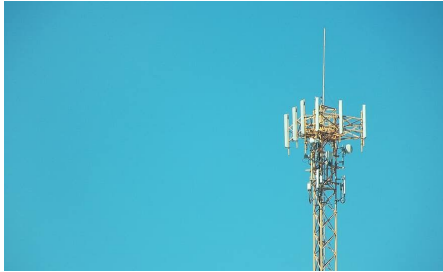# Interoperability Challenges in CI/CD Ecosystem

Fatih Degirmenci
Principal Developer, Ericsson Software Technology
Chair, Special Interest Group Interoperability, CD Foundation

Technology Transformation

- New technologies and methodologies delivering tremendous advances in various industries and increasing the pace of innovation

- New breed of companies disrupting the status quo and pushing the boundaries thanks to their agility
- Traditional players are also on their way to embrace the change and transform themselves

Continuous Delivery Ecosystem

- Continuous Delivery ecosystem is also flourishing
- The new software development and delivery paradigms, methodologies, and technologies are explored and developed by communities
- The tools and technologies bring fresh approaches to the problems

- However, the explosion in number of tools and technologies is not without its challenges
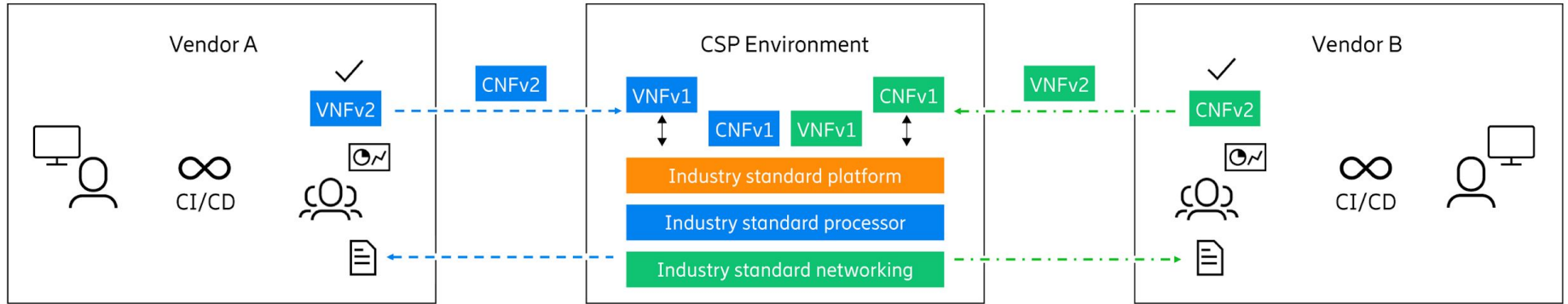
Continuous Delivery Landscape
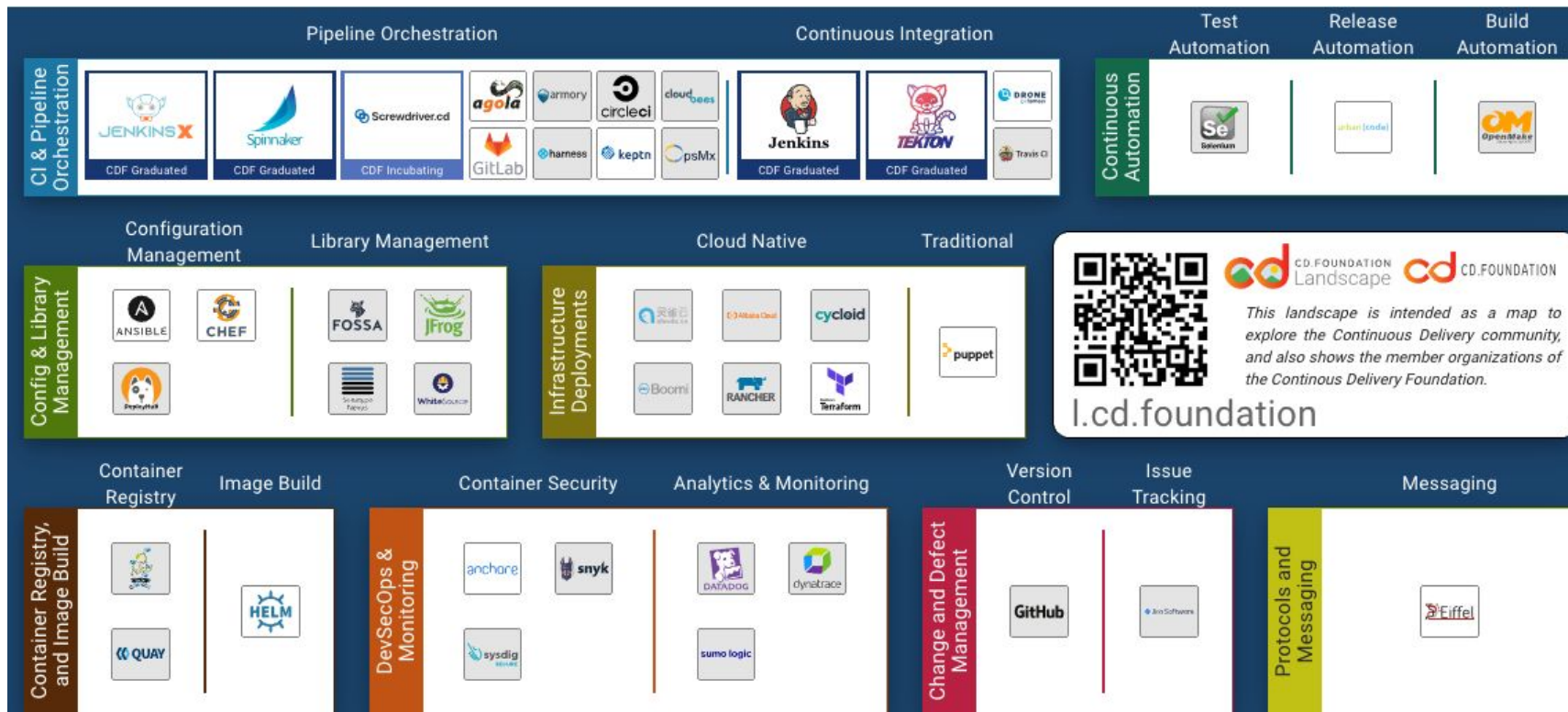
Challenges in CD Ecosystem

- Shared understanding and common terminology
- Lack of loosely coupled, scalable, flexible and technology agnostic solutions
- Assumption of everything is/will be containerized
- Necessity to collaborate and cross-pollinate across different industries
- Lack of neutral forum to collaborate
- Lack of standardized approach

An Example from Telecom Industry

Multivendor Delivery Pipelines

Enter Continuous Delivery Foundation

CDF was founded during March 2019 and hosted by Linux Foundation

A Neutral Home for the Next Generation of Continuous Delivery Collaboration

Members from webscale, cloud, fintech, telecom, e-commerce, IT, CI/CD industries

Hosted Projects	Special Interest Groups
Jenkins Spinnaker JENKINS X TEKTON Screwdriver.cd	Security, MLOps, Interoperability

Special Interest Group Interoperability

- Approved by CDF Technical Oversight Committee during January 2020
- Aims to increase collaboration to address interoperability challenges

Communities

Industries

Webscale
Cloud
Telecommunications
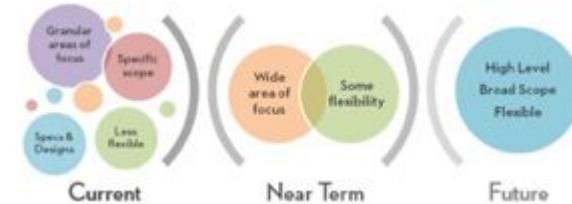E-Commerce
Entertainment
CI/CD
IT Operations
Software

Progress so far

- First contribution to CI/CD Domain: *"Rosetta Stone for CI/CD"*
- Identifying and reaching consensus on challenges and trends
- Established *"workstream"* setup
- Released the first version of the SIG Roadmap
- Outreach - articles, podcasts, workshops, talks

Some of the Challenges Identified

- Lack of common terminology
  - Step vs Job vs Task
  - Pipeline vs Workflow vs Activity
- Shared understanding
  - Continuous Integration vs Continuous Delivery vs Continuous Deployment
  - Integration vs Interoperability
- How to establish end to end and large scale CI/CD
  - Pipelines that cross organizational boundaries
- Pipeline data for for traceability and visualization
  - Lack of standardized metadata
- Integration/interoperability with other tools
  - SCM Systems, Artifact Repositories, Test Frameworks

Recently Started

- First workstream is up and running
  - Events in CI/CD
- Whitepaper in progress
  - The Road to Interoperability in Continuous Delivery
- High level terminology discussion
  - Continuous Integration vs Continuous Delivery vs Continuous Deployment
  - Integration vs Interoperability

Future

- Exploring reusable libraries and providing home for them
- Kicking of discussions on standardized metadata
  - Format which all tools produce and consume
  - Examples to this are: test metadata, release metadata
  - Key for interoperability
- *and the interoperability challenges you bring in...*

Conclusions

- CI/CD domain does not have a traditional standards body like how it is for other industries (e.g. finance, telecom)
- Most of the work in CI/CD domain is driven by communities
- Ideas incubated and specifications developed by communities are candidates to become *"de-facto standards"* (e.g. cloudevents)
- Cross collaboration and pollination across communities and industries is key to addressing challenges
- Continuous Delivery Foundation provides neutral home for collaboration

QUESTIONS?

Links

- [CD Foundation](#)
- [CDF Continuous Delivery Landscape](#)
- [CDF SIG Interoperability](#)