HEARTS
Follow-up Session
2nd Annual Meeting

19 February 2025

https://indico.cern.ch/event/1500292/

Domen Soklič
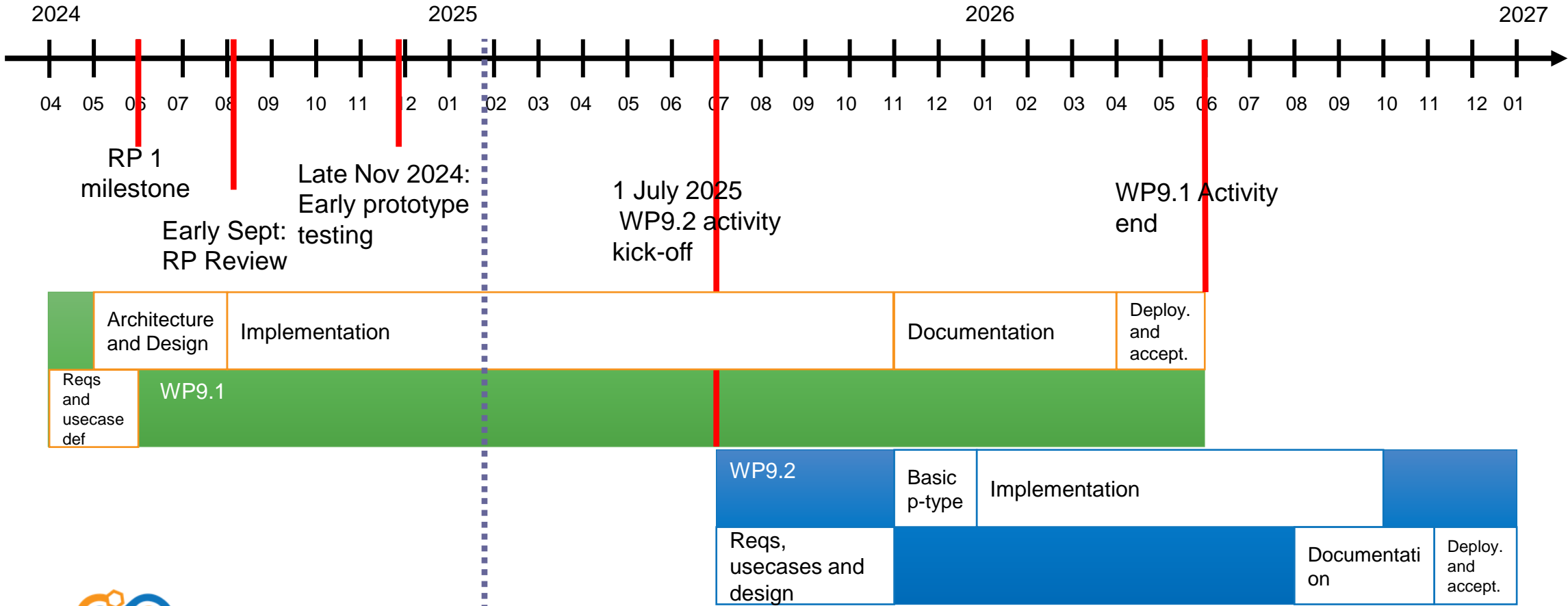(for Miha Vitorovič)
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Outline

- Objectives
- Overview of the WP9 timeline
- The summary of the WP9 in P2
- Deliverables and Milestones in P2
- Upcoming Deliverables & Milestones
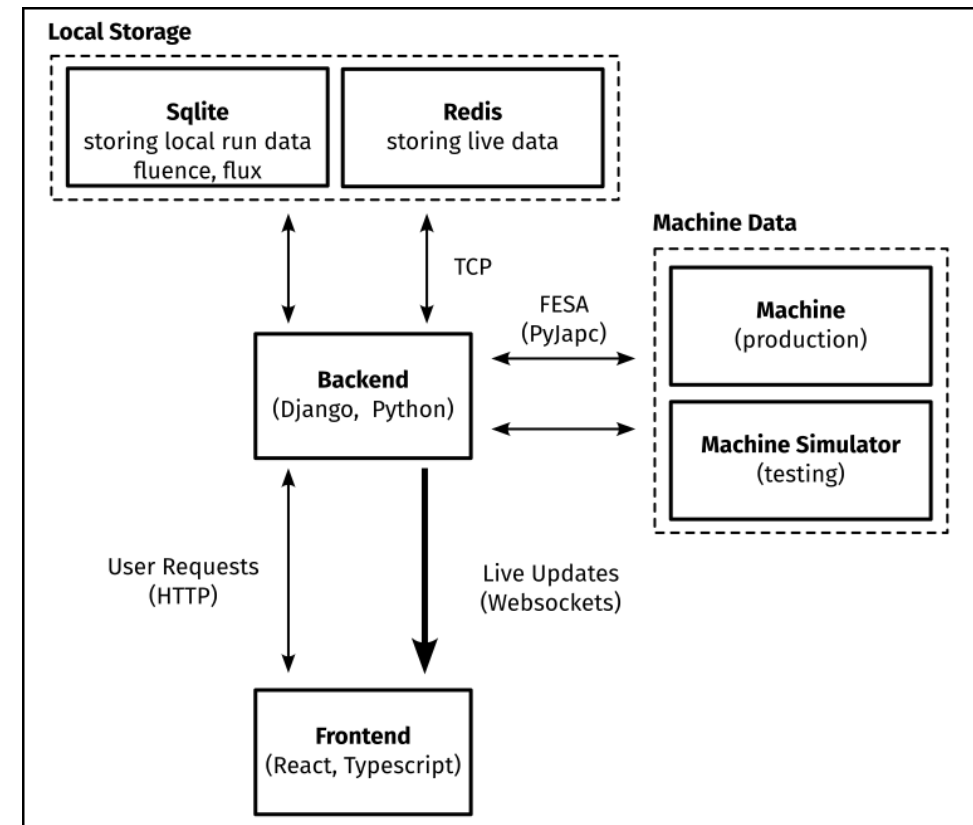- WP9 plans for Y3

Objectives

- ## User interface tool for beam experimentation
  - Achieve higher levels of accessibility
  - Allow the users to extract the most from their experiments

- User experiment lifecycle interface deployment
  - Allow experiment scheduling in the fastest possible way
  - Obtain required knowledge about the facilities and how they operate
  - Increase the overall throughput of the infrastructures

Overview of WP9 timeline

2024   2025   2026   2027

04 05 06 07 08 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01 02 03 04 05 06 07 08 09 10 11 12 01

RP 1 milestone

Early Sept: RP Review

Late Nov 2024: Early prototype testing

1 July 2025 WP9.2 activity kick-off

WP9.1 Activity end

Architecture and Design

Implementation

Documentation

Deploy. and accept.

Reqs and usecase def

WP9.1

WP9.2

Basic p-type

Implementation

Reqs, usecases and design

Documentation

Deploy. and accept.
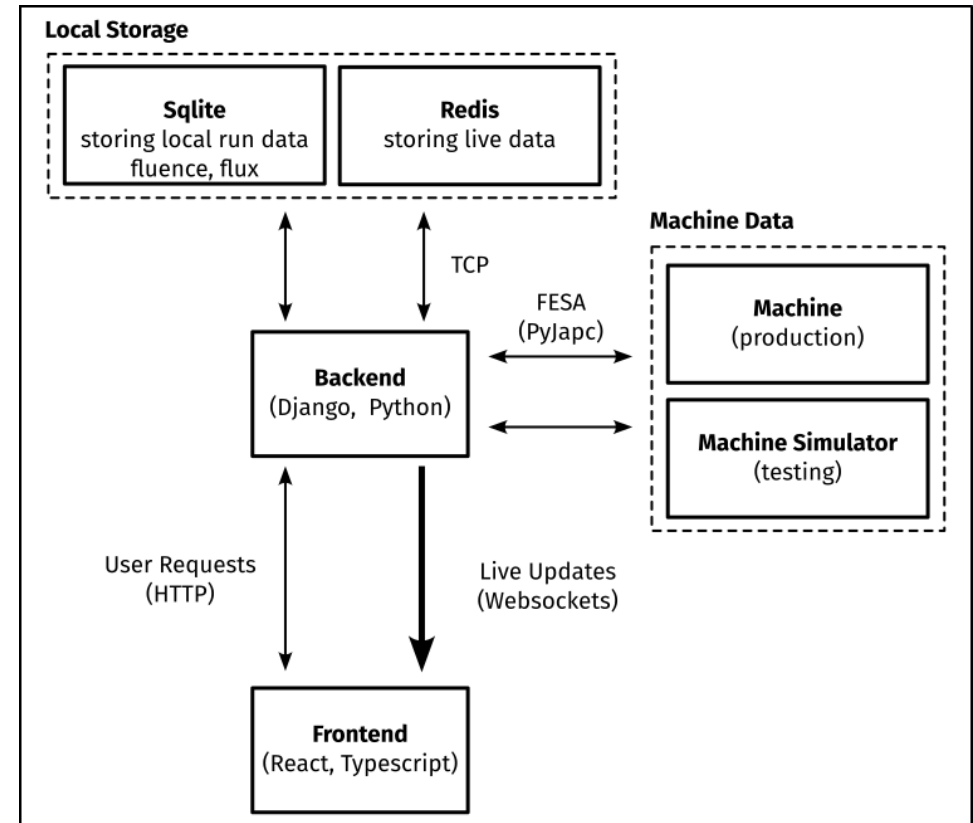
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WP9.1 Implementation Status

- Environment for development and testing is established

- We have synced with CERN on the desired functionality and screen layout

- The architecture and design decisions for application have been defined

- The application foundation has been developed, allowing to focus on specifics

- Prototype is already displaying live data

WP9.1 Implementation Status
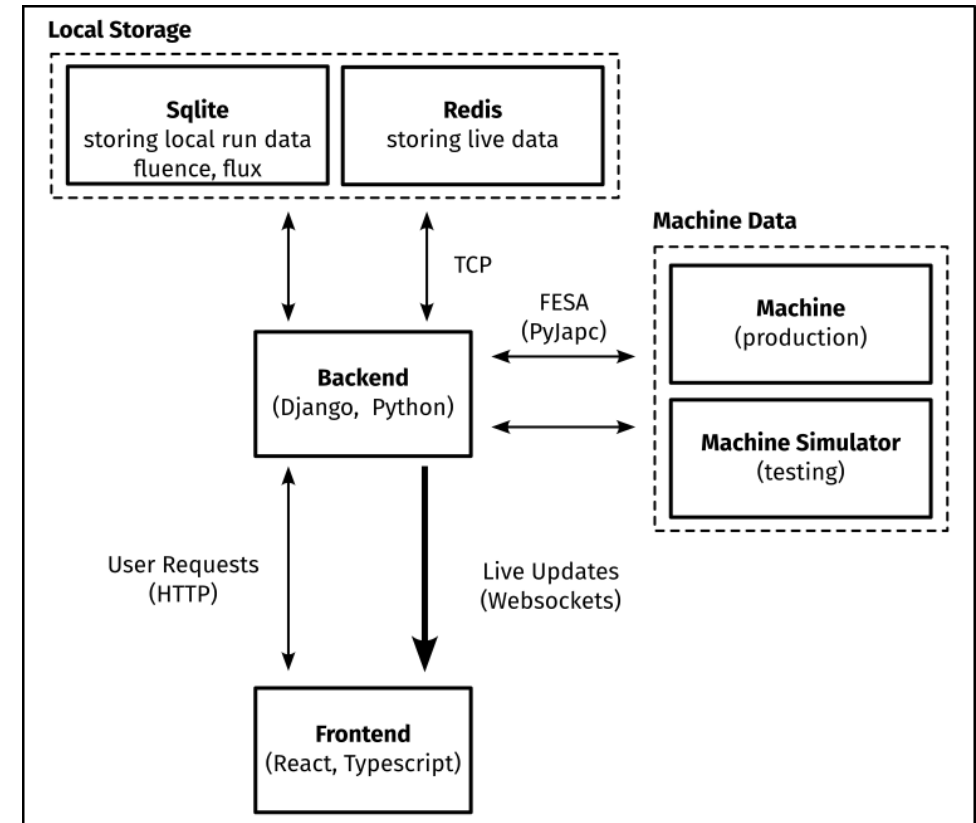
Backend

- Python
- Django
  - Handling HTTP endpoints
  - Handling WebSocket connections
  - Managing permissions
- PyJapc
  - CERN Python interface to FESA properties
- SQLite
  - Recording session and local/user run data
- Redis
  - Live data for different users
  - Graph series data for current run
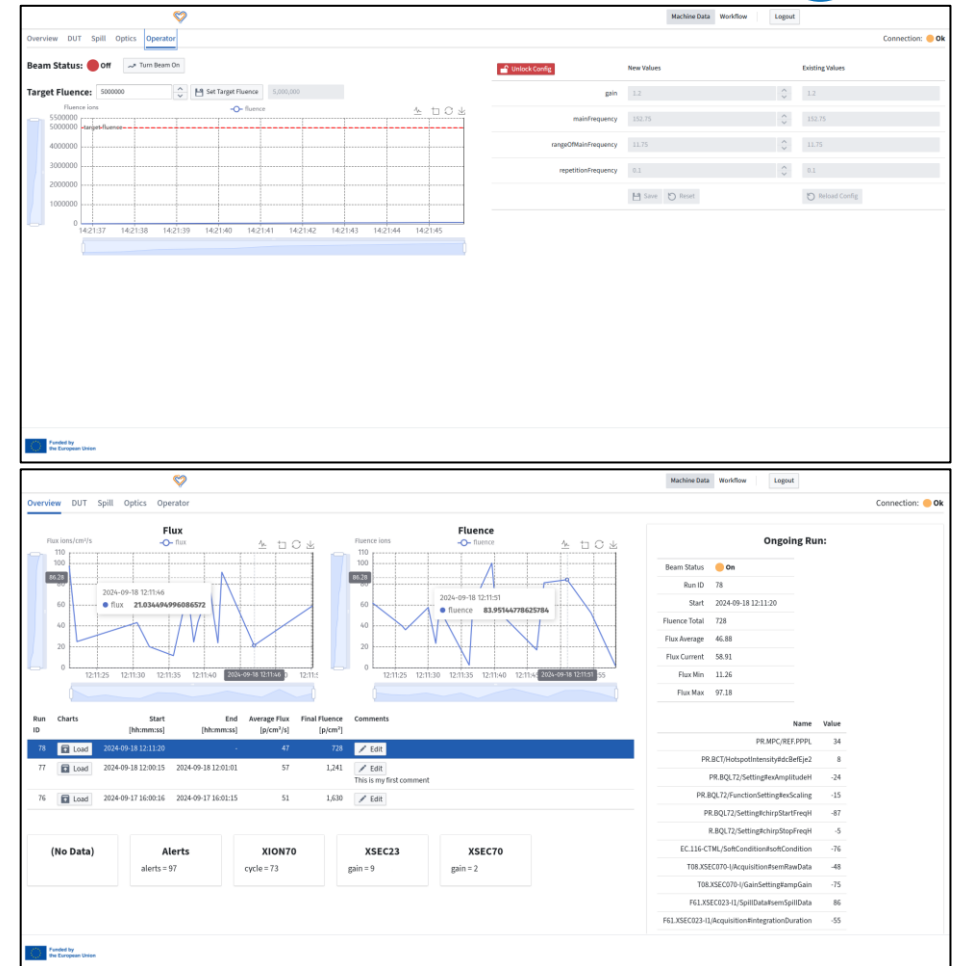
WP9.1 Implementation Status

Frontend

- React with TypeScript
- Blueprint
  - React based UI toolkit
- Apache eCharts for charts
- Historic data through HTTP endpoints
- Live data through WebSocket connections

WP9.1 Implementation Status

- Deployment of the first prototype on the CERN machine for 2024 user run was not achieved

- Prototype is already displaying live data

- CERN has decided to use internal solution, to benefit from support presence during experiments

Deliverables and milestones due in Y2

- None planned and achieved

The achieved deliverables are available on HEARTS website page:
https://hearts-project.eu/project/deliverables/

The achieved milestones are available on HEARTS website page:
https://hearts-project.eu/project/milestones/

Upcoming Deliverables & Milestones

Deliv. No.	Deliverable name	Due date	Status
D9.1	User interface tool for beam experimentation	2026-05-31	Pending
D9.2	User experiment lifecycle interface deployment	2026-12-31	Pending

Milest. No.	Milestone name	Due date	Status
MS14	Achievement of TRL6-7 for electronics testing at the CHARM facility	2026-05-31	Pending
MS15	Achievement of TRL6-7 for electronics testing at GSI	2026-05-31	Pending
MS19	Achievement of TRL6-7 for the SIS18 GCR/SPE simulator	2026-05-31	Pending

Impact

- Improve the user experience with respect to the HEARTS project
  - Analysis of user expectations
  - Focus on provided data
  - Focus on experiment organization
  - Mechanisms for providing users with experiment data

Follow-up of recommendations and comments from review (if applicable)

- Not applicable

Plan – WP9.1

- Updates to the overview screen
  - We resumed regular syncing with CERN team to include new information
  - Resolving beam control questions – how to start and stop the beam
  - Connecting the beam parameters with FESA tags
  - Working with degraders and masks
  - First focus on read-only information

- User data preparation
  - From CERN data archives

- Authentication and authorization

Plan – WP9.2

- Start activity in July 2025

- Gather requirements

- Preliminary work
  - We will capture CERN experiment management experience from 2024 in March 2025
  - Avoiding the *memory loss*
  - Already kicked off
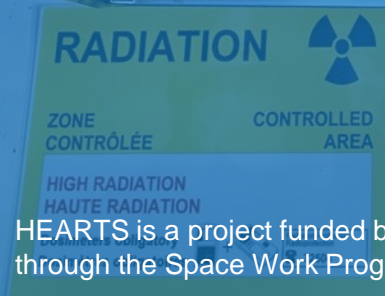 - First user stories session on March 6

Thank you for your attention. Questions?

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