Continuous Quality Assurance Strategy of an NFVI

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Introduction

Experiences
- 5G DevOps transformation lead and Senior Consultant at Eficode
- Test Coach and DevOps Evangelist in NOKIA (for 19 long years)
- Former President of the Hungarian Testing Board
- Processes Management and Compliance Work Group Chair of ISTQB
- Program Committee Member of – UCAAT, HUSTEF, and EuroSTAR2021 conferences

Certifications
- DevOps DASA Foundation, SAFe SPC, Certified Scrum Master
- ISTQB CTEL-ITP-Full, CTAL-TM, CTFL-AT, CTFL
- IREB CPRE
- Lean Six Sigma Green Belt
- Lean Service Creation – Facilitator
Multi-vendor Telco DevOps challenge
Multi-vendor Telco DevOps goal
Simplified DevOps pipeline

**Development**
- Deliver
- Plan
- Test
- Code

**Staging**
- Deliver
- Verify

**Production**
- Deploy
- Monitor

*Feedback and Visibility*

*Testing of Trustworthy Systems* #UCAAT
Multivendor DevOps pipeline

- **Development**
  - Product Integration
  - Solution Integration

- **Infra vendor**
  - Development
    - Product Integration
    - Solution Integration

- **xNF vendor**
  - Development
    - Product Integration
    - Solution Integration

- **Telco operator (CSP)**
  - Laboratory
    - Onboard
    - Acceptance
  - Pre-Production
    - Artifact storage
    - Deploy
    - Measure
  - Production
    - Artifact storage
    - Deploy
    - Monitor

- **Vendor**

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**Testing of Trustworthy Systems**
Test scope of xNF acceptance

- xNF Integration
- E2E Services
- xNF Lifecycle management
- Service Performance
- Security
- Service reliability
Shift Left opportunity:
- Artifact (xNF) vulnerability scanning
- Compatibility Certification checking (xNF vs. Infra)
- Review of xNF vendor test results
Test scope of Infra acceptance

Infra Lifecycle management
- Capacity Management
- Deployability
- Upgrade

Integration
- SDN
- Orchestration
- BSS/OSS integration

Operability
- xNF Lifecycle management
- Slicing
- Scalability
- Administration

Infrastructure Performance
- Concurrency
- Transactionality
- Consistency

Infrastructure Security
- Vulnerability Scanning
- Penetration testing

Infrastructure reliability
- Availability
- Recoverability
- Accessibility
Shift Left opportunity:
- Infra SW vulnerability scanning
- Compatibility Certification checking (Infra vs. xNF)
- Review of xNF vendor test results
Additional challenges and solutions

Multi-vendor environment

- supplier collaboration within a SAFe Agile Release Train

Low level of Automation

- Deployment automation with Ansible
- Test Automation with Robot Framework
- Capacity reservation for Automation work

Infra SW level outdated

- Infra SW to be taken into the pipeline.
- Infra Ageing metric introduced to follow technical debt on high level
- Capacity reservation to reduce ageing gap

Test Management role in SAFe

- QA Lead role introduced as a Quality assistance function to support Product Management work
- QA tasks are embedded in all Backlog Items, with high focus on NFRs
- Common Continuous Quality Assurance Strategy covering both xNF and Infra
Multivendor Telco DevOps challenge is affecting Infrastructure as well

DevOps and CI/CD are relevant practices in the Telecom industry

Deployment and Test automation on all levels is key

Common Continuous Quality Assurance Strategy and Pipeline design to cover both Infra and xNF

Not only Technology, but Way of Working alignment is also needed
Any further questions?

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