

AWS for VMware Admins

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Getting to Know Eachother



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- Have you played with AWS before?

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- Do you have any AWS experience on the job?
- Are you using AWS in production today?
- Are you planning to do any AWS Certifications?

Why AWS?

- We're no VMware haters y'all!



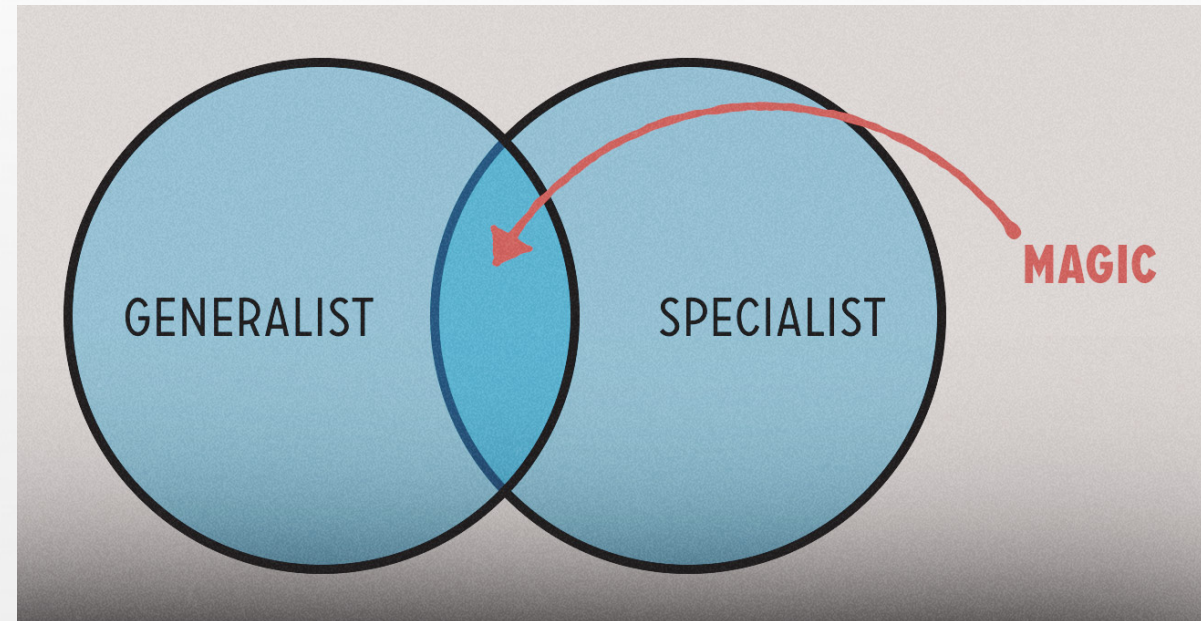
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 - AKA the Full Stack Engineer



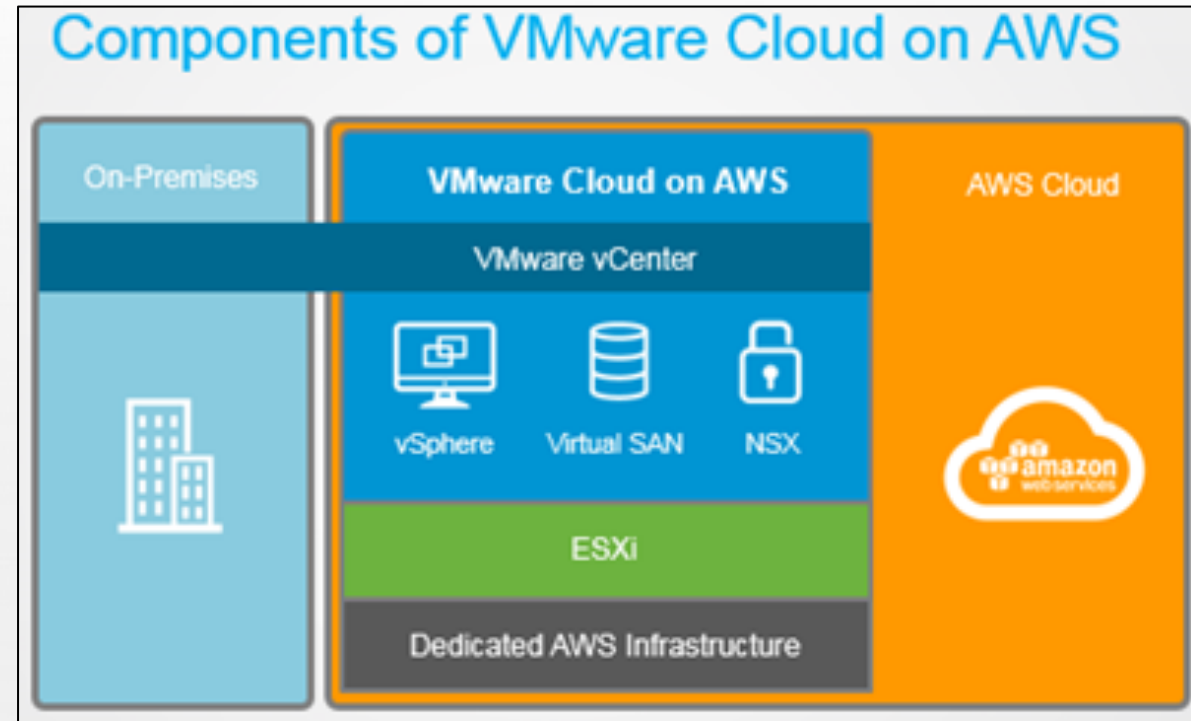
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- Rise of the generalist(ish)!
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- We can't ignore the 800lb gorilla
- VMware on AWS! #Winning!



To Business!

- Without further ado...



The Basics

- It can be daunting at first!
- You don't have to be an expert at everything!



Compute

EC2
EC2 Container Service
Elastic Beanstalk
Lambda
Server Migration



Storage & Content Delivery

S3
CloudFront
Elastic File System
Glacier
Snowball
Storage Gateway



Database

RDS
DynamoDB
ElastiCache
Redshift
DMS



Networking

VPC
Direct Connect
Route 53



Developer Tools

CodeCommit
CodeDeploy
CodePipeline



Management Tools

CloudWatch
CloudFormation
CloudTrail
Config
OpsWorks
Service Catalog
Trusted Advisor



Security & Identity

IAM
Directory Service
Inspector
WAF
Certificate Manager



Analytics

EMR
Data Pipeline
Elasticsearch Service
Kinesis
Machine Learning
QuickSight



Internet of Things

AWS IoT



Game Development

GameLift



Mobile Services

Mobile Hub
Cognito
Device Farm
Mobile Analytics
SNS



Application Services

API Gateway
AppStream
CloudSearch
Elastic Transcoder
SES
SQS
SWF

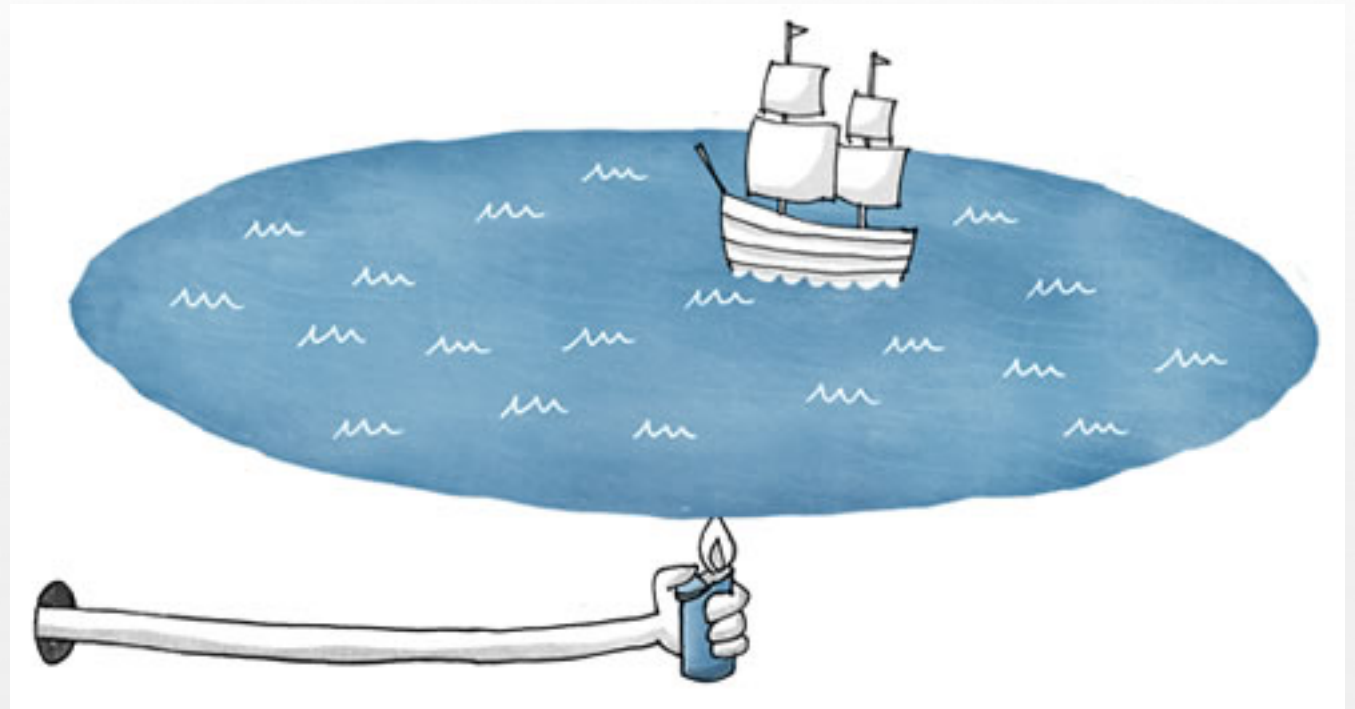


Enterprise Applications

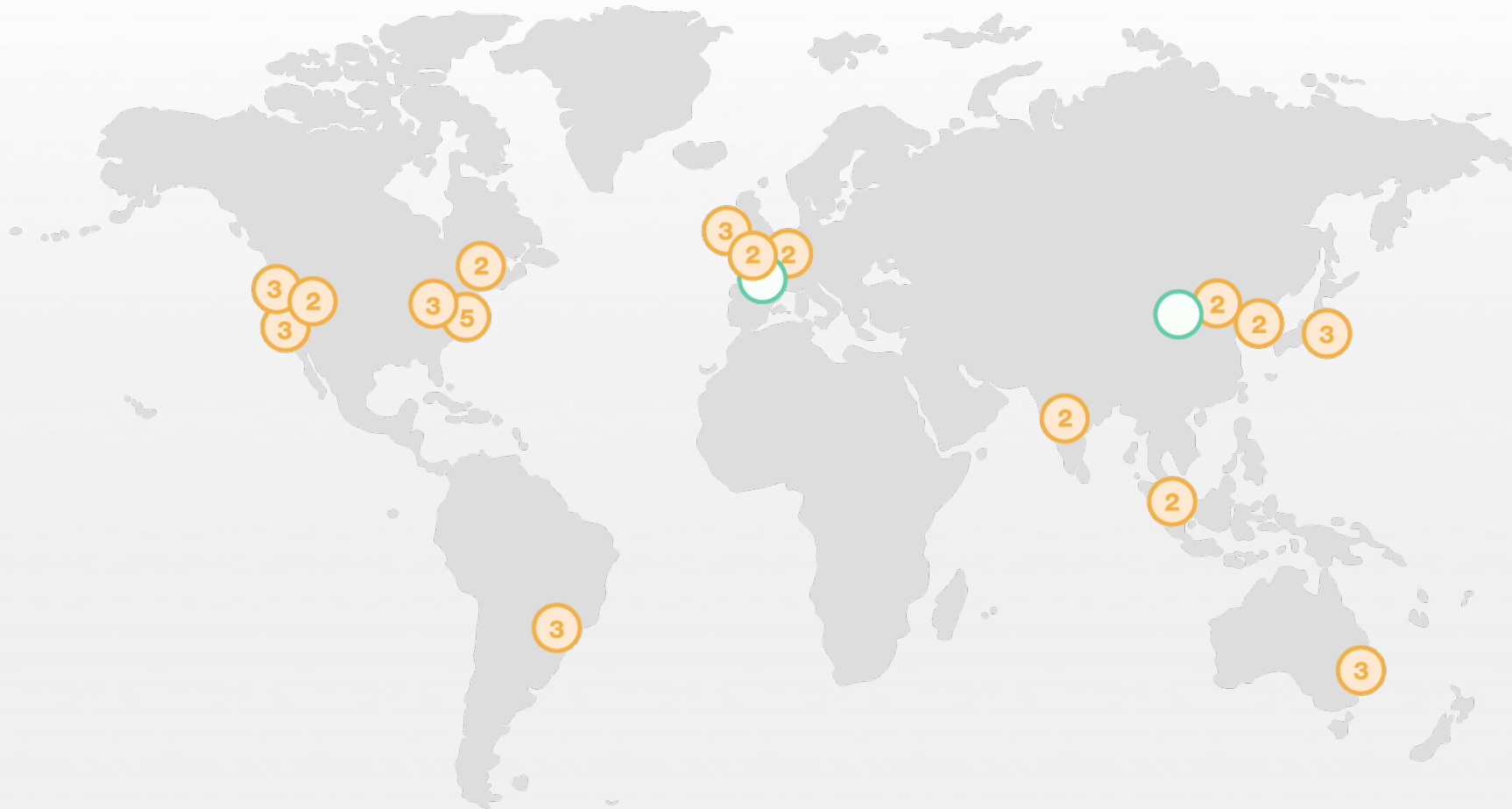
WorkSpaces
WorkDocs
WorkMail

The Basics

- Learn the IaaS Basics
 - Networking
 - VPCs & Subnets
 - Availability Zones
 - Compute
 - EC2
 - ELBs & ASGs
 - Storage & Data
 - EBS
 - S3
 - Glacier
 - RDS
 - Security
 - IAM

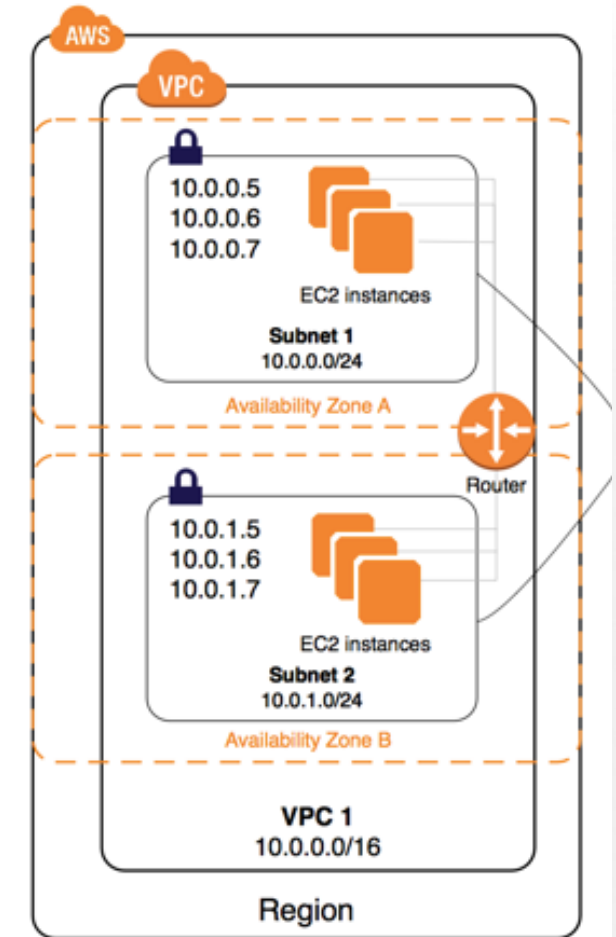


Networking – Regions & AZs



Networking

- A VPC is like your own Metro Network
- Secure connectivity
 - VPN or Direct Connect
- Subnets, Routing Tables, NAT etc – Normal Stuff!
- Security Groups - You can do Microsegmentation!
 - Not quite like NSX, but not far off!
- No Broadcast / Multicast, network access, port mirroring, etc



Compute – EC2 Basics

- Elastic Compute Cloud (EC2) = VMs
- Amazon Machine Image (AMI) = Template
- Based on Xen Hypervisor
 - (but do we care any more?)
- Wide Range of T-Shirt Sizes
 - 1 vCPU with 512Mb (t2.nano)
 - 128 vCPU with 2TB (x1.32xlarge)
- Workload optimised:
 - T,C,M,G,R,I,D,P,X,F



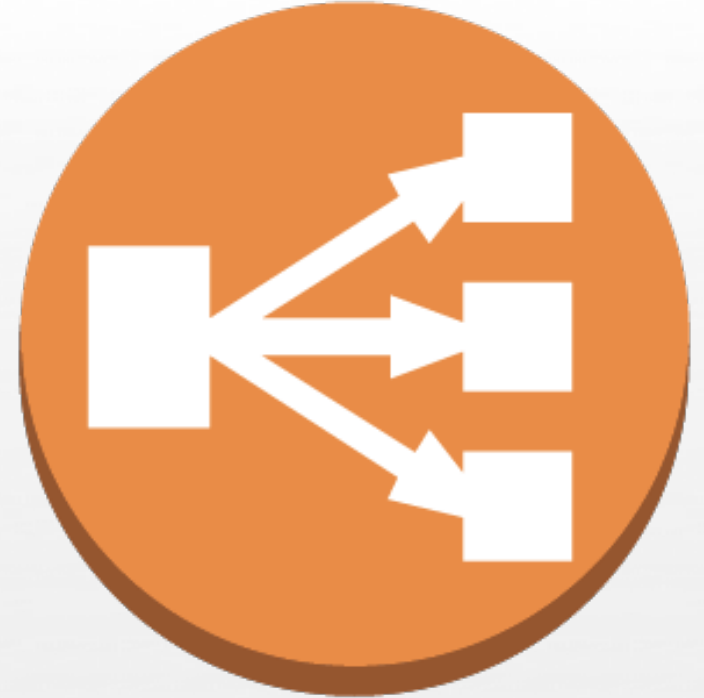
Compute – EC2 Basics

- Different pricing models:
 - On Demand, Reserved, Spot
- Instance store and EBS backed
- No Over Commitment
- No 'vMotion/Live Migration'
- No console access



Compute – ELBs & ASGs

- ELBs / ALBs
 - Classic Load Balancer (L4)
 - Application Load Balancer (L4 & L7)
 - (Better and cheaper!)



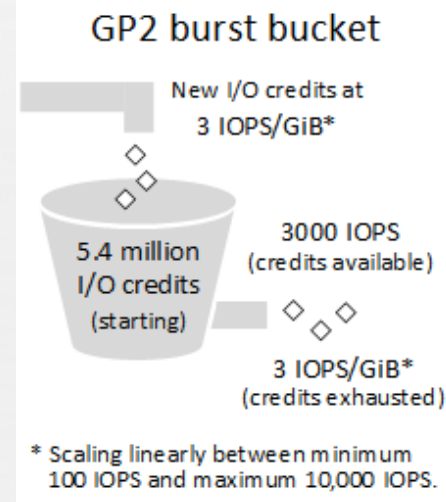
Compute – ELBs & ASGs

- ELBs / ALBs
 - Classic Load Balancer (L4)
 - Application Load Balancer (L4 & L7)
 - (Better and cheaper!)
- ASGs
 - Auto-scaling groups
 - The real magic of the cloud!
 - Resilience & HA (even across DCs with Multi-AZ!)
 - Performance
 - Enables new “paradigms” - Elasticity!



Storage

- Block (EBS)
 - Just like VMDKs
 - Multiple Flavours – (SSD and HDD)
 - GP2 (General Purpose = SSD)
 - Provisioned IOPS (PIOPS) are like SIOC with QoS!



Storage

- Object (S3)
 - *The de facto object storage protocol*
 - API or HTTPS
 - Massive scalability
 - Multiple tiers (resilience & access)
 - S3 / S3-RRS / S3-IA
 - Replication
 - Auto-tiering to IA & Glacier



Storage

- Archive (Glacier)
 - Shrouded in mystery!
 - 3-5 hour retrieval time
 - New options:
 - Pay to expedite (1-5 minutes)
 - Bulk (5-12 hours)
 - Restore costs used to be bad
 - No more!



Databases – Installing SQL is boring!

- RDS - Relational Database Service
- Many flavours!
 - MS SQL
 - Oracle!
 - MariaDB
 - MySQL (Native)
 - PostgreSQL
 - Aurora (MySQL / PostgreSQL)
- Multi-AZ (Optional)
- Automatic Backups (default)
- BYOL!

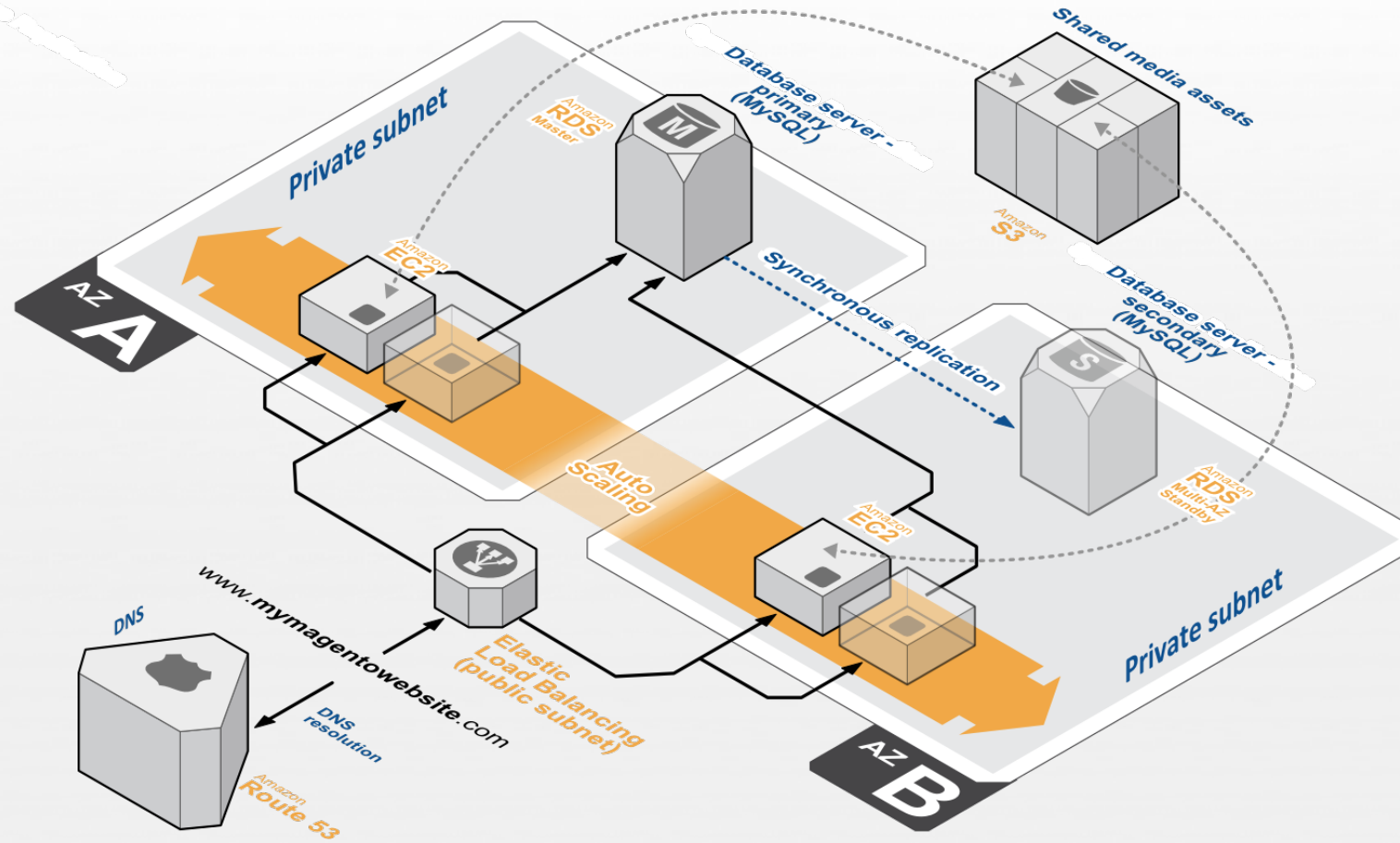


Security - IAM [is] the Daddy!

- RBAC
 - Users / Groups / Blah blah blah...
 - Policy based (JSON / YAML)
 - Instances too (roles)!
- Free MFA!
- Federation
 - ADFS (Keepin it corporate!)
 - Web Identity (Amazon, Facebook, Google)
- Account Design (aka Subscriptions)
 - AWS Organizations



A Simple AWS Solution



Avoid Getting Screwed on the First Date!

- NEVER LOG IN AS ROOT
- Use 2FA
- Configure billing alarms
- Don't put your keys on GitHub!
- NEVER LOG IN AS ROOT



Avoid Getting Screwed on the First Date!

- NEVER LOG IN AS ROOT
- Use 2FA
- Configure billing alarms
- Don't put your keys on GitHub!
- NEVER LOG IN AS ROOT
 - Except for vulnerability scan authorisation
 - And changing your support plan
 - And Closing Your Account



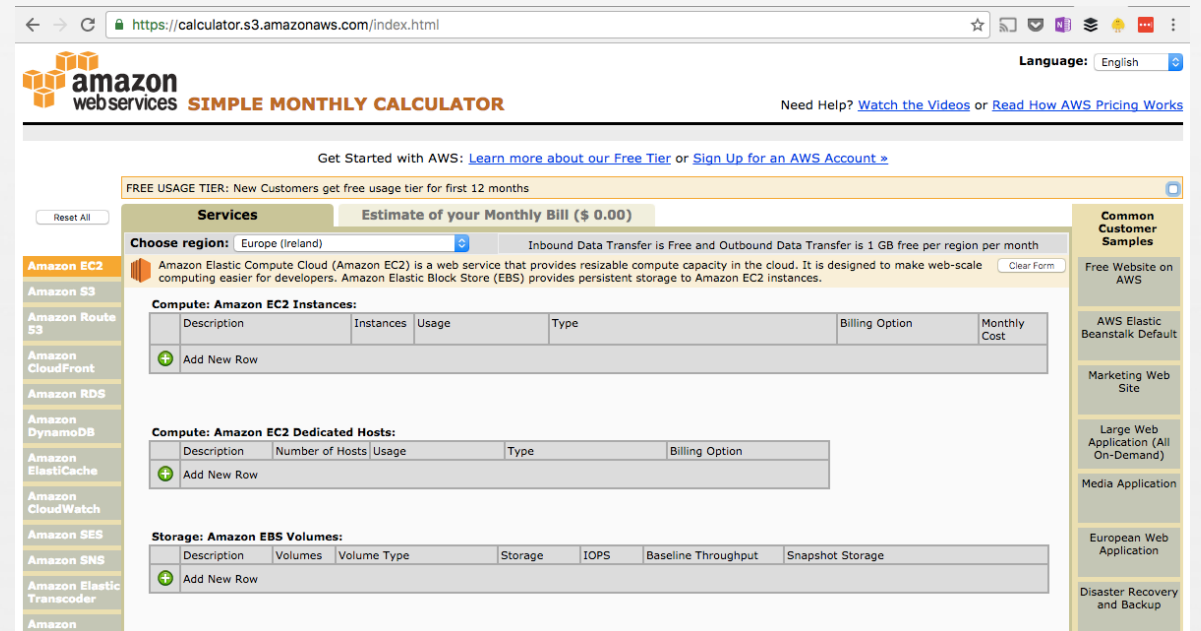
War Stories

- Clean up after yourself!
- Tagging is key!
- Configure your ASG health check timeouts
- IT Doing Shadow IT
- Blaming Cloud for Your Own Poor Security



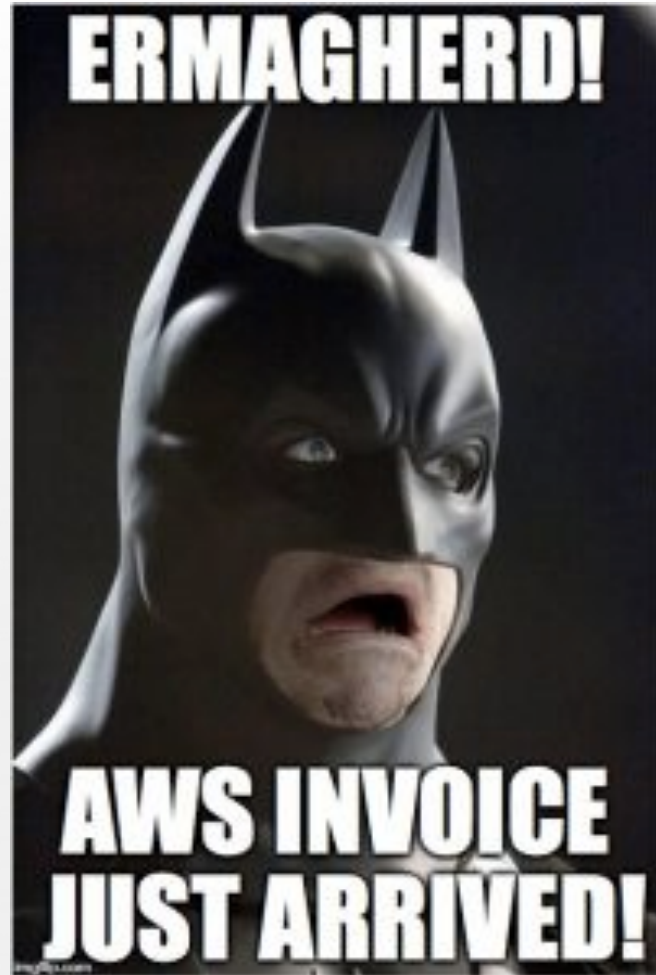
Costs - Estimating

- Biggest upside and downside!
- Estimating usage ain't easy!
- Simply Monthly Calculator is a bit pants!



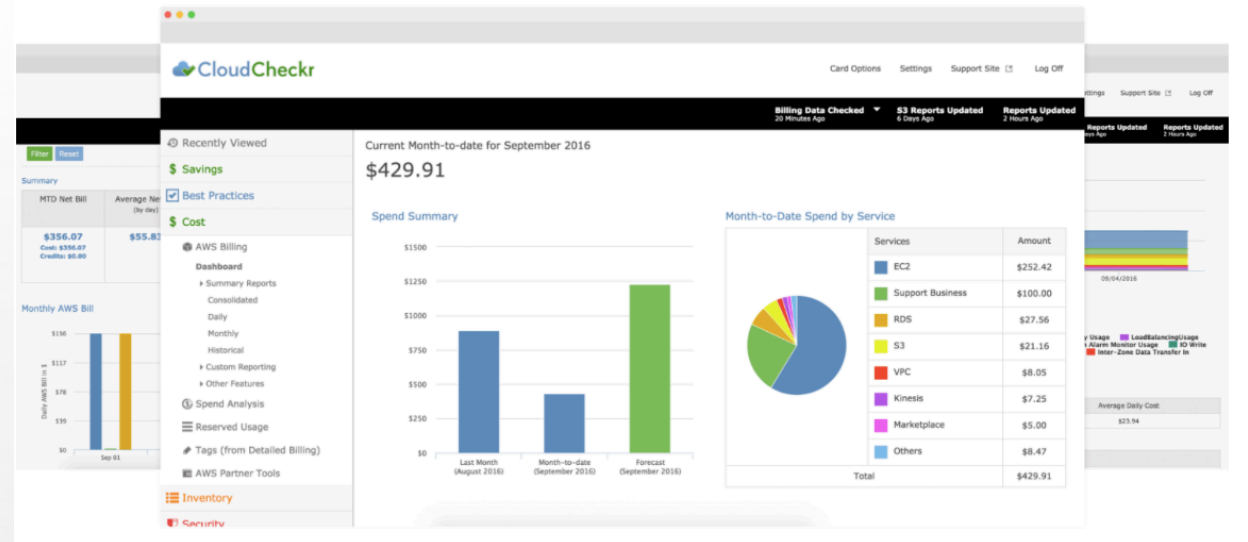
The screenshot shows the Amazon Simple Monthly Calculator interface. The browser address bar displays <https://calculator.s3.amazonaws.com/index.html>. The page header includes the Amazon Web Services logo and the title "SIMPLE MONTHLY CALCULATOR". A language dropdown menu is set to "English". Below the header, there are links for "Need Help? Watch the Videos" and "Read How AWS Pricing Works". A section titled "Get Started with AWS" provides links to "Learn more about our Free Tier" and "Sign Up for an AWS Account". A yellow banner indicates the "FREE USAGE TIER: New Customers get free usage tier for first 12 months". The main content area is divided into three tabs: "Services", "Estimate of your Monthly Bill (\$ 0.00)", and "Common Customer Samples". The "Services" tab is active, showing a "Choose region:" dropdown set to "Europe (Ireland)". Below this, there are three sections for adding services: "Compute: Amazon EC2 Instances", "Compute: Amazon EC2 Dedicated Hosts", and "Storage: Amazon EBS Volumes". Each section has a table with columns for Description, Instances, Usage, Type, Billing Option, and Monthly Cost. The "Common Customer Samples" tab on the right lists various sample applications like "Free Website on AWS", "AWS Elastic Beanstalk Default", "Marketing Web Site", "Large Web Application (All On-Demand)", "Media Application", "European Web Application", and "Disaster Recovery and Backup".

Costs - Controlling



Costs - Controlling

- Activate Cost Allocation Tags
- Setup Billing Alerts
- Trusted Advisor
 - (Business / Enterprise)
- 3rd Party Reporting
 - Cloud Checkr, Cloudability, CloudHealth, Cloudyn
 - Costs
 - Security & Compliance
 - Monitoring, Inventory and Resource Utilisation



Design Tip – Use Templates!

- Version control your infrastructure!
- CloudFormation
 - Native
- Terraform
 - (Hashicorp)
 - Cloud agnostic



STOP! Gorilla time!



STOP! Gorilla time!

"I find it really hard to believe that we cannot collectively beat a company that sells books."

*Carl Eschenbach (2013)
VMware President & COO*

STOP! Gorilla time!

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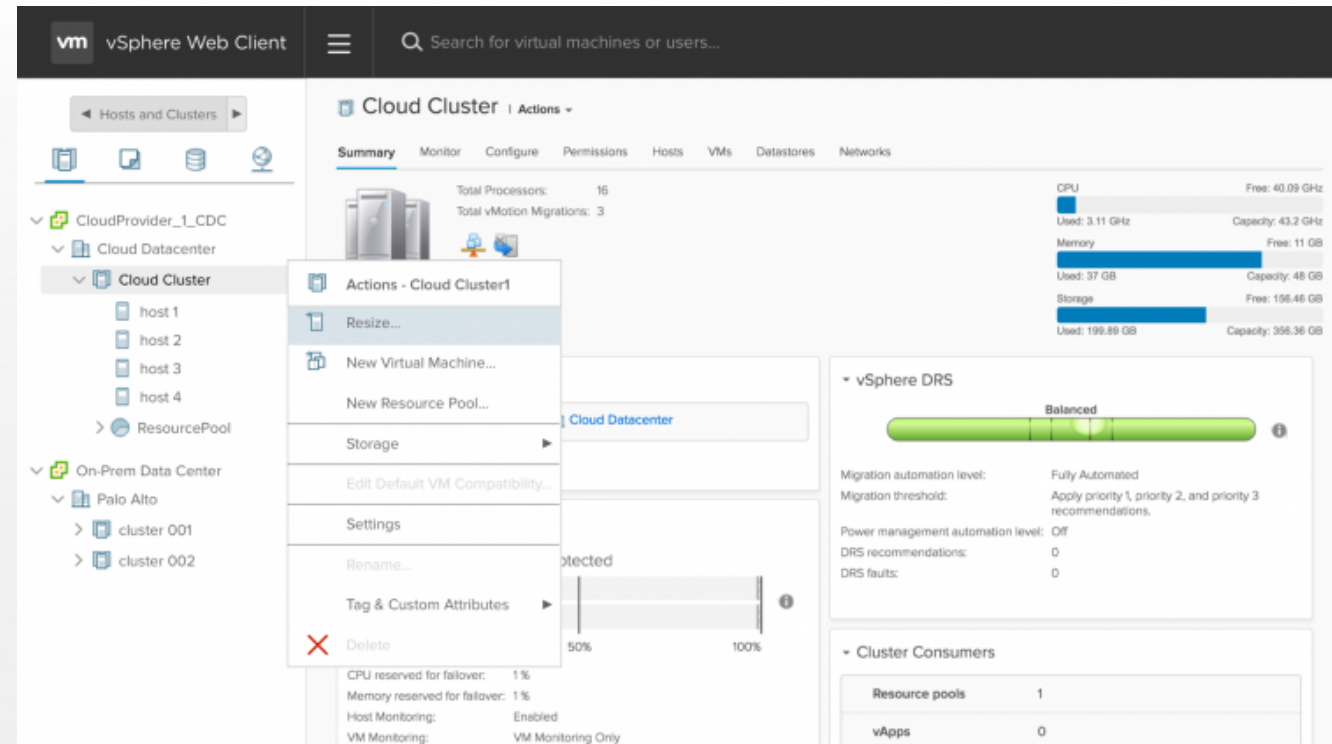


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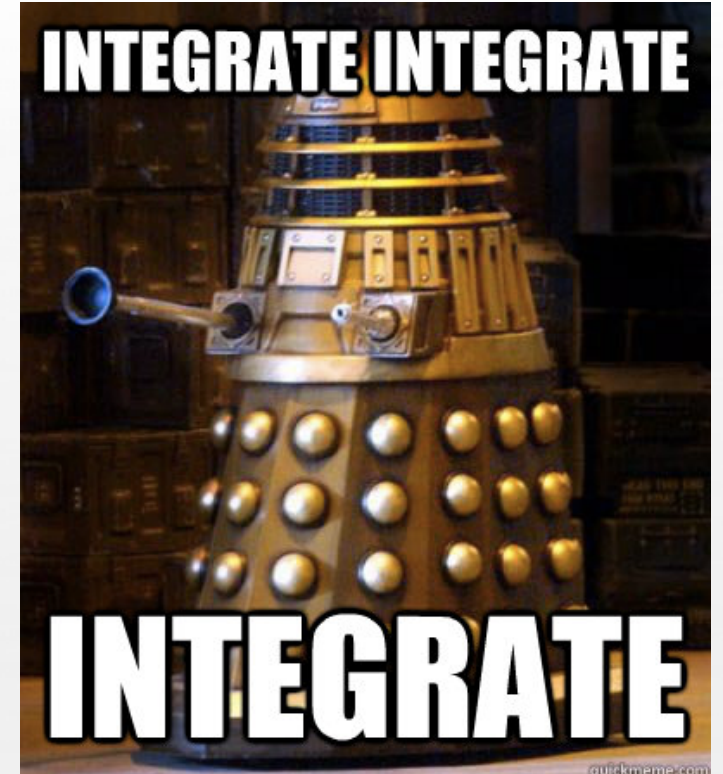
VMware on AWS

- VMware Cloud Foundation
 - vSphere 6.5, vSAN 6.6, NSX
- Bare Metal in AWS
- Licensed & Supported by VMware
 - N-1 for on premises hybrid
- Elastic DRS
- Auto Remediation - HA
- XvMotion from On Premises
 - NSX Standalone Edge Appliance Locally



Further VMware and AWS Integration

- VMware Cross Cloud Architecture
- vRealize Automation – AWS Endpoint
- vROps Management Pack
- AWS Server Migration Service
- AWS Management Portal for vCenter
- Storage Gateway
- EC2 Import/Export
 - Only Imported Instances can be Exported



Key Takeaways

- Designing for Cloud is NOT like designing for vSphere
 - (But its not that different!)
 - Application HA is critical!
- Auto-scaling is magic!
 - For your application, your resilience, your agility and your budget
- Use tagging
- Use templates



Certification

- AWS Associate
 - Solutions Architect
 - Developer
 - SysOps
- AWS Professional
 - Solutions Architect
 - DevOps
- AWS Speciality
 - Advanced Networking
 - Security
 - Big Data



Architecting



AWS Certified
Solutions Architect

Associate



AWS Certified
Solutions Architect

Professional



Developing



AWS Certified
Developer

Associate



AWS Certified
DevOps Engineer

Professional



Operations



AWS Certified
SysOps Administrator

Associate



AWS Certified
DevOps Engineer

Professional



AWS Certified
Advanced Networking
(Beta)

Specialty



AWS Certified
Security
(Beta)

Specialty



AWS Certified
Big Data
(Beta)

Specialty

Certification

- Study Materials
 - ACloud.Guru (Udemy!)
 - Search for "acloudguru udemy solutions architect promo code" or similar
- AWS Free Tier
 - <https://aws.amazon.com/free/>
 - Do Betas for more free credit!
- Do the three exams back to back



Other Learning Resources

- Meetups!
 - AWSUG Scotland - <https://www.meetup.com/Amazon-Web-Services-User-Group-Scotland/>
 - AWSUGUK - <https://www.meetup.com/AWSUGUK/>
 - YouTube - <http://vexpert.me/awsuguk>
- AWS Podcast (Simon Elisha) – Your weekly fix!
- AWS Re:Invent sessions on Youtube / Podcast
- Follow Jeff Barr (@jeffbarr)
 - <https://aws.amazon.com/blogs/aws/>
- What's New on AWS (RSS!)
 - <https://aws.amazon.com/new/>
- AWS Awsome days!
- Scott Lowe's FSJ Podcast - <http://vexpert.me/fsjaws>
- Packet Pushers Datanauts Podcast
 - Episode 075 & 076

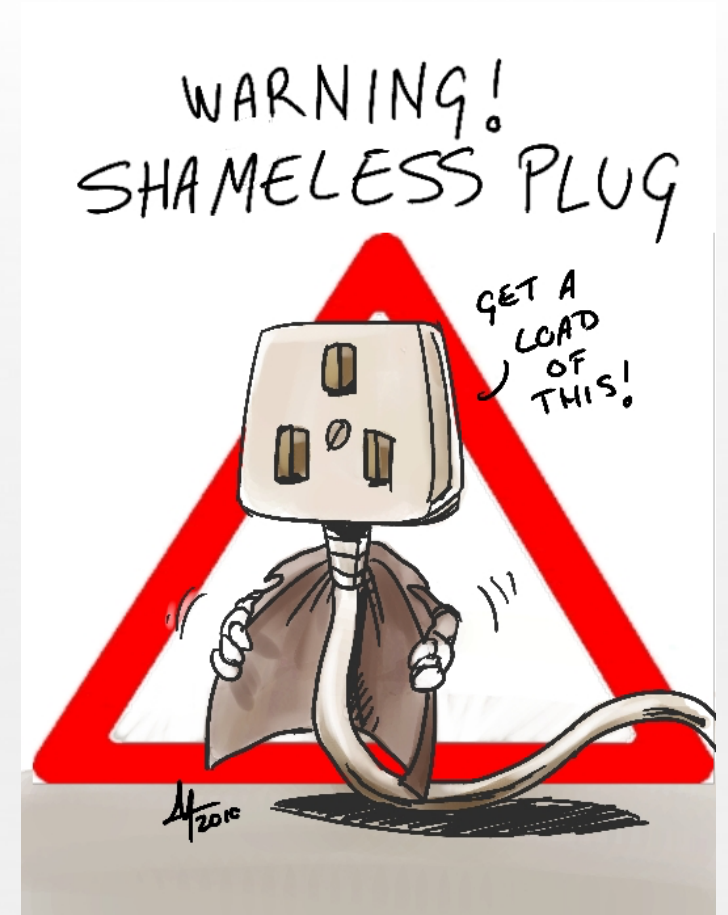


Other Learning Resources

WARNING! Shameless plug time!

Other Learning Resources

- Tekhead.it AWS Blog Series
 - <http://vexpert.me/aws>
 - Gotchas & Lessons Learned
 - Exam study guides
-  Twitter
 - @alexgalbraith
 - @uprightvinyl



Thanks!

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