# VOEVENT TRANSPORT PROTOCOOL

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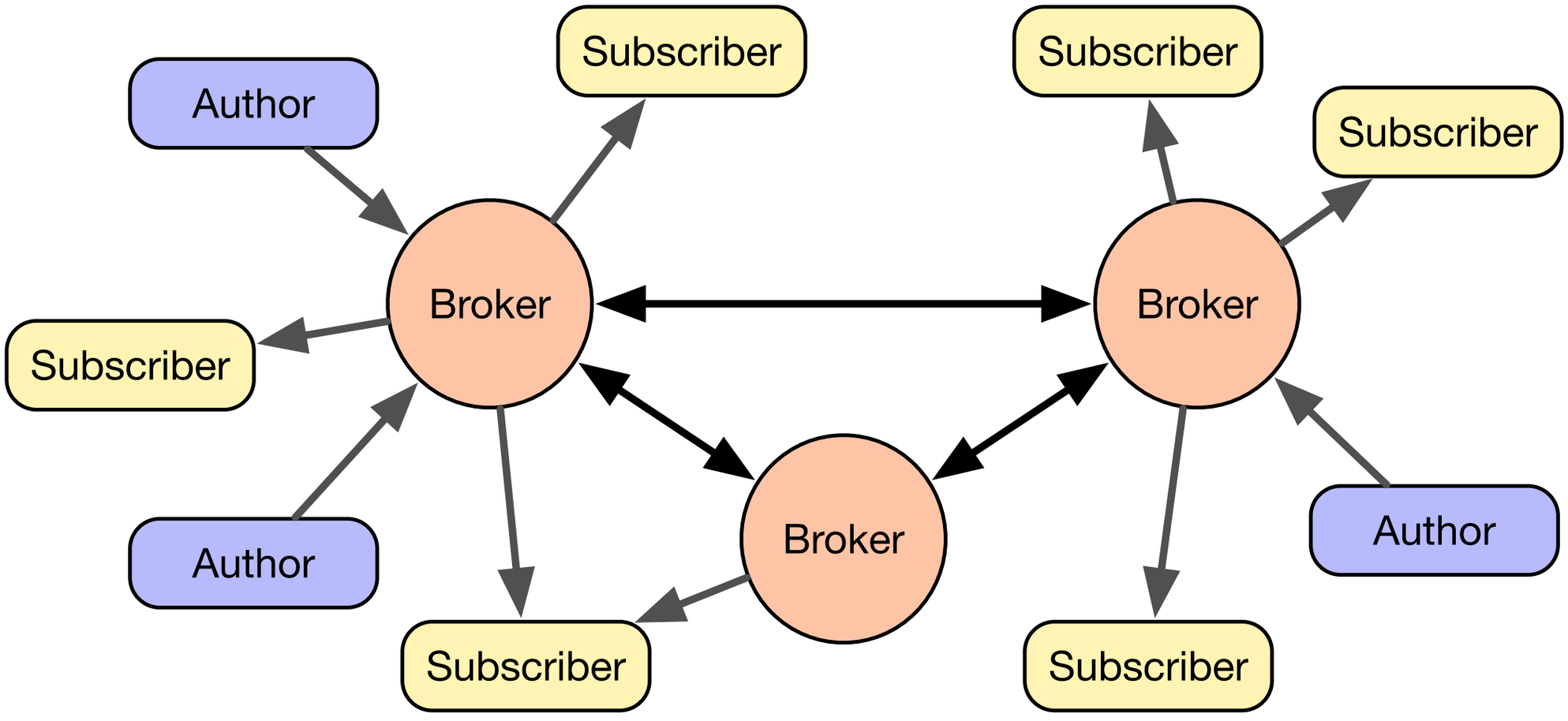
# CONTEXT

- **VOEvent** v2 (Seaman et al, 2011) is a well established standard for describing transient celestial events.
  - Who, what, when, where, why, how, etc.
- It does not specify how to communicate that description to others.
  - Modulo a brief discussion of the names and roles of various entities who might interact with VOEvent packets.
- **VOEvent Transport Protocol** aims to provide a *minimal baseline* for users to subscribe to streams of VOEvents.
  - Not intended to be exclusive of other approaches: you can still use e-mail, SMS, XMPP, … as required.

# ORIGINS & VERSIONING

- Original VTP described in an IVOA Note by Alasdair Allan & Bob Denny in 2009 (VTP 1.0 and 1.1):
  - http://www.ivoa.net/documents/Notes/VOEventTransport/
- The current effort is to standardize a protocol that is wire compatible with the Allan & Denny note.
  - Existing implementations continue without changes.
- The text has been substantially reworked for clarity and to avoid ambiguity.
  - Particularly regarding the semantics of some messages.
- This revised text is presented as **VTP 2.0**.

# NETWORK LAYOUT

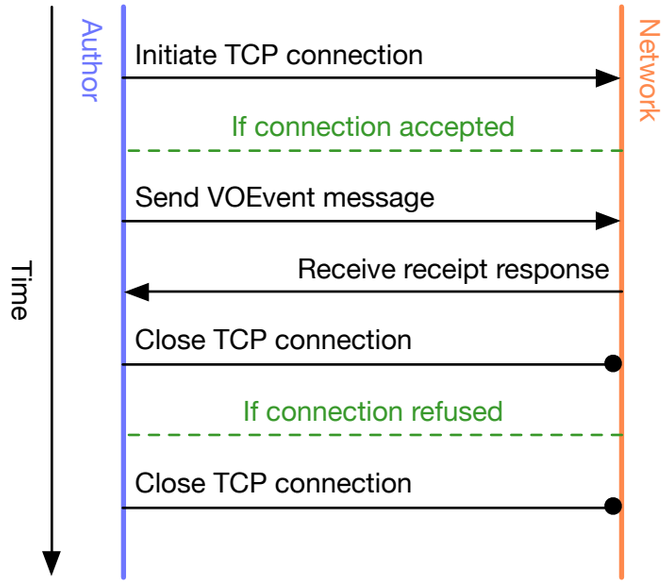



- A simplified version of the roles in the VOEvent v2 standard: we do not distinguish “author” vs “publisher”.

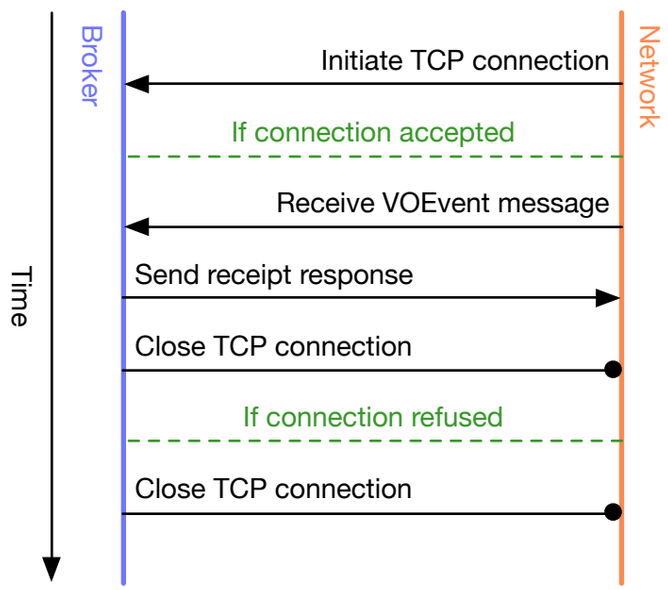
# PROTOCOL DESIGN

- Simple TCP based client-server architecture.
  - Implement a network entity in a few lines of Python.
- Transmits a single VOEvent per transaction.
- Non-transformative on VOEvents being transmitted.
- Two classes of messages supported:
  - VOEvent documents themselves;
  - Transport messages.
    - Also XML documents, schema included in standard.
    - Four message types: `ack`, `nak`, `iamalive`, `authenticate`.

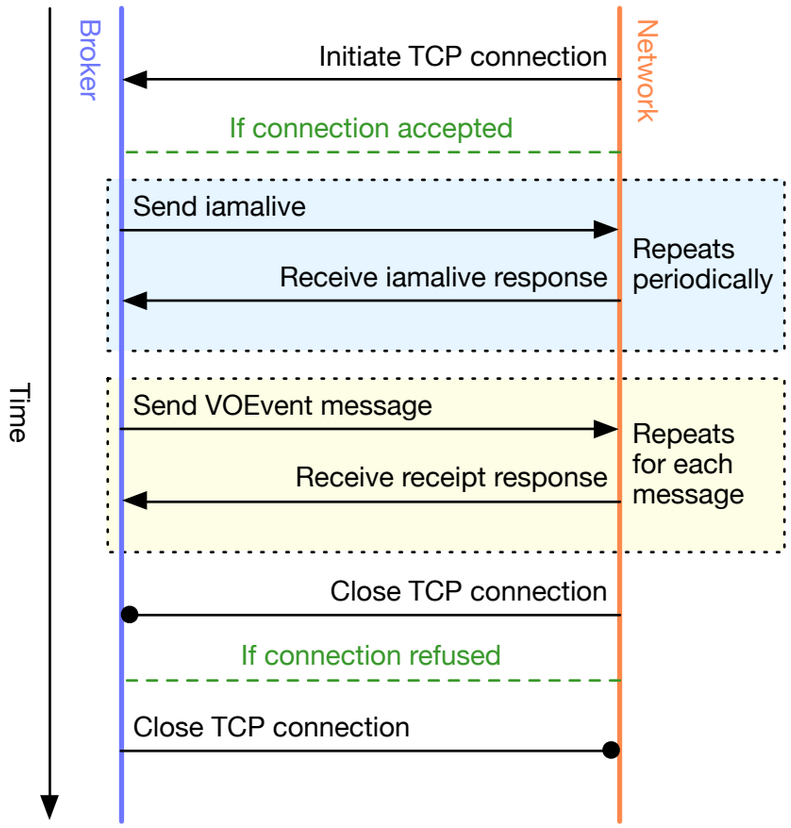
# INTERACTION BETWEEN ENTITIES



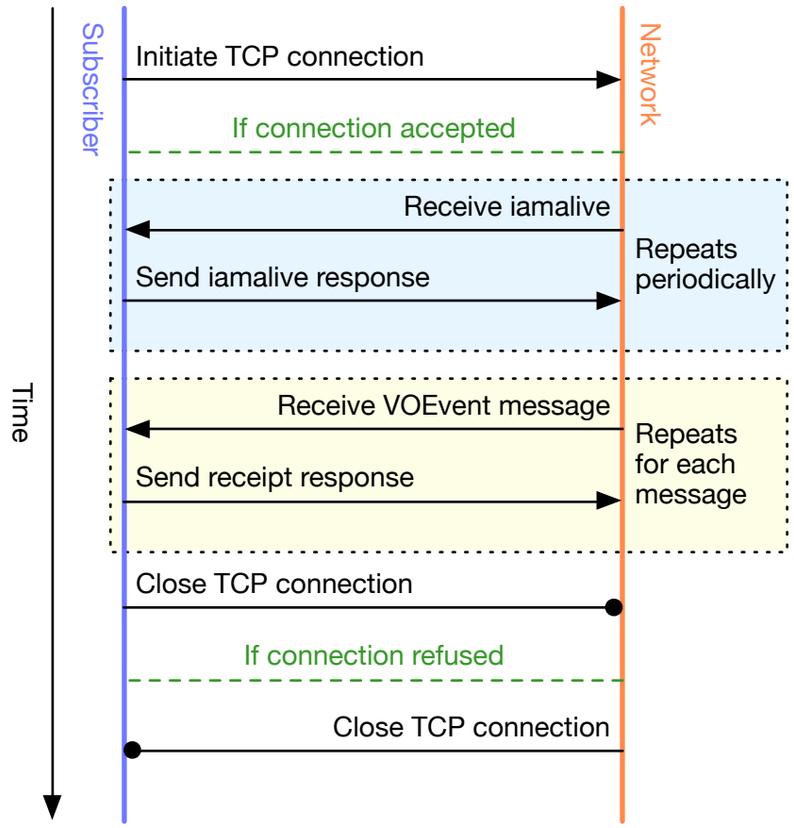

*Author to Broker*




*Broker from Author*




*Broker to Subscriber*




*Subscriber from Broker*

# IMPLEMENTATIONS

- Comet (Python 2.7 released, 3.4+ on `master`)
  - Author + broker + subscriber
  - http://comet.transientskp.org/
- Dakota VOEvent Tools (C#/.net)
  - Author + broker + subscriber
  - http://voevent.dc3.com/
- PyGCN (Python 2.6+)
  - Subscriber only
  - https://github.com/lpsinger/pygcn
- GCN client demo (C)
  - Subscriber only
  - http://gcn.gsfc.nasa.gov/voevent_client_demo.c

http://www.ivoa.net/documents/VOEventTransport/index.html

(https://github.com/jdswinbank/vtp for work in progress)

- PR as of 2016-05-04; RFC period opening soon.
- For now, comments & questions welcome either to me directly or to TDIG and/or DAL mailing lists.