

# ***Suren A. Chilingaryan***

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# **Treatment of Experimental and Slow Control Data for Large Scale Cosmic Ray Detection Networks** *Storage, Visualization & Export*

# Ancient Data Format

10:29:00	54	51	48	52	57	54	45
10:30:00	56	54	46	51	44	52	47
10:31:00	60	48	43	39	50	54	50
10:32:00	44	42	53	53	47	55	50
10:33:00	48	54	50	53	46	55	40
10:34:00	50	56	50	43	55	47	64

- Meaning of the data?
- Engineering Units
  - Channel Type
  - Precision
  - Particles registered
  - Duration
  - Min/Max Energies
  - Algorithms used
  - Direction
  - Alert Conditions

# XML:

## Advantages/Disadvantages

→ Good for Heterogeneous Environments

- + → Readable
- Extensible
- High Level Standard
- XSLT Transformation

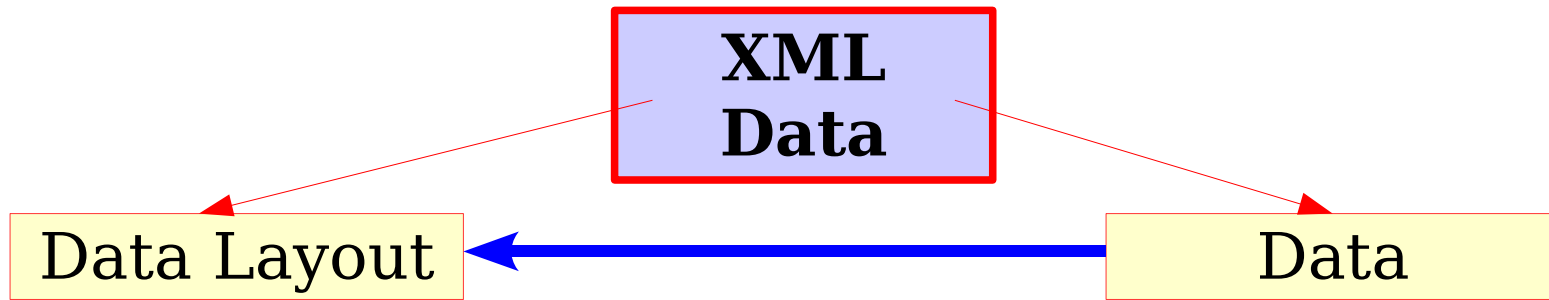
```
<Data>
<Time>12.01.2005</Time>
>
  <Value>64</Value>
  <Units>MEV</Units>
</Data>
```

→ Extremely Large Data Size

→ XML Processing Required to Extract Data

→ Incompatibility with current DVIN

# New Format: Data and Layout



XML File / XML Database

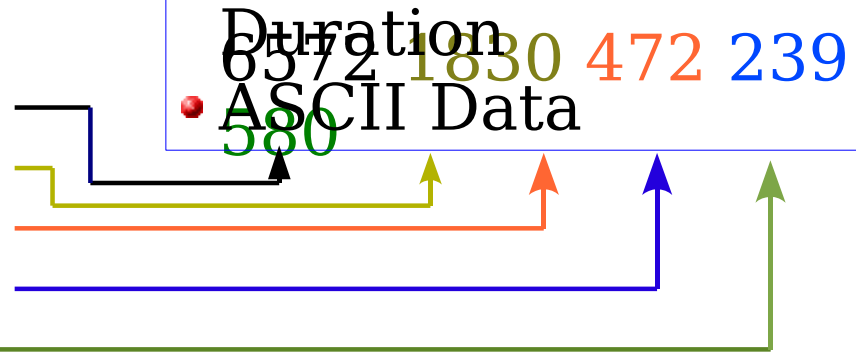
- Installation Description
- Installation
- Geometry
- Data Layout

ASCII File / SQL Database

- Used Layout
- Time / Quality / Duration
- ASCII Data

```

<Detector type="neutron"
emin="120">1</Detector>
<Detector type="neutron"
emin="190">2</Detector>
<Detector type="neutron"
emin="290">3</Detector>
<Detector type="neutron"
emin="490">4</Detector>
  
```



# Looking for Data

XML Data Layout

**XPath: Extracting Neutron Data**

`//Layout/Detector[@type="neutron"]`

Columns

1 2 3 4

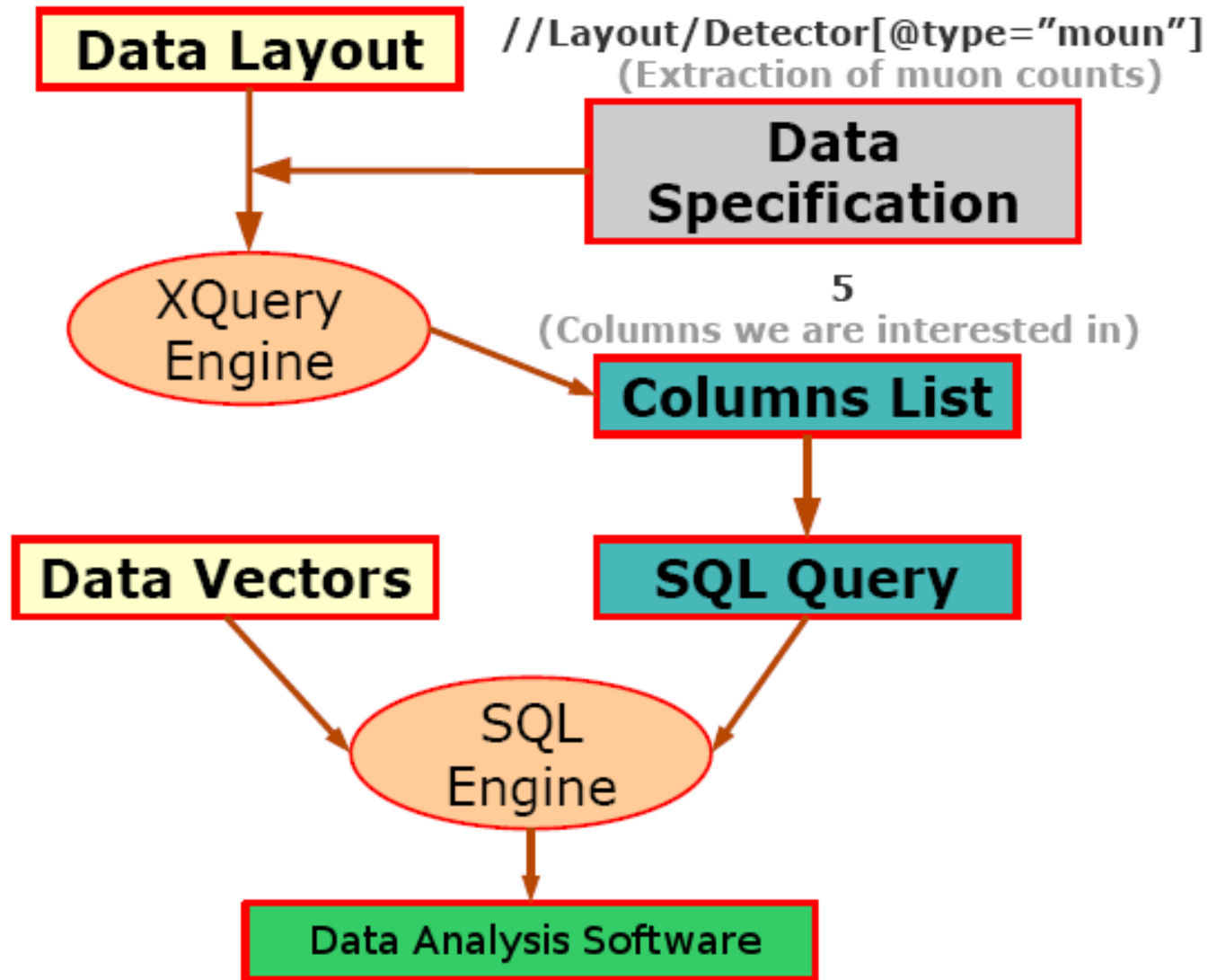
**XPath: Extracting Muon Data**

`//Layout/Detector[@type="moun"]`

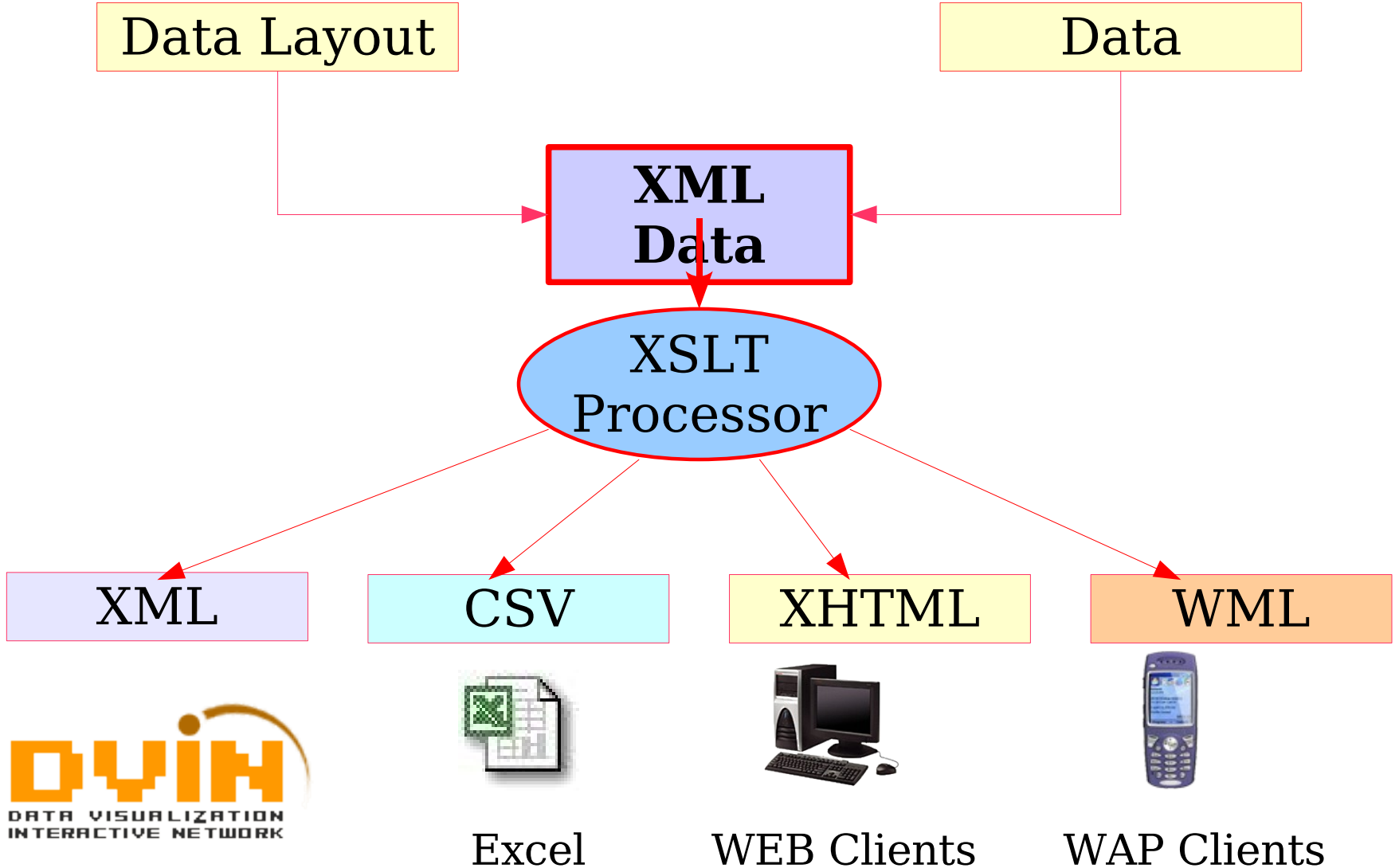
Columns

5

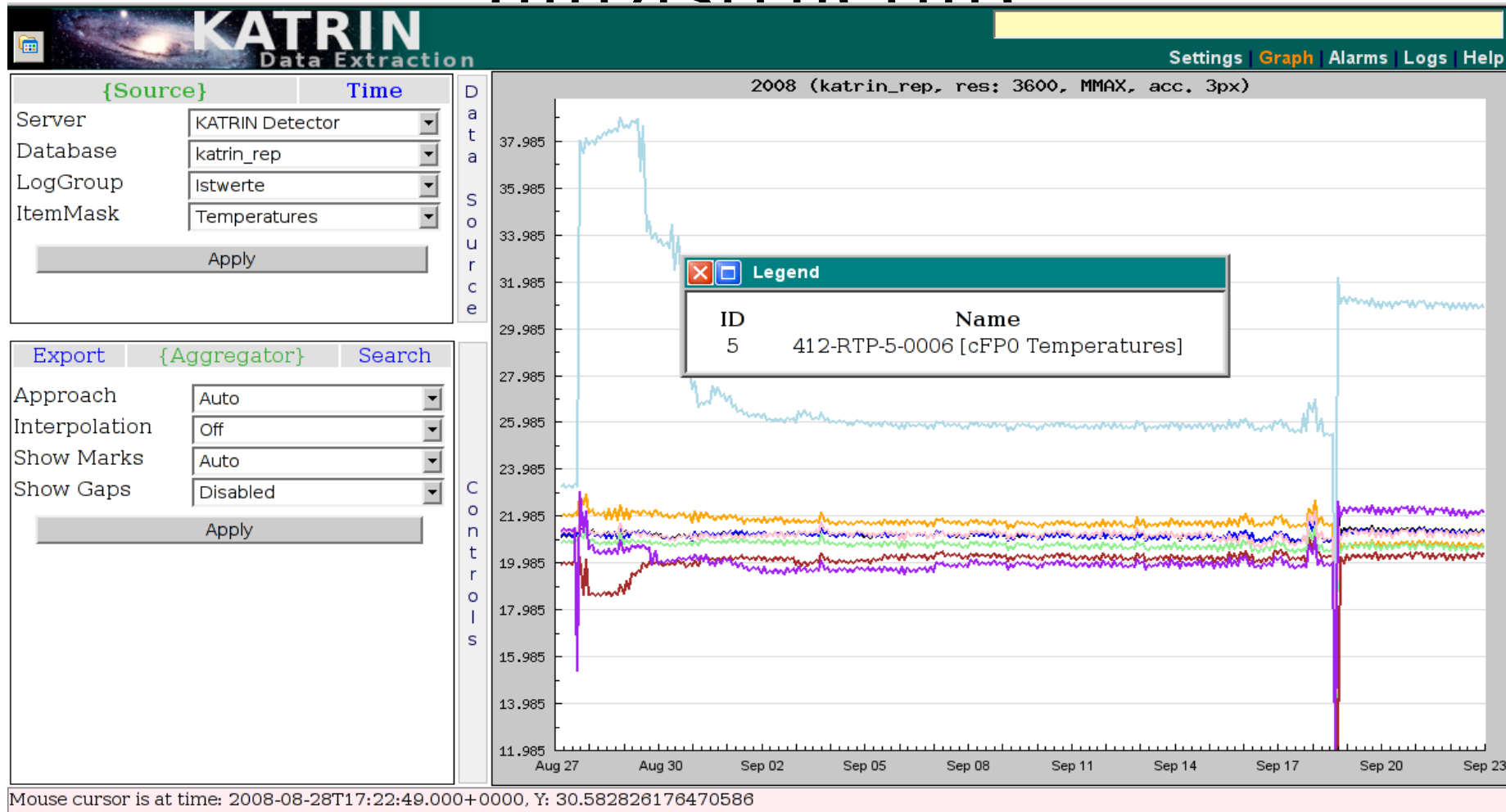
# Extracting Data



# XSLT Filters

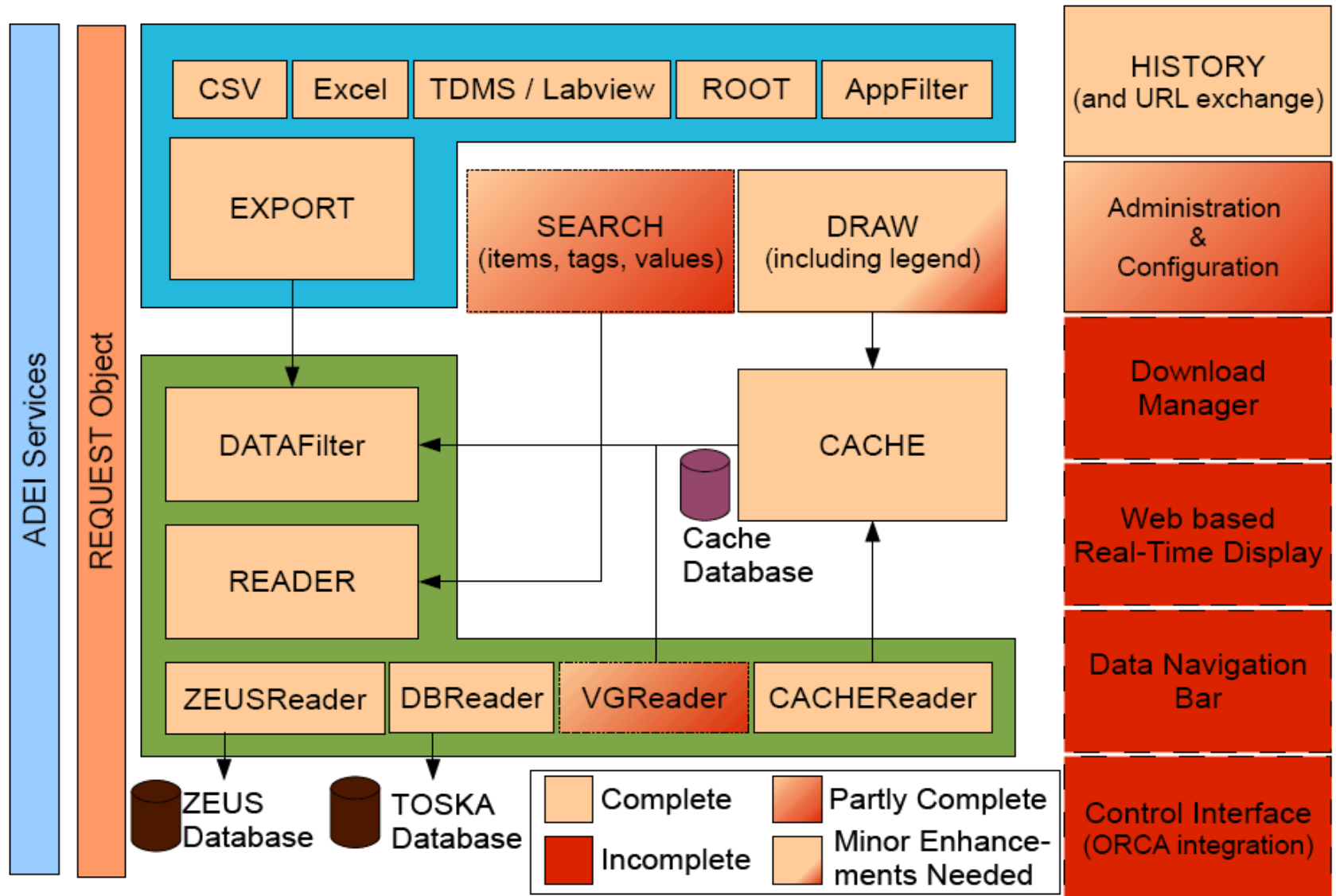


# Advanced Data Extraction Infrastructure

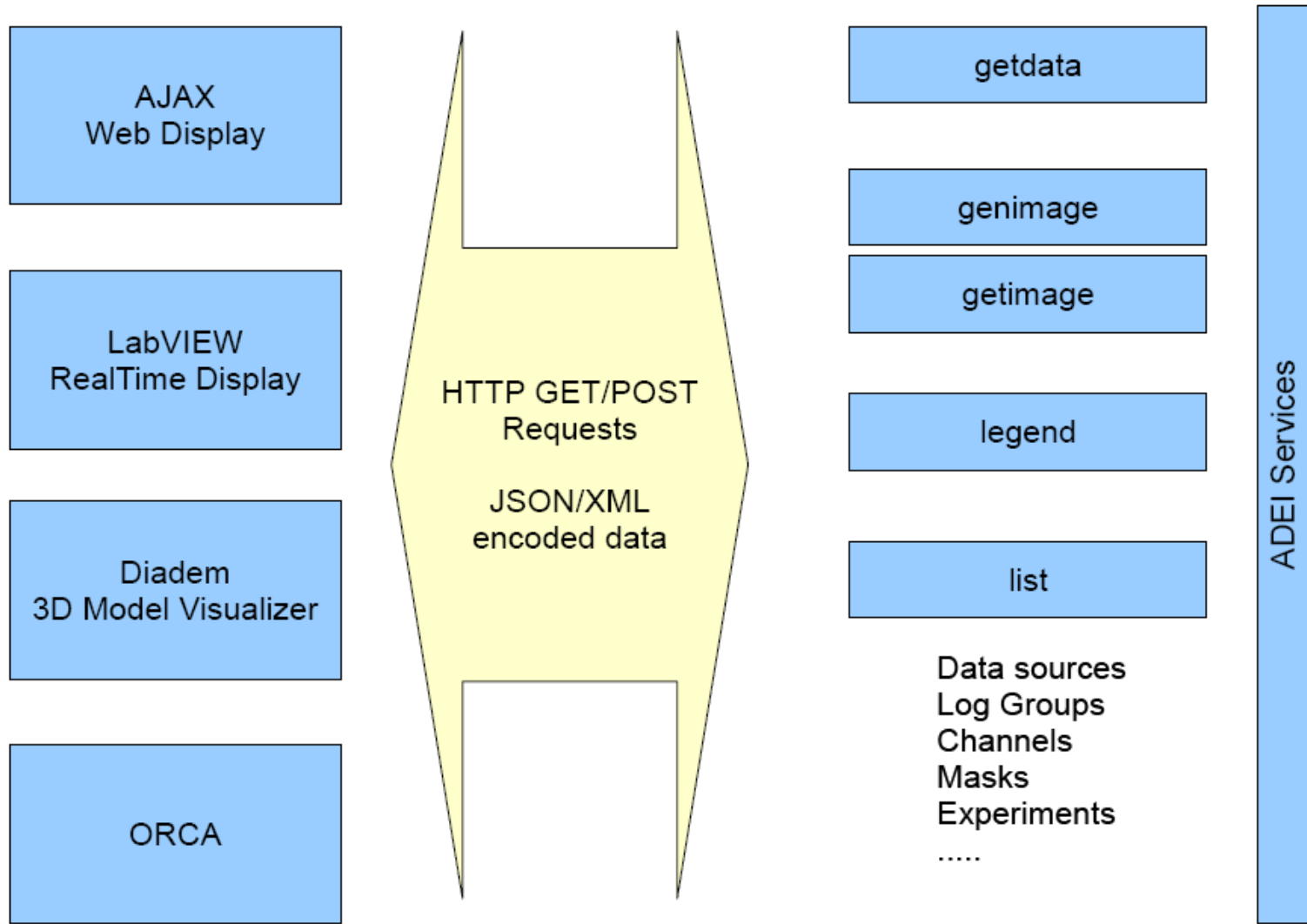




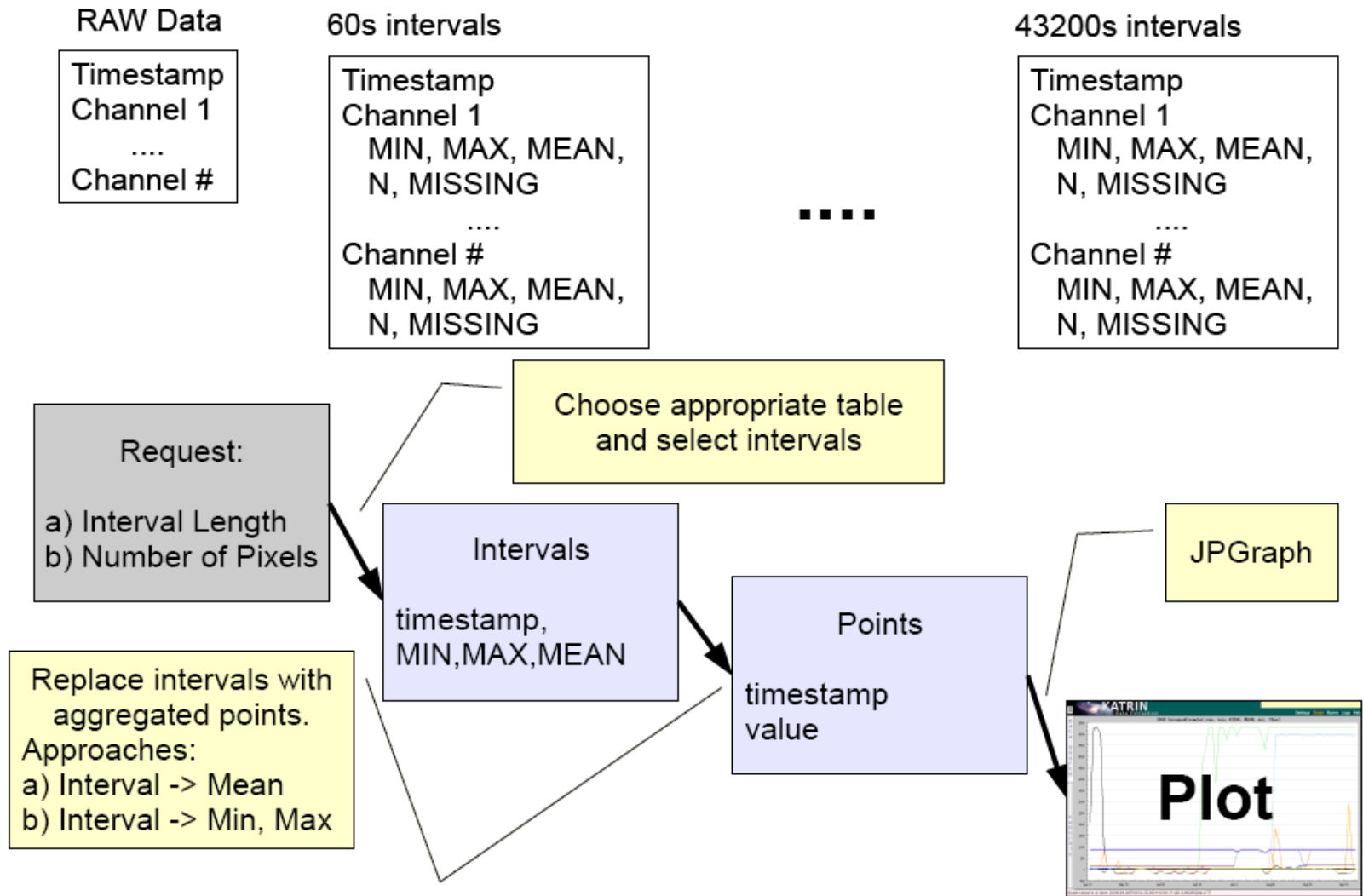
# ADEI Components



# ADEI Interfaces



# ADEI Plotting



# ADEI

## Project Page:

<http://dside.dyndns.org/adei/>

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- Pluggable Data Source Support
- Multiple Export Formats: CSV, Excel, ROOT, TDMS, Application Filters (ZIP, ...)
- All Major Browsers are supported: