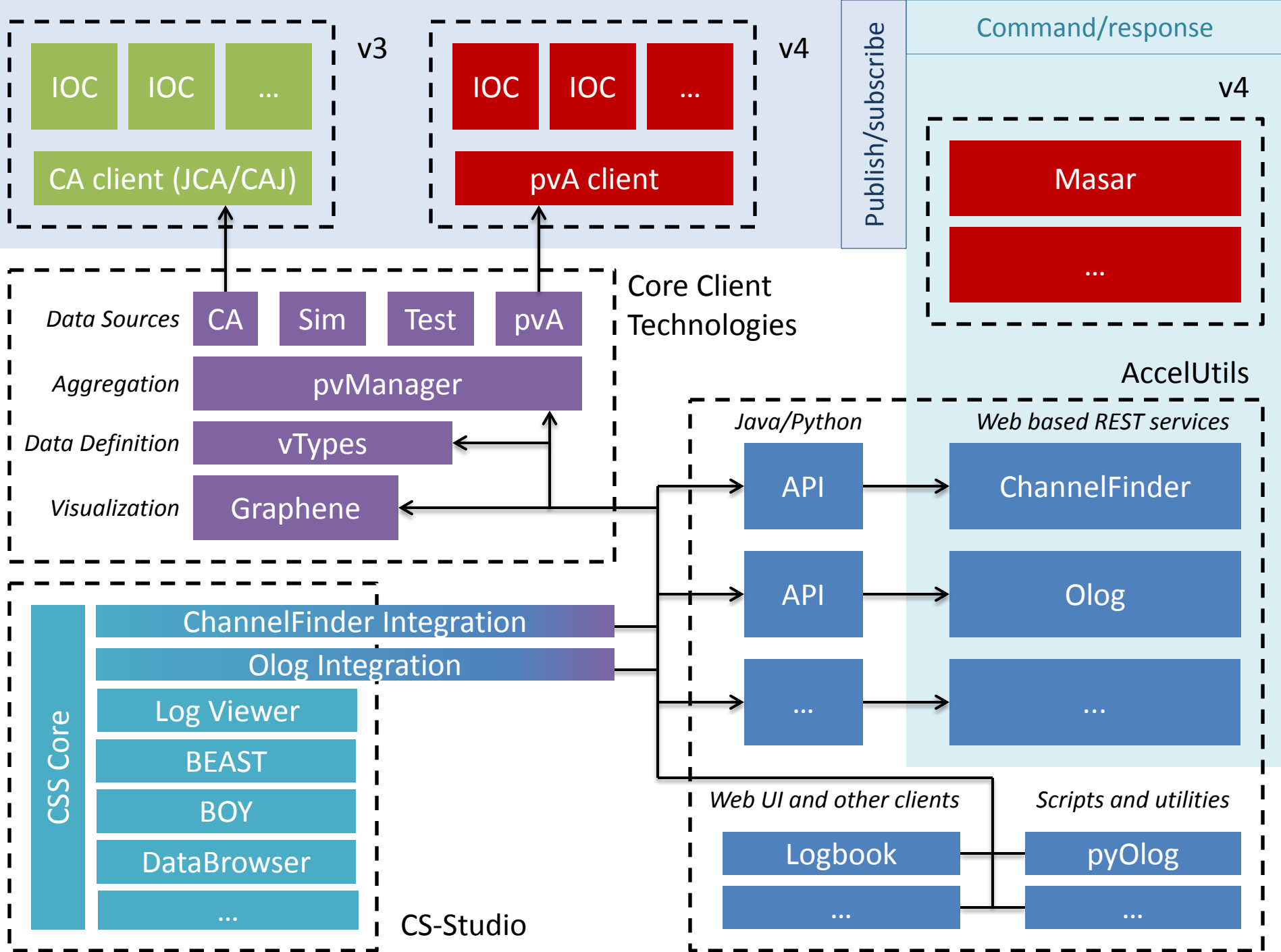


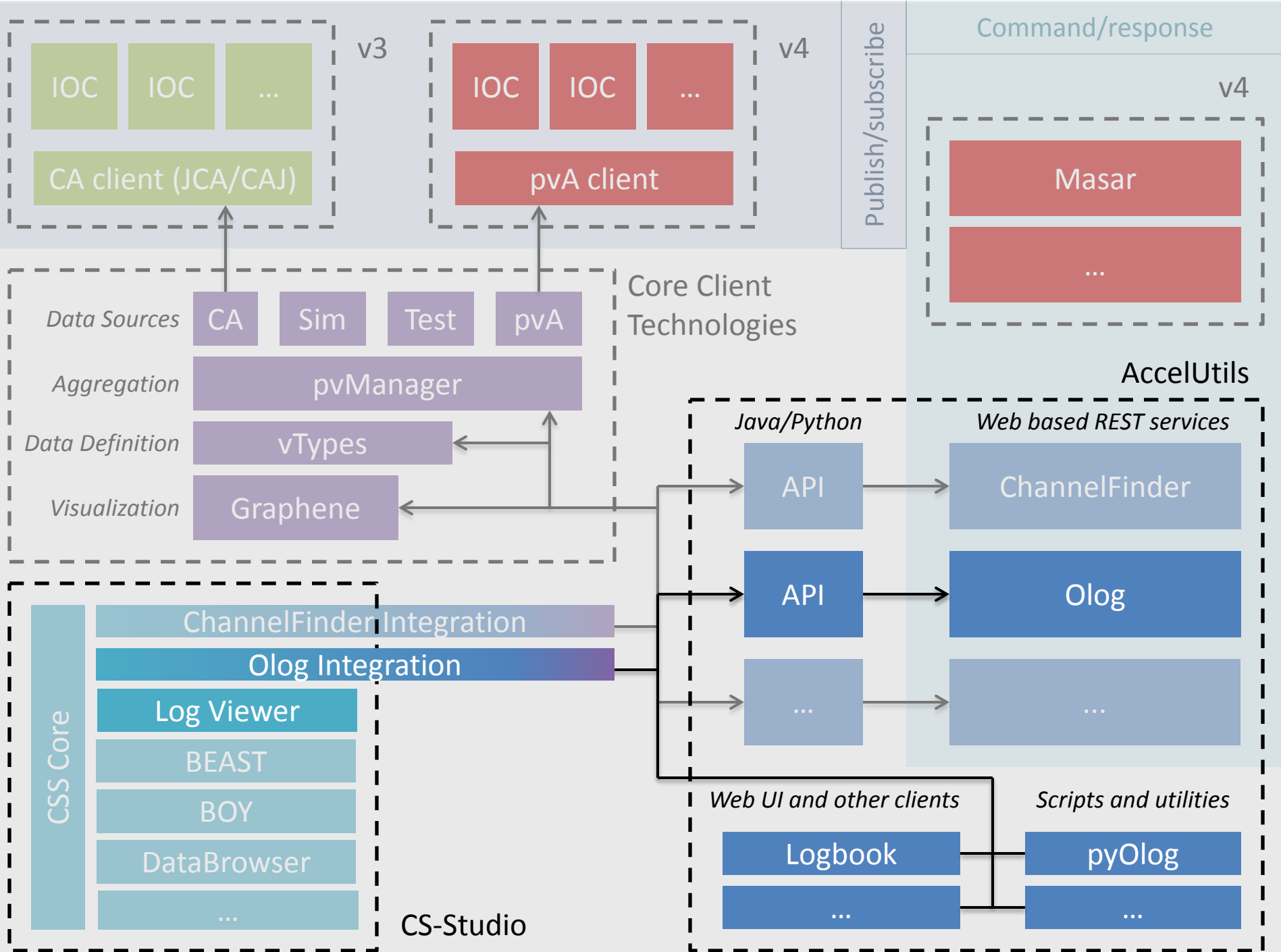
Olog and Control System Studio: A Logging Environment

Kunal Shroff, Bob Dalesio, Arman Arkilic - NSLSII

Eric Berryman - FRIB

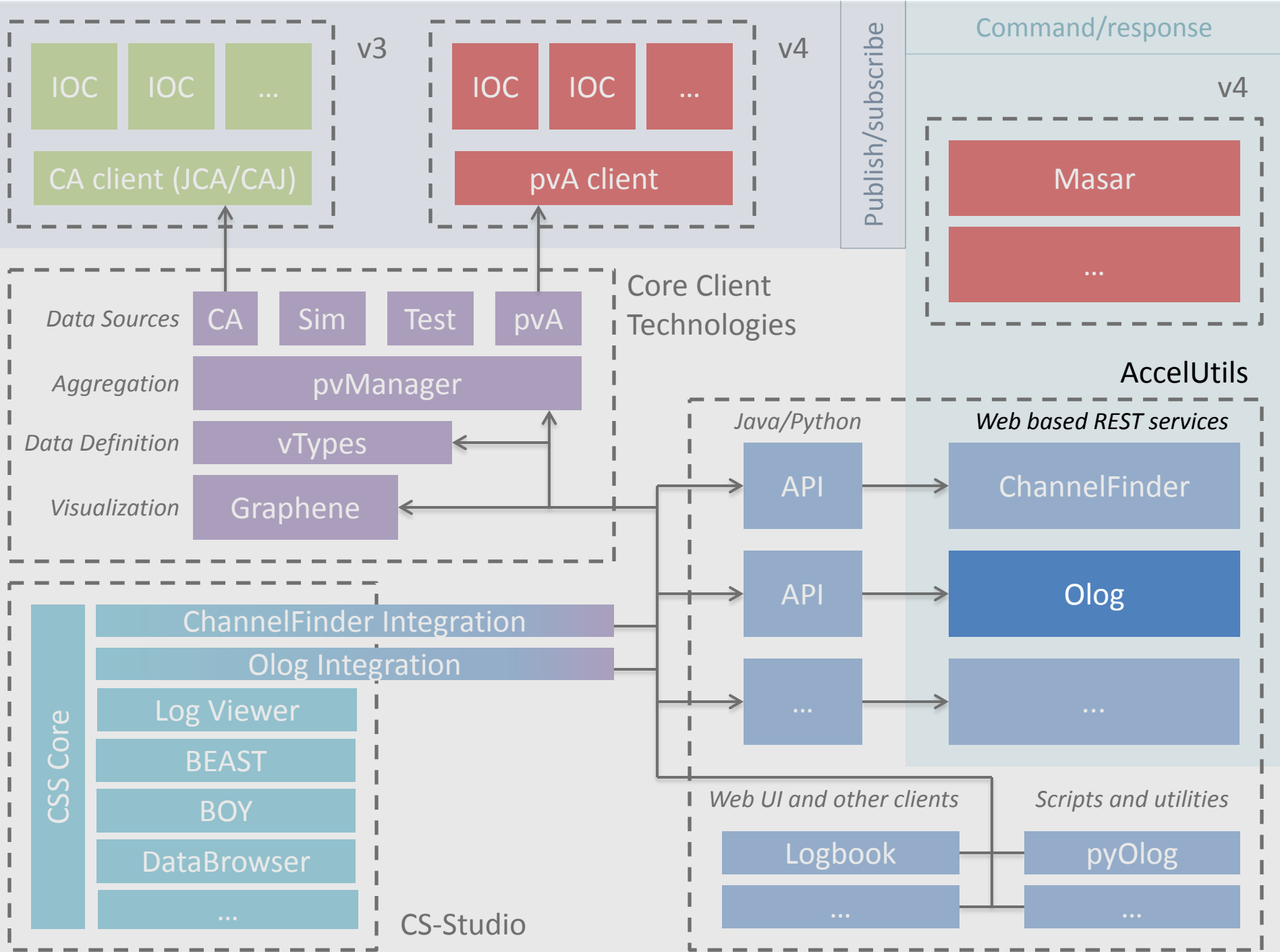
Dejan Dežman - Cosylab





Log Entry

- Time
- Owner
- Text
- Attachments
- Logbooks
- Tags
- Properties

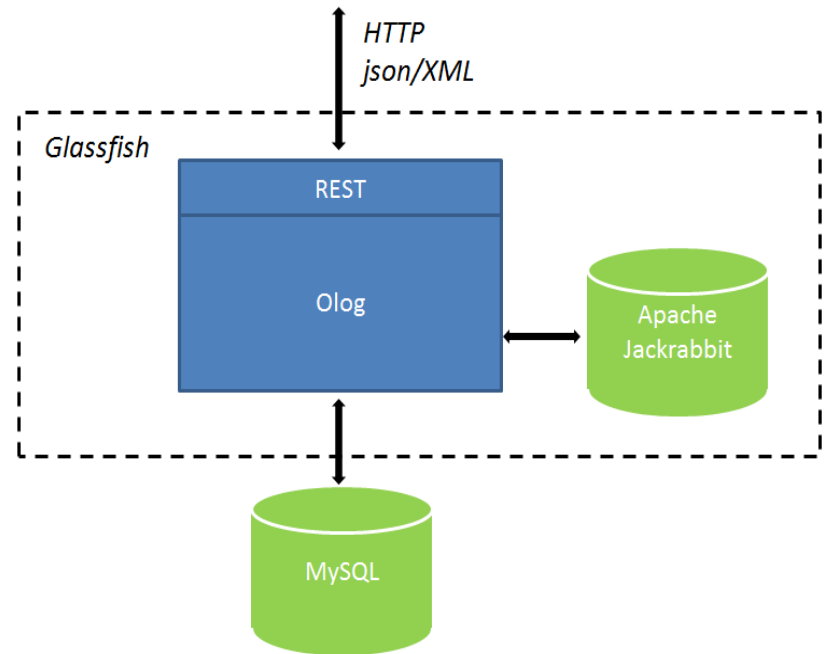


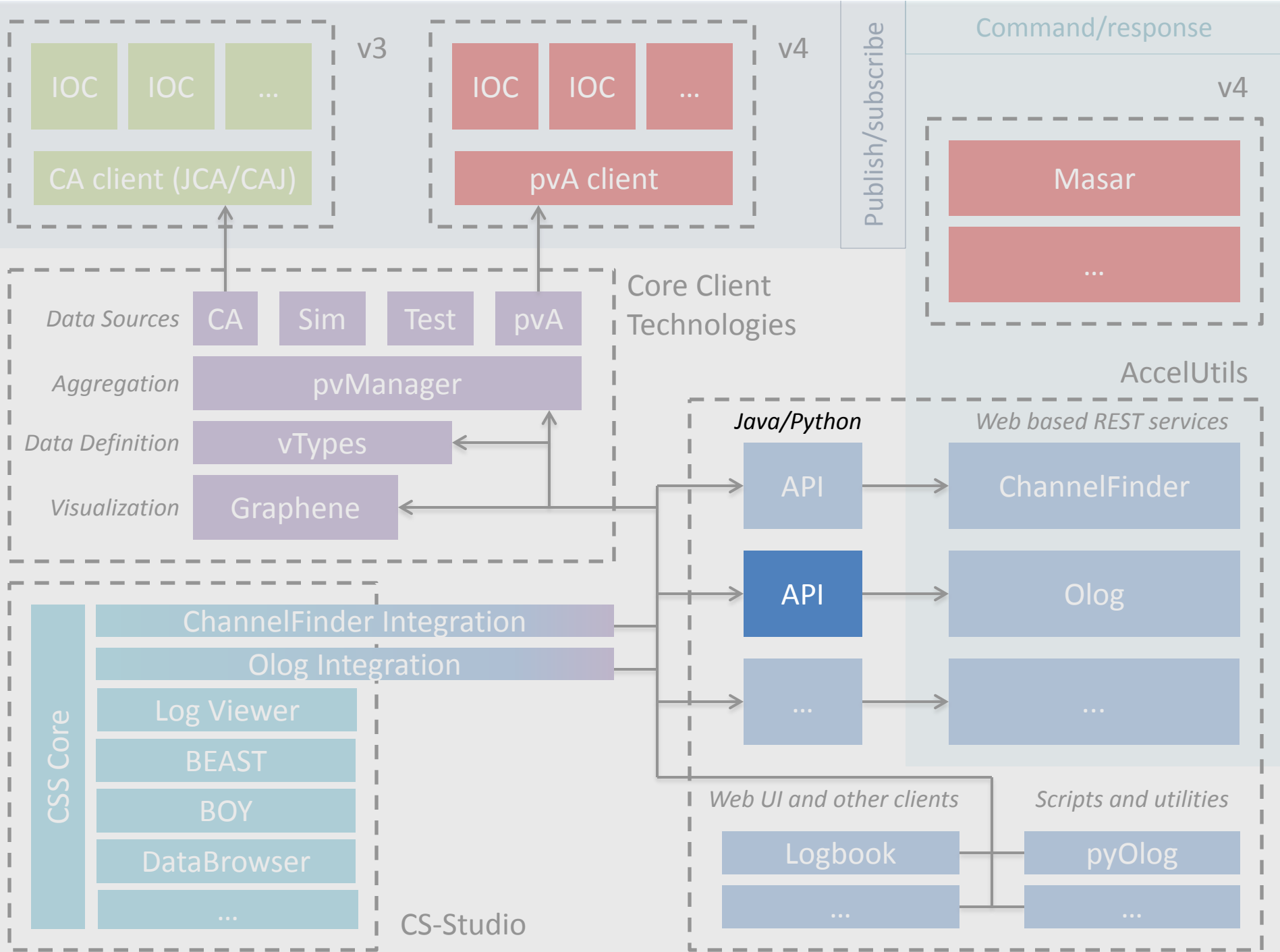
Olog Web service

- Create and modify log entries
- Search
- Organize entries using multiple logbooks, tags and properties.
- Integration with other tools/service
 - Control System (epics v3, v4)
 - CS-Studio
 - Physics Data
 - Save Restore
 -

Olog Web service

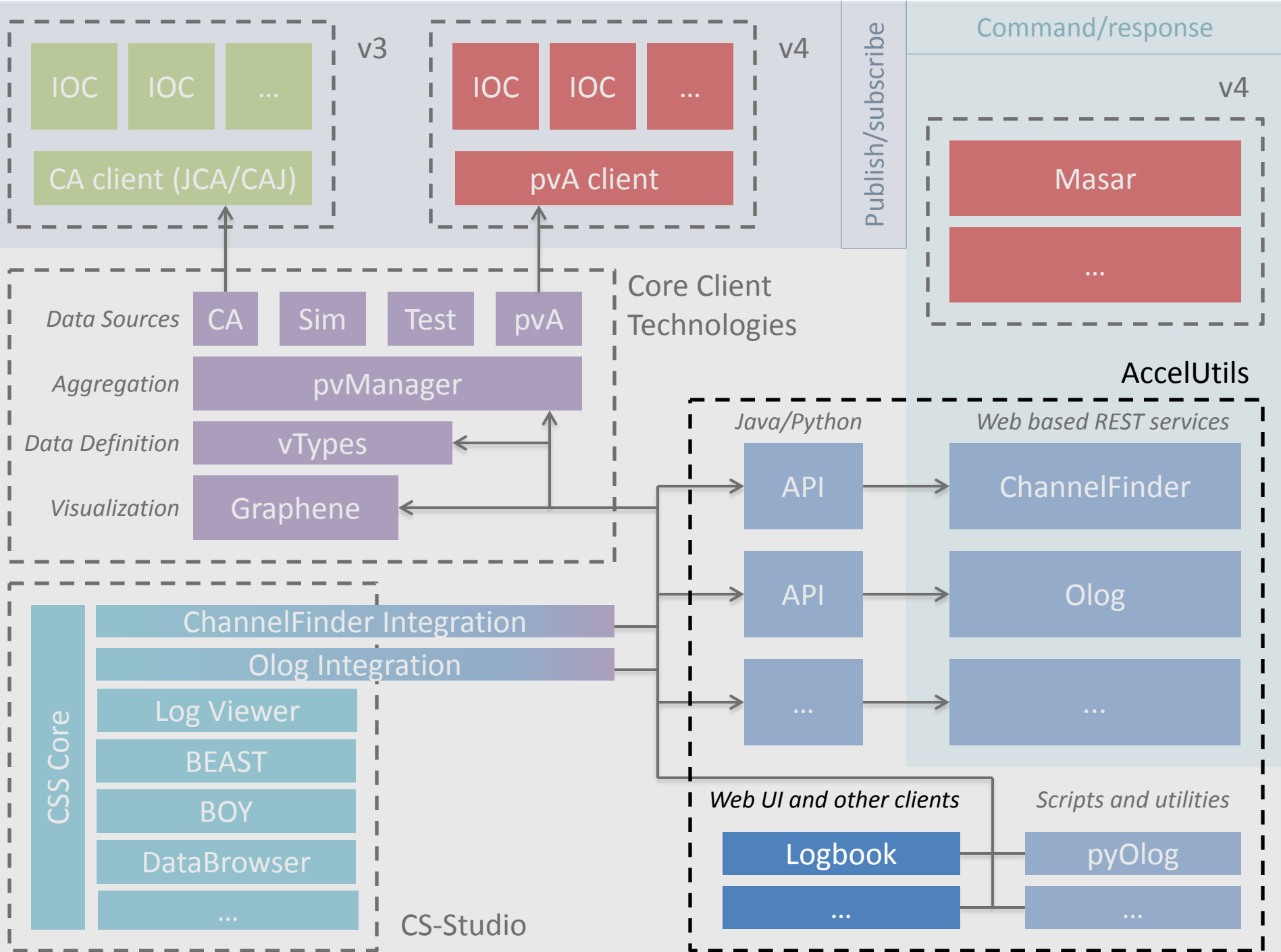
- REST style webservice
 - Uniform interfaces
 - Separation of concern
 - Stateless
- RDB backend
- Apache jackrabbit for Attachments



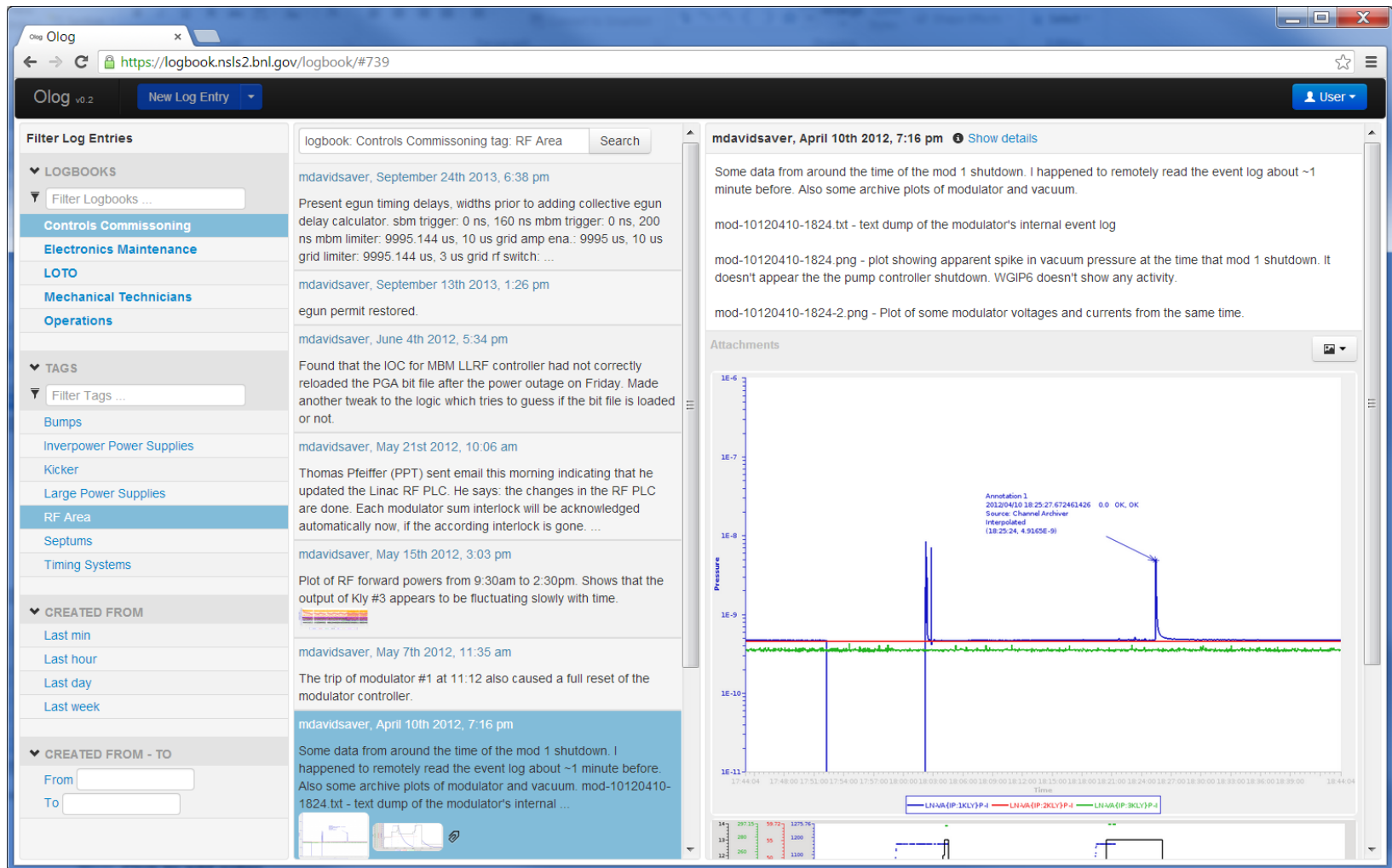


Olog Client Libraries

- Currently there is support for 2 languages
 - Python
 - Java
- Manage network communication
 - Creating HTTP request
 - Setting up connection and Authorization
- Parsing json/XML into java or python objects
- Provide Utility Methods



Olog Clients – Webclient



Olog Clients – Webclient

The screenshot displays the Olog Webclient interface in a web browser. The browser's address bar shows the URL `https://localhost/newlogbook/olog/public_html/new_log.html`. The page title is "Olog v0.2".

The main content area is titled "New Log Entry" and contains the following fields:

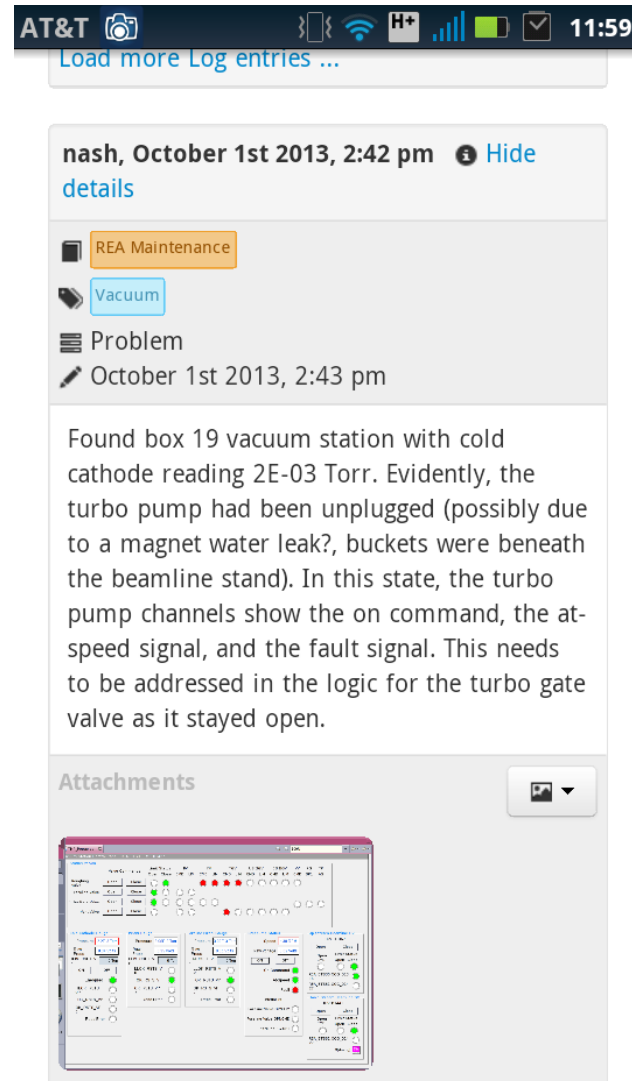
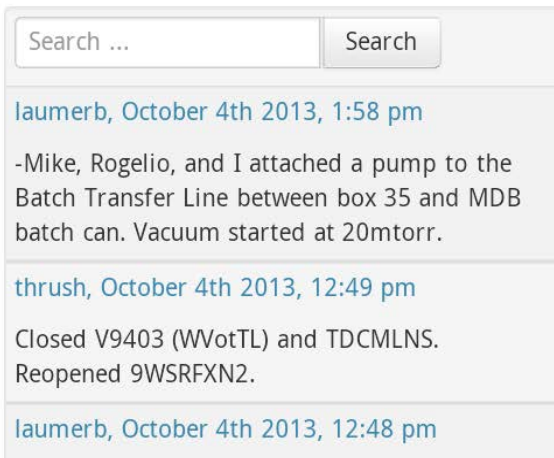
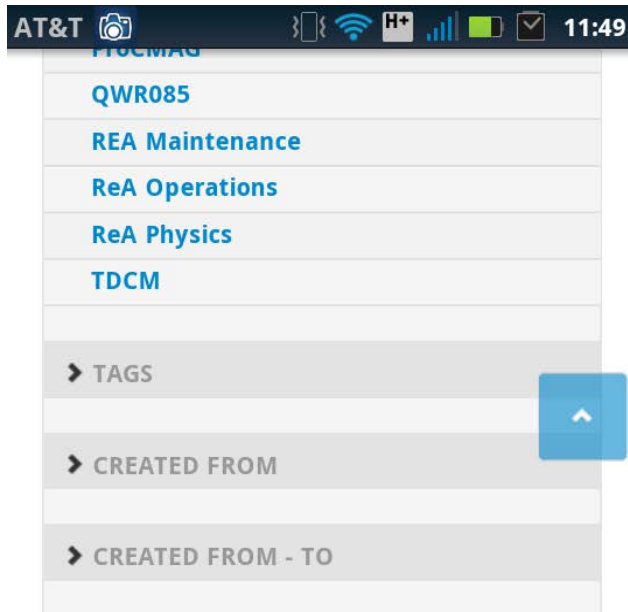
- Enter Logbooks ...**: A text input field.
- Enter Tags ...**: A text input field.
- Info**: A dropdown menu.
- Attachments**: A section with a green "+ Add files ..." button. Below it, a thumbnail of a screenshot is shown with the filename "olog-properties.png" and a red "Remove" button.
- Properties**: A section with a blue "Add a Property" link.

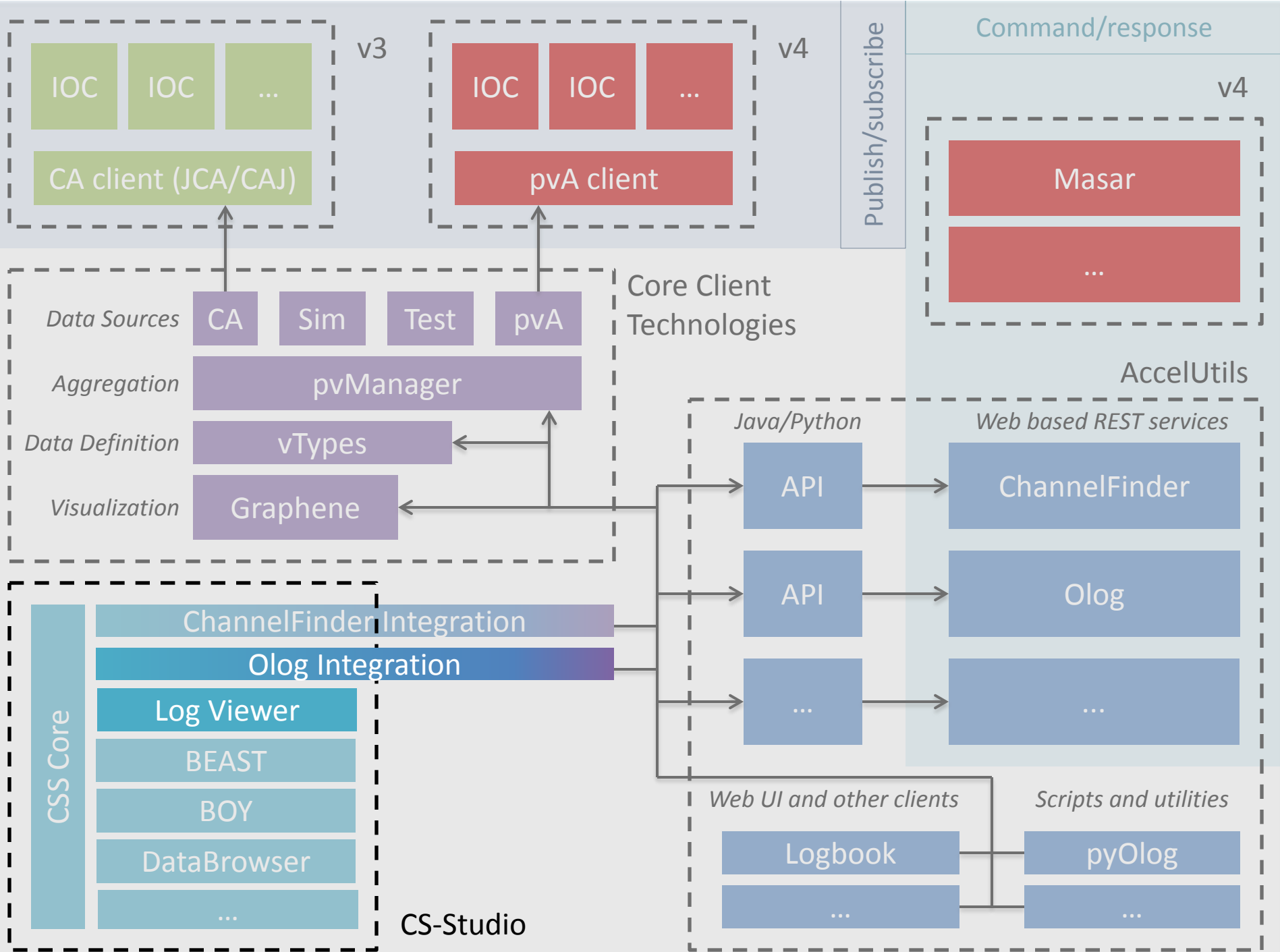
At the bottom right of the main content area are "Create" and "Cancel" buttons.

The right sidebar, titled "Quickly add metadata", contains two sections:

- LOGBOOKS**: A section with a "Filter Logbooks ..." input field. Below it, a list of logbooks is shown, with "Operations" highlighted in green: Controls commissioning, Electronics Maintenance, LOTO, Mechanical Technicians, and Operations.
- TAGS**: A section with a "Filter Tags ..." input field. Below it, a list of tags is shown: Bumps, Inverpower Power Supplies, Kicker, Large Power Supplies, RF Area, Septums, Temporary, and Timing Systems.

Olog Clients – Webclient





Olog Clients – CS-Studio

- CS-Studio is an eclipse based framework for developing controls and physics applications
- Seamless integration with applications
 - Application specific initialized log entries

Olog Clients – CS-Studio

The screenshot displays the Control System Studio (HLSIM) interface. The top menu bar includes File, Edit, Search, CSS, Window, and Help. The main workspace is divided into several panes:

- Alarm Tree:** A hierarchical tree on the left showing the system structure. It includes areas like Common environment, Linac, Vacuum, RF, Magnet power supplies, Diagnostics, Radiation Monitoring, and Storage ring. A context menu is open over the 'Area: Radiation Monitoring (MAJOR/STATE_ALARM)' item, showing options like Guidance, OPI Table View, OPI Plan View, Copy to clipboard, Send E-Mail..., Acknowledge, Configure Item, Rename Item, Duplicate PV, Move Item, Remove selected items, Alarm Perspective, Process Variable, and Create Log Entry.
- RADIATION MONITORS - Injector:** A table showing radiation monitor data for four linacs. Each row includes the linac name, a numerical value in mR/h, and a series of colored status indicators (green, yellow, red, blue) followed by a 'More' button.
- Alarm History:** A table at the bottom showing a list of alarms. It includes columns for Description, Alarm Time, Current Sevi, Current Stat, Alarm Se, Alarm Status, and Alarm Value.

The bottom status bar shows the user 'shroffk' and a small icon.

Linac	Value (mR/h)	Status Indicators	More
Linac #1 (Kly Gall)	0.00	Green, Yellow, Red, Blue, Green, Yellow, Red, Blue, Green, Yellow, Red, Blue	More
Linac #2 (Kly Gall)	0.01	Green, Yellow, Red, Blue, Green, Yellow, Red, Blue, Green, Yellow, Red, Blue	More
Linac #3 (BR Tunnel)	-0.01	Green, Yellow, Red, Blue, Green, Yellow, Red, Blue, Green, Yellow, Red, Blue	More
Linac #4 (BR Tunnel)	0.04	Green, Yellow, Red, Blue, Green, Yellow, Red, Blue, Green, Yellow, Red, Blue	More

Description	Alarm Time	Current Sevi	Current Stat	Alarm Se	Alarm Status	Alarm Value
MINOR alarm: Linac/LTB Vacuum Summary Fault	2013/09/25 16:14:00	MINOR	STATE_ALARM	MINOR	STATE_ALARM	Minor Alarm
MAJOR alarm: Booster Radiation Monitoring	2013/09/18 10:43:00	OK	OK	MAJOR	STATE_ALARM	Alarm
MAJOR alarm: Booster CFC inhibited the RF	2013/09/24 09:50:00	MAJOR	HIHI_ALARM	MAJOR	HIHI_ALARM	1
MAJOR alarm: Booster BTS Vacuum Summary Fault	2013/09/25 16:16:00	MAJOR	STATE_ALARM	MAJOR	STATE_ALARM	Major Alarm
MAJOR alarm: BTS Bend Magnet 1 Summary Alarm	2013/09/16 15:20:00	MAJOR	STATE_ALARM	MAJOR	STATE_ALARM	Hi
MAJOR alarm: LN-AM(RadMon)Alrm:Sum-Sts	2013/09/18 13:31:00	OK	OK	MAJOR	STATE_ALARM	Alarm

PV	Description	Alarm Time	Current Sevi	Current Stat	Alarm Se	Alarm Status	Alarm Value
BR-BI(1)Op-Sts	invalid-ack'd alarm: Booster diagnostic fault	2013/03/18 15:18:00	INVALID	LINK_ALARM	invalid-ack'e	LINK_ALARM	OK
BR-MG(PS)FaultSum	invalid-ack'd alarm: Booster power supply sum	2013/04/02 08:19:00	INVALID	No Connecti	invalid-ack'e	No Connecti	
LTB-BI(1CT.1)Interlock	invalid-ack'd alarm: ICT interlock test	2013/09/06 11:37:00	INVALID	Disconnecte	invalid-ack'e	Disconnecte	
LTB-MG(PS)FaultSum	invalid-ack'd alarm: Linac to booster power su	2013/04/25 17:03:00	INVALID	No Connecti	invalid-ack'e	Disconnecte	
SR-MG(PS)FaultSum	invalid-ack'd alarm: Power supply failure in st	2013/04/02 08:17:00	INVALID	UDF_ALARM	invalid-ack'e	UDF_ALARM	GOOD

Olog Clients – CS-Studio

- Log Entries initialized with application specific information
- Alarm server
 - PV name
 - Alarm status
 - Alarm time

The screenshot shows the 'Create Log Entry' dialog box in CS-Studio. It contains the following fields and sections:

- User Name:** [Text Field] **Password:** [Text Field]
- Date:** Sep 26, 2013 **Level:** [Dropdown Menu]
- Current Alarms:**
 - LN-AM{RadMon}Alrm:Sum-Sts
 - PV : LN-AM{RadMon}Alrm:Sum-Sts
 - Alarm Time : 2013/09/18 13:31:00 (Time since event: 194:06:02)
 - Alarm Severity/Message : MAJOR/STATE_ALARM
 - Alarm Value : Alarm
 - Current Severity/Message: OK/OK
- Logbooks:** Operations [Dropdown Menu]
- Tags:** [Text Field]
- Hide details** [Button]
- Images** [Tab] **Files** [Tab] **Properties** [Tab] **Ticket** [Tab] **Context** [Tab]
- Images:** [Image Thumbnail] **Remove** [Button]
- Add Image** [Button] **Screenshot** [Button] **CSS Window** [Button]
- Cancel** [Button] **Submit** [Button]

Olog Clients – CS-Studio

- Save Context
 - Configuration files for cs-studio applications (.plt)
 - Controls system data (List of process variables)
 - Information related to other services (Trac tickets, ChannelFinder queries)

The screenshot shows the 'Create Log Entry' dialog box. It has a title bar with a close button. The main area contains several fields: 'User Name' with the value 'shroffk', 'Password' with masked characters, 'Date' set to 'Sep 26, 2013', and 'Level' set to 'Info'. Below these is a text area containing 'Data Browser Plot with context' and 'See attached Data Browser plot'. There are 'Logbooks' and 'Tags' dropdown menus, both currently empty. A 'Hide details' button is located below the text area. Below this is a tabbed interface with tabs for 'Images', 'Files', 'Properties', 'Ticket', and 'Context'. The 'Files' tab is selected, showing a list of attachments: 'strip.plt' and 'plot.png', each with a checkbox. At the bottom, there are three buttons: 'Attach context', 'Attach file', and 'Remove selected'. At the very bottom right, there are 'Submit' and 'Cancel' buttons.

Olog Clients – CS-Studio

CS-Studio

File Edit Search CSS Window Help

LogViewerPerspective CSSStudio Data Browser <<LogViewerPerspective>> <OPI Editor> OPI Runtime

Log Table

Log Query: logbookControls Commissioning tag:RF Area

Adv Search

Date	Description	Owner	Logbooks	Tags	A.s
9/13/13 1:26 PM	egun permit restored.	mdav...aver	Controls Commissioning	RF Area Timing Systems	0
6/4/12 5:34 PM	Found that the IOC for MBM LLRF controller had not correctly reloaded the PGA bit file after the power outage on Friday. Made another tweak to the logic which tries to guess if the bit file is loaded or not.	mdav...aver	Controls Commissioning	RF Area	0
5/21/12 10:06 AM	Thomas Pfeiffer (PPT) sent email this morning indicating that he updated the Linac RF PLC. He says: the changes in the RF PLC are done. Each modulator sum interlock will be acknowledged automatically now, if the according interlock is gone. So you have only to reset the modulator interlocks at the modulator GUI. I wrote this changes also to the PLC memory card and restarted successful the PLC. Thomas	mdav...aver	Controls Commissioning	RF Area	0
5/15/12 3:03 PM	Plot of RF forward powers from 9:30am to 2:30pm. Shows that the output of Kly #3 appears to be fluctuating slowly with time.	mdav...aver	Controls Commissioning	RF Area	1
5/7/12 11:35 AM	The trip of modulator #1 at 11:12 also caused a full reset of the modulator controller.	mdav...aver	Controls Commissioning	RF Area	0
4/10/12 7:16 PM	Some data from around the time of the mod 1 shutdown. I happened to remotely read the event log about ~1 minute before. Also some archive plots of modulator and vacuum. mod-10120410-1824.txt - text dump of the modulator's internal event log mod-10120410-1824.png - plot showing apparent spike in vacuum pressure at the time that mod 1 shutdown. It doesn't appear the the pump controller shutdown. WGI6 doesn't show any activity. mod-10120410-1824-2.png - Plot of some modulator voltages and currents from the same time.	mdav...aver	Controls Commissioning	RF Area	3
3/27/12 6:46 PM	We noticed that the MO power levels reported by the LLRF controllers is changing in time. Possibly correlated to the HV	mdav...aver	Controls Commissioning	RF Area	1

Log Entry

Date: May 15, 2012 Level: Info

Plot of RF forward powers from 9:30am to 2:30pm. Shows that the output of Kly #3 appears to be fluctuating slowly with time.

Logbooks: Controls Commissioning

Tags: RF Area

Hide details

Images Files Properties

Images:

Feed Power [dBm]

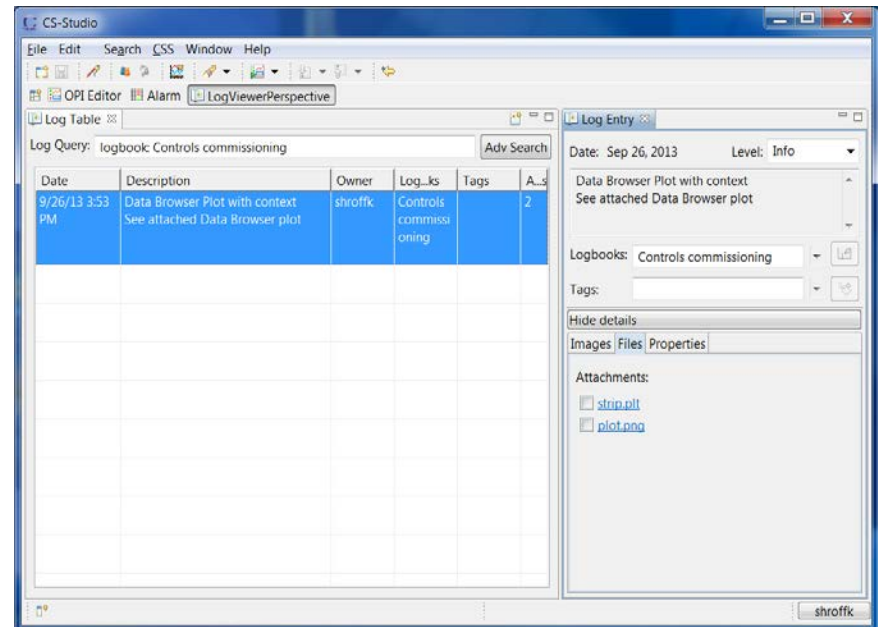
Time

ACS #1 ACS #2 ACS #3 ACS #4 FBU KLY #1 KLY #2 KLY #3

shroffk

Olog Clients – CS-Studio

- Restore Context
 - Launch applications initialized to the state as described while making the log entry
 - Open archived data for associated pv's
 - Run OPI screens
 - Query other services



Olog Clients – CS-Studio

- Adapters
 - Provide dynamic runtime integration with cs-studio applications
 - Maintain loose coupling
- Extensions
 - Pluggable UI

Create Log Entry

User Name: Password:

Date: Sep 27, 2013 Level: Info

Creating a Ticket

Logbooks: Operations

Tags:

Hide details

Images Files Properties **Ticket** Context

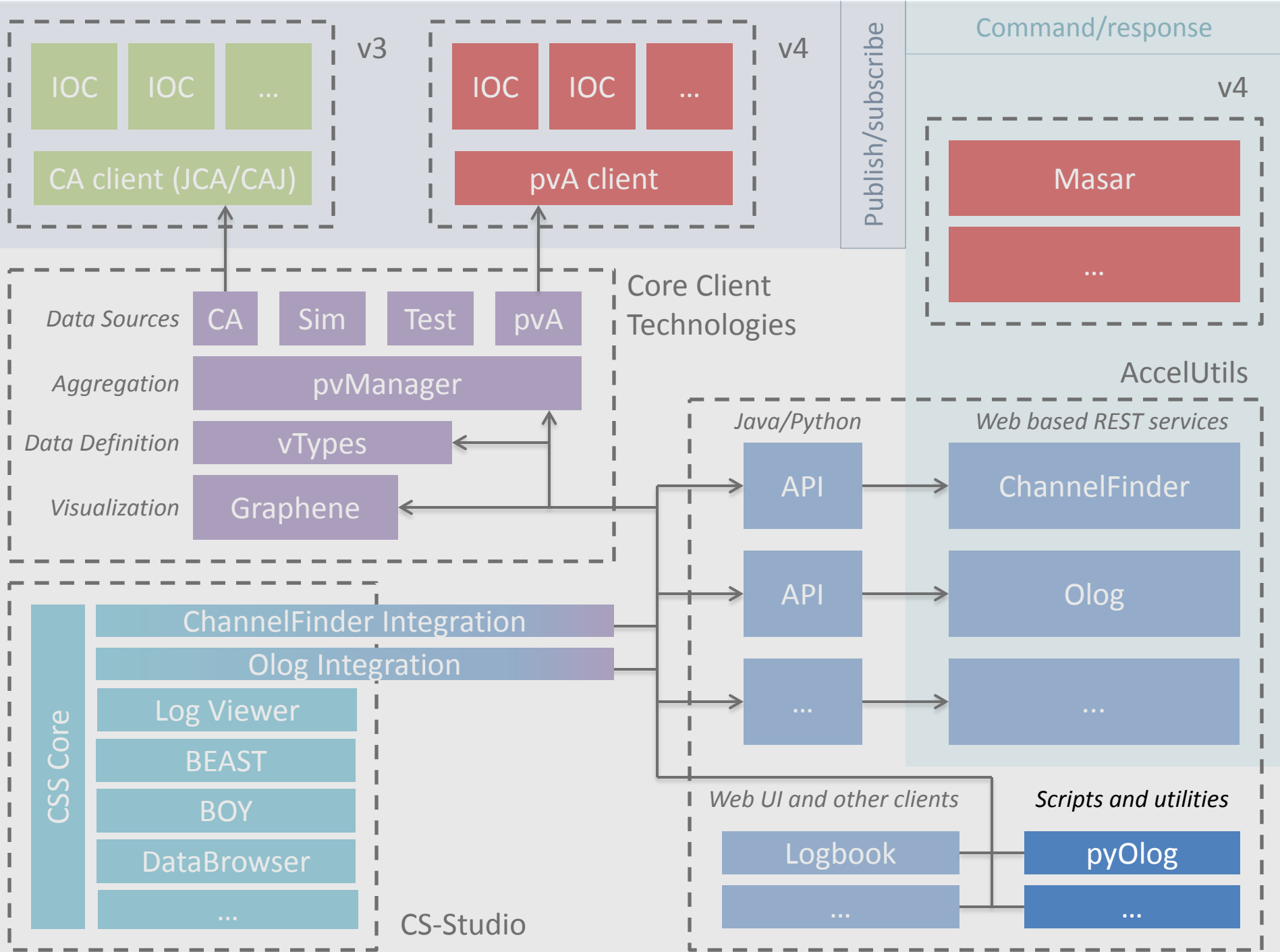
Tickets:

Ticket Id: 3245

URL: <http://trac.nsls2.bnl.gov/issues/3245>

Attach

Submit Cancel



Olog Clients – Scripts

- python scripts for running experiment
- Logging data acquisition and data analysis steps.
 - Programmatic
 - Process specific logbooks, tags and properties
- Example use case

Integration with experimental processes and data

name:	<i>scanProcess</i>
attributes	
type:	<i>XPD</i>
id:	<i>1234</i>
description:	<i>save reduced dataset</i>
location:	<i>pyPXD.nsls2.bnl.gov/resources</i>
attachments:	<i>reducedData.json</i>

Olog Clients – pyOlog

The screenshot displays the Olog web application interface. The top navigation bar includes the Olog logo, version 0.2, a 'New Log Entry' button, and a user profile dropdown labeled 'User'. The left sidebar contains two main sections: 'LOGBOOKS' and 'TAGS'. The 'LOGBOOKS' section lists various logbooks, with 'XPDLLog' currently selected. The 'TAGS' section lists various tags, with 'arman' selected. The main content area shows a list of log entries for the selected logbook. Each entry includes a timestamp, a logbook name, and a tag. The right sidebar provides a detailed view of the selected log entry, including its title, tags, info, attachments, and properties.

LOGBOOKS

- Filter Logbooks ...
- DiffractionLogbookv01
- DiffractionmeterLog
- DiffractionmeterXXYYZZ
- Electronics Maintenance
- LOTO
- Mechanical Technicians
- Operations
- PyXPDLogBook
- XPDLLog**
- XPDLLogBook
- _pyspecLog_
- _XRDiffLog_

TAGS

- Filter Tags ...
- arman
- Bumps
- Diffractionmeter
- DiffractionmeterTag
- DiffractionmeterTagv01
- DiffractionmeterTagv02
- DiffractionmeterTagv03
- Help Info

logbook: XPDLLog tag: XPDLTag Search

arkilic, July 30th 2013, 11:07 am
PyXPD Olog
arkilic, July 30th 2013, 11:07 am
PyXPD Olog
arkilic, July 30th 2013, 11:07 am
PyXPD Olog
arkilic, July 30th 2013, 11:07 am
PyXPD Olog
arkilic, July 30th 2013, 11:07 am
PyXPD Olog
arkilic, July 30th 2013, 11:07 am
PyXPD Olog
arkilic, July 30th 2013, 11:07 am
PyXPD Olog
arkilic, July 30th 2013, 11:07 am
PyXPD Olog
arkilic, July 30th 2013, 11:07 am
PyXPD Olog

arkilic, July 30th 2013, 11:07 am Hide details

XPDLLog
XPDLTag
Info
July 30th 2013, 11:07 am

PyXPD Olog

Attachments

SetupParameters.txt

Properties

XPDLprocess

Name	PyXPD
Description	Define process that sets up the environment for PyXPD
Type	PyXPD.entry.maskedImage.saveIm
Location	pyXPD.nsls2.bnl.gov/resources
Id	190390
Attachments	SetupParameters.txt

Olog Clients – pyOlog

The screenshot displays the Olog web application interface. The top navigation bar includes the 'Olog v0.2' logo, a 'New Log Entry' button, and a user profile dropdown labeled 'User'. The left sidebar contains two sections: 'LOGBOOKS' with a search filter and a list of logbooks (e.g., DiffractionLogbookv01, PyXPDLogBook), and 'TAGS' with a search filter and a list of tags (e.g., arman, Bumps). The main content area is divided into two columns. The left column shows a list of log entries, each with a timestamp, a user name, and a PyXPD Olog icon. The right column provides a detailed view of a selected log entry, including its title, a 'Hide details' link, a list of attachments (e.g., XPDLog, ReducedDataSet), and a table of properties.

LOGBOOKS

- Filter Logbooks ...
- DiffractionLogbookv01
- DiffractionmeterLog
- DiffractionmeterXXYYZZ
- Electronics Maintenance
- LOTO
- Mechanical Technicians
- Operations
- PyXPDLogBook
- XPDPLog
- XPDPLogBook
- _pyspecLog_
- _XRDiffLog_

TAGS

- Filter Tags ...
- arman
- Bumps
- Diffractionmeter
- DiffractionmeterTag
- DiffractionmeterTagv01
- DiffractionmeterTagv02
- DiffractionmeterTagv03
- Help Info

logbook: XPDPLog, Operations tag: R Search

arkilic, July 30th 2013, 2:42 pm
PyXPD Olog

arkilic, July 30th 2013, 2:34 pm
PyXPD Olog

arkilic, July 30th 2013, 2:21 pm
PyXPD Olog

arkilic, July 30th 2013, 2:20 pm
PyXPD Olog

boss, July 15th 2013, 3:31 pm
zdfgzdf

boss, July 15th 2013, 3:29 pm
with attachments

[Load more Log entries ...](#)

arkilic, July 30th 2013, 2:42 pm [Hide details](#)

XPDPLog

ReducedDataSet

Info

PyXPD Olog

Attachments

[reducedData.json](#)

Properties

XPDPprocess	
Name	PyXPD
Description	Process that saves reduced representation
Type	PyXPD.entry.maskedImage.IntensityIndexRel
Location	pyXPD.nsls2.bnl.gov/resources/Masked
Id	19040
Attachments	ExperimentalData.txt

References

- <http://controlsystemstudio.github.io/>
- <https://github.com/Olog>

Questions?