Enhancing OSRD with NGE's Macroscopic Visualization

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OSRD - Open Source Railway Designer
NGE - NetzGrafik-Editor

OSRD

Example User

Operational studies

Short term path request

Infrastructure editor

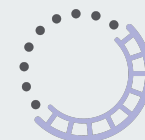Rolling stock editor

Map viewer

OSRD
- Open Source Railway Designer

Main purposes:
- reduce dependance to the market
- **standardization** of the tools
- develop **reusable bricks**
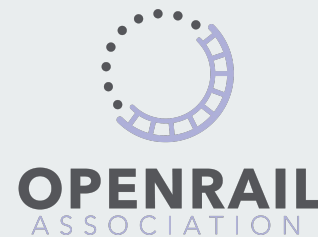- first hosted project of **Open Rail Association**

Github: https://github.com/OpenRailAssociation/osrd

Who are we?

NGE
- NetzGrafik-Editor

Everything that has been said *20 minutes* ago

Githubs:
- Front-end (Angular, D3.js):
  https://github.com/SchweizerischeBundesbahnen/netzgrafik-editor-frontend
- Back-end (Java, PostgreSQL):
  https://github.com/SchweizerischeBundesbahnen/netzgrafik-editor-backend

Design of the solution
- a few constraints

- Do not break NGE
- Evaluate our needs and capacity
- Think **reusable**
- Has to be easy to maintain and get up to date

Considerations

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- How to communicate with it?

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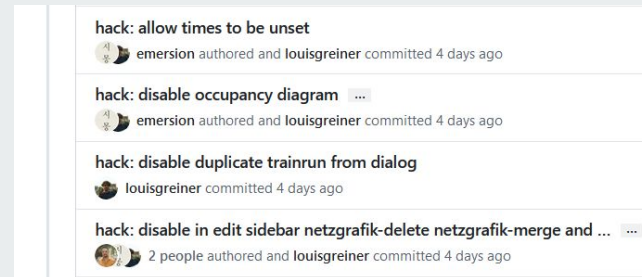**How to make NGE usable? How to integrate it elsewhere?**
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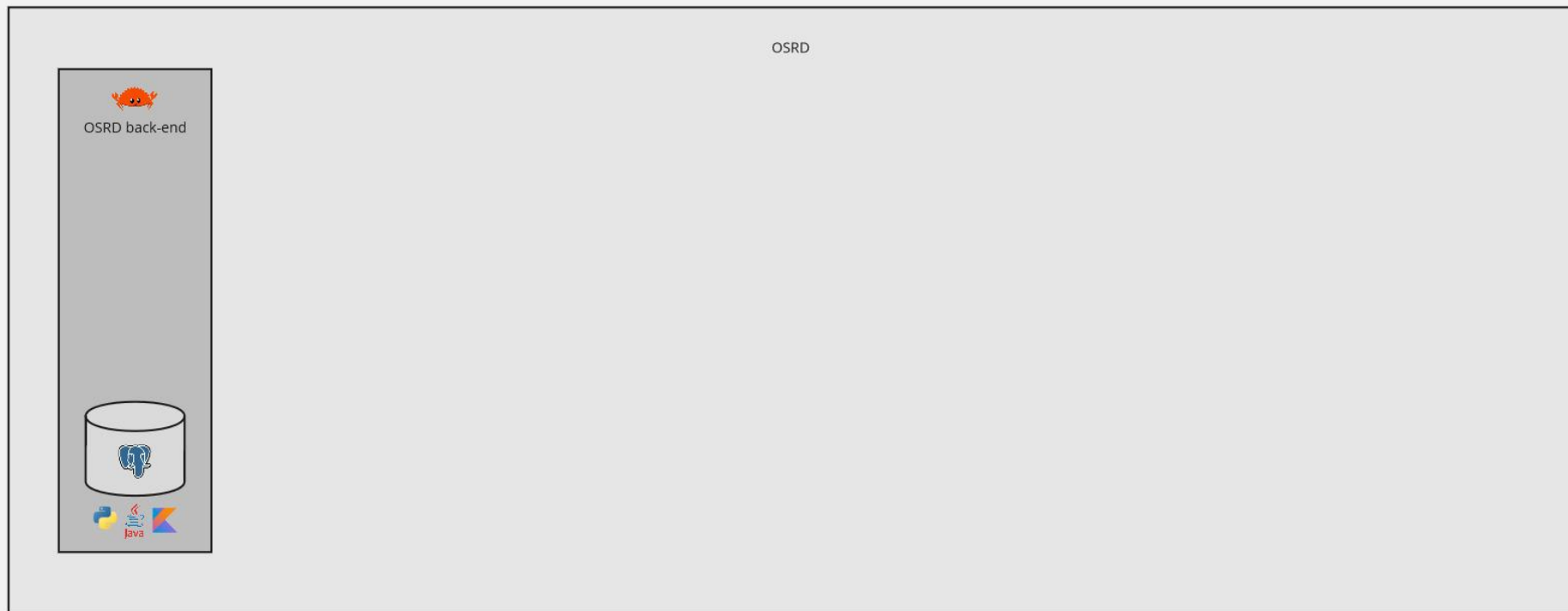 ↳ instantiated in an *iframe*

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- Specific needs?

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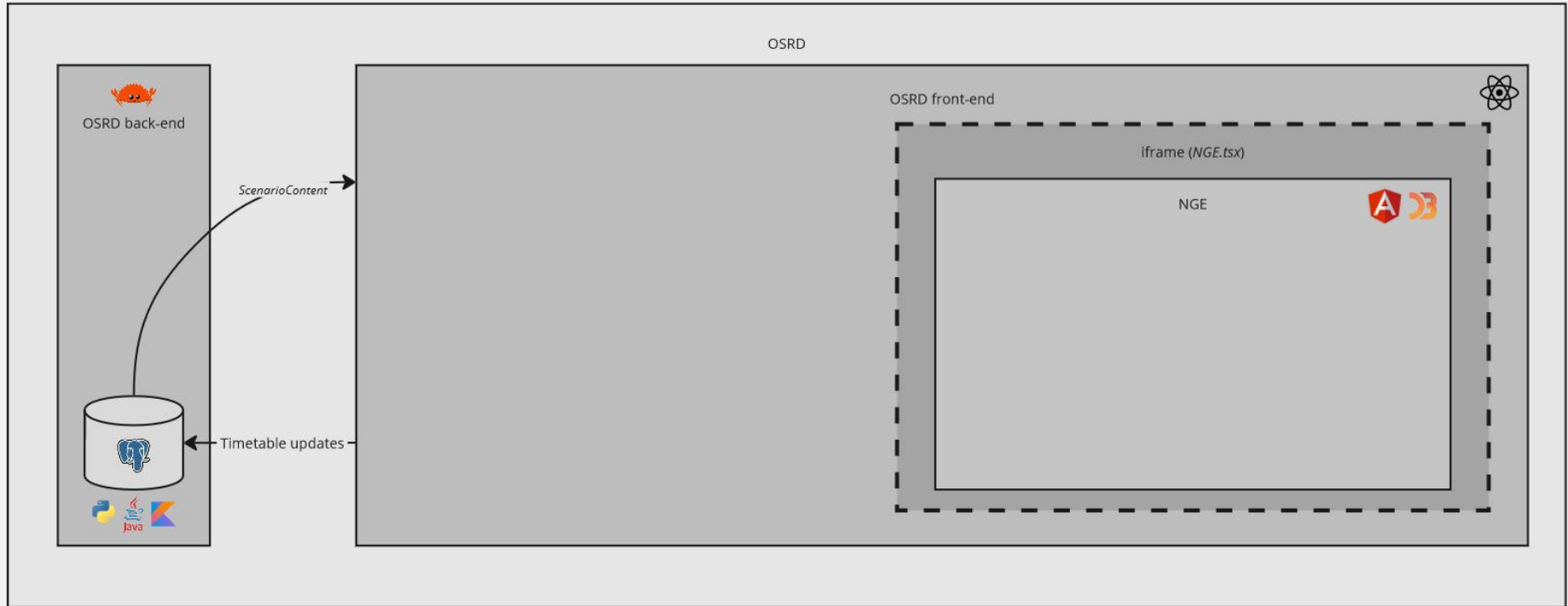- Specific needs? → fork the project (**carefully!**)
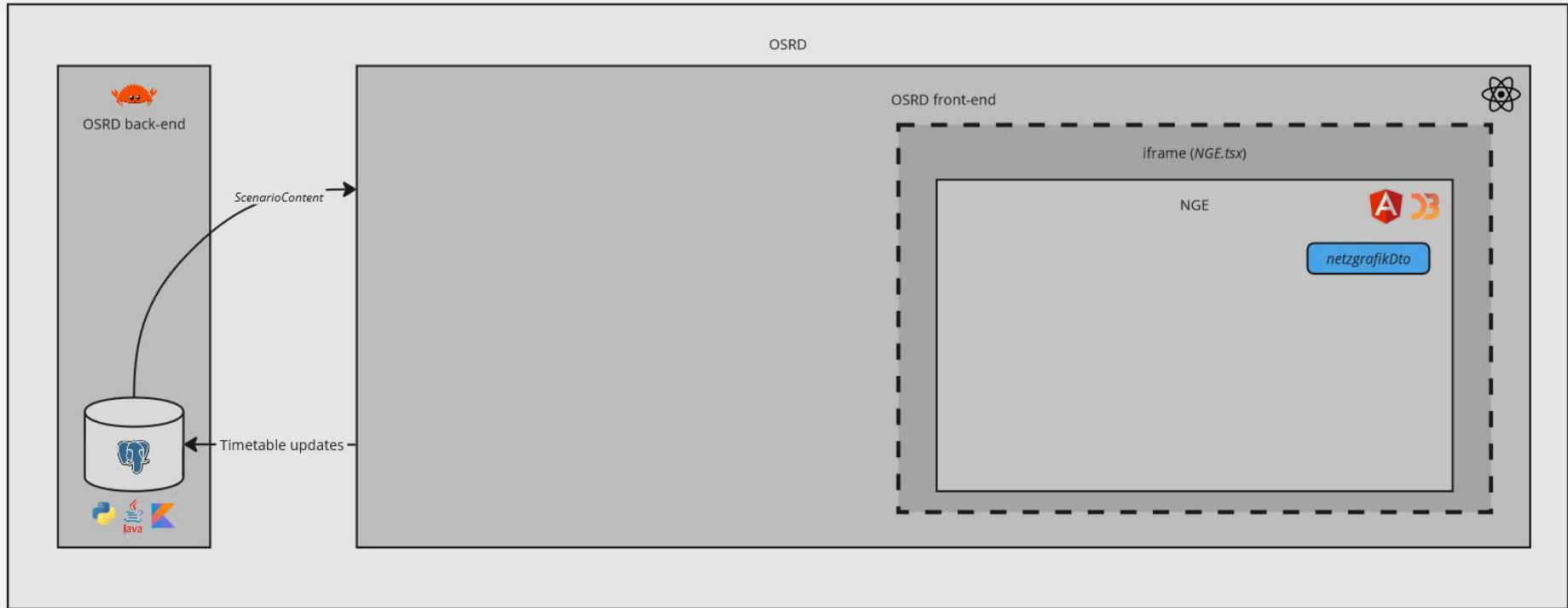
OSRD

- Complex docker stack

-   PostgreSQL for database, Rust as middleware
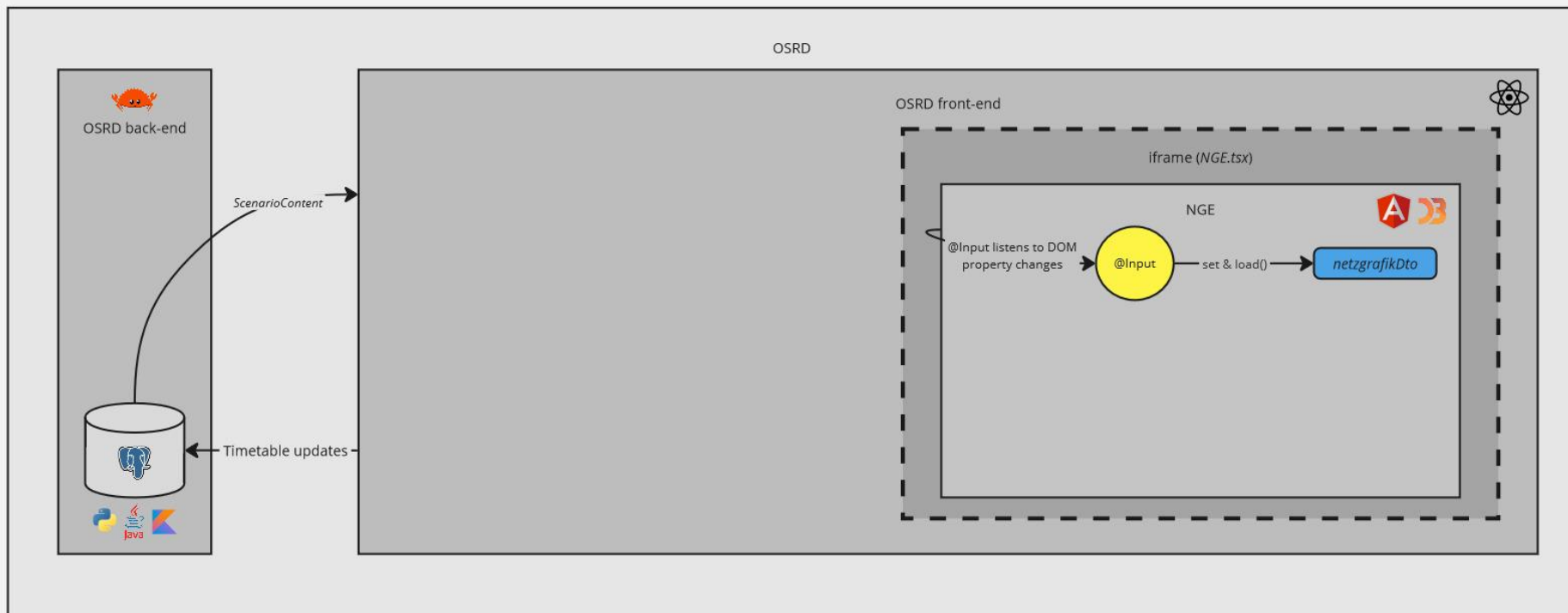-   Java/Kotlin for simulations, Python for data pipelines...
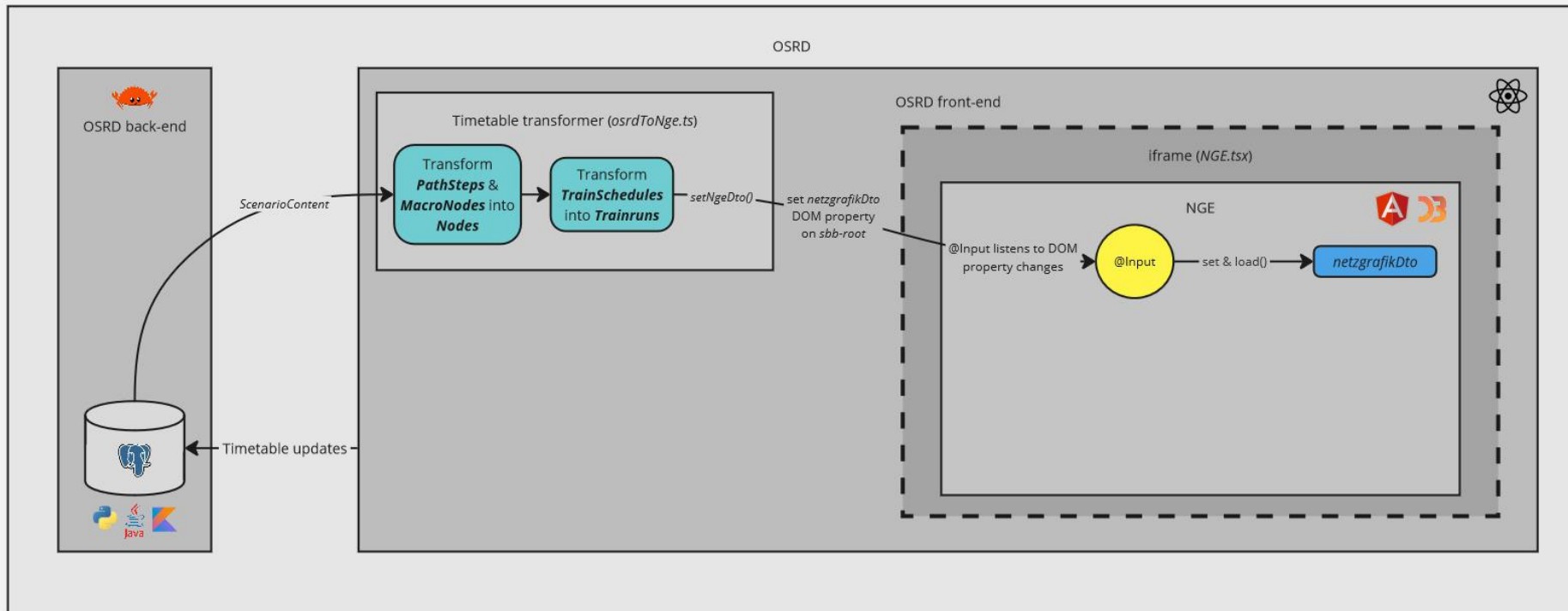
- TypeScript/React

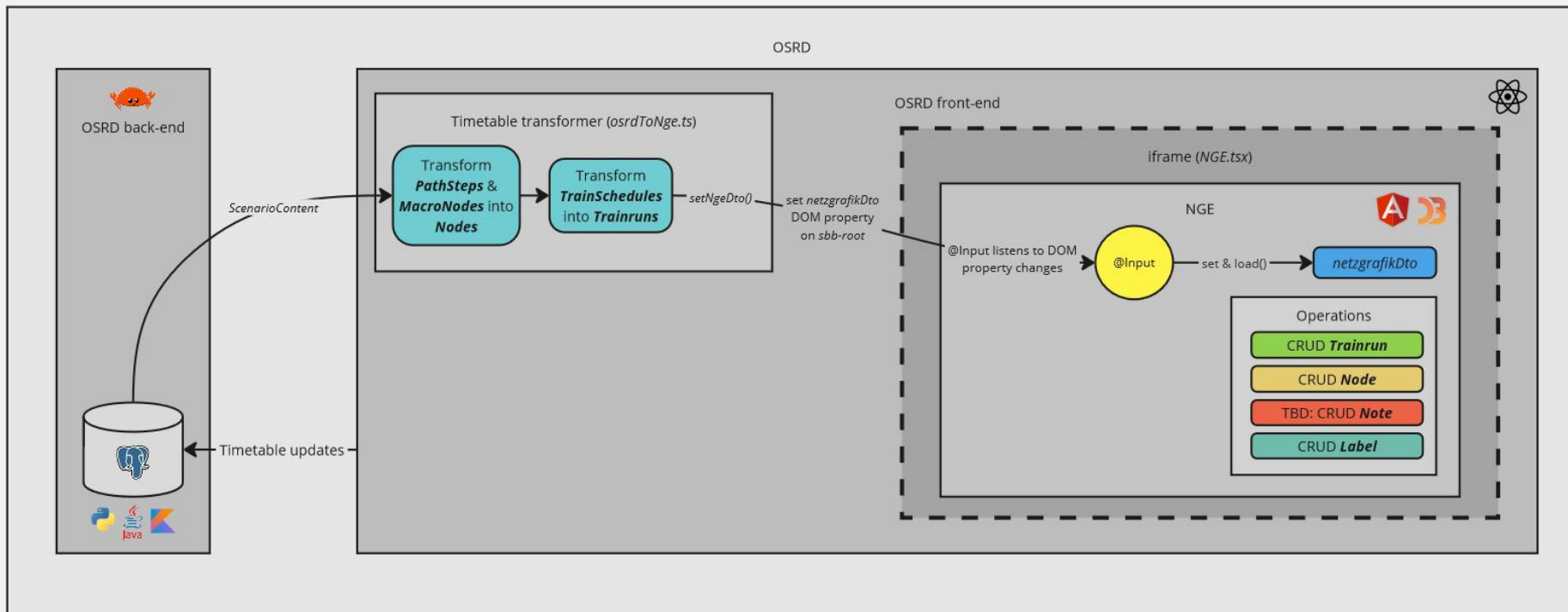- NGE *standalone* running
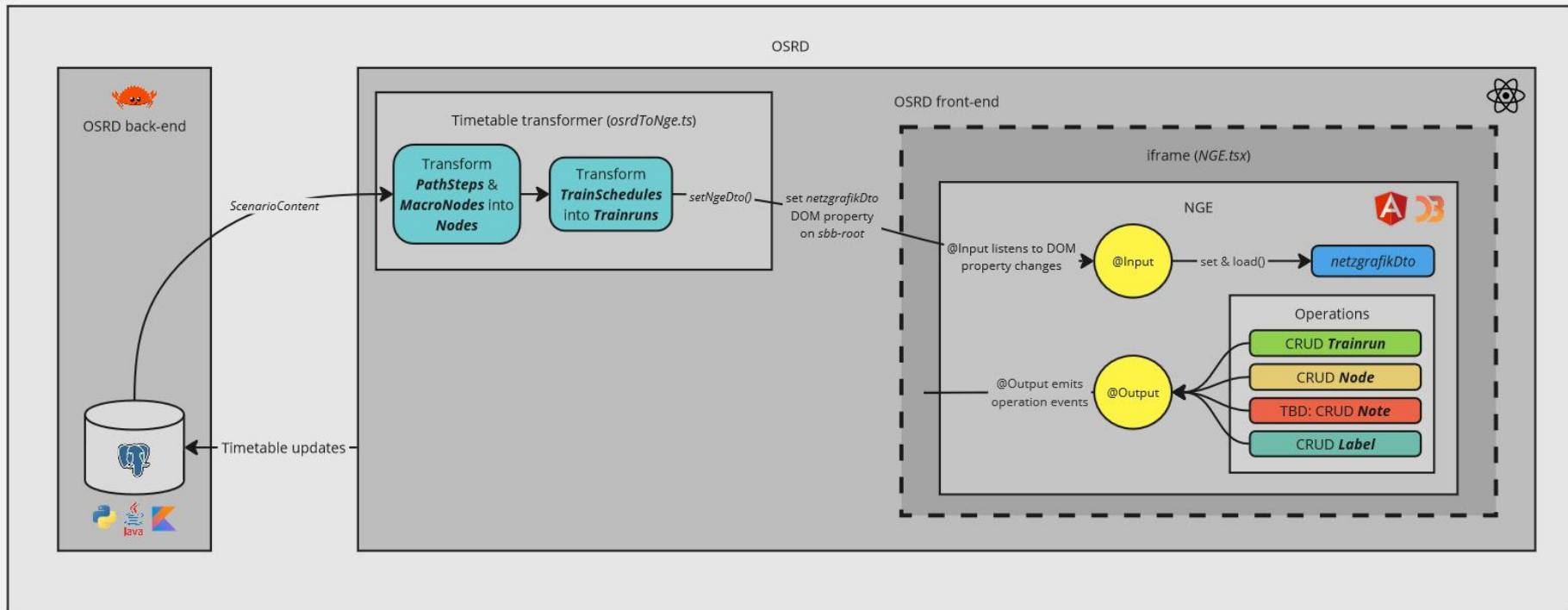- no communication

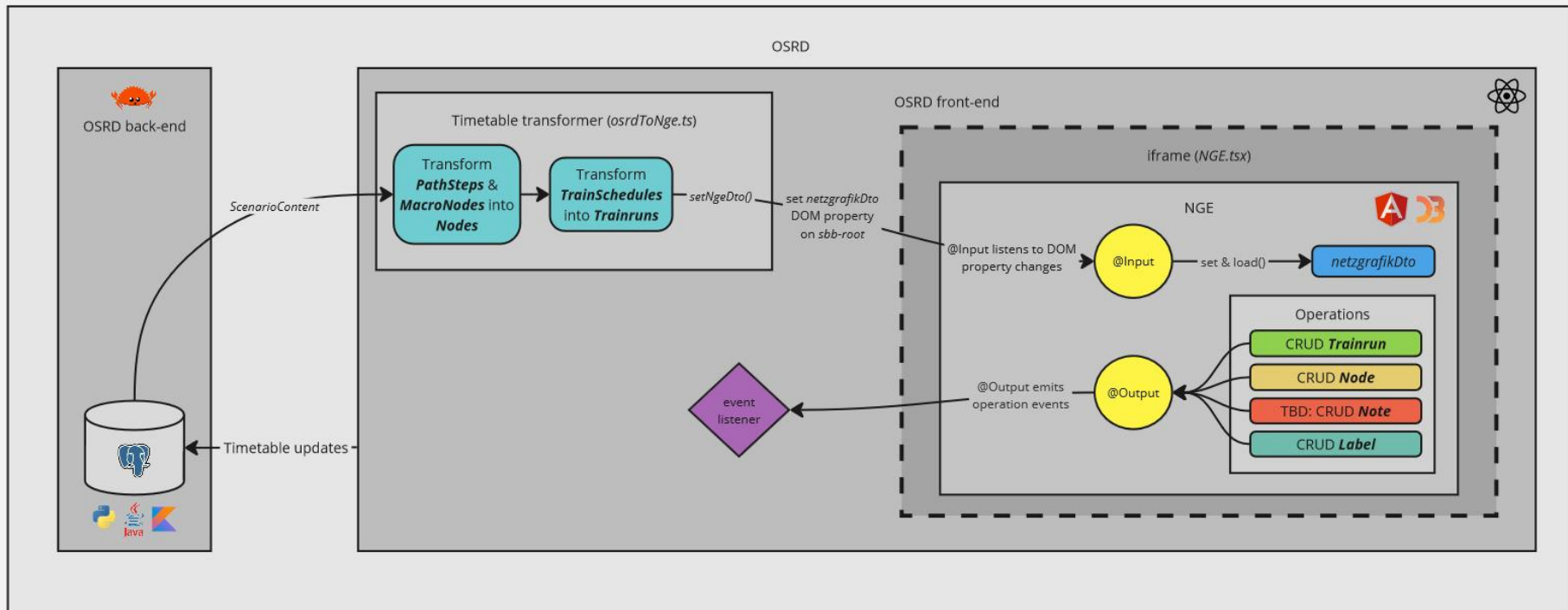- NGE displays *netzgrafikDto*

-    *@Input* to update *netzgrafikDto*

- *Custom Element* as entry door (*sbb-root* DOM property)
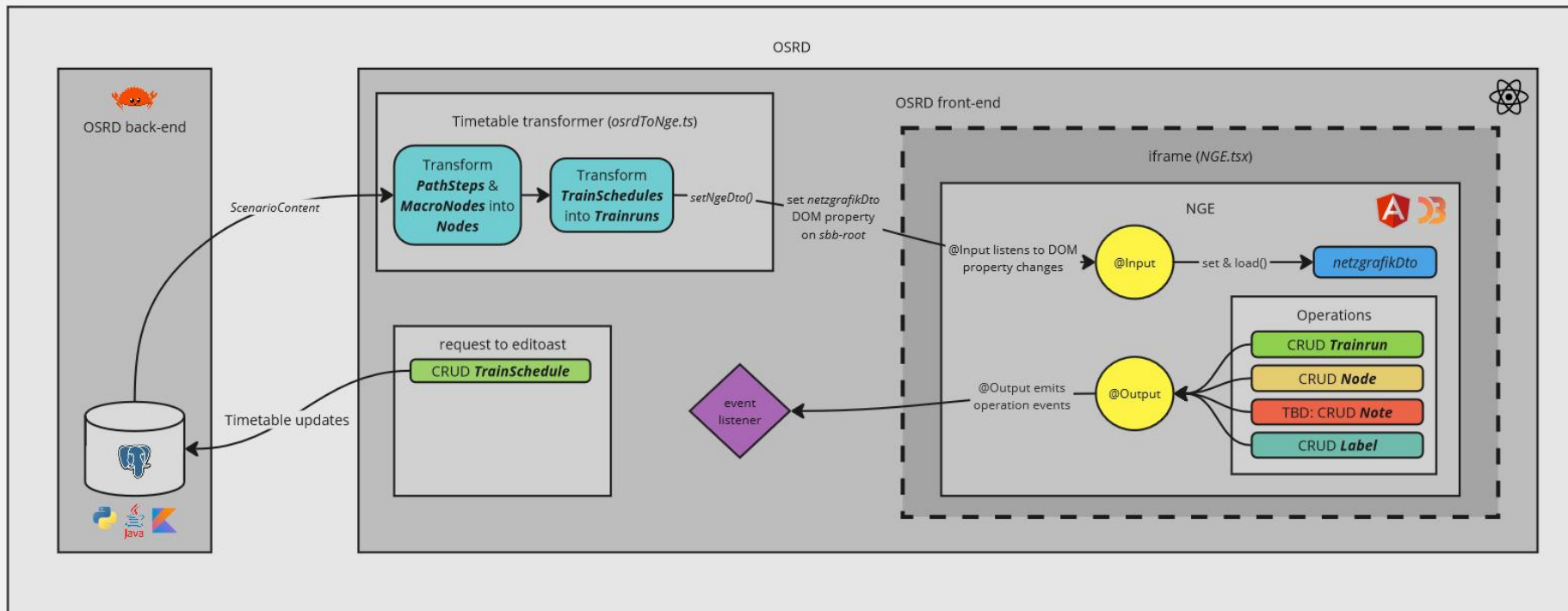- Transform OSRD objects to NGE-compatible objects
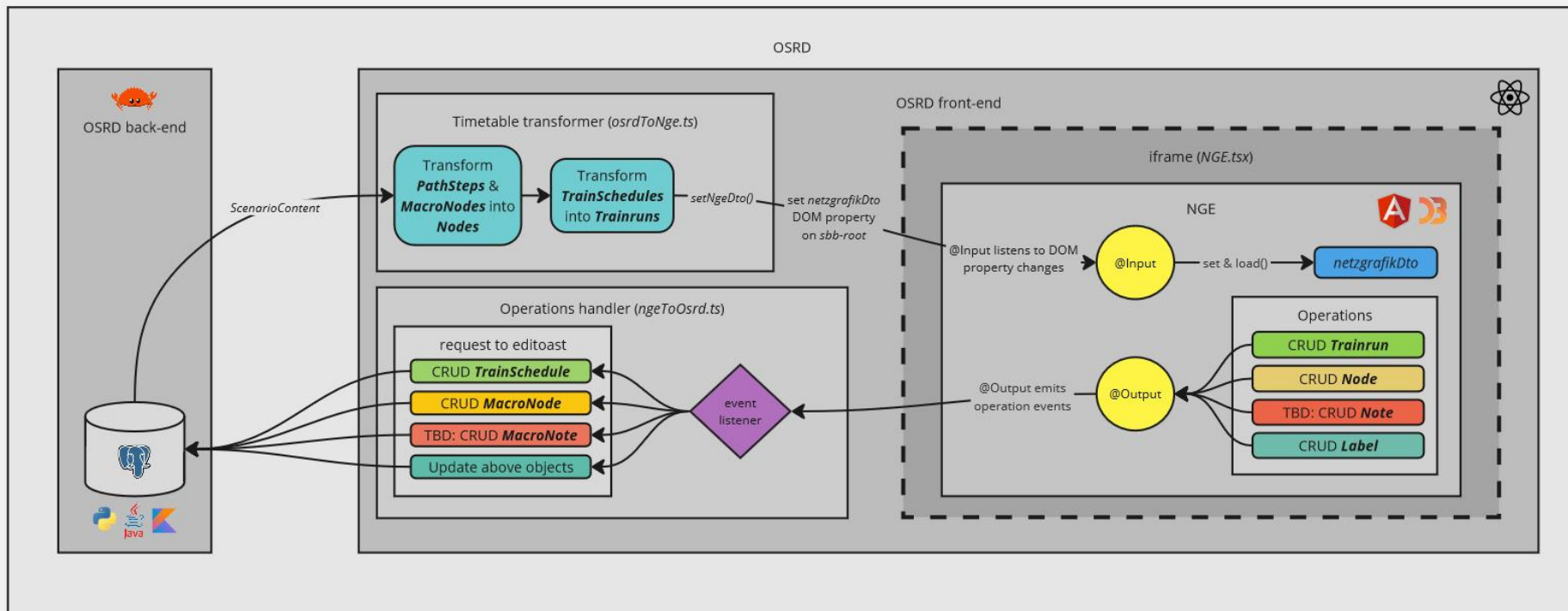
- *Operations* as standardized messages

- Operation events forwarded by **@Output**

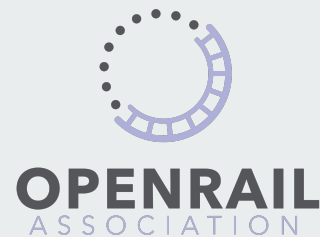-   Event listener on *operations* DOM property change

- almost done...

- Transform **Operations** to OSRD-compatible updates
- Closed system 🥳

SNCF/SBB cooperation
- the power of open-source

OSRD developped / is developping for NGE:

- **standalone mode** (and its NPM package)
- **internationalization** of the app (en/de/fr/it)
- **origin / destination matrices**
- **active** (review/bug fix/feature request)-ing **on GitHub**
- more to come

SNCF/SBB cooperation
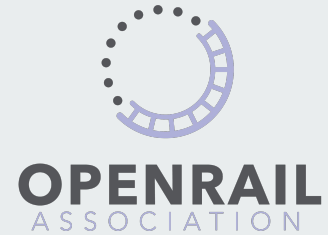## - the power of open-source

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→ See you at the next DreiLänderHack?

Questions
- thanks for your attention :-)

Any question?

GitHub:
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- https://github.com/SchweizerischeBundesbahnen/netzgrafik-editor-frontend

For more information: https://osrd.fr/

Get in touch with us: https://matrix.to/#/#public:osrd.fr

Email: contact@osrd.fr