CONTINUOUS TESTING STARTS WITH SMART ARCHITECTURAL DECISIONS

Presented by Branka Rakic
Presenter

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Biography

• M.Sc. degree in Computer Engineering
• Test Architect at Levi9
• Over 9 years of experience in Testing
AGENDA

- Public Transport Management system
- Test automation in a DevOps world
- Testing challenges and how to overcome them
- What MUST you take away from this session?
Public Transport Management system
Testing in a DevOps world

- Visual Studio
- DbUnit
- NUnit
- sonarqube
- NuGet
- ProGet
- Octopus Deploy
- PowerShell
- TeamCity

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# TeamCity

## Development Backend
Development branch where all Sprint magic happens on.

### Overview
- **Build Test and Analyze**
  - #1.0.1305: Tests passed: 2145; ignored: 6
  - No artifacts
  - Venta Team
  - 13 minutes ago (13m 54s)

### Development Backend Integration
Development branch where all integration magic happens on.

- **Build Analyze and Publish**
  - #1.0.754: Success
  - No artifacts
  - No changes
  - 16 hours ago (16m 32s)

- **Provisioning**
  - #223: Success
  - No artifacts
  - No changes
  - 15 hours ago (16m 16s)

- **Deployment**
  - #341: Success
  - No artifacts
  - No changes
  - 15 hours ago (3m 56s)

- **Integration Tests**
  - #422: Tests failed: 4 (1 new), passed: 131, ignored: 26; *Overall result: Failed* test appeared in build 1
  - No artifacts
  - No changes
  - 15 hours ago (15m 59s)

- **Integration Tests External**
  - #271: Execution timeout; tests failed: 12 (2 new), passed: 22, ignored: 10; snapshot dependency failed ...
  - No artifacts
  - No changes
  - 14 hours ago (30m 02s)

- **Marker Test**
  - #78: Tests failed: 2, passed: 0, ignored: 2; snapshot dependency failed ... Integration Tests External ...
  - No artifacts
  - No changes
  - 14 hours ago (1m 23s)

- **Remove Environment**
  - #39: Success
  - No artifacts
  - Changes (12)
  - 3 months ago (20h)

- **MapMatching**
  - Pending
  - No artifacts
  - No changes
  - Run

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HOW DID WE START?
Which challenges have been faced?

- Asynchronous communication
- Providing test data
- Simulating real scenarios
- Test environment per client configuration
- Managing independent database state for each test
HOW TO OVERCOME THE CHALLENGES?
Asynchronous communication

In-Memory data store

Query Engine

Memory

Disk is optional

Disk

Test hooks

Message published to channel

subscriber

Subscribers receive messages & can respond to messages or not

subscriber
Providing test data

- Message generator
- Data player
- Ideal trip simulator
- OBU Simulator

But wait ... real life is dynamic

- Using live streaming
- Virtual network adapters on TeamCity
Test environment per client configuration

- Configuration as Code
  - formal migration of config between envs

- Deployment of App Binaries
  - button press, or per-commit via CI

- Infra-structure as Code
  - scripted env creation

Simplified view of an environment
Managing independent database state for each test

- Application
- Tests
- Data Model (Entity Framework)
- Database
- ndbunit
What MUST you take away from this session?

• DevOps is the industry direction
• The quality of software is based on the synergy of all involved parties
• The software testing process starts before the first line of code is written
• Only a stable test is beneficial
• Real life situation should be simulated as early as possible
QUESTIONS?