



EPICS on the Web: Modernizing graphical user interfaces

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Agenda

- Introduction
- Vision: EPICS for the Web
- Architecture Overview
- Tech-stack
- Examples
- Future
- Conclusion

- HMIs as an essential component for successful operation
- Current situation at ELI – Beamlines
- Motivation for change



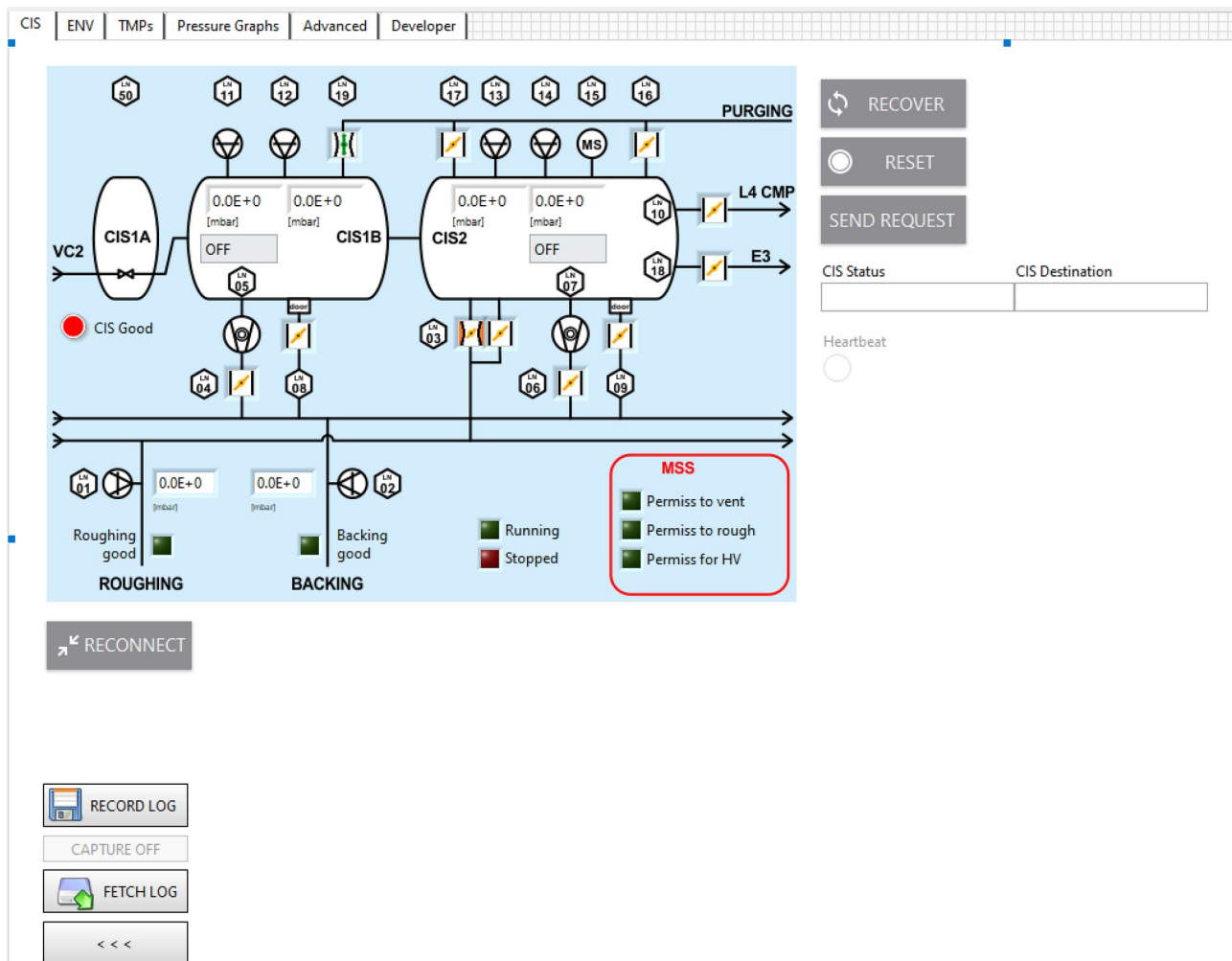
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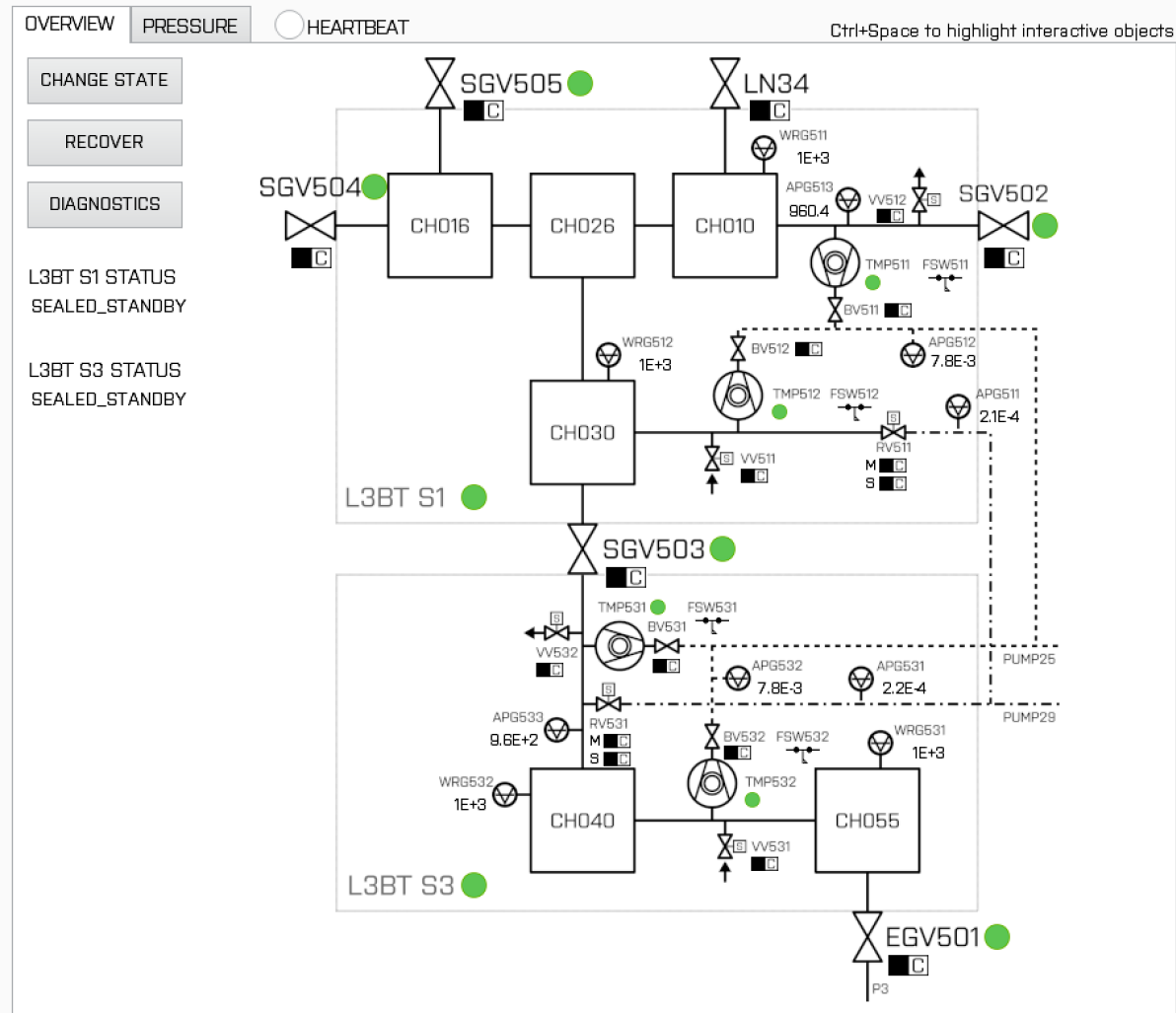


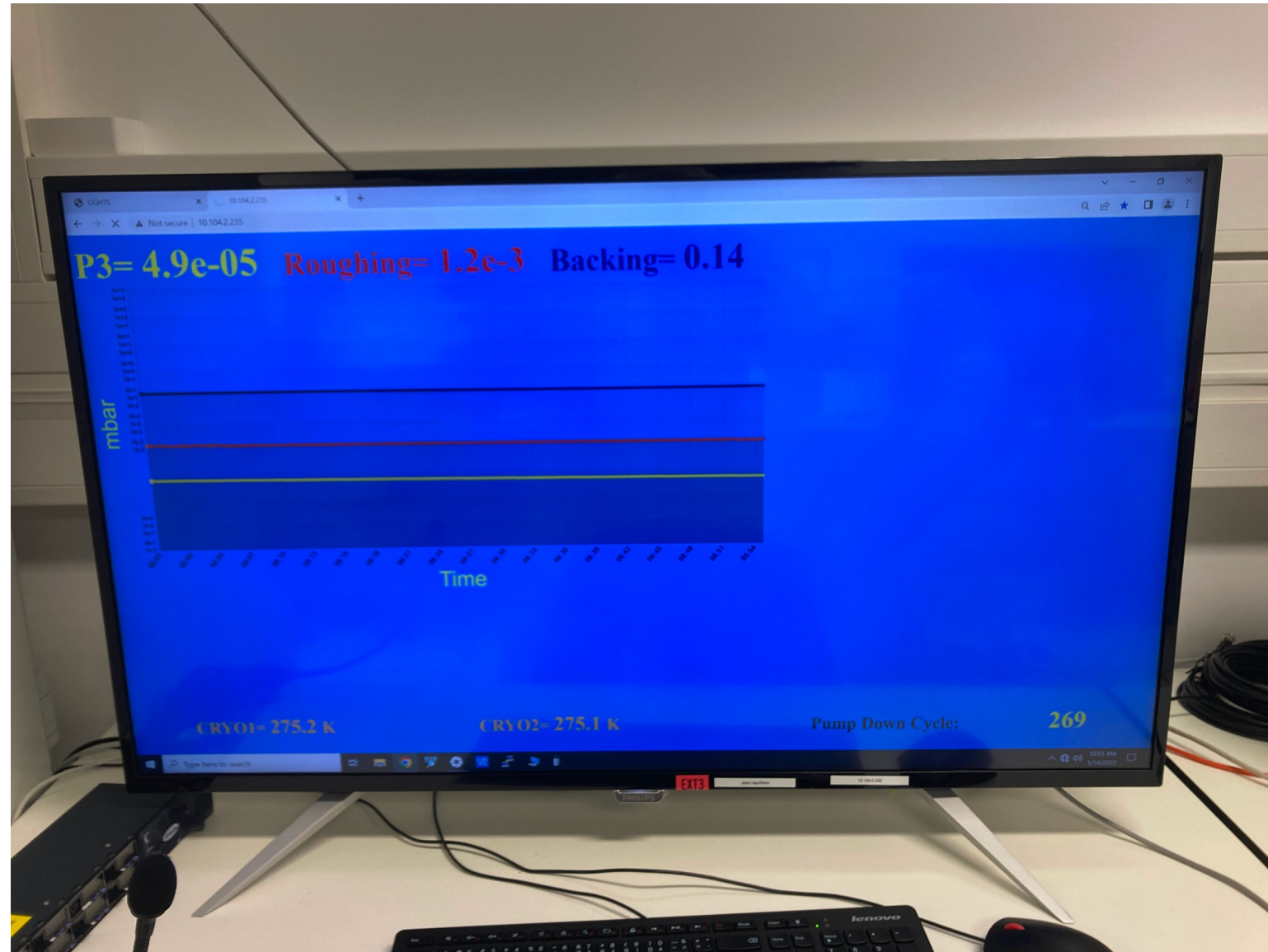
Introduction

Current situation at ELI – Beamlines



L3BT E3 VCS







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Motivation for change

- Standardisation
- LabView limitations
- Deployment process
- Authentication
- Limitation of control from multiple locations at once
- UX Designer



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Vision: EPICS for the Web

- Use modern web technologies
- Web Server as an EPICS Web Gateway
- Web Client as a lightweight HMI
- Easy deployment



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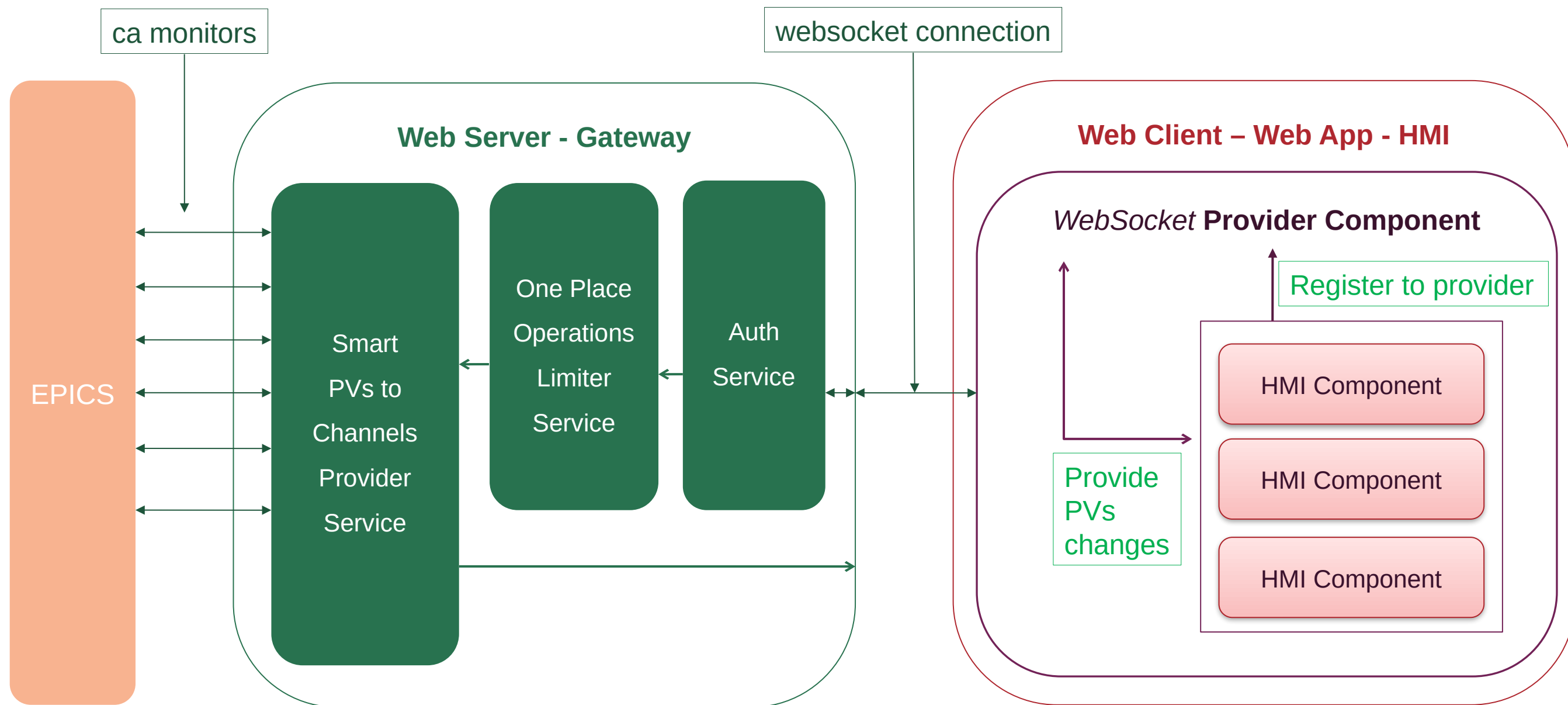


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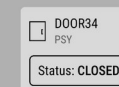
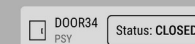
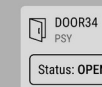
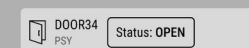
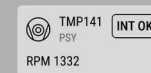
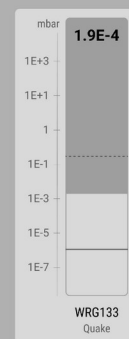
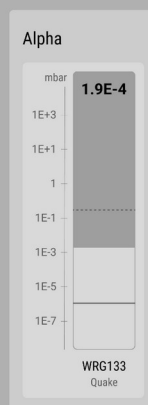
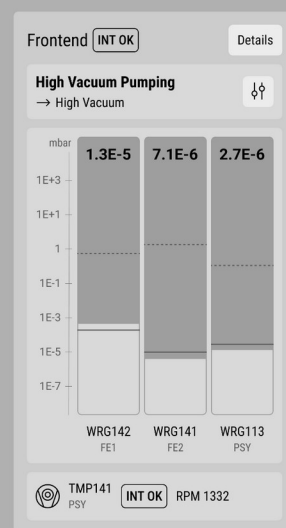
Architecture Overview

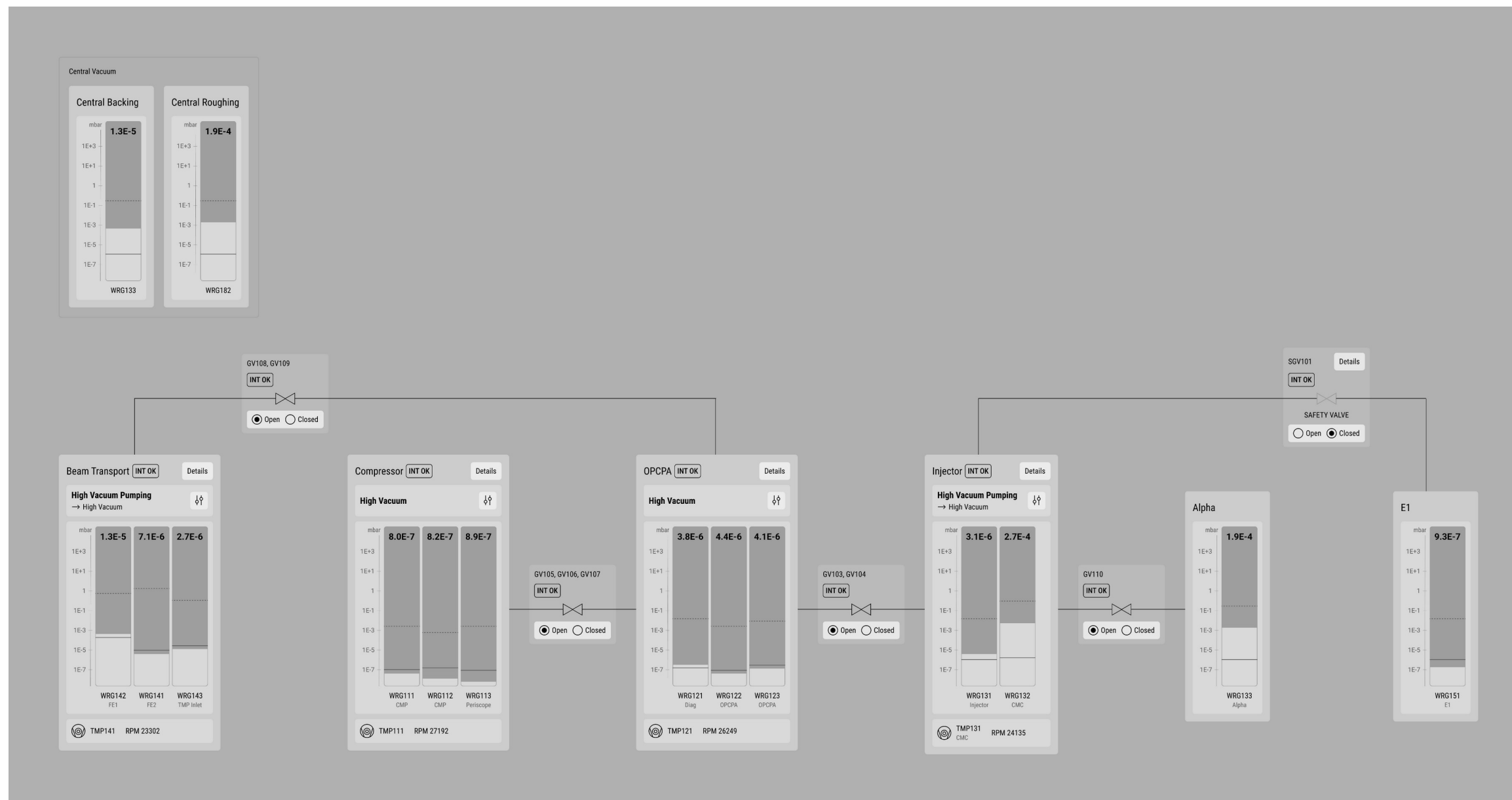


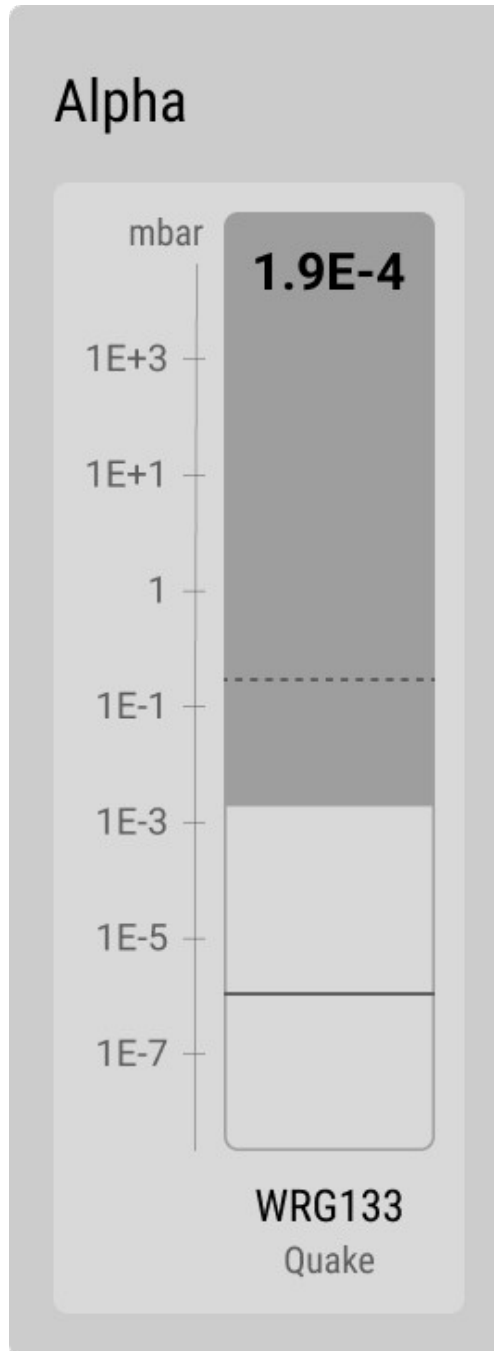
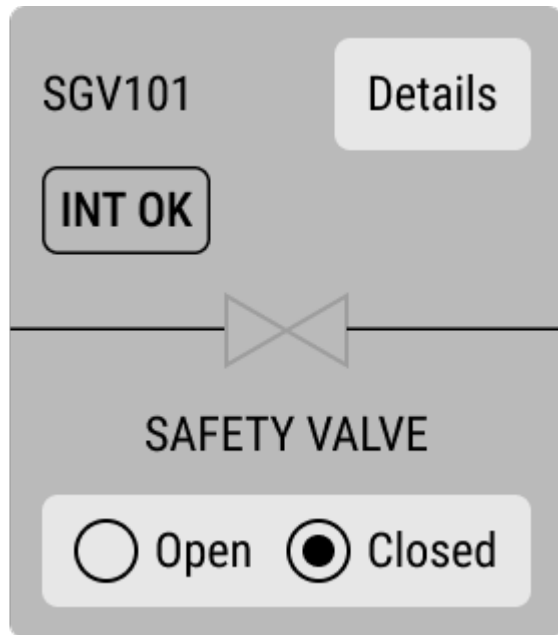


Tech-Stack

- Server side: Python, FastAPI, aioca
- Client side: Web Components, TypeScript







Examples



CP141 TEMP -80 °C



CP141

TEMP -80 °C



SP141

INT OK



On



Off



SP141

INT OK



On

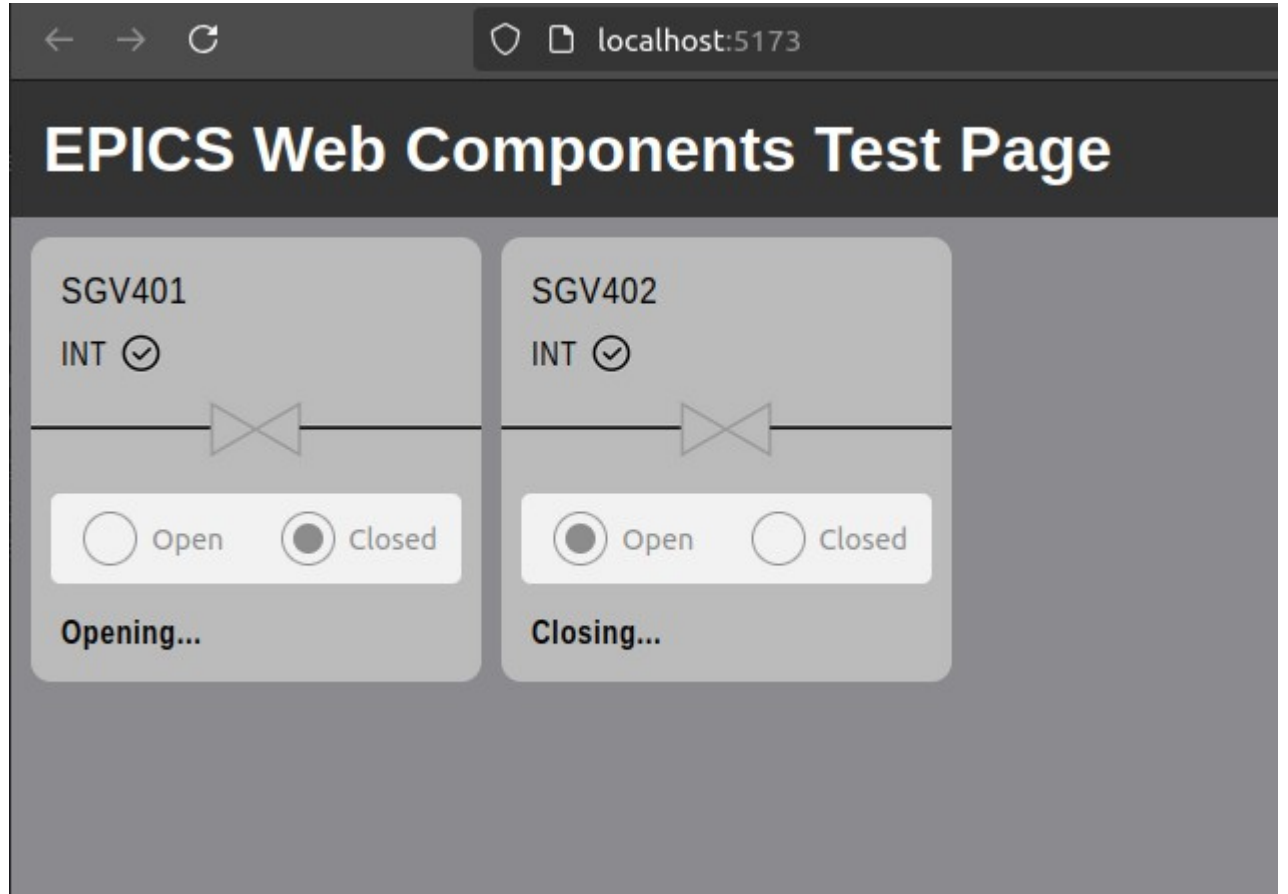


Off



Examples

```
<body>
  <h1>EPICS Web Components Test Page</h1>
  <ewc-web-socket-provider url="ws://localhost:8000/ws/pvs">
    <ewc-valve pv-prefix="L4-CIS-SGV401" header="SGV401"></ewc-valve>
    <ewc-valve pv-prefix="L4-CIS-SGV402" header="SGV402"></ewc-valve>
  </ewc-web-socket-provider>
  <script type="module" src="./main.ts"></script>
</body>
```





Future

- Demo project
- Server side services implementations
- Web Components library
- Complex client application



Conclusion

- We still need to perform more load/stress tests
- Great choice with the UX designer – unified UI design
- The design of new GUIs should always go through th UX designer
- Implementation and deployment should then be very fast
- Satisfied operators and less workload for technical support



Thank you for your attention!

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