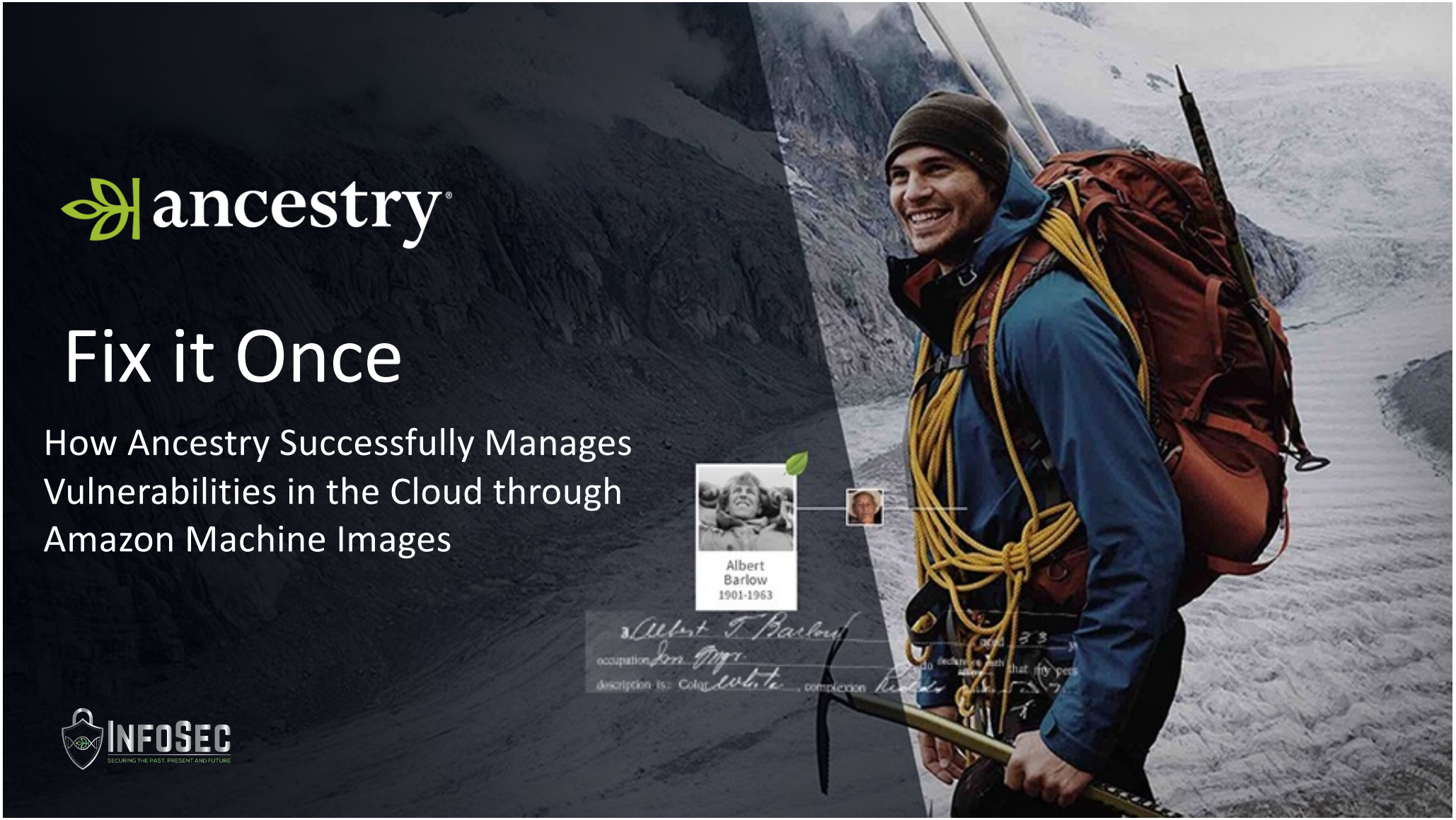
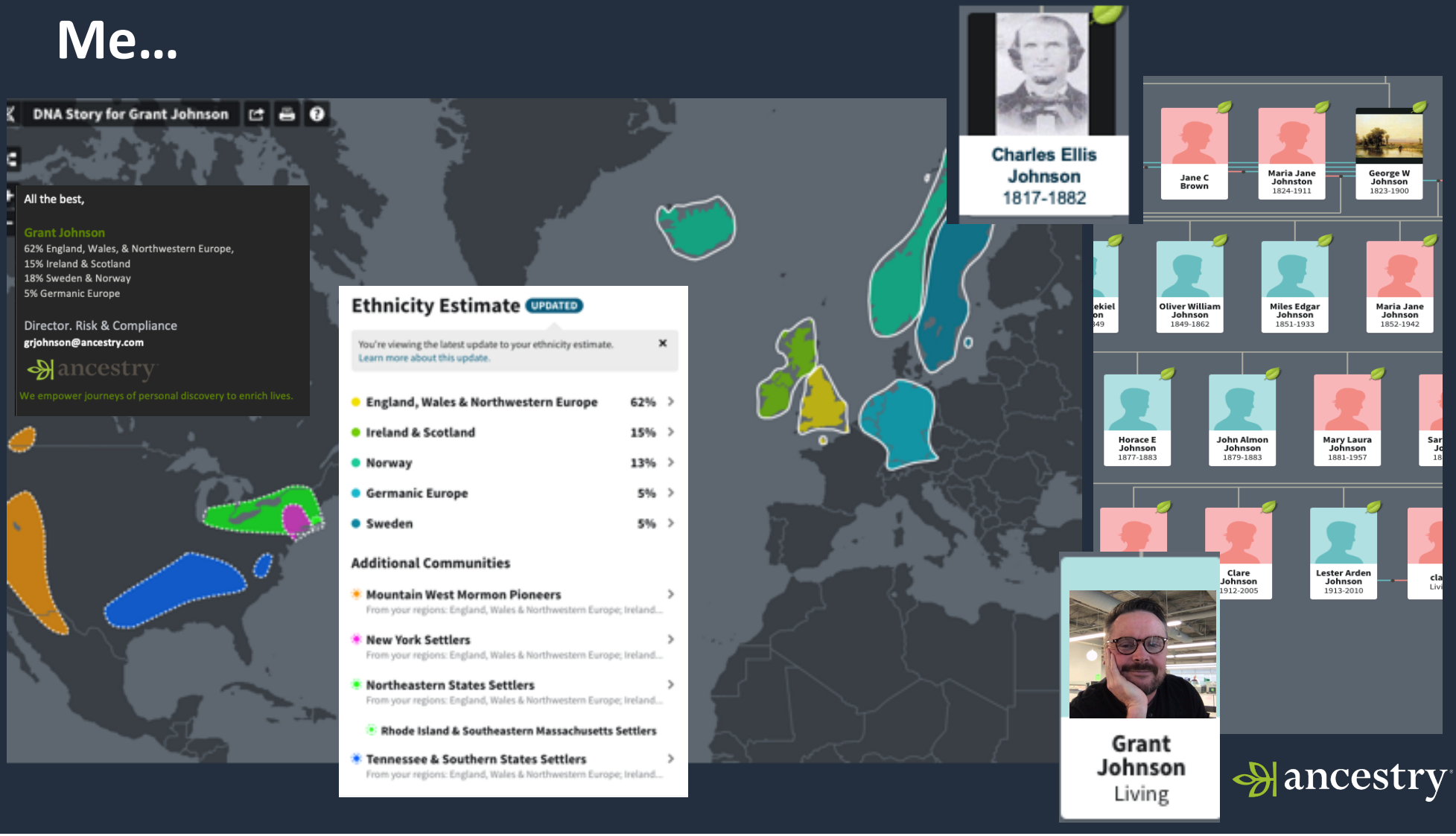

ancestry
Fix it Once
How Ancestry Successfully Manages Vulnerabilities in the Cloud through Amazon Machine Images
Albert
Barlow
1901-1963
INFOSEC
SECURING THE PAST, PRESENT AND FUTURE

Me…


DNA Story for Grant Johnson
All the best,
Grant Johnson
62% England, Wales, & Northwestern Europe,
15% Ireland & Scotland
18% Sweden & Norway
5% Germanic Europe
Director. Risk & Compliance
grjohnson@ancestry.com
ancestry
We empower journeys of personal discovery to enrich lives.
Ethnicity Estimate
UPDATED
You're viewing the latest update to your ethnicity estimate.
Learn more about this update.
England, Wales & Northwestern Europe 62%
Ireland & Scotland 15%
Norway 13%
Germanic Europe 5%
Sweden 5%
Additional Communities
Mountain West Mormon Pioneers
From your regions: England, Wales & Northwestern Europe; Ireland...
New York Settlers
From your regions: England, Wales & Northwestern Europe; Ireland...
Northeastern States Settlers
From your regions: England, Wales & Northwestern Europe; Ireland...
Rhode Island & Southeastern Massachusetts Settlers
Tennessee & Southern States Settlers
From your regions: England, Wales & Northwestern Europe; Ireland...
Charles Ellis Johnson
1817-1882
Jane C Brown
Maria Jane Johnston
1824-1911
George W Johnson
1823-1900
Oliver William Johnson
1849-1862
Miles Edgar Johnson
1851-1933
Maria Jane Johnson
1852-1942
Horace E Johnson
1877-1883
John Almon Johnson
1879-1883
Mary Laura Johnson
1881-1957
Clare Johnson
1912-2005
Lester Arden Johnson
1913-2010
Grant Johnson
Living
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About us

We’re a science and technology company with a very human mission

- World’s largest online collection of family history records - billions & billions
- 3+ million wonderful subscribers
- 100 million family trees
- 10 web properties
- 3 petabytes of data under management

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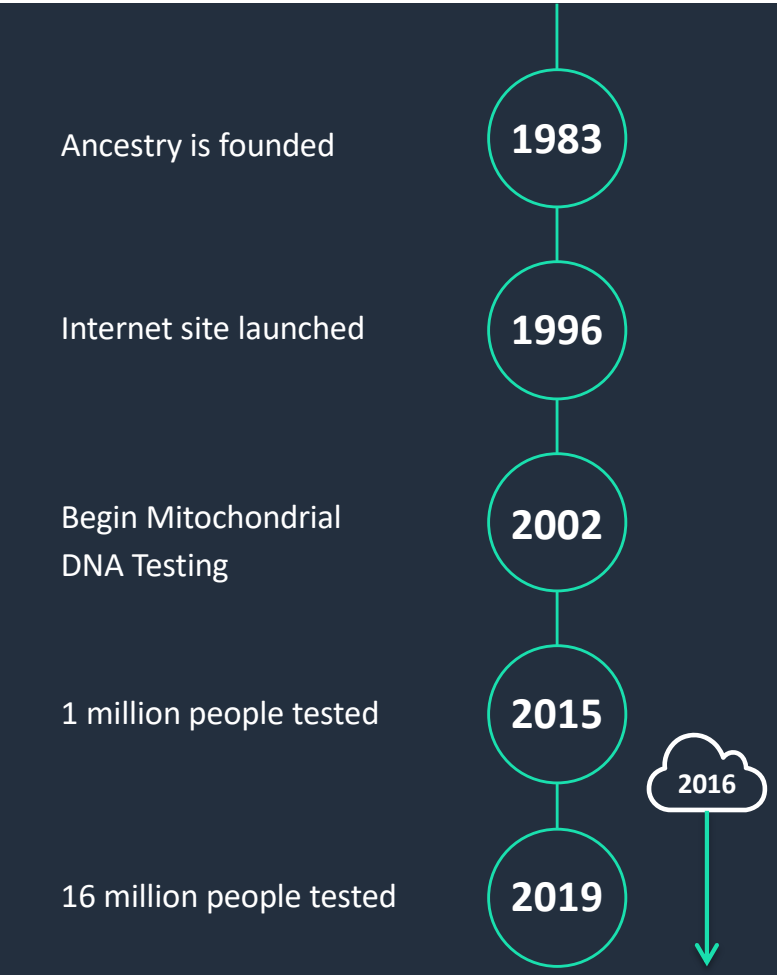
About us

- DNA kits available in 30+ countries
- 700K genomic markers
- 350 global regions
- Largest DNA repository in the world



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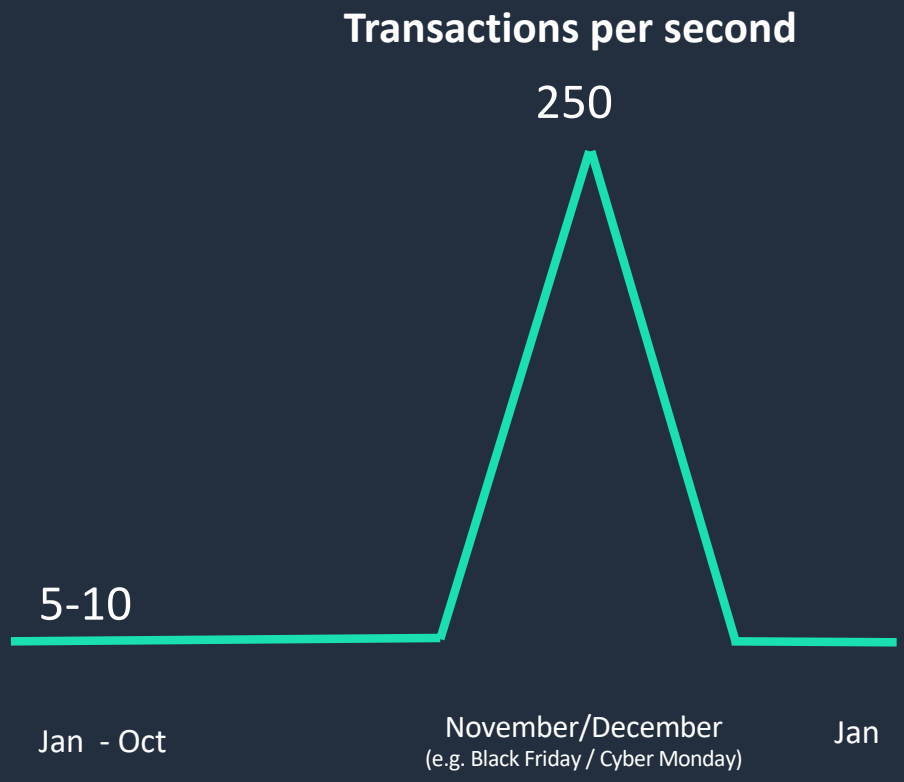
Challenges

Background: Why the Cloud?

- Growth
- Rapid cycle expansion
  - Fast moving, traffic & business cycles
- Resiliency & uptime
  - Multiple global regions
  - Multiple Availability Zones



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Tactical Approach to the Cloud

Each stack had to be imaged & rapidly deployable

- Needed to realized resiliency goals – ***Can't just lift-and-shift***
- Make use of cloud elasticity and containerization
- More Standardized toolset….

We use and mandate AWS Tags

- Every system needed a NAMED owner or was shutdown

Removed Access

- Separate AWS accounts for Development, Smoke, Production, SOX, and PCI
- Absolutely NO Dev Production Access Results: Huge P1 Incidents!
- **IF it is awake, it is subject to scanning**
- **Approved Images (AMI) with Authentication Keys**

Challenges

Each stack had to be imaged & rapidly deployable

- Needed to realize resiliency goals – Can't just lift-and-shift
- Make use of cloud elasticity and containerization
- More standardized toolset

Here is what we did…

- Separate AWS accounts for Development, Smoke, Production, SOX, and PCI
- Absolutely NO Stage or Production access

  Spoiler alert: Huge ↓ P1 incidents!
- IF it is awake, it is subject to scanning
- Approved Images (AMI) with Authentication Keys
- Every system needed a NAMED owner or was shutdown (Qualys to find unnamed servers)

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Solution

Approved Images – AMI's

Ancestry required a new way of thinking about servers

Servers are cattle

Not pets

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Solution

Don’t push patches…patch the AMI

Shut down the old one

Spin up the new one with the new AMI

NO cows were harmed in our AWS migration!

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Why Ancestry chooses AWS and Qualys

Why AWS?

- System resiliency
- Rapid elastic expansion
- Supported our rapid growth

Why Qualys?

- Proven ability to work well with AWS – expanded with our needs
- Virtually maintenance free, once we set up
- The data was accurate – no false positives

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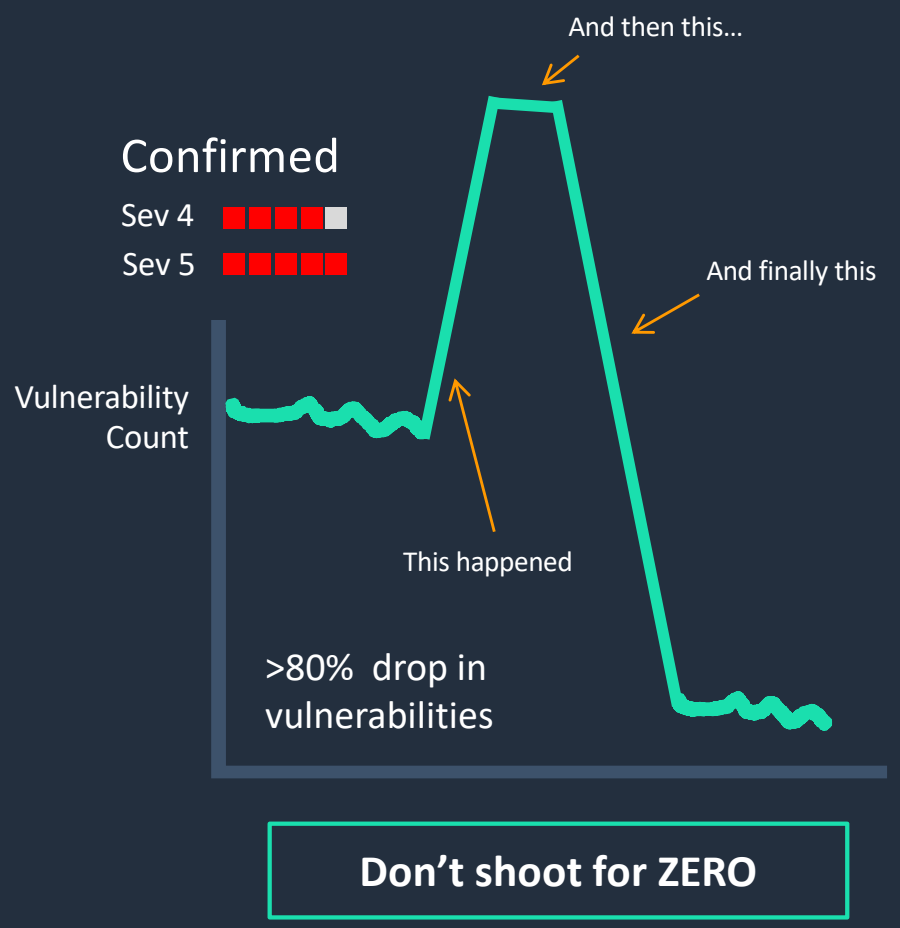
Challenges

Lessons learned

- Don’t get fixated on the count of vulnerabilities
- Buy-in at executive level
- Think operationally – not exceptionally
- KEEP CALM and STICK to the process … it takes time to work
- Communication and visibility



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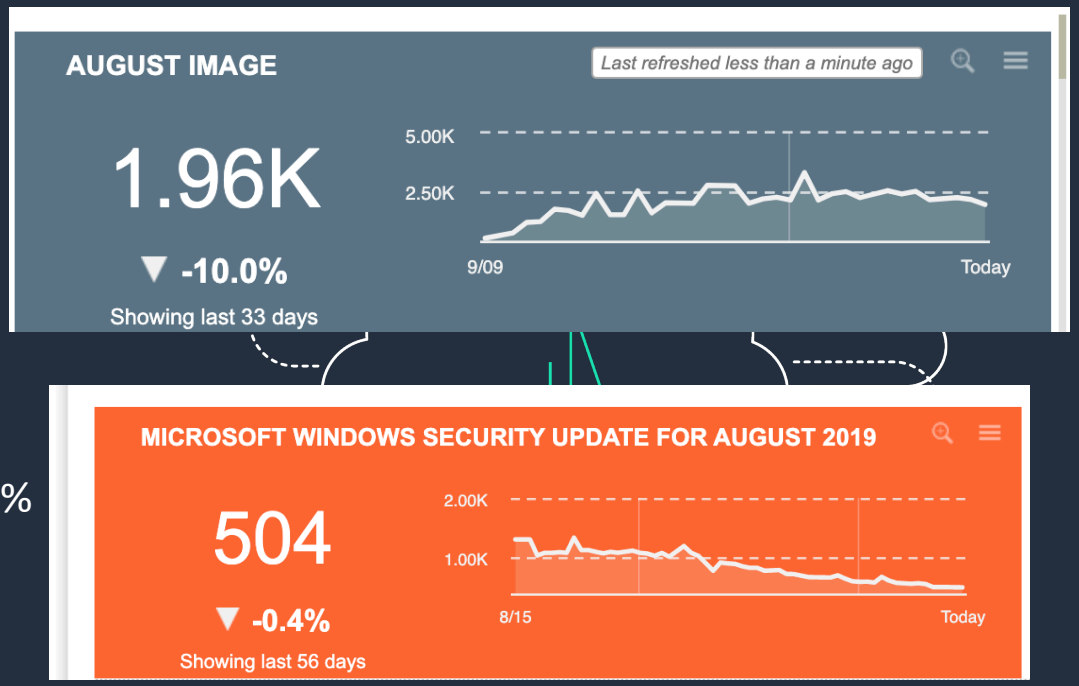
Benefits are awesome

- My ask of Development:
  Do one thing. Update the image.
- Forced us to have a more homogeneous platform and process
- Synced security with business goals
- Process seems to be sustainable!
- 76%+ NIX scan are fully authenticated – 99% Windows
- Works for some applications as well



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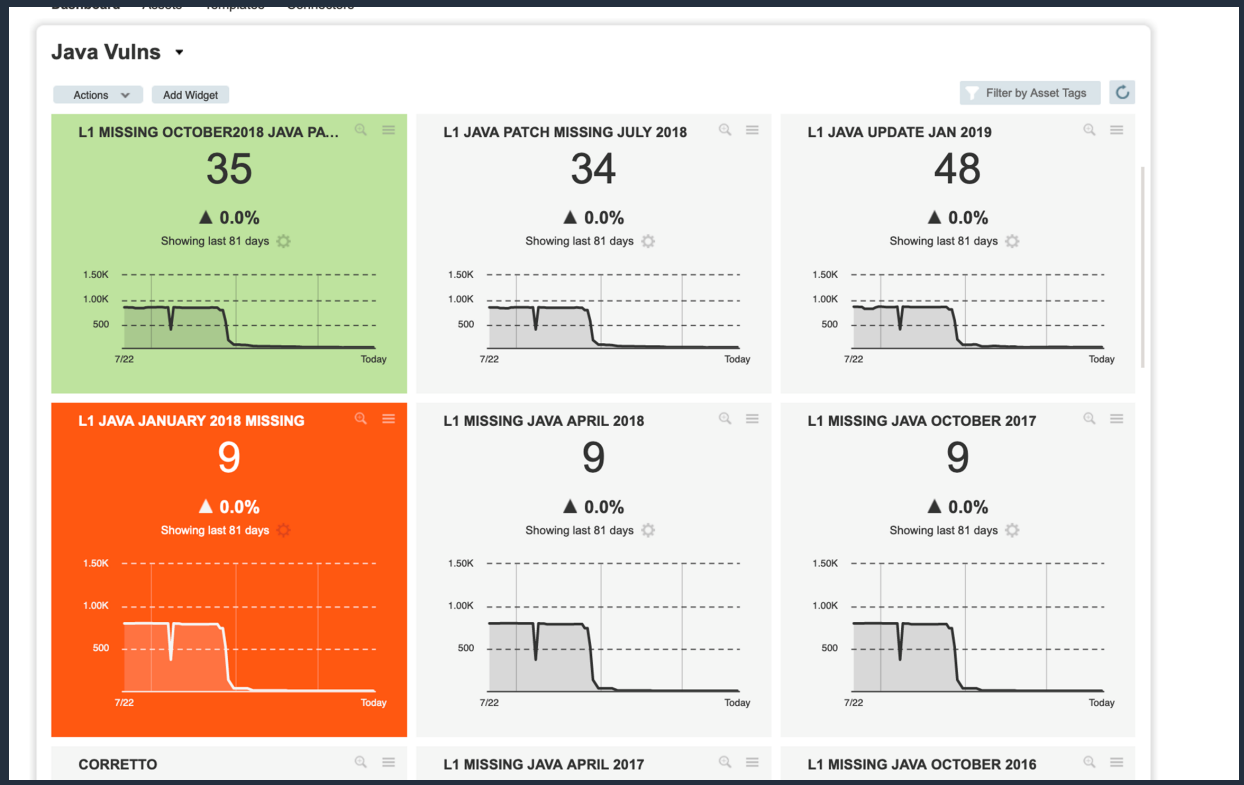
Benefits are awesome

- Works at the application layer as well



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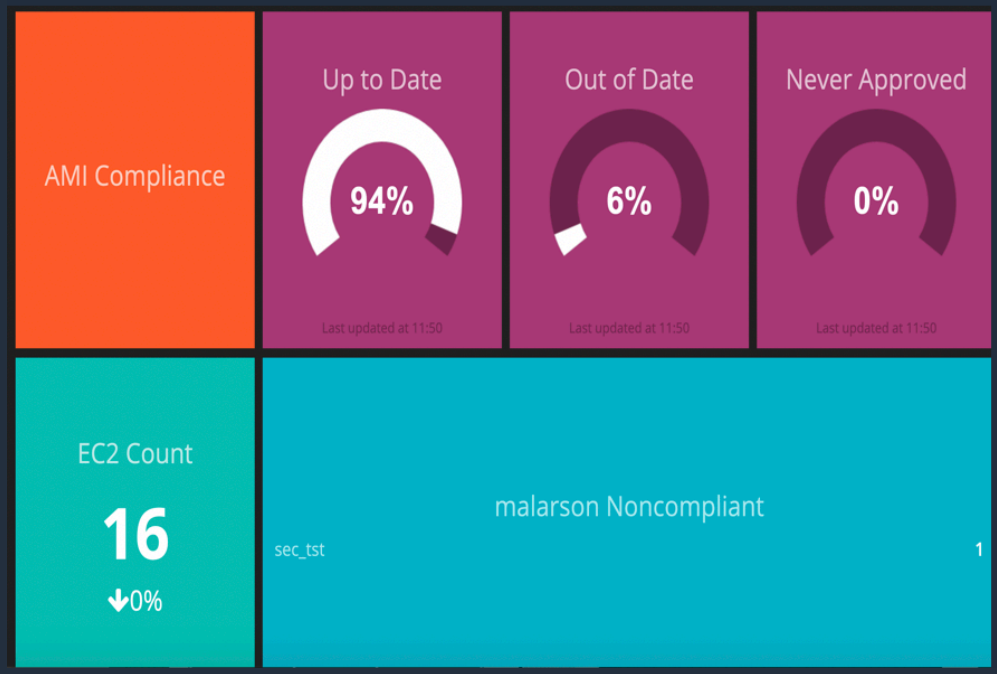
Dashboards

Key Metrics

- Use of approved image
- Confirmed 4s & 5s Ageing*
- Number of Vulns Fixed
- Scan coverage - Target 95%
- Authentication Percentage – Target 95%
- Vulnerabilities not fixed by Image



* Aged based on vulnerability release date – pending…

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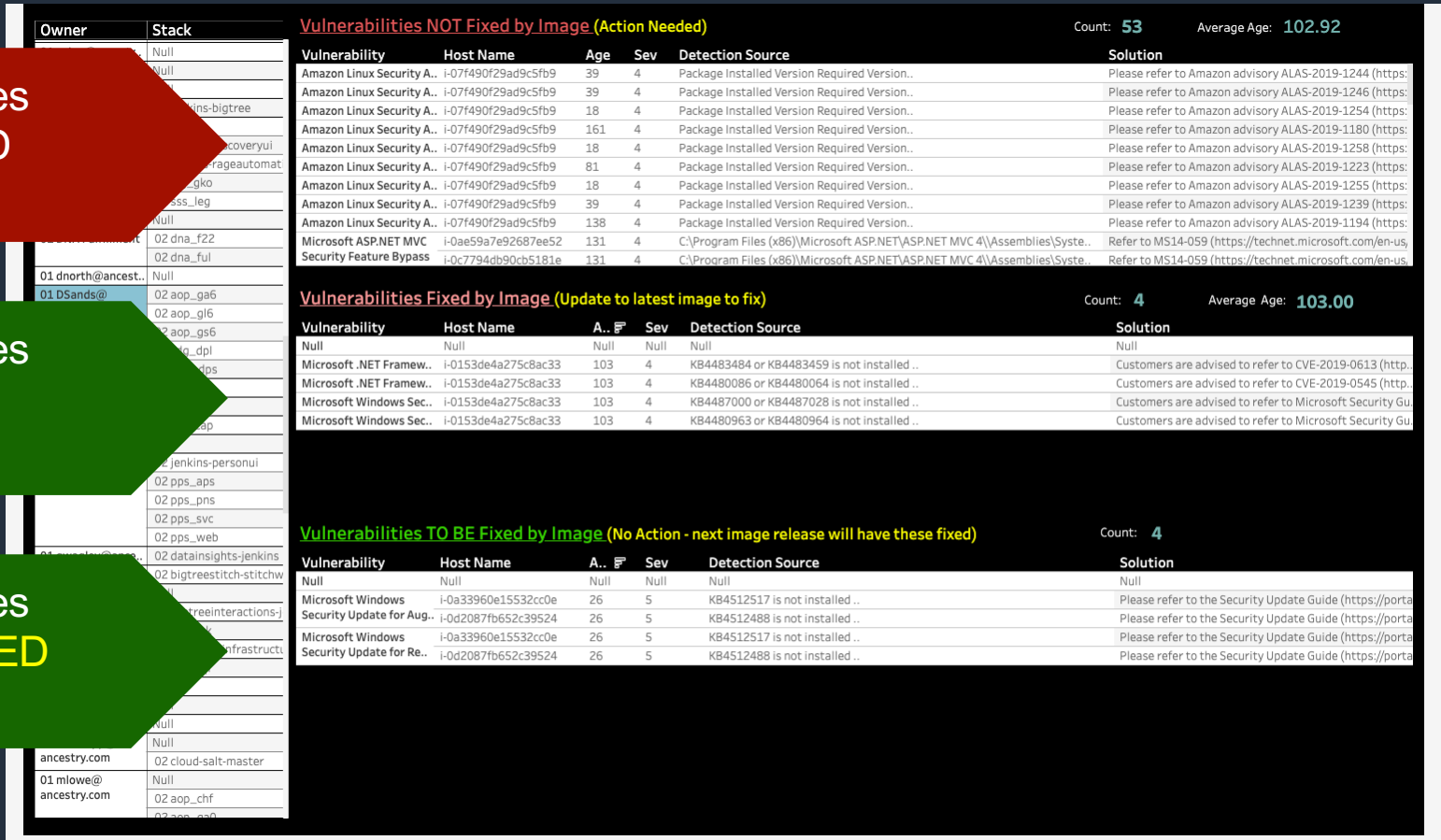
Dashboards

Vulnerabilities
NOT FIXED
By Image

Vulnerabilities
FIXED
By Image

Vulnerabilities
WILL BE FIXED
By Image



Owner	Stack
	Null
	Null
	ins-bigtree
	coveryui
	rageautomat
	gko
	ss_leg
	Null
	02 dna_f22
	02 dna_ful
01 dnorth@ancest..	Null
01 DSands@	02 aop_ga6
	02 aop_gl6
	2 aop_gs6
	g_dpl
	dps
	ap
	2 jenkins-personui
	02 pps_aps
	02 pps_pns
	02 pps_svc
	02 pps_web
	02 datainsights-jenkins
	02 bigtreestitch-stitchw
	treeinteractions-j
	nfrastructu
	Null
	Null
ancestry.com	02 cloud-salt-master
01 mlowe@ ancestry.com	Null
	02 aop_chf

Vulnerabilities NOT Fixed by Image (Action Needed) Count: 53 Average Age: 102.92

Vulnerability	Host Name	Age	Sev	Detection Source	Solution
Amazon Linux Security A..	i-07f490f29ad9c5fb9	39	4	Package Installed Version Required Version..	Please refer to Amazon advisory ALAS-2019-1244 (https:
Amazon Linux Security A..	i-07f490f29ad9c5fb9	39	4	Package Installed Version Required Version..	Please refer to Amazon advisory ALAS-2019-1246 (https:
Amazon Linux Security A..	i-07f490f29ad9c5fb9	18	4	Package Installed Version Required Version..	Please refer to Amazon advisory ALAS-2019-1254 (https:
Amazon Linux Security A..	i-07f490f29ad9c5fb9	161	4	Package Installed Version Required Version..	Please refer to Amazon advisory ALAS-2019-1180 (https:
Amazon Linux Security A..	i-07f490f29ad9c5fb9	18	4	Package Installed Version Required Version..	Please refer to Amazon advisory ALAS-2019-1258 (https:
Amazon Linux Security A..	i-07f490f29ad9c5fb9	81	4	Package Installed Version Required Version..	Please refer to Amazon advisory ALAS-2019-1223 (https:
Amazon Linux Security A..	i-07f490f29ad9c5fb9	18	4	Package Installed Version Required Version..	Please refer to Amazon advisory ALAS-2019-1255 (https:
Amazon Linux Security A..	i-07f490f29ad9c5fb9	39	4	Package Installed Version Required Version..	Please refer to Amazon advisory ALAS-2019-1239 (https:
Amazon Linux Security A..	i-07f490f29ad9c5fb9	138	4	Package Installed Version Required Version..	Please refer to Amazon advisory ALAS-2019-1194 (https:
Microsoft ASP.NET MVC Security Feature Bypass	i-0ae59a7e92687ee52	131	4	C:\Program Files (x86)\Microsoft ASP.NET\ASP.NET MVC 4\\Assemblies\Syste..	Refer to MS14-059 (https://technet.microsoft.com/en-us,
	i-0c7794db90cb5181e	131	4	C:\Program Files (x86)\Microsoft ASP.NET\ASP.NET MVC 4\\Assemblies\Syste..	Refer to MS14-059 (https://technet.microsoft.com/en-us,

Vulnerabilities Fixed by Image (Update to latest image to fix) Count: 4 Average Age: 103.00

Vulnerability	Host Name	A..	Sev	Detection Source	Solution
Null	Null	Null	Null	Null	Null
Microsoft .NET Framew..	i-0153de4a275c8ac33	103	4	KB4483484 or KB4483459 is not installed ..	Customers are advised to refer to CVE-2019-0613 (http..
Microsoft .NET Framew..	i-0153de4a275c8ac33	103	4	KB4480086 or KB4480064 is not installed ..	Customers are advised to refer to CVE-2019-0545 (http..
Microsoft Windows Sec..	i-0153de4a275c8ac33	103	4	KB4487000 or KB4487028 is not installed ..	Customers are advised to refer to Microsoft Security Gu..
Microsoft Windows Sec..	i-0153de4a275c8ac33	103	4	KB4480963 or KB4480964 is not installed ..	Customers are advised to refer to Microsoft Security Gu..

Vulnerabilities TO BE Fixed by Image (No Action - next image release will have these fixed) Count: 4

Vulnerability	Host Name	A..	Sev	Detection Source	Solution
Null	Null	Null	Null	Null	Null
Microsoft Windows Security Update for Aug..	i-0a33960e15532cc0e	26	5	KB4512517 is not installed ..	Please refer to the Security Update Guide (https://porta
	i-0d2087fb652c39524	26	5	KB4512488 is not installed ..	Please refer to the Security Update Guide (https://porta
Microsoft Windows Security Update for Re..	i-0a33960e15532cc0e	26	5	KB4512517 is not installed ..	Please refer to the Security Update Guide (https://porta
	i-0d2087fb652c39524	26	5	KB4512488 is not installed ..	Please refer to the Security Update Guide (https://porta

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Q&A

Thank you!