STELLA: Towards a Framework for the Reproducibility of Online Search Experiments

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STELLA (InfraSTructurEs for Living LAbs)

Living lab framework

- Bridge the gap between experimental search systems and user interactions.
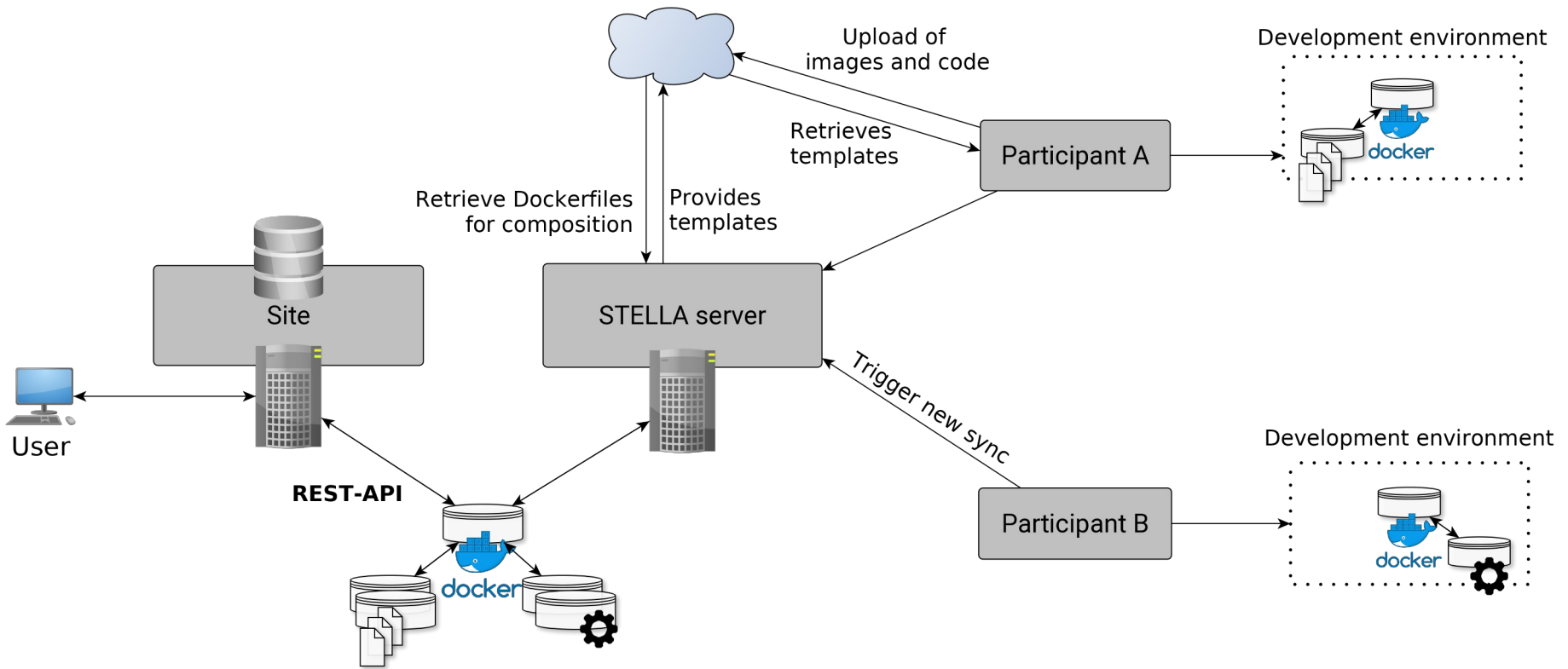
Academic Search

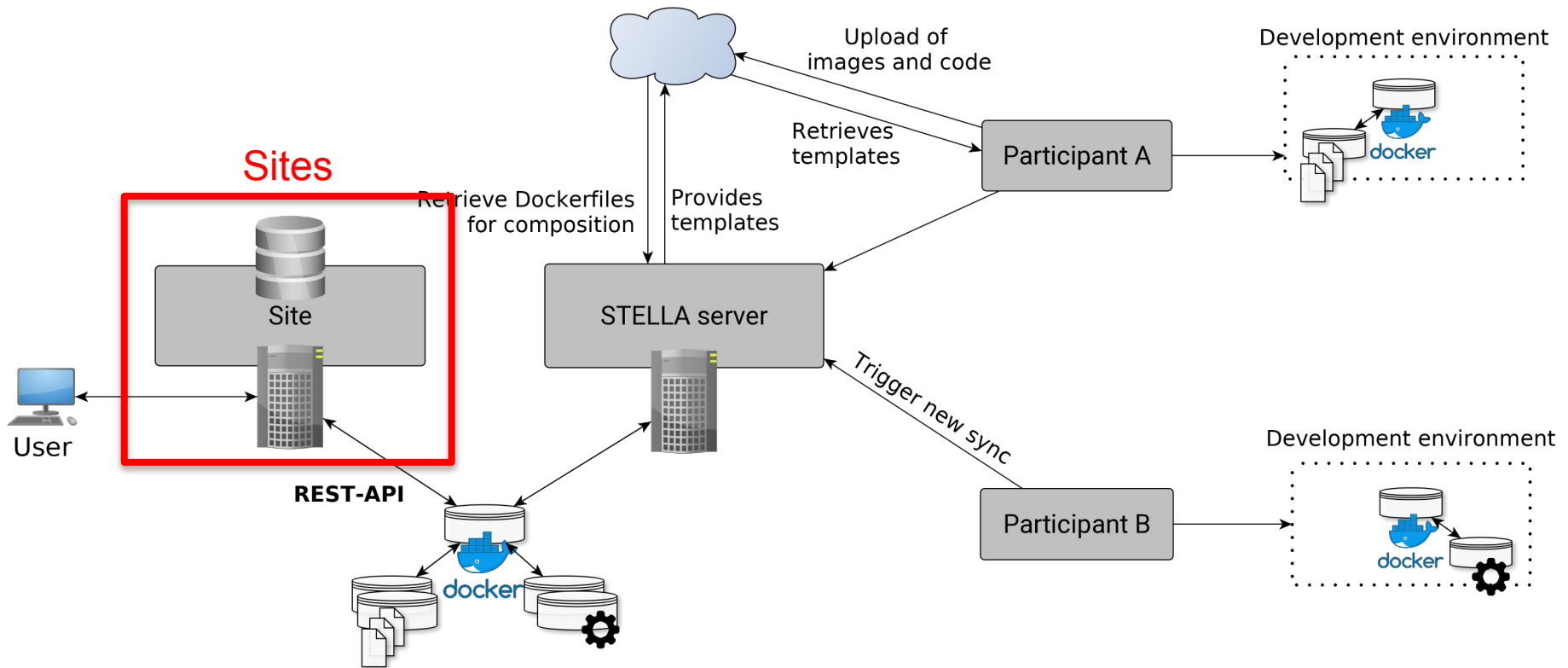- Early adopters: GESIS (social sciences) + ZB MED (live sciences)

Focus on reproducible online experiments

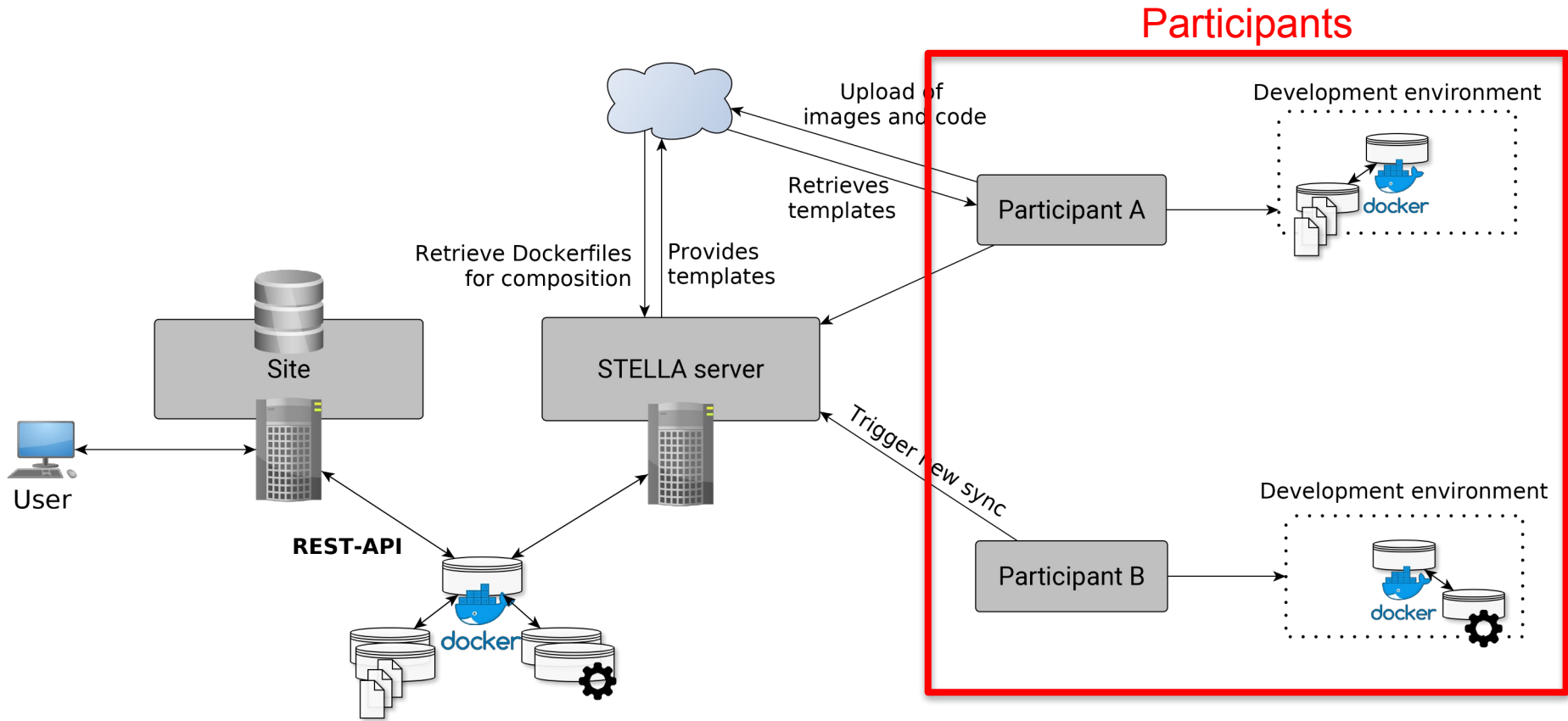- Infrastructural components are aligned to PRIMAD (Ferro et al. 2016)

STELLA - Infrastructure

STELLA - Infrastructure

Sites

User

Site

REST-API

Retrieve Dockerfiles
for composition

Provides
templates

Retrieves
templates

Upload of
images and code

STELLA server

Participant A

Development environment
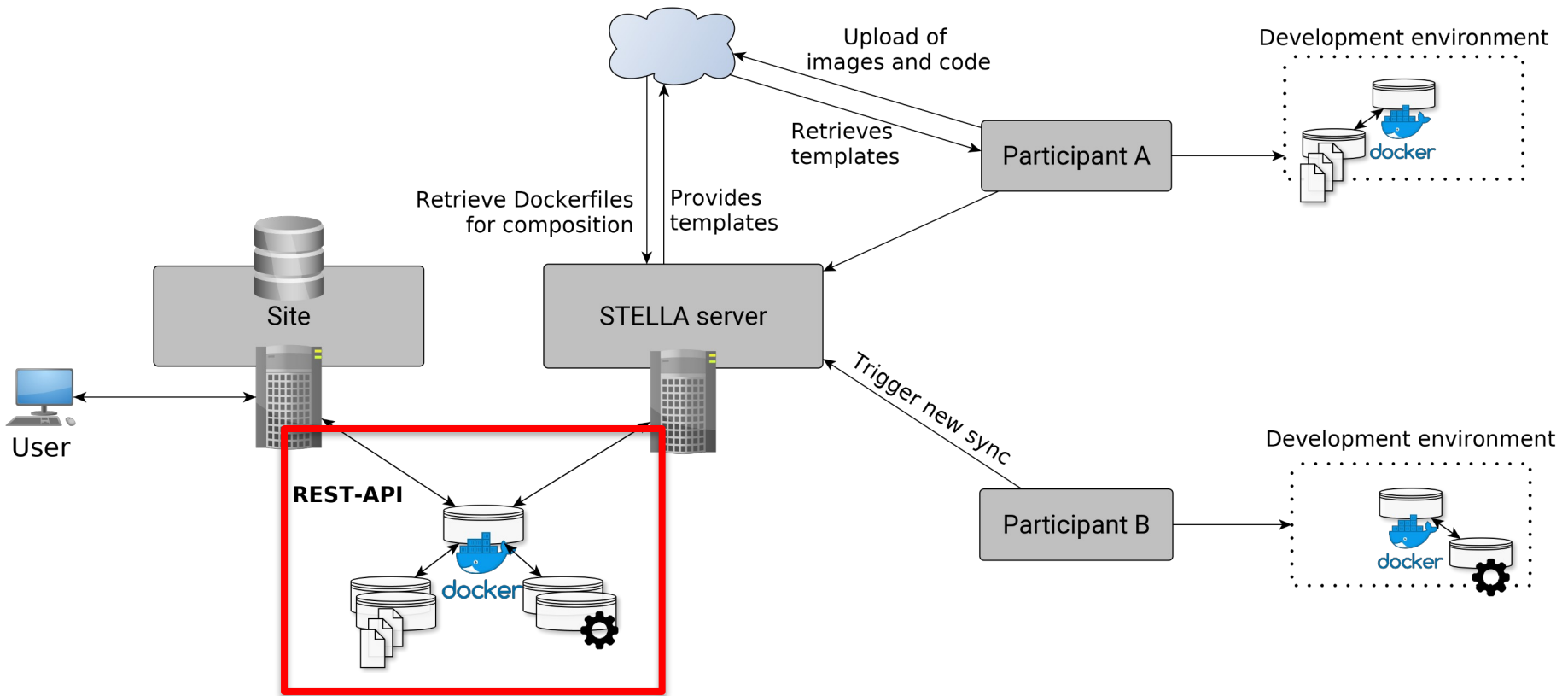
Trigger new sync

Participant B

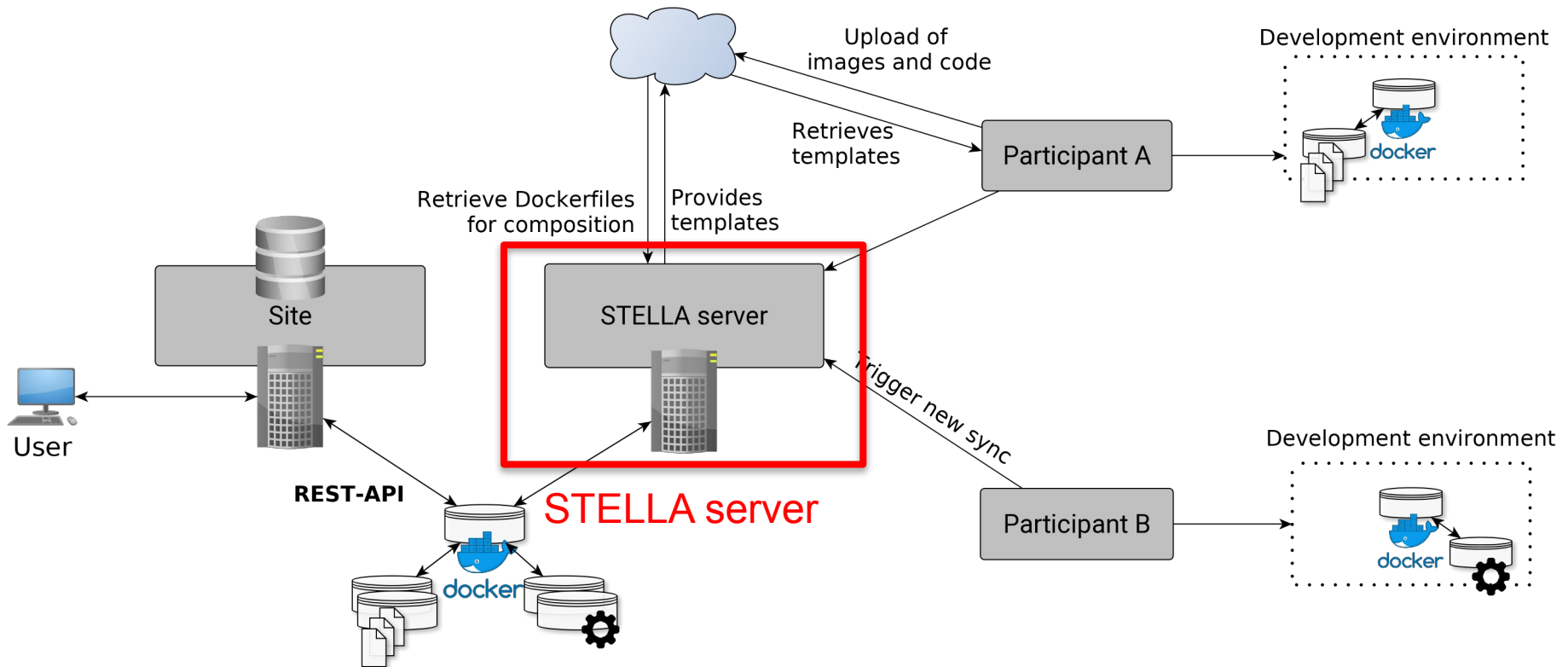Development environment

STELLA - Infrastructure

STELLA - Infrastructure

Multi-container application
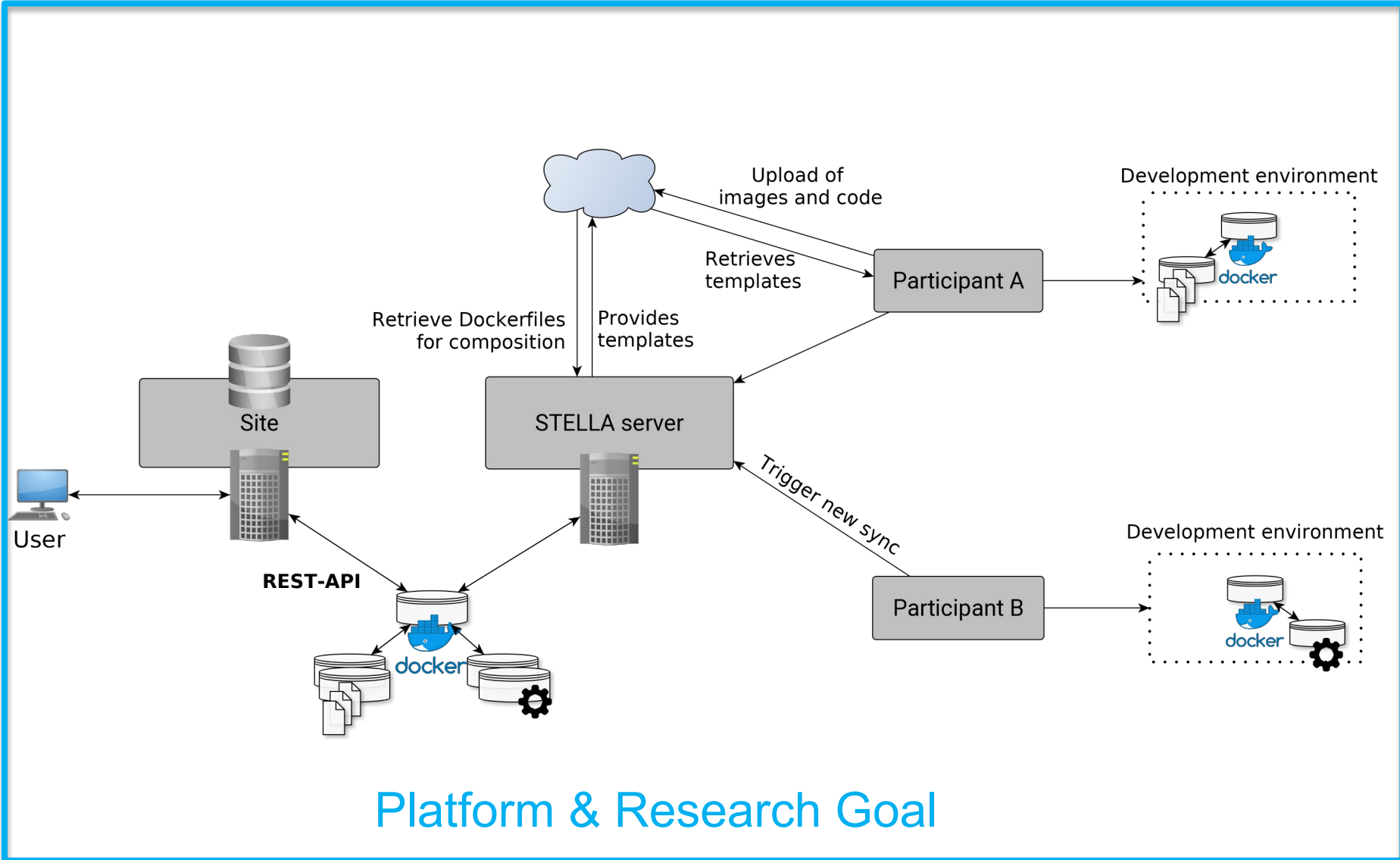
STELLA - Infrastructure

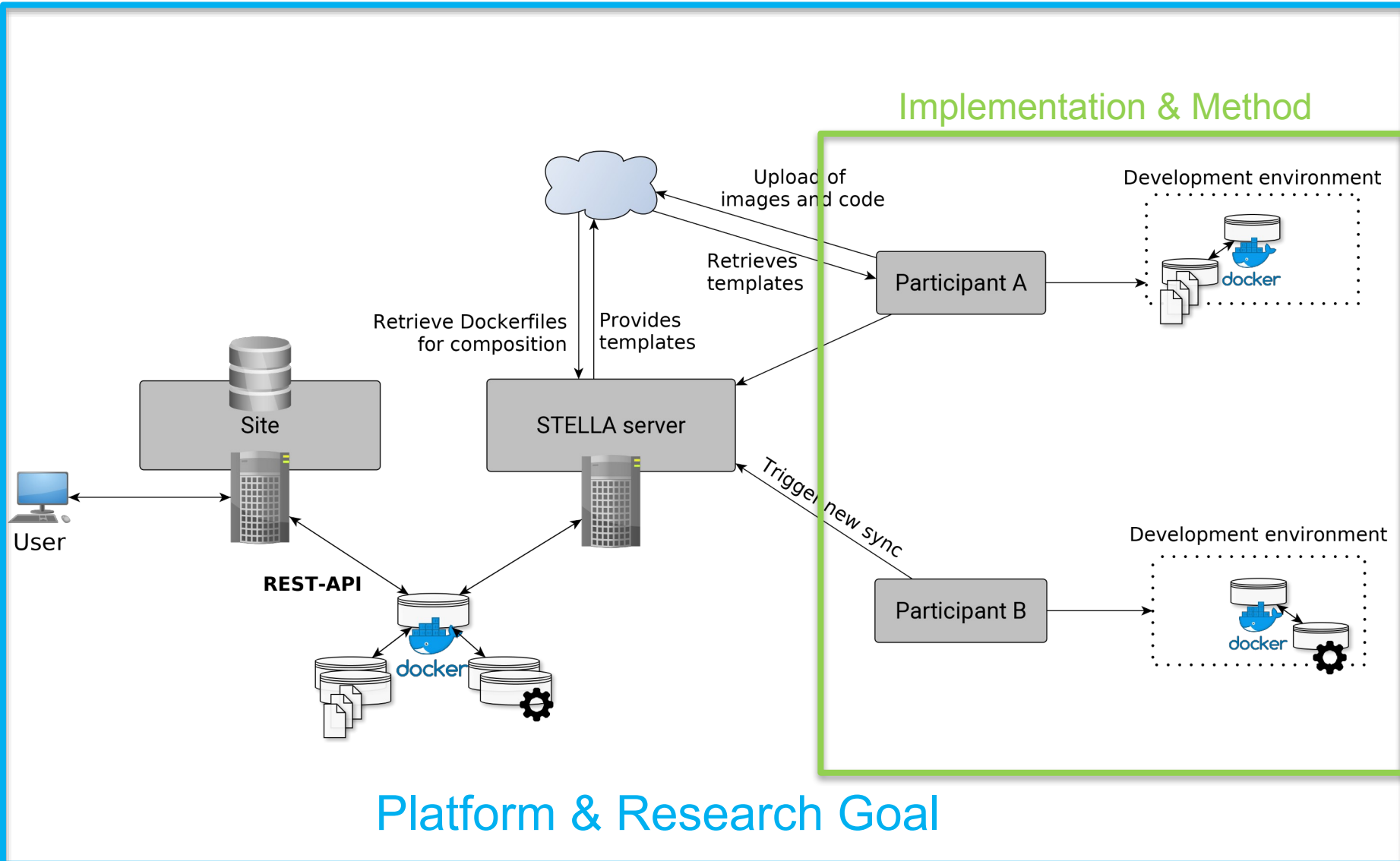# PRIMAD (Ferro et al. 2016)

PRIMAD defines six variables that affect reproducibility

- Platform
- Research goal
- Implementation
- Method
- Actor
- Data

A PRIMAD version of STELLA

Platform & Research Goal

A PRIMAD version of STELLA

Implementation & Method

Development environment

Upload of images and code

Retrieves templates

Participant A

Retrieve Dockerfiles for composition

Provides templates

STELLA server

Site

User

REST-API

Trigger new sync

Development environment

Participant B

Platform & Research Goal

A PRIMAD version of STELLA

A PRIMAD version of STELLA

Implementation & Method

(Usage) Data

Actor

Actor

Actor

Upload of images and code

Retrieves templates

Development environment

Participant A

Retrieve Dockerfiles for composition

Provides templates

STELLA server

Site

User

REST-API

docker

Trigger new sync

Participant B

Development environment

docker

Platform & Research Goal
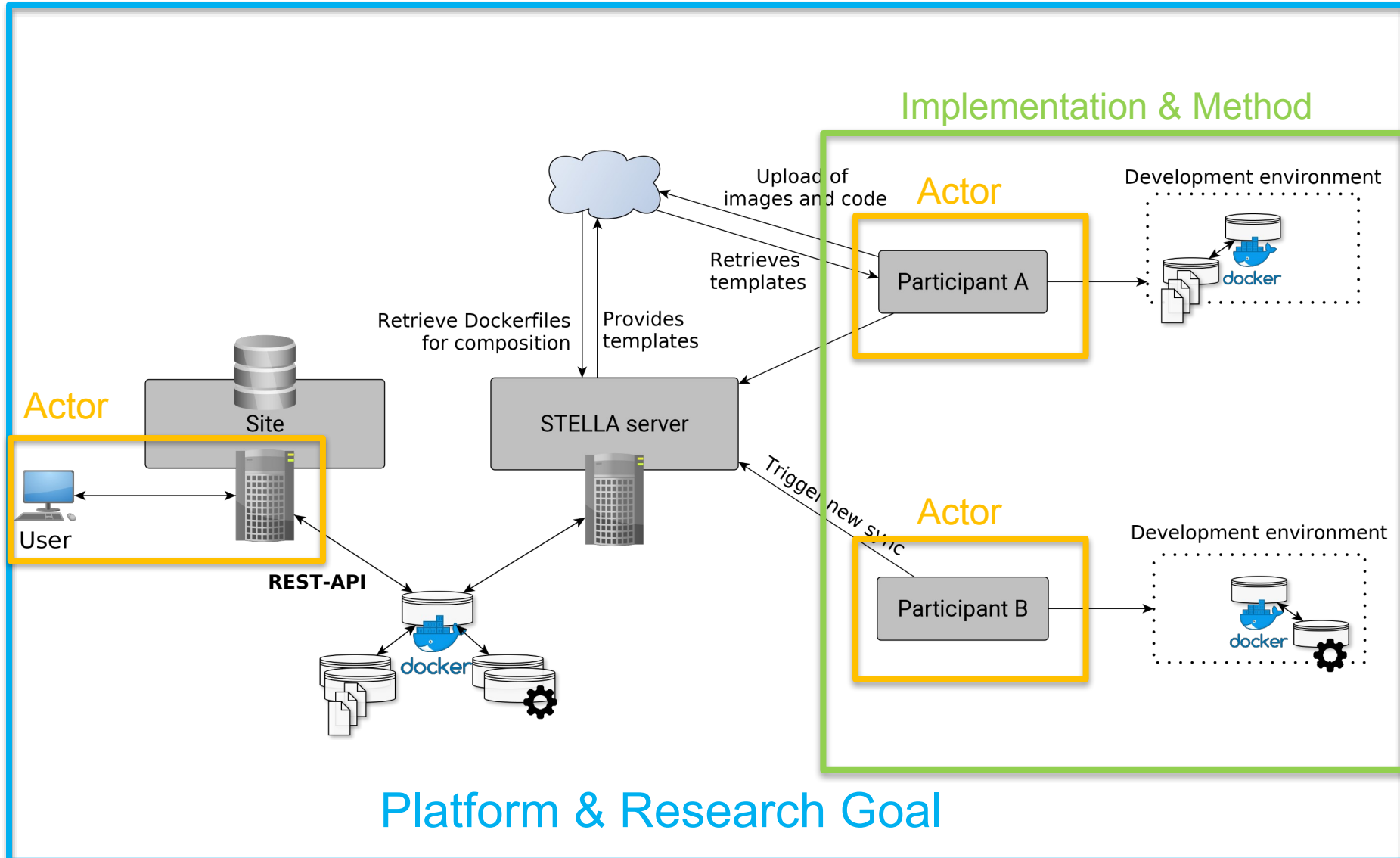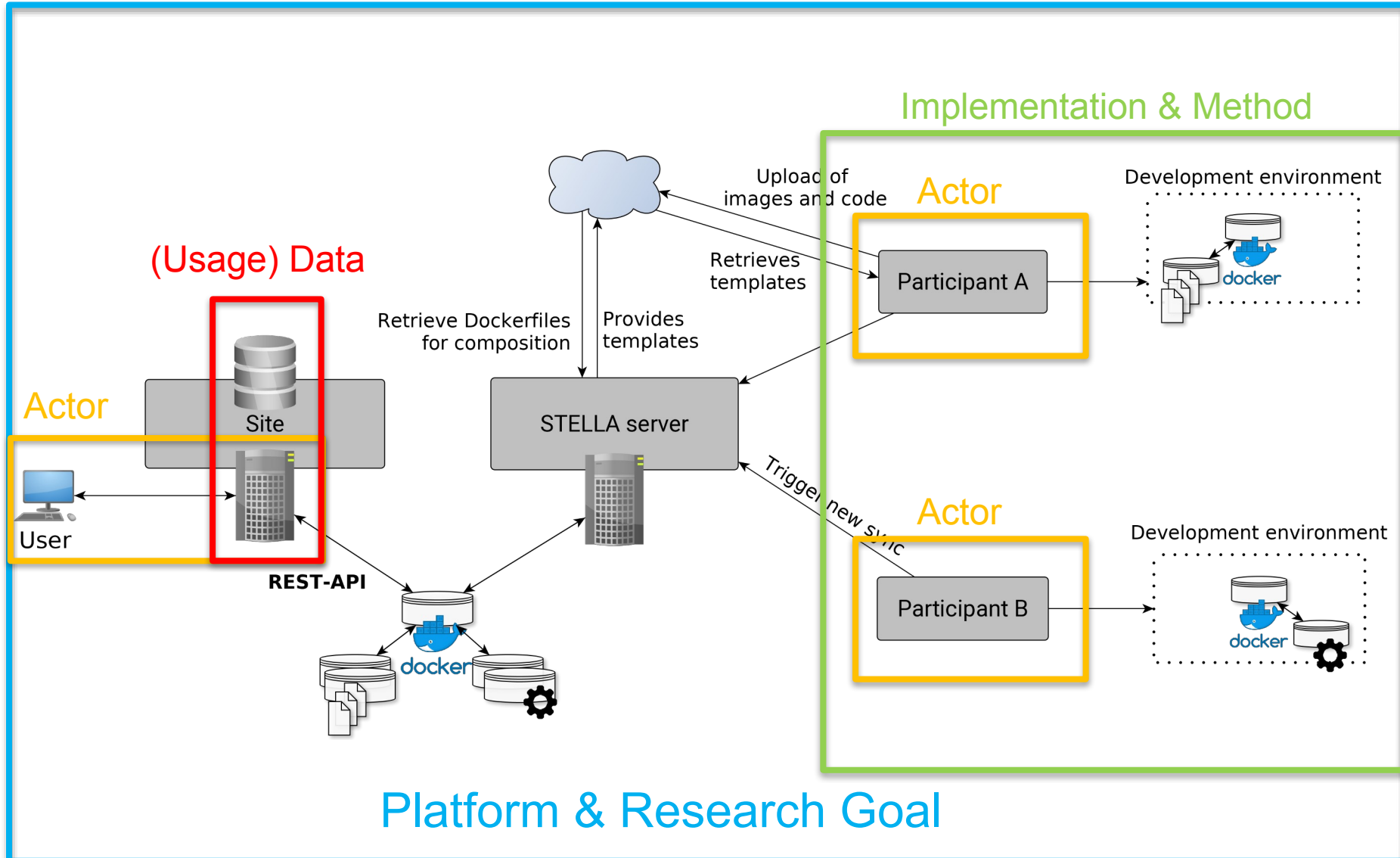
References

Nicola Ferro, Norbert Fuhr, Kalervo Järvelin, Noriko Kando, Matthias Lippold, and Justin Zobel. 2016. Increasing Reproducibility in IR: Findings from the Dagstuhl Seminar on "Reproducibility of Data-Oriented Experiments in e-Science". SIGIR Forum 50, 1 (June 2016), 68–82. https://doi.org/10.1145/2964797.2964808