# SOFA and MELD

## Introducing use of the MELD framework by SOFA

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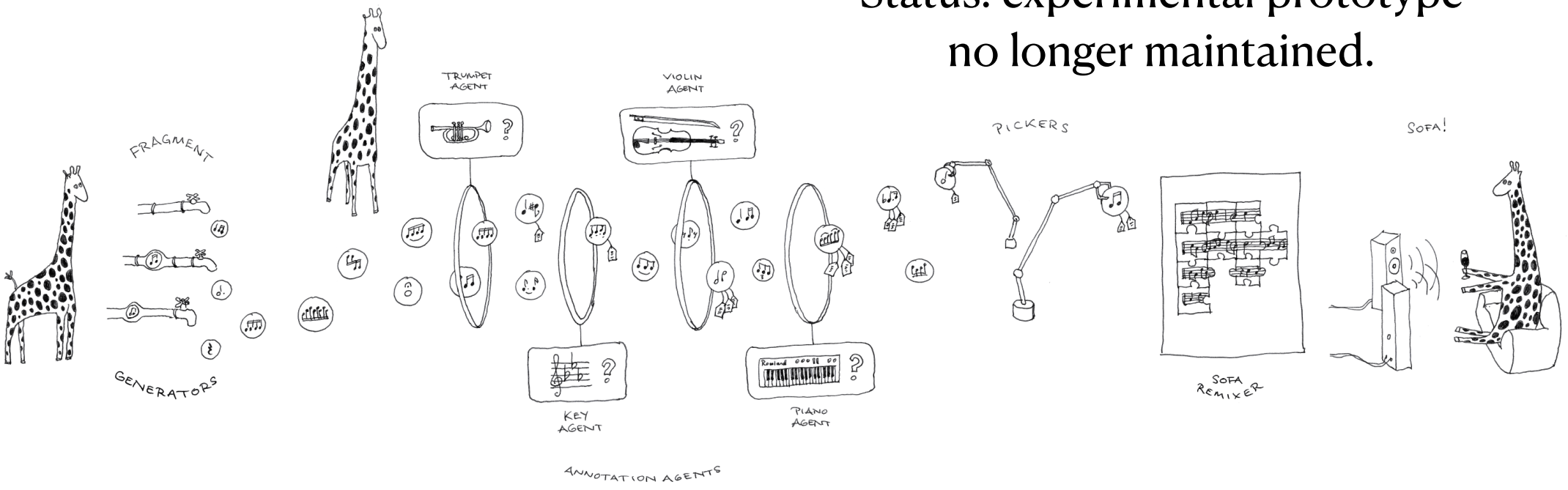
# What is SOFA (1)

SOFA Ontological Fragment Assembler (SOFA) is an application for assembling elements, or “fragments”, into a composed whole.

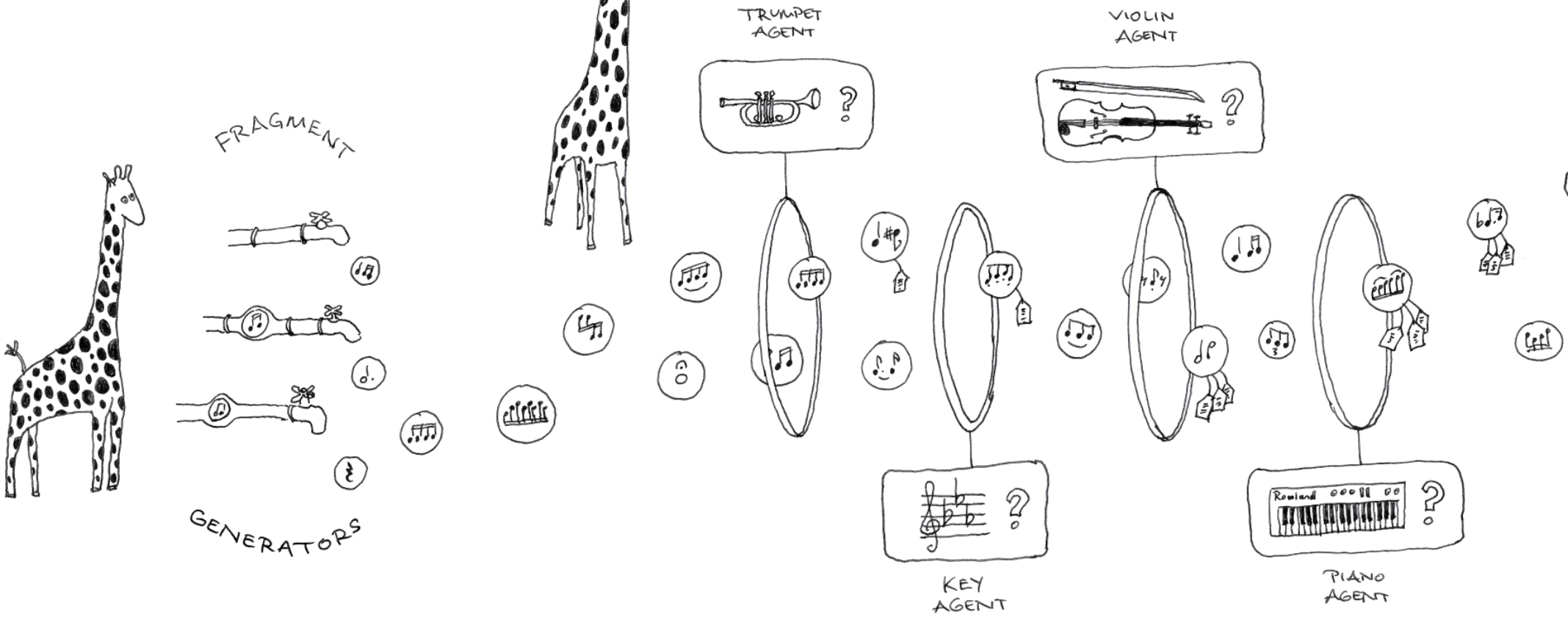
Status: experimental prototype
no longer maintained.




BEHIND THE SCENES AT THE SOFA REMIXER

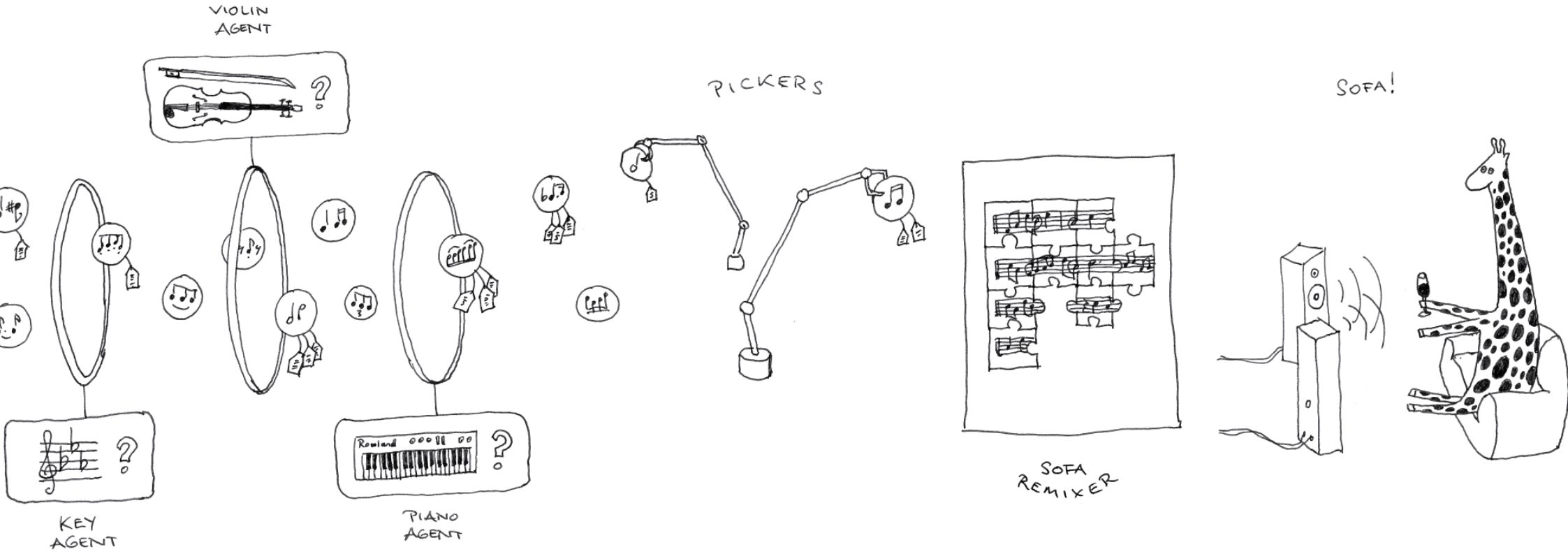
# What is SOFA (2)

SOFA reads music fragments created by some generator (e.g. Numbers into Notes), and uses agents to create compatibility annotations) .

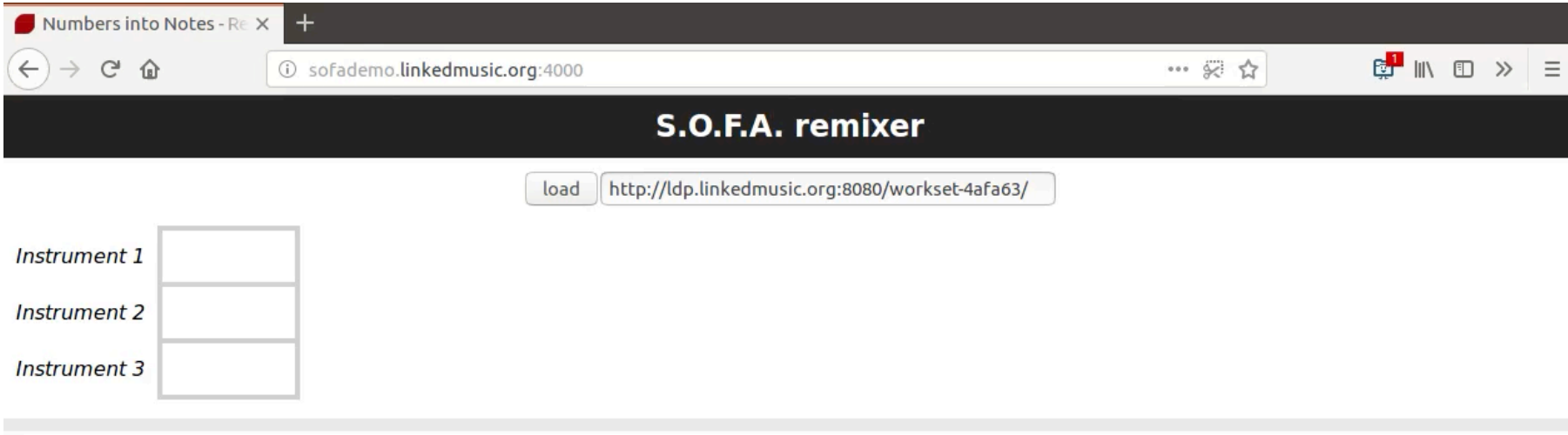


# What is SOFA (3)

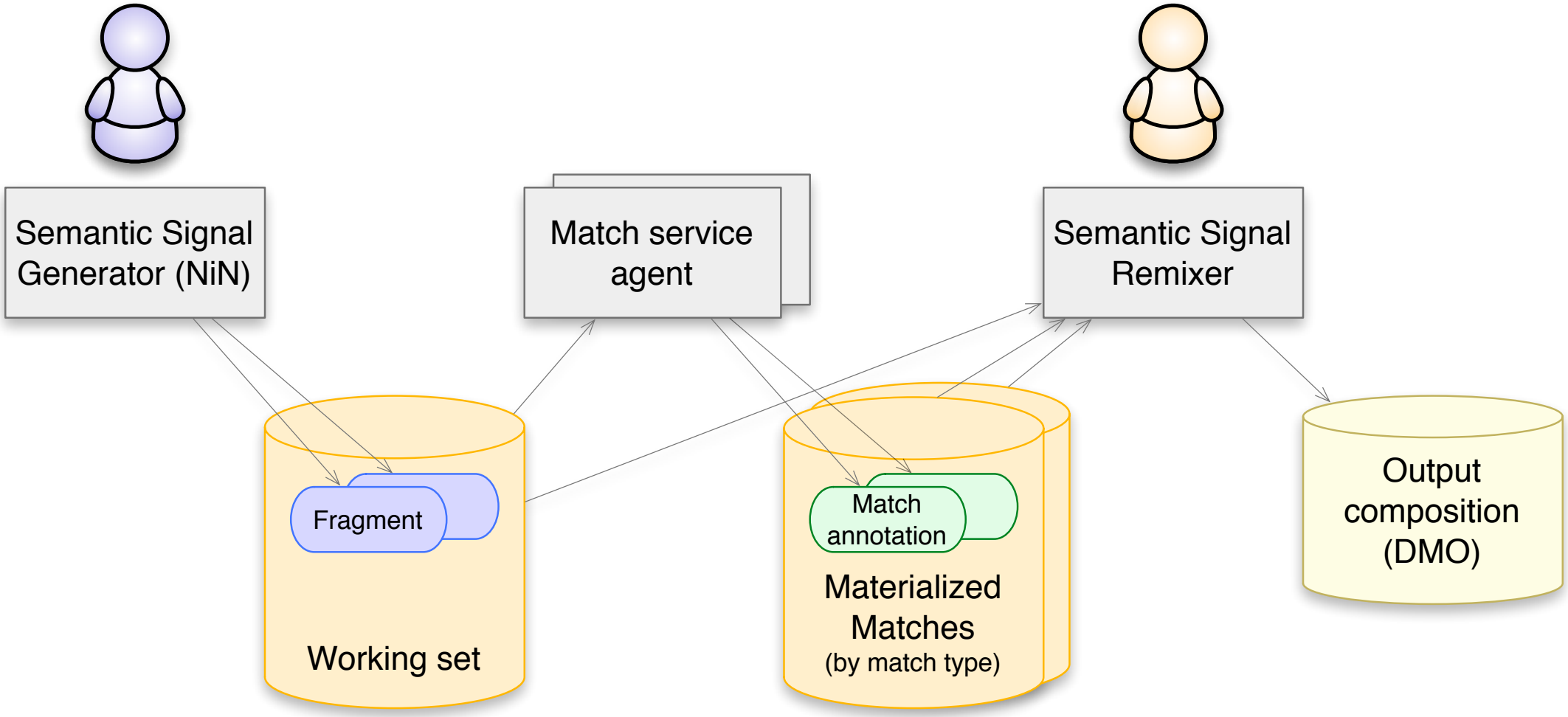
SOFA also provides an interface for guided assembly of the fragments into musical compositions, based on the compatibility annotations



# SOFA demo video

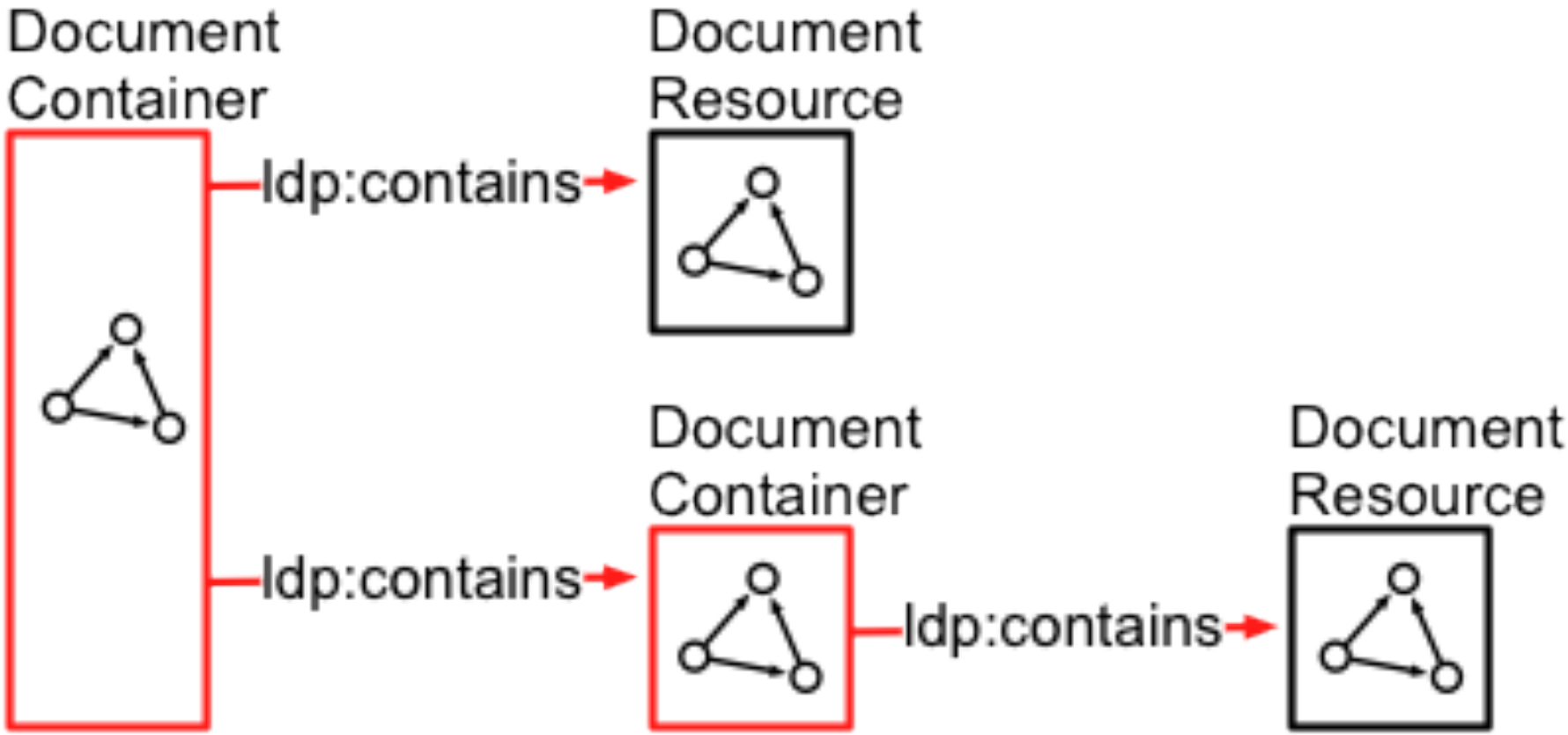


# How does SOFA work?



# MELD elements (1)

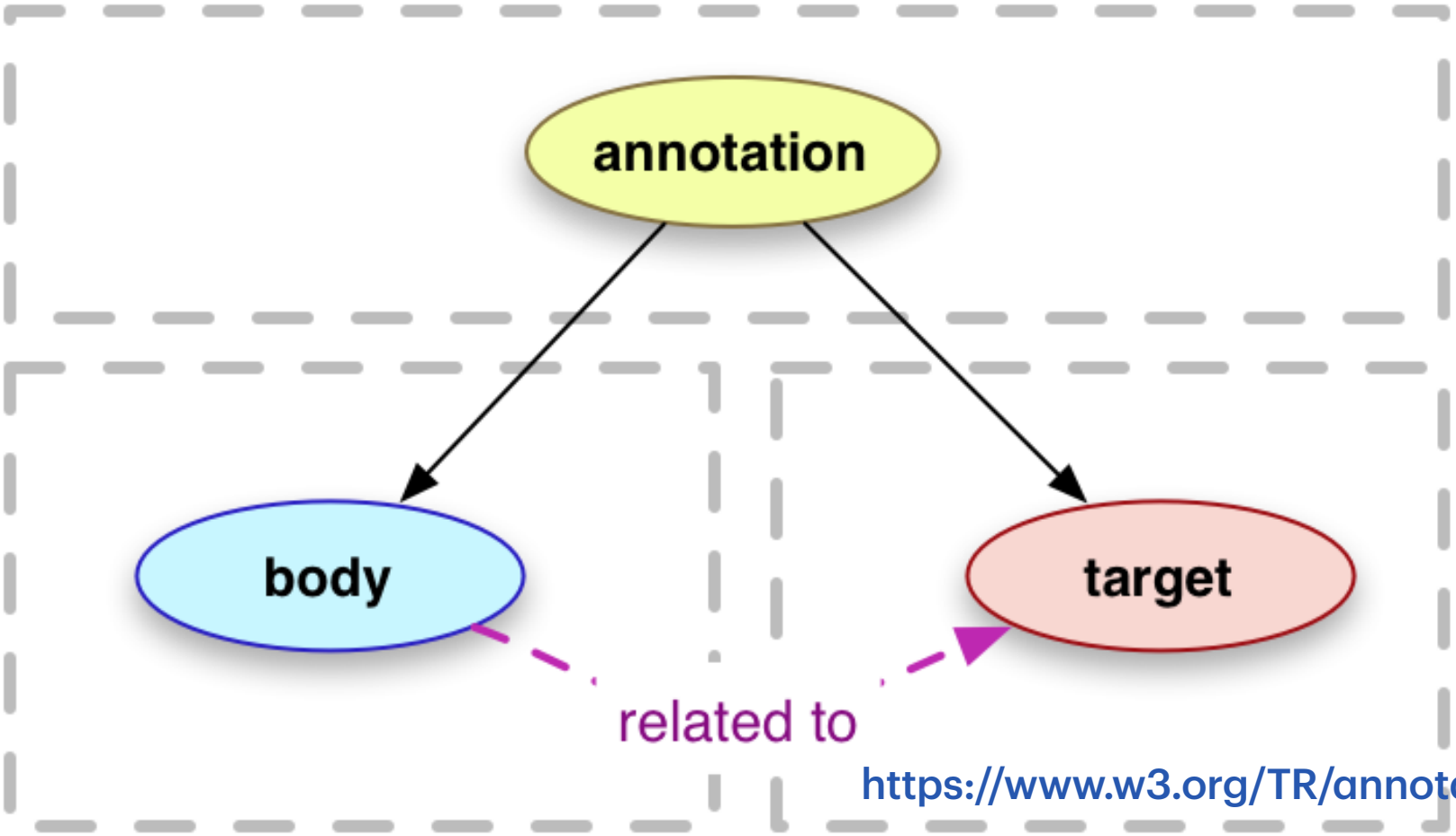
Linked Data Platform containers




https://www.w3.org/TR/ldp-primer/

# MELD elements (2)

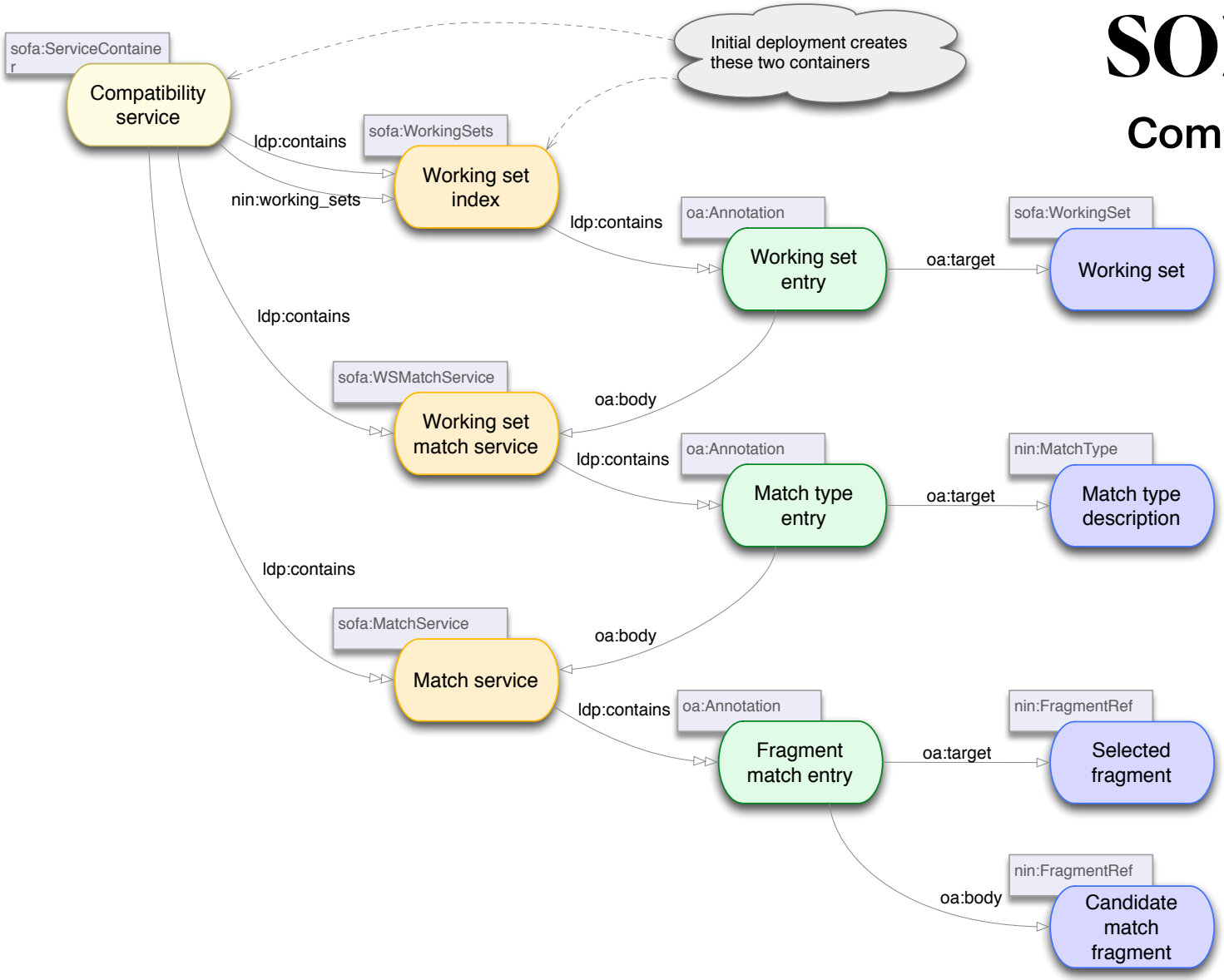
Web Annotations




https://www.w3.org/TR/annotation-model/

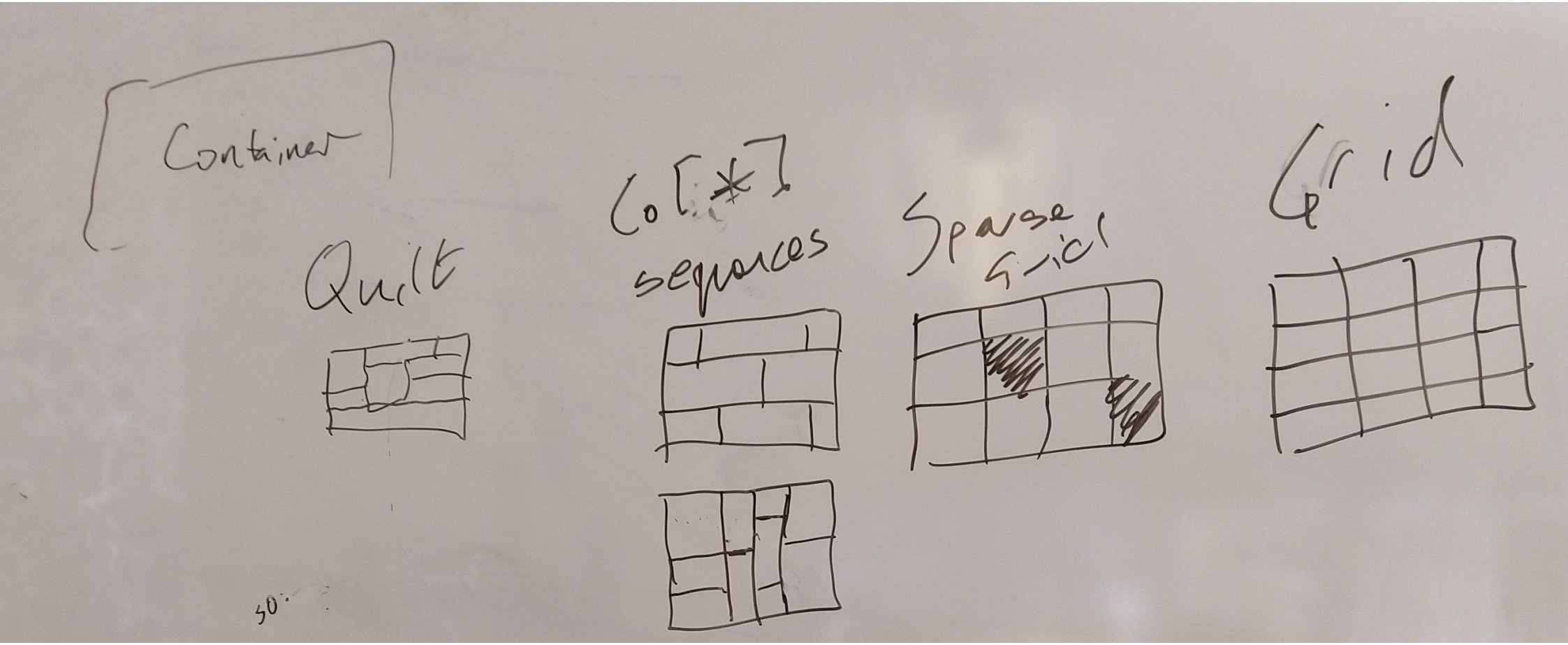
# SOFA use of MELD

## Compatibility service data model



# SOFA outputs

Quilts, grids and sequences: SOFA generates grids and/or sequences



# SSI3 - supporting sustainability of digital humanities research software

## (An exemplar of) Best practice for testing in DH software development

# SSI3 MELD activity

## (An exemplar of) Best practice for testing in DH software development

- Realised as a testing framework for MELD
- Building upon command line MELD client developed in the later stages of FAST
- Extending this as a unit testing approach for MELD app development

- We have a small but varied ecosystem of music studies and their associated software the testing framework could be validated against:
  - Lohengrin opera analysis
  - Delius live performance annotation
  - Historical musicology with mixed media digital archives
  - TROMPA Rehearsal companion

# SSI3 MELD activity

## (An exemplar of) Best practice for testing in DH software development

- A reflective case study of software sustainability in DH projects. While the MELD framework itself benefited from the substantial research efforts of FAST, the apps above have been created within the more limited resourcing of humanities projects. This is an opportunity for SSI to reflect on effective software sustainability practice in such situations, which are typical for DH.

- Outputs
  - The software testing framework for MELD (public repo).
  - Unit tests for (some/all of) the above studies/apps (public repo).
  - Documentation and a best practice report. (public, online).

# SSI3 MELD activity

## Anticipated focus of work

- MELD 2 API as used by MELD ecosystems applications
- Validation of data collected and used by MELD applications
- Support automated testing for catching regressions as software and/or data are updated

- Initial applications to study:
  - Lohengrin opera analysis
  - Delius live performance annotation
- Aim is to develop tests as applications are migrated to use MELD 2 core libraries

- Work is intended to inform development of further sustainable MELD applications

# SSI3 MELD activity

## Previous work and future directions

- MELD command line tools
  - https://github.com/oerc-music/meld-cli-tools
  - Javascript / Node tool for probing LDP containers
  - Some support for data structures used by MELD (annotations, etc.)
- Linux shell scripts to run tests as suite (ad hoc)

- Think about most useful form for test runners: shell script, Javascript, or…?
- Add test features that reflect MELD 2 core API functionality and data formats
- Think about tooling to capture test cases while exploring data
- Think about capturing performance information, to help identify bottlenecks
- Design for easy extensibility

- Mainly focus on HTTP interface, not intending to address UI presentation

# SSI3 MELD activity

## Previous work - MELD CLI tool - simplified testing example

```
CONTAINER_PATH=$(node meld_tool_cli.js make-container $TEST_PATH test_container)
test_sts $? "make-container" \
    && test_eq "$CONTAINER_PATH" "${TEST_PATH}test_container/" "make-container"

PUBLIC_CONTENT=$(node meld_tool_cli.js list-container $TEST_PATH)
test_sts $? "list-container" \
    && test_in "$PUBLIC_CONTENT" "$CONTAINER_PATH" "list-container"

node meld_tool_cli.js test-is-container $CONTAINER_PATH
test_sts $? "test-is-container"

CONTAINTER_CONTENT_TYPE=$(node meld_tool_cli.js content-type $CONTAINER_PATH)
test_sts $? "show-content-type" \
    && test_eq "$CONTAINTER_CONTENT_TYPE" "text/turtle"
```