Getting Familiar with DevOps Processes and Tools

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Agenda

DevOps components and principles

Understanding CI/CD pipelines

Test-driven Development (TDD)

Developing tests
- Linting
- Unit tests
- System tests

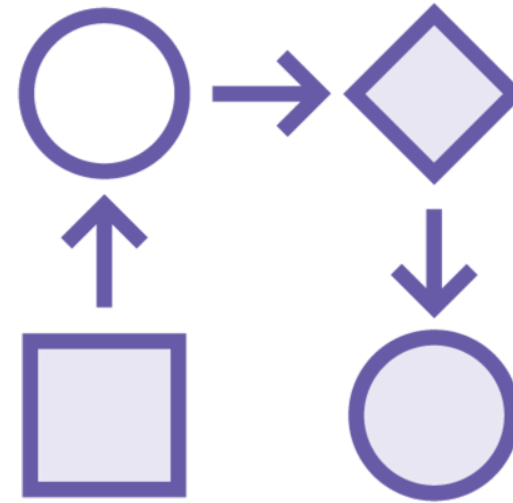**Building a CI pipeline**

Key DevOps Components

Purpose

People

Process

Tools

Focus area

(Some) DevOps Principles

Quality at the source

Incremental improvement

Unite through failure

What DevOps Is Not
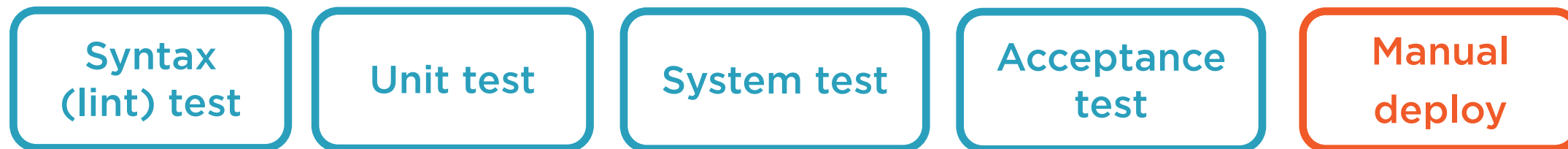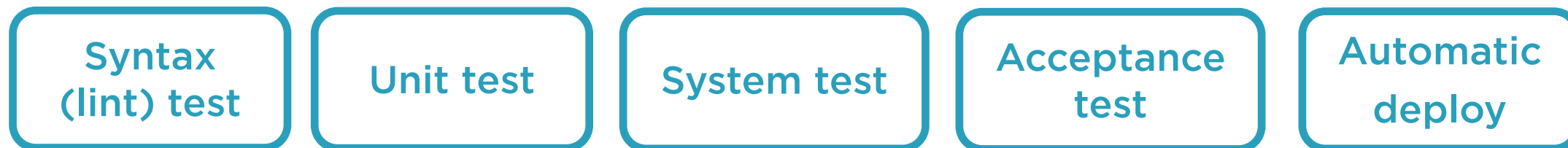
Skill redistribution

A product

A prescription

CI/CD Pipelines Visualized

Continuous Delivery

| Syntax (lint) test | Unit test | System test | Acceptance test | Manual deploy |

Continuous Deployment

| Syntax (lint) test | Unit test | System test | Acceptance test | Automatic deploy |

Continuous Integration

Flow

Embracing Test-driven Development (TDD)

100% test coverage	**Improved code relevance**
Limits work in process (WIP)	**Improves maintainability**

Keeping Code Clean with Linters

Find syntax and styling issues	Fast and secure	Widely used for many languages

Demo

Linting our CRM app with pylint

Unit Testing Done Right with pytest

Python unit testing framework

Start small

Also "unittest"

Demo

Following TDD with unit tests via pytest

System Testing with Docker and pytest

Docker to create container apps

Python HTTP requests

Slower and more complex

Demo

System testing our CRM app

Demo

Test pipeline using Travis CI

Summary

Purpose, people, process, tools

Types of testing

Deploying CI/CD pipelines