



Describing and finding VOEvent streams

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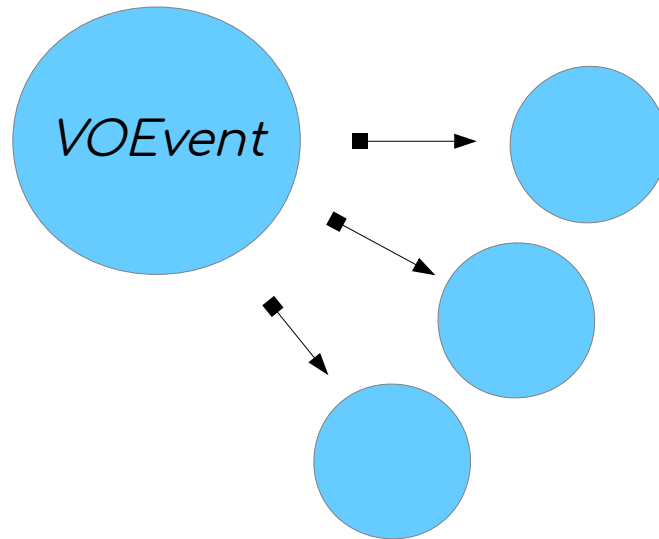
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May 2019



IVOA interop meeting
Observatoire de Paris, May 2019

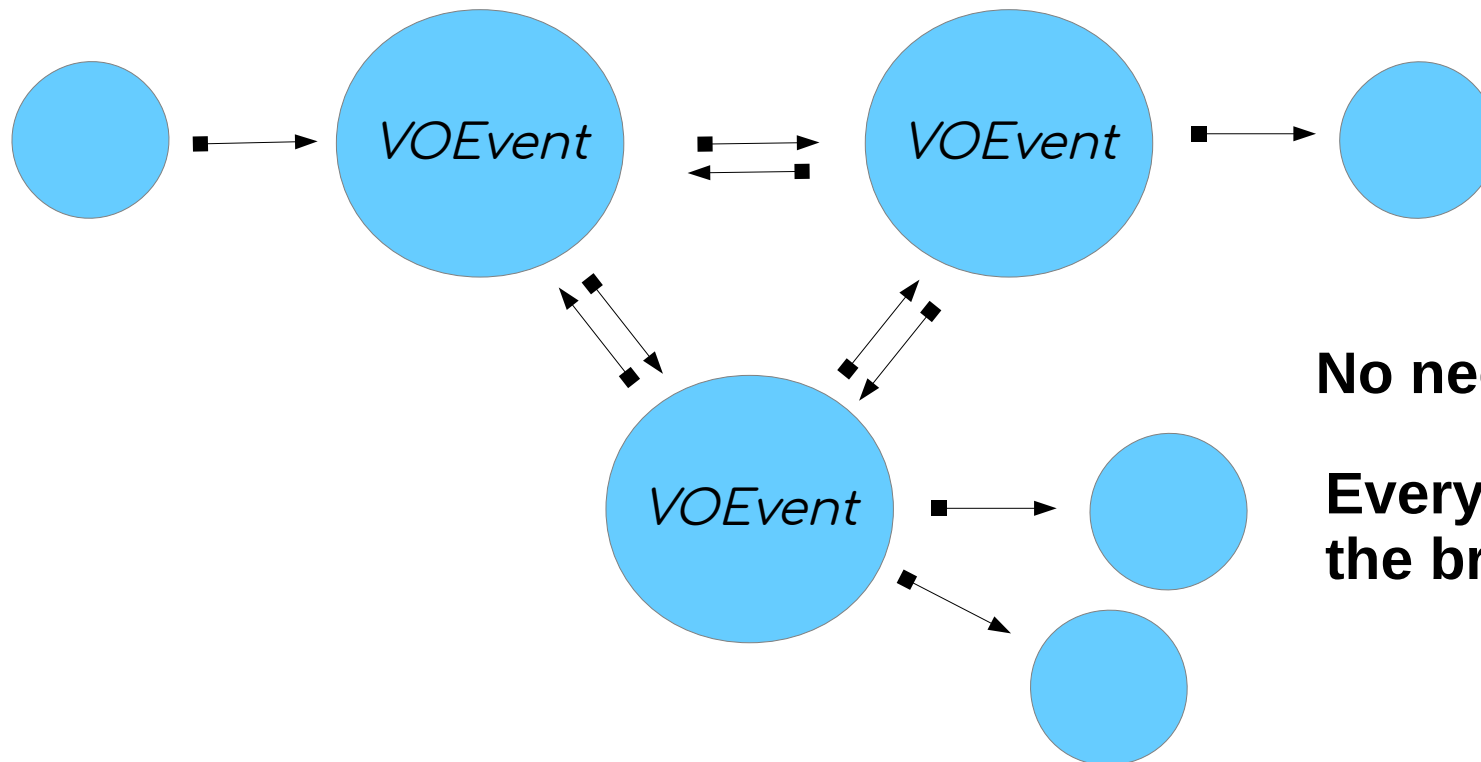
Project specific event stream

Project specific event types



**No need for discovery
Everyone just knows
the broker endpoint**

Network of brokers broadcasting events

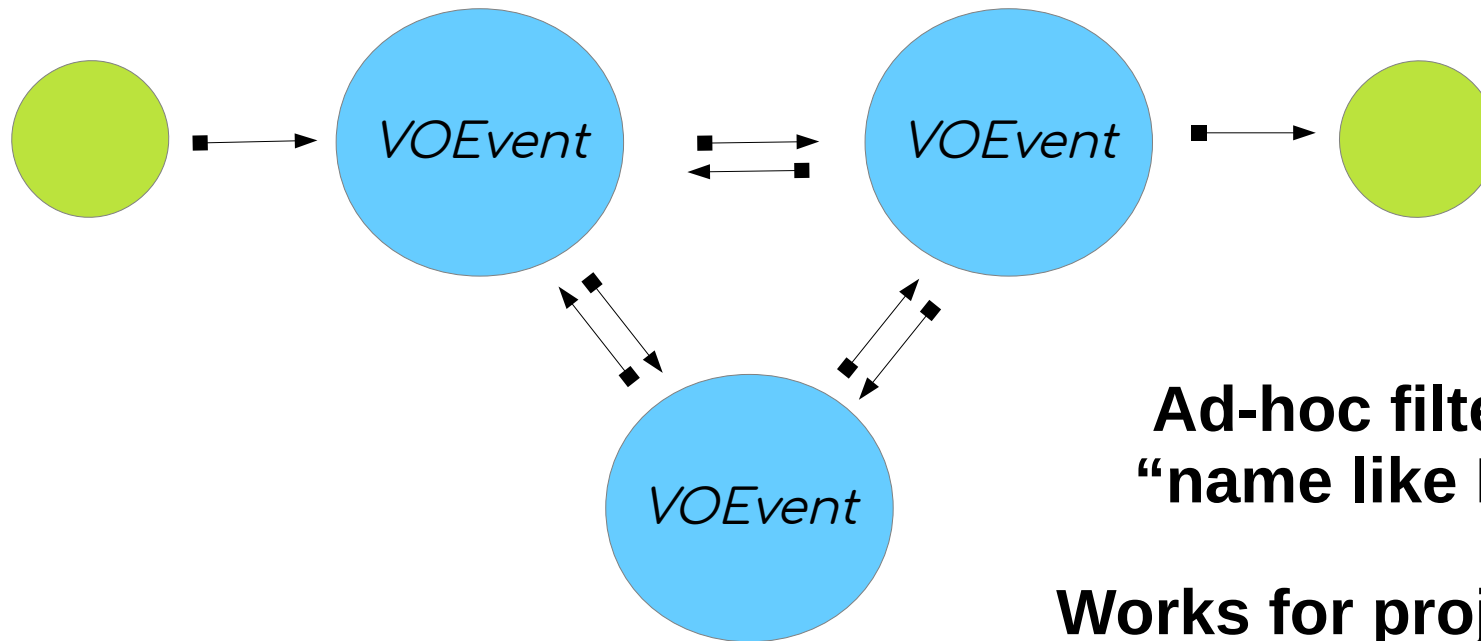


No need for discovery

**Everyone just knows
the broker endpoints**

Project specific event types

VOEvent for Fast Radio Bursts arXiv:1710.08155v1 [astro-ph.IM]





Where we are now



VOEventRegExt:

An XML Encoding Schema for Resource Metadata for Collections of Events

Version 1.0

IVOA Working Draft

13 May 2014

Is anyone using this ?





VOEventRegExt:

“... each VOEventStream has a defined set of named ‘parameters’, and each event that is a member of the stream should use only parameters that are selected from the list in the stream definition.”

Event type definitions :-)

Is anyone using this ?





VOEventRegExt:

If a server supports a subscription capability with filtering, it means that a client can submit a criterion

("R magnitude brighter than 17")

and events will be delivered by the server in the future which satisfy that criteria.

**** As far as I know, filtering is not defined in any service standard.**





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Going back to the community :

Do you want to register and discover streams ?

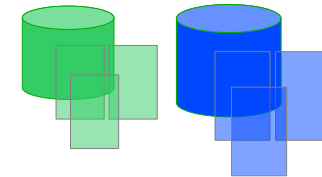
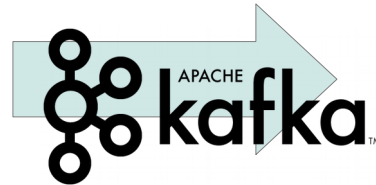
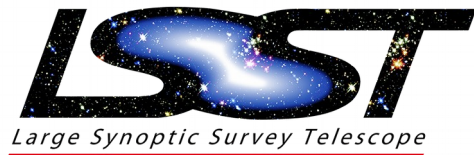
“Kind of, but running a registry is too heavy for what we need.”

What do you use for the IVOID identifiers ?

“We just made something ourselves.”

**** lightweight ‘*registry in a container*’ would go along way to help solve this**





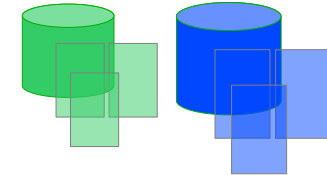
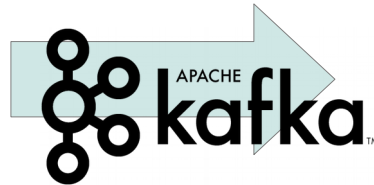
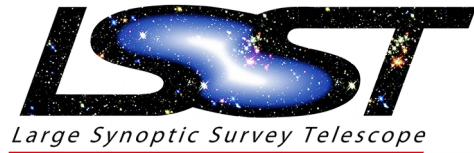
**crossmatch
characterization
annotation
filtering**

High data rate ($> 10^3$ Hz)

**High value, well characterized events
e.g. 80% probability supernova candidate**

Low data rate (10 per day ?)



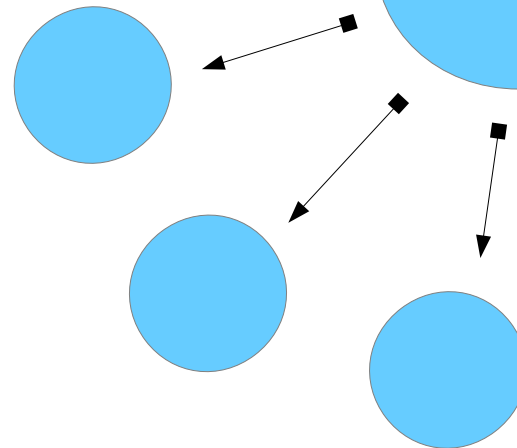


High data rate ($> 10^3$ Hz)

crossmatch
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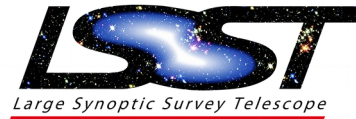


IVOA VOEvent
format



Existing VOEvent
community

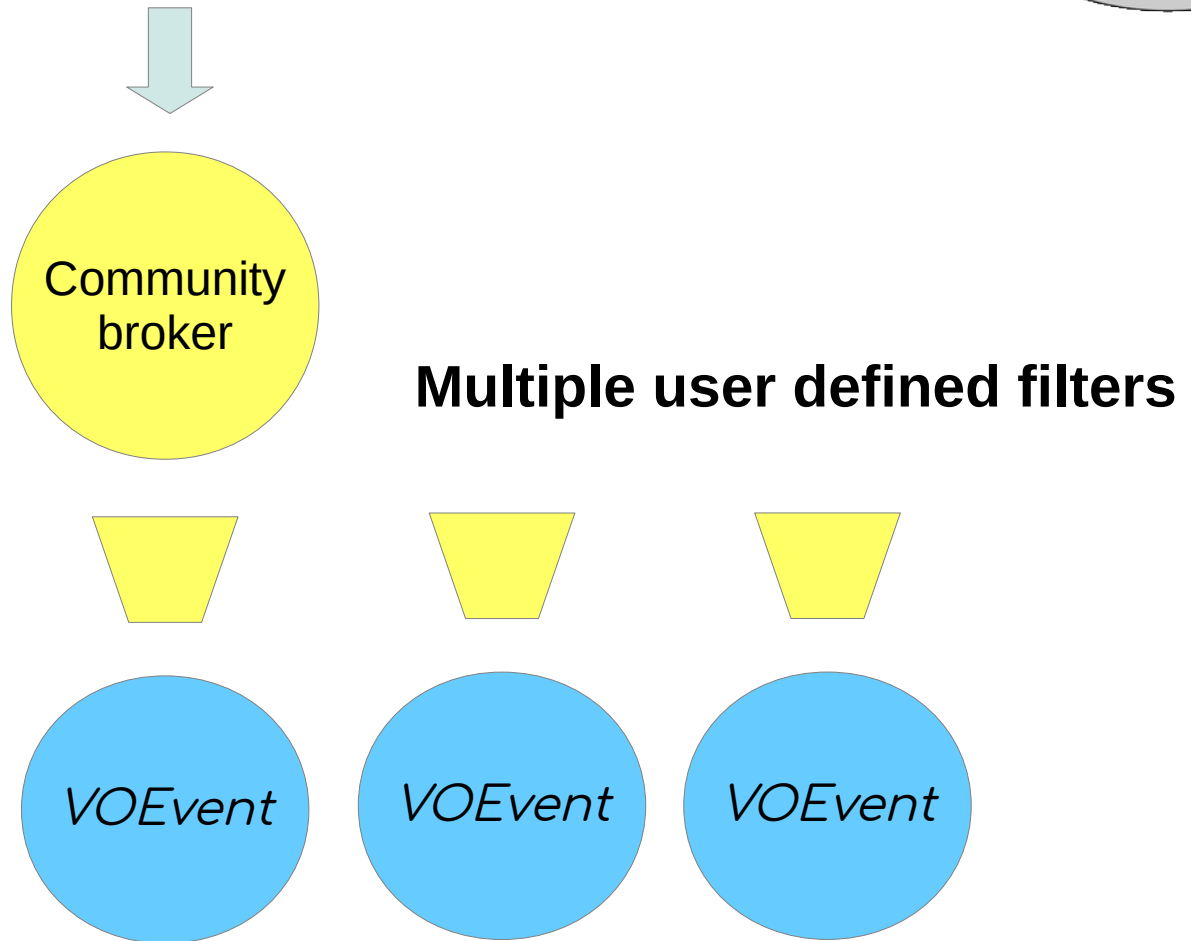




One community broker
e.g. Lasair at Edinburgh

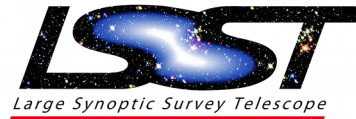
Lasair

<https://lasair.roe.ac.uk/>

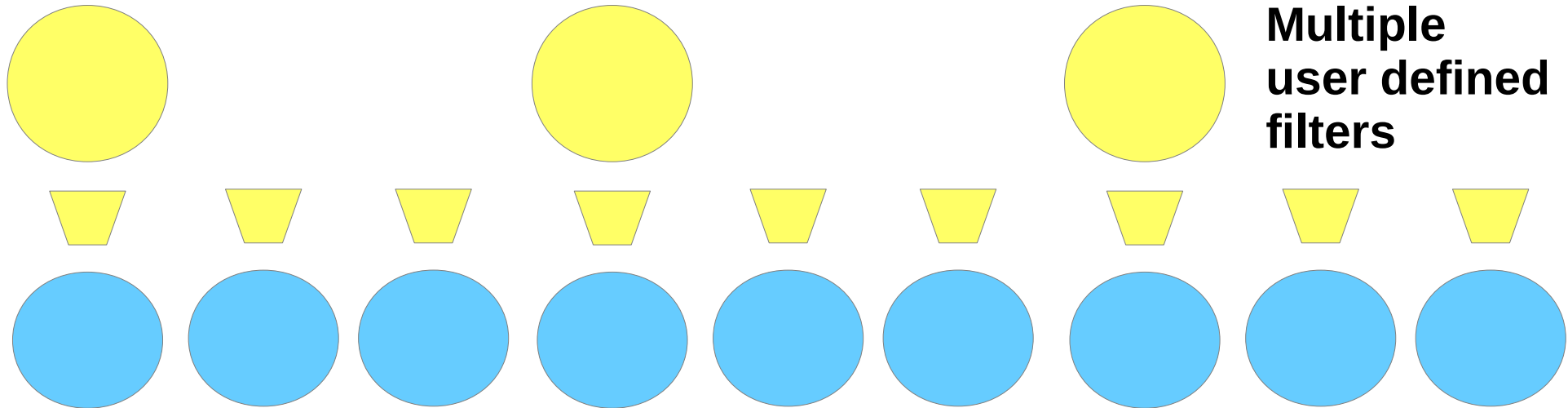


Multiple streams of filtered data





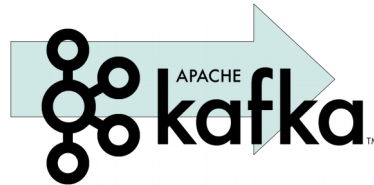
Multiple community brokers (n ~ 5)



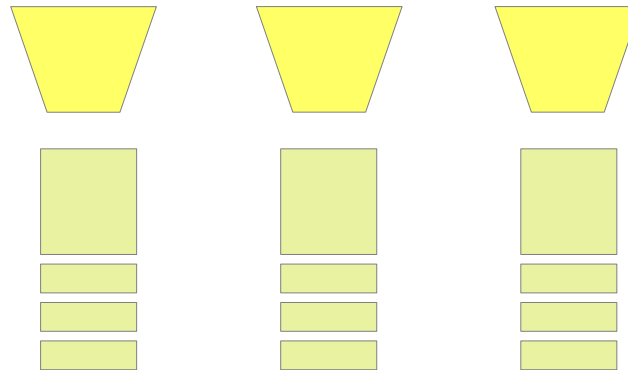
Multiple streams of filtered data

Broad spectrum of quality and accuracy





Multiple different filters



Each stream is a table with no end

Describe them the same way we describe tables





Going back to the community :

Do you want to discover streams ?

Yes, I want to explore what is available.

No, users will learn where the important streams are from published papers.

(* we will still need to discover technical details like transport protocol, event type and properties.



Going back to the community :

How would you want to describe streams ?

Area of sky – footprint, MOC ?

Type of phenomenon – vocabulary (extensible) ?

Primary source (instrument)

Upstream source (another filter)

Processing algorithm

Probability of classification

Going back to the community :

How would you want to describe streams ?

Area of sky – footprint, MOC ?

**** VOEvents use a range of different coordinate systems
Do we just use ICRS ?**

**** What about solar system objects ?**

Going back to the community :

How would you want to describe streams ?

Type of phenomenon – extensible vocabulary ?

**** According to the arXiv, there are >50 types of FRBs**

http://multi-messenger.asterics2020.eu/Documents/presentations/Hessels_Jason.pdf

Can semantics help us with this ?

Some event streams are about things with no name (or many names) that we don't quite understand yet.



Thanks

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