Automate Everything I
Changing the Culture at UHG

USING ANSIBLE FOR AUTOMATION AND GROWTH

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Who are we?
"The future is already here, it's just not widely distributed"
I’ve been using a Deprecated automation tool for a decade.

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UnitedHealth Group Fast Facts

UnitedHealth Group is the largest healthcare company in the world

Ranked #5 on the Fortune 500 ~ 300,000 employees

Global Headquarters: Minneapolis

UnitedHealth Group and subsidiary companies serve ~ 126 million individuals

Ranked No. 1 overall in its sector on Fortune’s 2019 “World’s Most Admired Companies” list. This is the ninth straight year.

UnitedHealth Group Processes about 1 trillion digital transactions annually.
CLOUD & DEVOPS VALUES
BENEFITS OF ADOPTING DEVOPS CULTURE AND CLOUD PLATFORMS

Noun

DevOps (uncountable)

1. (software development) A software development method that stresses communication and collaboration between software developers and other information technology professionals

- Amplifies feedback loops to developers
- Relies heavily upon automation toolchains and pipelines to achieve highly consistent outcomes
- Developers are accountable to one another and integrate code more frequently
- Developers are accountable for supportability in production
CLOUD & DEVOPS VALUES

BENEFITS OF ADOPTING DEVOPS CULTURE AND CLOUD PLATFORMS

Benefits

In addition to improvements in efficiency and cost optimization, cloud centric applications are more reliable and portable in a highly dynamic industry.

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Agility (with Quality)</th>
<th>Cost</th>
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| Composable Environments Mean Regular Updates / Lifecycles | Application Self Service  
Deployment Automation  
Focus on Solutions, not Platforms | Unequaled Economies of Scale  
Utility Billing: Pay as you go  
+ Elastic Billing: Pay for use |
| Automated Failover, Multiple AZ’s   |                                                      |                                           |
| Disaster Recovery                    |                                                      |                                           |
I NEED 10,000 STRONG ROBOT ARMY STAT!

- Computers follow directions ~100% of the time, 80% of the time
- Iteration lets humans think more critically about solutions
- Consistency becomes the norm
- Inconsistency becomes very apparent
# CLOUD & DEVOPS VALUES

**MISSION, STRATEGY, TACTICS**

“DevOps is a practice, not a role. Much like Agile - you don’t have an Agile team, you have a team that exhibits agility.” - Dave Thomas, “Agility Redux”

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<th>Objectives</th>
<th>Guiding Principles</th>
<th>Key Performance Indicators</th>
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<tbody>
<tr>
<td>• Develop teams from operators (admins) and developers to Cloud Engineers</td>
<td>• <strong>12-factor application</strong> methodology</td>
<td>• Measurable improvements in availability / uptime</td>
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<td>• Establish a culture of software engineering and design thinking</td>
<td>• Staff growth and skill development aligned to program goals</td>
<td>• Percentage of rollbacks</td>
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<td>• Migrate legacy applications into 12-factor apps on cloud platforms, both internal and external.</td>
<td>• Improving deployment and delivery methods is as important as the toolsets</td>
<td>• Cost of deployed solutions compared to legacy/on-prem</td>
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<td>• Emphasis on design and architecture patterns which are critical to enterprise-ready outcomes</td>
<td>• Improved Mean Time To Identification &amp; Recovery - MTTI/R</td>
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<td>• Communication between application owners, business owners and service partners is critical</td>
<td>• Faster release cadences</td>
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**TEAM RESPONSIBILITIES**

**DevOps Team**

Provide embedded expertise and highly automated delivery platforms to simplify and streamline application delivery, agile development and cost-effective cloud solutions

- Work with development teams to understand requirements around build, deploy, testing, and provisioning processes
- Introduce and reinforce best practices, reusable patterns, reference implementations and tools
- Define cloud integration
- Ongoing analysis and optimization
- Assist in creating training plans
- Mentoring and support for new and transitioning teams

**Leadership Team**

Provide strategic leadership and guidance to the DevOps Enablement team, work across business units and act as a liaison between business, application, and technical owners across Optum

- Project management engagement
- Provide technical and strategic assessment and make DevOps and Cloud recommendations
- Cross-connecting capability owners with application owners
- Establish and develop vertical and horizontal collaboration between teams
- Reporting, dashboards, and metrics of KPI's to leadership
What if internal IT teams focus was on INNOVATION not task management?

The 80/20 Rule!
“Successful DevOps requires business, development, QA, and operations organizations to coordinate and play significant roles at different phases of the application lifecycle. …. It may be difficult, even impossible, to eliminate silos, but collaboration is essential.” -Laurie Wurster, Gartner
Program Approach

Bigger Picture: One Team, Two Approaches

Approach #1: Integrated Effort

Preparation...

Planning
- Determine Inventory
- Analyze inventory and application classification
- Identify/Collect gaps
- Create migration plan
- Select candidates for migration

Selection
- Research cloud providers
- Create cloud selection criteria
- Map candidates to cloud framework
- Create and define cloud architecture, patterns
- Establish agreements and provision services

Action!

Implementation
- Implement base cloud/devops arch patterns in PoC sandbox
- Implement operational patterns
- Handover support / management

Repeatable processes
- Technical assessment
- Replatform applications
- Deploy to cloud
- Create SLA's

Re-engagement / Follow-up
- On-going or As-needed
PROGRAM APPROACH
BIGGER PICTURE: ONE TEAM, TWO APPROACHES

Approach #2: Supporting Effort

Planning

• Create team narrative
• Benchmark analysis
• Define pilot requirements
• Assess release automation
• Cost evaluation/planning
• Training assistance

Implementation

• Support existing ops and dev teams
• Guidance and assistance migrating
• Definition of cloud services
• Subject Matter Expert Liaisons to Optum Technology partners
TEAM STRUCTURE: ROTATING ENGAGEMENTS

DevOps Team

DevOps Engagement Team

CTO DevOps Enablement / Cloud CoE

Enablement Team Rotation - 1-5 members per engagement
Initial Project Management engagement
Assess engagement/requirements
Team selection based on subject matter, experience, and existing workload
Implement patterns and practices defined by DevOps and Cloud Center of Excellence

Engage and Collaborate

Post Engagement Continuous Feedback Loop
NOW THIS IS A TREND!
CLOUD & DEVOPS VALUES

Complexity

When a user takes a photo, the app should check whether they're in a national park...

Sure, easy GIS lookup. Gimme a few hours.

...and check whether the photo is of a bird.

I'll need a research team and five years.

In CS, it can be hard to explain the difference between the easy and the virtually impossible.
CLOUD & DEVOPS VALUES

Complexity

“... organizations which design systems ... are constrained to produce designs which are copies of the communication structures of these organizations. — Melvin Conway, Conway’s Law

Complex things are hard to understand, and even harder to explain

Empathy is critical to understanding wants, needs, and behaviors - diverse ideas and opinions should be encouraged and explored

Build expertise and skills necessary to communicate in real-time

Learn to adapt and improvise - Letting go of the 5 C’s consistent, comfortable, competent, confident, and control

Delegate and distribute leadership - Best idea wins, no censoring the ideas of your peers

Too much structure kills creativity - avoid the urge to turn everything into a hierarchy
The importance of common shared language!
- Operations
- Development
- Change Management
- QA Testing
- App Teams

Communication, Empathy, Creativity!

Value of Internal Knowledge and Culture