

Climbing the (Elastic) Beanstalk

One developer's journey from Amazon Web Services newbie to system admin of a brand new, HITRUST-Certified application in the AWS cloud.

Kris Hatcher

Development Lead @ Smart Data

My Name Is Kris Hatcher

- **Developer** with over 15 years experience
- Certified **Scrum Master** with experience on teams ranging from 2 to 20 people
- AWS Certified **Solutions Architect** with experience on a variety of systems from single app deployments to several multi-tenant apps in a single account
- Science Fiction TV fan, enjoy all Star Trek (except original series) but prefer Stargate: SG-1 & Atlantis
- Enjoy MCU movies a lot! #CaptainRogers
(I haven't seen Infinity Wars yet, so NO SPOILERS!!!)

I work for Smart Data

- 50+ Staff Members
- Primarily focus on Cincinnati and Dayton markets
- Currently have clients across the Eastern United States
- Focus on consistent, reliable delivery of software by using Agile Principles and close, active discussion with Product Owners



ASK QUESTIONS DURING THE SESSIONS!



slack

THERE IS A SEPARATE CHANNEL FOR EACH TRACK!

#2018--RED

#2018--ORANGE

#2018--YELLOW

#2018--GREEN

#2018--BLUE

#2018--PURPLE

#2018--THANOS

#2018--GAUNTLET

The Client & Project

Client

- Software as a Service company, specializing in
 - Healthcare Case Management
 - Assessments
 - Reporting
- Primary clients
 - Government Agencies
 - Managed Care Organizations
 - Case Management Agencies

Project

- Rewrite legacy case management and assessment application from scratch
- Support expanded assessment capabilities in new system
- Migrate users and content from legacy application to new application with minimal downtime
- Make use of modern infrastructure technologies for new platform in order to support cost-savings through scalability and flexibility

Back Story

- Client faced significant financial pressure and reduced their internal development staff, moving their support development to a subcontracting development firm.
- After using that firm for several years, the Client became unable to meet timelines promised to clients and had significant problems communicating with the firm's development team.
- These and other problems drove the Client to look for a new partner in their efforts to complete work for their clients.

Back Story

- The Client approached Smart Data about the possibility of assisting with their development efforts in the Fall of 2016.
- Smart Data assembled a team dedicated to the Client and began working to understand the scope of the project.
- The Client & Smart Data faced significant problems while attempting to move development work (including source code and infrastructure resources) from the previous firm to Smart Data.

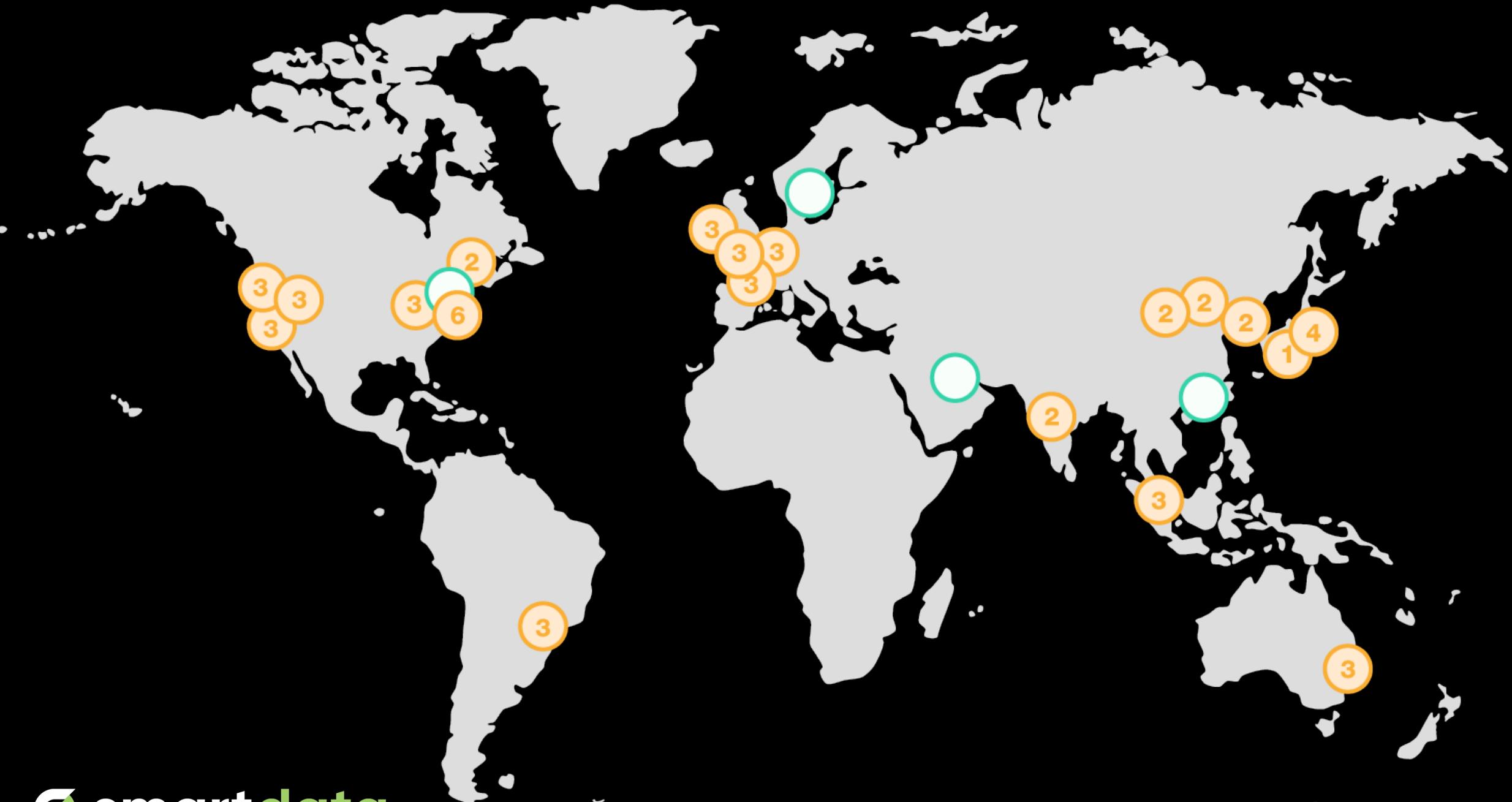
Initial Infrastructure

- Unit Testing framework was in place, but completely unused
- No part of deployment was automated
- Manually created & deployed AMIs
- Manually configured AWS environments, including scaling rules
- No standardization of naming, and use of multiple AWS Regions, resulted in an inability to know what resources were in Production use and what were for various testing environments

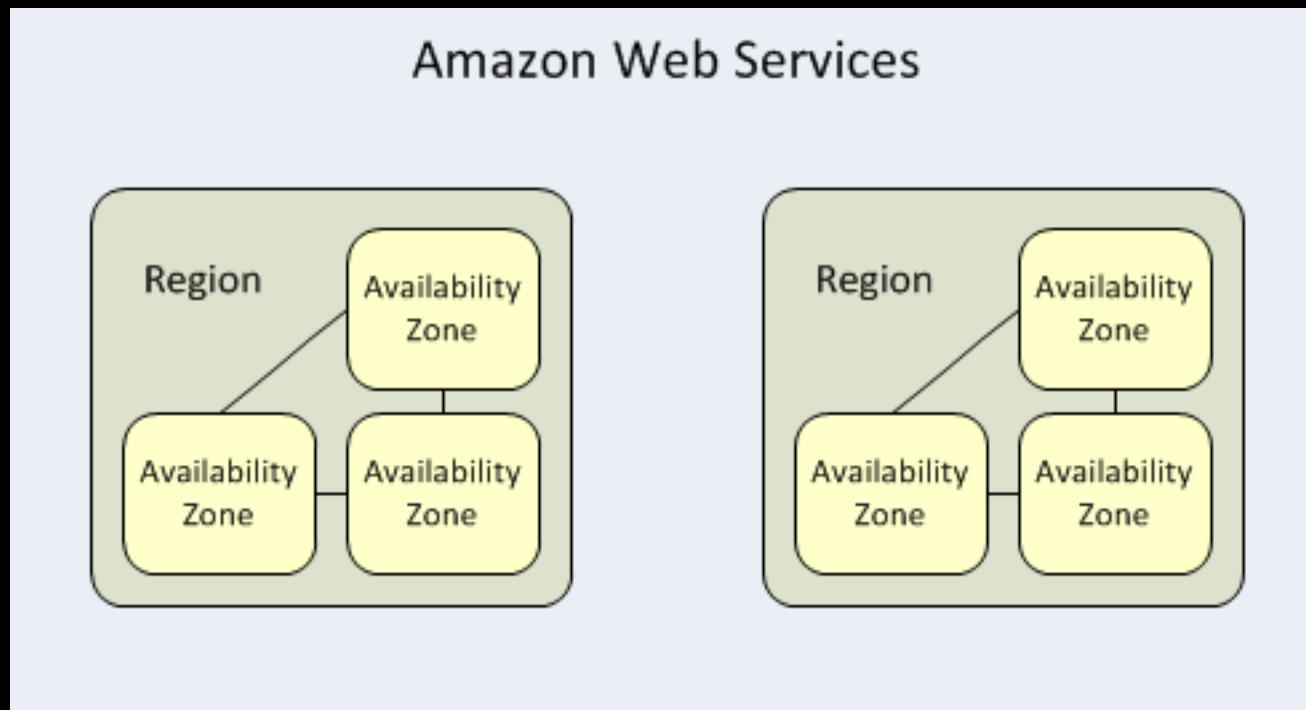
Security Concerns

- Application handles Personally Identifiable Information (PII) and Protected Health Information (PHI) & must follow guidelines put forth in the Health Insurance Portability and Accountability Act (HIPAA) and Health Information Technology for Economic and Clinical Health (HITECH) Act

Amazon Web Services



Regions & Availability Zones



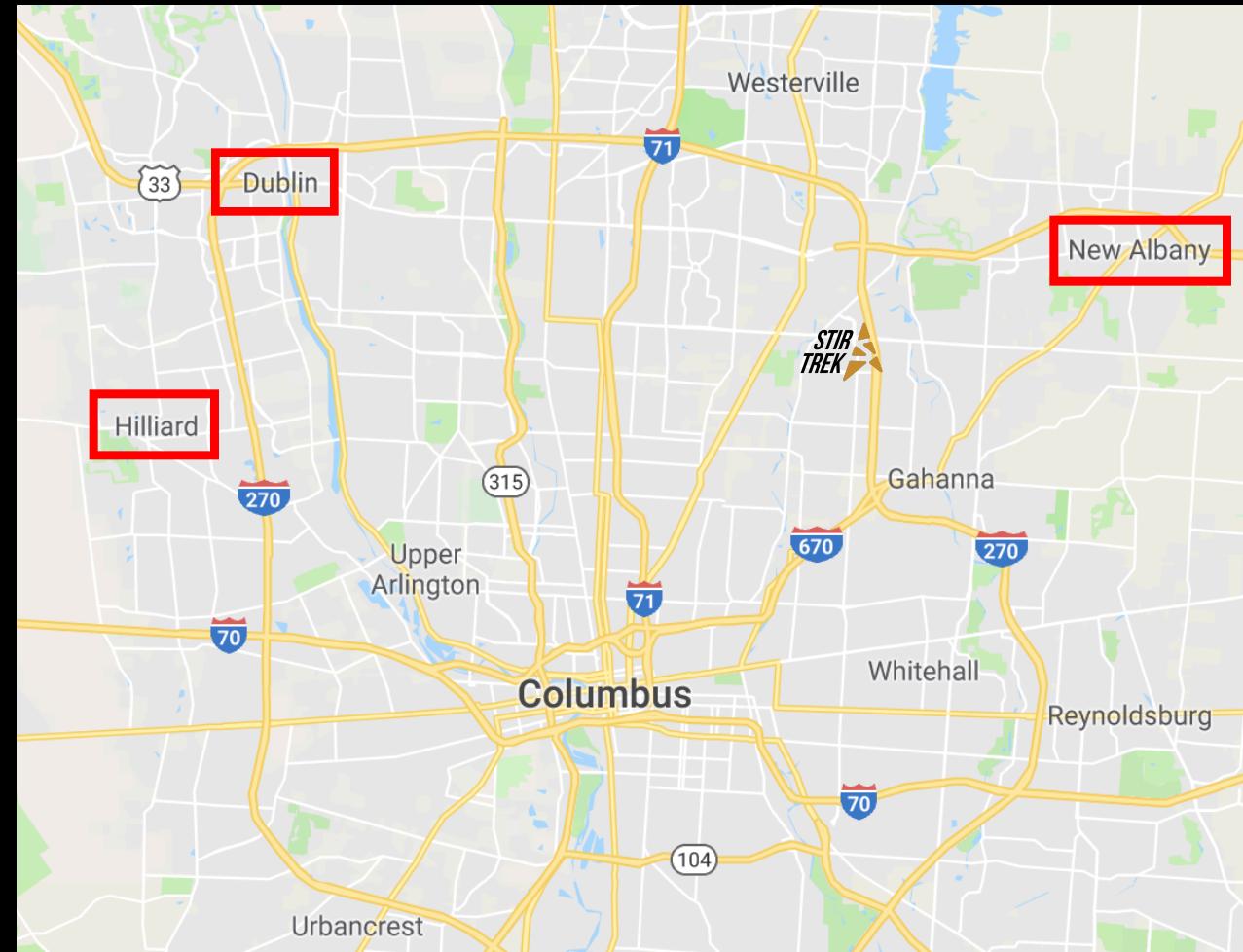
Regions & Availability Zones

Region = Columbus (*us-east-2*)

AZ 1 = Dublin (*us-east-2a*)

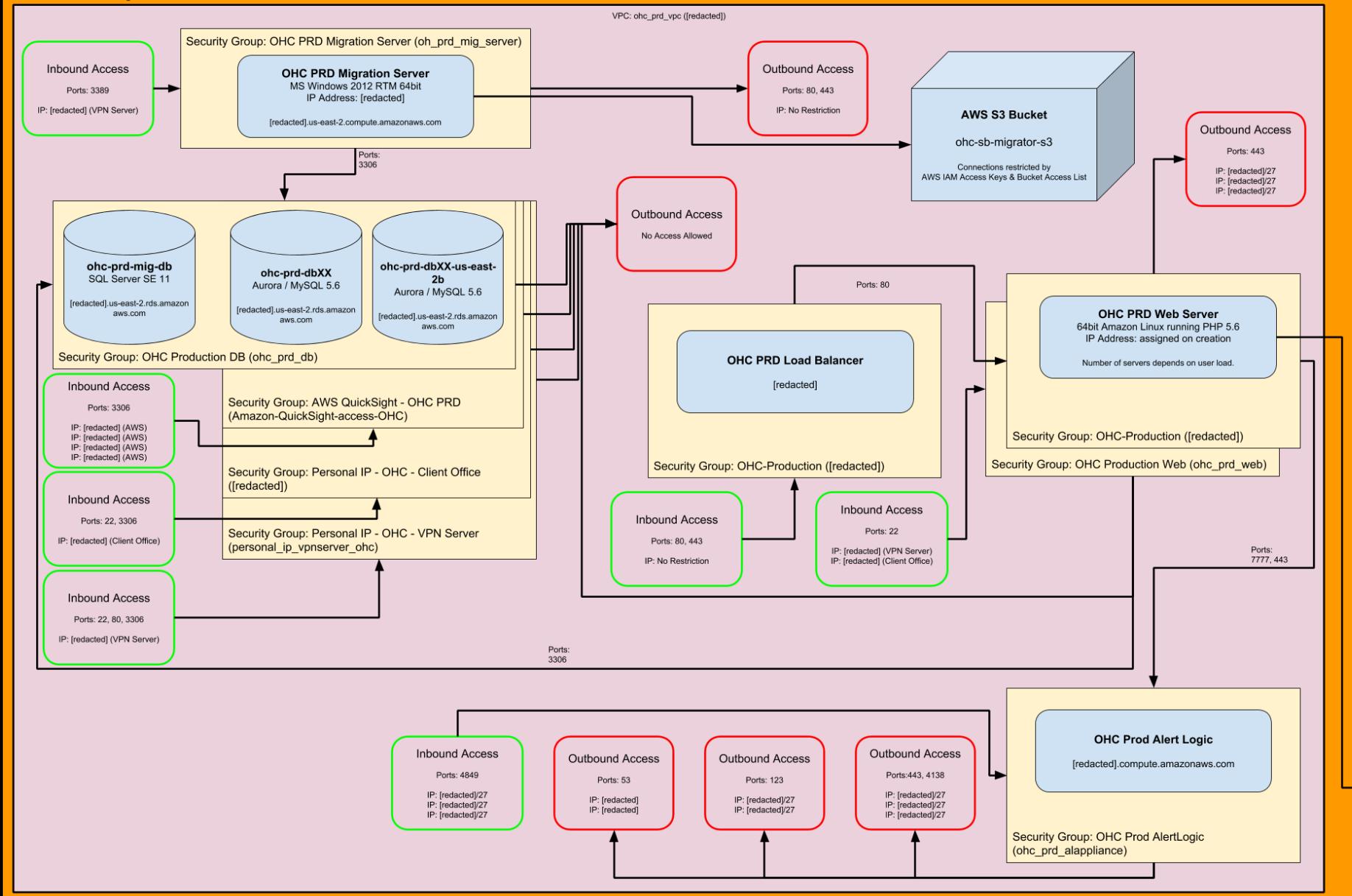
AZ 2 = Hilliard (*us-east-2b*)

AZ 3 = New Albany (*us-east-2c*)



Glossary

- **Instance = Server**
- AZ = Availability Zone (*datacenter*)
- VPC = Virtual Private Cloud (*network*)
- EC2 = Elastic Cloud Compute (*server*)
- AMI = Amazon Machine Image
- RDS = Relational Database Service
- S3 = Simple Storage Service
- EB = Elastic Beanstalk



Amazon AWS Virginia Region

Web Servers

Web Servers - Legacy

- Environment hosted on leased servers in shared datacenter.
- Physical servers, which require significant time to on-board if new servers are necessary
- Inconsistent backups, with minimal paths to restore in case of system failure

Web Servers – New System

- Based on AWS Elastic Cloud Compute (EC2) instances, environment scales as necessary based on load in the system
- Using AWS Elastic Beanstalk (EB), code deployments are rolling, with individual servers being pulled out of load balancer pool one at a time for updates before being placed back into the pool
- EB also monitors instance health and can terminate instances which are unhealthy after replacing them with new ones

Web Servers – Next Steps

- Switch from Elastic Beanstalk to Cloud Formation
 - Provides more detailed control of process
- Modify deployment process to always create new instances, instead of “upgrading” instances currently in use
 - Prevents system from developing “ghosts” based on areas of code which are not operating as efficiently as they should be

Elastic Beanstalk Applications X

Secure | https://us-east-2.console.aws.amazon.com/elasticbeanstalk/home/

Kristopher

aws Services Resource Groups Buckeye Buckeye-Billing Buckeye-Billing-Production Buckeye-Production Demo-Production DODD OHC Create New Application

All Applications Filter by Application Name:

OHC Swap URLs Actions ▾

OHC-Sandbox

Environment tier: Web Server
Platform: PHP 5.6 running on 64bit Amazon Linux/2.4.1
Running versions: ohc.sb.1352.c4e5856
Last modified: 2018-05-03 09:48:09 UTC-0400
URL: [\[REDACTED\]](#)

OHC-Staging

Environment tier: Web Server
Platform: PHP 5.6 running on 64bit Amazon Linux/2.4.1
Running versions: ohc.stg.180.6559941
Last modified: 2018-05-02 00:21:56 UTC-0400
URL: [\[REDACTED\]](#)

OHC-Production Actions ▾

OHC-Production

Environment tier: Web Server
Platform: PHP 5.6 running on 64bit Amazon Linux/2.4.1
Running versions: ohc.prd.196.4bd738d
Last modified: 2018-05-03 01:21:52 UTC-0400
URL: [\[REDACTED\]](#)

We're moving to a new design for AWS Elastic Beanstalk. [Let us know what you think!](#) You can [switch back to the previous version](#) while we finalize the design.

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OHC-Production - Health Dashboard

Secure | https://us-east-2.console.aws.amazon.com/elasticbeanstalk/home/

aws Services Resource Groups Buckeye Buckeye-Billing Buckeye-Billing-Production Buckeye-Production Demo-Production OHC-Production Create New Application

All Applications > OHC-Production > OHC-Production (Environment ID: URL:) Actions

Dashboard Configuration Logs Health Monitoring Alarms Managed Updates Events Tags

Enhanced Health Overview

Filter By Instance Actions Hide details Auto refresh (4s)

	Server				Requests					Latency					Load Average			
	Instance ID	Status	Running	Dep. ID	R/sec	2xx	3xx	4xx	5xx	P99	P90	P75	P50	P10	Load1	Load5	User%	S
▼ Overall	Ok	N/A	N/A	--	--	--	--	--	--	--	--	--	--	--	N/A	N/A	N/A	S
Total	8	Ok	8	Pending	0	Info	0	Unknown	0	No data	0	Warning	0	Degraded	0	Severe	0	
i-0f1c8d5ca746f9eb3	Ok	3 hours	242	--	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.0	
i-0dd9dcbb22248459a3	Ok	3 hours	242	--	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.0	
i-0c695c1ea6af061a7	Ok	3 hours	242	--	--	--	--	--	--	--	--	--	--	--	0.00	0.03	0.1	
i-00098fdad64fe0f4	Ok	3 hours	242	--	--	--	--	--	--	--	--	--	--	--	0.00	0.00	0.1	
i-0c9c92c67d05298c6	Ok	1 day	242	--	--	--	--	--	--	--	--	--	--	--	0.00	0.02	0.0	

EC2 Management Console Secure | https://us-east-2.console.aws.amazon.com/ec2/v2/home

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aws Services Resource Groups Launch Instance Connect Actions

Application : OHC Add filter

1 to 14 of 14

Name	Application	Environment	Instance Type	Availability Zone	Instance State	Status Checks
OHC-Production	OHC	Production	t2.medium	us-east-2a	running	2/2 checks passed
OHC PRD Migration Server	OHC	Production	r4.4xlarge	us-east-2a	running	2/2 checks passed
OHC Prod Alert Logic	OHC	Production	c4.xlarge	us-east-2b	running	2/2 checks passed
OHC-Production	OHC	Production	t2.medium	us-east-2a	running	2/2 checks passed
OHC-Production	OHC	Production	t2.medium	us-east-2b	running	2/2 checks passed
OHC-Production	OHC	Production	t2.medium	us-east-2a	running	2/2 checks passed
OHC-Production	OHC	Production	t2.medium	us-east-2b	running	2/2 checks passed
OHC-Production	OHC	Production	t2.medium	us-east-2a	running	2/2 checks passed
OHC-Production	OHC	Production	t2.medium	us-east-2b	running	2/2 checks passed
OHC-Sandbox	OHC	Sandbox	t2.small	us-east-2c	running	2/2 checks passed
OHC-Sandbox	OHC	Sandbox	t2.small	us-east-2c	running	2/2 checks passed
OHC-Staging	OHC	Staging	t2.medium	us-east-2b	running	2/2 checks passed
OHC-Staging	OHC	Staging	t2.medium	us-east-2b	running	2/2 checks passed

Select an instance above

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EC2 Management Console Secure | https://us-east-2.console.aws.amazon.com/ec2/v2/home

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aws Services Resource Groups Create Security Group Actions

Application : OHC Add filter

1 to 20 of 20

Name	Application	Environment	Inbound Rules Count	Outbound Rules Count
OHC Lower Envs Alert Logic Appliance	OHC	Lower Enviro...	7 Permission Entries	11 Permission Entries
OHC Production DB	OHC	Production	3 Permission Entries	0 Permission Entries
AWS QuickSight - OHC PRD	OHC	Production	4 Permission Entries	0 Permission Entries
OHC Production Web	OHC	Production	1 Permission Entries	10 Permission Entries
System IP - SQL Conversion Server	OHC	Production	1 Permission Entries	1 Permission Entries
OHC-Production	OHC	Production	2 Permission Entries	1 Permission Entries
Default VPC Security - OHC Production	OHC	Production	1 Permission Entries	1 Permission Entries
Personal IP - OHC - VPN Server	OHC	Production	6 Permission Entries	0 Permission Entries
OHC Production Alert Logic Appliance	OHC	Production	5 Permission Entries	11 Permission Entries
OHC-Production	OHC	Production	1 Permission Entries	0 Permission Entries
OHC PRD Migration Server	OHC	Production	0 Permission Entries	3 Permission Entries
OHC-Sandbox	OHC	Sandbox	1 Permission Entries	1 Permission Entries
OHC-Sandbox	OHC	Sandbox	2 Permission Entries	1 Permission Entries
OHC Sandbox DB	OHC	Sandbox	2 Permission Entries	0 Permission Entries
OHC Sandbox Web	OHC	Sandbox	0 Permission Entries	8 Permission Entries
OHC-Staging	OHC	Staging	2 Permission Entries	1 Permission Entries
OHC-Staging	OHC	Staging	2 Permission Entries	1 Permission Entries
OHC Staging DB	OHC	Staging	2 Permission Entries	0 Permission Entries

Select a security group above

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Databases

Databases - Legacy

- Environment hosted on leased servers in shared datacenter.
- Physical servers, which require significant time to on-board if new servers are necessary
- Inconsistent backups, with minimal paths to restore in case of system failure
- Microsoft SQL system, which drove costs up due to licensing fees

Databases – New System

- Used AWS Relational Database Service (RDS) and their “Aurora” database, based on MySQL technology with enhancements to improve speed & efficiency in cloud environments
- Flexible instance sizing provides the ability to have different sizes for different environments and to easily change that size as necessary
- Built-in backup technology provides
 - Every transaction for the last 24 hours
 - Daily backups stored for a configurable length of time
 - Hot-standby servers in a separate Availability Zone and/or Region

Databases – Next Steps

- Automated process to pull backups from Production into lower environments for debugging & development purposes
 - Including capability to scramble PII
- Additional research to “right-size” the database instances to their use based on observed metrics
- Modify Testing & Development environments to use Aurora Serverless to minimize costs in less-used environments

RDS · AWS Console X

Secure | https://us-east-2.console.aws.amazon.com/rds/home

aws Services Resource Groups D G R S K Kristopher khatcher Ohio Support

Amazon RDS X

Instances (37)

DB instance Engine Status CPU Current activity Maintenance

DB instance	Engine	Status	CPU	Current activity	Maintenance
ohc-prd-db02	Aurora MySQL	available	0.73%	1 Selects/Sec	none
ohc-prd-db02-us-east-2b	Aurora MySQL	available	0.60%	1 Selects/Sec	none
ohc-sb-db41	Aurora MySQL	available	5.00%	3 Selects/Sec	none
ohc-stg-db29	Aurora MySQL	available	4.83%	1 Selects/Sec	none
ohc-stg-db30	Aurora MySQL	available	4.83%	2 Selects/Sec	none
ohc-tst-db122	Aurora MySQL	available	4.92%	2 Selects/Sec	none
ohc-tst-db123	Aurora MySQL	available	4.83%	5 Selects/Sec	none
ohc-tst-db124	Aurora MySQL	available	4.75%	1 Selects/Sec	none
ohc-tst-db125	Aurora MySQL	available	4.83%	1 Selects/Sec	none

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RDS · AWS Console X

Secure | https://us-east-2.console.aws.amazon.com/rds/home

aws Services Resource Groups RDS Instances ohc-prd-db02 khatcher Ohio Support

Amazon RDS X

RDS > Instances > ohc-prd-db02

ohc-prd-db02 Instance actions ▾

Summary

Engine	DB instance class Info Aurora MySQL 5.6.10a	DB instance status available	Pending maintenance none
--------	--	---------------------------------	-----------------------------

CloudWatch (54) C Add instance to compare Monitoring Last Hour ▾

Legend: ohc-prd-db02

CPU Utilization (Percent)

05/03 10:00 05/03 10:30

DB Connections (Count)

05/03 10:00 05/03 10:30

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Document Storage

Document Storage - Legacy

- Documents were stored on the web server
- No specific backup system in place
- Difficult to find documents for error report diagnosis

Document Storage – New System

- Documents are now stored in AWS Simple Storage Service (S3)
- Unified organizational structure provides ease of finding documents when necessary for error research
- AWS S3 provides built-in redundancy protections, promising 99.99999999% durability

S3 Management Console X

Secure | https://s3.console.aws.amazon.com/s3/home

aws Services Resource Groups D G B F H K Star

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Amazon S3 Discover the new console Quick tips

Q OHC

+ Create bucket Delete bucket Empty bucket

10 Buckets 0 Public 2 Regions

Bucket name	Access	Region	Date created
ohc-conversion-backup	Not public *	US East (Ohio)	Jun 30, 2017 4:54:12 PM GMT-0400
ohc-prd-logs	Not public *	US East (N. Virginia)	Jul 28, 2017 11:02:38 AM GMT-0400
ohc-prd-logs-elb	Not public *	US East (Ohio)	Jul 28, 2017 2:36:19 PM GMT-0400
ohc-prd-s3-va	Not public *	US East (N. Virginia)	Mar 7, 2017 10:32:05 AM GMT-0500
ohc-sb-logs-oh	Not public *	US East (Ohio)	Aug 9, 2017 3:50:47 PM GMT-0400
ohc-sb-migrator-s3	Not public *	US East (Ohio)	Mar 28, 2017 11:00:16 AM GMT-0400
ohc-sb-s3-va	Not public *	US East (N. Virginia)	Mar 7, 2017 10:31:40 AM GMT-0500
ohc-special-backup	Not public *	US East (Ohio)	Mar 13, 2018 11:13:33 AM GMT-0400
ohc-stg-logs-oh	Not public *	US East (Ohio)	Aug 9, 2017 3:50:08 PM GMT-0400
ohc-stg-s3-va	Not public *	US East (N. Virginia)	Mar 7, 2017 10:31:52 AM GMT-0500

S3 Management Console Kristopher

Secure | https://s3.console.aws.amazon.com/s3/buckets/ohc-prd-s3-va/

aws Services Resource Groups D G A B F K *

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Amazon S3 > ohc-prd-s3-va

Overview Properties Permissions Management

Type a prefix and press Enter to search. Press ESC to clear.

Upload Create folder More

US East (N. Virginia) Viewing 1 to 300 >

<input type="checkbox"/>	Name	Last modified	Size	Storage class
<input type="checkbox"/>	20170606-189412-af97acaa	Aug 25, 2017 6:02:22 PM GMT-0400	710.4 KB	Standard
<input type="checkbox"/>	20170606-189437-281c1ab7	Aug 25, 2017 6:24:11 PM GMT-0400	711.1 KB	Standard
<input type="checkbox"/>	20170606-189473-ba35664e	Aug 25, 2017 6:41:28 PM GMT-0400	992.0 KB	Standard
<input type="checkbox"/>	20170606-189499-ce5c8647	Aug 25, 2017 6:31:35 PM GMT-0400	91.9 KB	Standard
<input type="checkbox"/>	20170606-189537-e1258de8	Aug 25, 2017 6:28:40 PM GMT-0400	13.7 MB	Standard
<input type="checkbox"/>	20170606-189559-ad6010e2	Aug 25, 2017 6:27:27 PM GMT-0400	161.9 KB	Standard
<input type="checkbox"/>	20170606-189581-5e662268	Aug 25, 2017 6:23:42 PM GMT-0400	58.4 KB	Standard
<input type="checkbox"/>	20170606-189612-32088440	Aug 25, 2017 6:44:32 PM GMT-0400	53.3 KB	Standard
<input type="checkbox"/>	20170606-189633-2b06a693	Aug 25, 2017 6:16:29 PM GMT-0400	178.9 KB	Standard

Infrastructure

Infrastructure – Legacy

- No testing environments
- Physical servers
- No scaling

Infrastructure – New System

- Each application (6 total) has Sandbox, Staging, and Production environments
- Each production application is in it's own VPC, with access restricted and monitored
- Creating environments for new applications is a documented process that can be completed by anyone with a basic understanding of AWS
- All environments scale web instances based on usage
- All infrastructure for an environment is right-sized to that environment's needs and use-case

VPCs | VPC Management Cons X

Secure | https://us-east-2.console.aws.amazon.com/vpc/home

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aws Services Resource Groups Create VPC Actions

Search VPCs and their proper X

« < 1 to 9 of 9 VPCs > »

Name	Application	Environment	VPC ID	State	IPv4 CIDR	Tenancy	Default VPC
srsp_prd_vpc	SRSP	Production	vpc-c708d5ae	available	172.32.0.0/16	Default	No
demo_prd_vpc	Demo	Production	vpc-c47b51ad	available	172.39.0.0/16	Default	No
Lower Environments	Infrastructure	Lower Environments	vpc-a73fd3ce	available	172.31.0.0/16	Default	Yes
General Support	Infrastructure	General Support	vpc-47fb8f2e	available	172.36.0.0/16	Default	No
buck_prd_vpc	Buckeye	Production	vpc-f57ad19c	available	172.33.0.0/16	Default	No
dodd_prd_vpc	DODD	Production	vpc-52baf53b	available	172.38.0.0/16	Default	No
ohc_prd_vpc	OHC	Production	vpc-aa1c9ec3	available	172.34.0.0/16	Default	No
sep_prd_vpc	SEP	Production	vpc-d951ceb0	available	172.35.0.0/16	Default	No
cs_prd_vpc	CareStar	Production	vpc-6ecef607	available	172.40.0.0/16	Default	No

Select a VPC above

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VPC Dashboard Filter by VPC: Select a VPC

Virtual Private Cloud Your VPCs Subnets Route Tables Internet Gateways Egress Only Internet Gateways DHCP Options Sets Elastic IPs Endpoints Endpoint Services NAT Gateways Peering Connections Security Network ACLs Security Groups VPN Connections

Subnets | VPC Management 

Secure | https://us-east-2.console.aws.amazon.com/vpc/home

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VPC Dashboard

Filter by VPC:

vpc-aa1c9ec3
ohc_prd_vpc

Virtual Private Cloud

Your VPCs

Subnets Subnets

Route Tables
Internet Gateways
Egress Only Internet Gateways
DHCP Options Sets
Elastic IPs
Endpoints
Endpoint Services
NAT Gateways
Peering Connections

Security

Network ACLs
Security Groups

Create Subnet **Subnet Actions**

Search Subnets and their proj X « « 1 to 7 of 7 Subnets » »

<input type="checkbox"/>	Name	IPv4 CIDR	Available IPv4 Addresses	Availability Zone	Default Subnet	Auto-assign Public IP
<input type="checkbox"/>	Load Balancers	172.34.0.0/20	4090	us-east-2a	No	No
<input type="checkbox"/>	Load Balancers	172.34.16.0/20	4090	us-east-2b	No	No
<input type="checkbox"/>	Web Servers	172.34.32.0/20	4087	us-east-2a	No	No
<input type="checkbox"/>	Web Servers	172.34.48.0/20	4086	us-east-2b	No	No
<input type="checkbox"/>	Databases	172.34.64.0/20	4090	us-east-2a	No	No
<input type="checkbox"/>	Databases	172.34.80.0/20	4090	us-east-2b	No	No
<input type="checkbox"/>	Migration	172.34.96.0/20	4090	us-east-2a	No	No

Select a subnet above

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OHC-Production - Configuration Kristopher

Secure | https://us-east-2.console.aws.amazon.com/elasticbeanstalk/home

aws Services Resource Groups Buckeye Billing Buckeye-Billing-Production Buckeye-Production Demo-Production OHC-Production Create New Application

All Applications > OHC-Production > OHC-Production (Environment ID: e-bapg264xj5, URL: ohc-prd.us-east-2.elasticbeanstalk.com) Actions

Dashboard Configuration Logs Health Monitoring Alarms Managed Updates Events Tags

Modify capacity

Auto Scaling Group

Configure the compute capacity of your environment and Auto Scaling settings to optimize the number of instances used.

Environment type: Load balanced

Instances: Min 2 Max 10

Availability Zones: Any

Number of Availability Zones (AZs) to use.

Placement: us-east-2a
us-east-2b
us-east-2c

Specify Availability Zones (AZs) to use.

Scaling cooldown: 360 seconds

Scaling triggers

Metric: NetworkOut

This screenshot shows the 'Modify capacity' section of the AWS Elastic Beanstalk console. On the left, there's a sidebar with links like Dashboard, Configuration (which is selected), Logs, Health, Monitoring, Alarms, Managed Updates, Events, and Tags. The main area is titled 'Modify capacity' and contains a 'Auto Scaling Group' configuration section. It includes dropdowns for 'Environment type' (set to 'Load balanced'), 'Instances' (Min: 2, Max: 10), 'Availability Zones' (set to 'Any'), and a 'Placement' dropdown containing 'us-east-2a', 'us-east-2b', and 'us-east-2c'. Below these are fields for 'Scaling cooldown' (set to 360 seconds) and 'Scaling triggers' (Metric: NetworkOut). At the top, there are tabs for different environments: Buckeye, Buckeye-Billing, Buckeye-Billing-Production, Buckeye-Production, Demo-Production, OHC-Production, and a 'Create New Application' button. The browser address bar shows a secure connection to the AWS console.

Lessons Learned & Next Steps

Lessons Learned & Next Steps

- Separate general infrastructure
- Use Elastic Beanstalk for rapid prototyping and initial development, then use Cloud Formation for long-term implementation and Production use-cases
- Take advantage of AWS tools to minimize spend on non-critical portions of system

Trusted Advisor Management C X Kristopher

Secure | https://console.aws.amazon.com/trustedadvisor/home

aws Services Resource Groups D E F G H I J K L M N O P Q R S Global Support

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Dashboard

Cost Optimization Performance Security Fault Tolerance Service Limits Preferences

Trusted Advisor Dashboard

Cost Optimization Performance Security Fault Tolerance Service Limits

	Cost Optimization	Performance	Security	Fault Tolerance	Service Limits
5 ✓ 4 ▲	10 ✓ 0 ▲	11 ✓ 5 ▲	8 ✓ 8 ▲	39 ✓ 0 ▲	
0 !	0 !	1 !	1 !	0 !	
\$7,341.03					
Potential monthly savings					

Recent Changes

None of your checks have changed status in the last 30 days. Read more about this feature in the [Trusted Advisor FAQs](#).

What's New

Checks: Ten new service limit checks, plus Aurora DB availability, EC2 Windows configuration
Features: Automated actions and custom notifications with CloudWatch Events
Checks: Three new checks for AWS Direct Connect
Features: Filter check results based on resource tags

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Trusted Advisor Management X

Secure | https://console.aws.amazon.com/trustedadvisor/home

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aws Services Resource Groups Global Support

Dashboard Cost Optimization Performance Security Fault Tolerance Service Limits Preferences

Cost Optimization

5 ✓ 4 ⚠ 0 ! \$7,437.61 Potential monthly savings

Filter by tag Tag Key Tag Value Apply filter Reset View All checks

Cost Optimization Checks

▶ **Amazon EC2 Reserved Instances Optimization** Refreshed: a minute ago  

Checks your Amazon Elastic Compute Cloud (Amazon EC2) computing consumption history and calculates an optimal number of Partial Upfront Reserved Instances.

Monthly savings of up to \$528.51 (21.5%) might be available with optimal Reserved Instance use.

▶ **Amazon RDS Idle DB Instances** Refreshed: a minute ago  

Checks the configuration of your Amazon Relational Database Service (Amazon RDS) for any DB instances that appear to be idle.

22 of 37 DB instances appear to be Idle. Monthly savings of up to \$3,870.00 are available by minimizing idle DB Instances. 1 items have been excluded.

▶ **Idle Load Balancers** Refreshed: a minute ago  

Checks your Elastic Load Balancing configuration for load balancers that are not actively used.

3 of 22 load balancers appear to be idle. Monthly savings of up to \$54.00 are available by minimizing unused load balancers.

▶ **Low Utilization Amazon EC2 Instances** Refreshed: a minute ago  

Trusted Advisor Management X

Secure | https://console.aws.amazon.com/trustedadvisor/home

Kristopher

aws Services Resource Groups D G B F H K ?

khatcher Global Support

Dashboard Cost Optimization Performance Security **Fault Tolerance** Service Limits Preferences

Fault Tolerance

8 ✓ 8 ▲ 1 !

Filter by tag Tag Key Tag Value Apply filter Reset View All checks

Fault Tolerance Checks

► ! Amazon EBS Snapshots Refreshed: a minute ago  

Checks the age of the snapshots for your Amazon Elastic Block Store (Amazon EBS) volumes (available or in-use).
66 of 70 volumes do not have a recent snapshot.

► ! Amazon EC2 Availability Zone Balance Refreshed: a minute ago  

Checks the distribution of Amazon Elastic Compute Cloud (Amazon EC2) instances across Availability Zones in a region.
1 regions have an imbalanced instance distribution across Availability Zones. 1 items have been excluded.

► ! Amazon RDS Multi-AZ Refreshed: a minute ago  

Checks for DB instances that are deployed in a single Availability Zone.
15 of 36 DB instances are not Multi-AZ enabled. 11 items have been excluded.

► ! Amazon S3 Bucket Logging Refreshed: 2 minutes ago  

Checks the logging configuration of Amazon Simple Storage Service (Amazon S3) buckets.

Thank you!

speakerdeck.com/krishatcher/climbing-the-elastic-beanstalk
linkedin.com/in/krishatcher/