DUUD DAYS

DevSecOps Days DC

Successful DevSecOps Implementation for Production Environments is a Journey Not a Milestone

Christopher Brazier

Software Engineering Institute Carnegie Mellon University Pittsburgh, PA 15213

Carnegie Mellon University Software Engineering Institute Successful DevSecOps Implementation for Production Environments is a Journey Not a Milestone

Introduction

DevSecOps – The Journey

Culture, Leadership, and Teams

Teaming







Introduction



Carnegie Mellon University Software Engineering Institute

Introduction - DTRA

<u>Mission</u>: The Defense Threat Reduction Agency <u>enables</u> DoD, the U.S. Government, and International Partners to <u>counter</u> and <u>deter</u> Weapons of Mass Destruction and Improvised Threat <u>networks</u>

<u>Focus</u>: DTRA has pivoted to focus on the principal tenets of the National Defense Strategy and <u>has key roles in each</u>:

- 1. Strong Nuclear Deterrent
- 2. Decisive Conventional Force
- 3. New Approaches to Compete in the "Grey Zone"

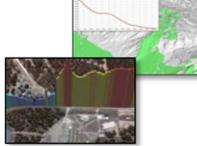


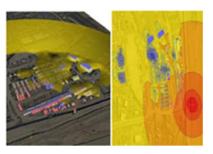


Introduction – Operations and Integration Mission Support Technology

<u>Vision</u> - An organization that rapidly delivers capabilities to the warfighter and strategic partners through reliable, agile, and state-of-the-art solutions supporting operationally-relevant mission-focused technologies and methodologies that deliver collaborative environments for end users and developers to solve problems across the event domain.







<u>Mission</u> - Engaging in tough and relevant problems by enabling and executing the rapid ingestion, fusion, and dissemination of mission critical data by building capabilities and developing methodologies to empower the warfighter and strategic partners to identify, track, and disable disruptive people, processes, and technologies.

DEV



The Journey Begins...



Carnegie Mellon University Software Engineering Institute

Our Journey Began Over 5 Years Ago

- No one else was doing this in DoD
- Others will do things differently and leverage the reference architecture
- Motivations included:
 - "Adapt or Die" Deployment Speed
 - Pace of Customer Needs and Problem Domain
 - The Risk Management Framework
- There were enablers and barriers to our success
 - Enablers:
 - Location
 - Leadership and Championship
 - Contracts

- Barriers:
 - Contracts
 - Knowledge (Initially)
 - Operations Side (Infrastructure) Knowledge



Why Are There Struggles Achieving DevSecOps Success?

• Process and Procedure

Keys to Success

• Leadership, Hard Work, Team Collaboration, Culture

Platform Sustainment

- Maintenance
- Licensing



"DevOps is more about principles of how we work then it is about tools or job roles, it is a team effort. DevOps is about architecting a process up front so that things like change control are more or less automated out of the way, this means an engineer can identify a problem and push a fix in an extremely rapid fashion." https://thenewstack.io/why-it-is-difficult-to-hire-for-devops/

DUU DAYS

The Journey Continues with Culture...



Carnegie Mellon University Software Engineering Institute

Culture – Leadership and Teams

- The Importance of Culture
 - Cross Functional Teams
- Trust Between Leadership and Team
 - Envision the Future
 - Embrace Questions
- Technical Talent
 - Top Down and Bottom Up
- Embracing Change
 - Development

Carnegie Mellon University

Software Engineering Institute

- Cyber and Configuration Management



DEV

DAY



Teaming

- Breaking the Mold
 - New Change Initiatives to Reinforce New Midsets
- Empowering the Team
 - Cross Functional Team
 - Contracts
 - Delegation of Authority





The Journey Never Ends...(but this presentation does)



Carnegie Mellon University Software Engineering Institute



Shared Insight into Reality

Technology and Understanding Continue to Evolve

Next...

- Apply Knowledge to Build MLOps Pipeline for Continuous:
 - Development
 - Testing
 - Deployment
 - Monitoring
 - Re-Training
- Build Proof of Concept and Provide Update on 12 Nov at All Day Dev Ops

