AWS Summit Milan
31 Ottobre 2013

Enterprise Applications on Amazon Web Services

Steffen Krause
Technology Evangelist
@sk_bln
skrause@amazon.de

Agenda

1. Extending the Enterprise Data Center
   a. Why?
   b. Getting a private Network in the Cloud
   c. Getting Connected
2. Using the elastic data center
   a. Backup, Storage, Archiving
   b. Development & Test
   c. Disaster Recovery
3. Running Enterprise Applications
   a. Oracle
   b. SAP
   c. Microsoft

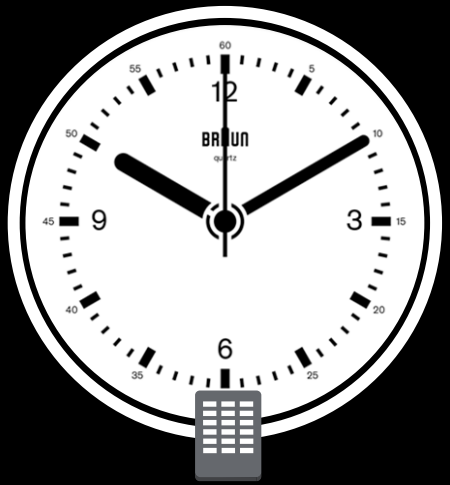
amazon web services

Extending the Enterprise Data Center

Traditional Data Centers are limited by

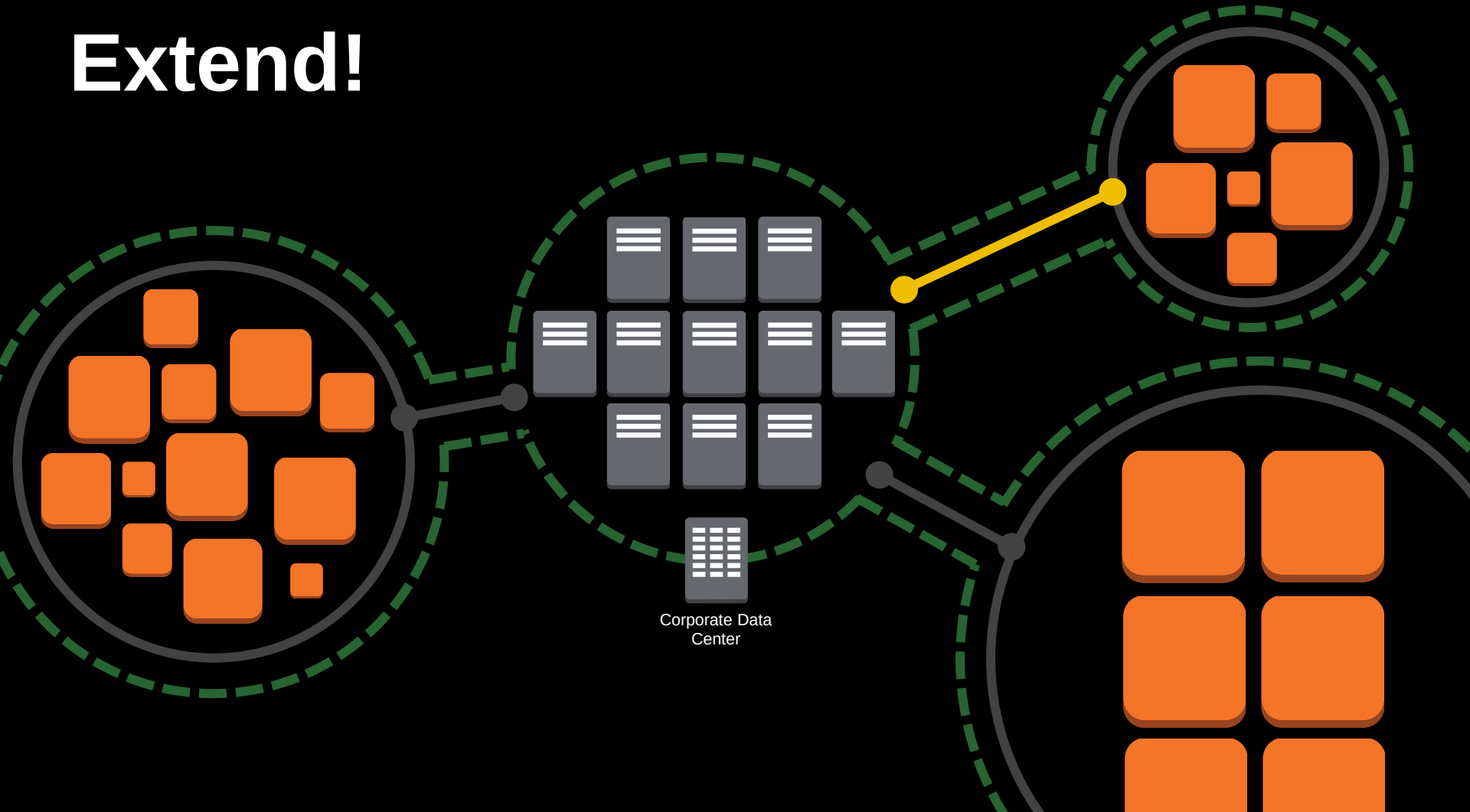
Capacity

Agility

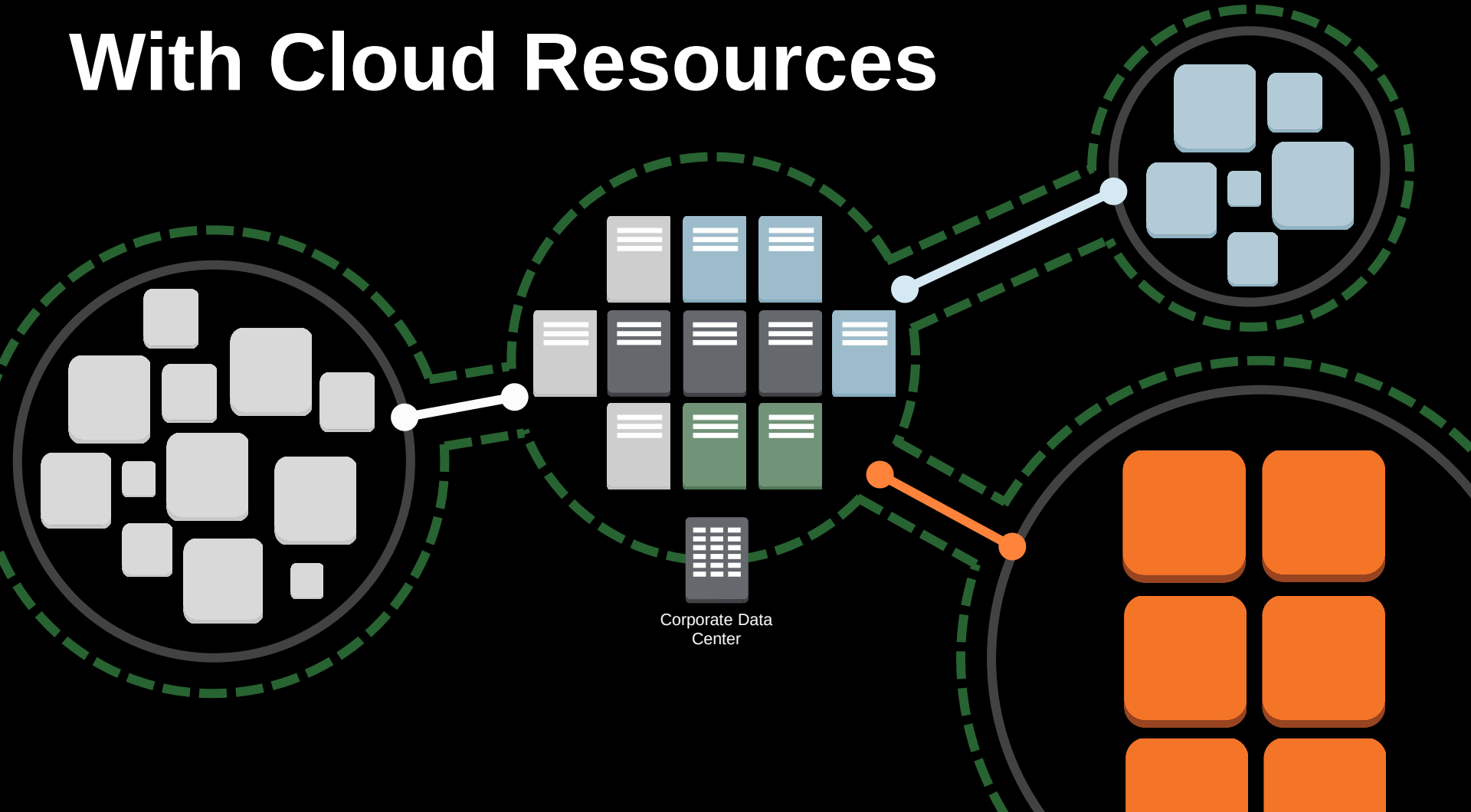


Cost

Extend!



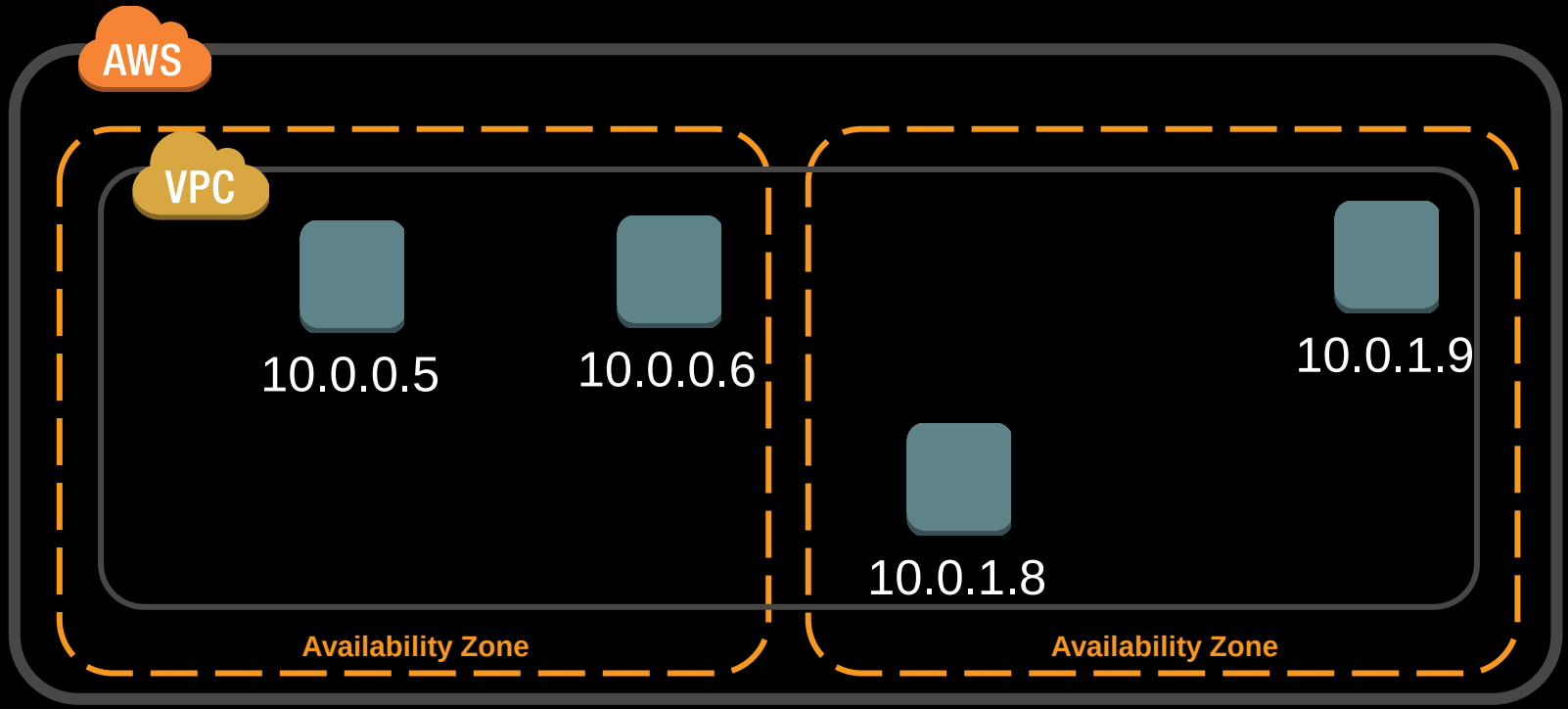
With Cloud Resources



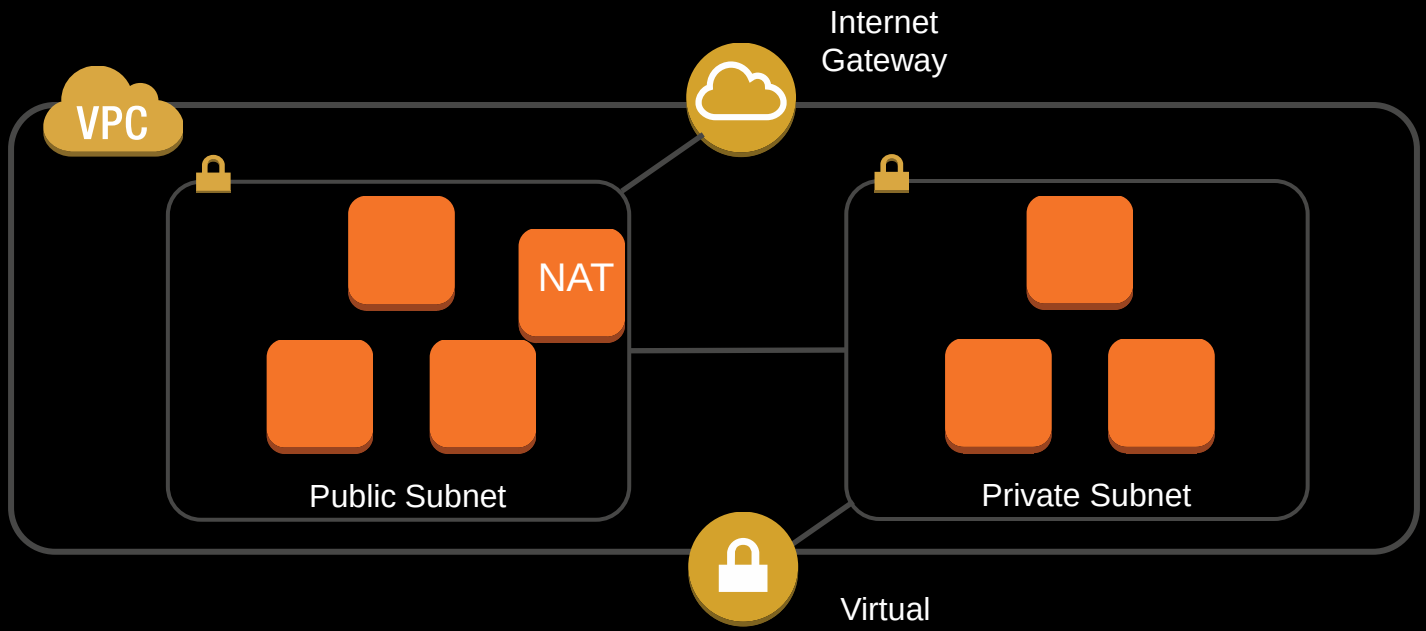
Network control

Your slice of the AWS cloud

amazon web services



VPC Customer


Internet
Gateway
VPC
NAT
Public Subnet
Private Subnet
Virtual
Private
Gateway

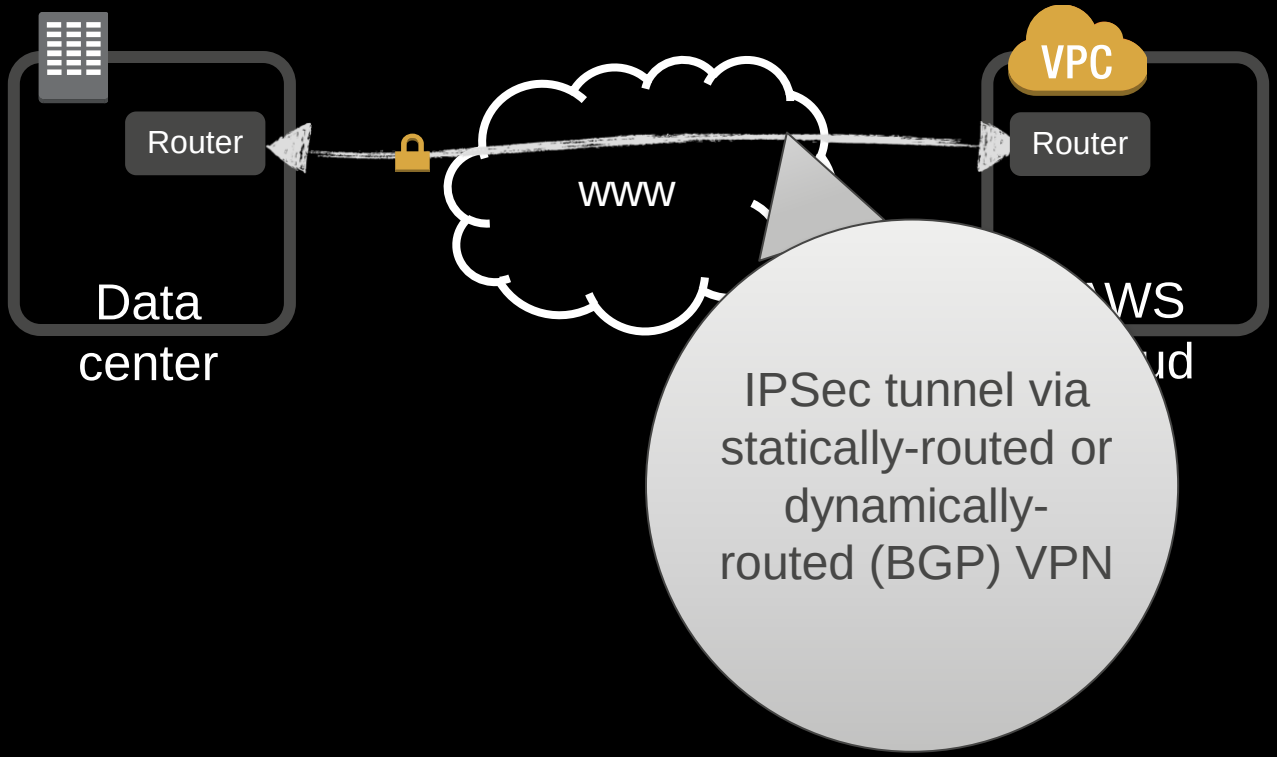
Getting connected

secure and reliable

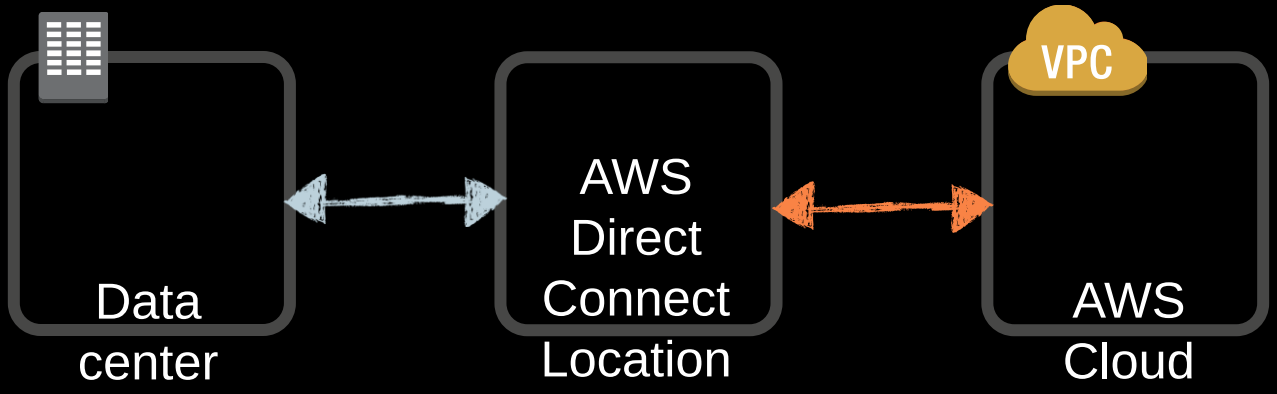
amazon web services

VPN

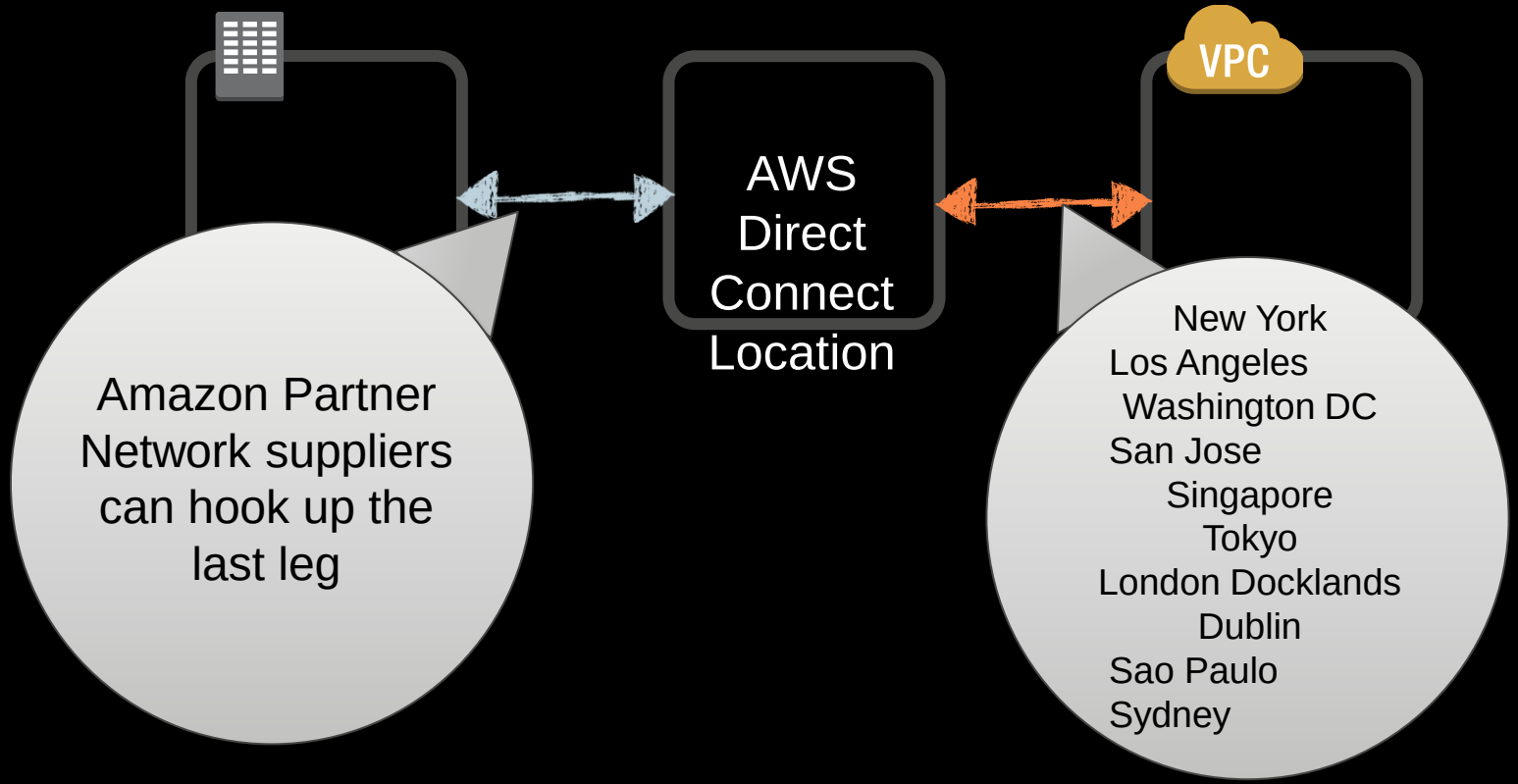
VPN


Router
Data
center
www
VPC
Router
IPSec tunnel via
statically-routed or
dynamically-
routed (BGP) VPN

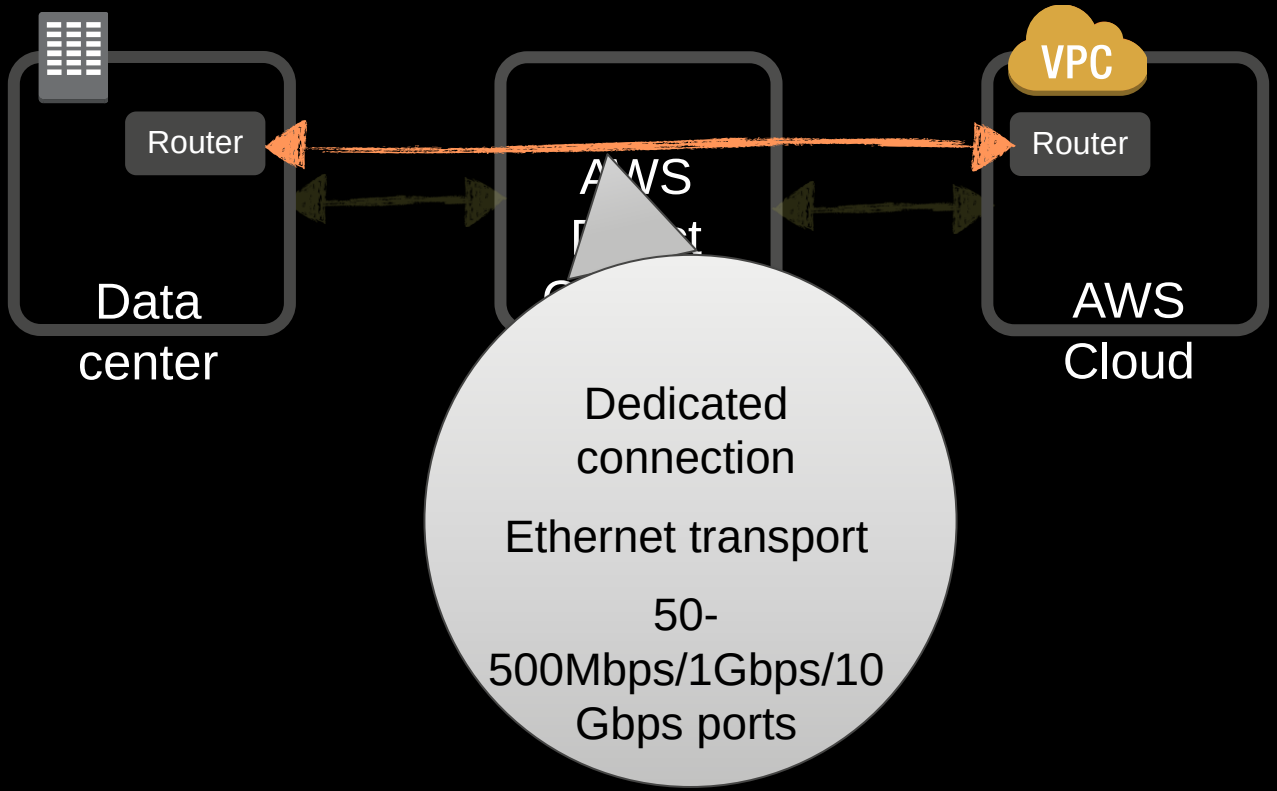
Direct Connect



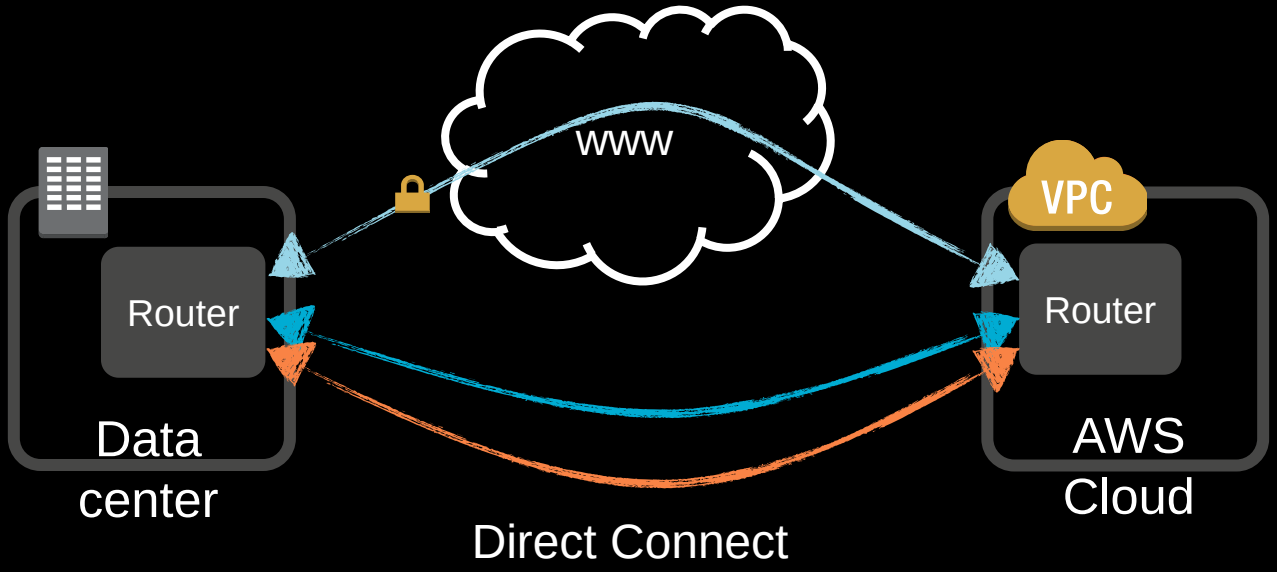
Direct Connect



Direct Connect



Maximize reliability



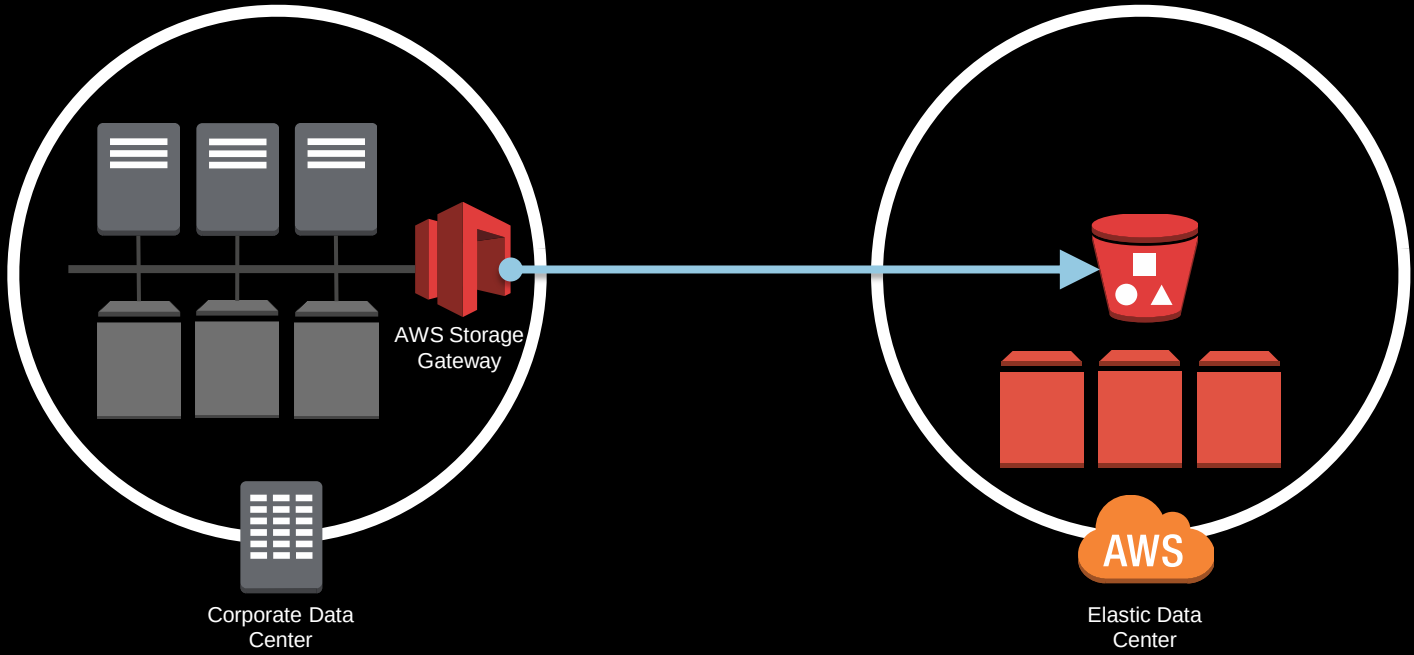
Using the elastic Data Centers

Managing data

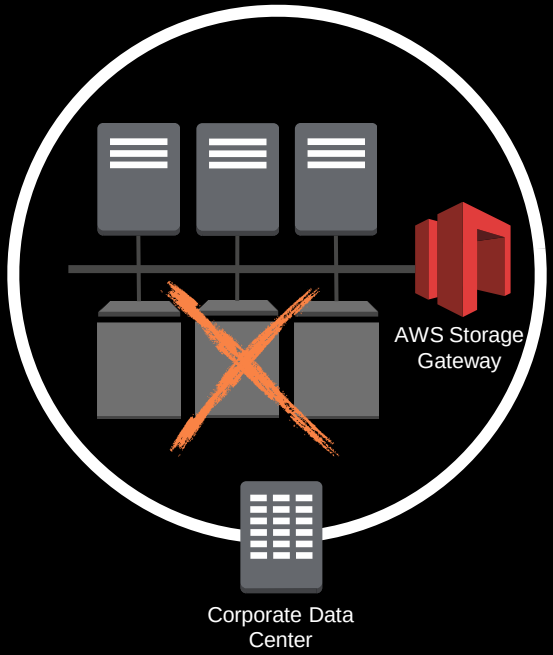
Backup, storage, archiving

amazon web services

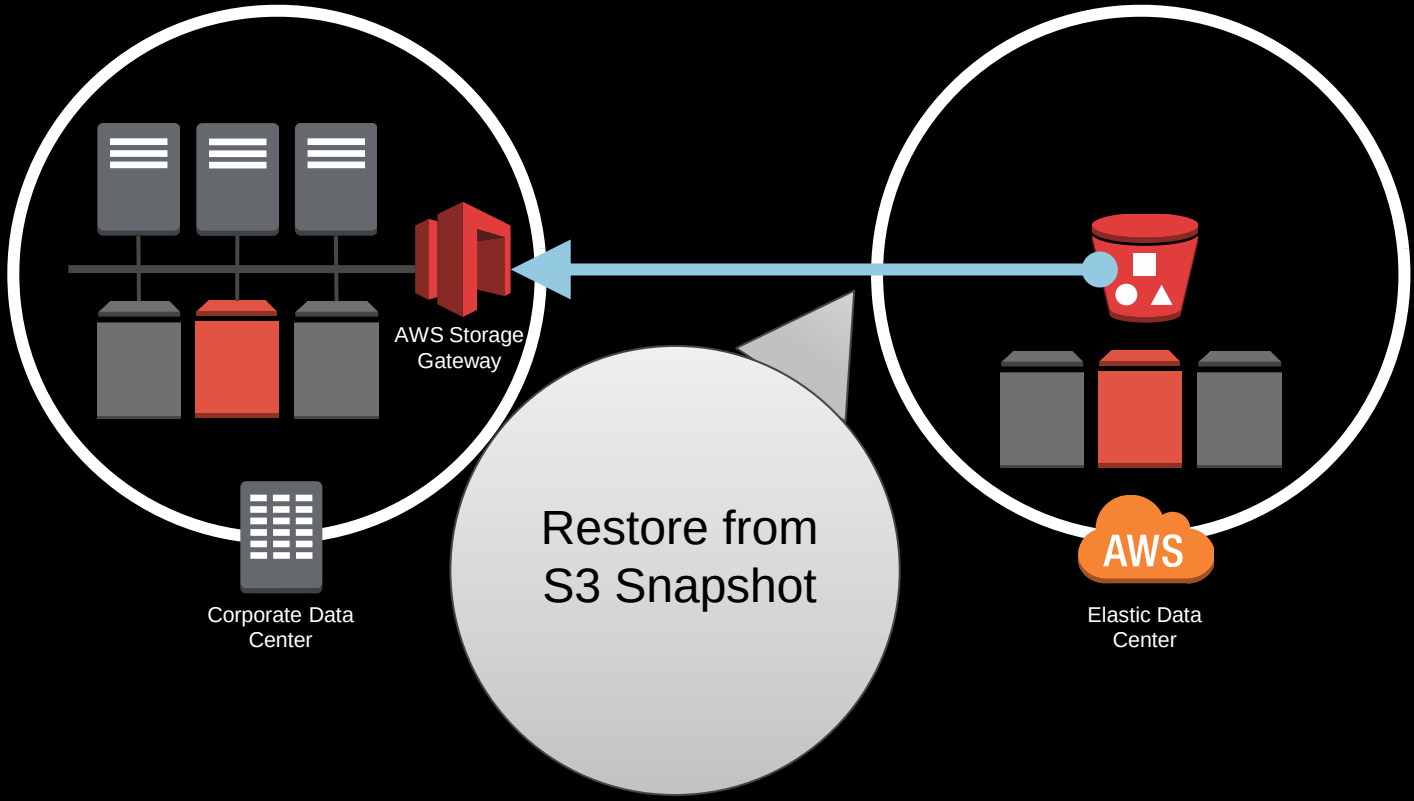
Storage Gateway



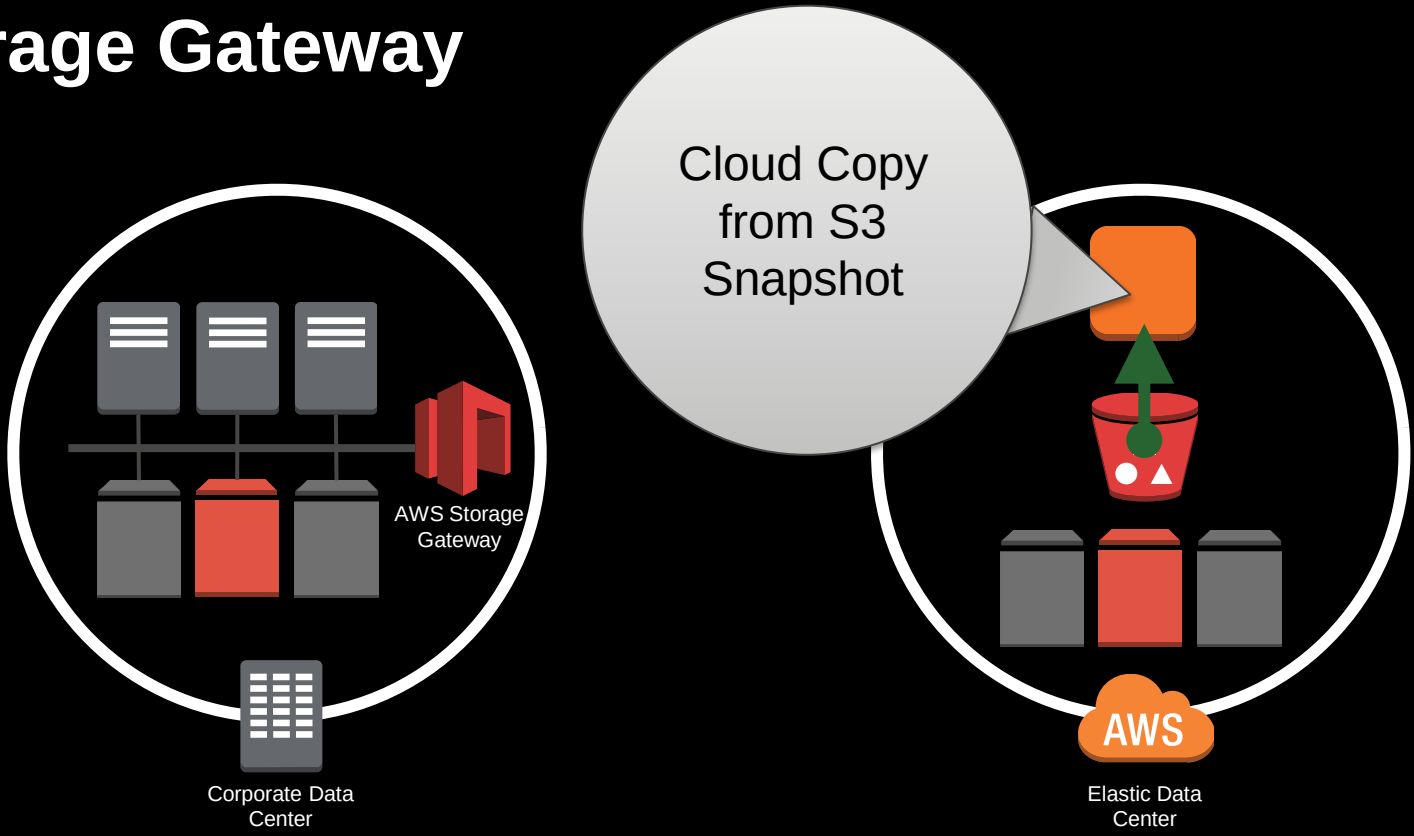
Storage Gateway



Storage Gateway



Storage Gateway

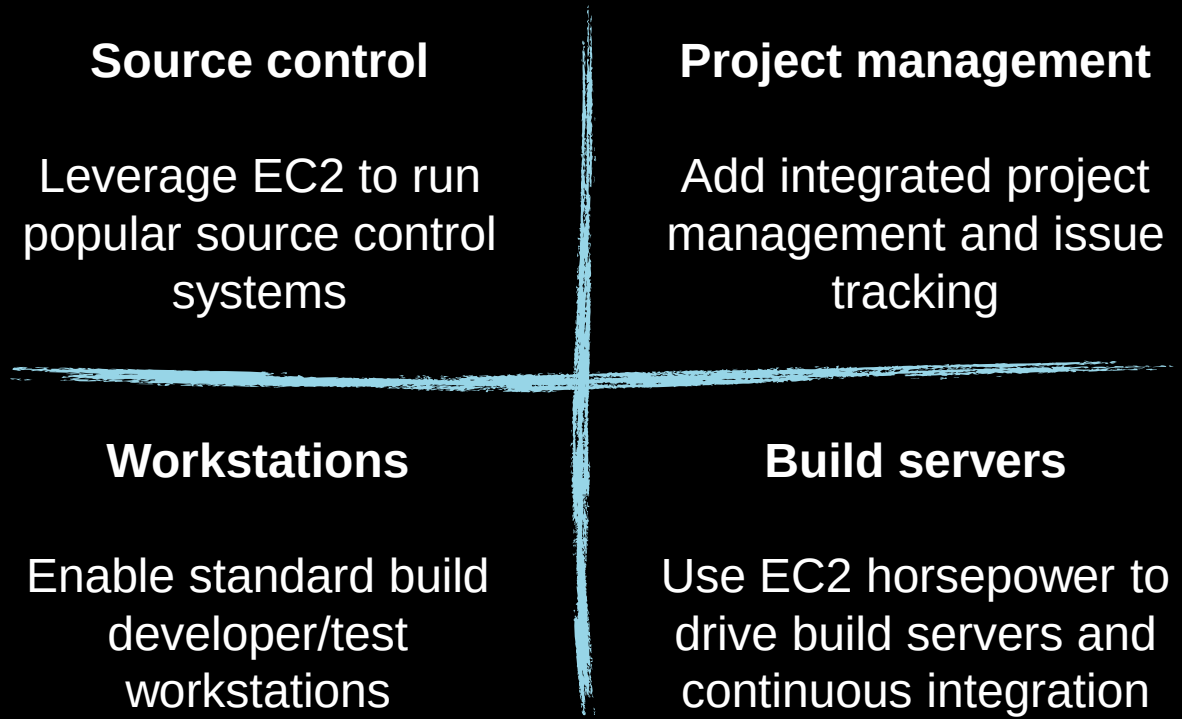


Development & Test

spin up, use & turn off

amazon web services

Frameworks & environments



Testing at scale

Unit & regression

Scale up and parallel run unit and regression plans in a fraction of the time

Load & performance

Utilize spot market for generating load and test how applications perform

A/B

Run A/B scenario testing with replica stacks

Security

Create sandboxes for aggressive security testing

Disaster Recovery

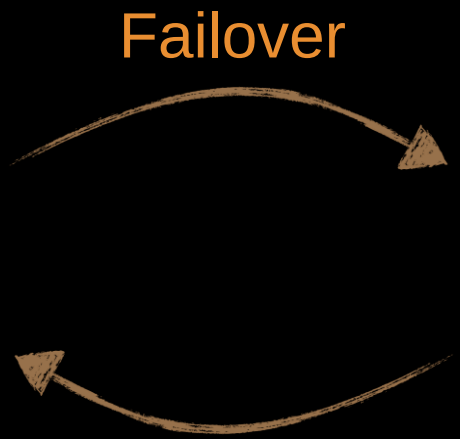
reduce costs, reduce risk

amazon web services

Disaster Recovery

Primary Site

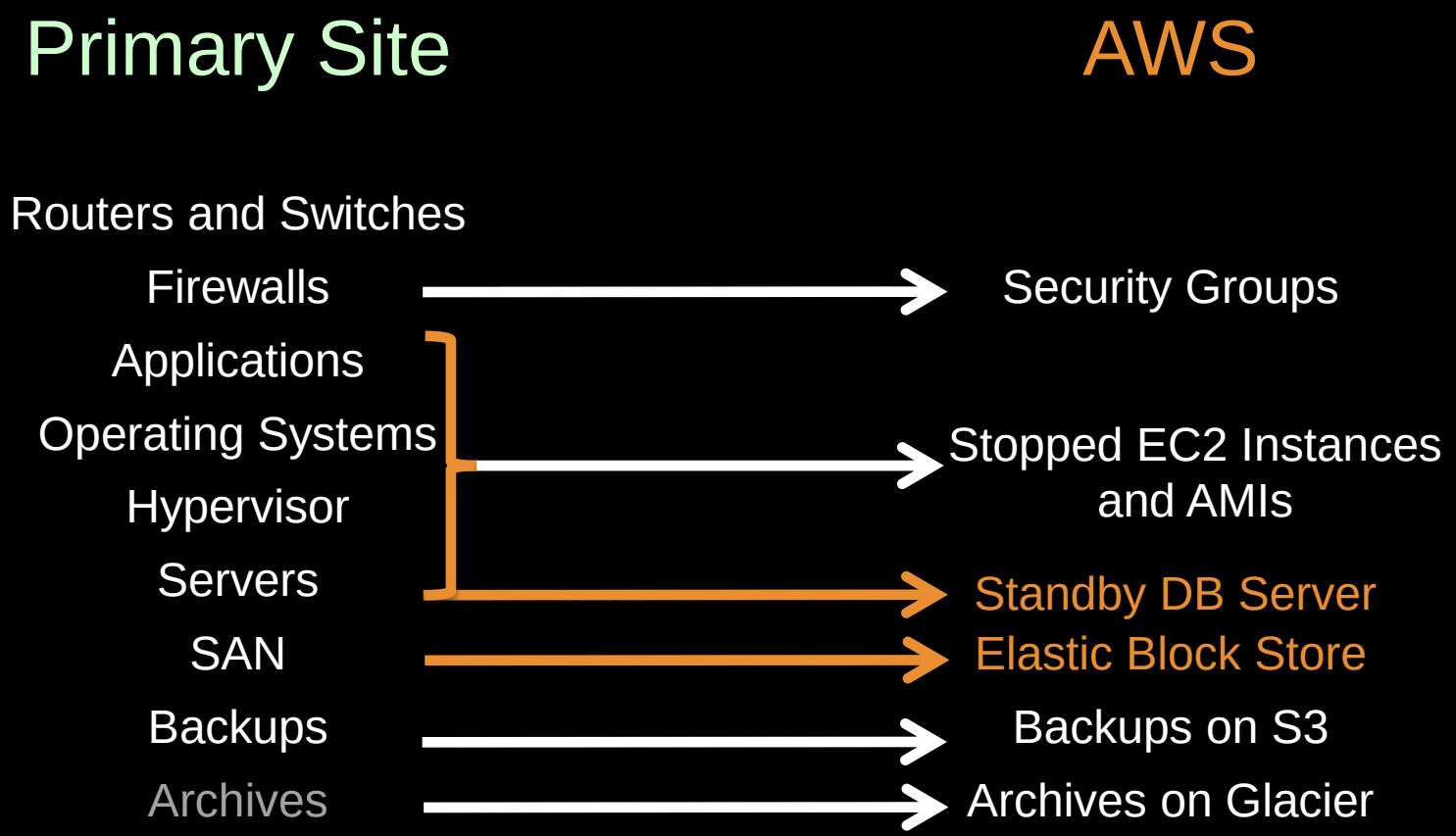
Routers and Switches
Firewalls
Applications
Operating Systems
Hypervisor
Servers
SAN
Backups
Archives



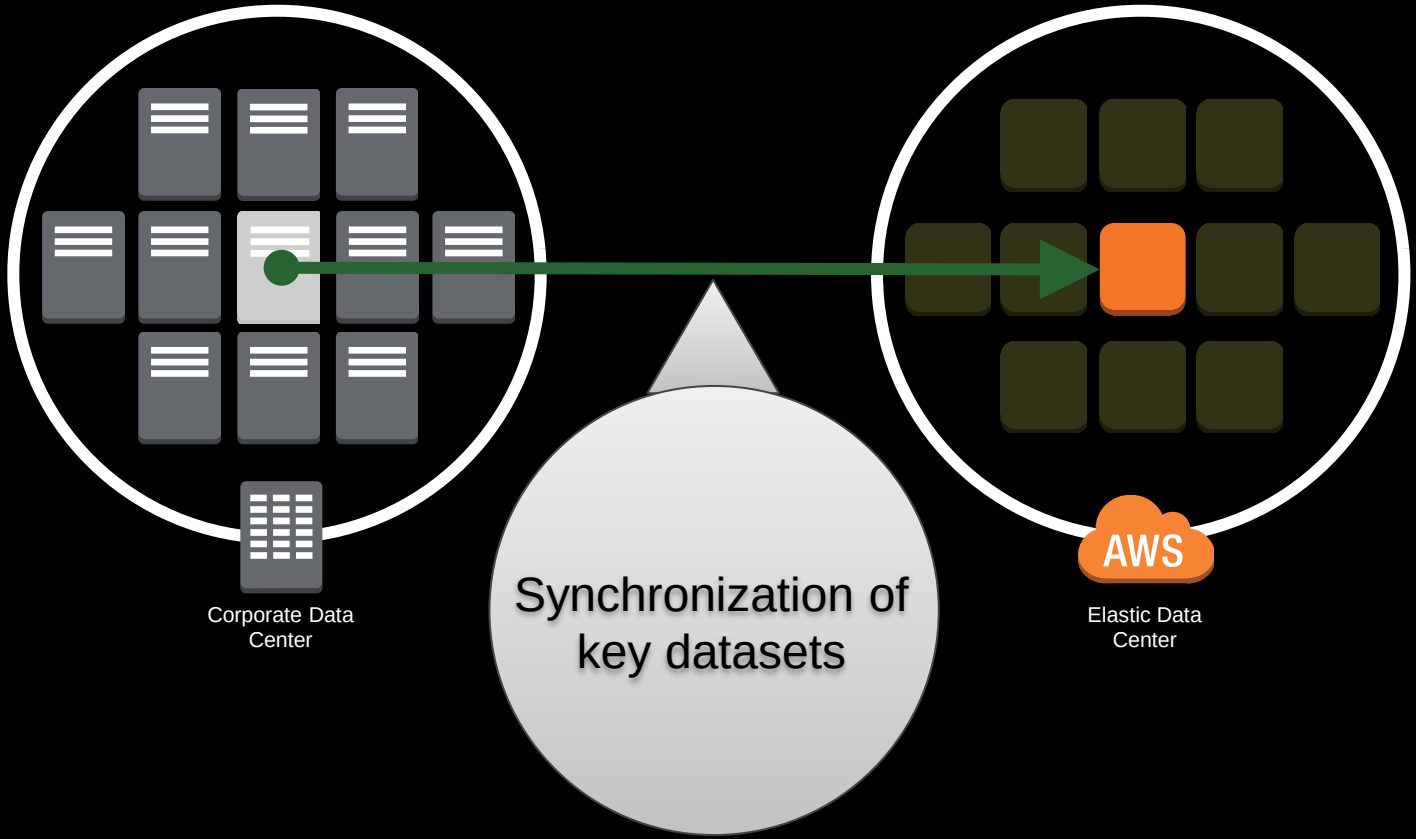
Secondary Site

Routers and Switches
Firewalls
Applications
Operating Systems
Hypervisor
Servers
SAN
Backups
Archives

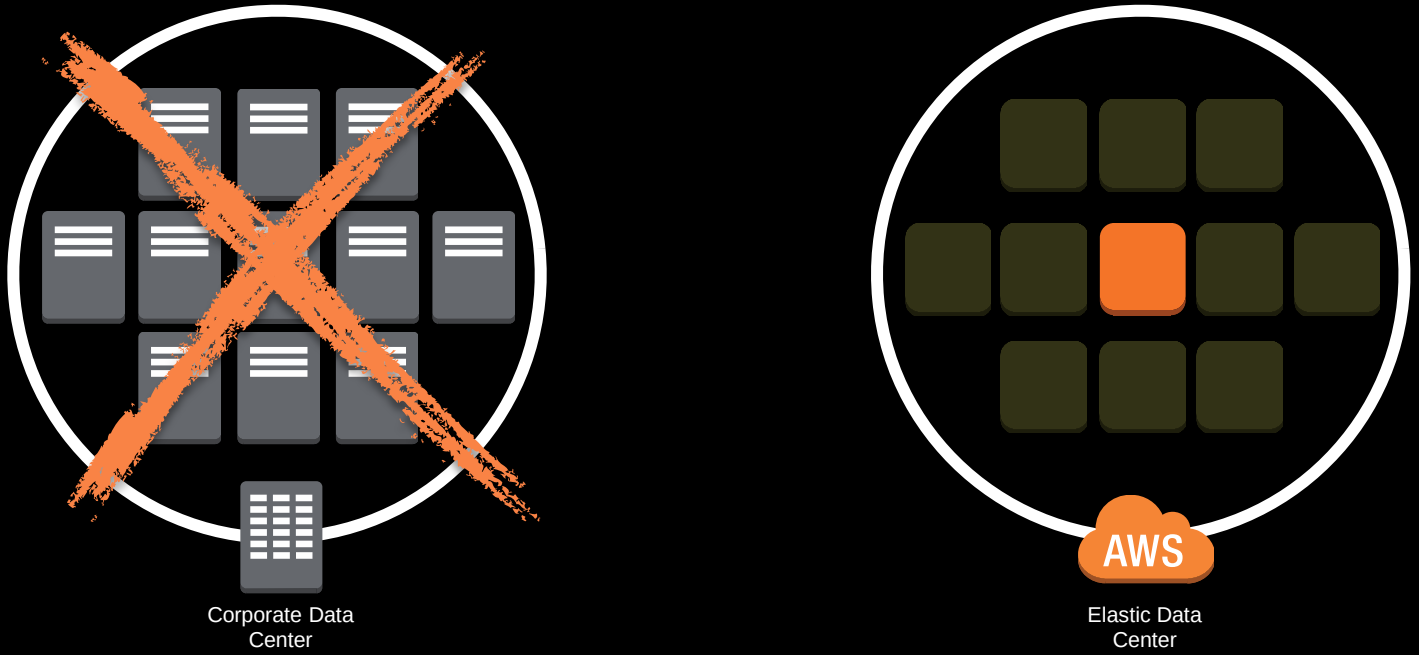
Pilot Light DR Scenario



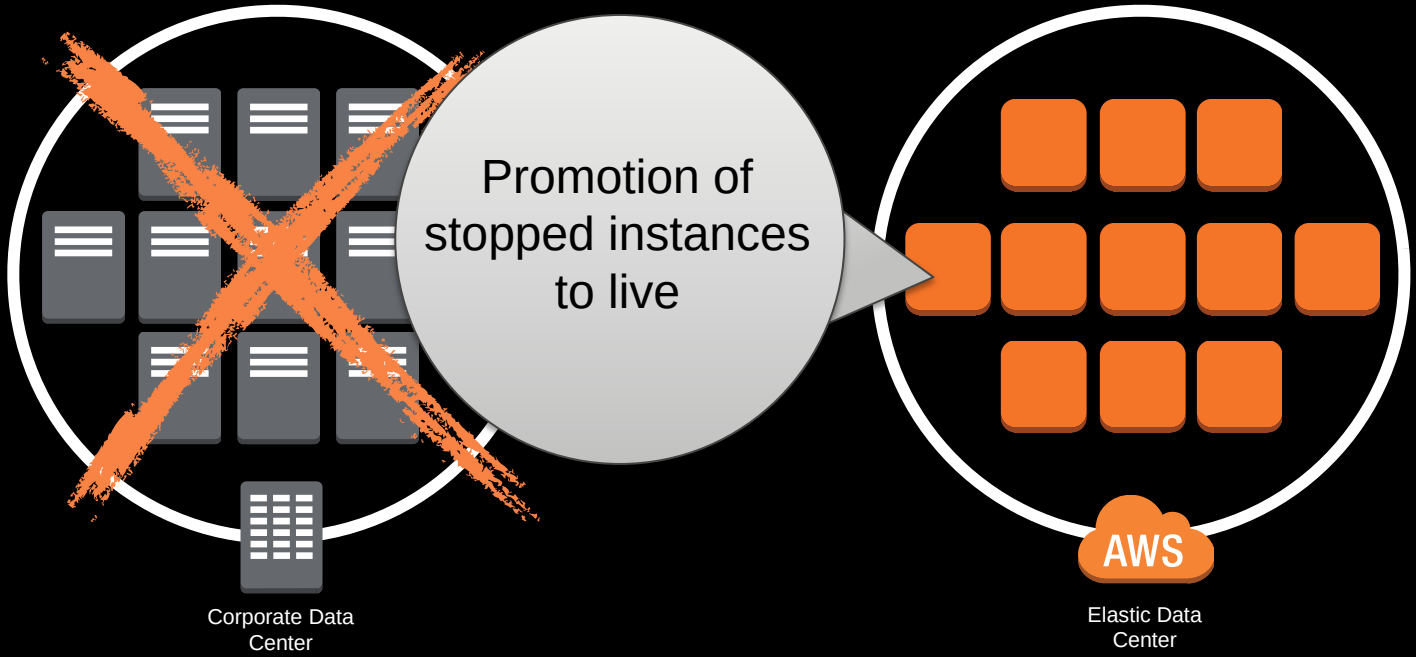
Disaster Recovery – pilot light



Disaster Recovery – pilot light

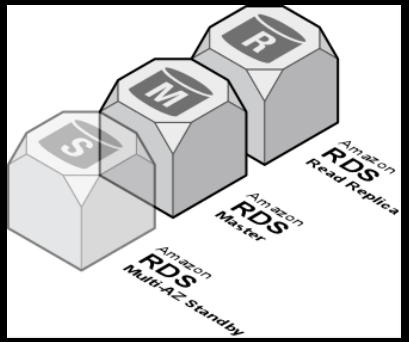


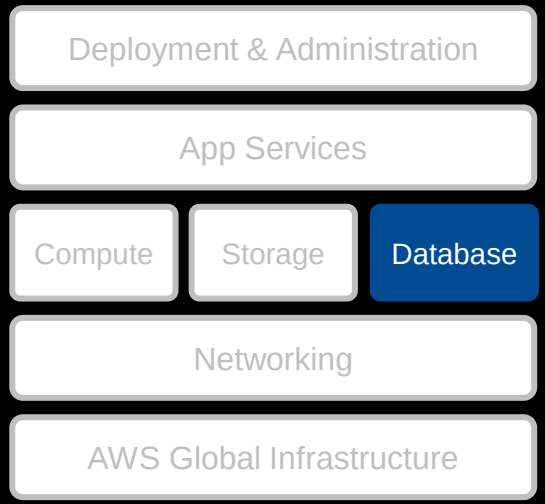
Disaster Recovery – pilot light




SAP
Microsoft
ORACLE
IBM

Relational Database





Relational Database Service

Database-as-a-Service

No need to install or manage database instances

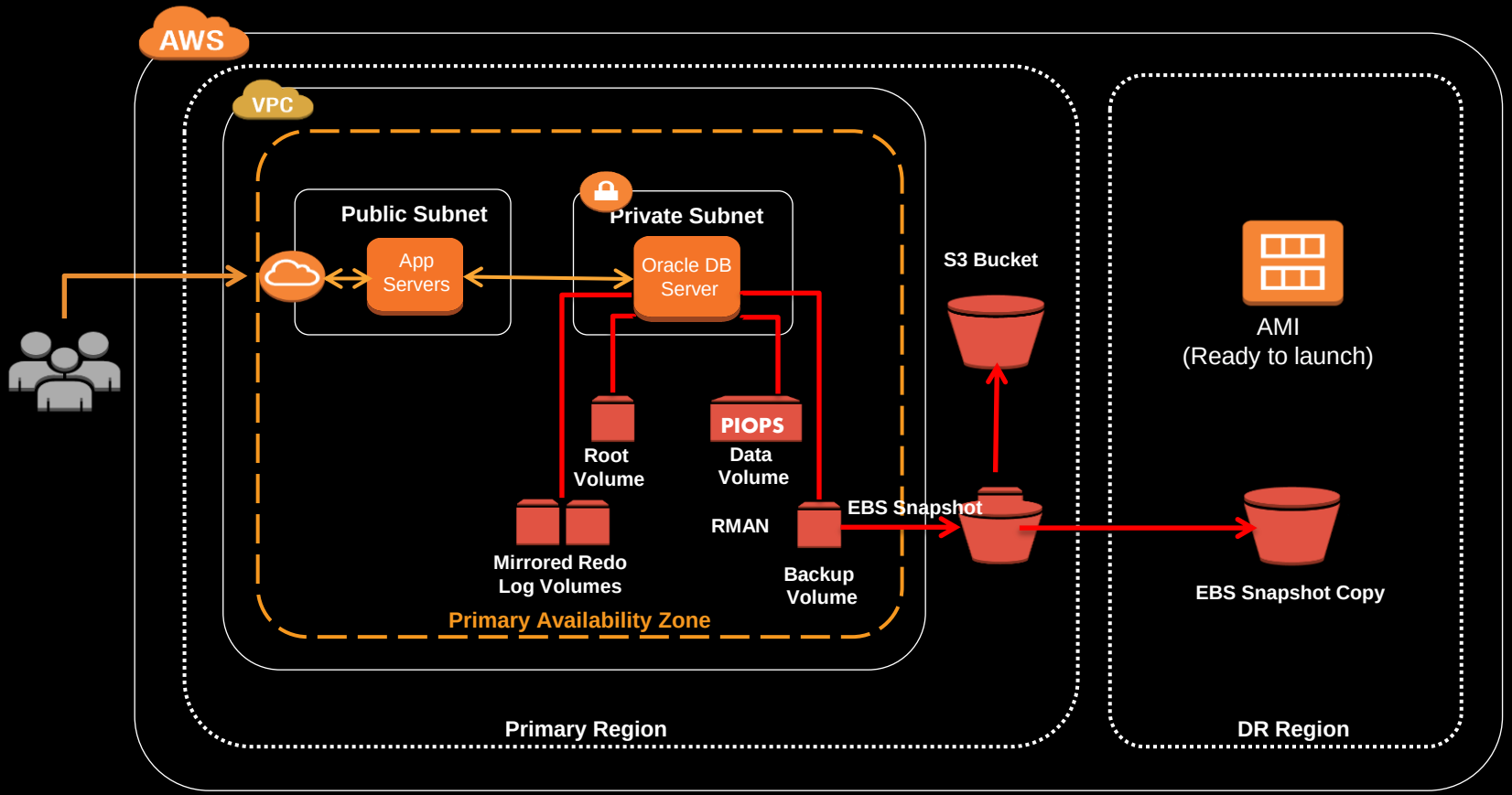
Scalable and fault tolerant configurations

Feature	Details
Platform support	Create MySQL, SQL Server and Oracle RDBMS
Preconfigured	Get started instantly with sensible default settings
Automated patching	Keep your database platform up to date automatically
Backups	Automatic backups and point in time recovery and full DB backups
Speed	Provisioned IOPS enable up to 30.000 IO/s for high throughput
Failover	Automated failover to slave hosts in event of a failure
Replication	Easily create read-replicas of your data and seamlessly replicate data across availability zones

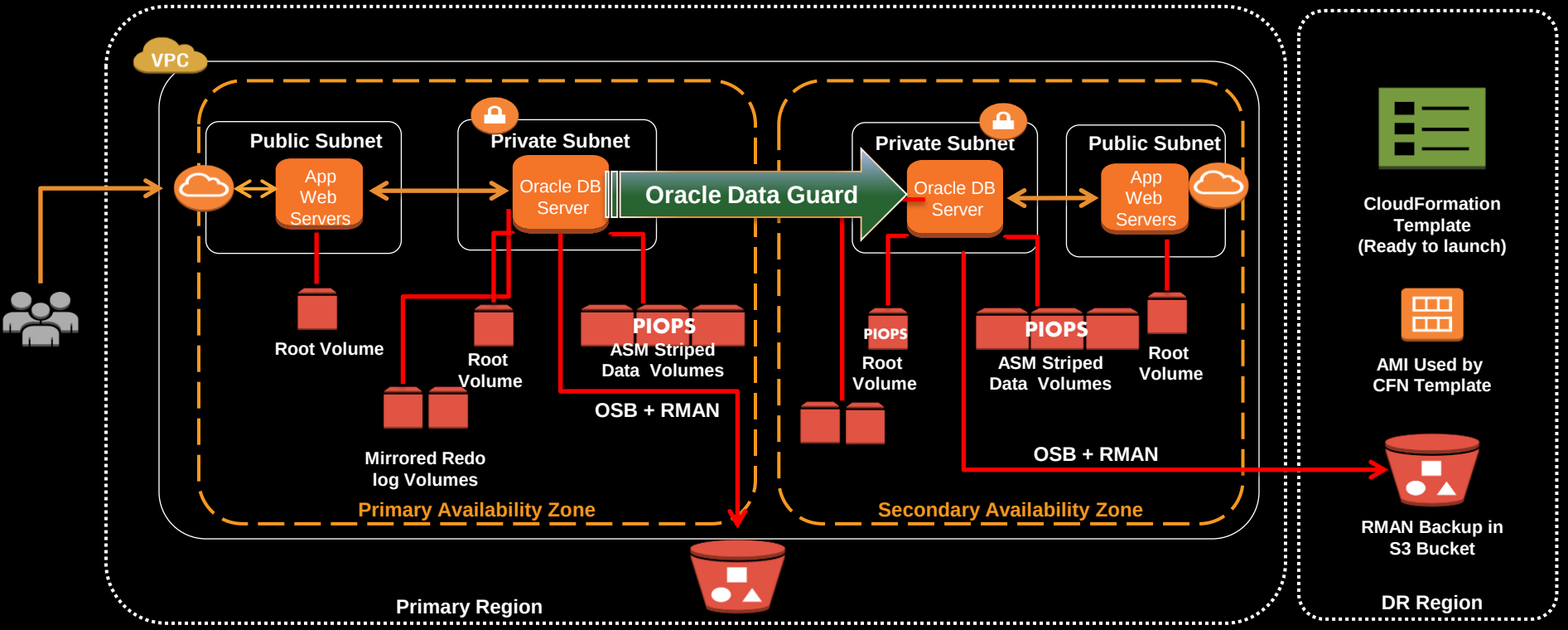
Key components of Oracle architectures on AWS

- Amazon Virtual Private Cloud (Amazon VPC)
- Elastic Block Store (EBS) provisioned IOPS volumes
  - Up to 4,000 IOPS per volume
  - Stripe across several volumes
- EBS-optimized instances
- Oracle Automatic Storage Management (ASM)
- Oracle Data Guard and Active Data Guard
- Oracle Secure Backup Cloud Module
- Oracle Transparent Data Encryption (TDE)

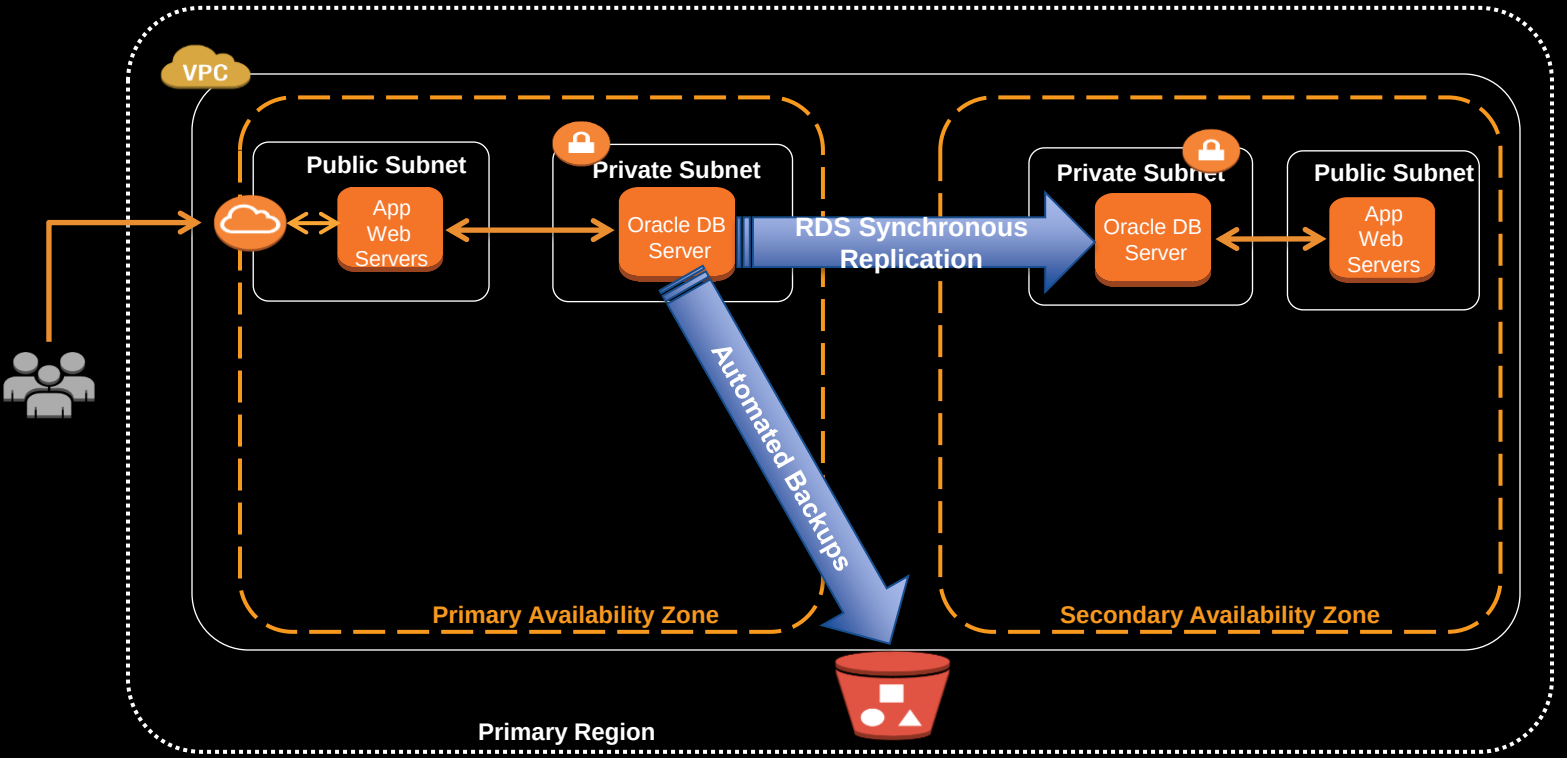
Standard Oracle Database Architecture on Amazon EC2



Enterprise Class Database Architecture on Amazon EC2



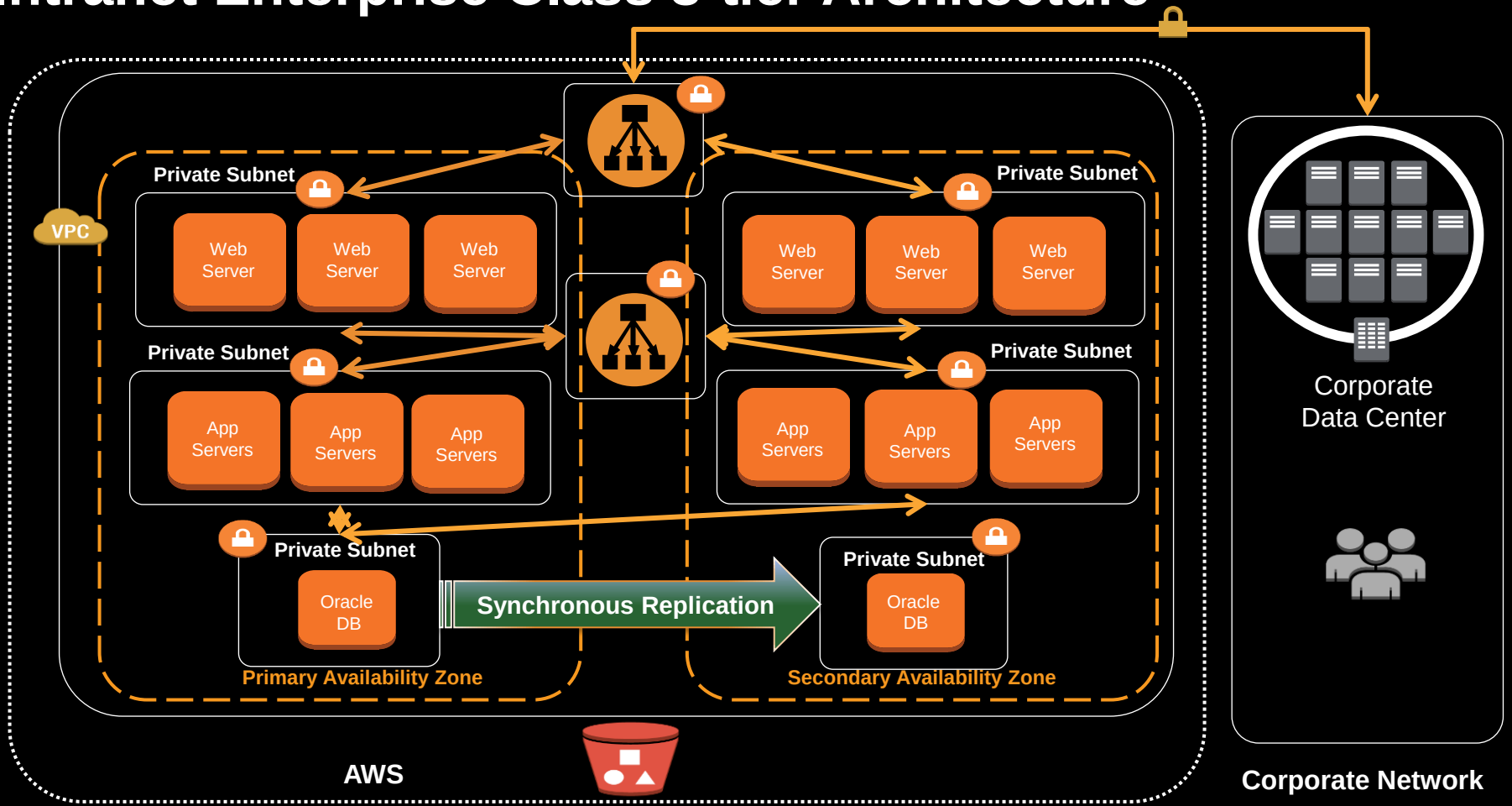
Simplify: Amazon RDS for Oracle



Oracle applications on AWS

- Oracle Applications are fully supported on AWS
  - BI, Siebel, E-Business Suite, Weblogic, Coherence,…
  - Database & middleware on AWS Xen
  - Applications on OVM
  - >30 AMIs by Oracle, look for OVM or Oracle on Community AMIs
- Oracle licenses owned by customers are fully portable to AWS
  - But check your contract

Intranet Enterprise Class 3-tier Architecture



Moving to the Cloud

Enrico Ancona
Amministratore Delegato
Imperia & Monferrina S.p.A.

Do You Recognize Any Brand?

Who We Are

- Imperia, established in Italy in **1932**, sells pasta machines and other small kitchen appliances to **77 countries** worldwide.

Who We Are

- Imperia merged with Italian pasta machine maker **Monferrina** in 2010 to form Imperia & Monferrina, producing a range of products from the small **home**-use pasta machine to **industrial** pasta makers, capable of producing 600 kg of pasta per hour.

La Monferrina
macchine per pasta machines

imperia & monferrina
SOCIETÁ PER AZIONI

Challenge

- When Imperia & Monferrina **merged** operations, the company needed to quickly set up a **new infrastructure** to help bring the two merging companies together.

Challenge

- The IT team had to create a flexible new **Enterprise Resource Planning** (ERP) system that would unify the internal and external management information across the newly formed entity.
- Additionally, requirements dictated that the solution be **reliable** and **efficient**, and could be set up quickly and **cost**-effectively—all in less than **six months**.

Architecture

- We have been astonished by the **effectiveness** and **simplicity** of the AWS Cloud.

Benefits

- By hosting Oracle eBusiness Suite on AWS, we reduced capital expenses by **50** percent, and operating expenses by **15** percent.
- A normal ERP project would have taken more than six months, and we completed this in under **four months**.
- Our ERP system has reached **99.95** percent availability, as well.

Thanks!

Test Drive

Test Enterprise Apps on AWS

Free of charge for educational and demonstration purposes
Pre-configured environments
Examples:

- Oracle Data Guard Secure Backup
- Oracle BI
- Oracle E-Business Suite
- Siebel
- SAP Afaria
- Red Hat Storage Server

SAP

SAP Enterprise applications in the elastic data center

- SAP Business Suite
- SAP HANA One
- SAP Business All-in-One
- SAP BusinessObjects BI solutions
- SAP Rapid Deployment Solutions (RDS)
- SAP Afaria

http://aws.amazon.com/sap/

AWS / SAP Alliance

SAP has been an AWS customer since 2008

AWS is an SAP-certified Global Cloud Services Partner and Global Technology Partner

Most SAP products are now certified for production deployment on AWS

Supported SAP Products: Production

http://aws.amazon.com/sap/

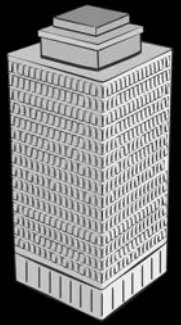
Suite	Product	License
SAP Business Suite	ECC, SRM, SCM, CRM, PLM	BYOL
SAP Netweaver	BW, Portal, PI, CE, BPC on NW	BYOL
SAP Business Objects	BI, EPM, GRC	BYOL or Marketplace
SAP HANA One	Premium Platform Developer	Yearly Subscription from the SAP Marketplace AWS Marketplace
SAP Business-All-In-One	A1	BYOL
SAP Business One	B1	BYOL & SaaS
SAP Mobility Platform	Afaria	BYOL, Marketplace or SAP Mobile Secure
SAP Cloud Appliance Library	Preconfigured SAP BS, HANA & Rapid Deployment Suite	BYOL - existing SAP customers only

- BYOL = bring your own license = buy license from SAP sales and just run it from the AWS cloud
- The AWS Marketplace is an application marketplace from AWS
- SAP mobile Secure is a service offering from SAP & Cap Gemini on AWS for enterprise mobility

Current as of July 1st , 2013. Please refer to the AWS website for confirmation after this date

SAP Note #165609 contains the latest information regarding SAP product, landscape and platform support on AWS

Hybrid IT SAP Deployment



Customer
Data Centers

SAP Production landscape runs in customer's own datacentre

PRD

ECC

BW

SRM

VPN or Direct Connect

Secure connectivity between datacentre & AWS

SAP Development & Quality Assurance landscape runs on AWS

DEV	QAS
ECC	ECC
BW	BW
SRM	SRM

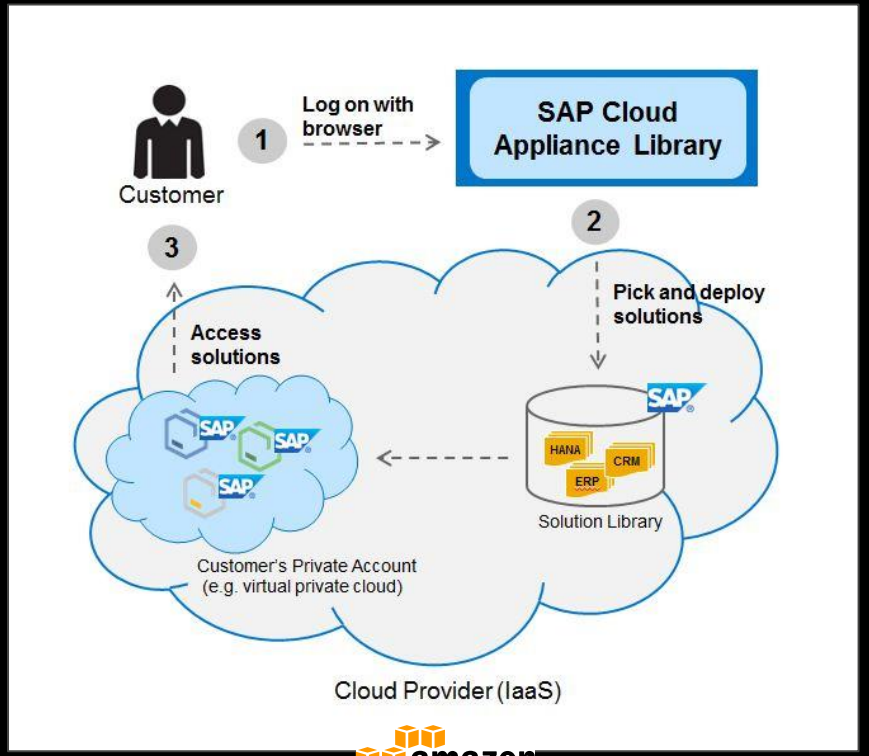
Virtual Private Cloud

amazon web services

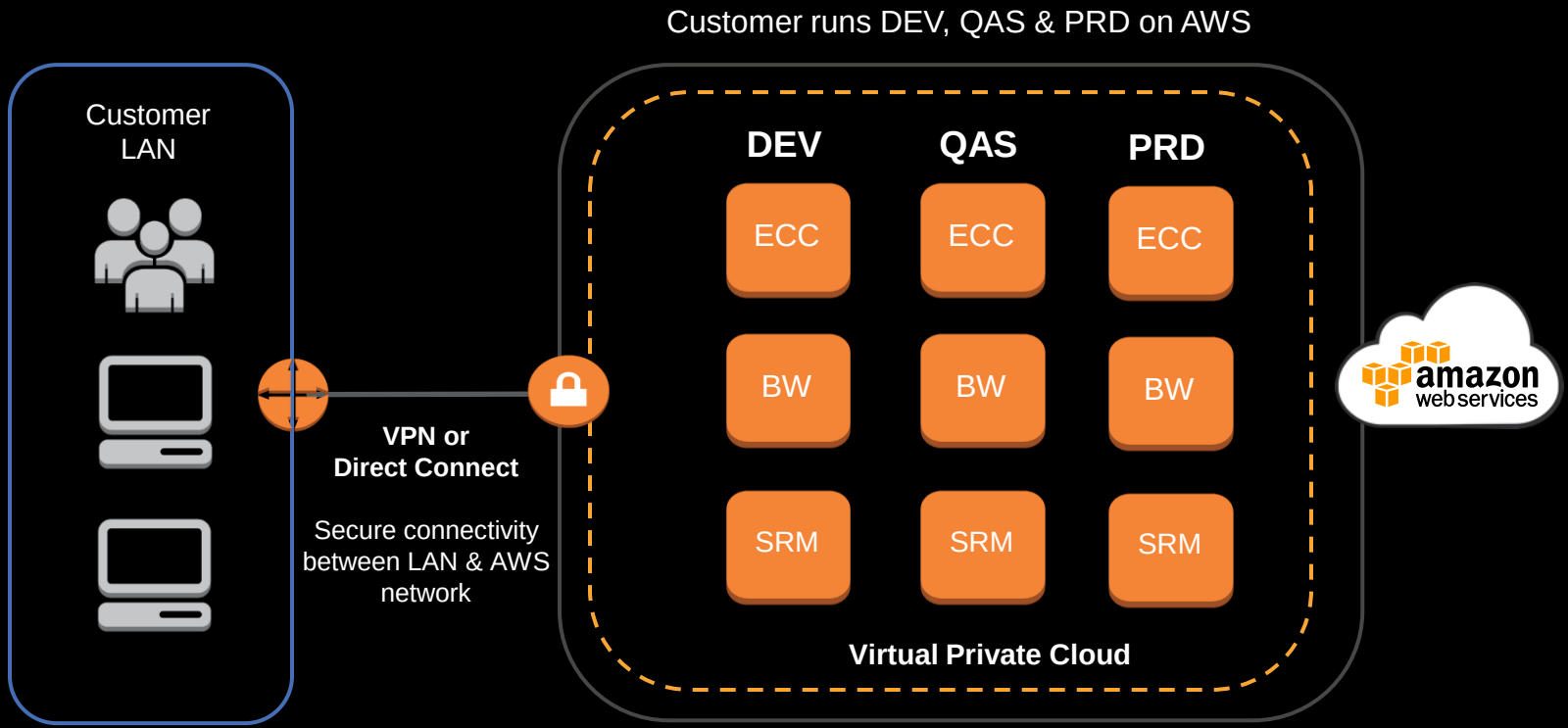
Cloud Appliance Library (SAP CAL)

- Quickly deploy demo, test & training systems
- Full SAP Business Suite
- Deploy in under 1 hour
- Uses existing AWS account

- http://scn.sap.com/docs/DOC-33187



Full SAP Deployment on AWS



Performance: Amazon EC2 SAPS

SAP SD 2-Tier Benchmark

Instance Type (VM)	Cores	Mem	ECU	SAPS
High Memory 2-XLarge	4	34.2	13	3,700
High Memory 4-XLarge	8	68.4	26	7,400

ECU = EC2 Compute Unit

Performance: Amazon EC2 SAPS

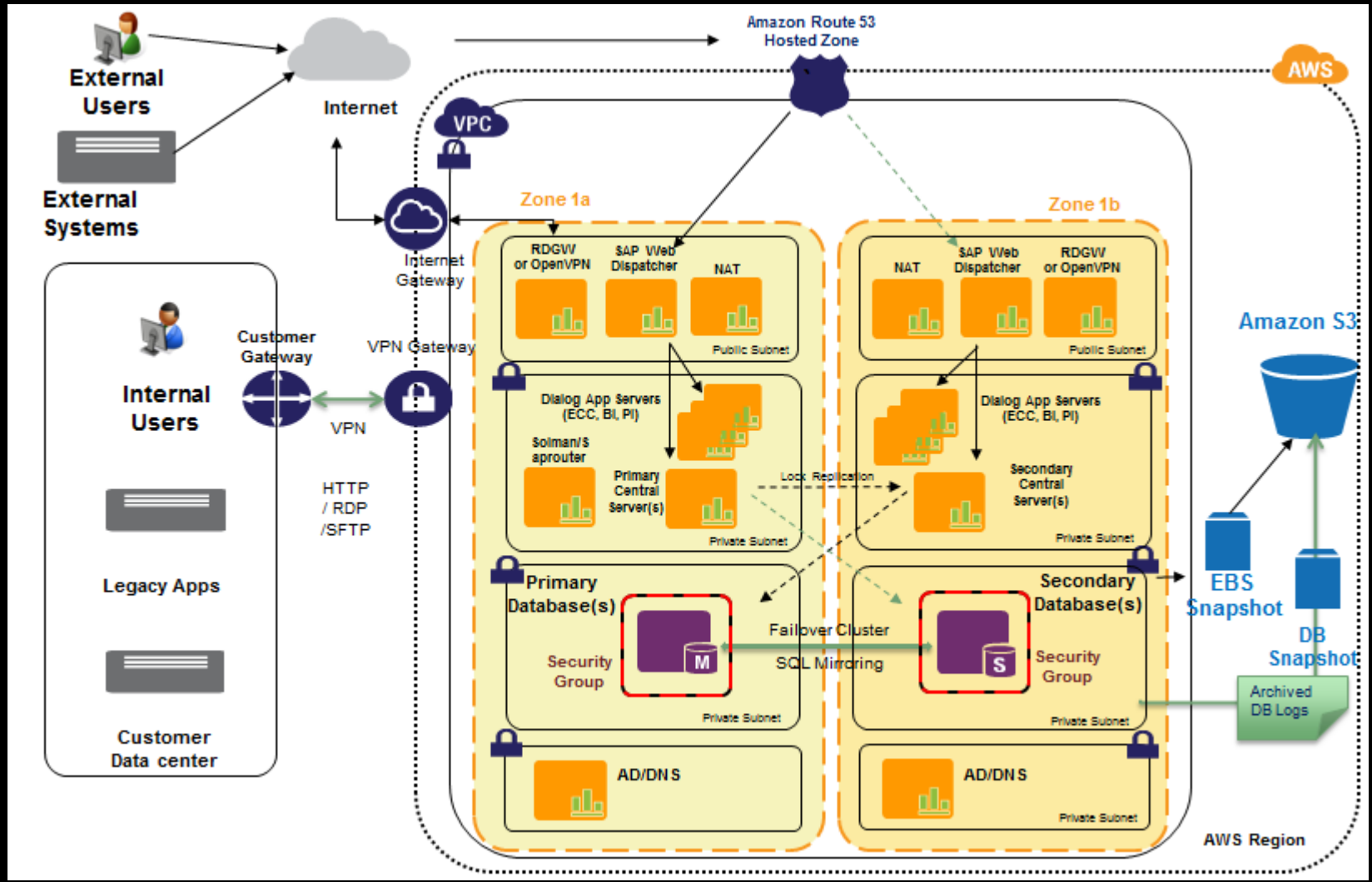
SAP SD 3-Tier Benchmark

Instance Type	#	Cores	Mem	ECU	SAPS
Cluster Compute 8-XLarge	1	16	60	88	DB
Cluster Compute 8-XLarge	6	16	60	88	SCS+DI
					90,330

ECU = EC2 Compute Unit

HIGH AVAILABILITY AND DISATER RECOVERY

FOR SAP PRODUCTION APPLICATIONS


External Users
External Systems
Internet
Amazon Route 53 Hosted Zone
AWS
VPC
Zone 1a
Zone 1b
Internet Gateway
RDGW or OpenVPN
SAP Web Dispatcher
NAT
Public Subnet
Dialog App Servers (ECC, BI, PI)
Solman/S aprouter
Primary Central Server(s)
Lock Replication
Secondary Central Server(s)
Private Subnet
Primary Database(s)
Secondary Database(s)
Failover Cluster
SQL Mirroring
Security Group
M
S
AD/DNS
Amazon S3
EBS Snapshot
DB Snapshot
Archived DB Logs
Customer Gateway
VPN Gateway
VPN
HTTP / RDP /SFTP
Internal Users
Legacy Apps
Customer Data center
AWS Region

SAP HANA on AWS

SAP HANA One

	Premium	Business	Developer
Overview	SAP HANA One, plus SAP Cloud Integration (HCI) and approval to load SAP source data	Fully featured SAP HANA virtual appliance on AWS	Fully featured SAP HANA virtual appliance on AWS for individual developers
Use Cases	▪ Production and non-production ▪ All SAP HANA use cases supported including SAP Business Suite and SAP NetWeaver Business Warehouse on HANA	▪ Production and non-production ▪ Analytics acceleration ▪ Data merging ▪ Temporary event-based analytics ▪ Self-service BI ▪ Prototypes and proofs-of-concept	▪ Non-production only ▪ Develop, test and demo applications on top of the HANA platform ▪ Learning environment
Key Benefits	✓ Instant provisioning ✓ Enterprise Support included ✓ Annual subscription pricing – economical for 24x7 customers ✓ Data Services included	✓ Instant, self-serve access – up and running in 10 minutes ✓ Start and stop when needed – reduce license and infrastructure cost ✓ Community support	✓ Free developer license ✓ Easily accessible and rapidly deployable ✓ Pay-per-use infrastructure
License	Annual subscription	On-demand - $0.99 per hour	Free Developer License
Available from	SAP HANA Marketplace	AWS Marketplace	SAP SCN

Demo: http://aws.typepad.com/aws/2013/05/demo-sap-hana-one-on-aws.html

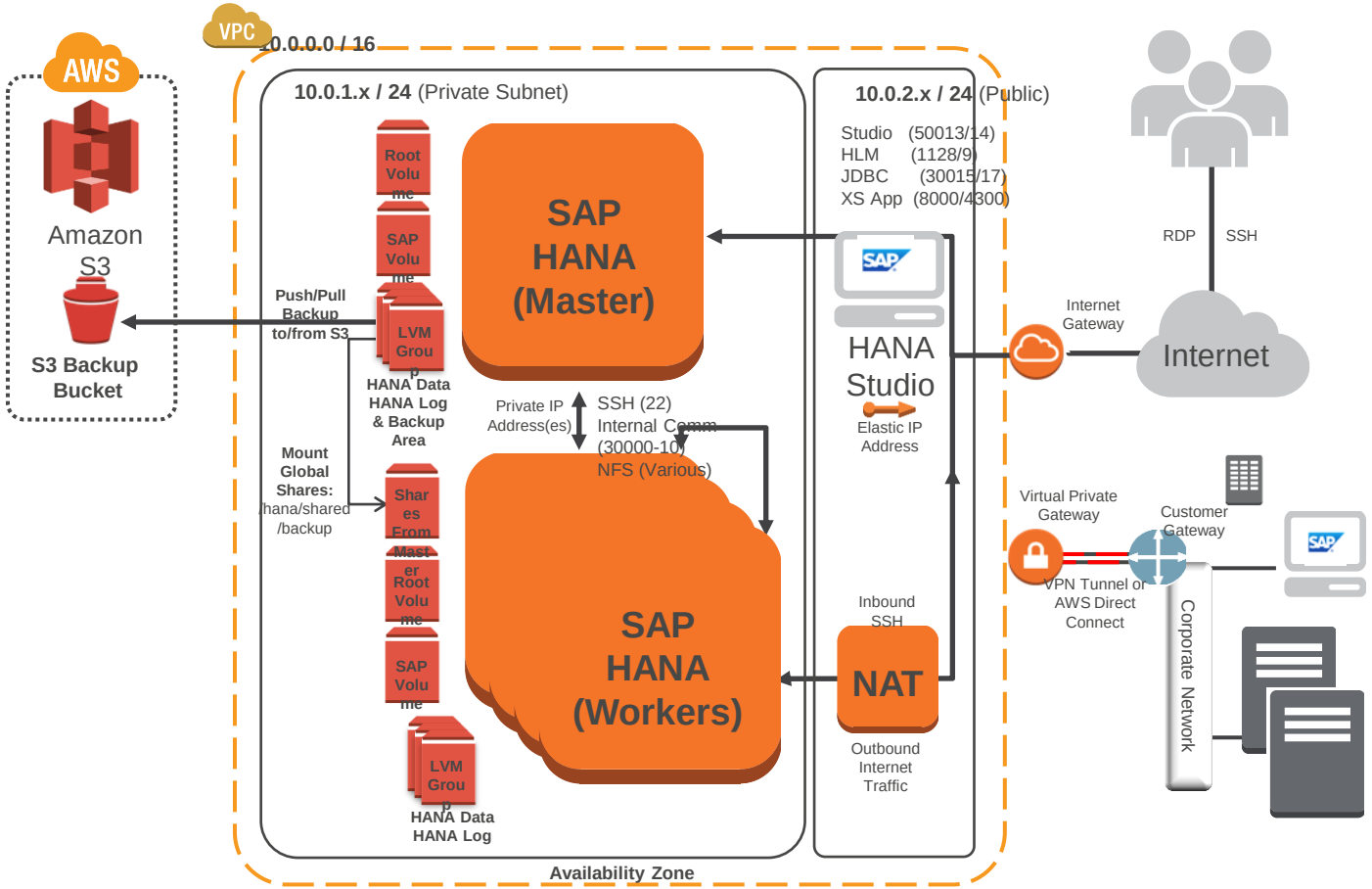
New: Big HANA Instances on AWS

	244GB Size	488GB Size	732GB Size	976GB Size	1.22TB Size
Cores/Threads	16/32	32/64	48/96	64/128	80/160
EBS Storage (Standard)	60GB	120GB	180GB	240GB	300GB
EBS Storage (P-IOPS)	2.4TB	4.8TB	7.2TB	9.6TB	12TB
VPC Support	Yes	Yes	Yes	Yes	Yes
Data Transfer In	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
Data Transfer Out	244GB	488GB	732GB	976GB	1.2TB
S3 Backup Storage	2TB	4TB	6TB	8TB	10TB

1. Number of GB/TB is inclusive of memory used to store compressed data and run the database instance.

http://www.saphana.com/docs/DOC-4181

Architecture with On Premises integration



Windows on AWS

Microsoft

Provision fully licensed Windows Server on AWS in Minutes

With or without SQL Server

amazon web services

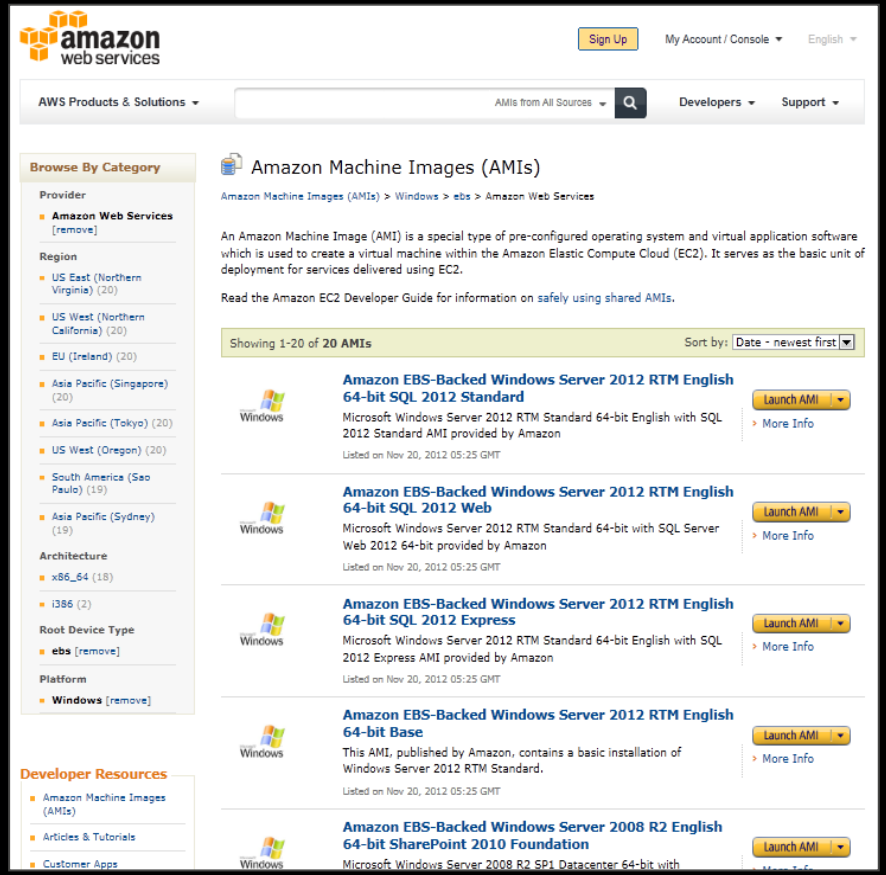
Windows and AWS

- Full, real, licensed Windows Server OS
  - 2003, 2008, 2008r2, 2012 all via our Microsoft SPLA licensing means no CAL's required
  - SQL Server Standard via SPLA as well
- VPC for static, user-defined networks
- Security groups for easy-to-configure firewalls per VM
- Easily install services that you know
  - AD, ADFS, SCOM, WSUS, SQL, MS Exchange, SharePoint, etc.

Windows-Based AMIs

Microsoft

- Microsoft Windows based Amazon Machine Images (AMIs)
  - Over 20 Amazon published Windows and SQL AMIs
    - Windows Server 2012
    - Windows Server 2012 + SQL 2012 Standard, Web & Express
    - Windows Server 2008
    - Windows Server 2008 + SQL 2012 Standard, Web & Express
    - Windows Server 2008 + SQL 2008 Standard, Web & Express
    - Other Windows based AMIs….



Licensing... by the hour.

Microsoft

Pricing

Pay only for what you use. There is no minimum fee. Estimate your monthly bill using the AWS Simple Monthly Calculator.

On-Demand Instances

SQL Server Express Edition, Microsoft IIS and ASP.NET can be used on any Amazon EC2 instance running Windows Server for no additional cost.

Region: US East (N. Virginia)

	Windows Usage	Windows with SQL Standard Usage	Windows with SQL Web Usage
Standard On-Demand Instances			
Small (Default)	$0.115 per Hour	$0.629 per Hour	$0.155 per Hour
Medium	$0.230 per Hour	$0.744 per Hour	$0.270 per Hour
Large	$0.460 per Hour	$0.974 per Hour	$0.500 per Hour
Extra Large	$0.920 per Hour	$1.434 per Hour	$0.960 per Hour
Second Generation Standard On-Demand Instances			
Extra Large	$0.980 per Hour	$1.580 per Hour	$1.020 per Hour
Double Extra Large	$1.960 per Hour	$3.160 per Hour	$2.040 per Hour
Micro On-Demand Instances			
Micro	$0.020 per Hour	N/A	$0.070 per Hour
High-Memory On-Demand Instances			
Extra Large	$0.570 per Hour	$1.084 per Hour	$0.610 per Hour
Double Extra Large	$1.140 per Hour	$1.654 per Hour	$1.180 per Hour
Quadruple Extra Large	$2.280 per Hour	$3.307 per Hour	$2.360 per Hour
High-CPU On-Demand Instances			
Medium	$0.285 per Hour	N/A	$0.325 per Hour
Extra Large	$1.140 per Hour	$2.167 per Hour	$1.220 per Hour
Cluster Compute Instances			
Quadruple Extra	$1.610 per Hour	$2.390 per Hour	$1.713 per Hour

*Prices subject to (typically downward) change

Microsoft Licensing Models on AWS

- Two models of licensing

Pay-as-you-go – AMI pricing includes software	BYOL – use existing licenses on AWS
• Windows Server • SQL Server Standard	• SQL Server Enterprise • SharePoint Server • Other Microsoft Windows Server products

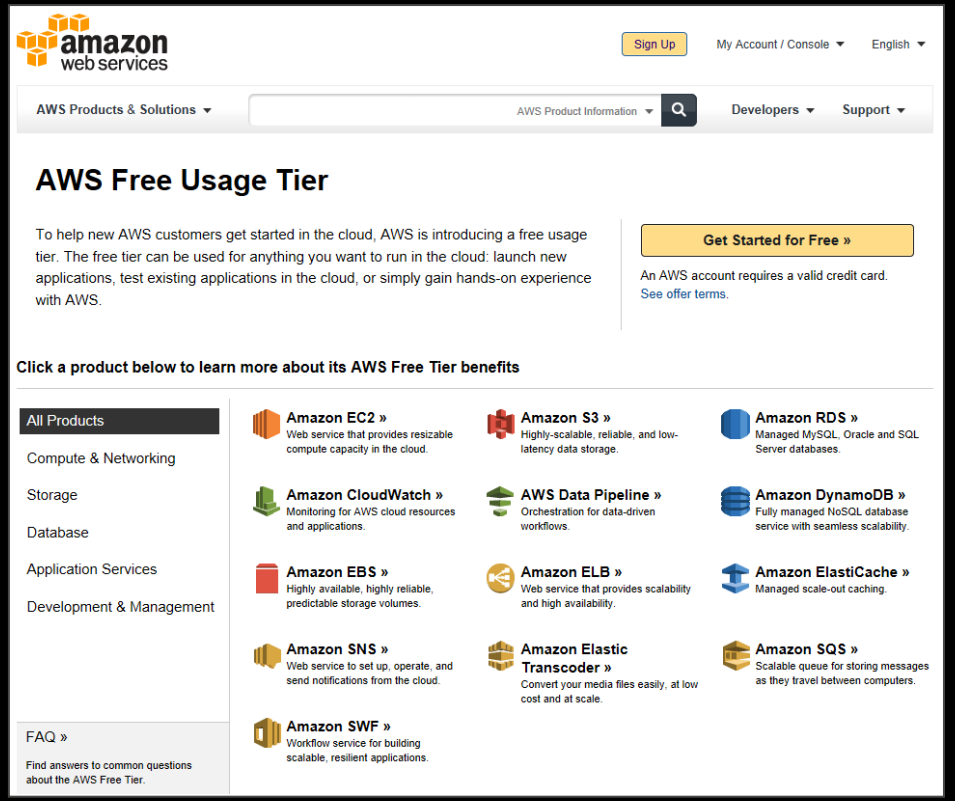
- BYOL requires *active* Microsoft Software Assurance
  - Use existing Microsoft licenses

  - http://aws.amazon.com/windows/mslicensemobility/

Windows Free Usage Tier

Microsoft

- AWS Free Usage Tier includes Microsoft Windows Server 2008, 2008 R2, 2012.
- Up to 750 hours per month of t1.micro instances with Windows Server for free.



Window and .NET Developer Center

One stop for all tools, documentation, scripts, videos, and sample code to help you run .NET on the AWS Cloud

http://aws.amazon.com/net/

Develop

Design, Build, and Run .NET on AWS

- AWS SDK for .NET
- AWS Toolkit for Microsoft Visual Studio
- .NET container for deploying on AWS Elastic Beanstalk

Manage

Automate and Scale Windows on AWS

- AWS Tools for Windows PowerShell

Connect

Get connected and join the community of developers running Windows and .NET on AWS

- Community Forum
- AWS on Github

Learn

Expand and Explore the possibility for .NET on AWS

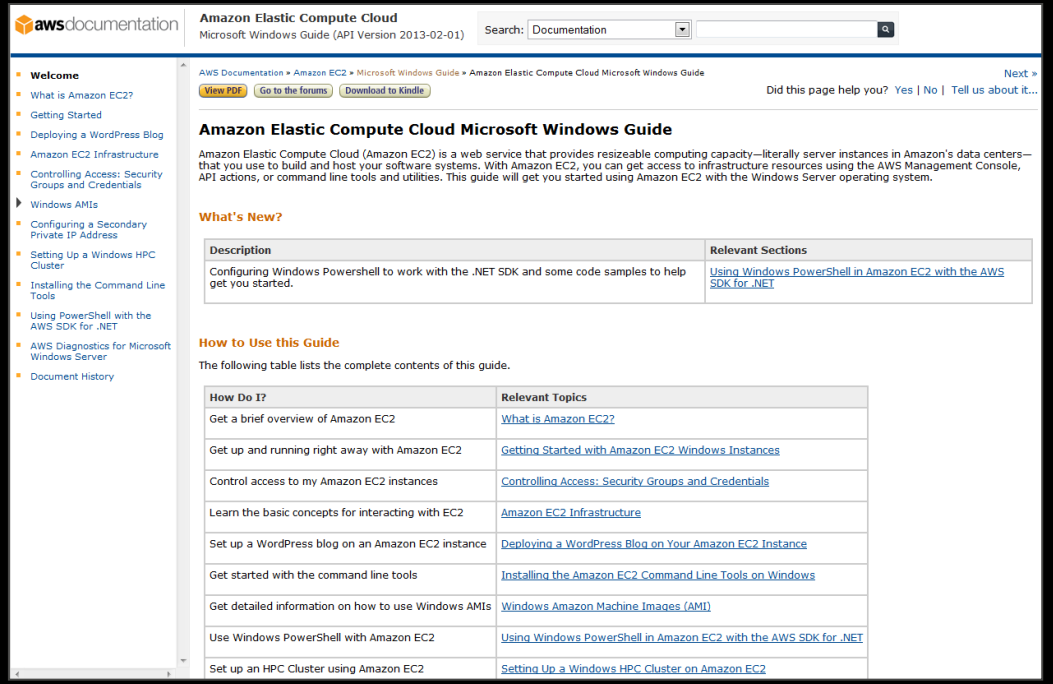
- Links to valuable articles
- Sample code to download

Amazon EC2 Windows Guide

Microsoft

What's New:

- Using Windows Powershell with the AWS SDK for .NET
- AWS Diagnostic tools for Windows Server
- Install EC2 command line tools on Windows
- Setting up a Windows HPC Cluster



aws documentation

Amazon Elastic Compute Cloud
Microsoft Windows Guide (API Version 2013-02-01)

Search: Documentation

- Welcome
- What is Amazon EC2?
- Getting Started
- Deploying a WordPress Blog
- Amazon EC2 Infrastructure
- Controlling Access: Security Groups and Credentials
- Windows AMIs
- Configuring a Secondary Private IP Address
- Setting Up a Windows HPC Cluster
- Installing the Command Line Tools
- Using PowerShell with the AWS SDK for .NET
- AWS Diagnostics for Microsoft Windows Server
- Document History

AWS Documentation » Amazon EC2 » Microsoft Windows Guide » Amazon Elastic Compute Cloud Microsoft Windows Guide

Next »

View PDF | Go to the forums | Download to Kindle

Did this page help you? Yes | No | Tell us about it...

Amazon Elastic Compute Cloud Microsoft Windows Guide

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizeable computing capacity—literally server instances in Amazon's data centers—that you use to build and host your software systems. With Amazon EC2, you can get access to infrastructure resources using the AWS Management Console, API actions, or command line tools and utilities. This guide will get you started using Amazon EC2 with the Windows Server operating system.

What's New?

Description	Relevant Sections
Configuring Windows Powershell to work with the .NET SDK and some code samples to help get you started.	Using Windows PowerShell in Amazon EC2 with the AWS SDK for .NET

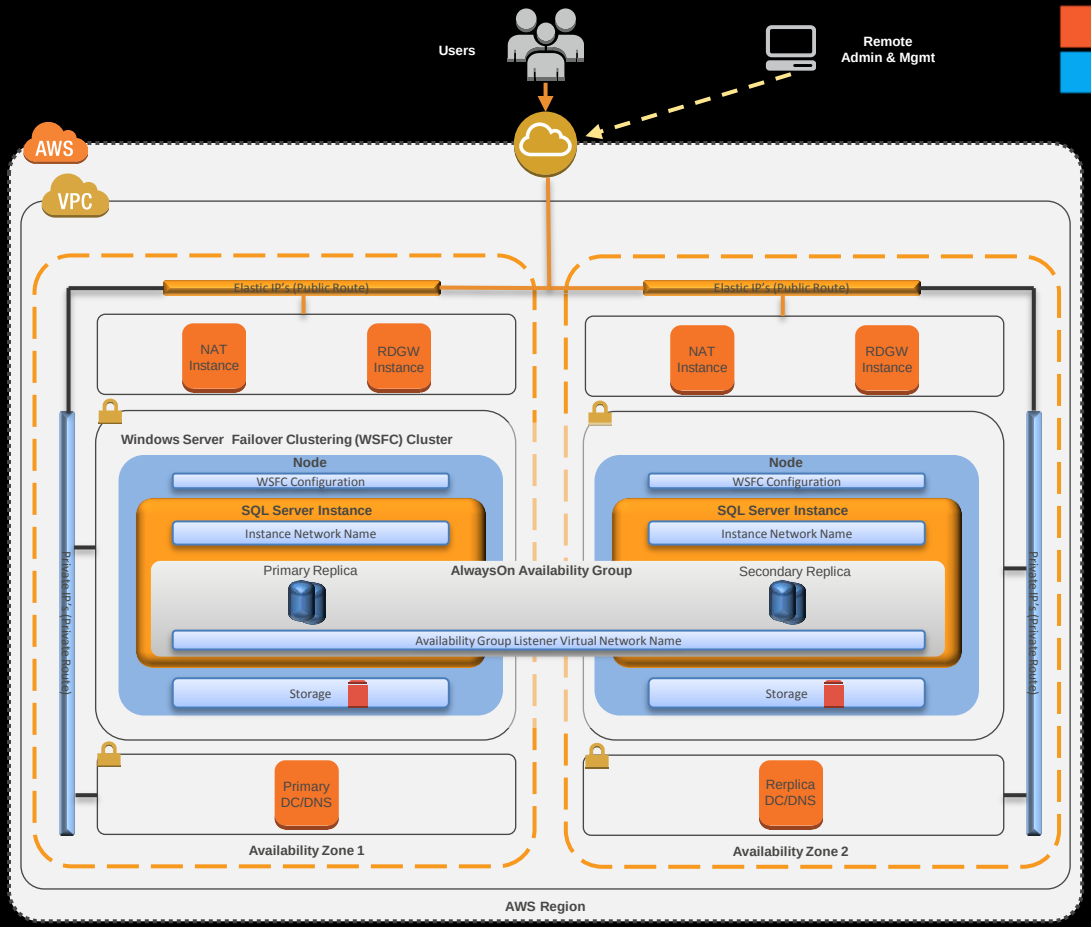
How to Use this Guide

The following table lists the complete contents of this guide.

How Do I?	Relevant Topics
Get a brief overview of Amazon EC2	What is Amazon EC2?
Get up and running right away with Amazon EC2	Getting Started with Amazon EC2 Windows Instances
Control access to my Amazon EC2 instances	Controlling Access: Security Groups and Credentials
Learn the basic concepts for interacting with EC2	Amazon EC2 Infrastructure
Set up a WordPress blog on an Amazon EC2 instance	Deploying a WordPress Blog on Your Amazon EC2 Instance
Get started with the command line tools	Installing the Amazon EC2 Command Line Tools on Windows
Get detailed information on how to use Windows AMIs	Windows Amazon Machine Images (AMI)
Use Windows PowerShell with Amazon EC2	Using Windows PowerShell in Amazon EC2 with the AWS SDK for .NET
Set up an HPC Cluster using Amazon EC2	Setting Up a Windows HPC Cluster on Amazon EC2

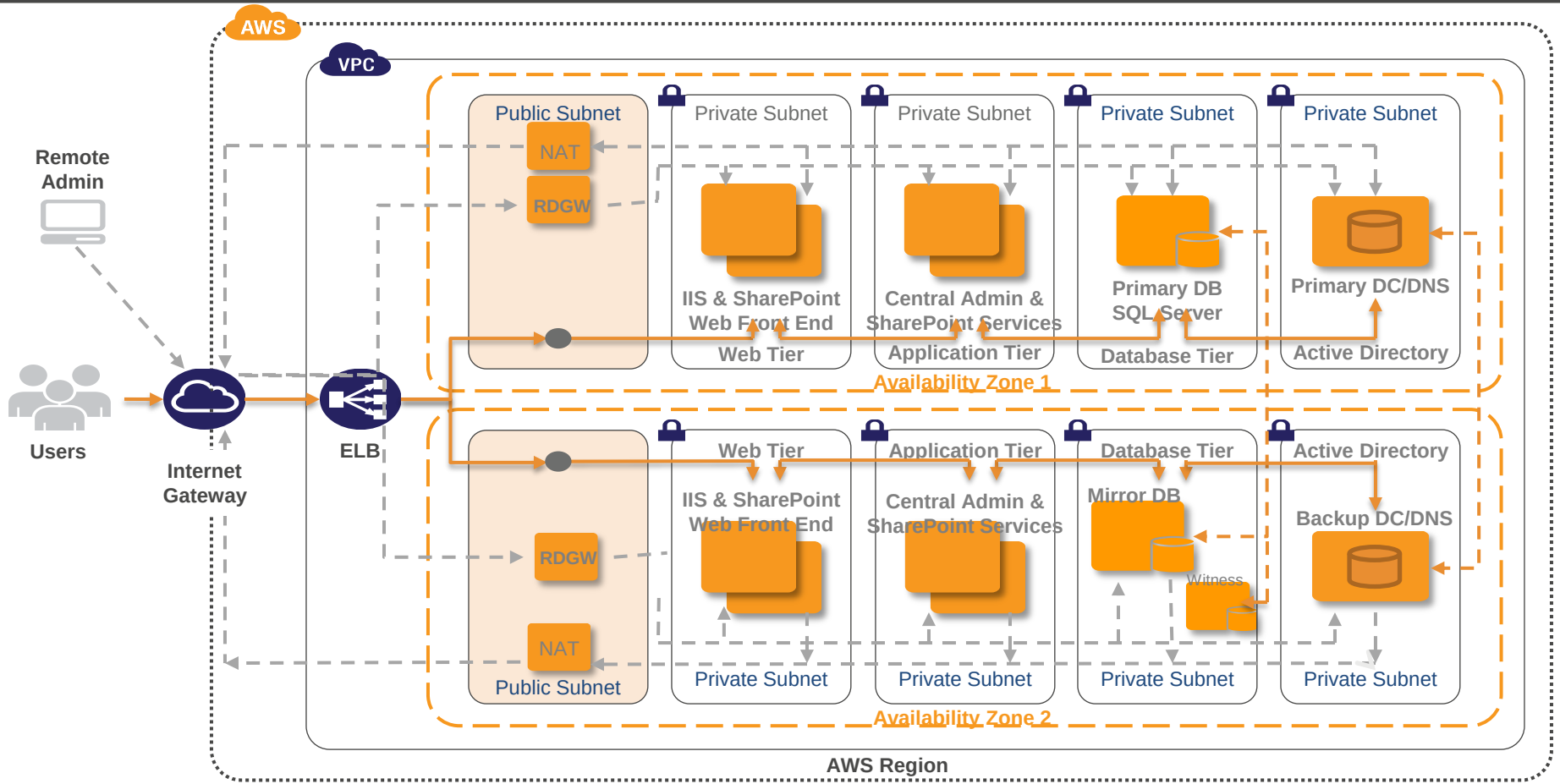
http://docs.amazonwebservices.com/AWSEC2/latest/WindowsGuide/Welcome.html

Windows Server Cluster-Based SQL Server 2012 HA in AWS



SharePoint Reference Implementation

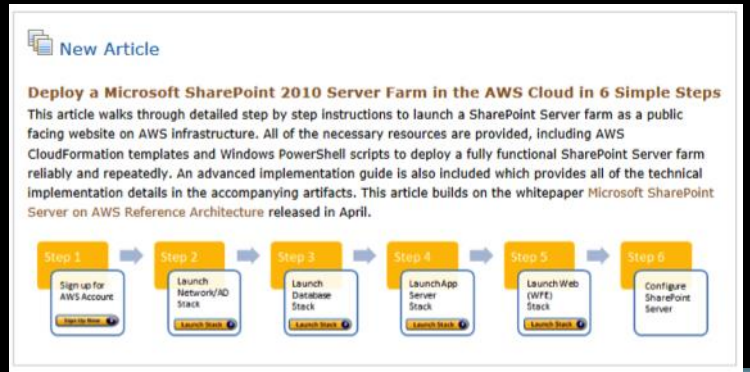
Microsoft



Deploy SharePoint Farm in 6 Steps

Microsoft

- NEW Article “Deploy a Microsoft SharePoint 2010 Server Farm in the AWS Cloud in 6 Simple Steps”:
  - Builds upon the SharePoint Reference Implementation White Paper
  - http://aws.amazon.com/articles/9982940049271604
- AWS CloudFormation Templates for each step:
  - Launch the network and Active Directory stack
  - Launch the database stack
  - Launch the app stack
  - Launch the web stack



Whitepapers

- SharePoint Reference Architecture on AWS whitepaper http://aws.amazon.com/windows/sharepoint/
- Microsoft Exchange Server 2010 in the AWS Cloud: Planning & Implementation Guide http://aws.amazon.com/windows/exchange/
- Implementing Microsoft Windows Server Failover Clustering (WSFC) and SQL Server 2012 AlwaysOn Availability Groups in the AWS Cloud
- … and more http://aws.amazon.com/windows/

Case Study

Lions Gate Entertainment

LIONSGATE™

Lionsgate deployed MS SharePoint workloads in Production and SAP apps

1. TCO cloud cost analysis and final results **show 50% of cost** vs. traditional hosted facility
2. Started with VPC and conducted a thorough **security, licensing and certification assessment**
3. Reduced deployment time from 5 weeks to few hours

Resources

- aws.amazon.com/vpc
- aws.amazon.com/directconnect
- aws.amazon.com/storagegateway

- aws.amazon.com/whitepapers
  - Development and Test
  - VPC networking
  - Backup & archive

- aws.amazon.com/sap
- aws.amazon.com/microsoft
- aws.amazon.com/oracle

aws.amazon.com