Lesson 1.3: DevOps Principles: The Three Ways

DEVOPS CULTURE AND MINDSET

DevOps Principles: The Three Ways

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Slide 1: Encountering the Skeptics

Encountering the Skeptics

Read up on Dr. William Edwards **Deming**

Led rise in production **quality control**

Deming Prize: Total Quality Mgmt. honor

Slide 2: Deming Quote

Deming Quote

"It is not necessary to change.

Survival is not mandatory."

- Dr. William Edwards Deming

Slide 3: Learning Objectives

Learning Objectives

Recall and describe **The Three Ways**

Describe how these bring **CALMS to life**

Explain how each of The Three Ways **contributes** to core DevOps **values**

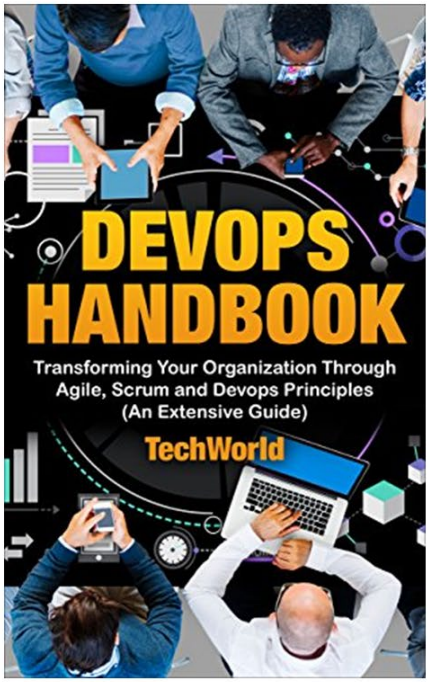
Slide 4: Introducing The Three Ways

Introducing The Three Ways

1. Systems thinking
2. Amplifying feedback loops
3. A culture of continuous experimentation and learning

Developed by Gene Kim and Mike Orzen

Slide 5: DevOps Handbook



Slide 6: Systems Thinking

Systems Thinking

Emphasizes **performance** of entire system

Collaboration across functional lines

Focuses on IT-enabled **value streams**

Slide 7: Systems Thinking Outcomes

Systems Thinking Outcomes

Stops passing defects downstream

Does not allow local optimization

Always seeking to **increase flow**

Profound **understanding** of the system

Slide 8: Deming Quotes

Deming Quotes

"Quality is **everyone's responsibility.**"

- W. Edwards Deming

Slide 9: Deming Quotes

Deming Quotes

"Quality is **everyone's responsibility.**"

- W. Edwards Deming

"Learning is not compulsory. **Neither is survival.**"

- W. Edwards Deming

Slide 10: An Example of Systems Thinking at Nordstrom

An Example of Systems Thinking at Nordstrom

Documenting value stream allowed us to see **defects** being **sent downstream**

Data demonstrated **sub-optimization**

Led to **automated testing**, embedding and measuring **quality**

Slide 11: Amplifying Feedback Loops

Amplifying Feedback Loops

Feedback Loop:

A process that allows for reflection on its own output before determining the next steps that need to be completed

Slide 12: Outcomes of Amplifying Feedback Loops

Outcomes of Amplifying Feedback Loops

Understanding and responding to all customers

Shortening and amplifying all feedback loops

Embedding knowledge where needed

Slide 13: Improving Feedback Loops

Improving Feedback Loops

Build **automated tests** into pipeline

Embed operations engineers into development teams

Slide 14: A Feedback Loop Example from Starbucks

A Feedback Loop Example from Starbucks

Dashboard visible for all to see

Dashboard turned **red** when a certain percentage of testing failed

Team could **see issues** and **deliver feedback** early and often

Slide 15: A Culture of Continual Experimentation and Learning

A Culture of Continual Experimentation and Learning

Create that culture!

Encourage **risk-taking** & **failing forward**

Affirm that **repetition** in practice is a **prerequisite to mastery**

Slide 16: Outcomes of a Culture of Continual Experimentation and Learning

Outcomes of a Culture of Continual Experimentation and Learning

Allocating time for **improvement work**

Rewarding teams for **taking risks**

Introduce faults into the system to **increase resilience**

Slide 17: Culture of Continual Experimentation and Learning at Nordstrom

Culture of Continual Experimentation and Learning at Nordstrom

Culture of **Innovation**

Testing and **learning** capacity

Required **strategic alignment** with leadership

Framework to evaluate decisions

Slide 18: Culture of Continual Experimentation and Learning at Starbucks and Nike

Culture of Continual Experimentation and Learning at Starbucks and Nike

Innovation Days

Hackathons

Test stores to experiment with new solutions

Capacity provided for learning

Slide 19: Addressing the Biggest Challenge

Addressing the Biggest Challenge

Figure out how to protect capacity

When pressure's on delivery trumps experimentation and learning

Leaders who balance capacity with experimentation and learning are key

Slide 20: Consider Chaos Engineering

Consider Chaos Engineering

Check out the Netflix **Chaos Monkey**

Use **Resilience Engineering** to prepare for outages

Create culture where it's **safe to take risks**

Slide 21: Summary

Summary

Remember The Three Ways

1. Systems thinking
2. Amplifying feedback loops
3. Creating a culture of continuous experimentation and learning