DevOpsing in a Microsoft World

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"A 5 hour road trip to an amusement park on the hottest day of the year"

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DevOps Challenges

- Normal, rational hesitation to widespread change
- Functional silos, organizational alignment
- Typical Agile-Lean-DevOps (ALDO) challenges

Typical IT Org

- Monolithic tools, screenshots, "click next"
- Closed source, undocumented APIs, friction
- Reliance on vendors for engineering
- Silos encouraged by Microsoft

Typical Microsoft Org

- Commercial Off The Shelf (Buy vs. Build)
- Virtualization Complacency
- Limited engineering tradition

Columbia

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Core Challenge:

Enduring DevOps transformations require a commitment to learning

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"A learning organization is an organization skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights" — David A. Garvin

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If you want to "do the DevOps" and don't have a learning organization, what do you do?

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Hypothesis:

The pain of developing a growth mindset as an adult is not well understood or documented

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Interviewed team members

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Warning:

1) Small sample size
2) Bias
3) Probably other stuff too

Platform Engineering Team

- First IT Job
  - Help Desk   (12/19)
  - Operations Support   (4/19)
  - Other   (2/19)
  - Development   (1/19)

- Education
  - Associate Degree (5%)
  - College Degree (15%)
  - CS Degree (0%)

- Years in IT
  - 0-10   (3/19)
  - 11-20   (9/19)
  - 20+   (7/19)

- Years at Columbia
  - 0-2   (6/19)
  - 3-8   (7/19)
  - 9+   (6/19)

- Vendor Certifications
  - 0   (10%)
  - 1-4   (30%)
  - 5-8   (60%)

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The Journey:

Rewarding, bumpy, and lots of self doubt, I definitely felt like an imposter. Eventually: "I felt like I could grow/contribute"

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Favorite Aspect:

I have enjoyed expanding my sphere of responsibilities and interests by breaking down IT silos. The variety and level of activity within the team has been rejuvenating

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Least Favorite Aspect:

Constant change...all the experiments, not enough time to go deep

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Advice to 2015 self (1):

Be prepared to disappoint someone,
It could be your manager, the
business, your teammate, or yourself

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Advice to 2015 self (2):

Don't be overwhelmed by DevOps nirvana...try to stay focused on incremental improvements. Each improvement is like a savings deposit that will compound over time

Advice to 2015 self (3):

Prepare for a lot of change; be willing to embrace the change; Reflect on why you do things...is it still valid? Was it ever valid?

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Anticipating:

CHEF, Public Cloud, automation

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If you want to "do the DevOps" and don't have a learning organization, what do you do?

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Options:

1) Executive program
2) Import DevOps
3) Bottoms Up

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Is it possible to build a learning organization whilst also implementing DevOps patterns/behaviors?

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SWOT Analysis

Strengths

- Vendor partnerships
- Exceptionally tight knit teams
- Expertise in storage & virtualization
- Strong operational background
- Entrepreneurial DNA
- Low turnover in team
- 99% virtualized with high availability

Weaknesses

- Reliance on vendors (COTS, Microsoft)
- Single threaded in numerous technologies
- Substantial legacy footprint
- Large population of long-lived servers
- Organization not "product" oriented
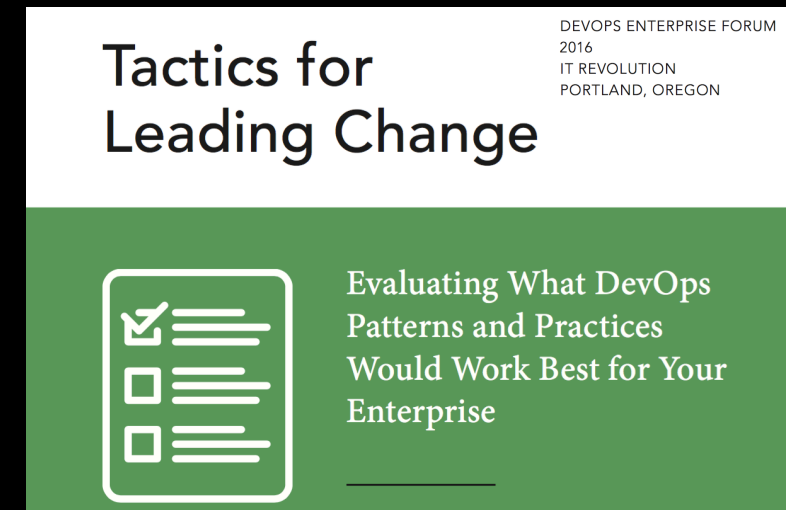- Decentralized Internal Customer base
- Low standardization

Opportunities

- Centralized Infrastructure Engineering
- 2 Engineers with scripting capabilities

Threats

- Rapid disruption in retail

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Small batch DevOps®

- Make a compelling case for change (Tactic 14)
- DevOps information sessions (Tactic 2)
- Make Work Visible (Tactic 11) — TFS Kanban
- Experiments (Tactic 4) — vRA for IaaS
- Gemba Walks (Tactic 9)

- Later
  - Blameless Retrospectives (Tactic 5)
  - Set WIP Limits (Tactic 13)

Tactics for Leading Change

DEVOPS ENTERPRISE FORUM
2016
IT REVOLUTION
PORTLAND, OREGON

Evaluating What DevOps Patterns and Practices Would Work Best for Your Enterprise

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Learning Org progression

Cognitive

- Exposed to new ideas, expand their knowledge and begin to think differently.

Behavioral

- Employees internalize new insights and alter behavior.

Performance Improvement

- Changes in behavior leading to measurable improvements in results.

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2015

Q1	Q2
• Daily Standup → Weekly Standup • TFS Kanban • **TFS Version Control : *Goal 250 artifacts*** • Conferences — spread wealth • **DevOps in a Microsoft World (Snover)** • Primary / Alternate engineer swaps	• CHEF Conf 2015 x 10 • Phoenix Project suggested reading • **Nordstrom reference calls** • PS & VMware vCloud Automation Center • Prepare Workspace (TFS, .Net, PS, ChefDk) • CHEF POC
Q3	Q4
• Enterprise CHEF contract (700 nodes) • Weekly Demos • DSC Server provisioning (PoshOrigin) • Difficulty stabilizing tools, automation • **Height of frustration** ☹ • PowerShell onsite training	• Simplified PoshOrigin: WSIWYG • CHEF Greenfield via Server provisioning • Automation for ransomware remediation • Curious people series • Desktop PowerShell module • **CHEF: 100+ Greenfield Servers** • **500+ artifacts in version control**

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2016

Q1

- Greenfield N-Tier App with CHEF
- CHEF onsite training
- Slack experimentation
- Work visibility & analytics — TFS + PowerShell
- Clean up ticketing system
- **vRA, NSX, etc. investigation**
- All in one monitoring solution

Q2

- **Exploration:** PS script consumption
- **Automation:**
  - psake, pester, Artifactory
  - Stretched vSAN cluster
  - **Data Center migration via automation**
  - PowerShell module to manage TFS Kanban
- **Community:** DevOpsDays Portland Sponsor
- CFPs for tech conferences

Q3

- **Ideas: VelocityConf – ChatOps & Rotations**
- **Book:** "Team of Teams" McChrystal
- **Organization:** Cross functional re-org
- **SCM: GitLab — version control & CI/CD**
- **ChatOps: CHEF + Hubot + Slack + GitLab**
- **Automation:** O365 Exchange in Cloud

Q4

- **Exploration**: scripting for AWS/Azure, EMC
- **Challenges:** Loadbalancer pains, SOX 404
- **CHEF:** 500+ Servers & CHEF Automate
- **ChatOps: 150+ scripts, "Etsy Day 1", demos**
- **Friction: Prioritization, Principles**
- **Org:** Hiring great engineers, rotations

2017

- **<u>Organization</u>**
  - Cross-functional teams of 4 to 5 that rotate
  - Scheduled weekly retrospectives — ITSM Queue, Notable incidents/projects

- **<u>ChatOps</u>**
  - "We should create a RYU for that"
  - Demo with Microsoft's Teams Product leadership
  - Contributions from other orgs
  - Slack Rules of Engagement (Skype For Business, Workplace, etc.)
  - Azure Management & Costing, NetScaler, SharePoint, Teradata, Commvault, EMC, VMAX migrations

- **<u>Azure PaaS Exploration</u>**
  - 10 Proofs of Concept in flight, GitLab CI (Terraform/ARM)
  - Emerging "cloud first" orientation
  - Deferred Capital re-investment in Colocation facilities

- **<u>Green/Blue</u>**
  - NetScaler, SAP Application Servers

- **<u>CHEF</u>**
  - "Brownfield", 1300+ Servers, Sensu cookbook, Security / Compliance CIS cookbooks

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ChatOps

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Provisioning Lab

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Our experience: YES, But...

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