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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- Are you using AWS in production today?
- Are you planning to do any AWS Certifications?

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- We're no VMware haters y'all!

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  - *"Cloud is not a technology,*
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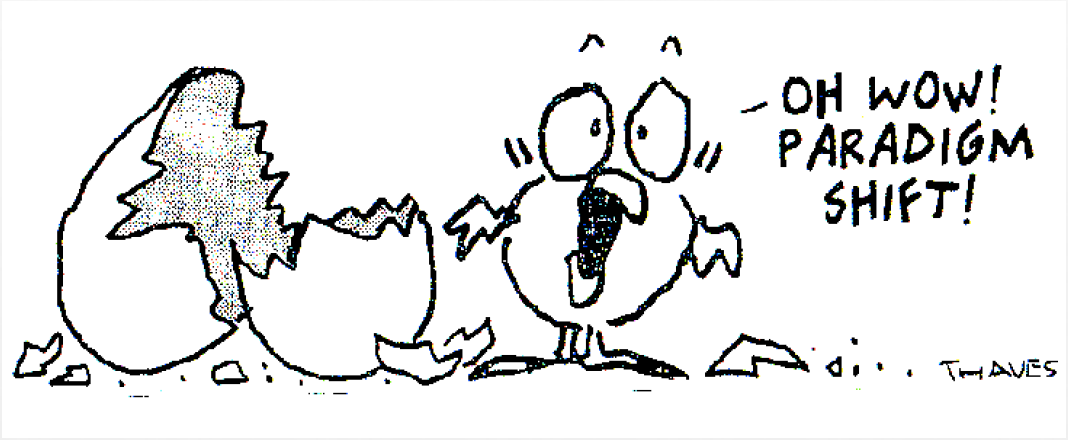

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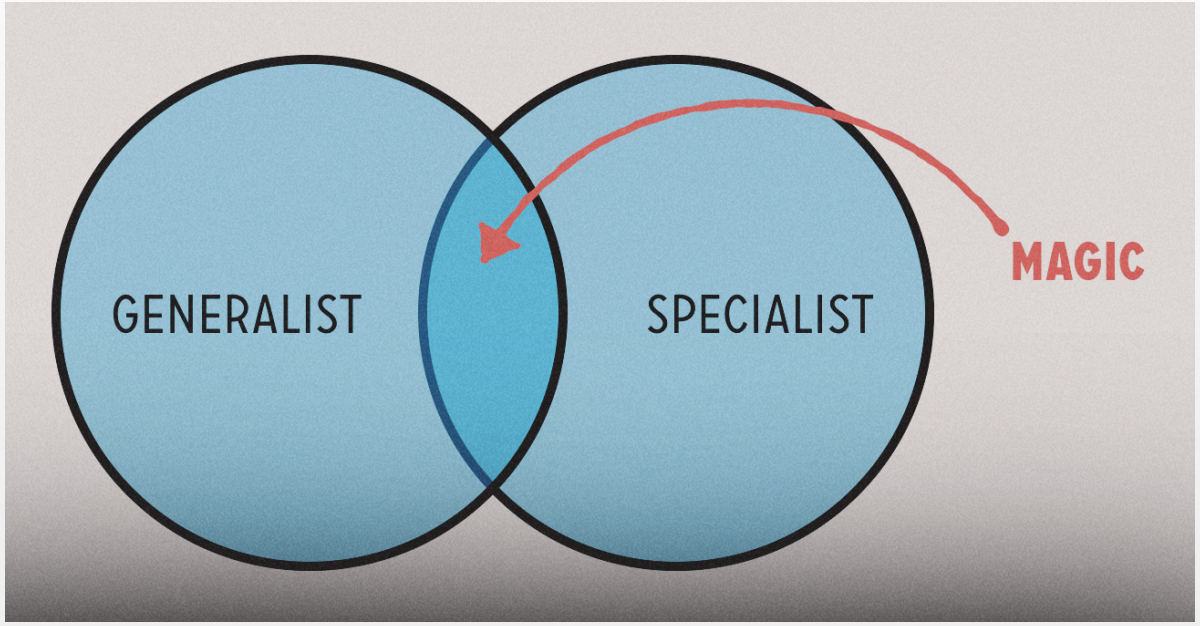

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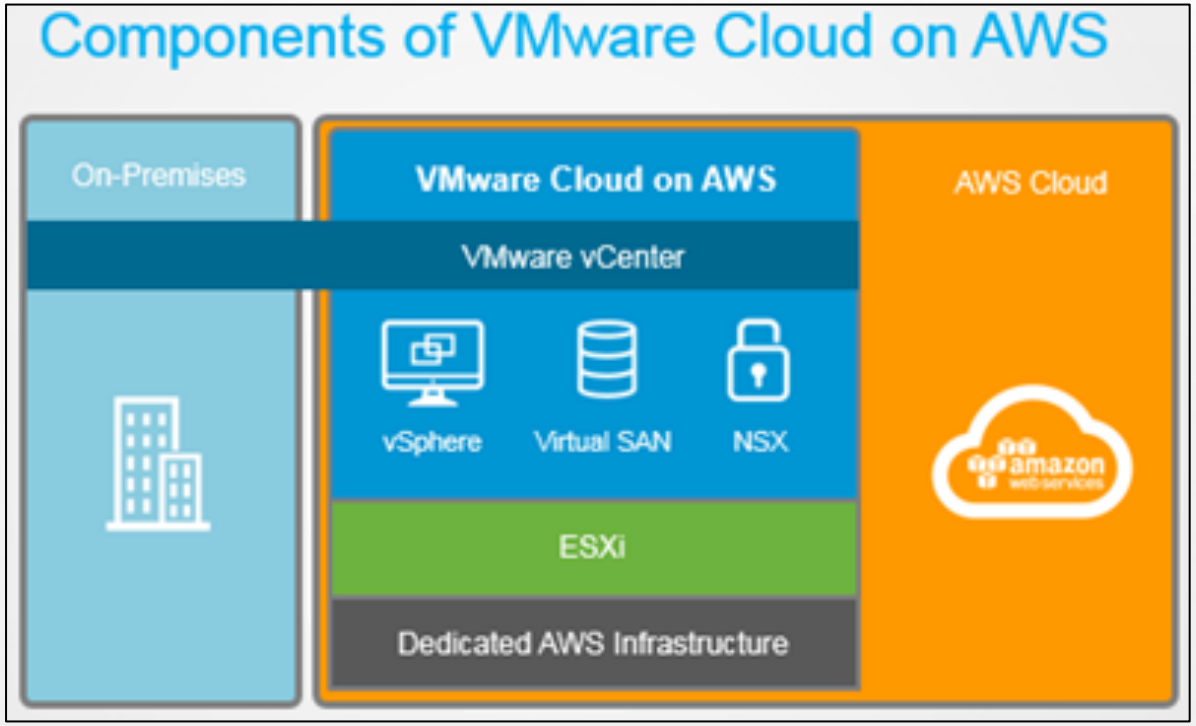
- VMware on AWS! #Winning!



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To Business!

- Without further ado…

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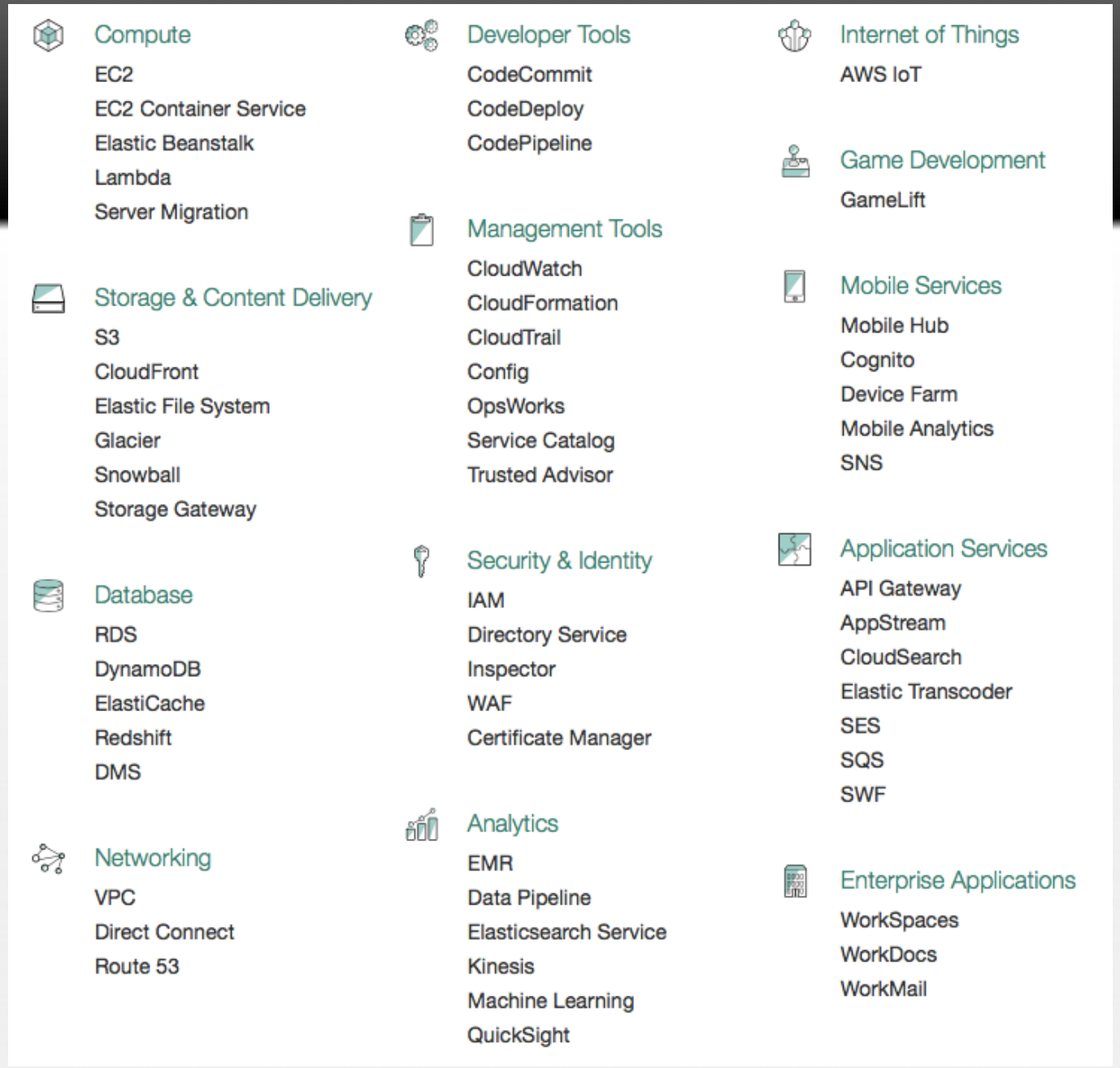
The Basics

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



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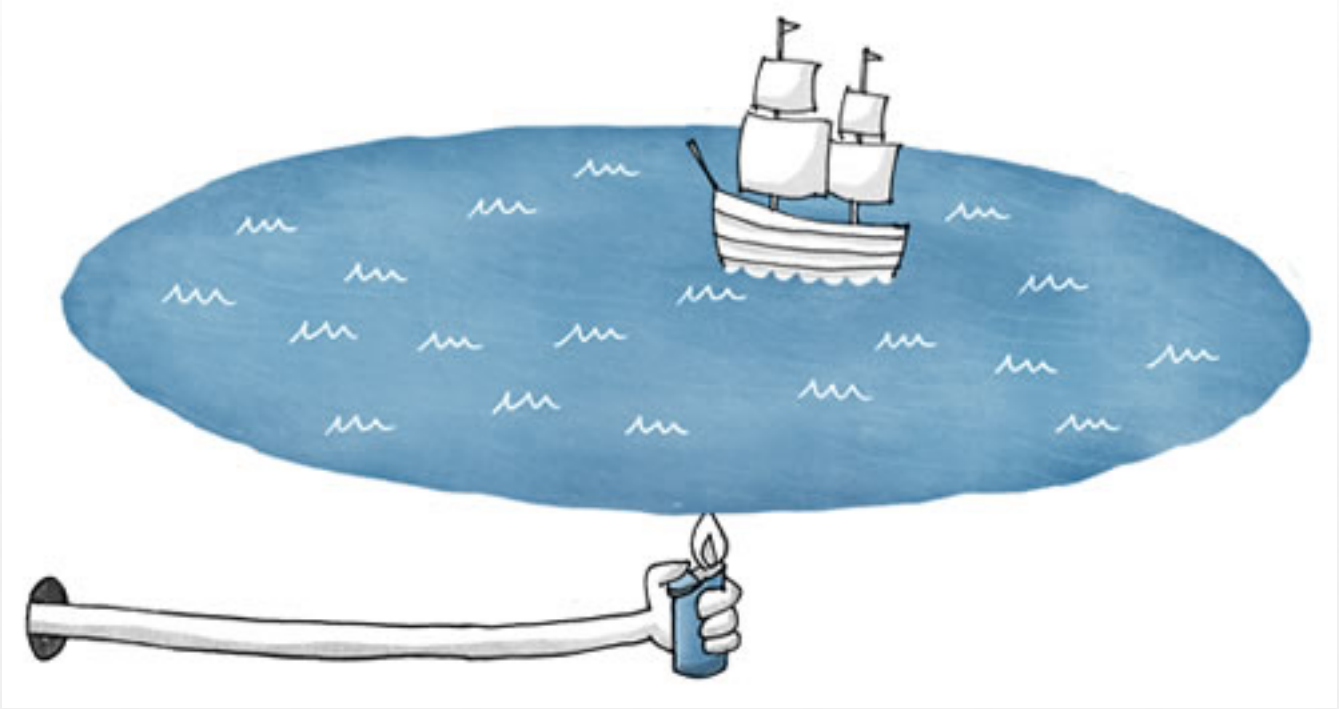
The Basics

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



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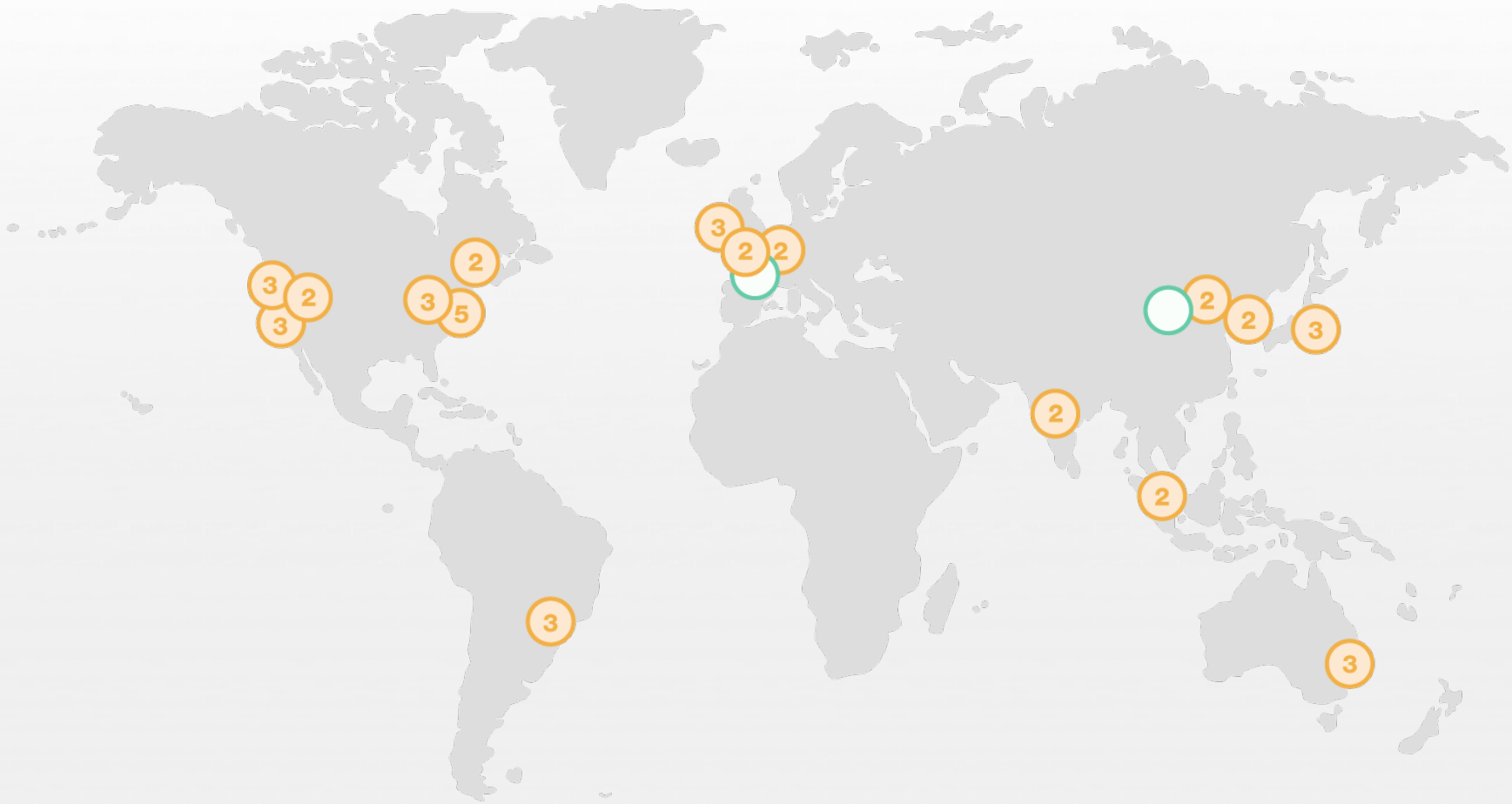
Networking – Regions & AZs



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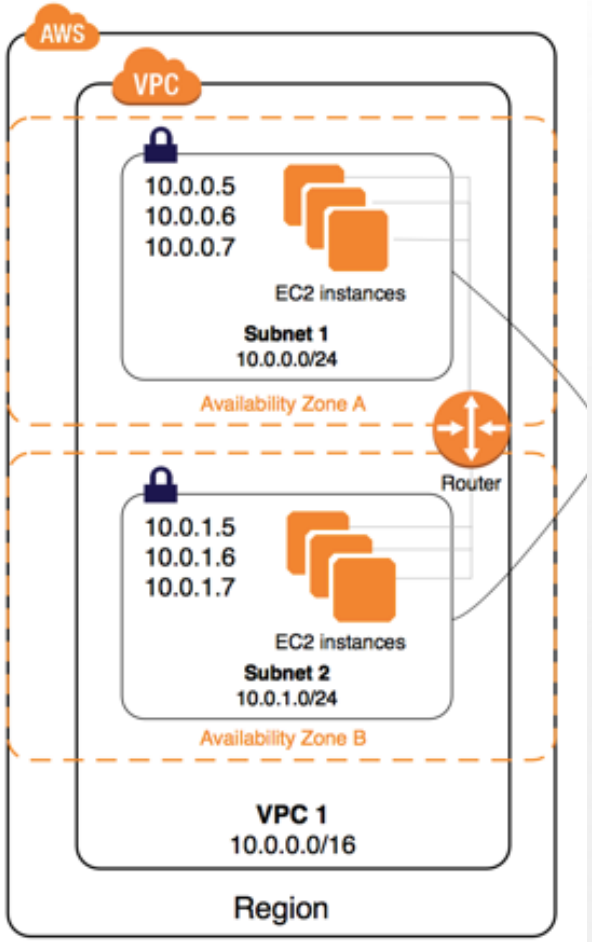
Networking

- 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 or Multicast
- No network access, port mirroring, etc



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Compute – EC2 Basics

- Elastic Compute Cloud (EC2) = VMs
- Amazon Machine Image (AMI) = Template
- Based on heavily customise 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

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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

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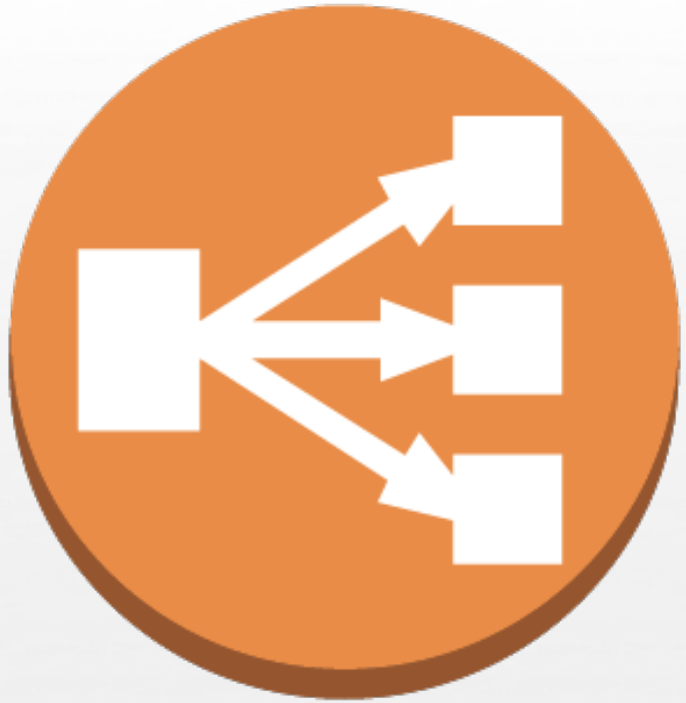
Compute – ELBs & ASGs

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



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Compute – ELBs & ASGs

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

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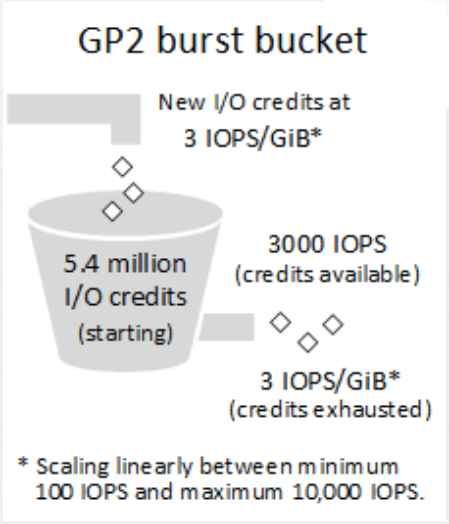
Storage

- Block (EBS)
  - Just like VMDKs
  - Multiple Flavours – (SSD and HDD)
  - GP2 (General Purpose)
  - Provisioned IOPS (PIOPS) are like SIOC with QoS!
  - Magnetic now st1/sc1
  - Backups based on snapshots to S3



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Storage

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

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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!)

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Databases – Installing SQL is boring!

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

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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

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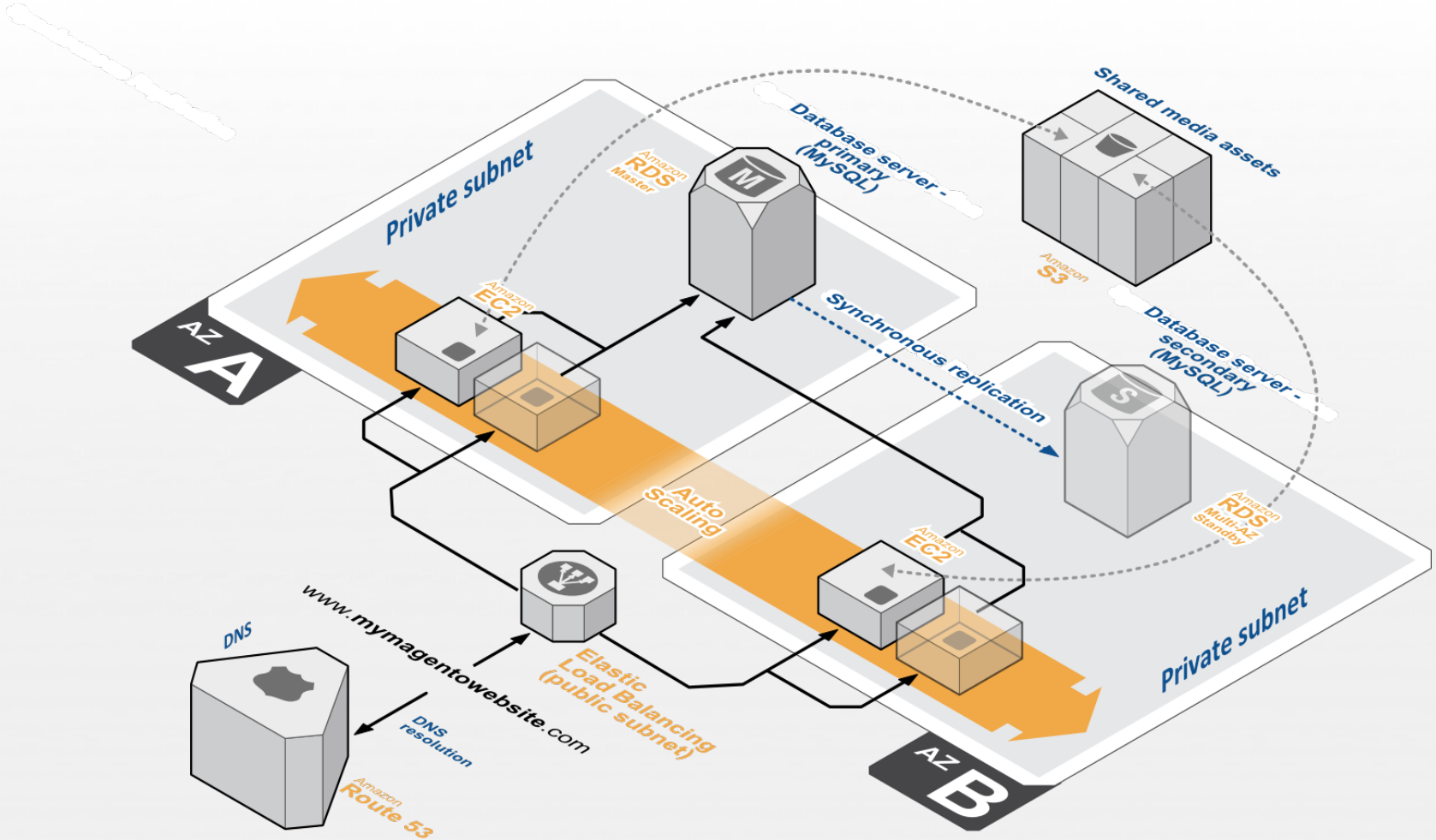
A Simple AWS Solution



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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

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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

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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

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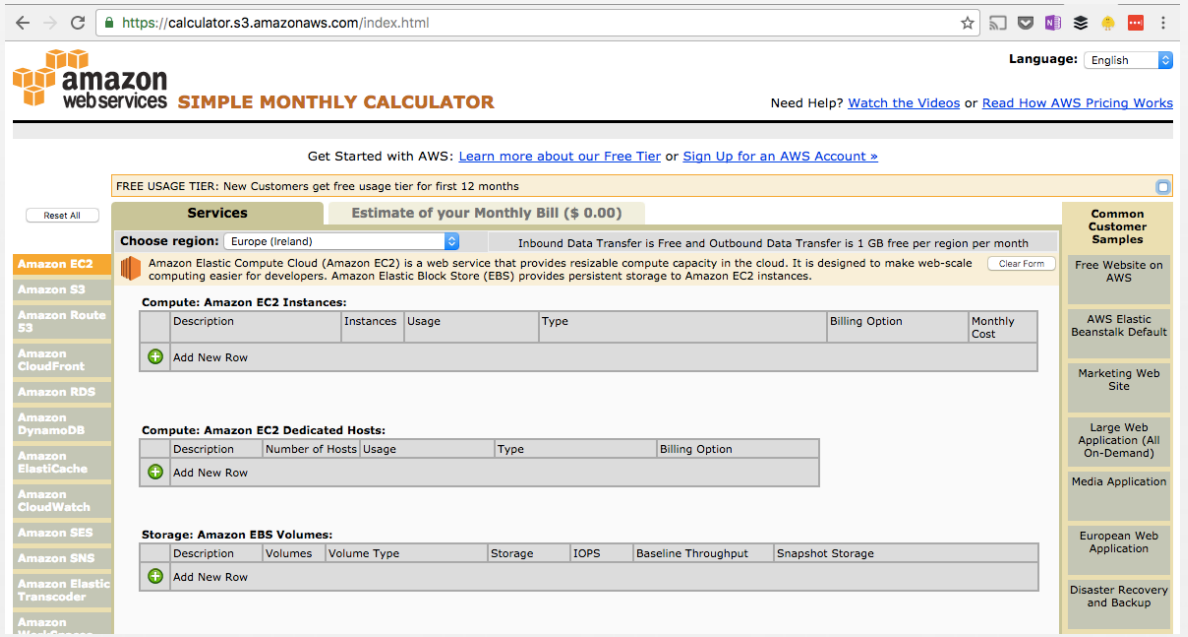
Costs - Estimating

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



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Costs - Controlling

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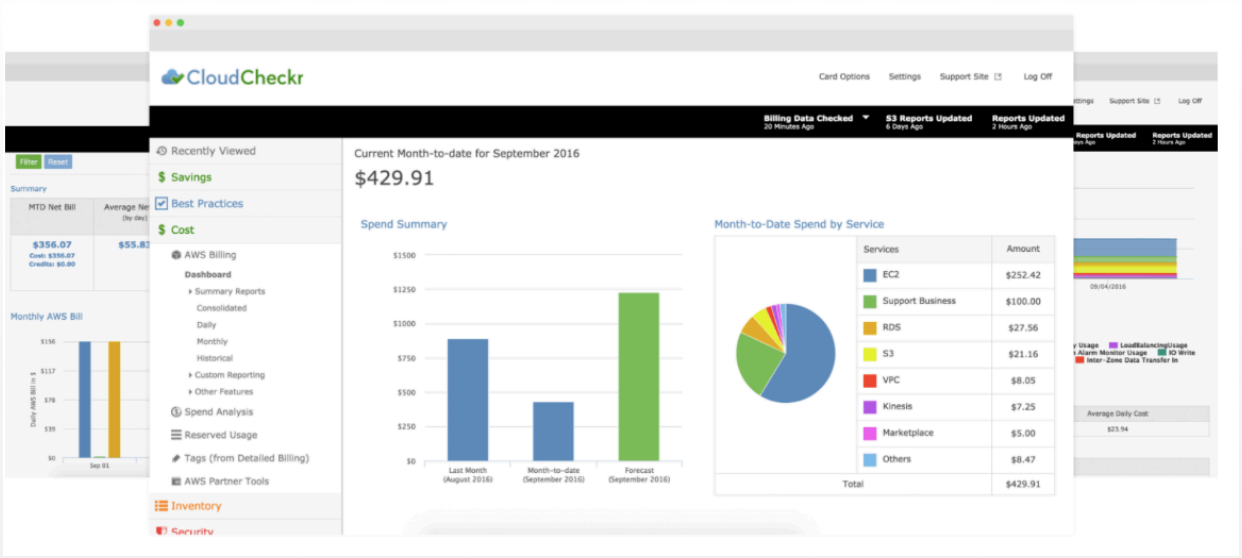
Costs - Controlling

- Activate Cost Allocation Tags
- Use Consolidated Billing
- Setup Billing Alerts
- Trusted Advisor
  - (Business / Enterprise)
- 3rd Party Reporting
  - Cloudability, CloudHealth, Cloudyn etc
- Try Cloud Checkr:
  - Costs
  - Security & Compliance
  - Monitoring, Inventory and Resource Utilisation
  - http://cloudcheckr.com



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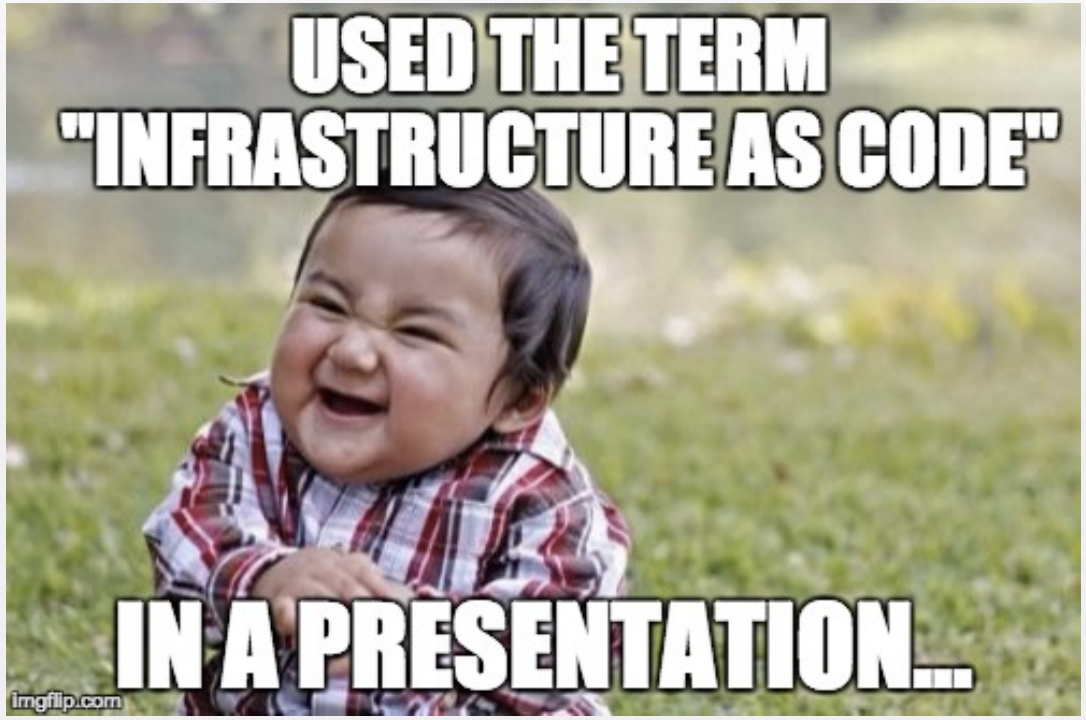
Design Tip – Use Templates!

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



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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

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STOP! Gorilla time!

"I
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s."

(2013)
& COO

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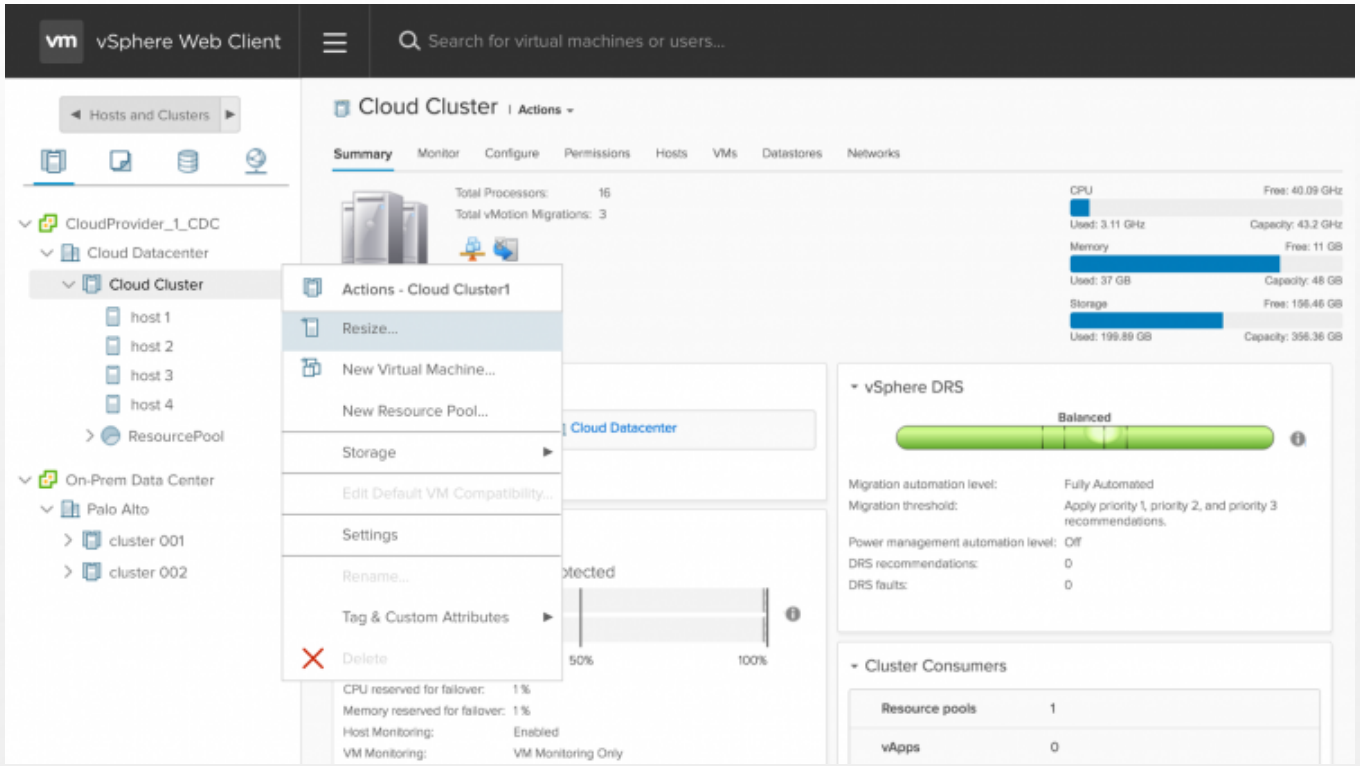
VMware on AWS

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



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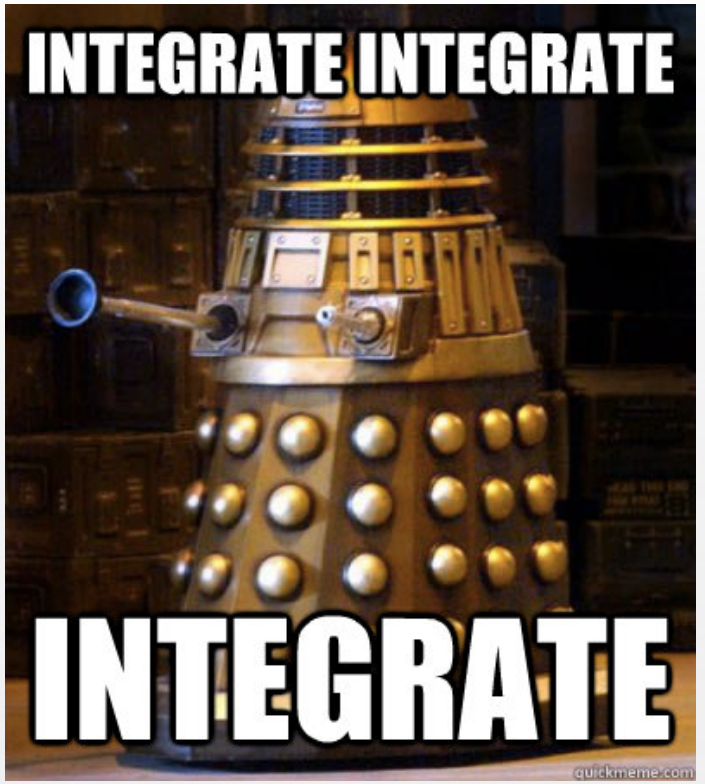
Further VMware and AWS Integration

- 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



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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

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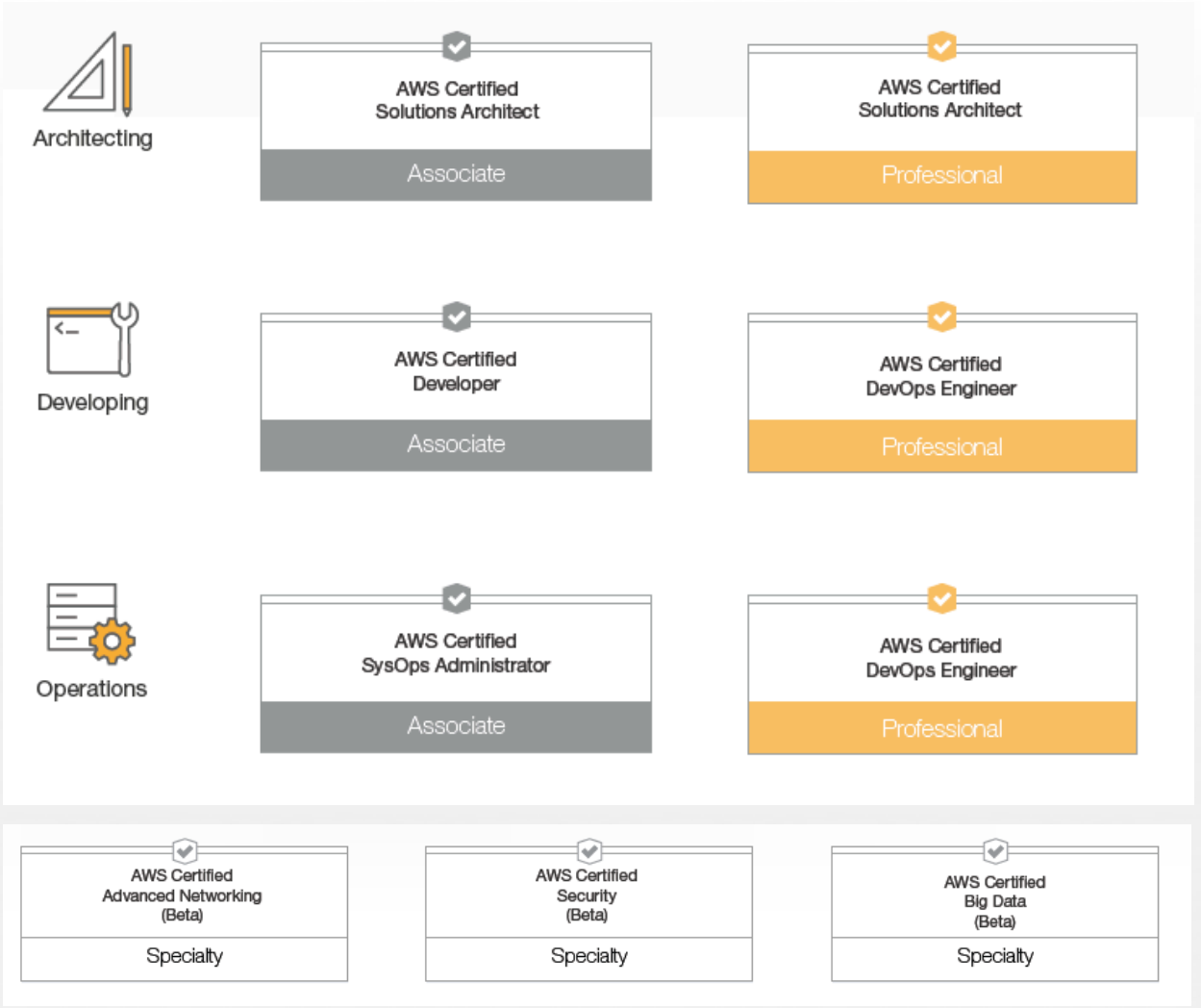
Certification

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



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Certification

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

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Other Learning Resources

- Meetups!
  - AWSUGUK - https://www.meetup.com/AWSUGUK/ - Next Event Wed 25th Jan 2017!
  - 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/
- Scott Lowe's FSJ Podcast
  - http://vexpert.me/fsjaws
- AWS Awsome days (TODAY!)!

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Other Learning Resources

WARNING! Shameless plug time!

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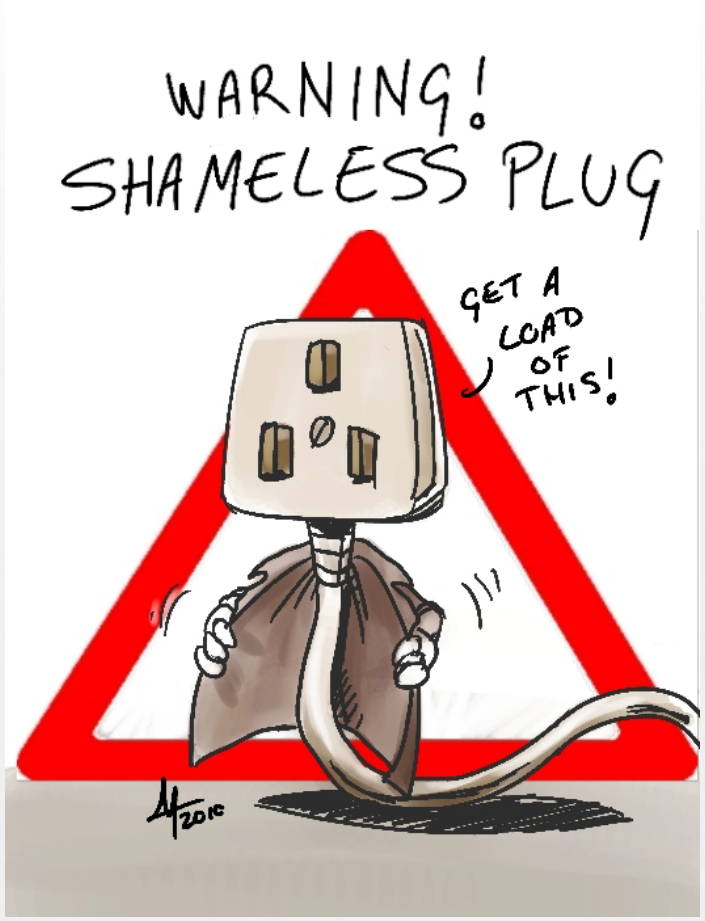
Other Learning Resources

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



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