past, present and future

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Virtual Tango Meeting 2020
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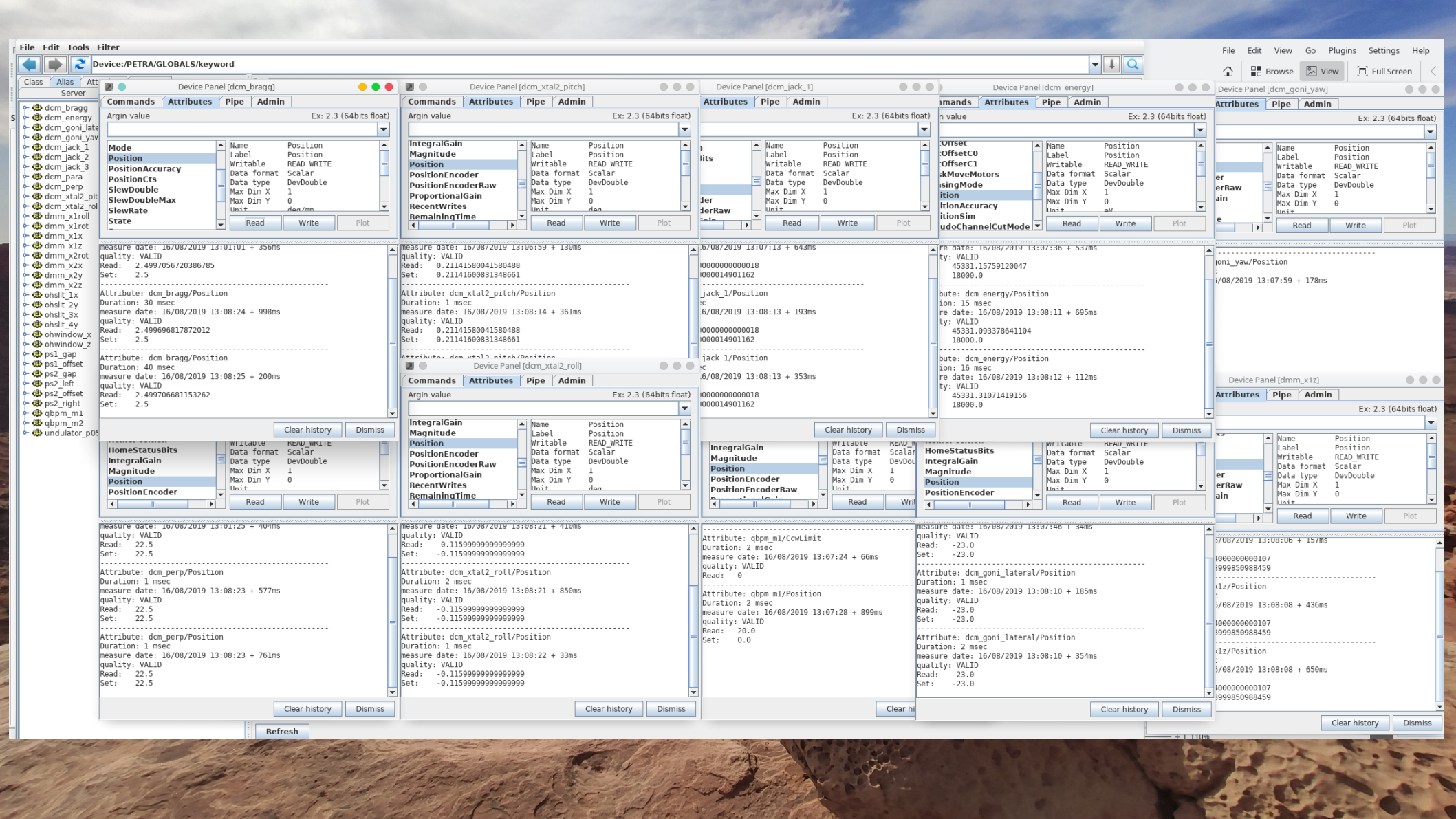
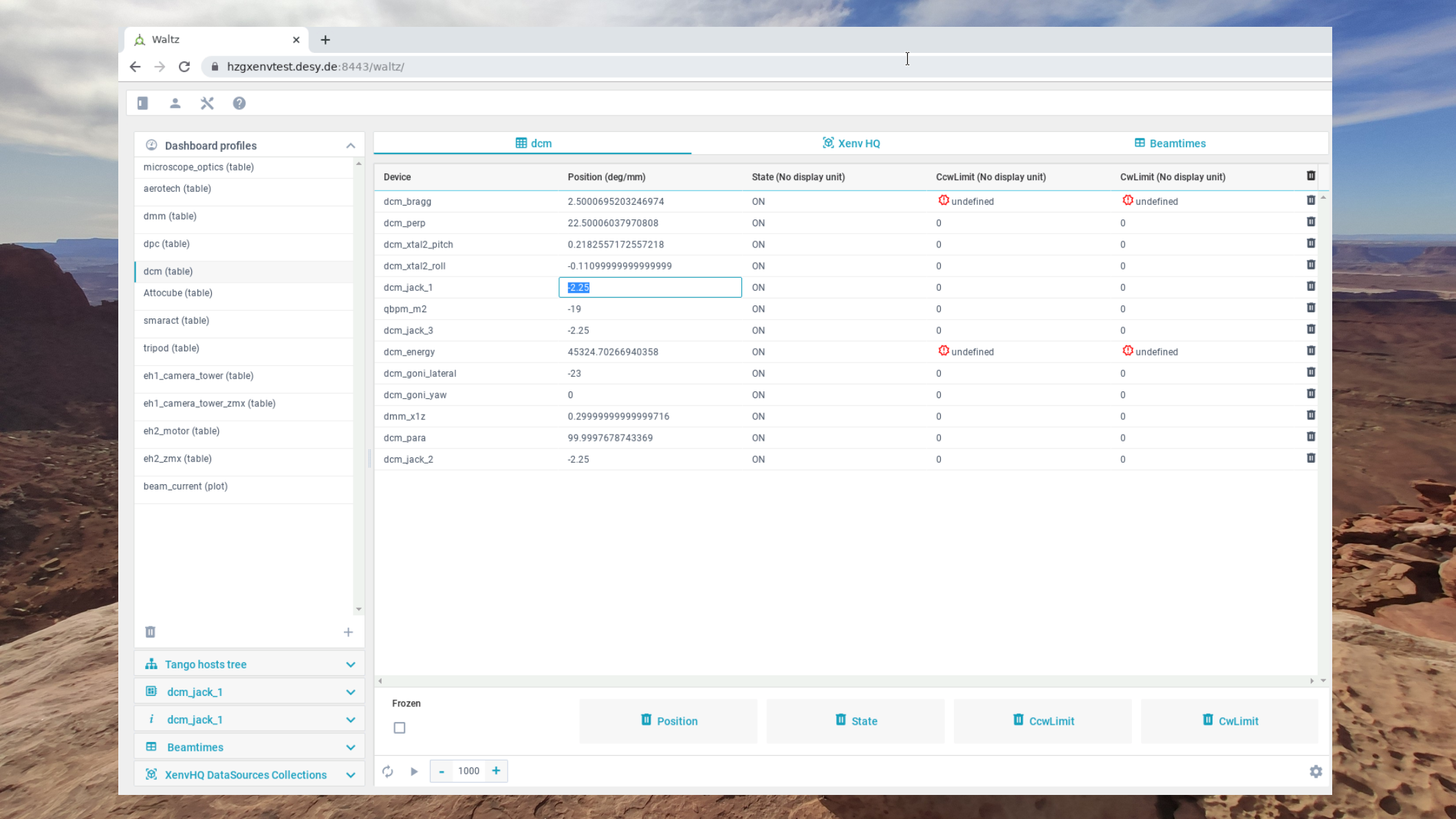
Waltz-Controls ≠ Waltz
Waltz = Web Application


Waltz-Controls:
- Web application (Waltz)
- Middleware (Interconnection platform)
- Plugins (connectors/components)
- Backends (upstream Css)
- Device API


Waltz
Web application


File Edit Tools Filter
Device:/PETRA/GLOBALS/keyword
Device Panel [dcm_bragg]
Device Panel [dcm_xtal2_pitch]
Device Panel [dcm_jack_1]
Device Panel [dcm_energy]
Device Panel [dcm_goni_yaw]
Device Panel [dcm_xtal2_roll]
Device Panel [dmm_x1z]
Commands Attributes Pipe Admin
Argin value
Ex: 2.3 (64bits float)
Read Write Plot
Clear history Dismiss
Refresh


Waltz
hzgxenvtest.desy.de:8443/waltz/
Dashboard profiles
microscope_optics (table)
aerotech (table)
dmm (table)
dpc (table)
dcm (table)
Attocube (table)
smaract (table)
tripod (table)
eh1_camera_tower (table)
eh1_camera_tower_zmx (table)
eh2_motor (table)
eh2_zmx (table)
beam_current (plot)
Tango hosts tree
dcm_jack_1
dcm_jack_1
Beamtimes
XenvHQ DataSources Collections
dcm
Xenv HQ
Beamtimes
Device
Position (deg/mm)
State (No display unit)
CcwLimit (No display unit)
CwLimit (No display unit)
dcm_bragg 2.5000695203246974 ON undefined undefined
dcm_perp 22.50006037970808 ON 0 0
dcm_xtal2_pitch 0.2182557172557218 ON 0 0
dcm_xtal2_roll -0.11099999999999999 ON 0 0
dcm_jack_1 -2.25 ON 0 0
qbpm_m2 -19 ON 0 0
dcm_jack_3 -2.25 ON 0 0
dcm_energy 45324.70266940358 ON undefined undefined
dcm_goni_lateral -23 ON 0 0
dcm_goni_yaw 0 ON 0 0
dmm_x1z 0.29999999999999716 ON 0 0
dcm_para 99.9997678743369 ON 0 0
dcm_jack_2 -2.25 ON 0 0
Frozen
Position
State
CcwLimit
CwLimit
1000

Features: Waltz 0.7.x (past) → Waltz 1.0.x (present)

- Security
- Application + User logs
- Dashboard profiles (per user)
- Table, Plot and List data views
- Drag-n-drop configuration
- Multiple Tango hosts browser
- Search filters
- Tango Manager
- Editable Info panels

- Scripting
- Terminal
- Device filters
- Devices configuration and monitor
- Documentation
- Development platform
- Integration with TINE and EPICS via TANGO
- Unique widgets for unique needs
- Continuous Integration/Continuous Delivery

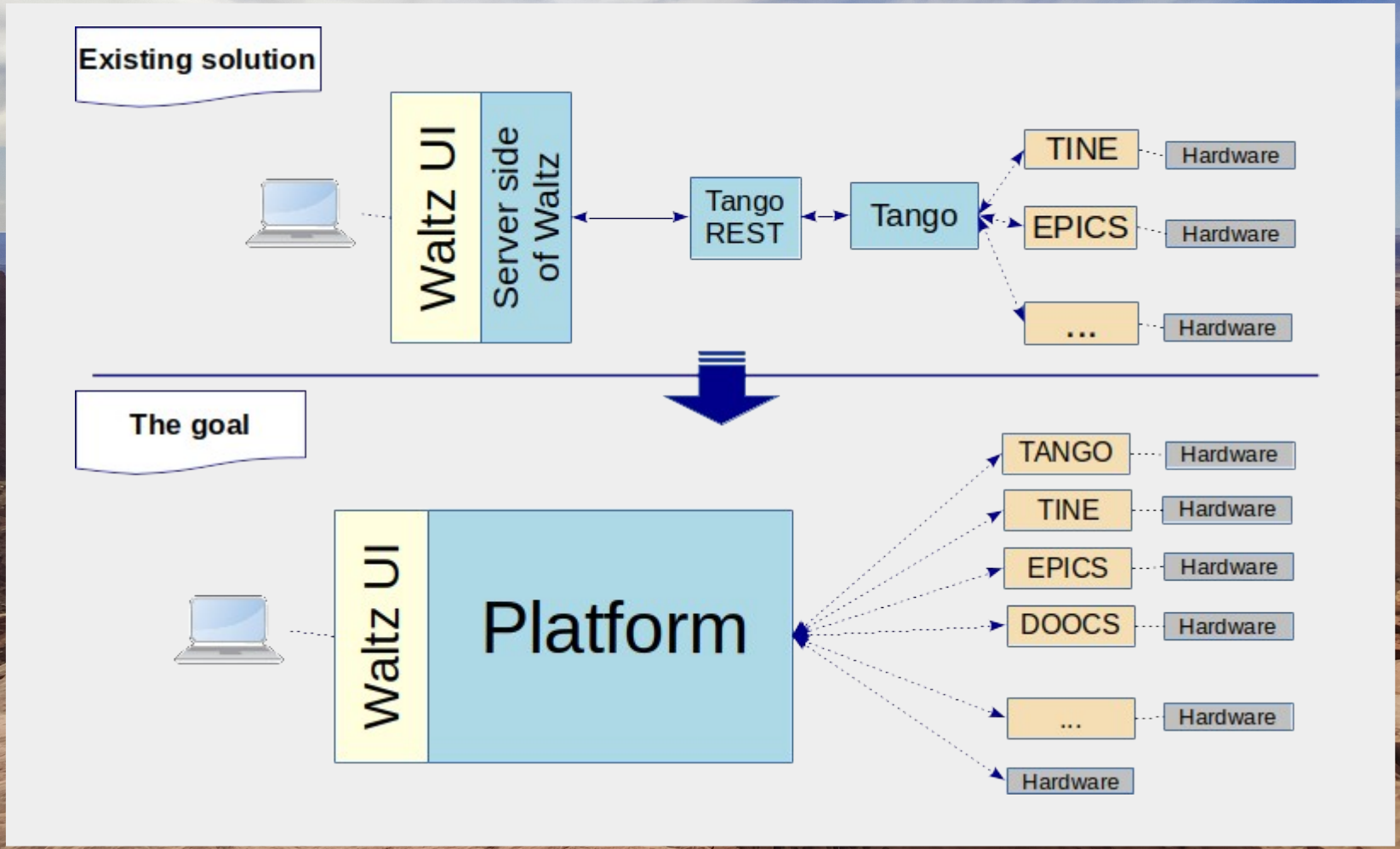
Present - Waltz 1.0.x

- plugable architecture
- npm dependencies management
- Vanila JS6+/RxJS middleware
- Webpack/rollup plugins GitHub template repositories
- UI/UX great improvements
- Deployed @DESY
  - Integrated with DESY security
  - Accessible for every beamline scientist at PETRA III

Waltz 1.0.x Application API

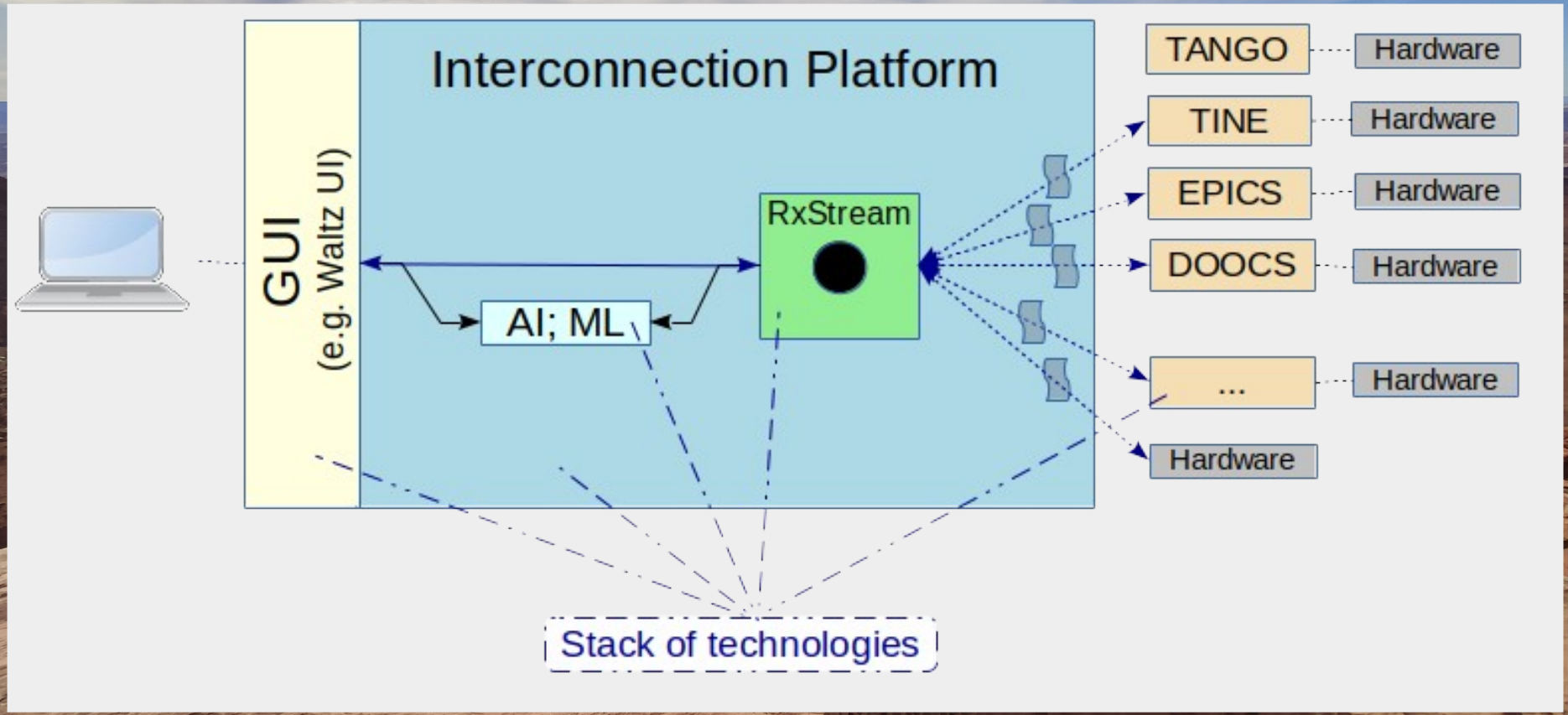
```
import {Application} from "../src/core";
import {MainWindow} from "./layout.widgets";
import {Login} from "./login.widget";
import {interval, throwError, timer} from "rxjs";
import {mergeMap, throttleTime} from "rxjs/operators";

const app = new Application({name:'waltz', version:'1.0.0'})
    .registerErrorHandler(err => {console.error(err)})
    .registerContext('tango-rest', Promise.resolve("some context"))
    .registerObservable(1234, () => interval(100).pipe(throttleTime(1000)),'numbers', "numbers")
    .registerWidget(app => new Login(app))
    .registerWidget(app => new MainWindow(app))
    .run();
```

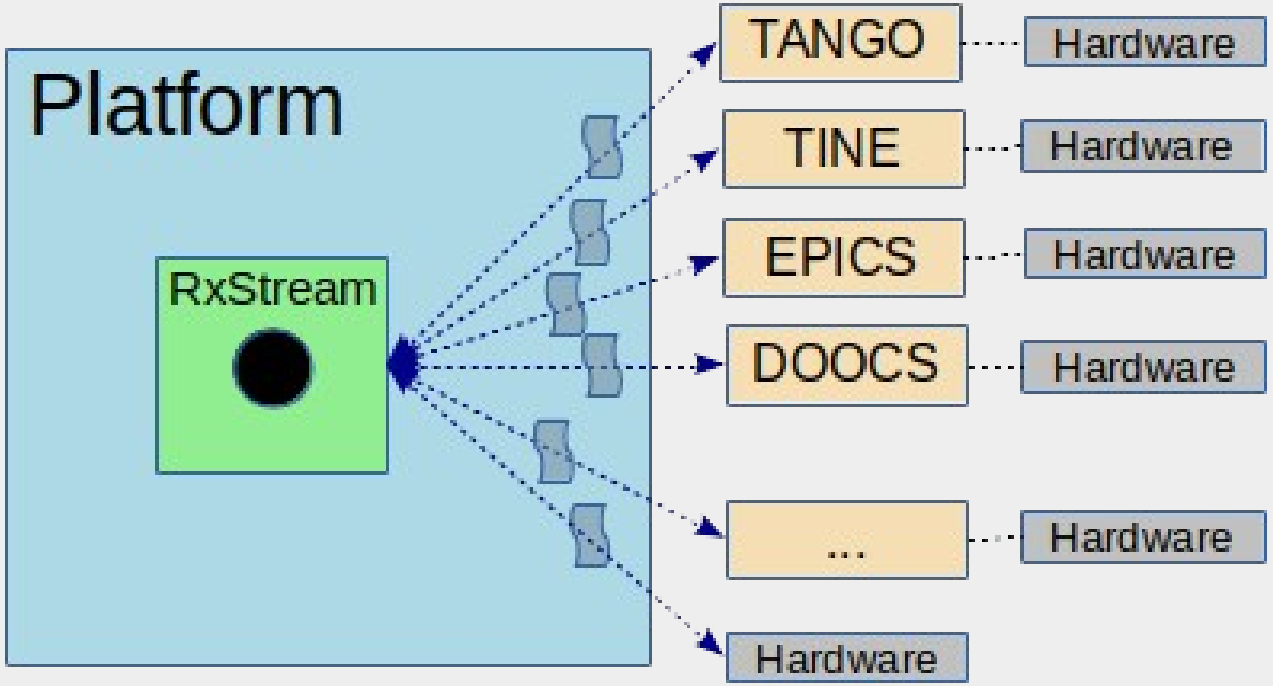

Existing solution
Waltz UI
Server side of Waltz
Tango REST
Tango
TINE
EPICS
...
Hardware
Hardware
Hardware
The goal
Waltz UI
Platform
TANGO
TINE
EPICS
DOOCS
...
Hardware
Hardware
Hardware
Hardware
Hardware
Hardware


Waltz-Controls
Interconnection platform

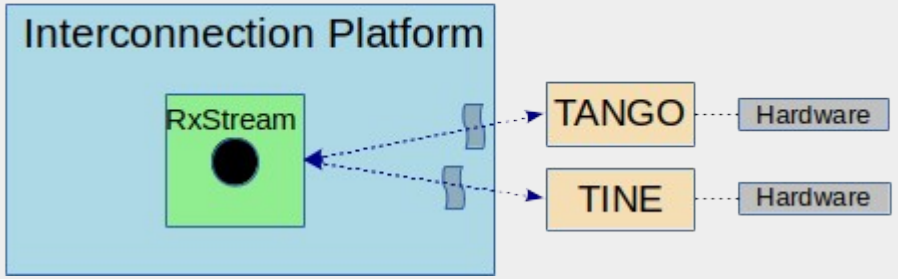
Waltz-Controls 2.0



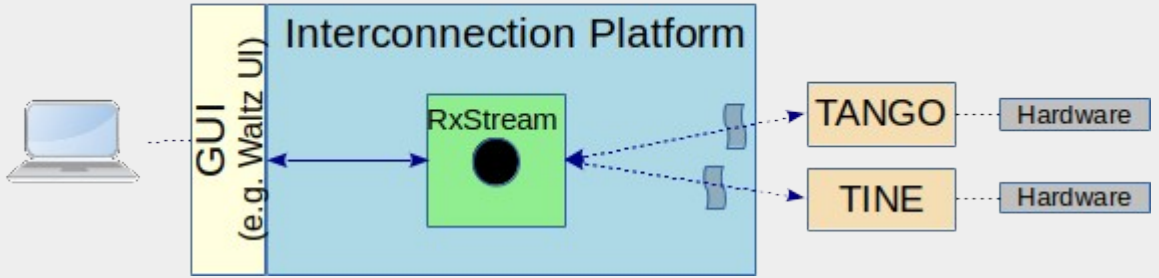
Interconnection Platform



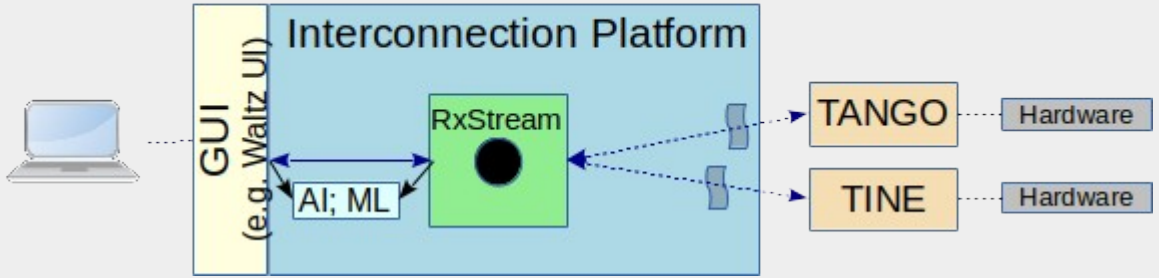
IC Platform. Use Case 1.1



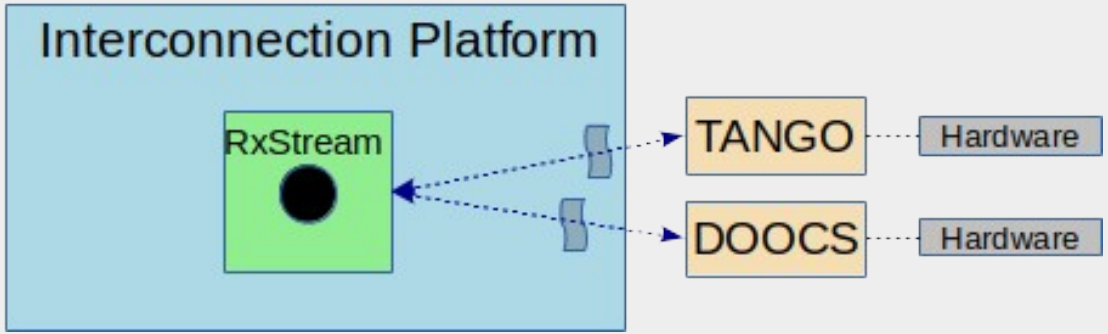
IC Platform. Use Case 1.2



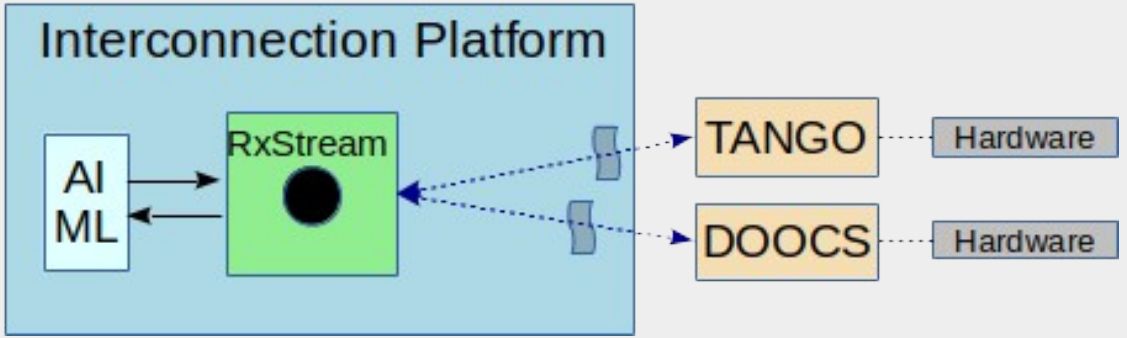
IC Platform. Use Case 1.3



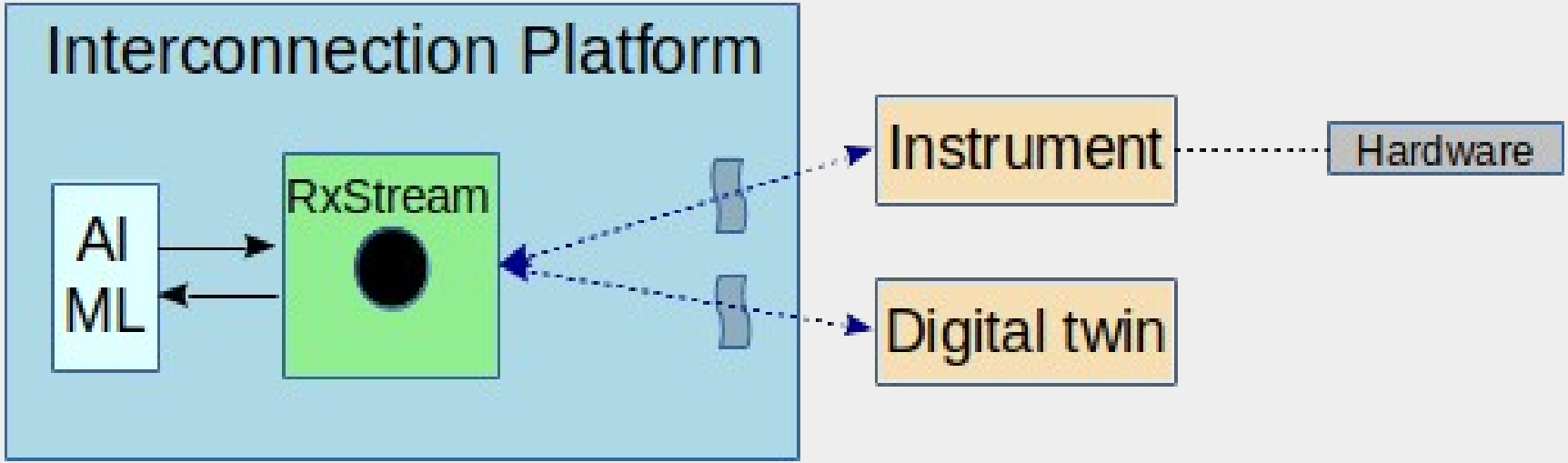
IC Platform Use Case 2.1



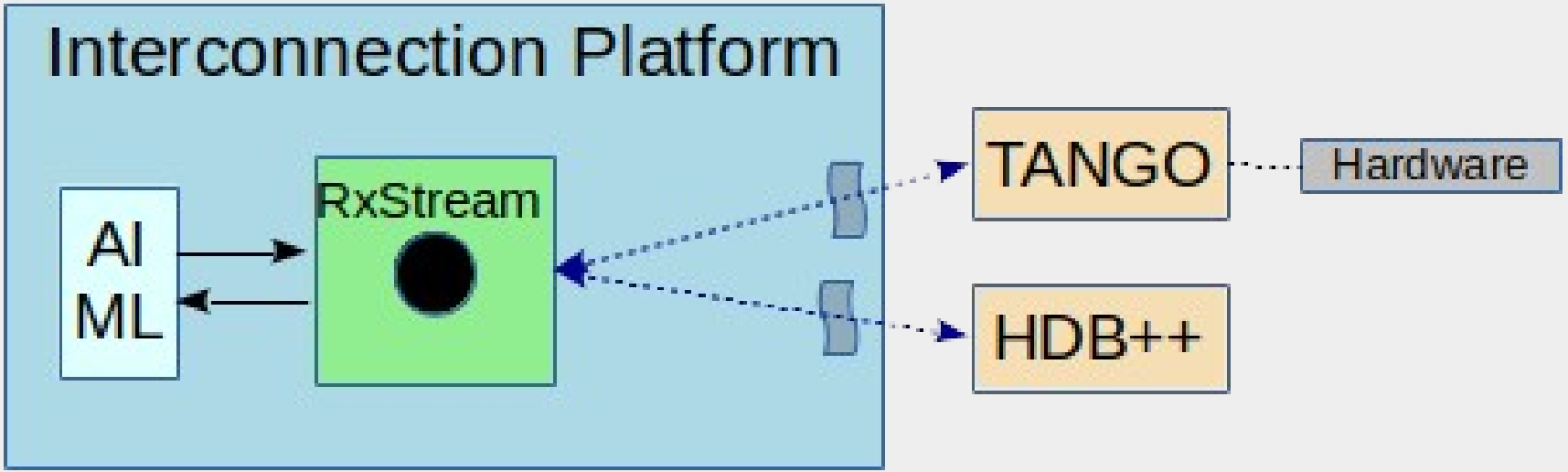
IC Platform Use Case 2.2



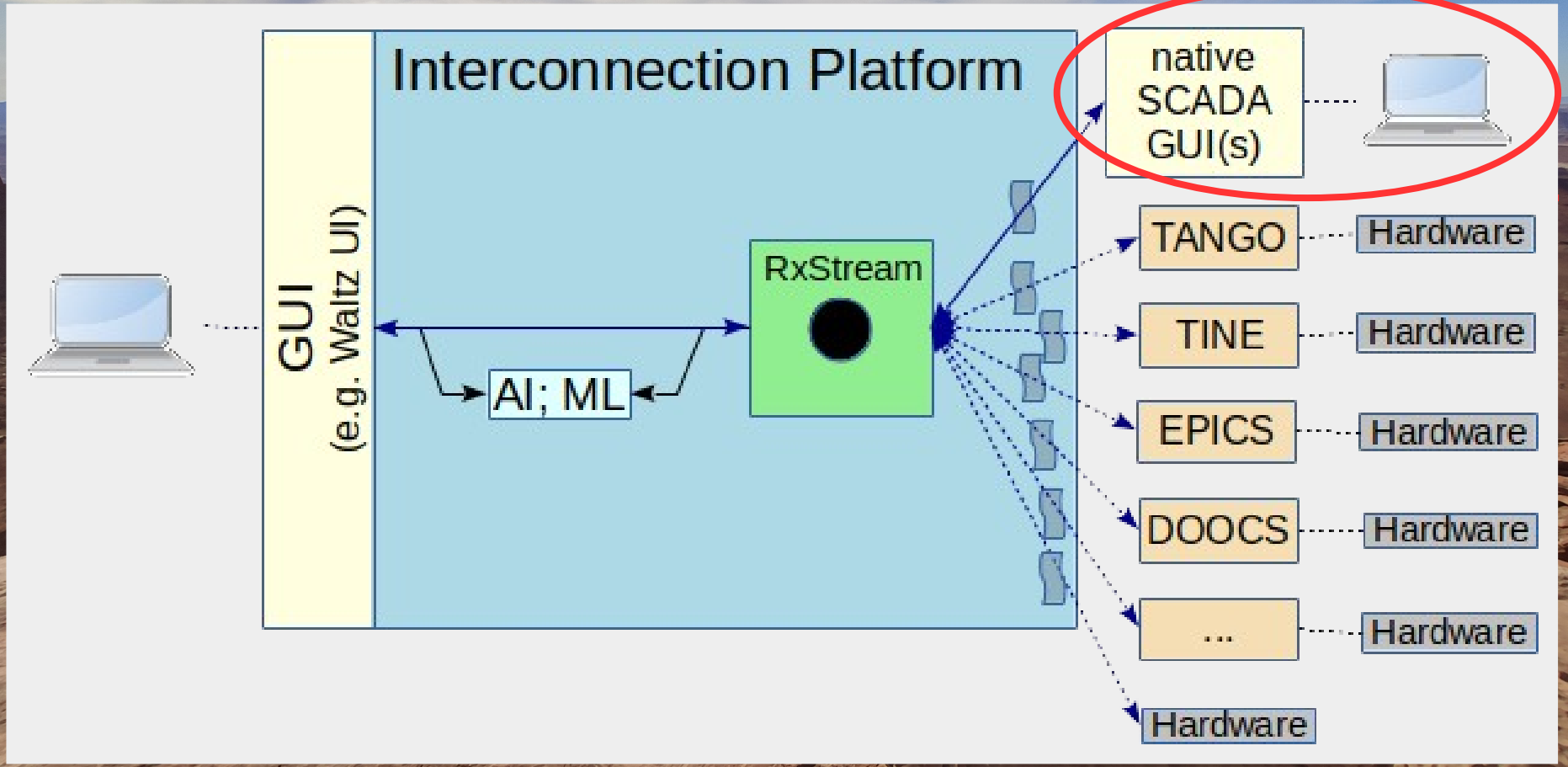
IC Platform Use Case 3



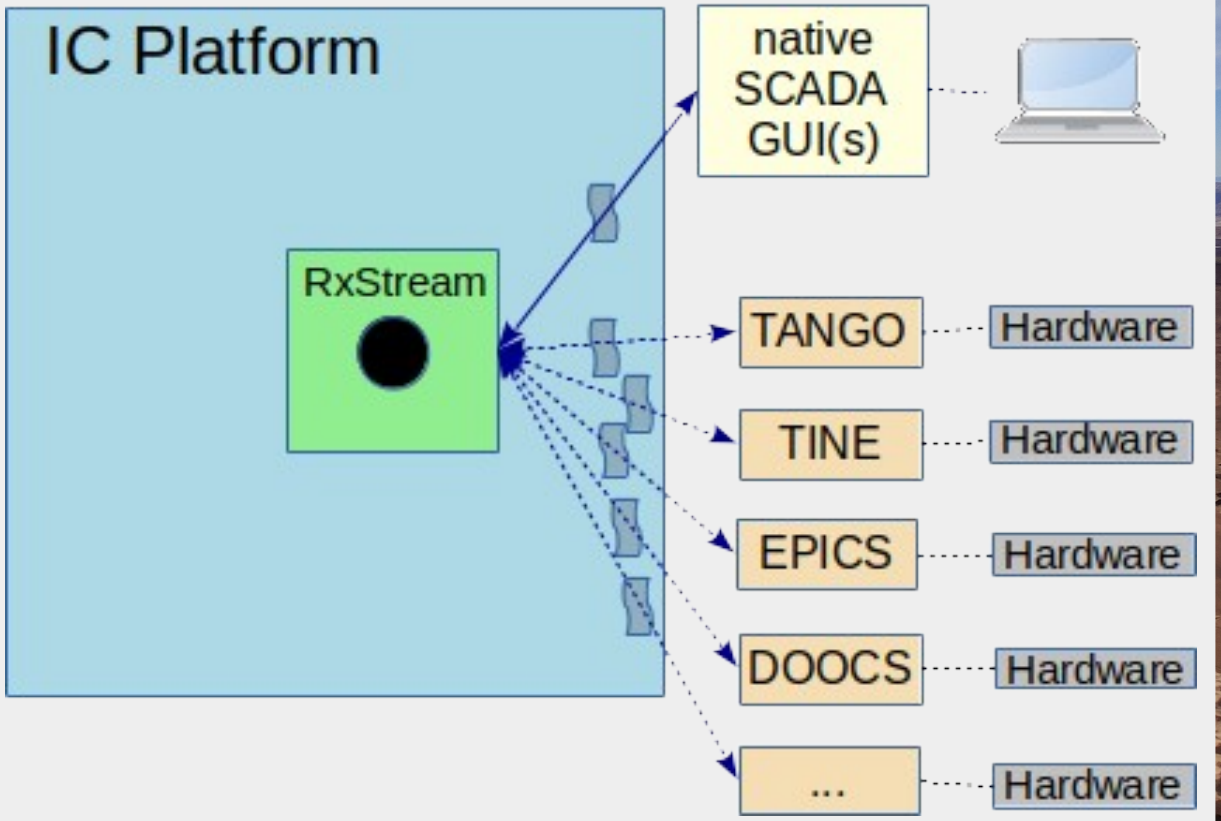
IC Platform Use Case 4



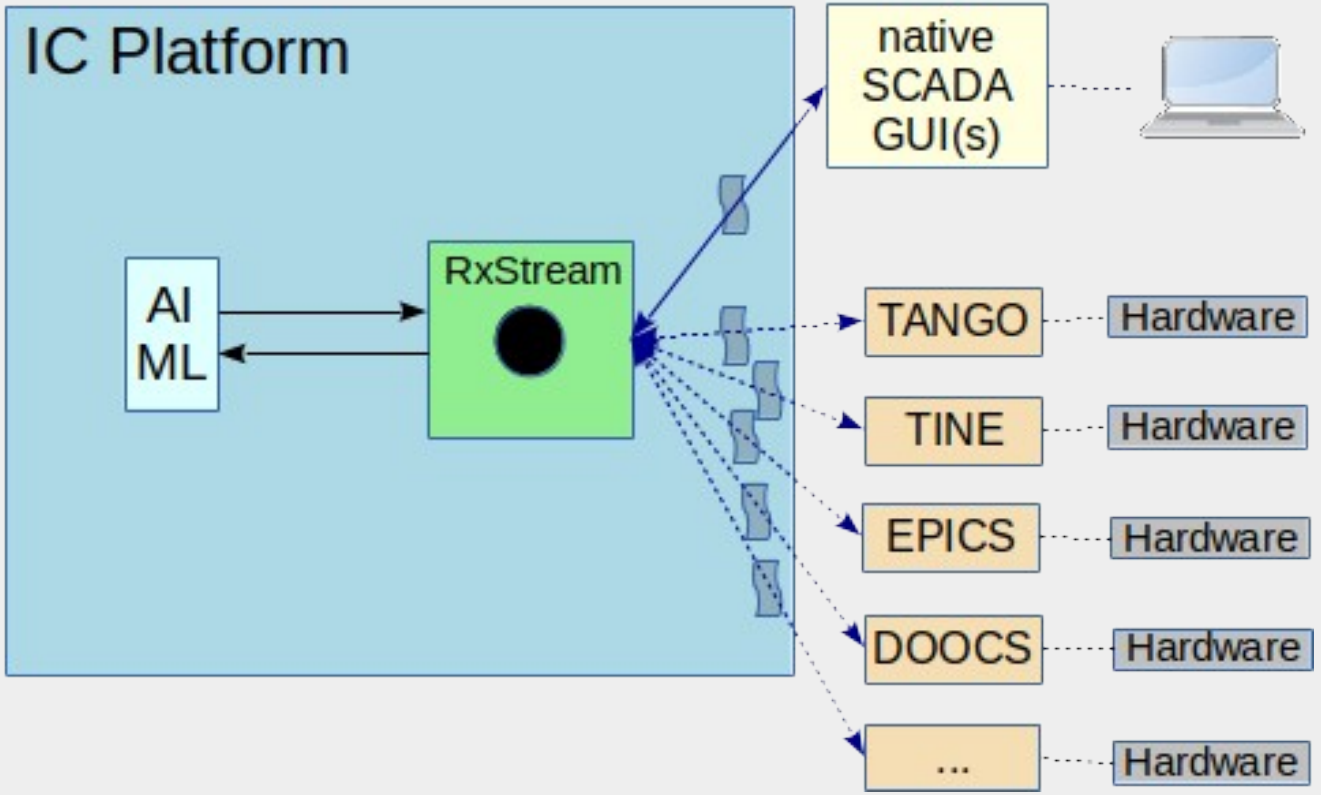
Waltz-Controls 3.0, the Future



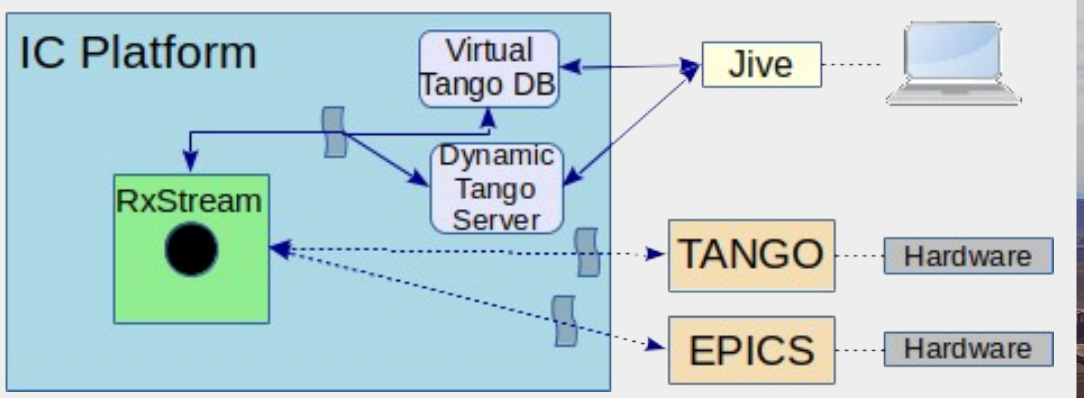
Waltz 3.0, Use case 1.1



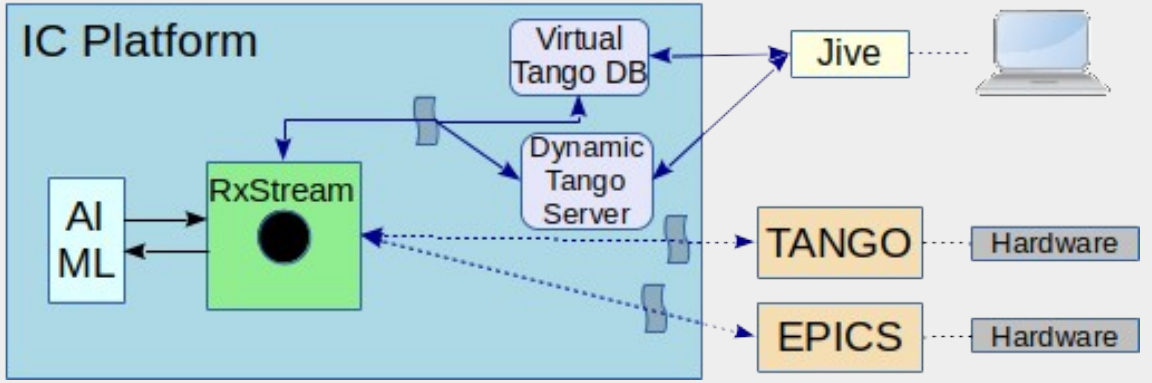
Waltz 3.0, Use case 1.2



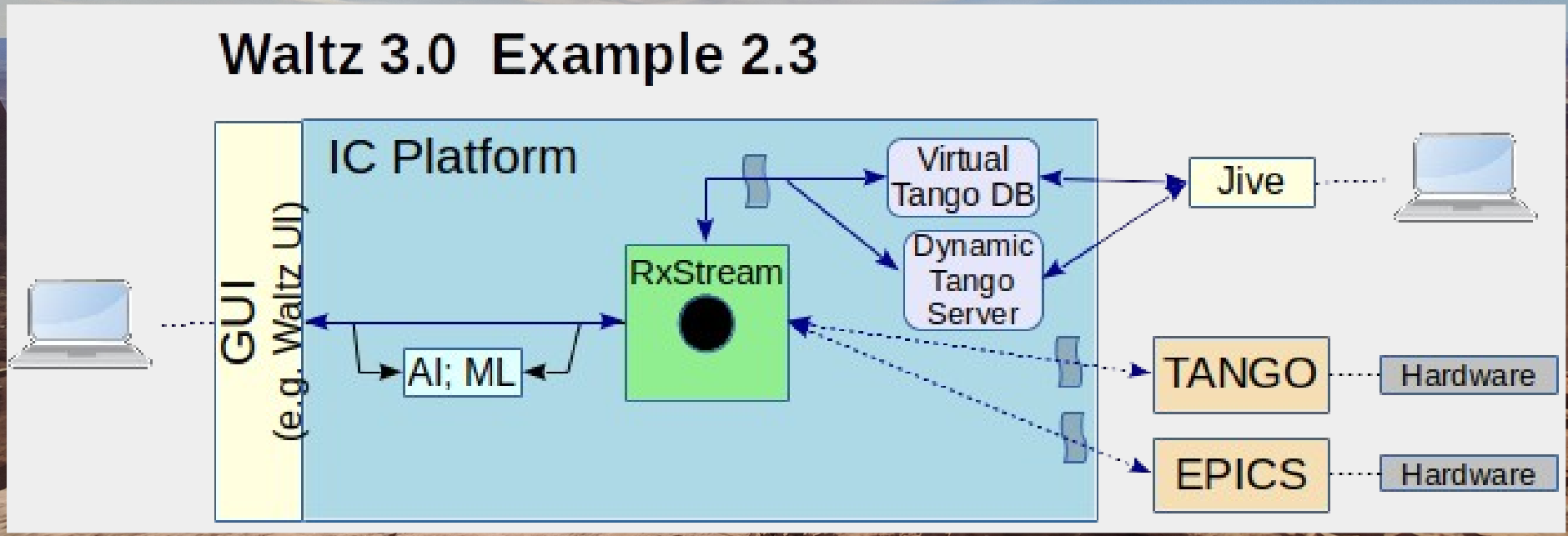
Waltz 3.0 Example 2.1



Waltz 3.0 Example 2.2



Waltz 3.0 Example 2.3



Future:

- AI/ML components
- Blockchain component
- Upstream control systems connectors
- “Magix box” – reactive data stream router
- Message payload specification
- Domestic Device API


Thank you!
Questions?
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