


# DRX: Privacy-by-design Digital Rights Exchange

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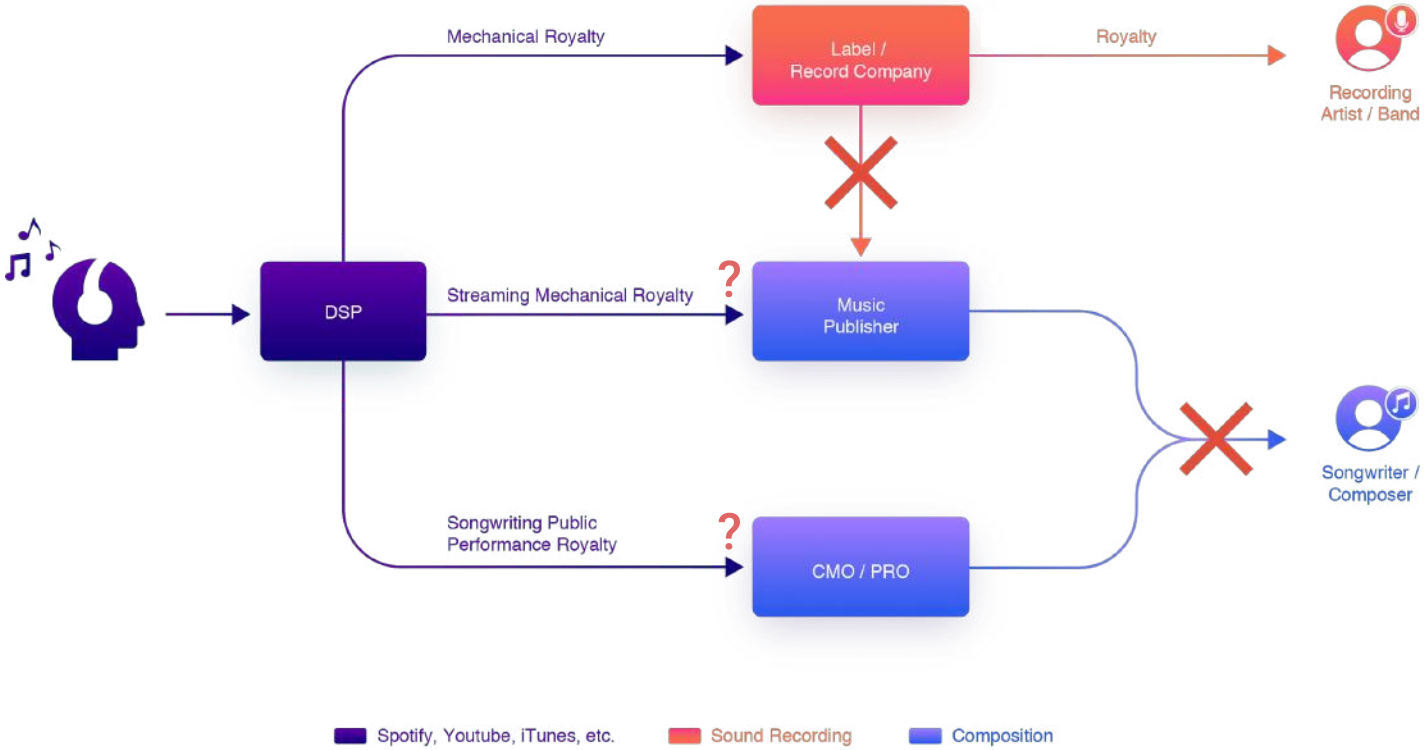
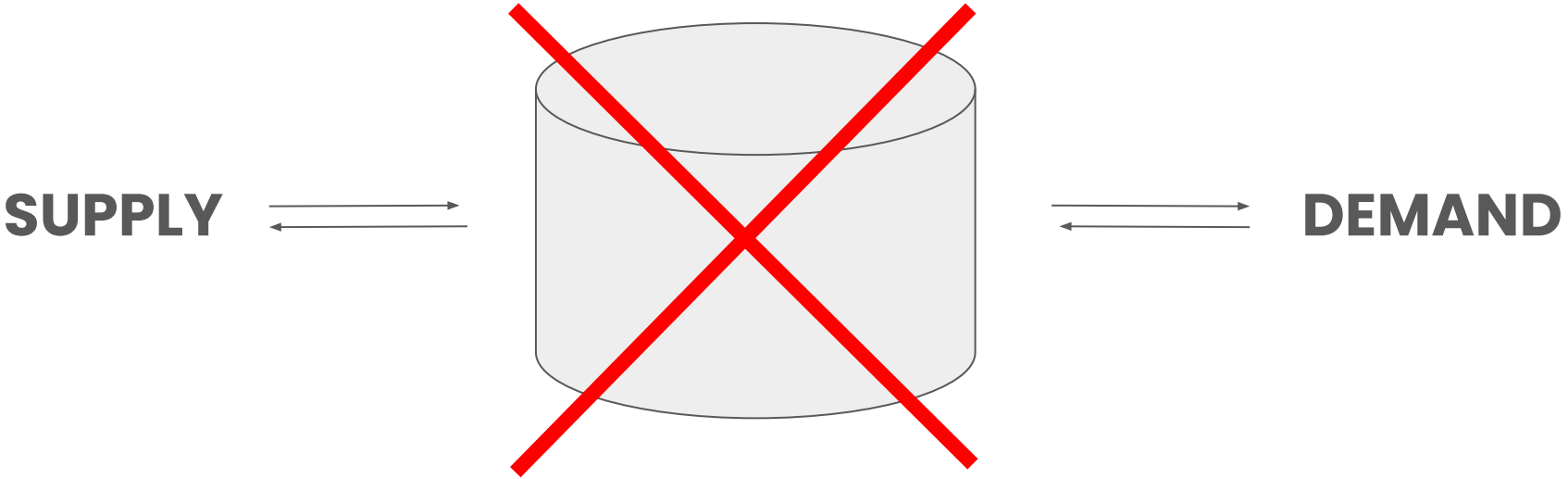
# Outline

- Experiment description
- Project results
- Business impact
- Feedback

# Problem: Did you know that streaming providers often don't know who owns or wrote a song?



# A giant database in the middle hasn't worked yet since no multi-party trust or provenance.



# Many belief that blockchain technology can be one of the solutions for this problem.

# Experiment description

## Background

- We are building privacy-by-design services for the media value chain.
- Data interoperability, standards and data sovereignty are key.
- Our core technology is built on blockchain technologies. Must run in secure (decentralized) clouds

## Motivation

- Music creators & rights owners have to wait up to 12 months before they get their royalties.
- These royalties often come without external verifications
- Creators and owners often don't know if they received every penny there are allowed to.

# Experiment description

## Objectives

- Create and deploy experimental permissioned blockchain nodes and notary, all Corda, on F4F
- Experiment easy UI-tool on DRX
- Enable measurements under the hood
- Load test Corda nodes

## Concept

Our end goal is data sovereignty for music creators, content owners etc who can:

- host their own data
- control their rights
- decide on visibility of their data & rights
- decide who can access their data & rights

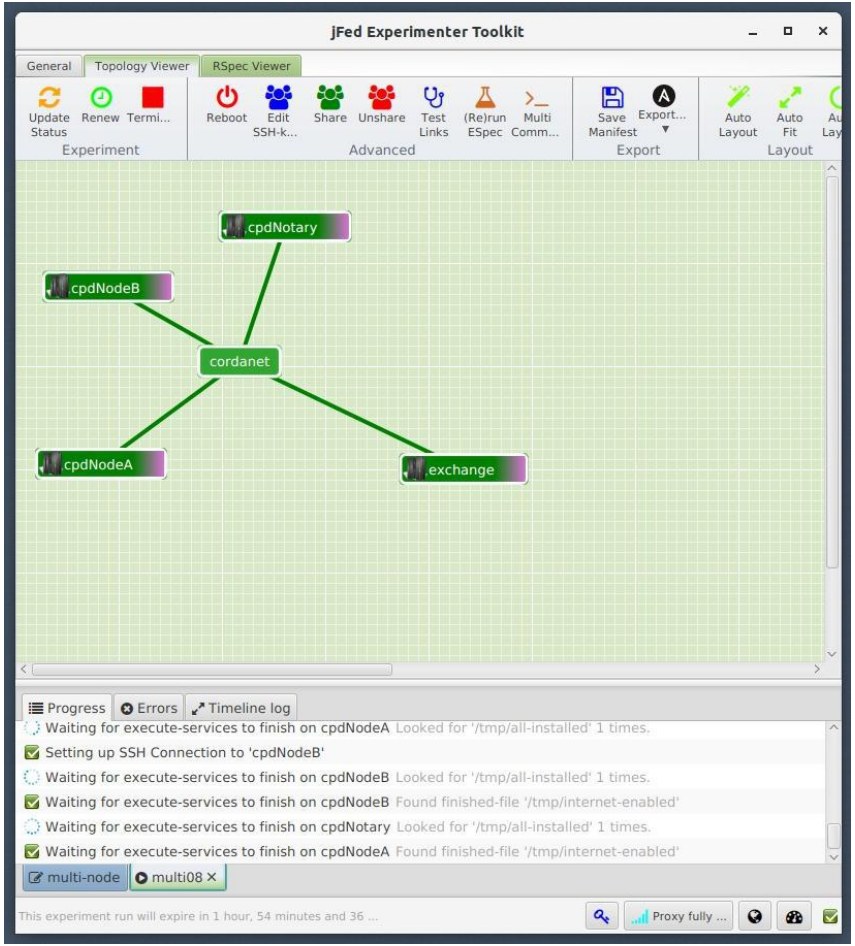
# Experiment description

## Experiment set-up

- A single node for command line script testing (virtual wall / Grid5000)
- A single node with a Docker environment running 3 Corda nodes, a Java/Springboot backend server and a React front end (virtual wall)
- A multi-node setup with nodes with Docker environments running 3 Corda instances, an instance running a Java/Springboot backend server and a React front-end over a local LAN (virtual wall)

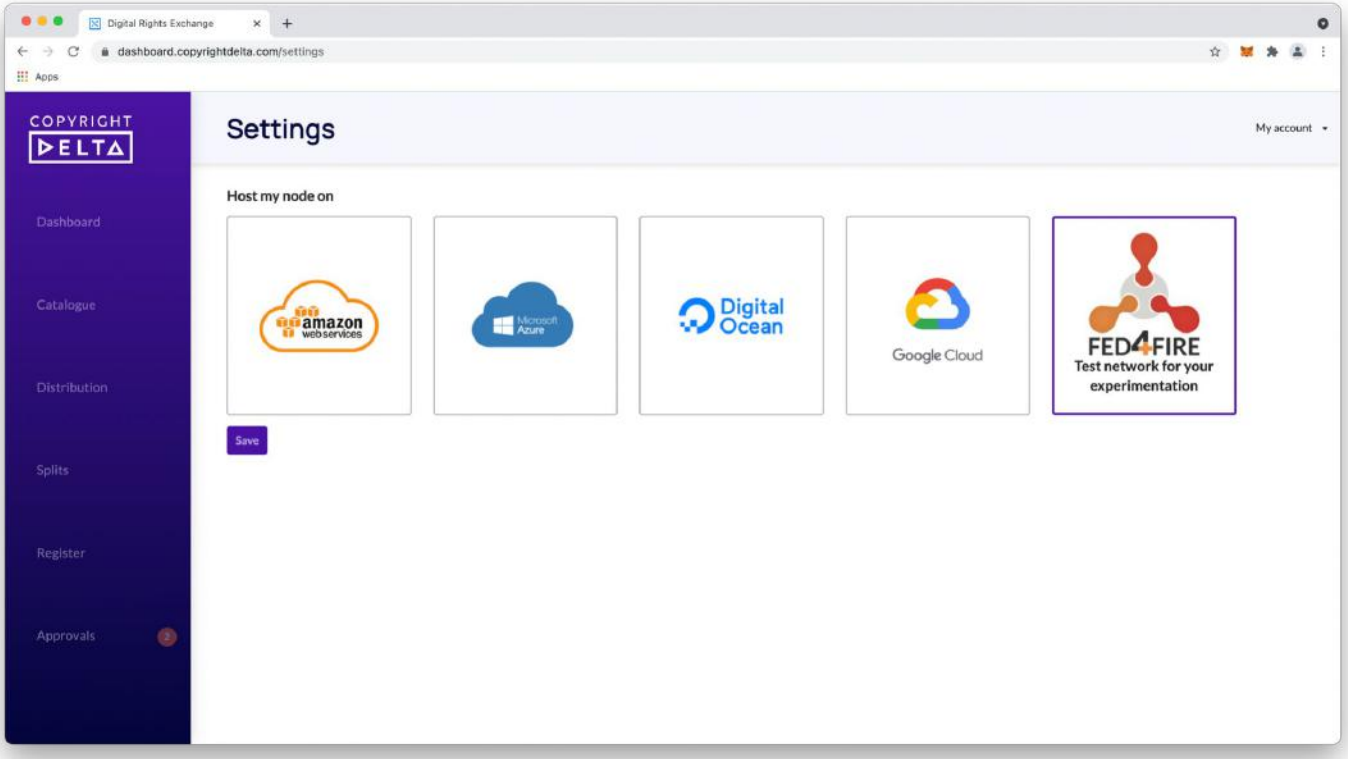
# Project results

## multi-node jFed virtual playground for Corda nodes and notary



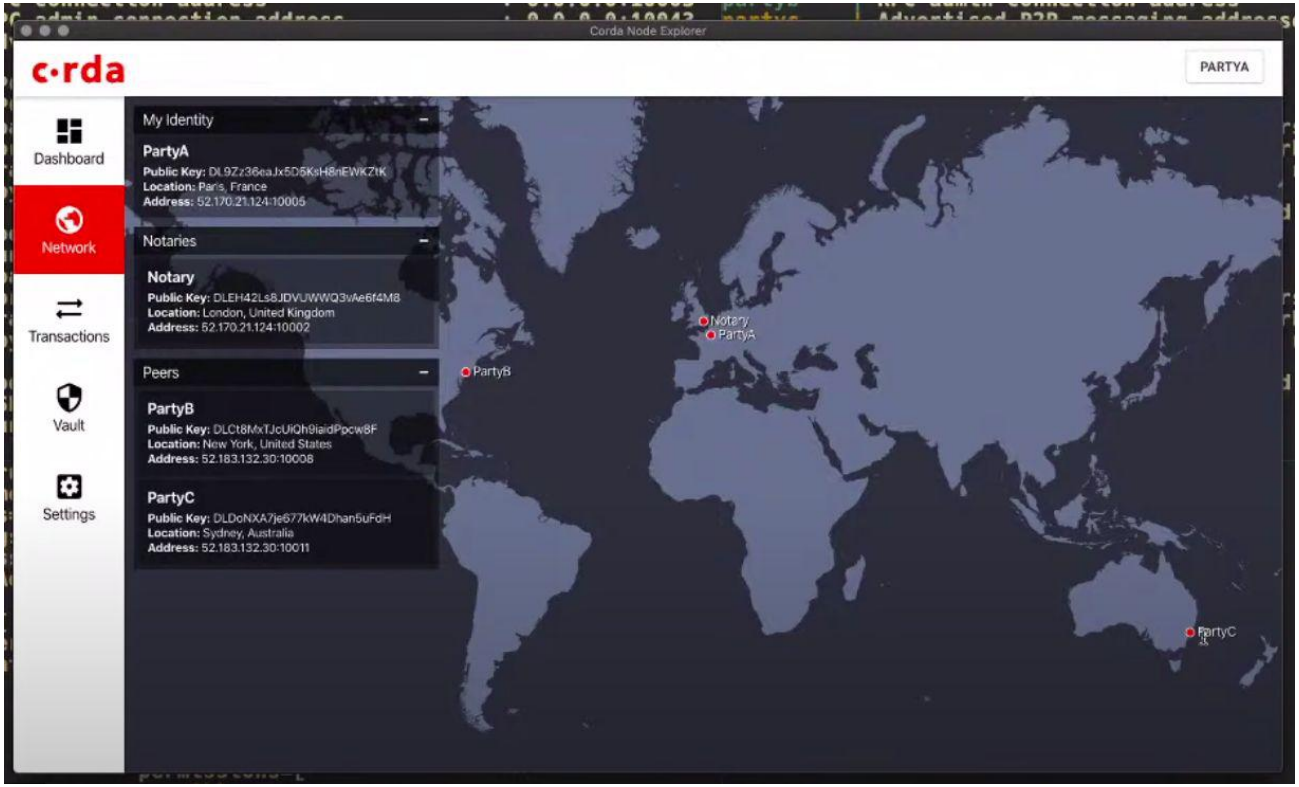
# Project results

**Experiment with easy UI-tool on DRX for copyright owners to select where to host data.**
**(next step is to move nodes between clouds, or data between nodes, eg to and within F4F)**



# Goal

Our end goal is data sovereignty where our users can easily decide where to host their data and nodes. This would then look something this concept visual from Corda:



# Project results

## Measurements

- Create and deploy permissioned blockchain nodes on F4F.
- Create easy UI-tools enabling our end users to select where to host their data.
- Enable measurements under the hood.
- Load testing Corda nodes

# Project results

## Lessons learned

- Feasibility:
  - Suitable as test and staging environment
  - Quick stage different hardware and network configurations
- Requirements:
  - Command line Unix/Linux knowledge
- Challenges:
  - Complex configuration via F4F's scripting language (Rspec)
  - Linking our test users to Corda nodes in F4F.
- Positive:
  - F4F intuitive to use
  - Easy creation of personal and org. account

# Business impact

## Impact on Copyright Delta

- F4F is great safe harbor for innovation startups.
- F4F combines security with innovation: pilot within secure cloud environments.
- Our industry partners (end users) appreciate all this and now want to experiment further, since we can make it easy for them to innovate.
- F4F opens their thinking on innovation, new business & industry models, to explore pilot together.
- This benefits the entire media value chain in the EU, like music & content creators with data sovereignty & income.

# Business impact

## Value perceived

- F4F allows us to be closer to the infrastructure
- F4F is an excellent way to explore real cloud costs.
- F4F is cloud provider neutral (good for SEO).

- All above are positive for innovation, since in production clouds we work via their abstraction layers.

- Lucas and his colleagues at INRIA and GRID5000 always and instantly helped us when we needed help.

- It's great to work close with technical cloud experts.

# Business impact

## Overall

- Working closely with F4F (incl IMEC, INRIA) is great for innovation startups.
- You understand innovation and experimentation.
- This also reflects positive on our industry partners, since it helps them to get into innovation thinking.

- Production clouds (eg our cloud sponsors AWS, Azure) are expensive (for non-sponsored startups) and mainly want to see how quickly we can generate business.

# Feedback

## Used resources and tools

- Would be nice to have more sample code and examples available.
- Are there scaling solutions available such as Kubernetes?
- Please allow to create longer usernames (now max 8 characters).

# Our partners and sponsors (all in-kind)













# Thank you!

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