DAY 2: DEVOPS CULTURE

Introduction

DevOps is a culture that shifts the way that Development and Operations team members work together. It aims to foster trust, collaboration, problem resolution, and continuous improvement.

Teams use a variety of practices and tools in order to foster a DevOps culture. You might have heard of **automation** or **blameless retrospectives** and **version control systems**. When used within a DevOps culture, a team can be transformed.

Dev vs. Ops

A traditional software company often has a separate Development and Operations team.

- The **Development team** writes an application's features.
- The **Operation team** creates and maintains the infrastructure that the application runs on.

the Development team sends its code to the Operations team who deploys it on the infrastructure.

there is an inherent conflict between the two teams. Devs want to make new features, and Ops wants the product to be as stable as possible. Unfortunately, new changes are the biggest threat to the stability of a system.

The separation of Devs and Ops can result in a few issues:

- Differences between environments can lead to bugs that are difficult to resolve.
- Handoffs between teams take time
- Information is siloed, meaning decisions are often made without consideration of the other team.

Dev + Ops

Teams that foster DevOps culture seek to be highly communicative. This integration of Development and Operations teams, can resolve many of the issues.

- Faster development and deployment cycles due to fewer handoffs &

shared knowledge
- Environment consistency from Development to Staging to Production
- Improvement of operations activities by applying dev best-practices like version control

A typical engineering team within a DevOps culture may include various engineers, quality assurance (QA) testers, security operations, and information technology (IT) specialists. Siloing information will only cause confusion and create more bugs. Keeping the teams together will result in team members can share responsibilities, align on team objectives, and make decisions together.

The people involved in a good Dev Ops team include:
- Developer
- Operations
- Security
- Bug Killing Developer

DevOps Culture

The culture of DevOps is the most critical factor to its success. It requires a culture in which collaboration can thrive.

A successful DevOps culture will have the following factors:
Systems-level thinking: thinking about the whole production system, rather than a single department. Doing so allows teams to identify **bottlenecks**.

Continuous experimentation and learning: Teams should embrace continuous experimentation and learning encourage rapid development of new features and accept failure as a learning opportunity.

Feedback loops: Feedback loops allow teams to draw information and gain insight into their systems, processes can be improved and optimized.

Systems-Level Thinking

DevOps seeks to have each team member consider all aspects of the development process. Within a traditional team, team members often focus on their own tasks rather than the big picture. This is like silo thought.

When information is shared, the decisions are made as a team.

One important outcome of systems-level thinking is the identification and resolution of **bottlenecks**.

Learning from Failure

Organizations that punish failure create a culture of fear that gets in the way of innovation and growth. We must change that sentiment to viewing failure as a natural part of everyday work.

Failure itself is never something that teams seek out. However, once failure is normalized, teams can be more open to experimentation. The goal is to fail quickly, learn from those mistakes, and then experiment again.

One method DevOps uses to normalize failure and learn from experimentation is through **blameless retrospectives.** Here, team members discuss what went well and the areas where they can improve.

Feedback Loops

A feedback loop is created when a team identifies and tracks a key piece of data, or **metric**. Teams can then use that information to drive process improvements.

The parts of a Feedback loop:

- The system is monitored and data is collected.
- Data is analyzed and bottlenecks are identified.
- Solutions are created and implemented.
- New solutions are monitored again.

Choosing which metrics to track is perhaps the most important step. Don't use metrics that can't provide meaningful insight.

Important Metrics are the ones that effect the customer:

- Time to load a website page
- Time to resolve an issue/outage
- Time to release new features

DevOps seeks to discover defects as early as possible, a strategy known as **shifting left**. Feedback loops contribute directly to a culture of continuous learning.

Review

DevOps culture centers around collaboration between team members across all domains of software development.
Teams include developers, IT specialists, QA testers, and security experts. Teams can share knowledge and make informed decisions together, also known as **“building quality in”**.

- **Systems-level thinking** — thinking of the whole system to identify **bottlenecks.**
- **Continuous experimentation and learning** — embracing failure through practices such as **blameless retrospectives.**
- **Feedback loops** — using **metrics** and **shifting left** to drive process improvement