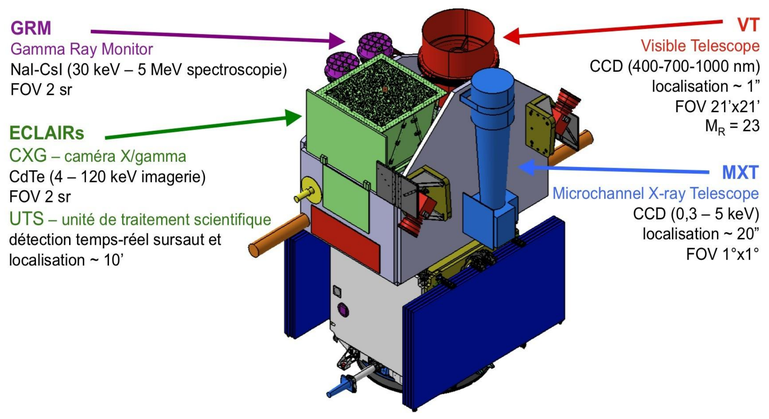
Jean-Paul Le Fèvre
CEA Saclay, Irfu France

Distribution of Svom VOEvents using the XMPP protocol

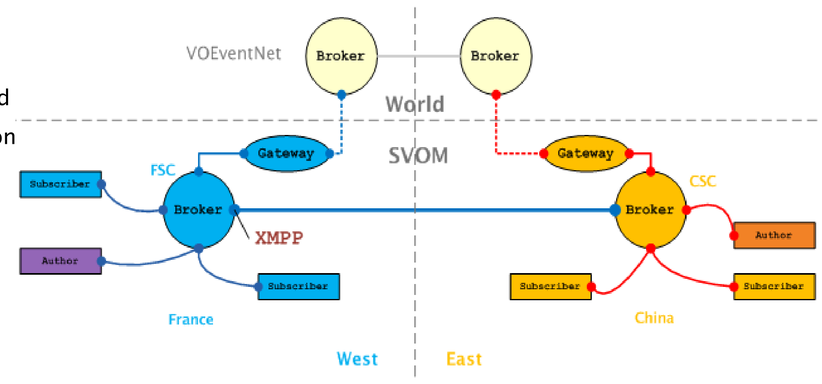
The Svom mission



- **A French-Chinese space mission dedicated to GRB studies**
- Launch likely in 2016
- Scientific requirements :
  - Permit the detection of all know types of GRBs, with a special care on high-z GRB and low-z sub-luminous GRB
  - Quickly provide (sub-) arcsec positions of detected afterglows
  - Quickly provide redshift indicators of detected GRB

SvomNet architecture

- **France-China symmetry**
- Gateway between Svom and the rest of the world
- Brokers are in charge of the message distribution
- Some agents publish messages,
- Other agents get and read them

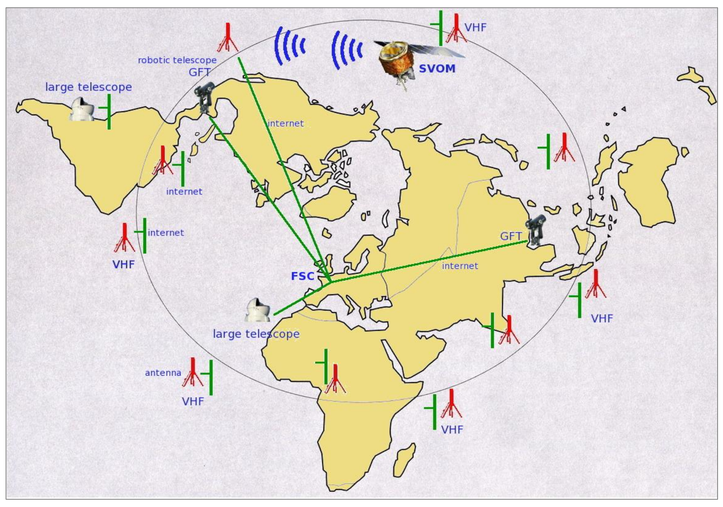


- **Svom is a PI-led mission**
- Access to data is defined by the PI
- Different levels will be managed :
  - Burst advocates, PI, instrument PI
  - Members of the Svom collaboration
  - Associates to the Svom collaboration
  - Scientific community
  - Everyone

- The transport layer is implemented using the **XMPP protocol** with the **PubSub extension**
- Svom products are available on specific pubsub nodes

- Subscriptions to the nodes are controlled via affiliations
- These affiliations implement the Svom access policy

The French Science Center



The spacecraft communicates with the **French Science Center** via a network of 40 VHF receivers located around the Earth inside a ± 30° strip.

The FSC is located at Saclay near Paris (France).

The first recipient of the messages is the robotic Ground Follow-up Telescope located at San Pedro Martir Observatory in Baja California.

Eventually messages are broadcast to large telescopes, e.g. VLT in Chile

SvomNet in a future VOEvent infrastructure

- **Svom will join the future VOEvent network**

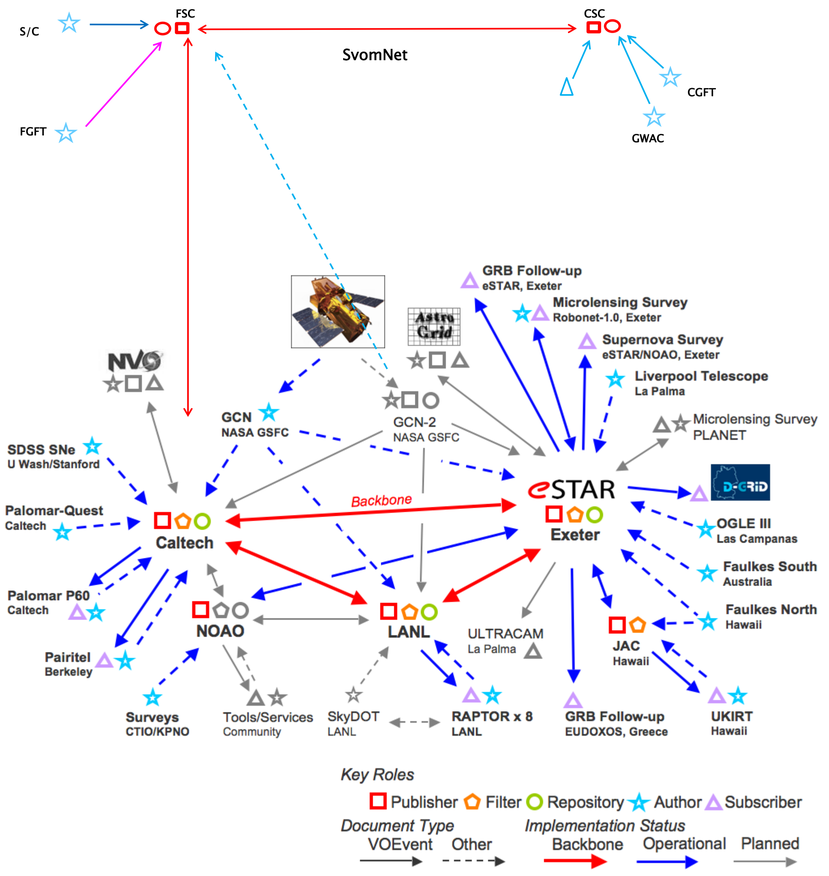
- It will need to be informed in real-time of what is detected by other telescopes

- It will have to broadcast broadly as fast as possible alert messages issued by its on-board instruments

- It intents to be an active participant to the Virtual Observatory community

Tarot @ La Silla

A galaxy of services dedicated to the observation of our transient Universe is expected to grow in the years to come



ToolBox

- Application written in Java 1.6
- VOEvent versions 1.11 and 2.0 XML packets parsed using **jaxb** 2.2
- XMPP server **Openfire** (*www.igniterealtime.org*)
- Server plugins base on the Openfire API
- XMPP clients based on the **Smack** API (*www.igniterealtime.org*)

- About 9000 lines of code written at this point
- 15 different small client programs available to test the system
- Standard toolbox : *svn, ant, checkstyle, findbugs, testng, hudson*
- Download from : *ftp://svomtest.svom.fr/pub/goodies/*

First Conclusions

- No major difficulties in XMPP programming
- Our architecture is validated and complies with the scientific requirements
- The Openfire server works fine and is easily configurable

- However the source code of Openfire and Smack has to be patched
- Performance requirements will be met without hassles

- **More information at : http://svomtest.svom.fr/**
- **Contact : jean-paul.lefevre@cea.fr**

Present Implementation