

Olog-es

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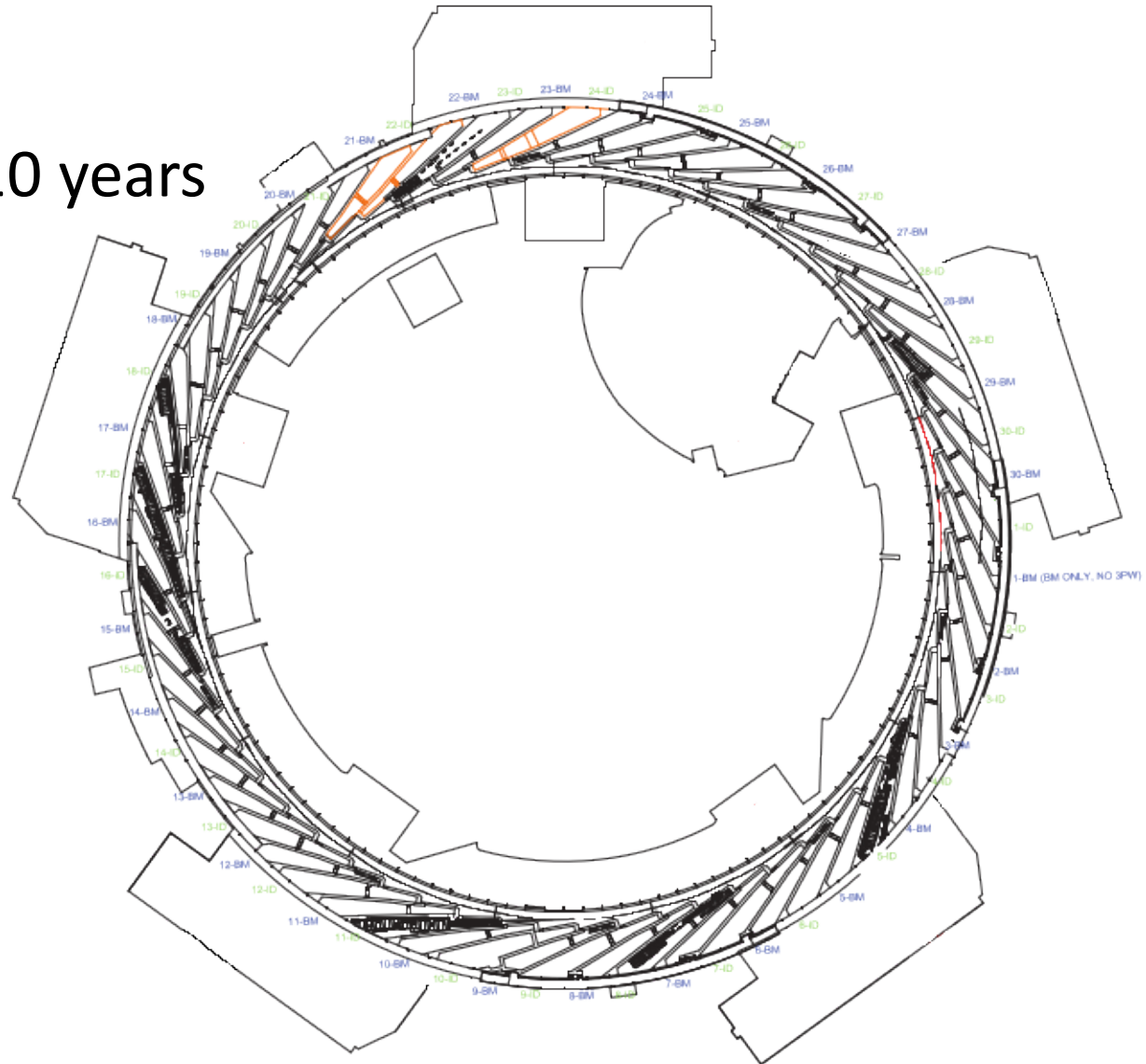
George Weiss, ESS

Olog in 2010

- Basic
 - Create log entry
 - Authentication
 - Multiple logbooks & tags
 - Edit log entry
 - Attach files
 - Search
- Additionally
 - Integration with accelerator services
(MASAR, Issue, Alarm, ...)
 - Multiple clients
(cs-studio, web, scripts, ...)

Olog in 2020

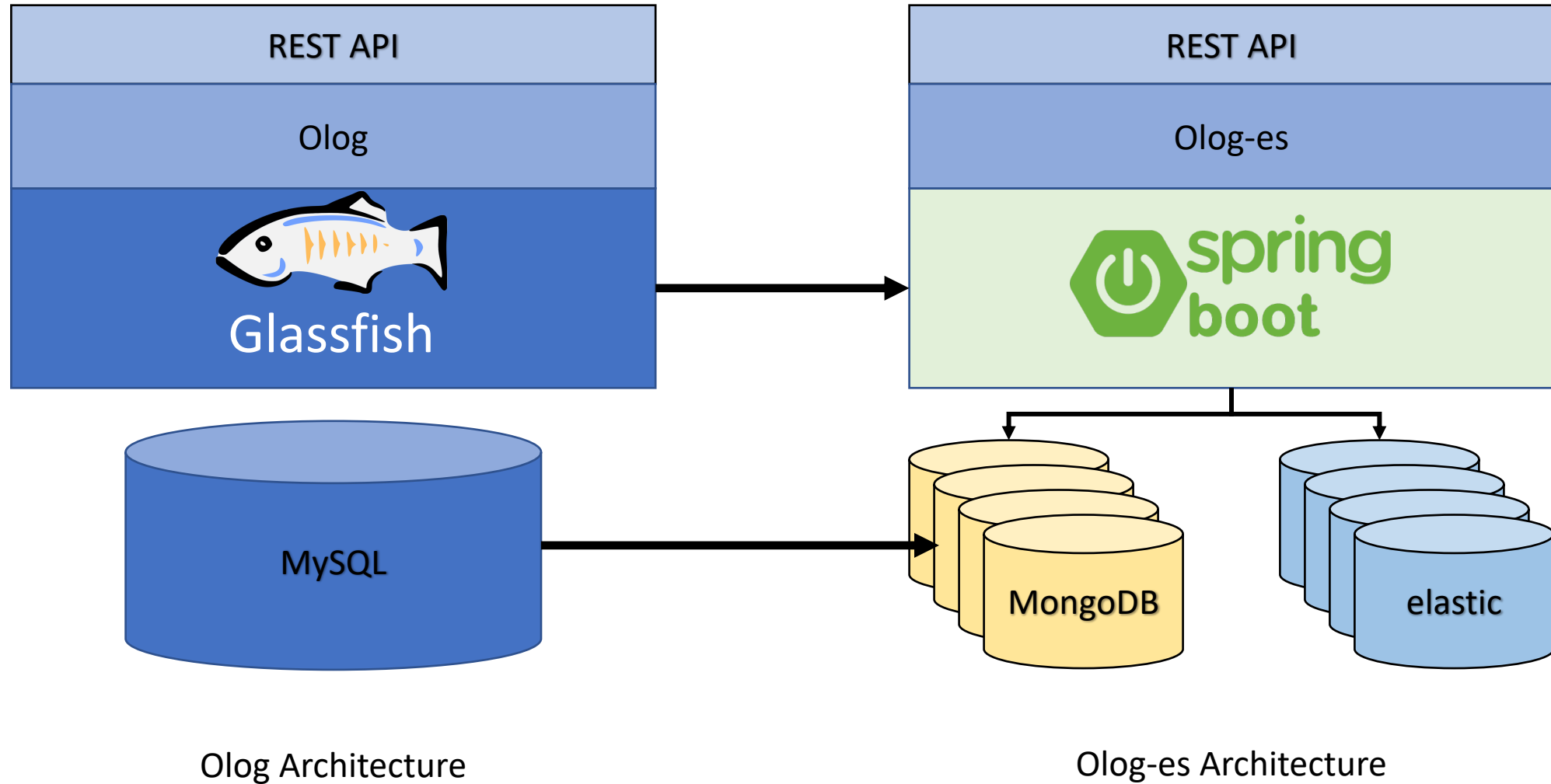
- In production at NSLS2 for about 10 years
 - Olog in the control room
Commissioning & Operations
 - CS-Studio & Webclient
 - Integration with MASAR, Shift service
 - Olog at the Beamlines
Commissioning & Operations
 - CS-Studio, Webclient, & Bluesky



Observations

- What works
 - Simple API
- What doesn't
 - Difficult to maintain
 - Scalability and performance

Architecture



MySQL to NoSQL

- List of log entries maps nicely to a Document Index / Document Store
- Log properties map well only Key Value Index
- Simple
 - NoSQL backend are easy to maintain
 - Flexible schema
- Scalability & Reliability
 - Horizontal scaling
 - Easy to set up clusters
 - Easy to set up replication in elastic

Glassfish to SpringBoot

- GlassFish Version in use has reached its end of life
- The GlassFish server is hard to maintain, GlassFish is hard to learn, understand, and use
- While useful for heavier applications. GlassFish is a full Java EE server which includes EJB, JMS, JTA, etc it is a bit of an overkill for Olog
- For Olog-es service
 - Embedded http server
 - A pluggable Authentication and Authorization framework
 - A modular testing framework
 - A well defined and configurable application startup and initialization
- SpringBoot is an extension of the Spring Framework (application framework for Java) that simplifies the process of creating a java application or webservice

Installation

Olog

Installation:

- Install GlassFish (v 3.1.2)
- Install mysql
- Create tables
- Create and configure jdbc connection pools
- Create and configure Glassfish authentication realms. One of 3 auth options, if choice is LDAP then:
 - Install LDAP server & Create the LDAP realm & Create the LDAP connection
- Deploy Application

configuration:

- Configuration is split between ChannelFinder properties files, GlassFish domain.xml files, GlassFish config.xml files, & some java system variables

Olog-es

Installation:

- Install elastic search & mongodb
- Start Olog-es service

configuration:

- All configuration in a single applications.properties file


```

{
  "id":575,
  "source":"**Beam Dump** due to Major power dip
    Current Booster switched to lower state.
    PV : BR-RF{Xmtr-PLC}ICS:Down-Sts",
  "description":"Beam Dump due to Major power dip
    Current Booster switched to lower state.
    PV : BR-RF{Xmtr-PLC}ICS:Down-Sts",
  "logbooks":[
    {"name":"ControlsOperations"},
    {"name":"PowerSupply"}
  ],
  "tags":[
    {"name":"Fault"}
  ],
  "properties":[
    {
      "name":"FaultReport",
      "attributes":[
        {"name":"id",
          "value":"123"},
        {"name":"URL",
          "value":"http://trac.nsls2/fault/123"}
      ]
    }
  ],
  "createdDate":1577392617217,
  "events":[
    {
      "name":"faultTime",
      "instant":1577389011004
    }
  ]
}

```

A log entry

- Backward compatible with Olog
- Additional fields
 - Title
 - Events
 - Source

```

{
  "id":575,
  "source":"**Beam Dump** due to Major power dip
    Current Booster switched to lower state.
    PV : BR-RF{Xmtr-PLC}ICS:Down-Sts",
  "description":"Beam Dump due to Major power dip
    Current Booster switched to lower state.
    PV : BR-RF{Xmtr-PLC}ICS:Down-Sts",
  "logbooks":[
    {"name":"ControlsOperations"},
    {"name":"PowerSupply"}
  ],
  "tags":[
    {"name":"Fault"}
  ],
  "properties":[
    {
      "name":"FaultReport",
      "attributes":[
        {"name":"id",
          "value":"123"},
        {"name":"URL",
          "value":"http://trac.nsls2/fault/123"}
      ]
    }
  ],
  "createdDate":1577392617217,
  "events":[
    {
      "name":"faultTime",
      "instant":1577389011004
    }
  ]
}

```

Logbooks and Tags

To organize and group log entries

```

{
  "id":575,
  "source":"**Beam Dump** due to Major power dip
    Current Booster switched to lower state.
    PV : BR-RF{Xmtr-PLC}ICS:Down-Sts",
  "description":"Beam Dump due to Major power dip
    Current Booster switched to lower state.
    PV : BR-RF{Xmtr-PLC}ICS:Down-Sts",
  "logbooks":[
    {"name":"ControlsOperations"},
    {"name":"PowerSupply"}
  ],
  "tags":[
    {"name":"Fault"}
  ],
  "properties":[
    {
      "name":"FaultReport",
      "attributes":[
        {"name":"id",
          "value":"123"},
        {"name":"URL",
          "value":"http://trac.nsls2/fault/123"}
      ]
    }
  ],
  "createdDate":1577392617217,
  "events":[
    {
      "name":"faultTime",
      "instant":1577389011004
    }
  ]
}

```

Properties

Useful to

- Integrate with other services
 - Fault
 - Shift
 - BlueSky
- Include meta data

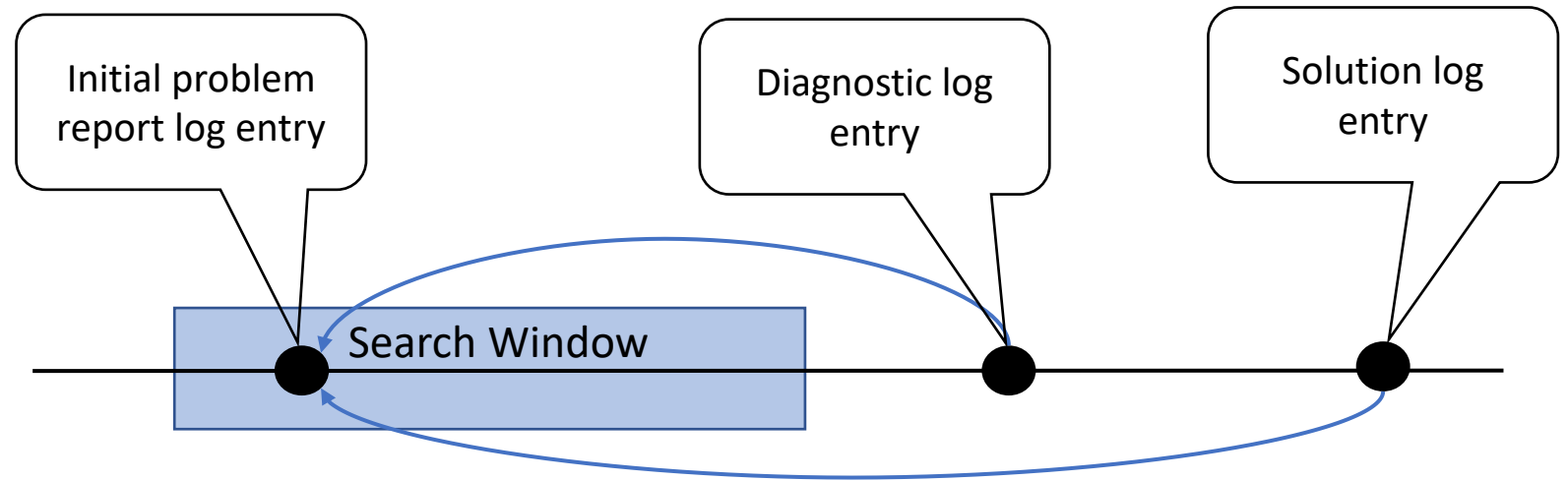
```

{
  "id":575,
  "source": "***Beam Dump** due to Major power dip
    Current Booster switched to lower state.
    PV : BR-RF{Xmtr-PLC}ICS:Down-Sts",
  "description": "Beam Dump due to Major power dip
    Current Booster switched to lower state.
    PV : BR-RF{Xmtr-PLC}ICS:Down-Sts",
  "logbooks": [
    { "name": "ControlsOperations" },
    { "name": "PowerSupply" }
  ],
  "tags": [
    { "name": "Fault" }
  ],
  "properties": [
    {
      "name": "FaultReport",
      "attributes": [
        { "name": "id",
          "value": "123" },
        { "name": "URL",
          "value": "http://trac.nsls2/fault/123" }
      ]
    }
  ],
  "createdDate":1577392617217,
  "events": [
    {
      "name": "faultTime",
      "instant":1577389011004
    }
  ]
}

```

Events

- Allows users to tag timestamps to log entries



- Temporal searches include log entries with events within the search windows

```

{
  "id": 575,
  "source": "**Beam Dump** due to Major power dip  
Current Booster switched to lower state.  
PV : BR-RF{Xmtr-PLC}ICS:Down-Sts",
  "description": "Beam Dump due to Major power dip  
Current Booster switched to lower state.  
PV : BR-RF{Xmtr-PLC}ICS:Down-Sts",
  "logbooks": [
    { "name": "ControlsOperations" },
    { "name": "PowerSupply" }
  ],
  "tags": [
    { "name": "Fault" }
  ],
  "properties": [
    {
      "name": "FaultReport",
      "attributes": [
        { "name": "id", "value": "123" },
        { "name": "URL", "value": "http://trac.nsls2/fault/123" }
      ]
    }
  ],
  "createdDate": 1577392617217,
  "events": [
    {
      "name": "faultTime",
      "instant": 1577389011004
    }
  ]
}

```

Markup

Support the inclusion of markup annotation in log entry description

- ***description***
pure log entry text
- ***source***
description + markup

```

**Beam Dump** due to Major power dip
Current Booster switched to lower state.
PV : `BR-RF{Xmtr-PLC}ICS:Down-Sts`

```

```

Beam Dump due to Major power dip Current
Booster switched to lower state. PV : BR-RF{Xmtr-
PLC}ICS:Down-Sts

```

Searching for log entries

- Search
 - Time
 - Owner
 - Logbooks, Tags, and Properties
- Natural Language Searching
 - Typos & Spelling mistakes
 - Fuzzy search using Levenshtein distance
 - **0..2** Must match exactly
 - **3..5** One edit allowed
 - **>5** Two edits allowed

Clients

- Phoebus
 - Logbook module *olog-es*
- pyOlog
 - python client library for use in bluesky
- Webclient
 - Under development at ESS

The screenshot displays the 'Log Entry Calendar' interface. At the top, there are tabs for 'File Browser', 'Log Entry Calendar', 'Log Entry Table', and 'Data Browser'. The 'Log Entry Calendar' tab is active, showing a timeline from Sunday, October 11, 2020, to Wednesday, October 14, 2020. The timeline is divided into hourly slots, with various log entries represented by colored bars. A detailed log entry is shown for the time 2020-10-14 07:59:38, with the text: 'October 13-14 2000-0800 Shift Summary', 'Lead Operator: M.Santana', 'QO: P.Marino', 'FLOCO: LPharr', and 'BNL Limited Operations - Phase 2'. A pop-up window is open, displaying a specific log entry: '2020-10-11T16:06:27.776Z SR RF Cavity D nitrogen exhaust temp too low alarm came in at 1000 hrs. I see that J.Papu made an adjustment (log browser). Message left on his phone'. The sidebar on the right shows 'Logbook/Tags' with 'Operations' and 'RF Systems' listed.

Next Steps

- Expand the Natural Language Search features
- Expand the WebClient
- Data migration tools

Links and References

- Documentation and API description

<https://olog-es.readthedocs.io/en/latest/>

- Fork us on GitHub

<https://github.com/Olog/olog-es>

<https://github.com/Olog>

Questions