Security in a DevOps Environment

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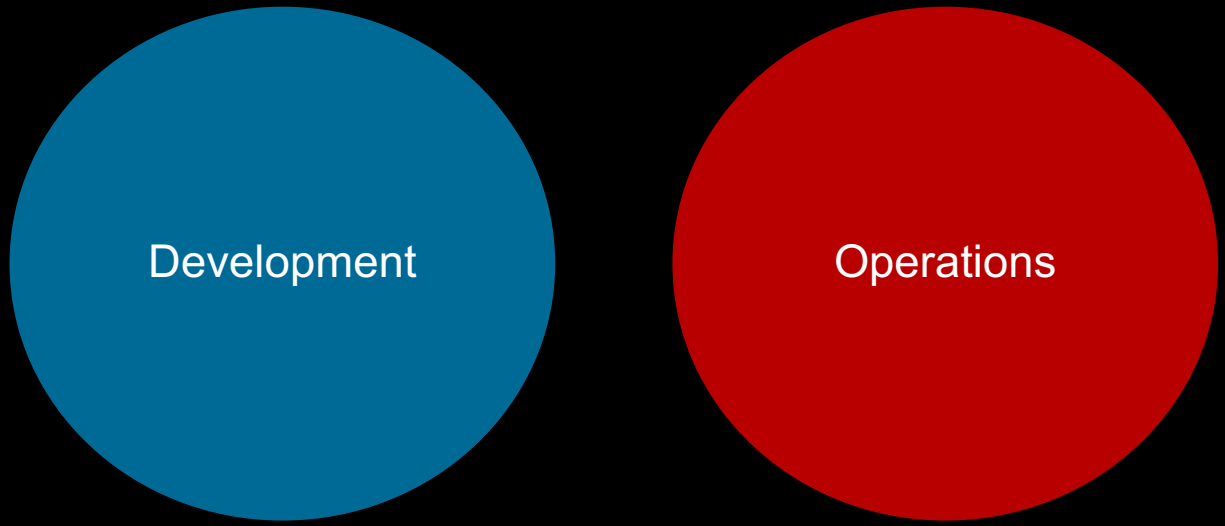
Refresher

In Super-NetOps Class 1 and 2 we covered:

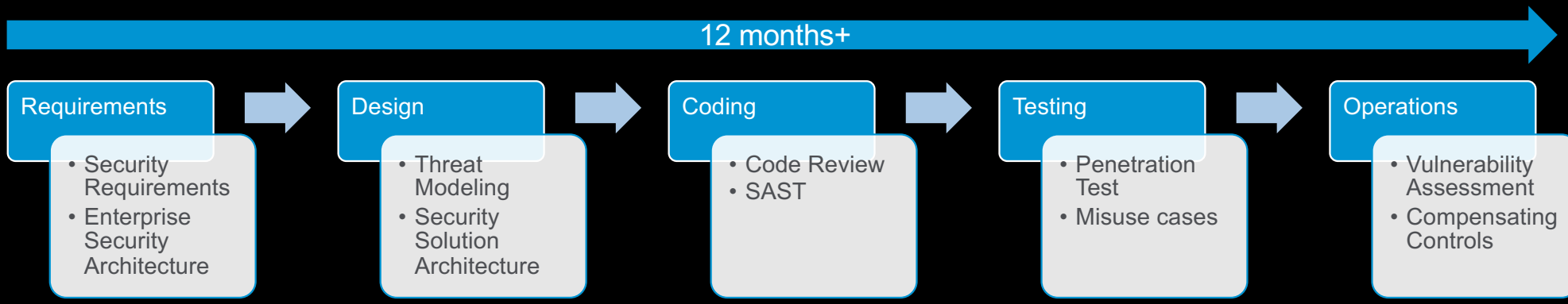
- Foundations of Automation & Orchestration
- Automation & Orchestration of F5 technology using declarative and imperative API's
- Continuous Delivery & Deployment
- DevOps Methodologies
- Infrastructure & Code
- Building an F5 toolchain

Organizations are Transforming



Adopting DevOps & Continuous Integration processes

Security in the Waterfall AppDev SDLC

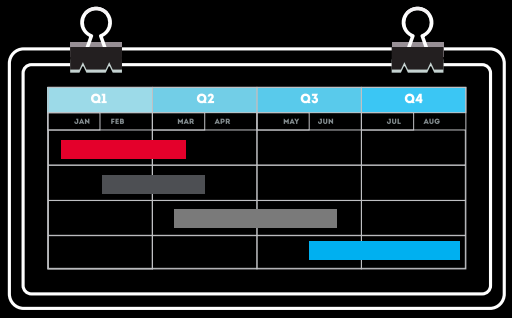


NIST

800-64: Security Considerations in the SLDC
https://csrc.nist.gov/publications/detail/sp/800-64/rev-2/final

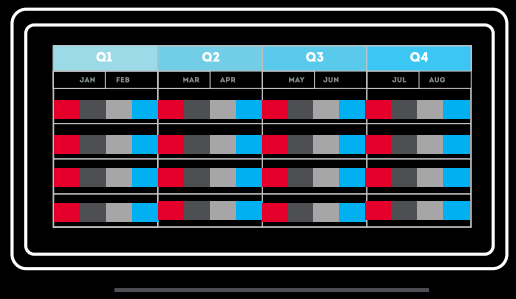
DevOps, Agile breaks traditional AppSec

- Cycle time for Application development is getting shorter – being developed and released faster than ever before using agile, iterative methods.
- Traditional models for application security **can't scale to the speed of delivery required by agile teams**



Traditional waterfall

Agile DevOps

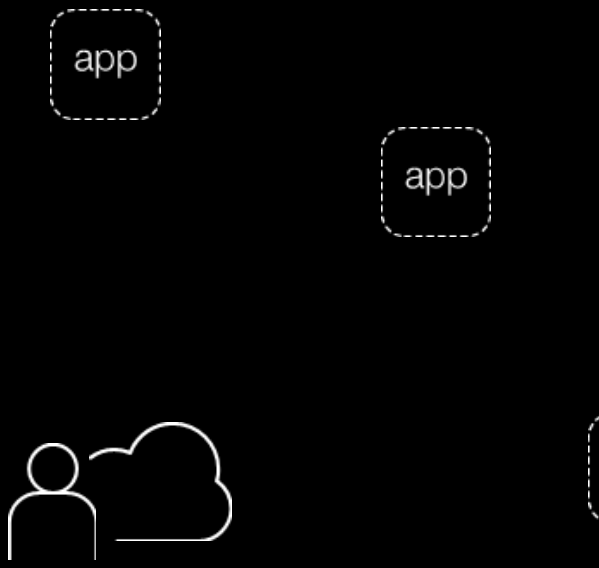


Applications are exposed to significant security risks

- Injections
- Credential Stuffing
- Deserialisation Attacks
- Transport layer attacks
- Man in the browser malware
- Denial of Service attacks

F5 Labs Application Protection Report
https://interact.f5.com/2018ALLFNetOpsMeetsDevOpsTheStateofNetworkAutomation_DownloadeBookPage.html

Deliver more frequent releases to get new capabilities to market faster



It’s all about speed

Business requirement | New Code | Build | Test | Production

SHIFTING LEFT

Based on prevention instead of detection

Find out about an application code change or feature release late in the development process

IT Security (Traditional)

It’s all about speed

Business requirement → New Code → Build → Test → Production

IT Security (Traditional)

Something got blocked – Inconsistency between development environment and production.
Delays in resolution awaiting SecOps response – no rollback

Business Perception: Security is preventing business/breaking the app

In digital led businesses, the

SPEED TO MARKET

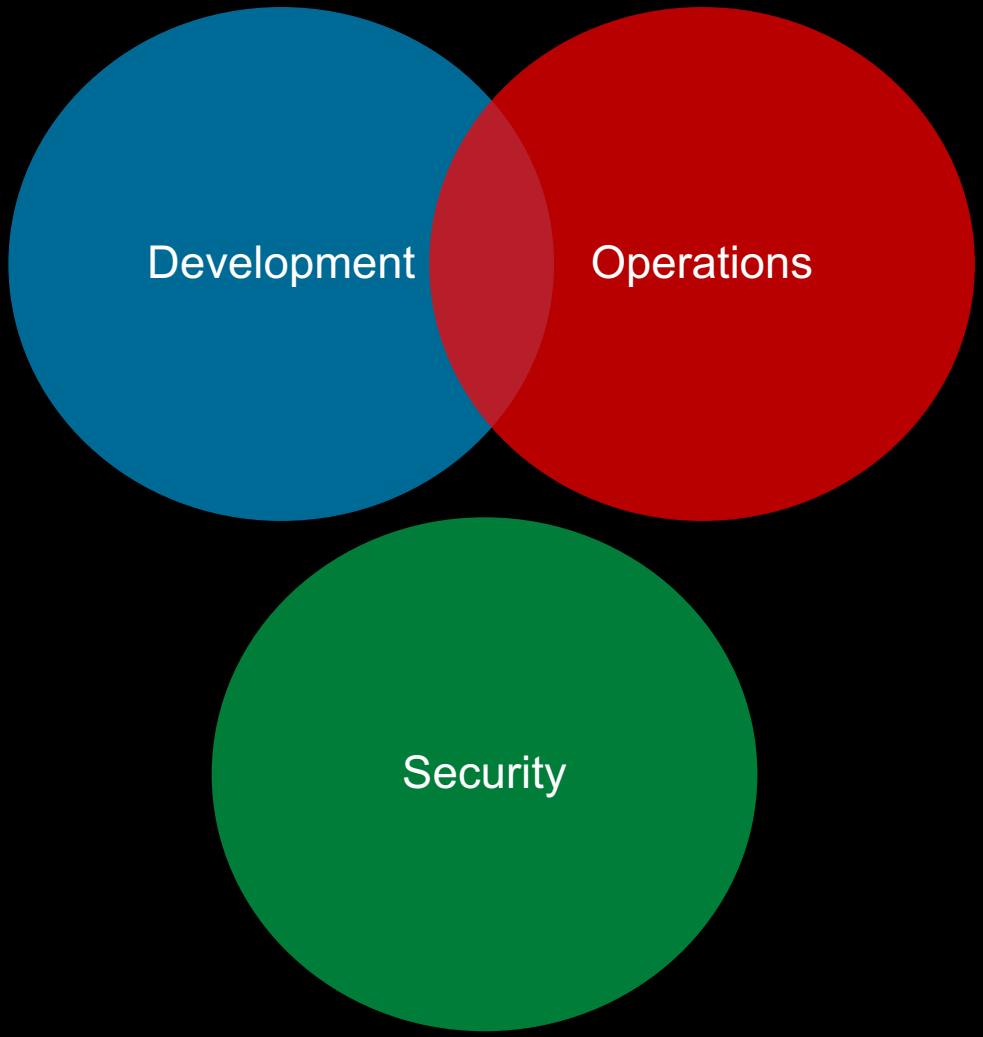
trumps traditional security and operational processes.

Security is important but must adapt.

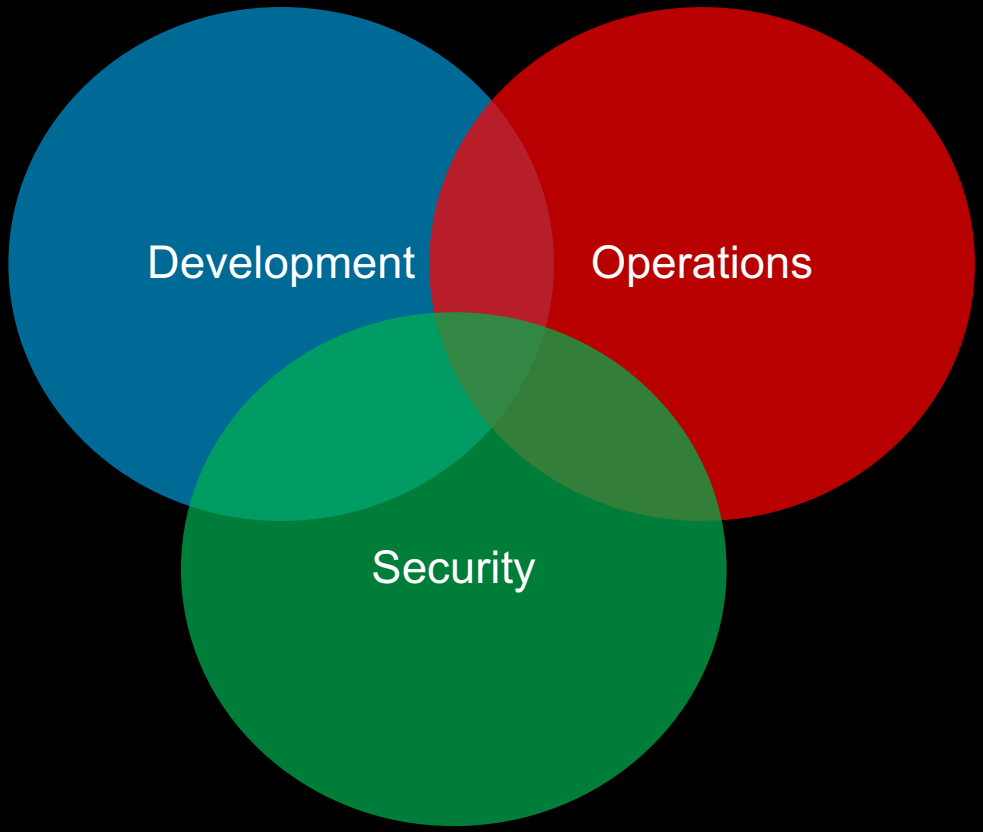
Cultural Shift

FROM	TO
A shift away from the “gatekeeper” mentality.	In a DevOps mentality, security is everybody’s responsibility.

Breaking Down the Silos



Building Collaboration



Increasing collaboration and feedback between SecOps and DevOps.

DevSecOps Principles

Breaking down the silos

Shifting Left

Nurturing security champions

Continuous Testing/Test automation

Making the secure path the easy path

The Pipeline

Build Test Package Deploy Verify Rollback

CI

CD

Security Shifting left

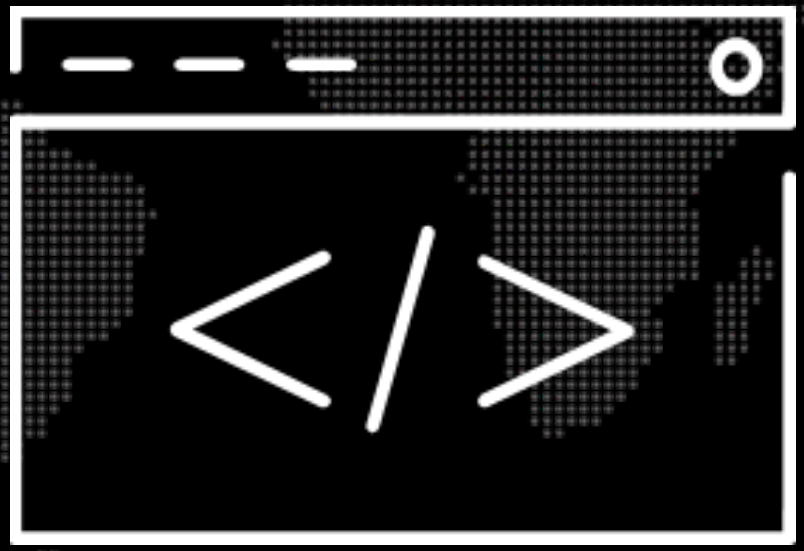
Business requirement

New Code

Build

Test

Production



Test Automation

Build Test Package Deploy Verify Rollback

Allows you to incorporate abuse-test cases and attempts to exploit system vulnerabilities in order to ensure that your infrastructure is identifying and blocking those attempts.

Summary

Breaking down the silos

Shifting Left

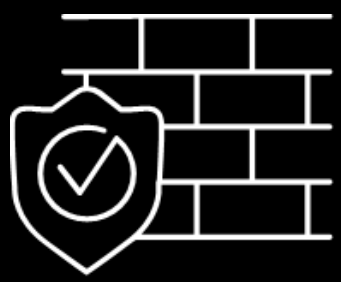
Nurturing security champions

Continuous Testing/Test automation

Making the secure path the easy path

Building Advanced WAF into the CI/CD pipeline – Security as Code

Addressing every vulnerability at the release cadence required of today's DevOps teams is **impractical**.



F5 Advanced Web Application Firewall (WAF)

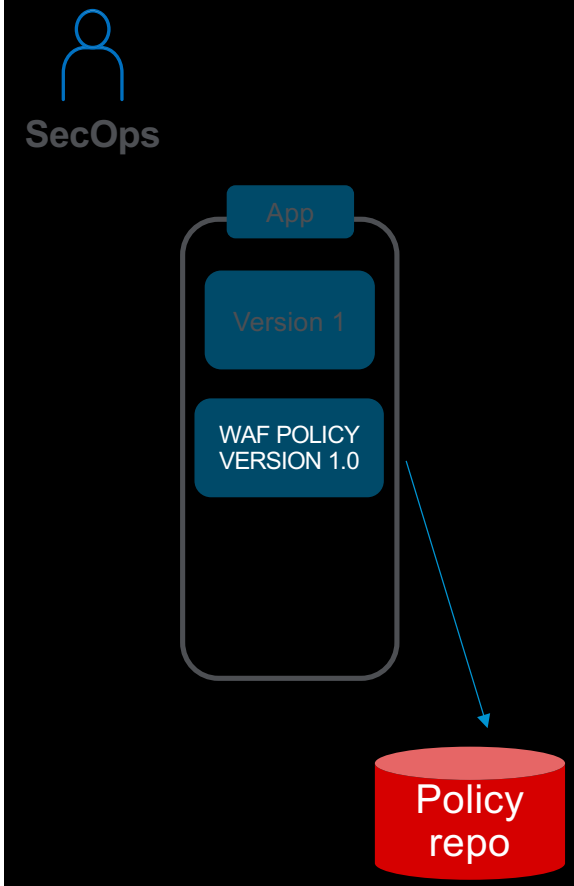
Application layer distributed denial of service

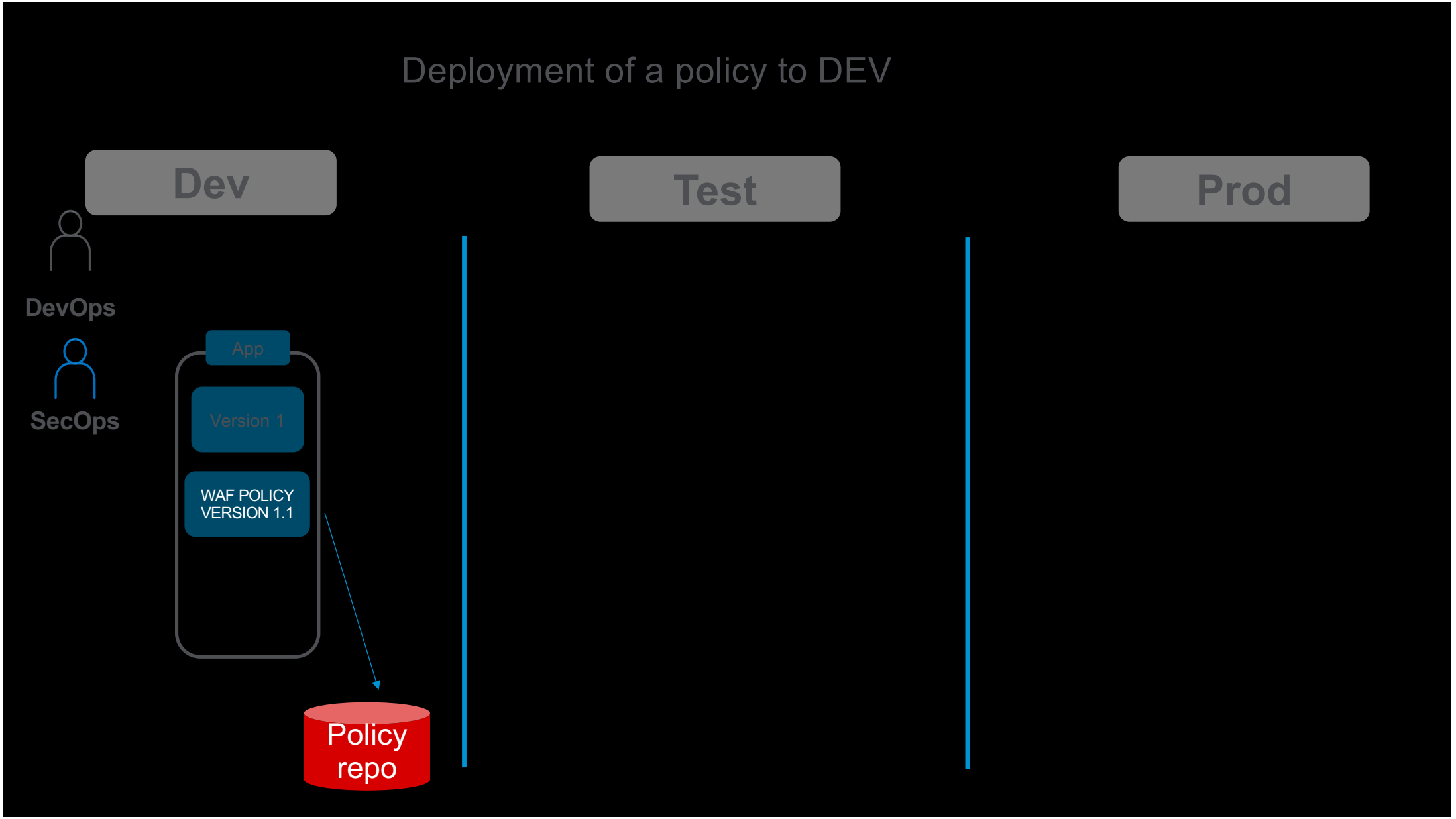
Credential stuffing

Man in the browser credential stealing

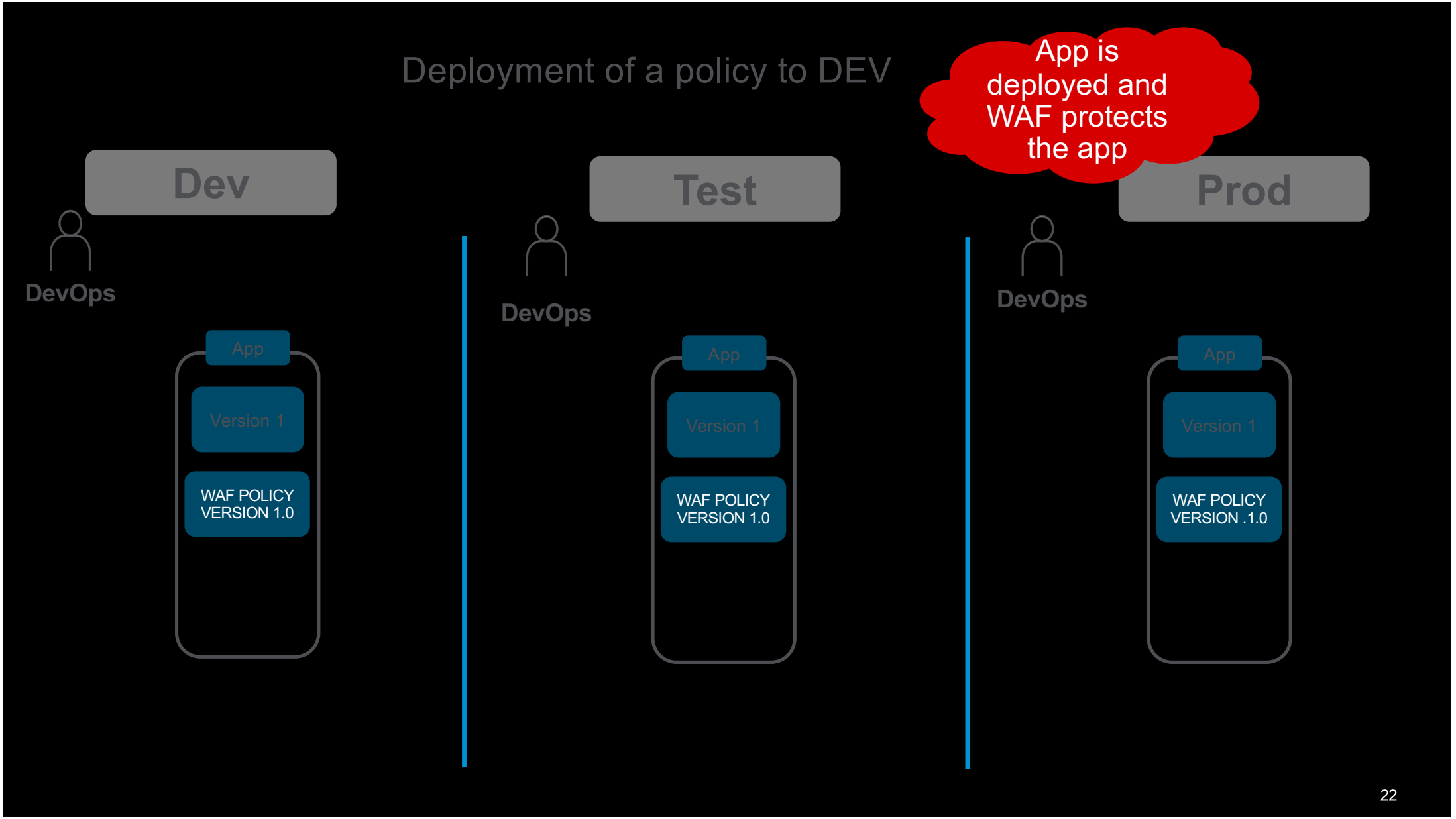
Creation of a policy template

Linux-high - CVE Vulnerabilities + Bot Protection




Deployment of a policy to DEV
Dev
Test
Prod
DevOps
SecOps
App
Version 1
WAF POLICY
VERSION 1.1
Policy
repo

Deployment of a policy to DEV



Benefits

SecOps:

1. **Focus on security** not on button pushing
2. Not involved in rollbacks
3. Enables faster adoption of **advanced security features**.

DevOps (Tools team) :

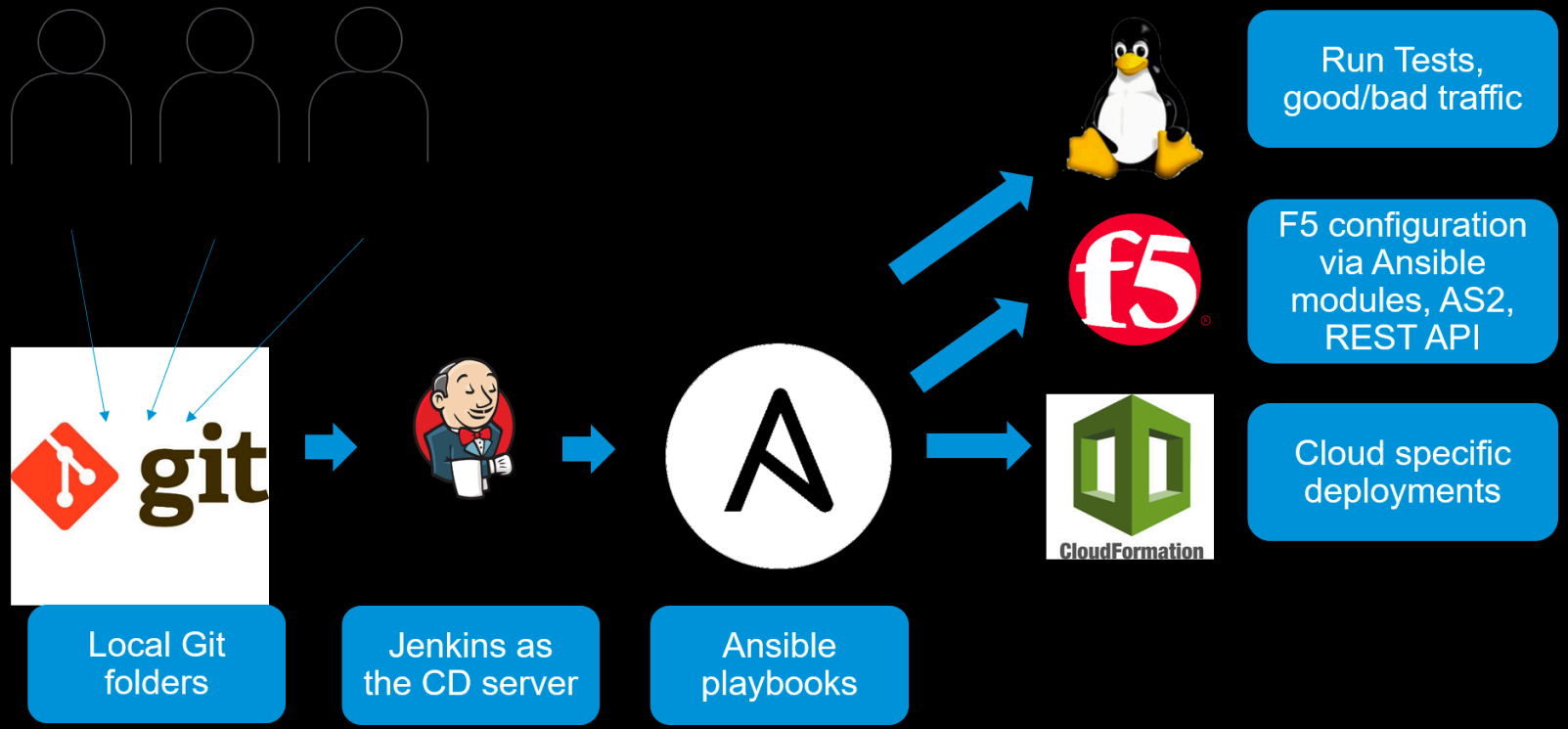
1. Clear **visible changes**
2. Changes are part of the pipeline – enables **continuous improvement of the deployment**
3. Enables advanced deployments – blue/green , canary - **increases reliability**

App owner:

1. Security policy is deployed early in development and enables **faster time to market.**
2. Choses what are the features that make sense for him and have '**control over his destiny'**

Lab

- **Managing AppSec as code via a CI/CD pipeline**



SOLUTIONS FOR AN APPLICATION WORLD