DevOps: Left Shift Management Practices

Lynn Robert Carter
Nithyanandam “Mathi” Mathiyazhagan
Mark Underwood
Ruth Lennon
Who we are: Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the IEEE P2675 DevOps Standard Committee, current or past employers of this team.

Examples or use cases presented herein are illustrative only.
## Agenda

<table>
<thead>
<tr>
<th>No</th>
<th>Title</th>
<th>Duration</th>
<th>Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Welcome, Introduction</td>
<td>10 minutes</td>
<td>Lynn Robert Carter</td>
</tr>
<tr>
<td>2</td>
<td>Foundational concepts of DevOps</td>
<td>20 minutes</td>
<td>Mathi</td>
</tr>
<tr>
<td>3</td>
<td>Discuss – Workshop Scenario</td>
<td>10 minutes</td>
<td>Mathi</td>
</tr>
<tr>
<td>4</td>
<td>Break-out Session and discuss observations</td>
<td>20 minutes</td>
<td>All</td>
</tr>
<tr>
<td>5</td>
<td>IEEE DevOps P2675 Standard</td>
<td>20 minutes</td>
<td>Lynn Robert Carter, Mathi</td>
</tr>
<tr>
<td>6</td>
<td>Key Practices for the support of DevOps</td>
<td>10 minutes</td>
<td>Lynn</td>
</tr>
</tbody>
</table>
Lynn Robert Carter

- Founding Partner, Carter Radley LLC, United States
- Professor at MSIT, Gachibowli, Hyderabad, India
- Professor Emeritus at Maharishi Markandeshwar (Deemed to be University), Mullana, Ambala, India
- Member of IEEE P2675 DevOps Standard Development Group and Secretary
- I am interested in supporting the discipline of software engineering
- I have 47+ years of experience in academia & industry
  - 17 Years at Tektronix, Motorola, GenRad, and EdgeCore Technology
  - 23 Years at Carnegie Mellon University (SEI: Senior MTS; Associate Teaching Professor)
  - CSAB and ABET/CAC Evaluator, Team Leader, Commissioner, ExCom
  - IFIP WG 2.4 Member, Officer, Emeritus

- Email: LynnRobertCarter@gmail.com
Mark Underwood

• AVP, InfoSec Strategic Initiatives Advisor at Synchrony.
• Member of IEEE P2675 DevOps Standard Development Group
• Interests include
  • Big Data security & privacy,
  • Ontologies for model-based software engineering,
  • DevOps for Ops and domain-specific frameworks.
• He plays electric violin.
• Views expressed are his alone, not Synchrony.

Email: dark@computer.org
Ruth G. Lennon

• Lecturer in Letterkenny Institute of Technology, Ireland
• Member of IEEE P2675 DevOps Standard Development Group
• I am interested in supporting the ‘Ops’ side of DevOps
  • We need each other!
  • Industry needs courses that include an awareness of many aspects of a product life cycle
• I have 20+ years of experience in industry & academia
  • Lecture on courses developed specifically for industry
  • ISO/NSAI WG 38 Committee
  • ACM-W Europe Executive
  • IEEE UK&I W Committee
  • +Anything else I get talked into…

• Email: Ruth.Lennon@lyit.ie
Nithyanandam “Mathi” Mathiyazhagan

- Lead Program Manager, Strategic Projects @John Hancock
- Business and Technology consultant with extensive experience in organizational transformation initiatives
- Develop product roadmap and deliver solutions that creates business value
- Conduct technical due-diligence for mergers & acquisitions
- Nurture and develop talent for the new way of working
- Lead multi-year transformational programs to achieve organizational outcomes
- Member of IEEE P2675 DevOps Standard Development Group
- Chair for the Association for Information Science and Systems – Special interest group on Knowledge Management (ASIST.ORG SIG-KM)

Email: nmathiyazhagan@live.com
What is left-shifting in DevOps?

• DevOps Benefits
  • Faster delivery of features and sustain stable operating environments

• DevOps Approaches
  • Left-shifting
    • Getting Ops engaged at the beginning of the software and systems lifecycles
  • Automation
    • Routine tasks executed quicker with minimal handoff
DevOps Pillars for improving responsiveness

- Continuous Integration (CI)
- Continuous Delivery (CD)
- Continues Deployment (?)
- What else needs to be continuous?
Management Practice for Actively engaging in Left Shift

• Management has the role in getting the right people with the right knowledge and skill at the right time:
  • Talent acquisition
  • Effective onboarding
  • Creating an environment for teamwork
• Providing resources earlier than normally done
  • Commitment of ops team members
  • Funding to spun up environments, etc.
What other items needs to be addressed in order to be more responsive?

• ...
Who are the key stakeholders?

- Think about a highly regulated industry (e.g. financial services, healthcare, emergency response, etc.)?
  - Business representative (e.g. product owners)
  - Compliance (e.g. SOX, HIPAA)
  - ...
How do we get stakeholders onboard?

• Normal responses when you ask for improvements
  • We are extremely busy with what we are doing
  • We don’t have the funding
  • We don’t understand what you want us to do?
• We can help with some and the rest is going to need management support

Discuss: What do we need to do to bring about the change?
Workshop

Scenario:
The agile team has observed that the business stakeholders needs more frequent feature deployments to support their field staff. The typical for the agile iteration deployment of about 4-6 weeks that needs to be drastically cut down to 1 or 2 weeks. The management has agreed to support the team for implementing DevOps. Currently you have several teams (stakeholders) in the organization with which you are working with.

Question:
What are the impediments that needs to be removed by management to implement changes for DevOps
Characteristics of Emergency Management System (EMS)

- Critical timelines
- Physical constraints
- May entail MANETS (Mobile Ad Hoc Networks)
- Multi-agency interoperability
- Possible “break glass” scenarios (security/privacy)
- Partial knowledge / uncertainty
- Partly working systems may still have value (< 100% correct is OK)
EMS: Challenges

• Your CI/CD pipeline includes new partners
• How will you update your CI/CD to accommodate new players?
• How will you communicate your practices to new partners?
• How will you assess competency of specific individuals to contribute to a build? To maintain (patch?) To deploy builds?
• How will DevOps release management change for emergency environments?
Breakout

The team to think about the tasks that needed to be done starting with:

Step 1: What are the impediments to meet the objectives

Step 2: Who are the stakeholders that need to be engaged from the people, processes, and tools perspective

Step 3: How can management help us to get the stakeholders onboard?

Step 4: How do we collaborate and work together to sustain the new practice?
Discuss observations from the breakout
How standards can help?

- Defines a shared vocabulary and requirements for various processes (e.g. procurement, quality management, etc.)
- Provides framework for shared practices and communication and repository for those practices
- Access to training materials and tools in the form of books, articles, and software applications
- Improves the likelihood identifying resources
P2675 - DevOps

• DevOps - Standard for Building Reliable and Secure Systems Including Application Build, Package and Deployment
  • [https://standards.ieee.org/project/2675.html](https://standards.ieee.org/project/2675.html)
• This standard will specify practices for groups including development, operations and other key stakeholders to collaborate and communicate effectively to build, package and deploy software and systems in a secure and reliable way.
• All of these activities and functions shall be integrated within the complete lifecycle.
What topics might a good standard include?

- Software Systems
- Organization
- Process
- Lifecycle
  - Agreement, acquisition, supply
  - Portfolio management
  - HR/Talent management
  - Quality management
  - Technical process: decision management; risk management
- Business analysis
  - Stakeholders, systems requirements, software requirements
  - Architecture, design, interaction, V&V
  - Operations, maintenance, disposal
Other embedded issues, what are your priorities?

- Security
- Performance
- Assurance
- Legal & Regulatory
- Ethical
- Auditing
Key Practices for the support of DevOps

- Shared Vision
- Solve funding problem
- Establish collaborate environment in order to be more responsive
- ...

Why Micro-learning?

- Timeframe precludes traditional classroom settings
- Dominated by close collaboration with domain experts
- No time for IT specialists to learn other domains
- Many small steps vs. broad sweep of architecture
Take Away/Concluding Remarks

• Lynn Robert Carter
• Mathi

• Watch out for the new standard:
• P2675 - DevOps - Standard for Building Reliable and Secure Systems Including Application Build, Package and Deployment
• https://standards.ieee.org/project/2675.html