



Status of Community Broker Selection

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SLAC

CHARLES AND LISA SIMONYI FUND
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Charge to the SAC

- Rubin/LSST has a requirement to be capable of supporting the transmission of at least 5 full alert streams out of the alert distribution system within 60 seconds. This requirement establishes the minimum capacity needed for timely transmission of alerts to community brokers.
- Following the project hosted [Community Broker Workshop](#), we solicited proposals for Community Event Brokers.
- 9 full proposals for Brokers to receive the full LSST alert stream were received.
- The project asked the SAC to review and rank the proposals and to identify the top 5 Brokers for the project to initially work with to meet its requirements.
- The review committee comprised unconflicted members of the SAC as well ex-officio project staff to advise on technical aspects.

Evaluation Criteria

- Scientific value;
- The size of the community the broker aims to serve;
- The extent to which the broker has been scientifically validated with existing or simulated data;
- The extent to which the broker has been, or will be, integrated with the time domain ecosystem, including telescope facilities for follow-up observations;
- The extent to which the broker is already being used by members of the community;
- The extent to which the broker is complementary to other brokers, and/or has unique features that distinguish it.
- Review report from SAC: ls.st/Document-37761

Committee Observations

- All of the proposals describe brokers that already exist in at least prototype form, and have used the ZTF stream extensively as a testbed to develop their system, and in many cases to enable scientific discoveries.
- 5 proposals are from national facilities (ANTARES, ALERCE, Lasair, Fink, AMPEL) and are fully operating, processing and distributing alerts from a variety of facilities (e.g. ZTF). All overlap significantly in their stated capabilities, have a significant user base, and are well-connected to the scientific communities and scientific efforts in their countries.
- 4 are university-based (Pitt-Google, SNAPS, Babamul, PoI-Variables) and are less developed, but play complementary roles, bringing innovative new approaches to distributing the data to the community.
- 2 proposals (SNAPS, PoI variables) do not need direct stream access and can work downstream of other Brokers. They work complementary to general purpose brokers and do not require a latency of a few mins. This left 7 general purpose broker proposals to rank

Next steps

- Overall 5 (Antares, Babamul, Pit-Google, POI Variables, SNAPS) US based proposals and 4 international (Chile, UK, FR, DE),
- 7 brokers are requesting full stream access.
- Essentially, we've received a ranking for the top six, we are required, at minimum to support five as part of our construction requirements. This is effectively an up scope to construction. How do we proceed on this?
 - Tiger team formed to address these issues.
 - What is the science case to support additional brokers
 - Eric talked to Richard Dubois at SLAC to understand the bandwidth availability, believes this is within the envelope. Need a deeper conversation with SLAC