DEVOPS WORLD
by CloudBees

LEADERSHIP

From Startup to Enterprise: Migrating the Air Force's Largest Data Center to Cloud Computing and DevSecOps

Brian D. Wolff, Major, USAF

LEAD ENGINEER, CLOUD COMPUTING

WEATHER PROGRAMS OFFICE

Agenda

- Intro

- Pre-Start of the journey

- Start of the journey

- Execution and implementation

- Journey forward

- Conclusion

Introduction

- ## Who am I?
  - Major, Software Engineer, 23 Years active duty Air Force
  - Adventurous family of 9 (wife & 7 kids)
  - Lead Engineer at the AF Weather Program Office

- ## What this is:
  - Air Force's Largest Special Purpose Processing Node
  - 1000s of daily active users
  - 80 TB data ingest and processing daily
  - Migrating to cloud computing
  - Digital transformation & DevSecOps implementation

Pre-Start of the Journey

- ## First application
  - Exploratory effort
  - Stovepiped
  - Low risk to operations
  - Perfect for initial lessons learned

- ## Why migrate
  - DoD mandates for consolidating datacenters
  - We needed to modernize
  - Maintaining datacenters is difficult
  - Risk reduction
  - Could deliver capability faster, with better performance and more securely

- ## Team (Start Small)
  - Champion (Top Cover, Vision, Organizing)
  - Chief Architect
  - Designers
  - Program Manager
  - Engineer (Me)
  - Security

Start of Journey

- Education was a must
  - Training
  - Certification
  - Journey to the cloud sim

- Top cover was critical
  - Stakeholder leadership engagement
  - Funding
  - Schedule and priority communication

Execution & Implementation

- Challenges
  - Architecture Design vs implementation
  - Developing in-house processes
  - Hiring with the right experience & skills
  - How is industry doing this and we can't

- Governance/policy and alignment
  - DoD DevSecOps Architecture
  - Cloud One
  - Platform One

- Team growth
  - Organizing better became apparent
  - Aligned to Cloud Center of Excellence model
    - Filled engineering roles first
    - Wore multiple hats between engineering and governance
    - As we grew, we filled gaps and reduced overtasking
  - Grew from team of 7 to team of teams with over 50

DEVOPSWORLD
by CloudBees

Journey Forward

- Operations and support
  - Documenting processes and playbooks
  - Help Desk
  - Training

- Decommissioning
  - Fielded applications
  - Datacenter

- Proper balance between Dev & Ops
  - Where does the line blend and where is it clear

Conclusion & Lessons Learned

- Communication is paramount
  - Funding, Support, User expectations
  - Ensure a shared vision between design and implementation teams
- Expect challenges and face failures
  - Process
  - Schedule Delays
  - Tool determination & changes
- Be innovative, discover/explore but know when to streamline and say No

- Be flexible but honor the plan
  - Create architecture, understand architecture and build processes to support building it
- Be quick to address scope creep

DEVOPS WORLD
by CloudBees

Thank you!

Brian D. Wolff

LEAD ENGINEER, CLOUD COMPUTING

WEATHER PROGRAMS OFFICE