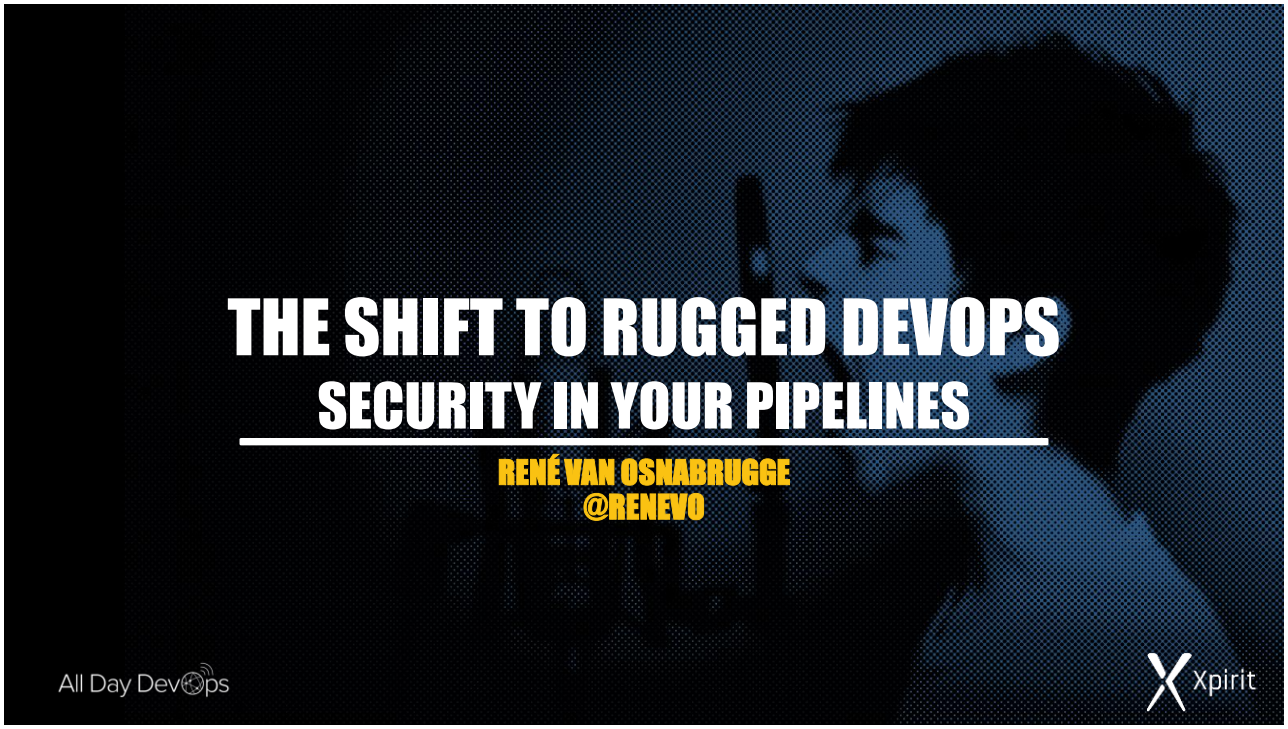
THE SHIFT TO RUGGED DEVOPS
SECURITY IN YOUR PIPELINES
RENÉ VAN OSNABRUGGE
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All Day DevOps
Xpirit


COMPLIANCY
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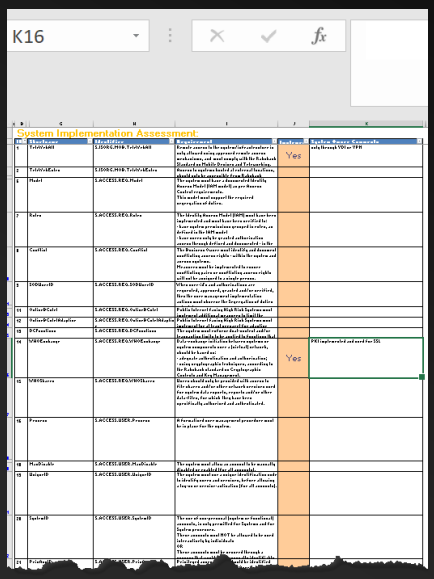
COMPLIANCY



The system must display a warning message indicating that only authorised use is permitted before allowing users to log-on (for all user accounts).

Access to information and system functions should be restricted, in accordance with the documented model.

Logged information should not contain passwords, cryptographic keys or any other confidential information in clear text

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IMPOSSIBLE TO UNDERSTAND
IMPOSSIBLE TO IMPLEMENT
IMPOSSIBLE TO VALIDATE
IMPOSSIBLE TO MAINTAIN

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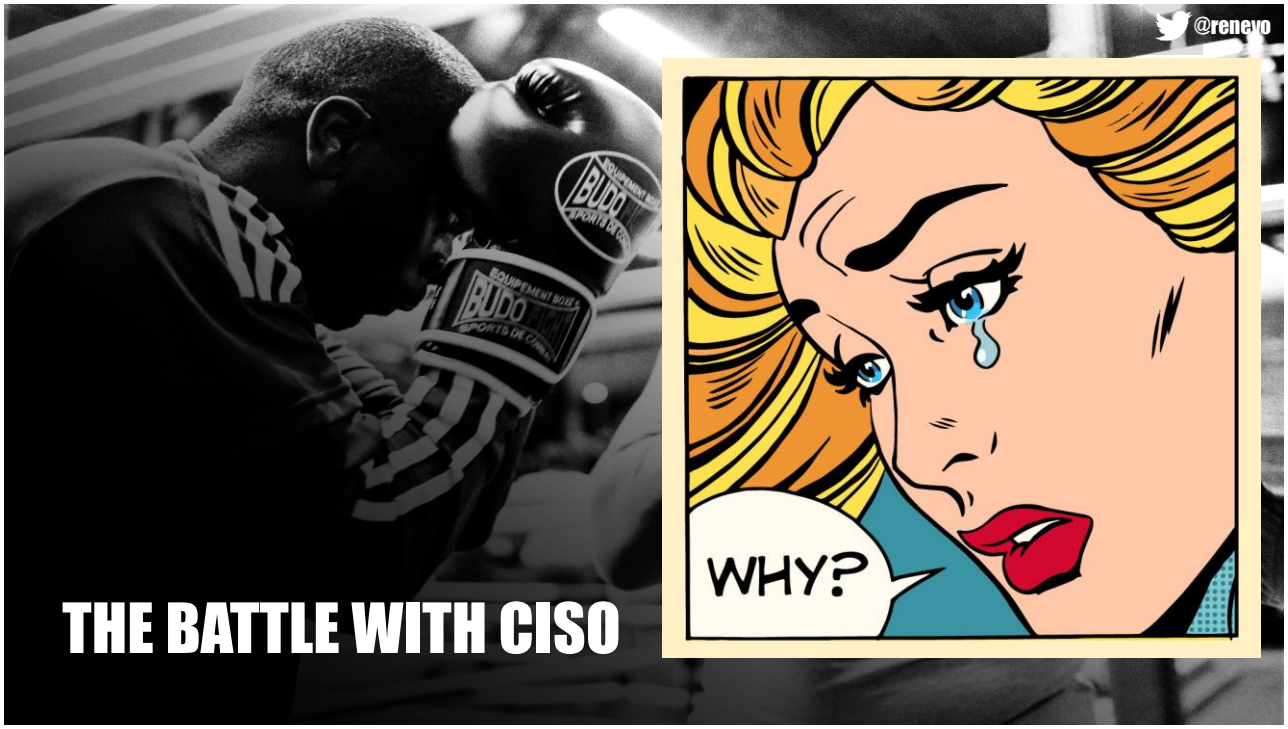
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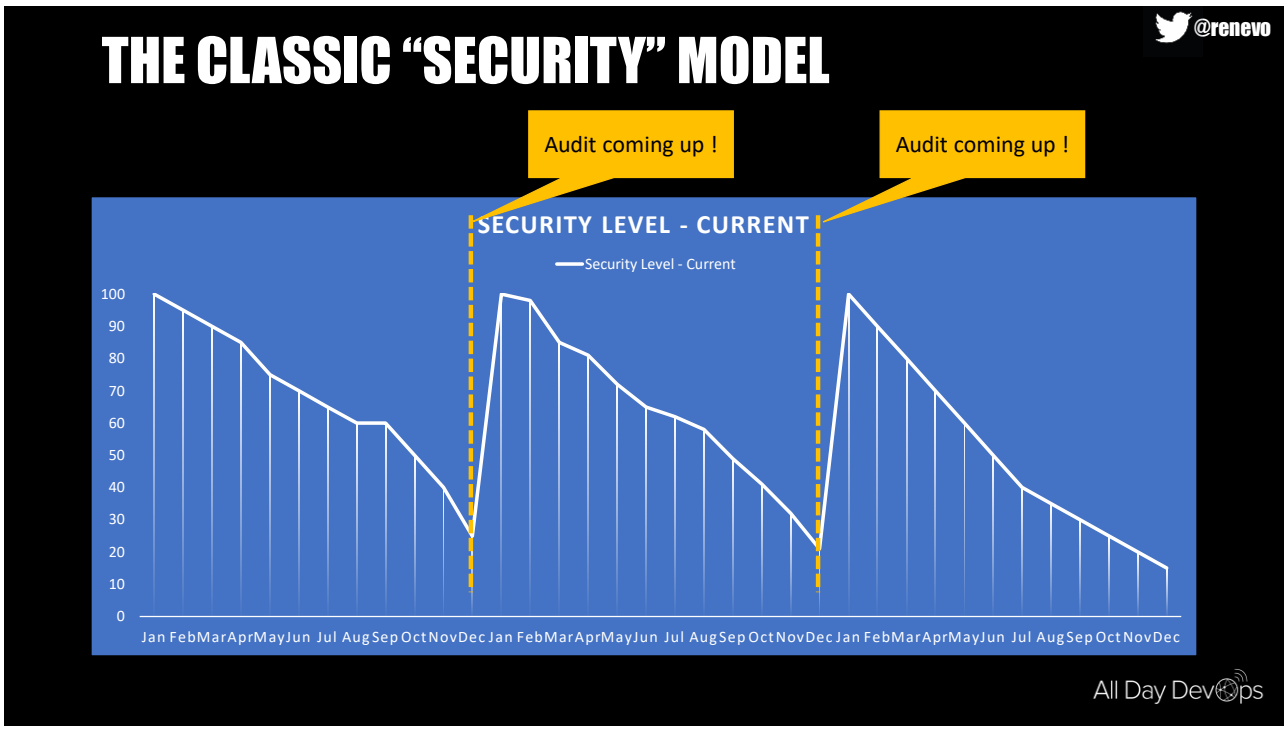
WHY?
THE BATTLE WITH CISO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THE CLASSIC "SECURITY" MODEL
Audit coming up !
Audit coming up !
SECURITY LEVEL - CURRENT
Security Level - Current
100
90
80
70
60
50
40
30
20
10
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
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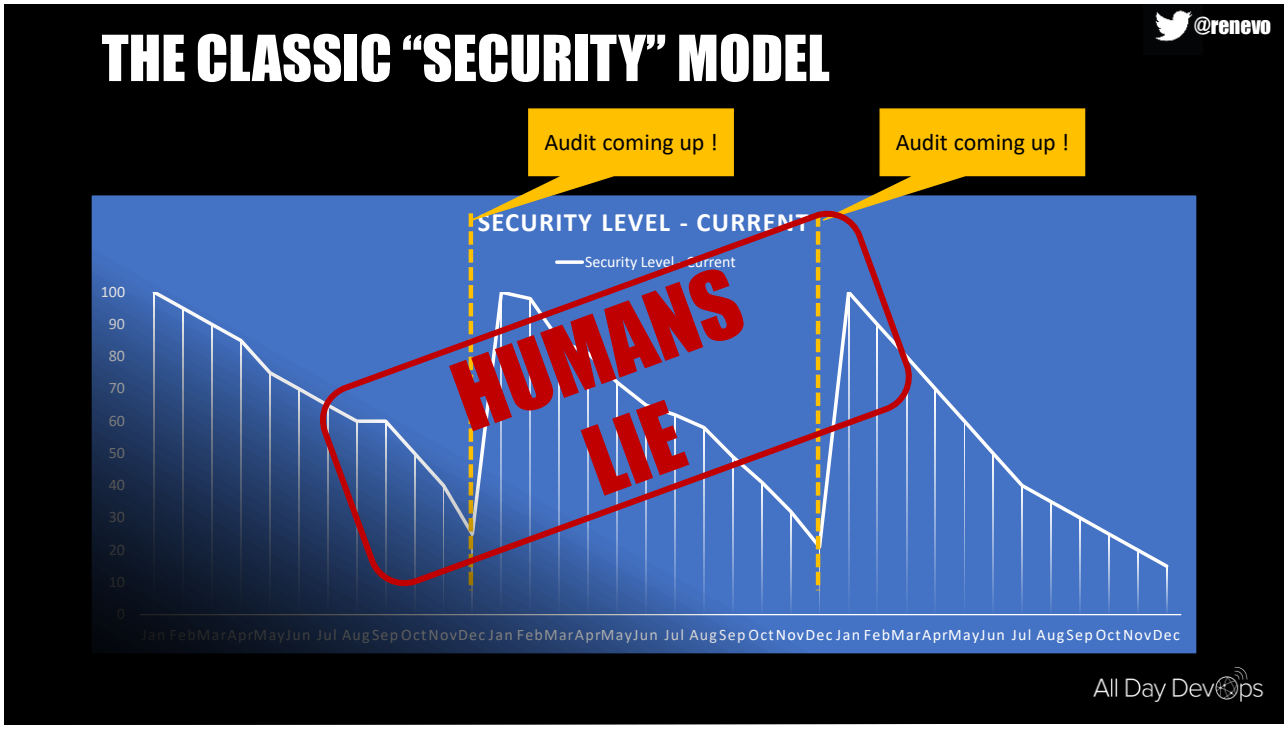
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THE CLASSIC "SECURITY" MODEL
Audit coming up !
Audit coming up !
SECURITY LEVEL - CURRENT
Security Level - Current
HUMANS LIE
100
90
80
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Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
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ISO 27001
COBIT
SOX
PCI
AUTHORITIES
ETC.
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WHY
HOW
WHAT
CONFIDENTIALITY
INTEGRITY
AVAILABILITY
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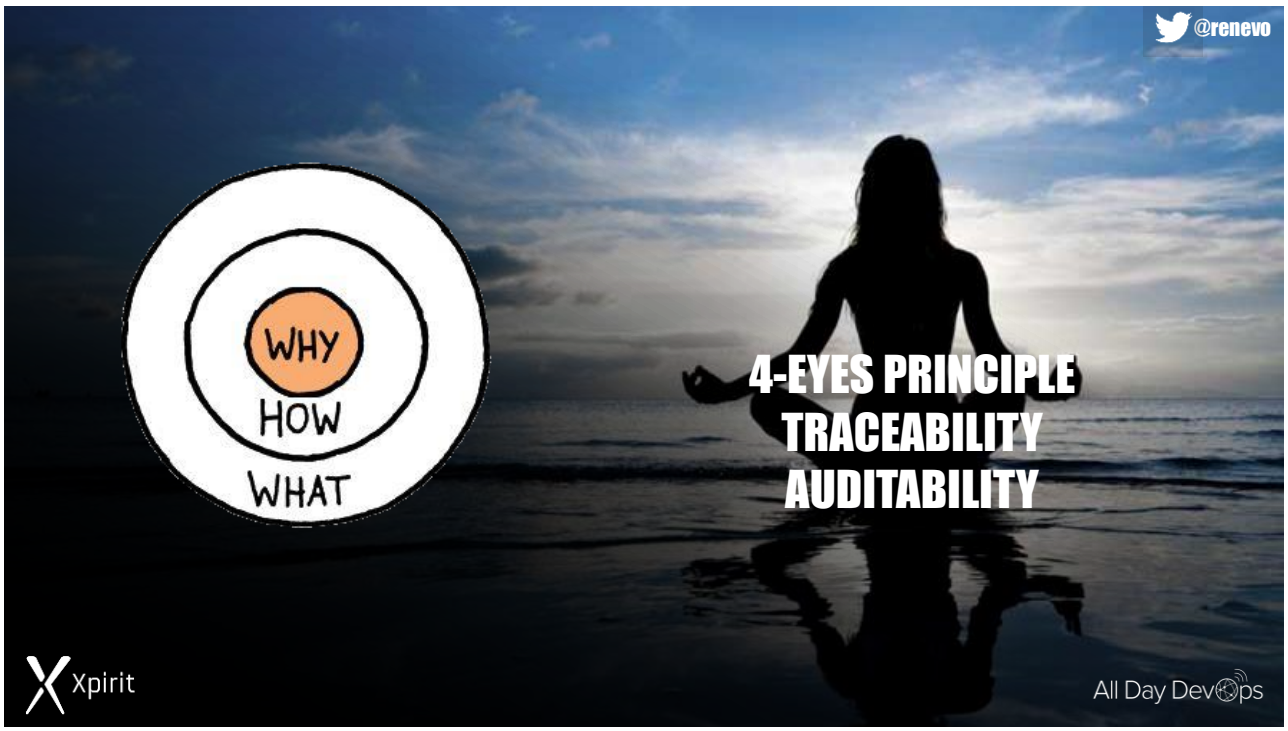
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WHY
HOW
WHAT
4-EYES PRINCIPLE
TRACEABILITY
AUDITABILITY
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Equifax Says Cyberattack May Have Affected 143 Million in the U.S.

By Tara Siegel Bernard, Tiffany Hsu, Nicole Perlroth and Ron Lieber

Sept. 7, 2017

Equifax, one of the three major consumer credit reporting agencies, said on Thursday that hackers had gained access to company data that potentially compromised sensitive information for 143 million American consumers, including Social Security numbers and driver's license numbers.

The attack on the company represents one of the la
personally sensitive information in recent years, an
cybersecurity threat for the agency since 2015.

BRIEF

Cyberattack cost Maersk up to $300M

AUTHOR

Edwin Lopez
@EdwinLopezT37

PUBLISHED

Nov. 8, 2017

Dive Brief:

- The June 27 Nyetya cyberattack cost A.P. Moller – Maersk (Maersk Group) $250 to $300 million, CEO Soren Skou said during an earnings call with investors on Tuesday.
- Maersk Line was hit hard, recording a $220 million net operating profit/loss after tax (NOPAT). "Had we not (had) the cyberattack, Maersk Line would have made a delivery in the NOPAT in the range of $450 million to $500 million for the quarter, consistent with almost 10% return on the invested capital," said Skou.

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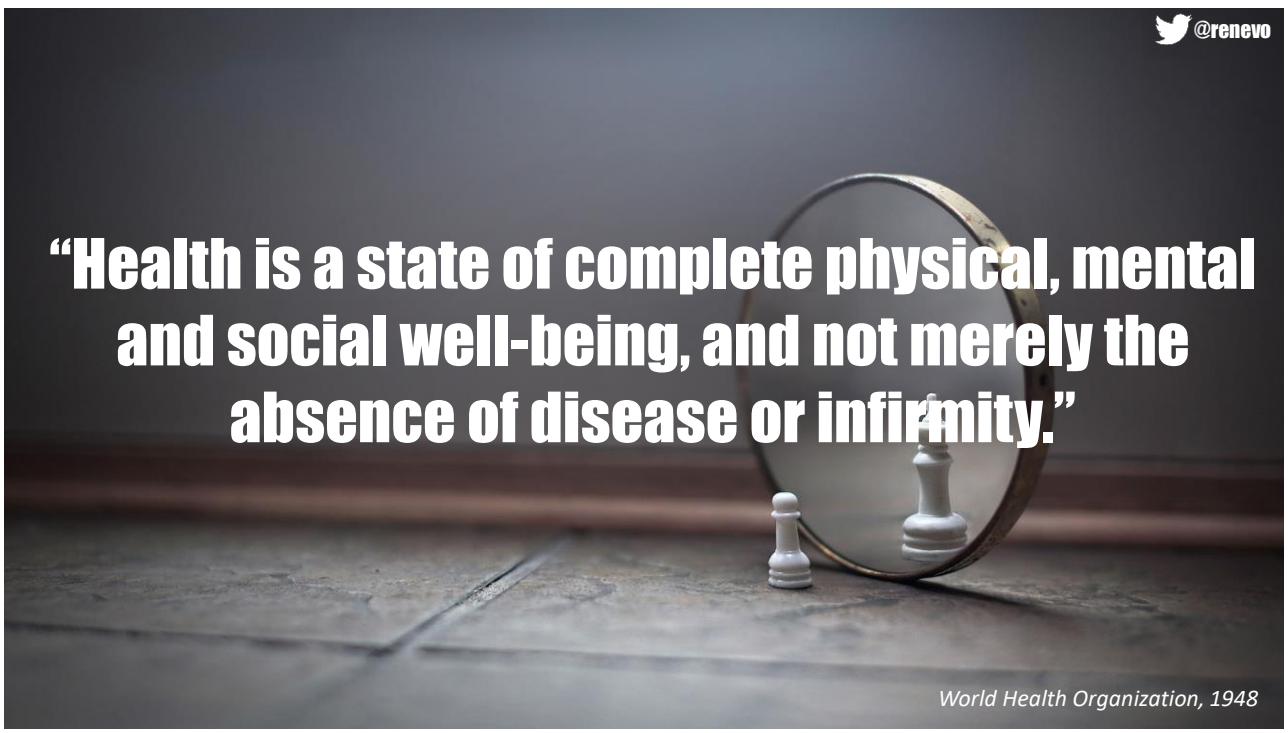

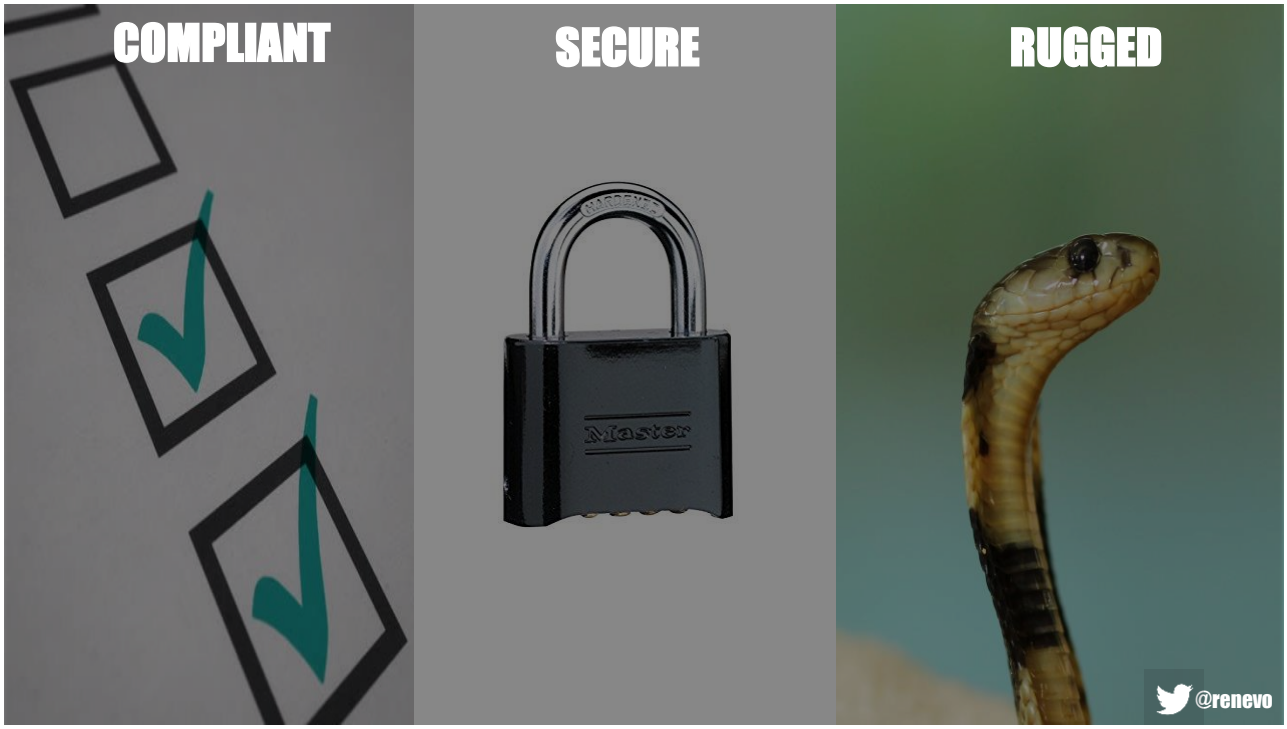
COMPLIANT
SECURE
RUGGED
Master
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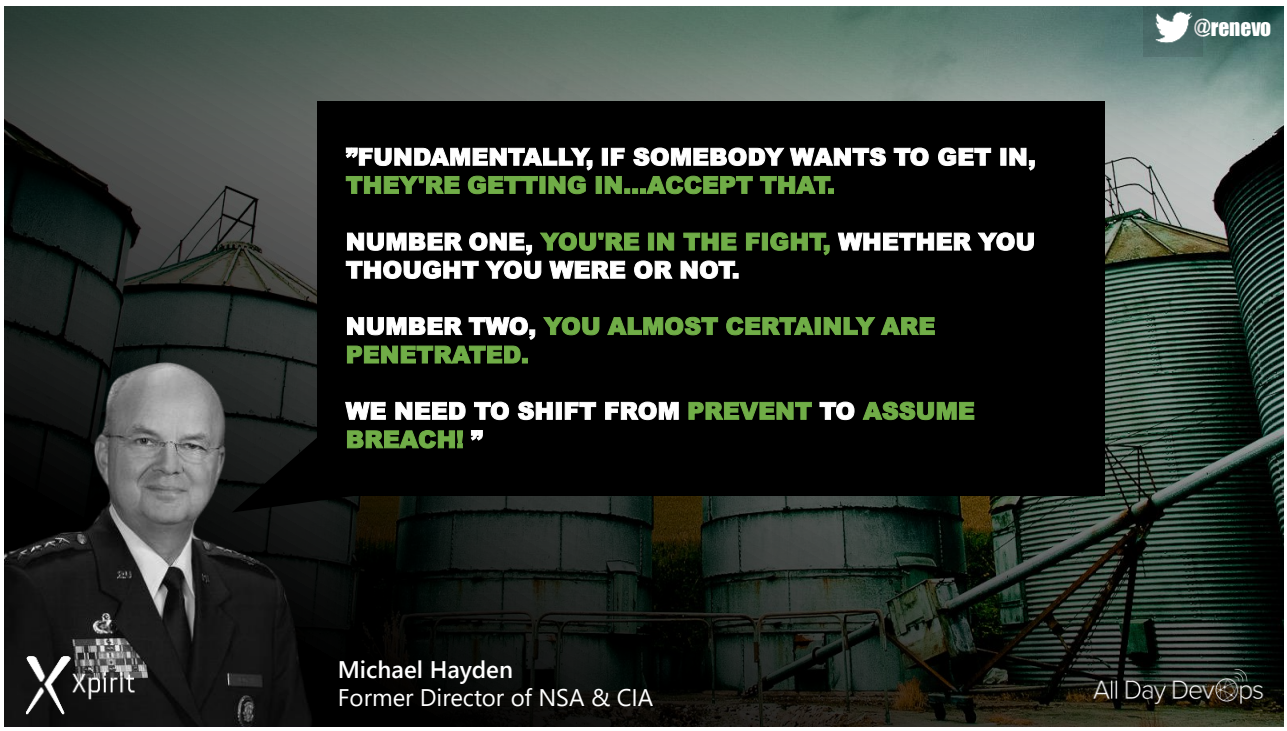
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"FUNDAMENTALLY, IF SOMEBODY WANTS TO GET IN, THEY'RE GETTING IN...ACCEPT THAT.
NUMBER ONE, YOU'RE IN THE FIGHT, WHETHER YOU THOUGHT YOU WERE OR NOT.
NUMBER TWO, YOU ALMOST CERTAINLY ARE PENETRATED.
WE NEED TO SHIFT FROM PREVENT TO ASSUME BREACH! "
Michael Hayden
Former Director of NSA & CIA
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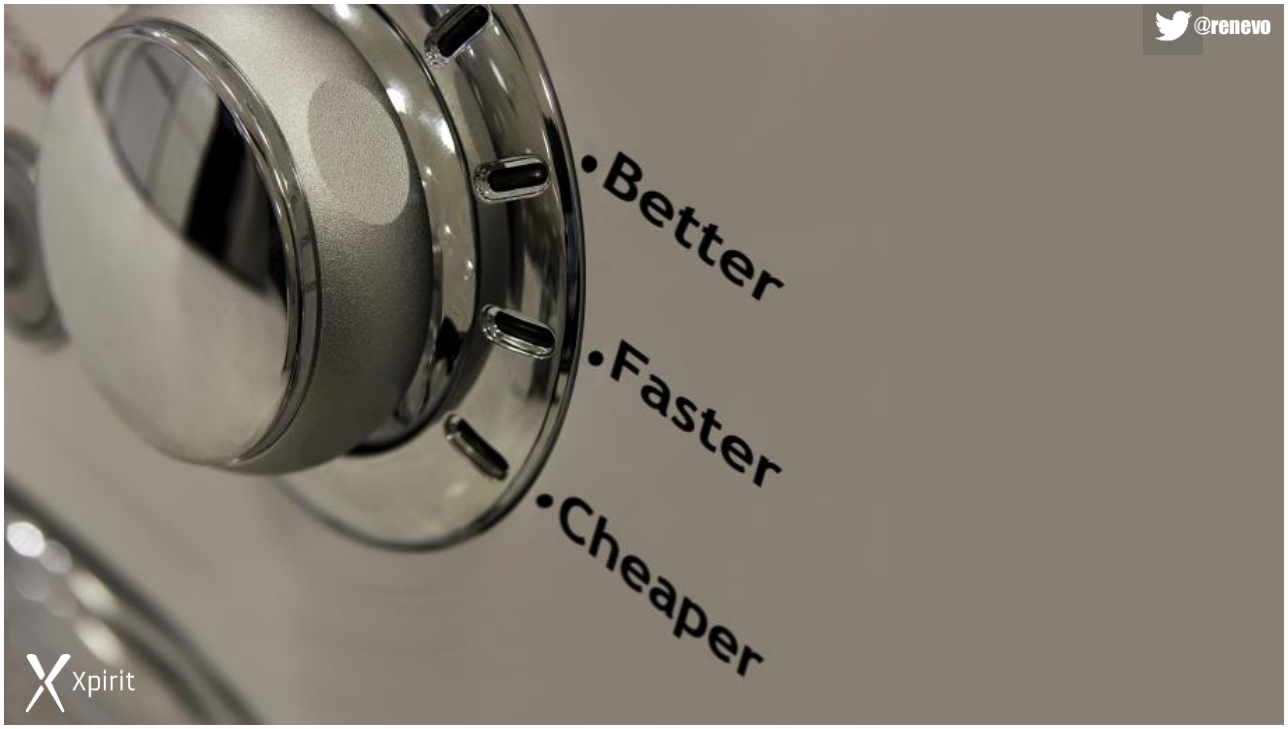
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•Better
•Faster
•Cheaper
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SECURITY IS THE NEXT SILO TO TEAR DOWN
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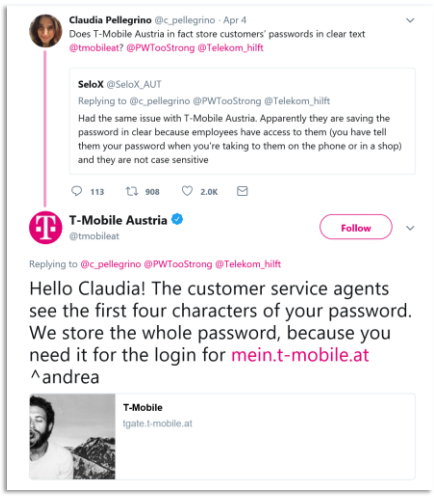
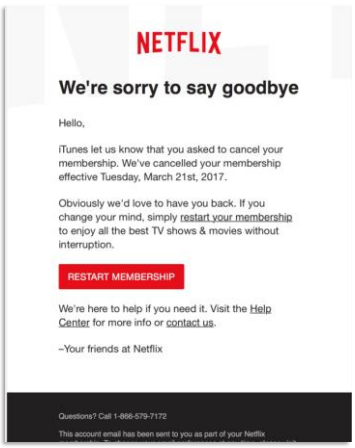
IT STARTS WITH AWARENESS !



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SHIFT LEFT SECURITY
Make them part of your team!
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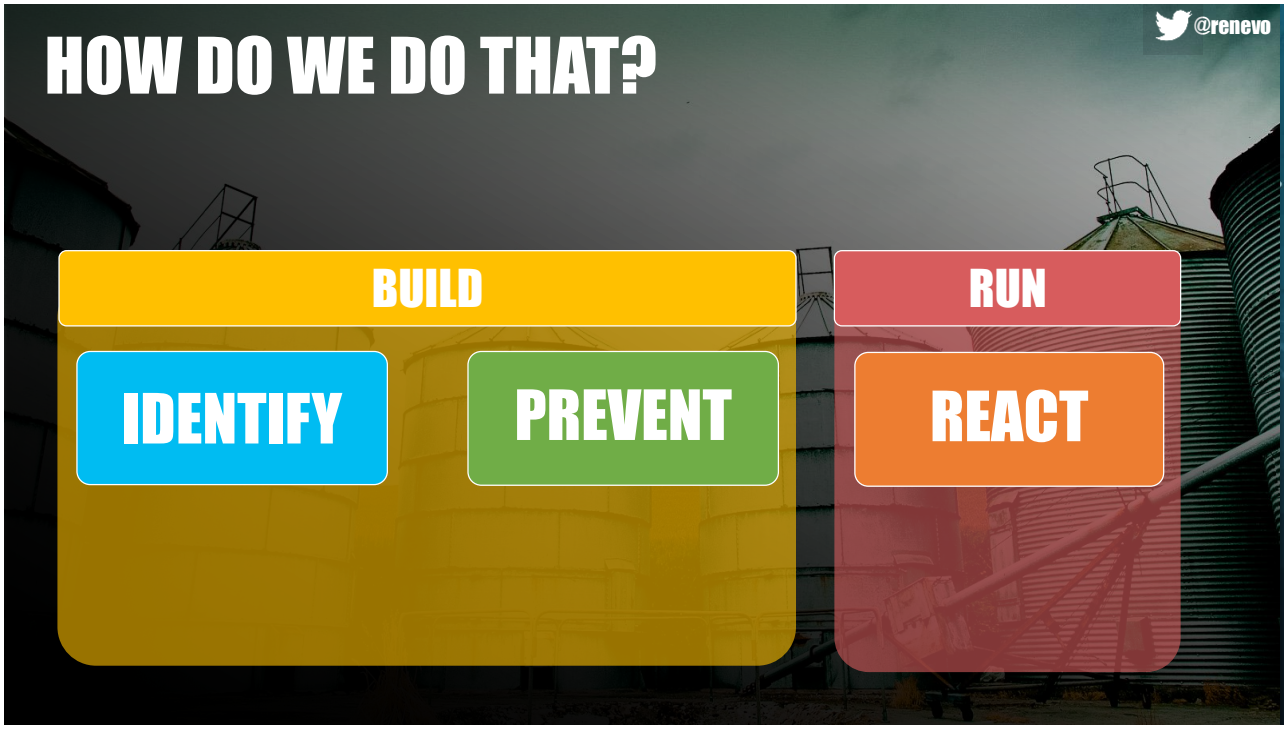
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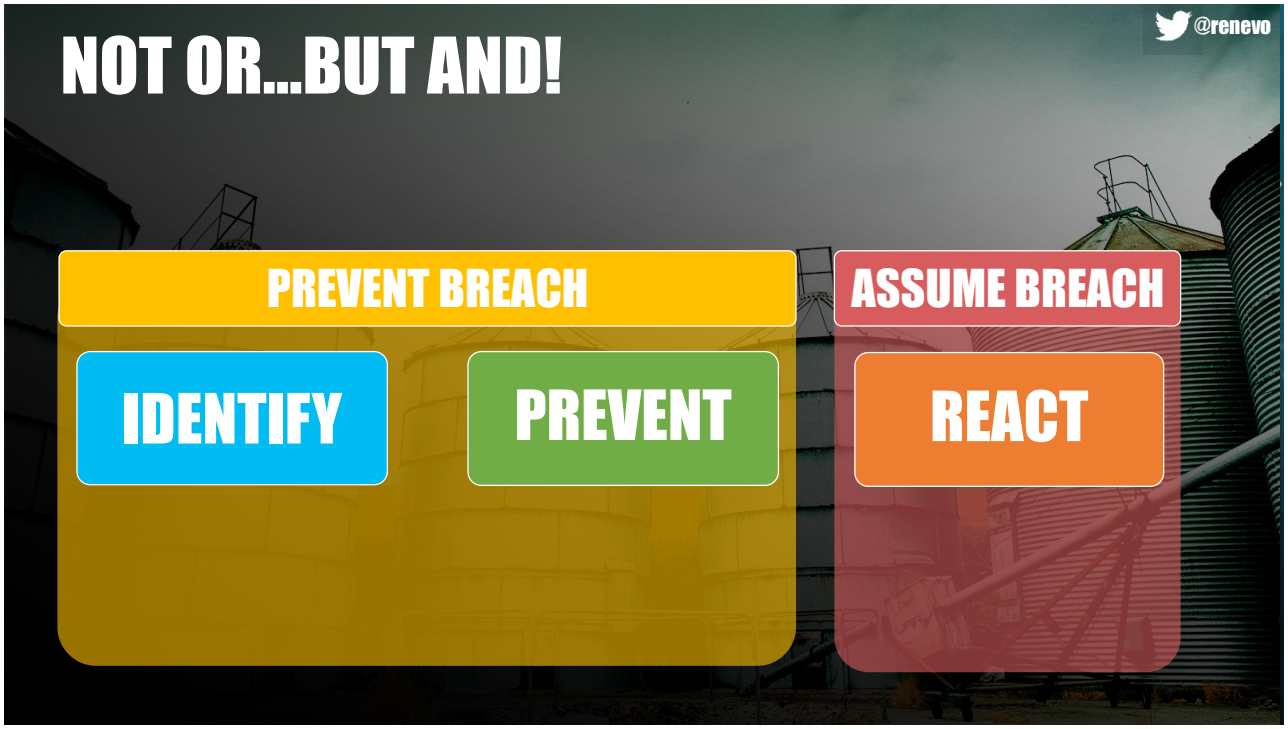
HOW DO WE DO THAT?
BUILD
RUN
IDENTIFY
PREVENT
REACT


NOT OR...BUT AND!
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PREVENT BREACH
ASSUME BREACH
IDENTIFY
PREVENT
REACT


PREVENT BREACH
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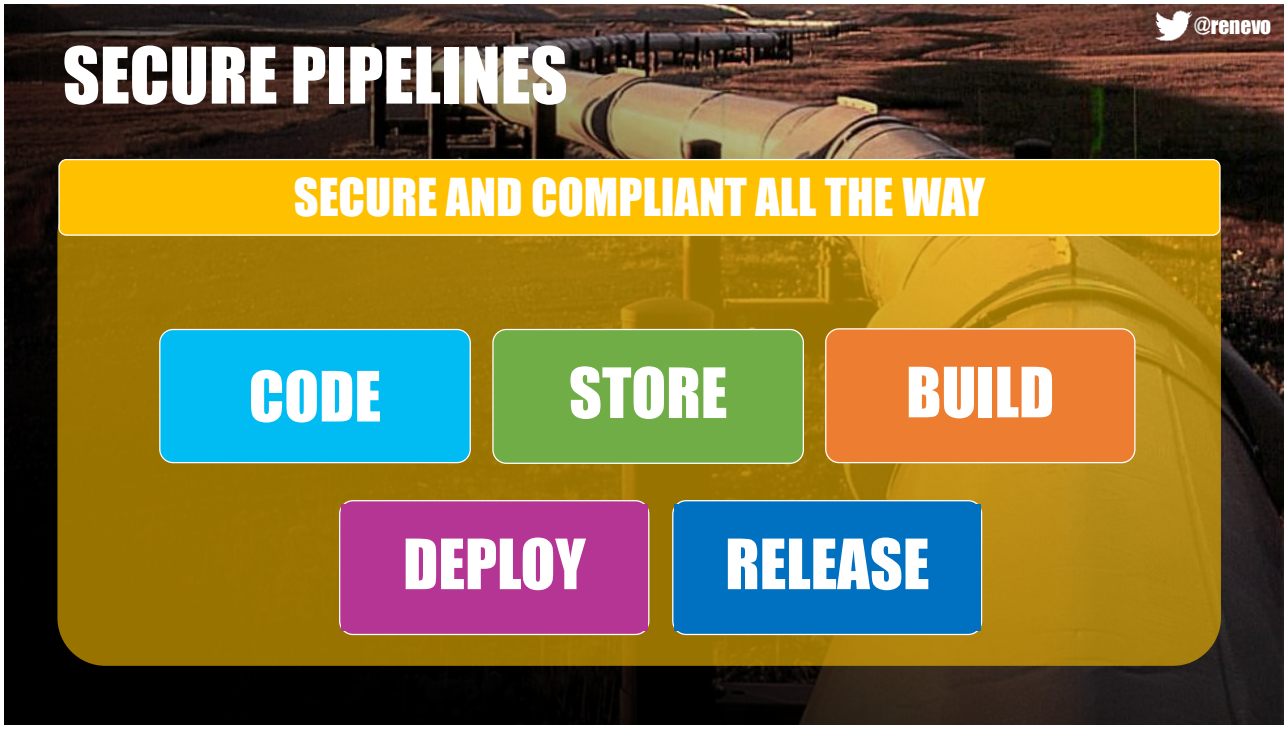
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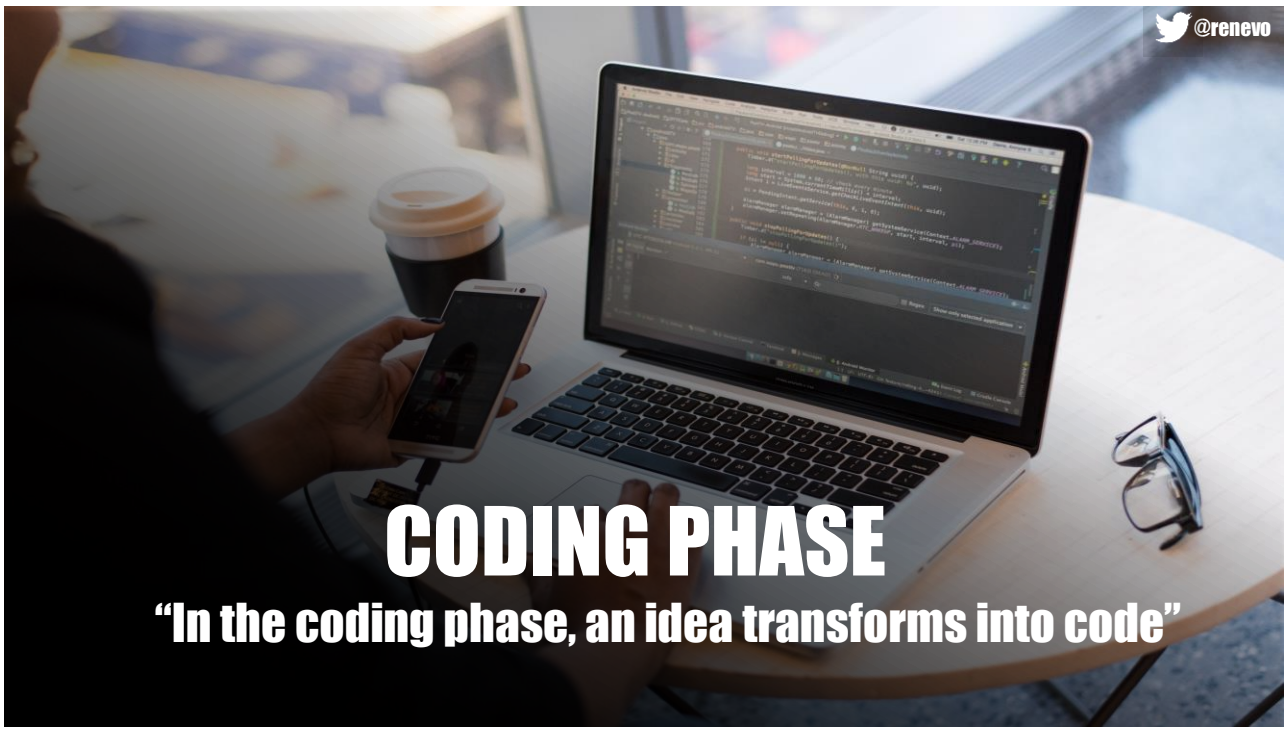
SECURE PIPELINES
SECURE AND COMPLIANT ALL THE WAY
CODE
STORE
BUILD
DEPLOY
RELEASE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CODING PHASE
"In the coding phase, an idea transforms into code"

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CODING PHASE - IDENTIFY-PREVENT

- Bad coding practices resulting in Technical Debt
  - First stage - Static Code Analysis
- Non Deployable code
  - Compiling / Syntax Checking
- Untested code and therefore unintended consequences
  - Unit Tests
- Passwords/Secrets etc. exposed in code
  - Credential and Secret Scanning

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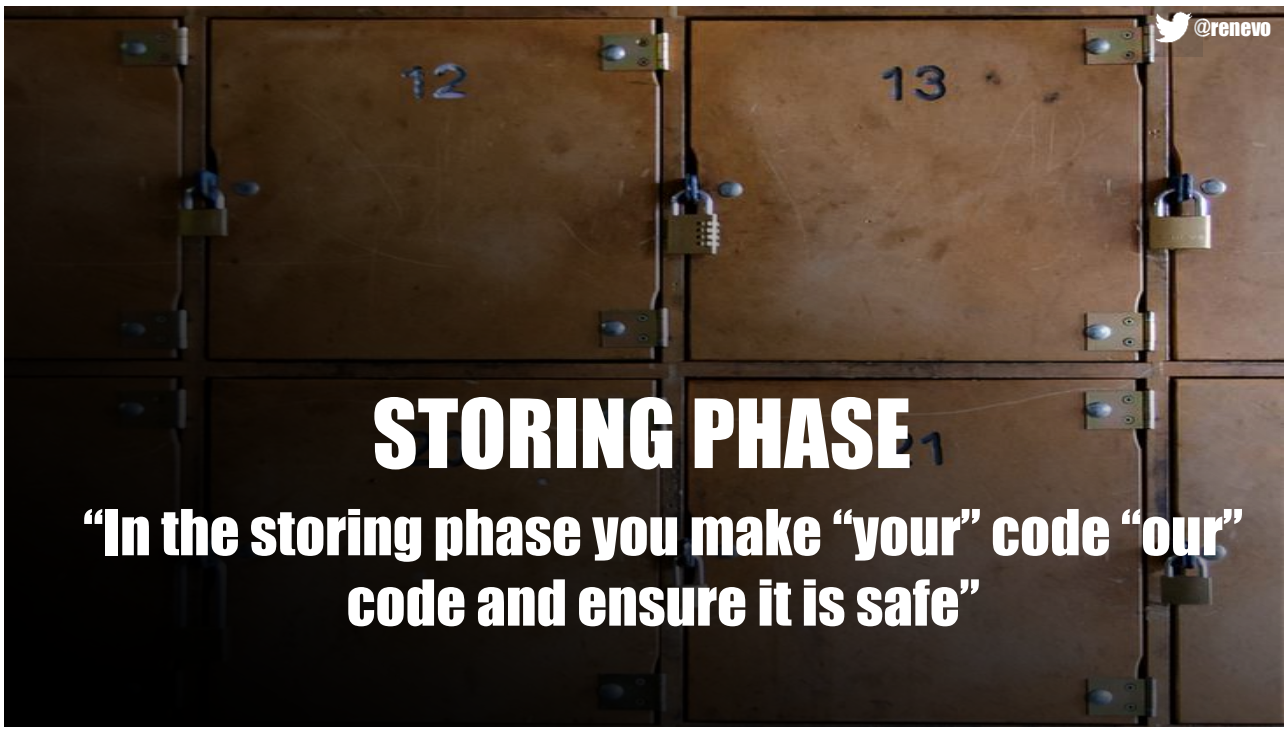

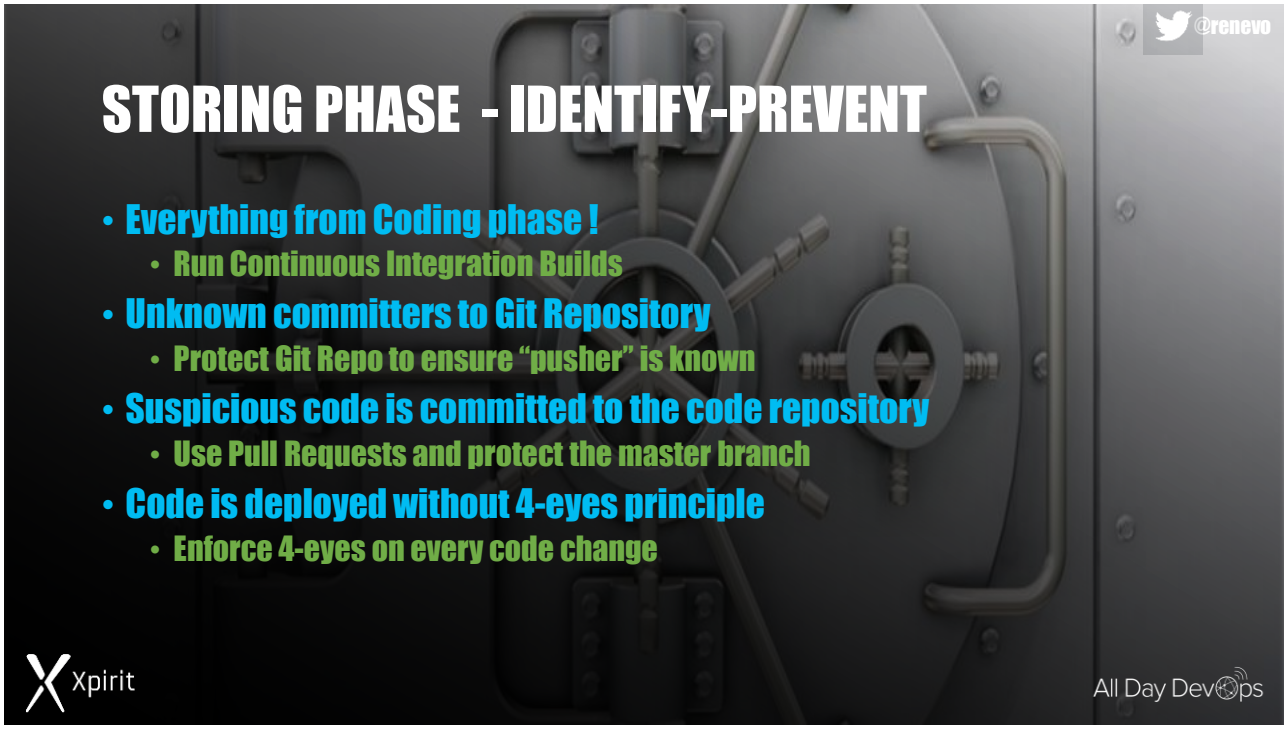
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STORING PHASE - IDENTIFY-PREVENT
• Everything from Coding phase !
• Run Continuous Integration Builds
• Unknown committers to Git Repository
• Protect Git Repo to ensure "pusher" is known
• Suspicious code is committed to the code repository
• Use Pull Requests and protect the master branch
• Code is deployed without 4-eyes principle
• Enforce 4-eyes on every code change
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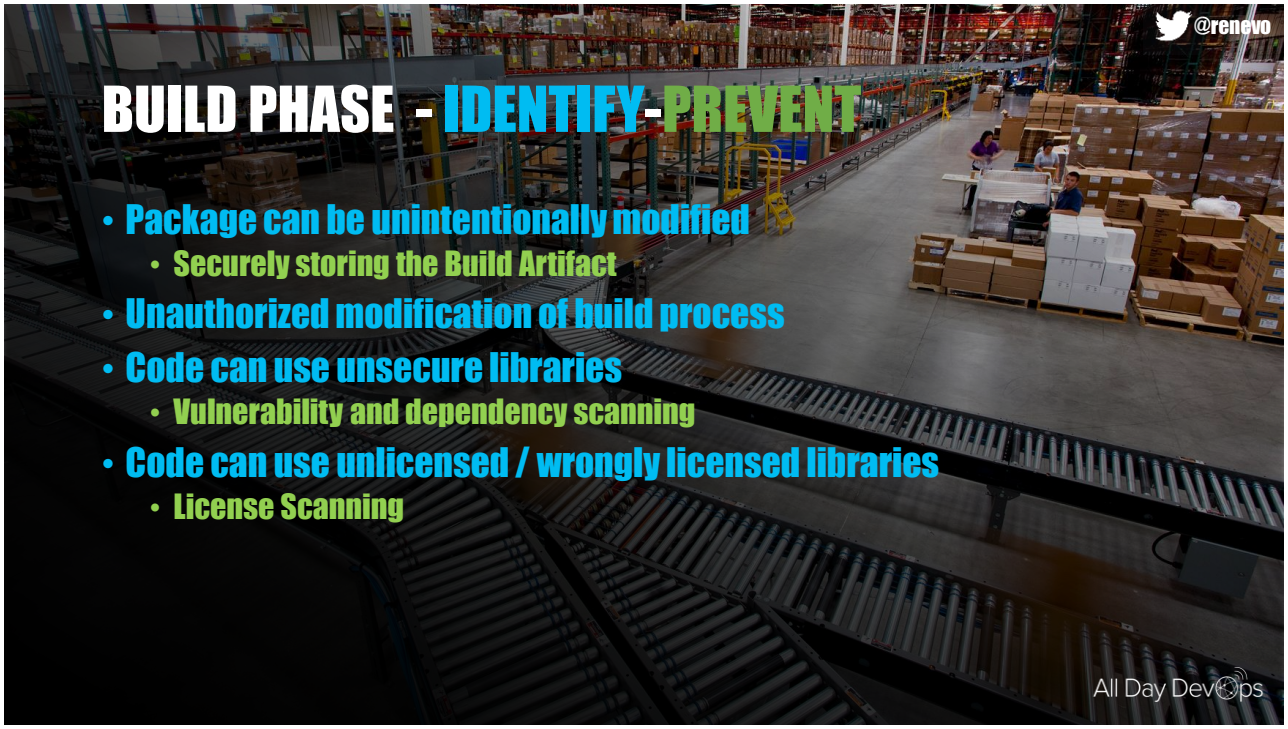
BUILD PHASE
"In the build phase we transform the product from code and script into an immutable and versioned package"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BUILD PHASE - IDENTIFY-PREVENT
• Package can be unintentionally modified
• Securely storing the Build Artifact
• Unauthorized modification of build process
• Code can use unsecure libraries
• Vulnerability and dependency scanning
• Code can use unlicensed / wrongly licensed libraries
• License Scanning
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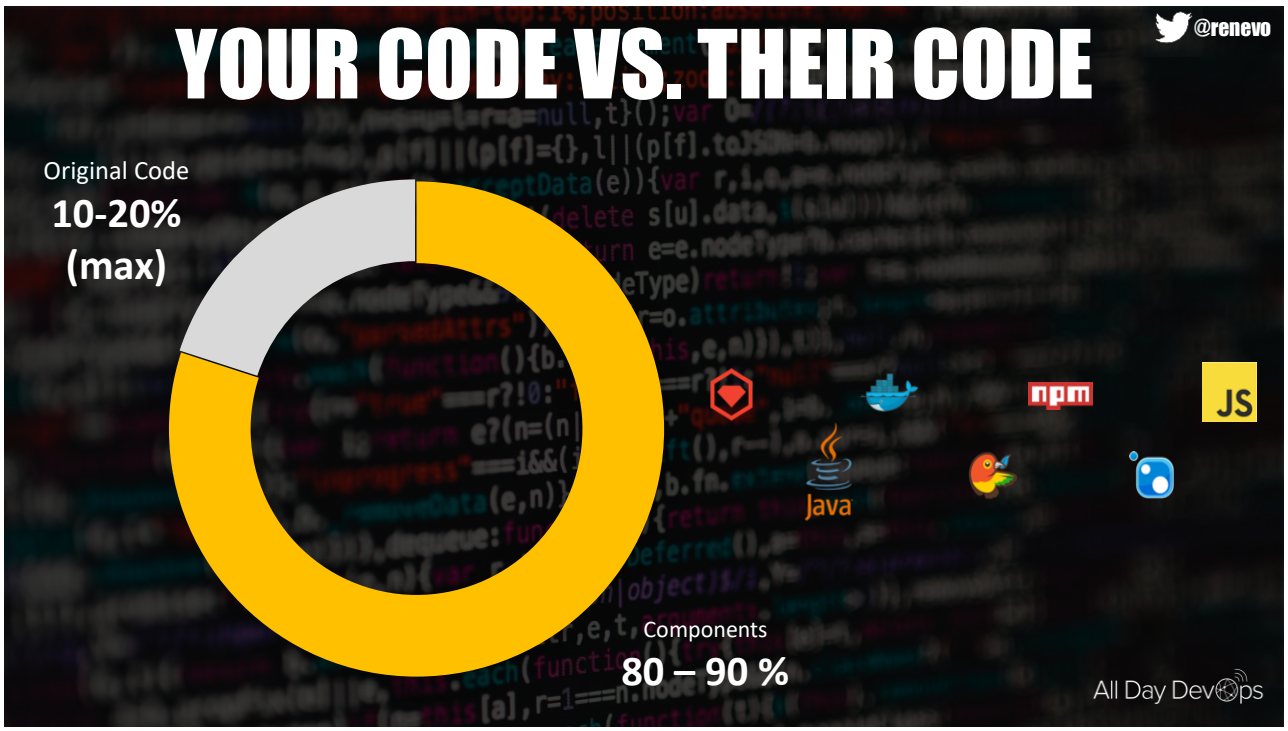
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YOUR CODE VS. THEIR CODE
Original Code
10-20%
(max)
Components
80 – 90 %
Java
npm
JS
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AND THEN THERE IS LICENSING

Restrictive

ATTRIBUTION	DOWNSTREAM	COPYLEFT
BSD MIT Apache	MPL EPL MS-RL	GPL LGPL AGPL

Permissive

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DEPLOY / RELEASE PHASE - IDENTIFY-PREVENT
• Unauthorized change in the release steps
• Enforce 4 eyes-principle on the release pipeline
• Target environment accessible by multiple process
• Set up secure Endpoints to target environment
• Deployed application has obvious vulnerabilities
• Run Dynamic Security Tests on Infrastructure
• Run Tests that require a deployed application
• Deployed application has unexpected consequences on availability etc.
• Build in a mechanism to separate functional from technical release
• Monitor key metrics after deployment
• Secrets are exposed during deployment process
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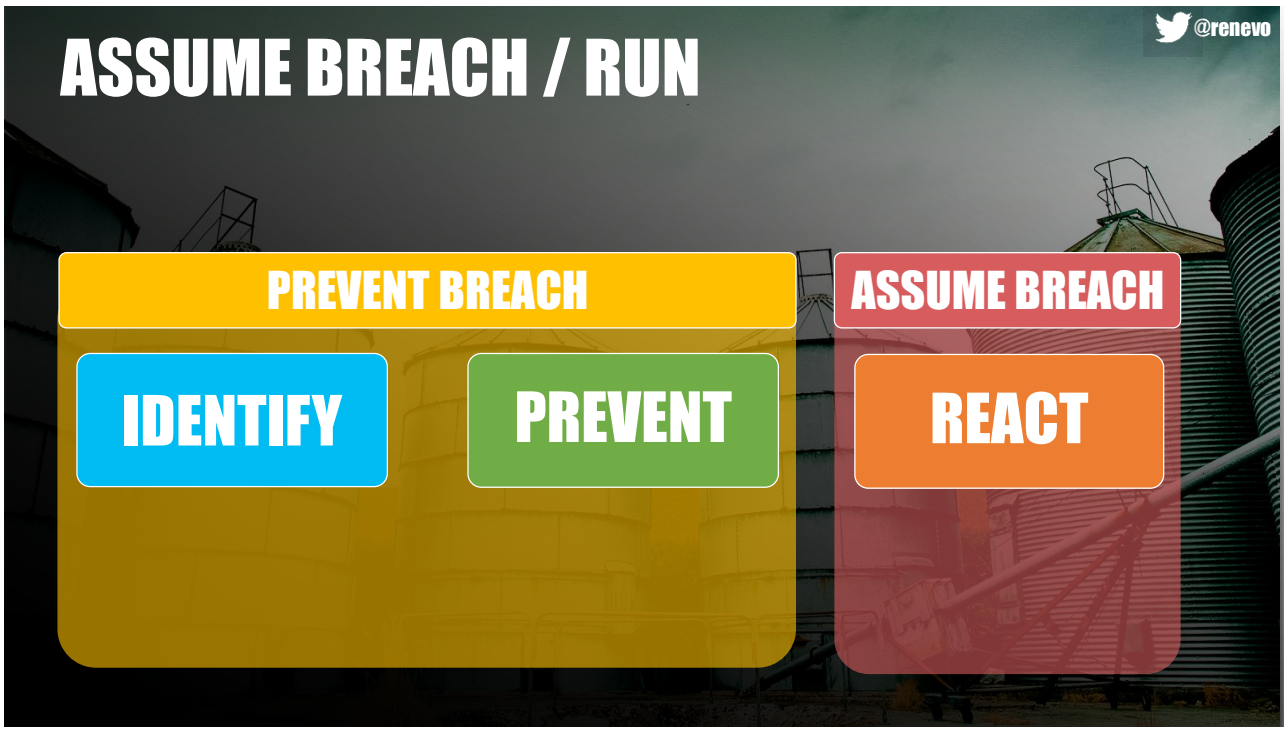
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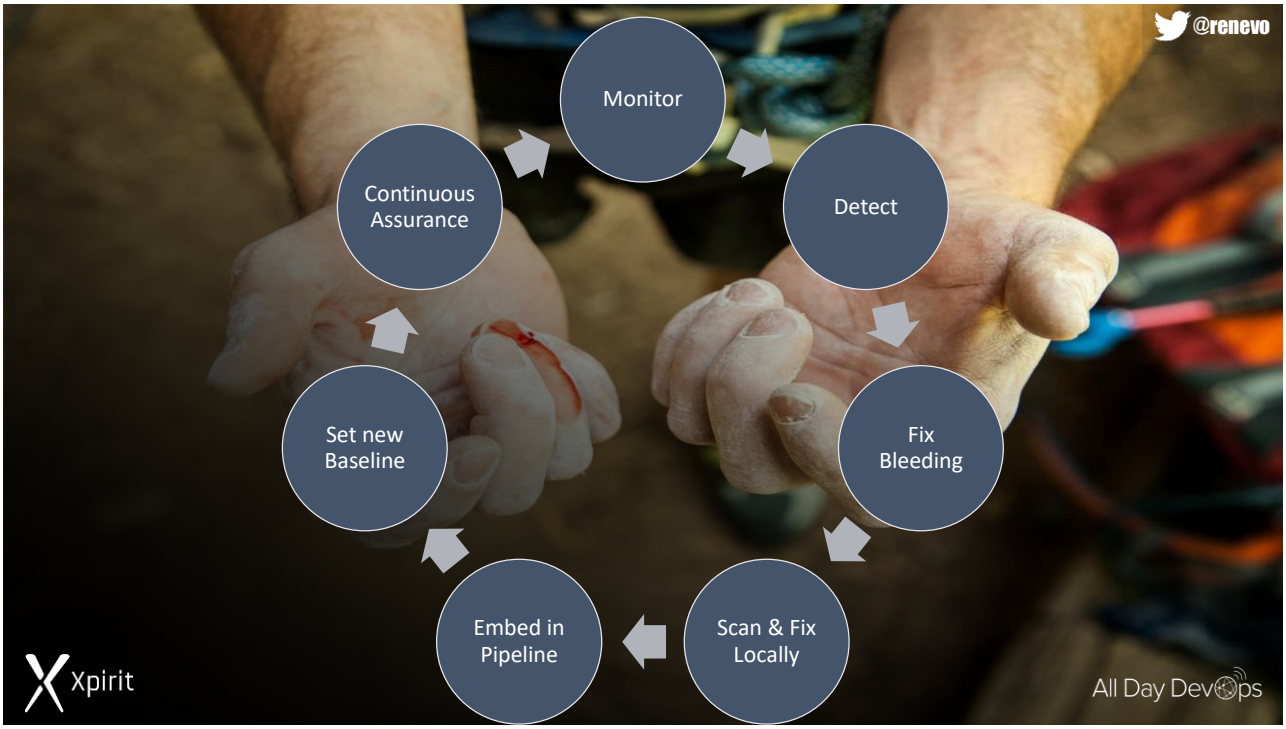
ASSUME BREACH / RUN
PREVENT BREACH
ASSUME BREACH
IDENTIFY
PREVENT
REACT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Monitor
Detect
Fix Bleeding
Scan & Fix Locally
Embed in Pipeline
Set new Baseline
Continuous Assurance
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AND COMPLIANCY?
betfair
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PA


WRAP UP
Compliancy ≠ Security
Start with why and challenge everything
Shift from Prevent Breach to Assume breach
Make security a 1st class citizen
Move from secure to rugged
Detect, Respond, Recover
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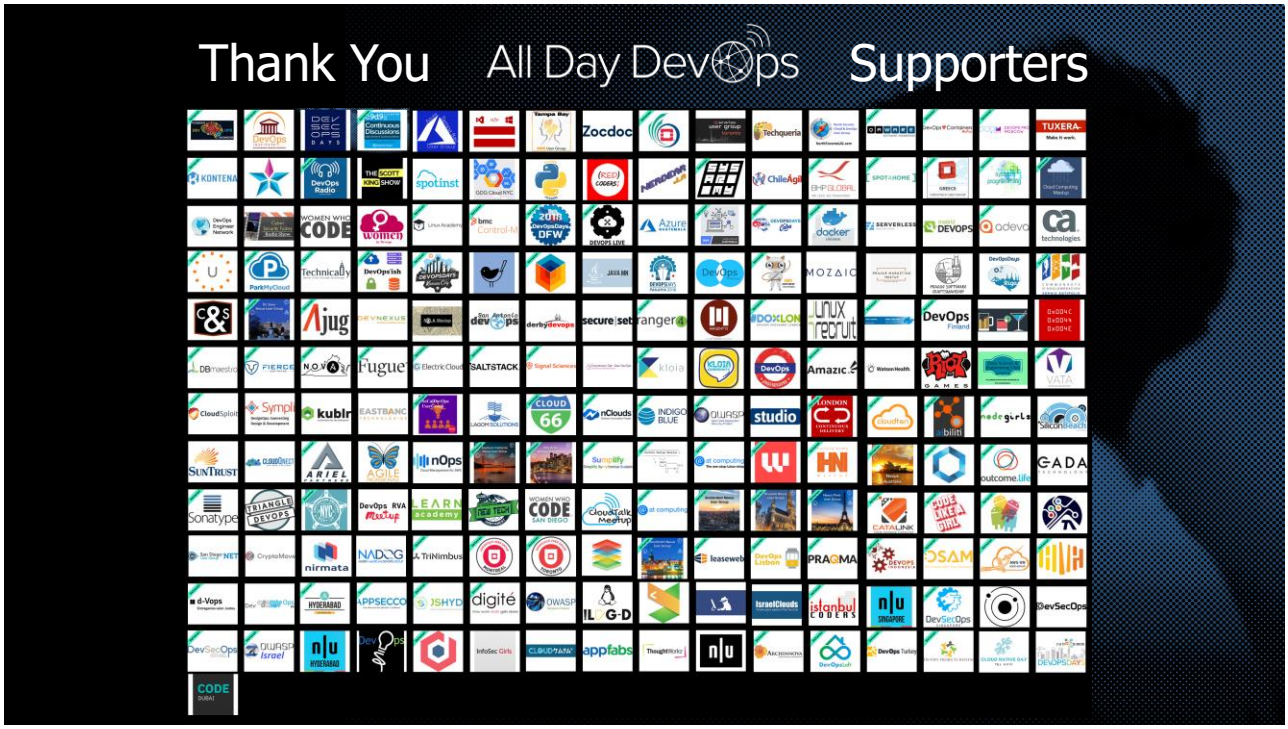

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Thanks: Geert, Marcel, Alex, Jasper, Xpirit

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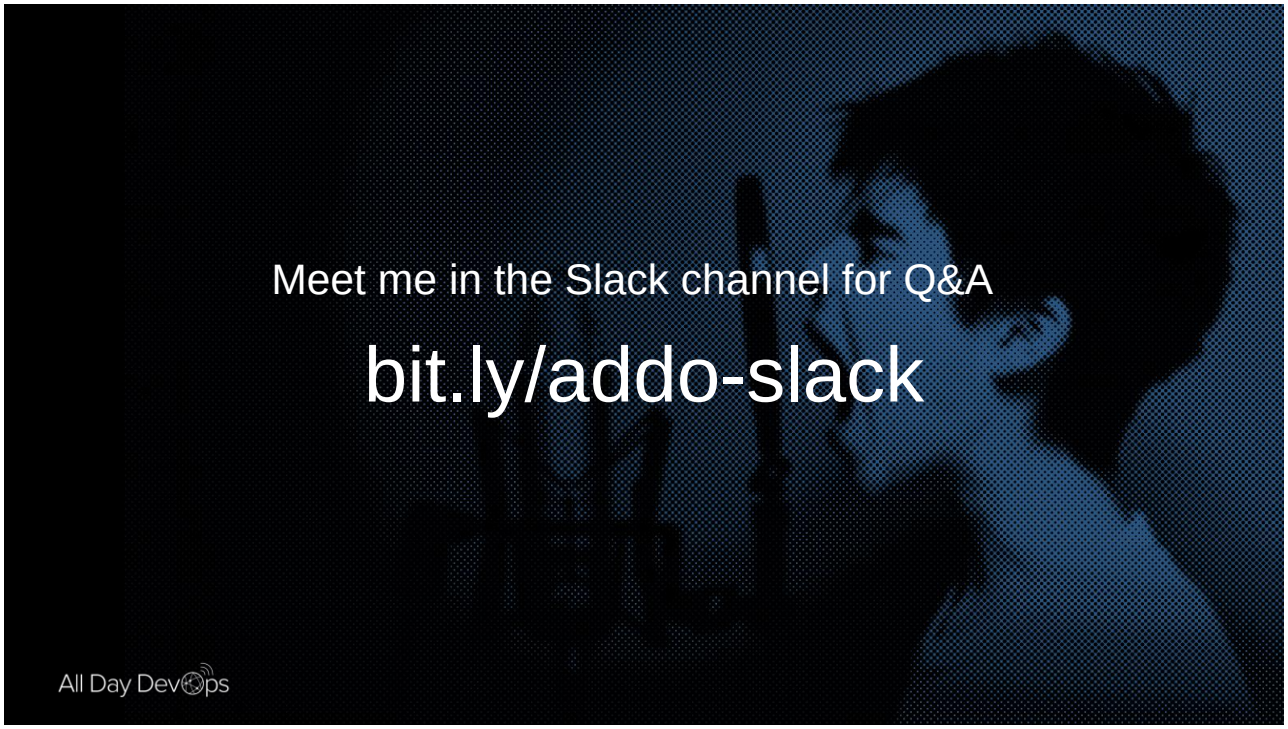
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bit.ly/addo-slack
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