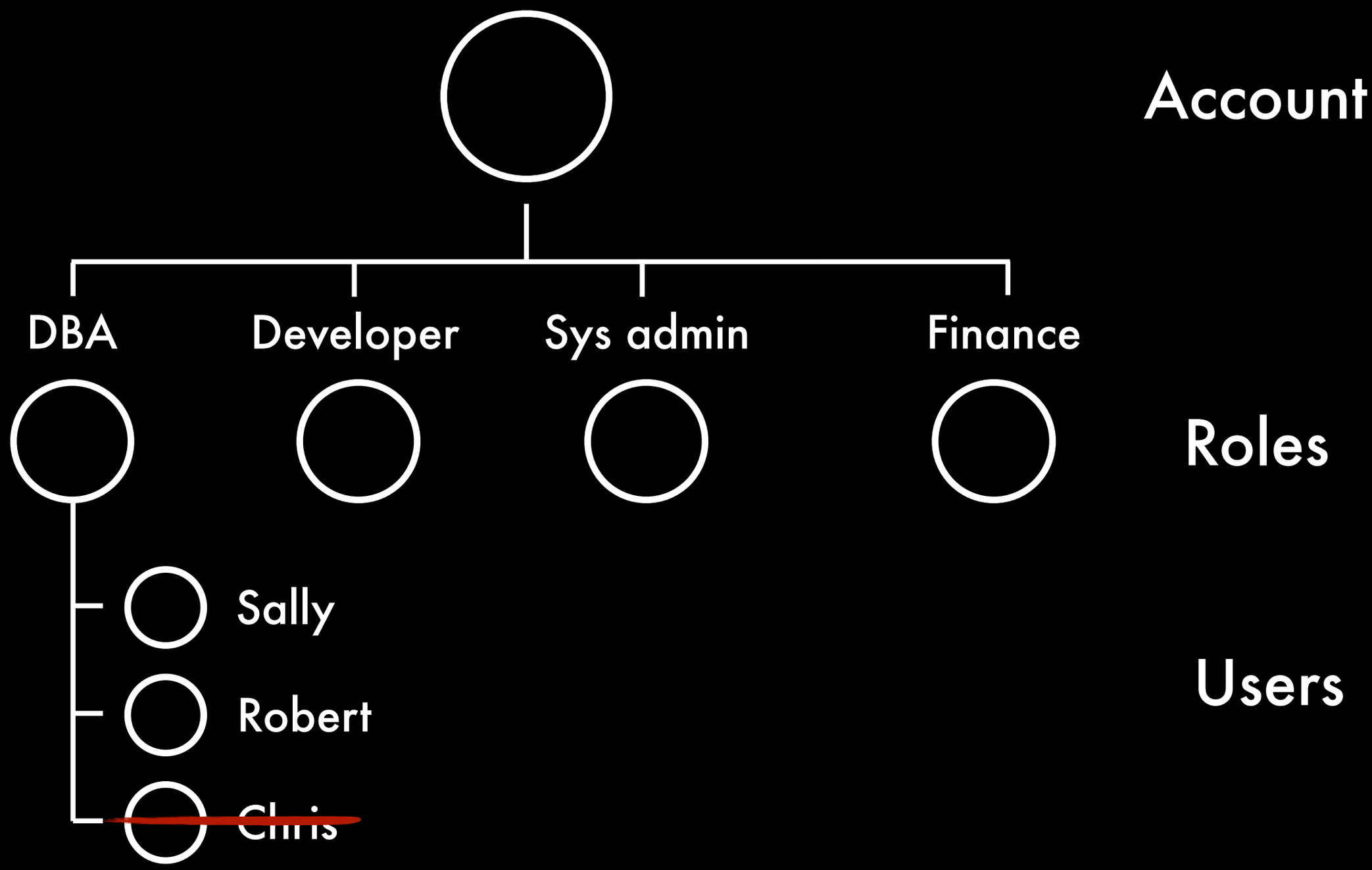
Security credentials

Multifactor authentication

Management console access

Data read/write access

API level access


Account
DBA
Developer
Sys admin
Finance
Roles
Sally
Robert
Chris
Users

Network isolation

Virtual Private Cloud

Virtual network topology

IP address range

Public, private subnets

Virtual network topology

Route tables

Network gateways

Network access control

Inbound

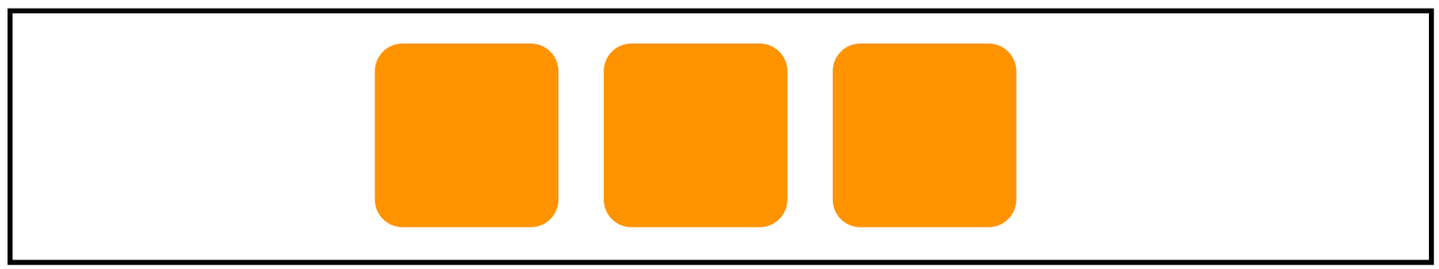
Outbound

Network access control

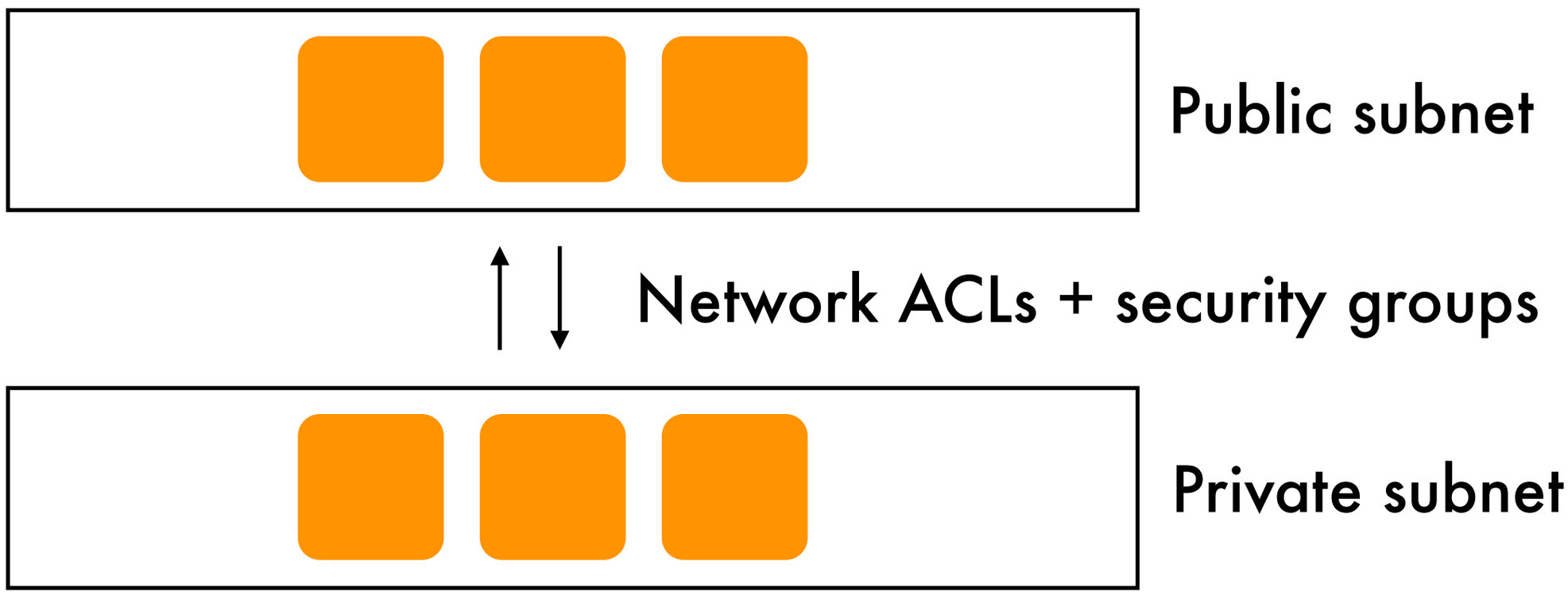
S3 access

VPN

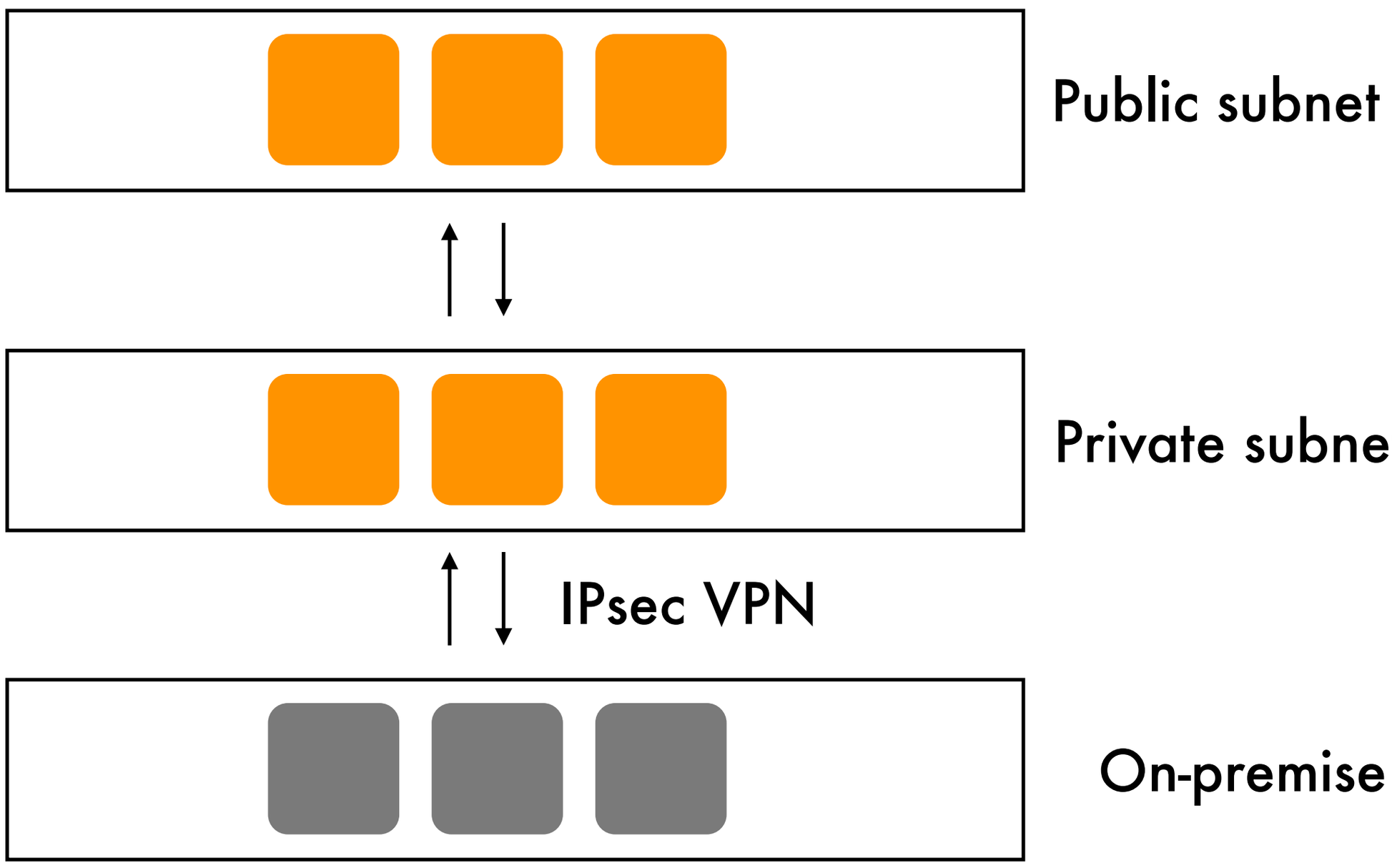
Dedicated instances



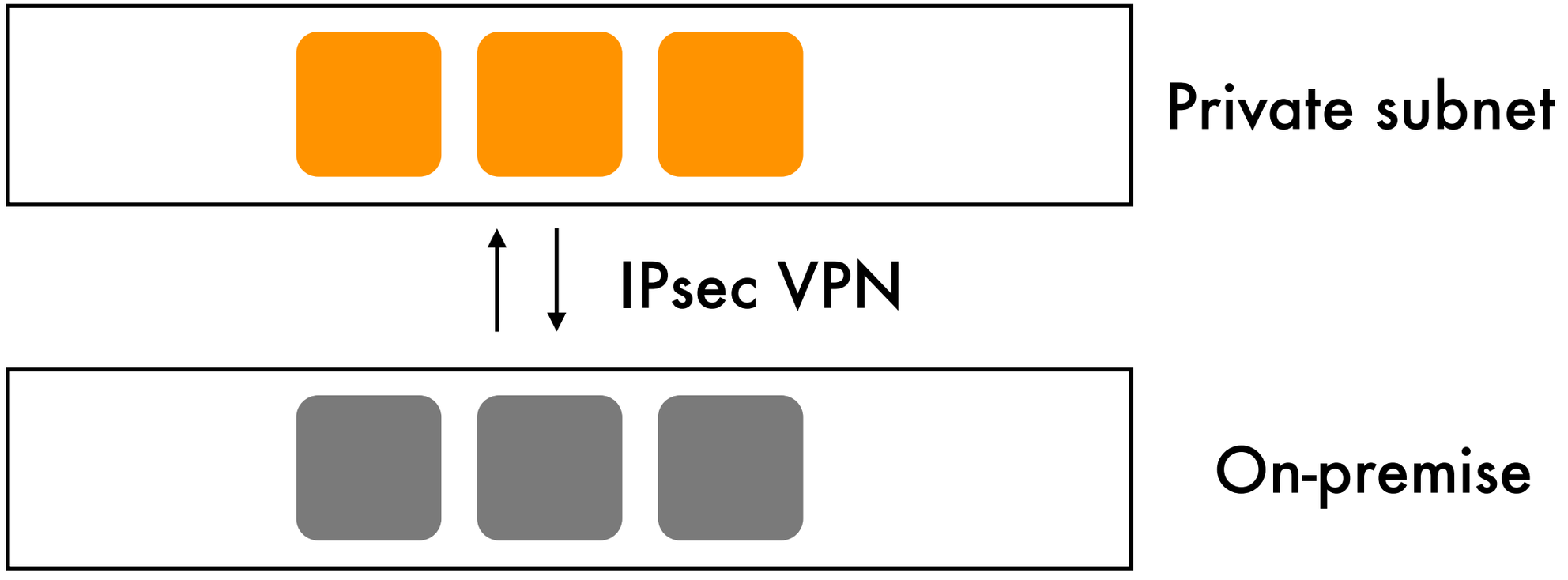
Public facing website



Multi-tier applications



Extend your data centre



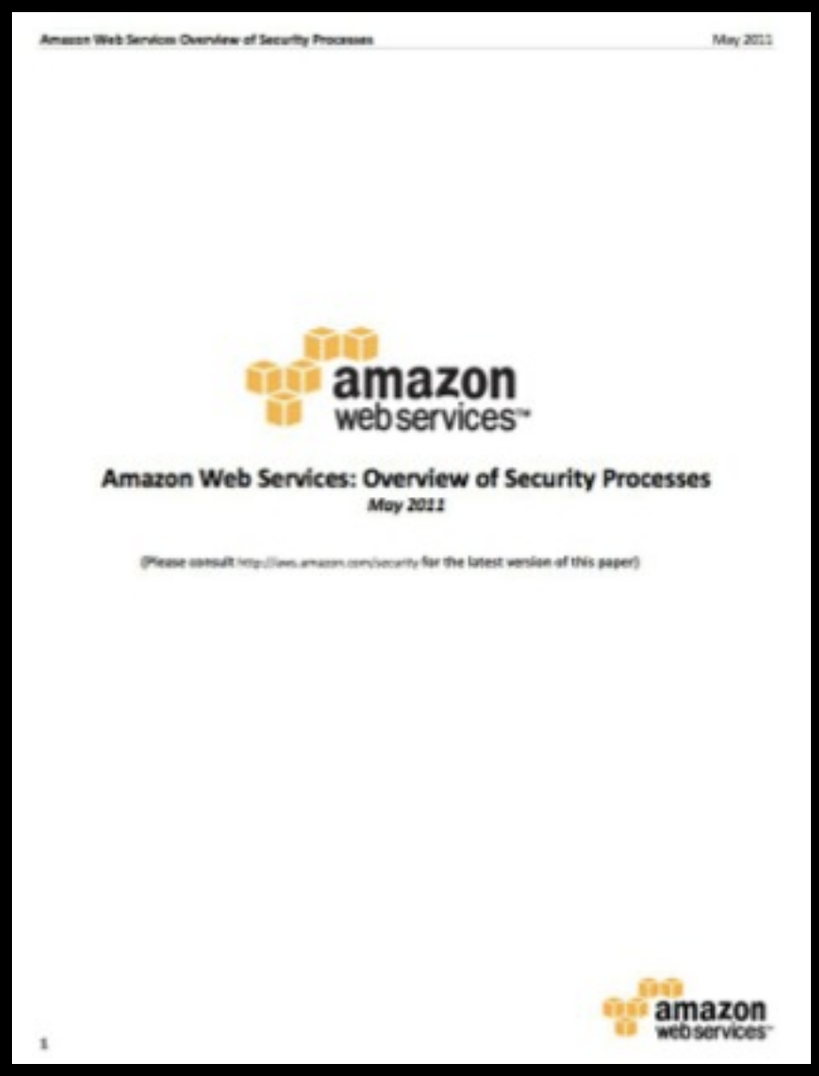
Extend your data centre

DR

Backup to EC2
and EBS

DR

VM import



aws.amazon.com/security

aws.amazon.com

Thank you!

QUESTIONS + FEEDBACK:

matthew@amazon.com

@mza

ON TWITTER