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INTEGRATING SECURITY WITH DEVOPS TOOLCHAINS

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Speakers Introduction

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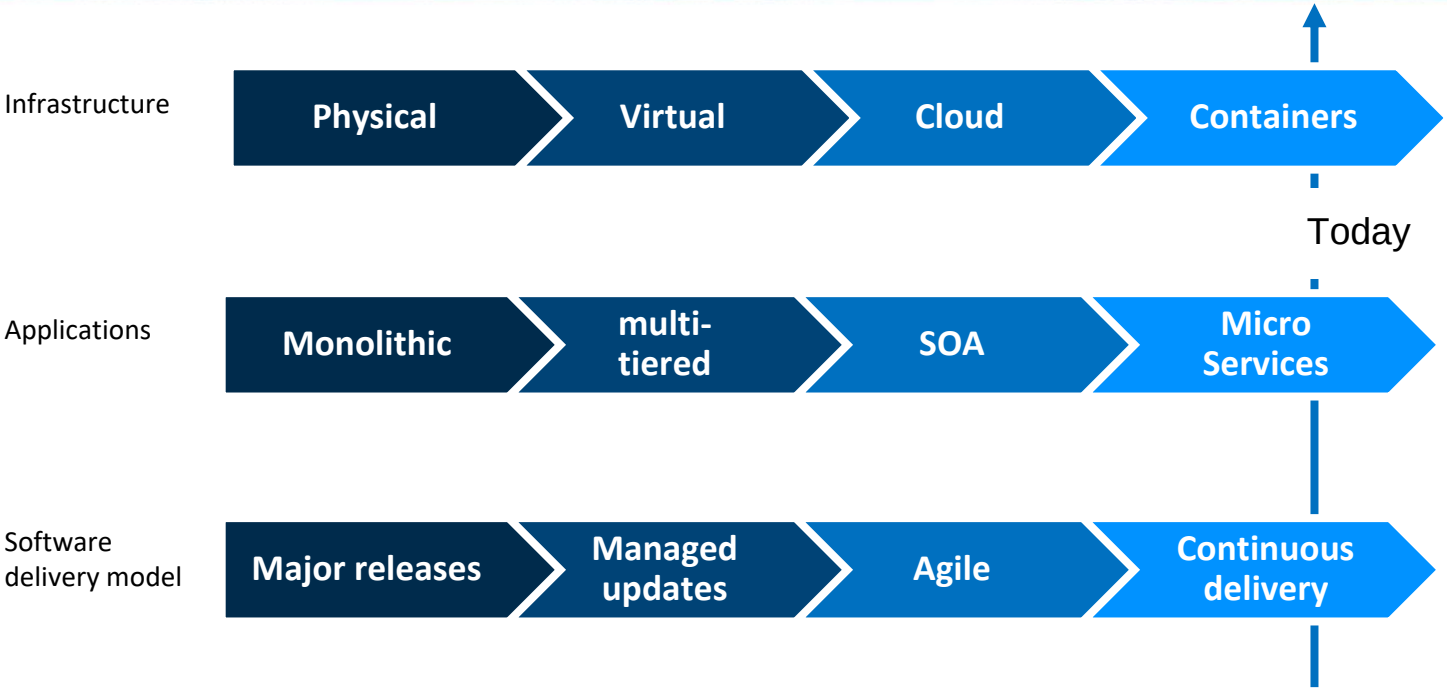
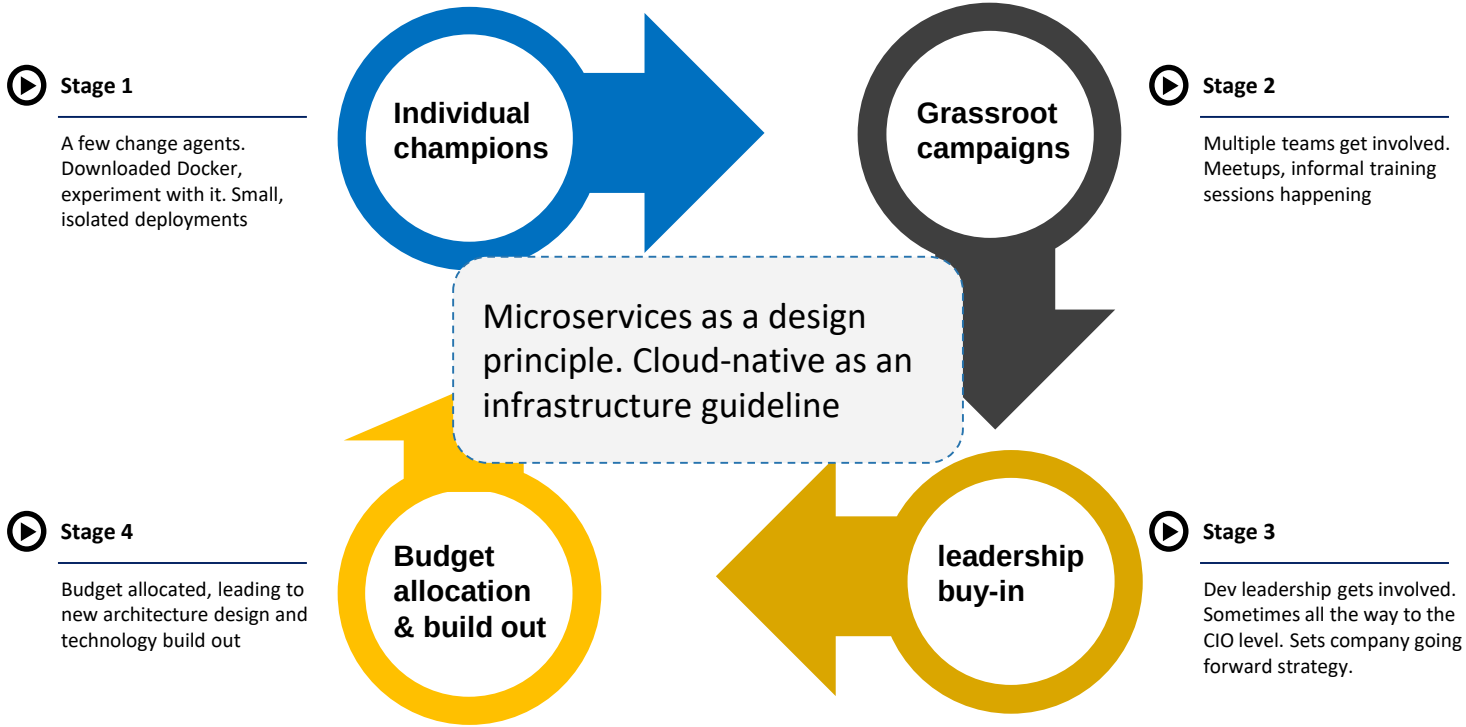
Session Outline: We Will Cover

- DevOps Movement & Security
- 3 Different Practitioner Transformation Stories: Good, Bad, and Ugly
- Recommendations
- New Techniques & Trends
- Shift back toward Product Delivery
- Applying what you learned

An Ongoing Journey In IT Transformation



How DevOps Takes Hold In A Company



Stage 1

A few change agents. Downloaded Docker, experiment with it. Small, isolated deployments

Stage 2

Multiple teams get involved. Meetups, informal training sessions happening

Stage 3

Dev leadership gets involved. Sometimes all the way to the CIO level. Sets company going forward strategy.

Stage 4

Budget allocated, leading to new architecture design and technology build out

Journeys of Three Different Companies

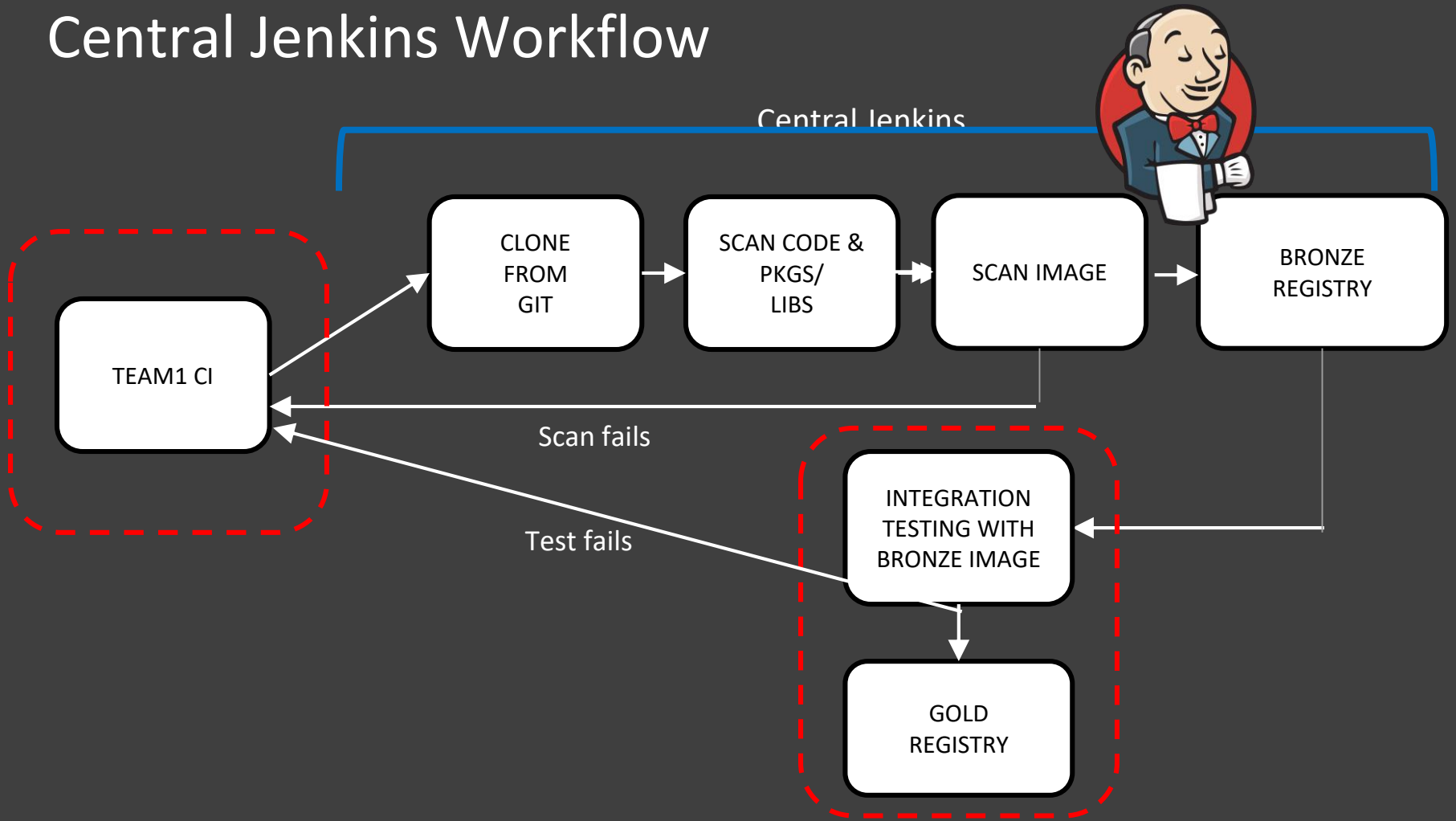
Different industries, different approaches

Cloud-based Financial Service Startup

- Environment
  - On AWS, with many APIs
  - Using micro-services and containers extensively
  - DevOps is king

- Requirements
  - Developer freedom and ease of use
  - Security vulnerability management
  - Clear traceability from container to code

Central Jenkins Workflow



Security Meets Business Demand

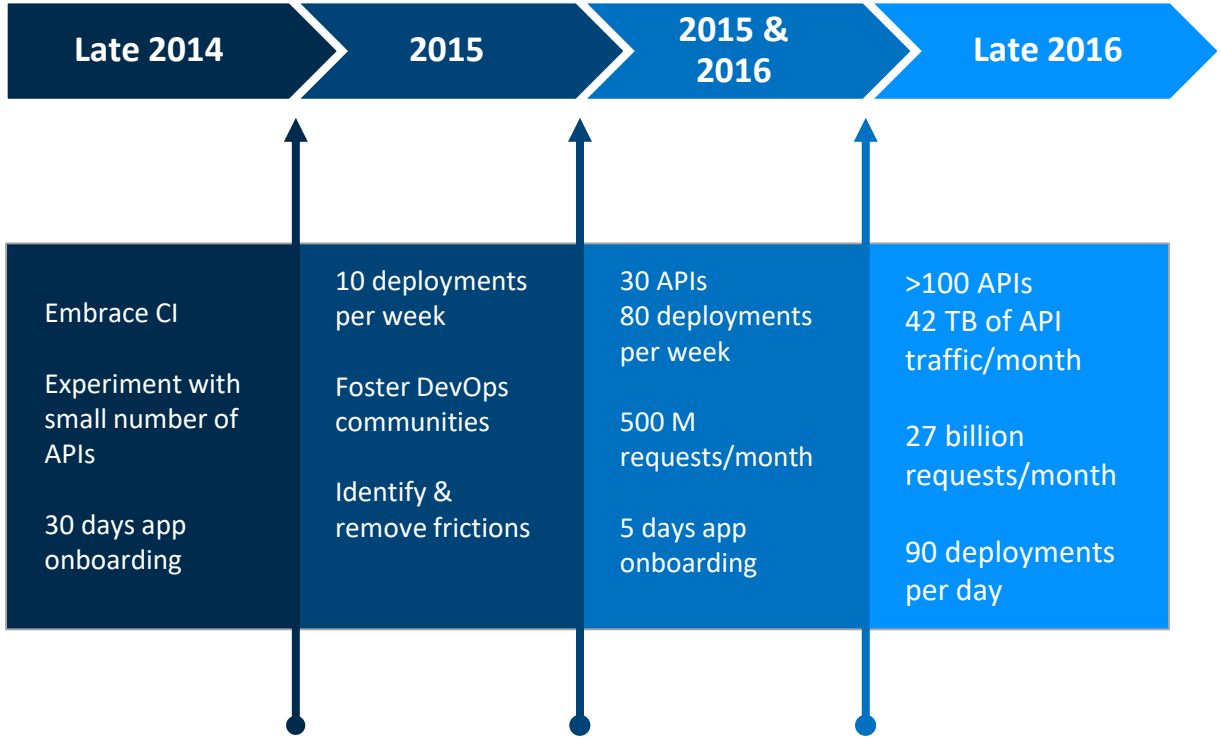
- Developer freedom and ease of use
  - Dev owns and manages their own CI
  - Central CI is automatically triggered
  - Supports multiple tech stacks
- Robust security vulnerability management
  - Central CI is on the critical path to deployment
  - Can fail build if scan fails
- Clear traceability from container to code
  - Central CI does consistent container tagging

Target - the Need to Move at Speed of Business

Target - The Need to Move At Speed of Business

- Holiday season at Target
  - 70,000 new workers
  - 170 million store transactions
- Prior to 2014
  - Nearly everything is monolithic
  - Many grass root micro-services/agile initiatives
  - Pull store location info into a new application takes 6 months
- 2014 - Target gets a new CIO
  - Corporate-wide mandate for microservices
  - Cloud first development

Target - DevOps Journey



Target - Security's Journey

Built a central security platform, focus on API-based development

- build security functions & security APIs centrally
- decentralized product APIs

A big focus on real-time security feedback loop

- Every day security operations metrics feedback to both security leads and engineering teams

Push secure-by-default: extend built-in security upstream as much as you can

Emphasized logging, telemetry, and near real-time visibility

- Process 6 TB of logs a day

UnitedHealth Group

UnitedHealth Group

"The Road from Rugged to Chaos"

- DevOps Transformation @UHG
- Building Security Tools into the Pipeline w/ Gauntlt
- Journey into Security + Chaos Engineering
- ChaoSlingr: Open Source Contribution

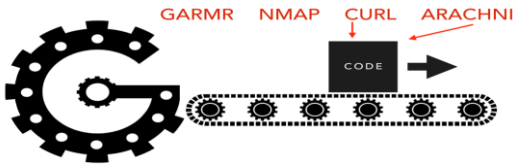
THE CHALLENGE: WE ARE LARGE & COMPLEX

- Fortune 6 Company
- 360+ Companies & Growing
- 28,000+ Developers
- 8,000+ Applications
- HIPAA, HITRUST, FISMA, MARS-E, GDPR, ICFR(++++++)
- United Nations of Technology

- Largest HealthCare Company in World
- 1000+ Security Professionals
- Multinational Business
- Some DevOps
- Waterfall, Agile, & Others
- Security Testing: Mostly Human Driven
- Cloud Journey: Mixed

“The Road from Rugged to Chaos”

Gauntlt: “Be Mean to Your Code”
Driving Security Testing into the Pipeline: Automated Vulnerability Scanning



https://github.com/gauntlt/

James Wickett

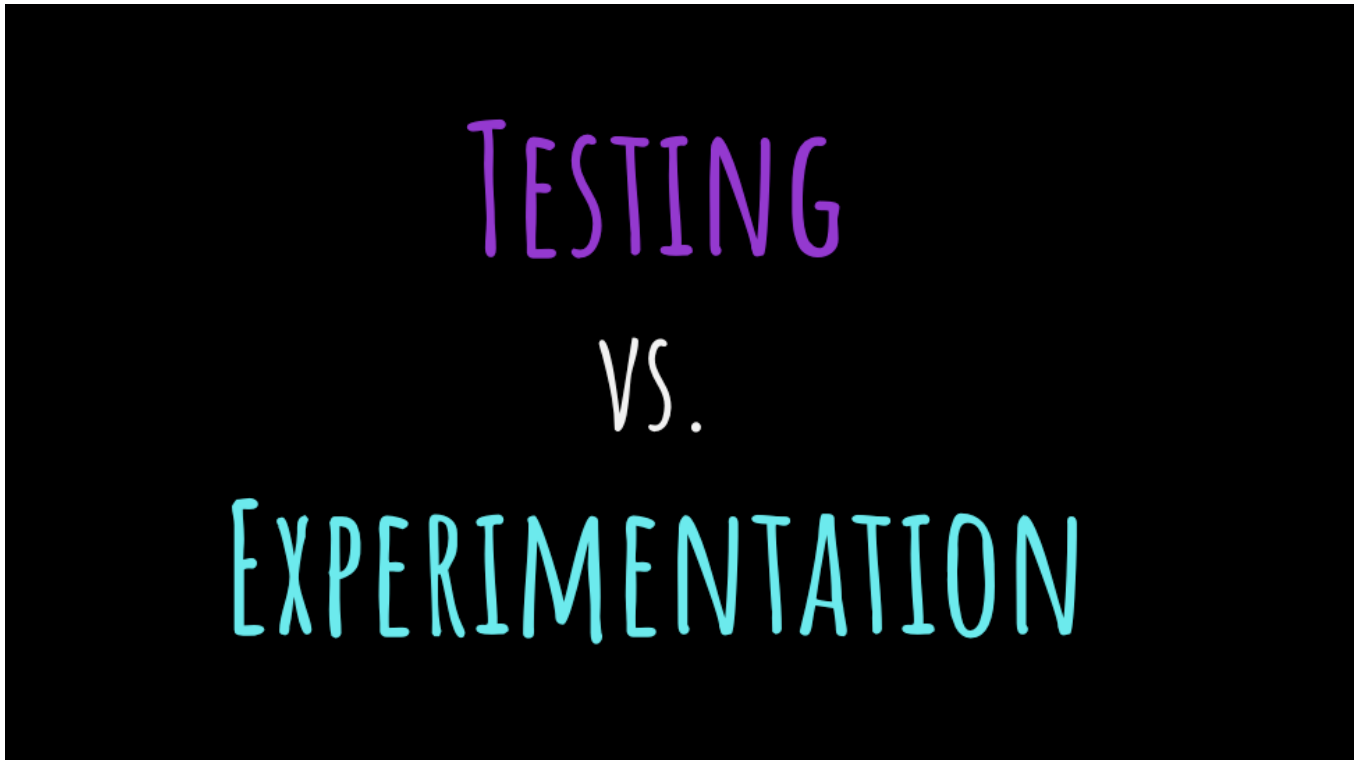
- An open source application vulnerability scanner engine that enables a self-service vulnerability resolution solution
- Automates use of multiple vulnerability security scanning tools
- Provides packages allowing developers to easily run self-service security checks against their applications
- Scans begin immediately and take only minutes to complete

“The Road from Rugged to Chaos”

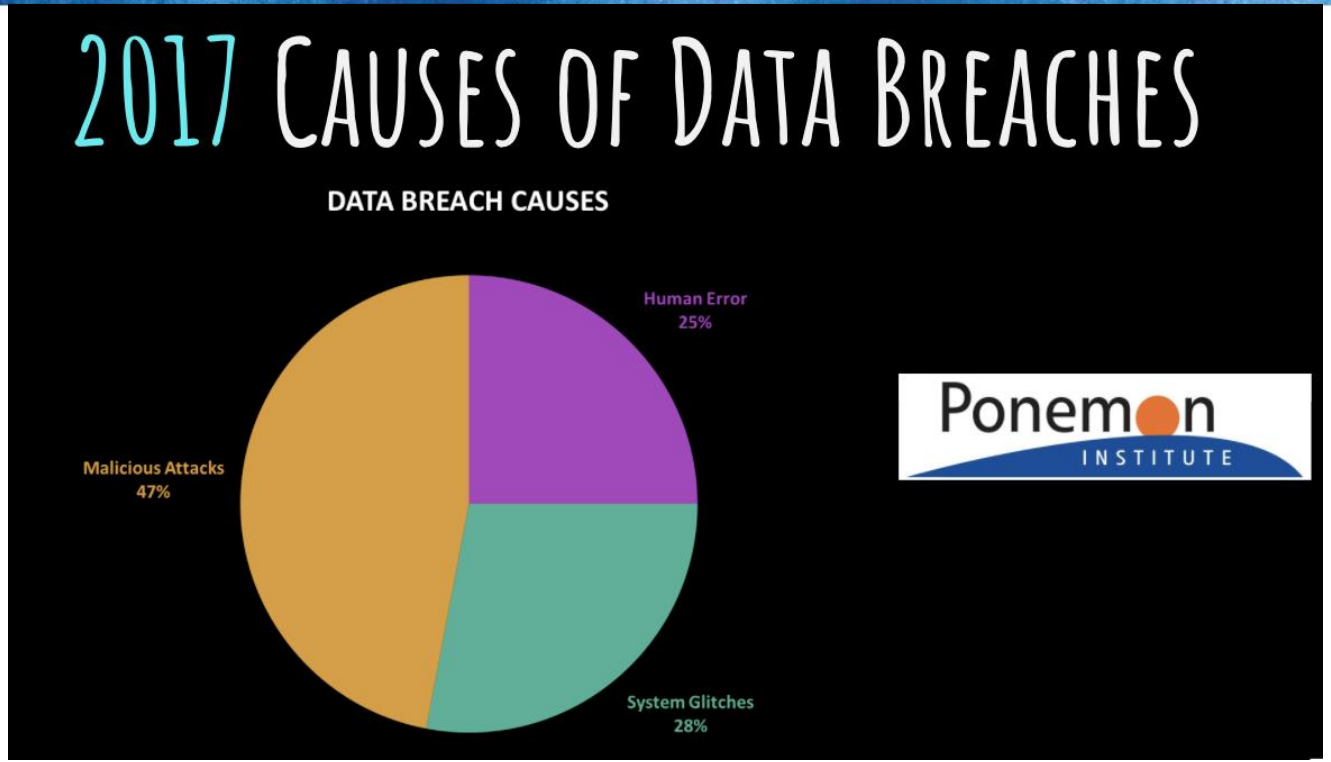
THE JANE BOND PROJECT UNITEDHEALTH GROUP®

Security + Chaos = Security Experimentation

“The Road from Rugged to Chaos”



"The Road from Rugged to Chaos"



“The Road from Rugged to Chaos”

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ChaoSlingr: First UHG Open Source Tool

ChaoSlingr

- ChatOps Integration
- Configuration-as-Code
- Example Code & Open Framework
- Serverless App in AWS
- 100% Native AWS
- Configurable Operational Mode & Frequency
- Opt-In | Opt-Out Model



Summary

DevOps is Not A Destination

- All 3 companies still transforming
- DevSecOps is a journey
- Focus on
  - Continuous Improvement
  - Real-time feedback loop
  - Driving a metrics-driven culture

Some Useful Tips

- Start small
  - One change at a time
- Expect and embrace failure
  - Fail small, fail fast
- Remove friction
  - Drive out complexity
- Avoid Analysis Paralysis
  - DevOps is a living organism

Key Takeaways & Recommendations

- DevOps is not a fad, it is the future
  - It's a culture shift, not just about technology
- Security needs to focus on
  - **Automation**
    - Identify where human adds value & automate everything else
  - **Real-time feedback loop**
    - Build real-time visibility & close-loop control
  - **Build security for Ops, not for security teams**
    - Provide insight/hooks/control for actional operations
- #JFDI

Apply What You Have Learned Today

- Next week you should:
  - Understand DevOps projects & determine opportunity for security integration
- In the first three months following this presentation you should:
  - Choose one or two projects and design a security insertion point
  - Implement one pilot assess performance,
  - Build value proposition for larger initiatives
- Within six months you should:
  - Build a DevSecOps tribe

Questions

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