Pierre Le Sidaner
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Expert exchange program report

The initial goal of this proposal was to register the VOEvent TAP server, to review the registration of TAP server done at IRAP.
As VOEvent is distributed with using VTP if no client listen to it, it's simply lost. The purpose in Europlanet PSWS is also to allow event prediction and to be able to search in event database. This can be done if we are able to characterize events candidate.
We try to take advantage of the job done in Vespa to have a standard way to access passed VOEvents. This allow the user to search for specific event in a web page. No need to install a VOEvent client and register to the right flux. A simple query to Vespa or via a Virtual Observatory webservice will allow to retrieve new event using creation_date filter for example.
Using Vespa Europlanet infrastructure VOEvent are stored using EPN-TAP Vespa standard. During the stay the two VOEvent servers have been registered http://voparis-tap-voevent.obspm.fr/ that promote meteor showers service and http://psws-epntap.irap.omp.eu that promote alert on solar wind prediction and a alert on fireball,lunar flash or comet tail crossing.
Both server are searchable now in the International Virtual Observatory Alliance registry. Topcat toll can easily be used to search on keywords.
The registration have been done for IRAP on the Euro-VO registry for PADC on the internal publishing registry of PADC.
As the review of theses service have not been done by the scientific council of Vespa, the services are visible on the development interface http://voparis-europlanet-dev.obspm.fr with a specific dataproduct type.

Specific parameters have been applied to characterized this type of event, like :
- instrument_name used to find observation selecting a specific instrument. In our cases we use simulation as parameter to separate observation to simulation prediction.
- event_type that define the type of event for characterization. Typically for our examples meteor showers, fireball ….
- event_status, in our cases it can be prediction or observation, but can also be utility

After registering the VOEvent EPN-TAP service we have tried to define the registry extension need for VOEvent server inside the IVOA registry. Yet only VTP (VOEvent Transfer Protocol) is allow.
As International Virtual Observatory Alliance define standards. Any evolution must follow the endorsement procedure. We have discuss to needed extension the requirement to the next generation of VOEvent producer like LSST, Swom or Ligo/Virgo. It appear the the transfer

protocol can not be limit to VTP and may include the commune uses of the community to exchange event like XMPP, RabbitMQ or Kafka (apache).

Then the port used is not define as mandatory, so should also be expressed (to listen and emit) and also specify if it's TCP or UDP.

Finally the format of VOEvent should be extend as XML is actually the only authorized format following the schema VOEvent 1.0 or 2.0 define in http://ivoa.net/xml/VOEvent/. Projects like LSST will promote a tremendous amount of event per hour and need a less verbose format like Json. We may define a list of format that the server can expose as capability.

All these question that we have discuss during the stay will be expose to the IVOA registry working group to converge on the registry extension requirement VOEvent server. We want this discussion to start before Interop meeting in may 2019. We need in Europlanet to register VOEvent server to be reach by our user with an interoperable standard system.