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DM-0002231
What DevOps is Not!

Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA  15213

Hasan Yasar
C. Aaron Cois
DevOps is not

A FAD
Organizations adopting DevOps are deploying code 30x more frequently with 50% fewer failures.
DevOps is not
NEW
DevOps is Agile
DevOps is an Extension of Agile Thinking

**Agile**

*Embrace* constant change

*Embed Customer* in team to internalize expertise on requirements and domain

**DevOps**

*Embrace* constant testing, delivery

*Embed Operations* in team to internalize expertise on deployment and maintenance
Polling Question 2

Would you like more information about the relationship between Agile software development and DevOps?

1. Yes
2. No
DevOps is not TOOLING
DevOps

Business Needs

Shared Goals

Collaboration
Many tools can help you achieve your DevOps goals…

But don’t get distracted!

Integration and communication, even among tools, is key.

Redundant tooling is worse than no tooling at all.
Polling Question 3

Would you like more information on shared goals in DevOps?

1. Yes
2. No
DevOps is not

A PRODUCT
DevOps is About Culture and Quality

Early involvement of experts
Ops = experts in maintainability and deployability

Complete engagement
Don’t bring Ops Engineers in as consultants – make them first-class team members with same success criteria as devs

Break down organizational silos
Enable and require constant communication
Without a Collaborative Culture, You Don’t Have DevOps

Ask yourself:

Do your Devs know *exactly* what *actual* production looks like?

Does Ops know how Devs package a build?
Is it *consistent*?

Can both Dev and Ops collaborate on server configuration and apply it automatically to both *development and production environments*?
Without a Collaborative Culture, You Don’t Have DevOps

Ask yourself:

Do business analysts **know the cost** of feature addition or modification?

Can project managers measure project status **at any point in time**?

Can the customer measure project status **at any point in time**?
DevOps is not
ONE SIZE
FITS ALL
DevOps Requires Customization to Meet Your Unique Needs

Example: How should I configure my CI server?

Want 90% test coverage?
Fail the build if code base is < 90% covered

Want all DB queries < 2sec?
Test them, and fail the build otherwise

What does quality mean to your organization?
DevOps is not
SILOED
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DevOps Breaks Down Silos

Development Team
IT Operations Staff
Quality Assurance
Analysts
Waterfall

- Requirements
- Design
- Implementation
- Verification
- Maintenance
Teams have moved to Agile methodologies, but roles still align with waterfall methods.
DevOps is not
AN
ORGANIZATIONAL UNIT
Polling Question 4

Do you think “DevOps Engineer” is a valid role?

1. Yes
2. No
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Dev
DevOps
QA
Analysts
DevOps is Systematically **Shifting Left** Ops Concerns

Development Environment → Test Environment → Stage Environment → Production Environment

Ops Team
DevOps is Systematically Shifting Left Ops Concerns
DevOps is not

JUST ABOUT DEV AND OPS
Silos Create Many Transitions Throughout the SDLC

- Marketing/Analysts
- Architects/Designers
- Developers
- Quality Assurance
- IT Operations
Every Transition of Your System is a Risk
Software Projects Are Complex

- Scalability
- Infrastructure
- Deployment
- Networks
- Performance
- Updates
- Programming
- Technical Documentation
- Testing
- Code Review
- User Interface
- User Documentation
- Security
- Data Privacy
- Intrusion Detection
- Business Constraints
- User Requirements
- Legal Issues
- Market Needs
- Budgets / Timelines
- Functional Requirements
- Business Constraints
- Legal Issues
- Market Needs
- Budgets / Timelines
- User Requirements
- Functional Requirements
- Business Constraints
- Legal Issues
- Market Needs
- Budgets / Timelines
- User Requirements
- Functional Requirements
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Developer Expertise

Scalability

Infrastructure

Deployment

Maintenance

Networks

Performance

Technical Documentation

Programming

Security

Updates

Testing

Code Review

User Interface

User Requirements

User Documentation

Functional Requirements

Business Constraints

Release Review

Data Privacy

User Documentation

Data Privacy

Intrusion Detection

Legal Issues

Market Needs

Budgets / Timelines
IT Operations Expertise

- Scalability
- Infrastructure
- Maintenance
- Deployment
- Networks

- Technical Documentation
- Update
- Performance
- Functional Requirements
- Programming
- Testing
- Code Review
- User Interface

- Security
- User Documentation
- Intrusion Detection
- Data Privacy
- Business Constraints
- Legal Issues
- Market Needs
- Budgets / Timelines
Quality Assurance Expertise
Business Analyst Expertise

Scalability
- Infrastructure
- Deployment
- Networks
- Updates
- Technical Documentation
- Release Review
- User Documentation

Business Constraints
- User Requirements
- Legal Issues
- Market Needs
- Budgets / Timelines

Security
- Data Privacy
- Intrusion Detection

Functional Requirements
- Performance
- Testing
- Code Review
- User Interface
- Scalability

User Requirements
- Business Constraints
- Market Needs
- Budgets / Timelines
- Security

Performance
- Testing
- Code Review
- User Interface

Market Needs
- Budgets / Timelines
- Security

Budgets / Timelines
- Security

Legal Issues
- Security

Intrusion Detection
- Security

User Documentation
- Business Constraints
- Market Needs
- Budgets / Timelines

Intrusion Detection
- Security
DevOps is not REPLACING OPS
Effective Teams Need Dedicated Experts

Primary attributes of your system require dedicated expert team members

E.g. Security, Usability, Deployability

DevOps does not mean telling developers to learn / automate operations tasks
Ops Needs to Guide Development
The SDLC is Full of Decision Points

Without Ops knowledge, developers continually make uninformed decisions, causing eventual risk or inefficiency
The SDLC is Full of Decision Points

- How many users?
- Payment model?
- Who is the Target Market?
- Which regions?
The SDLC is Full of Decision Points

What OS?
What ports?
VMs or containers?
Entry points?
The SDLC is Full of Decision Points

What kind of user authentication? REST vs SOAP? How to architect for scalability?
Uninformed Decisions Lead Your Project Down Suboptimal Paths

Developers Only

Dev + Ops
DevOps is not CONTINUOUS DELIVERY
Polling Question 5

Does your organization hope to achieve continuous delivery?

1. Yes
2. No
Continuous Deployment

Changes are deployed ASAP into production

Continuous Delivery

Changes are deployed immediately into a production-like environment, to ensure that they could be deployed into production
Not Everyone Needs to Achieve Continuous Deployment

Your DevOps goals should be designed around **business needs**

Do frequent deployments give you a competitive edge?

If not, what does?
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DevOps and Continuous Delivery—Software Architecture, Security and Interactive Learning

SATURN 2015 Course • April 27, 2015 • Baltimore, MD

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