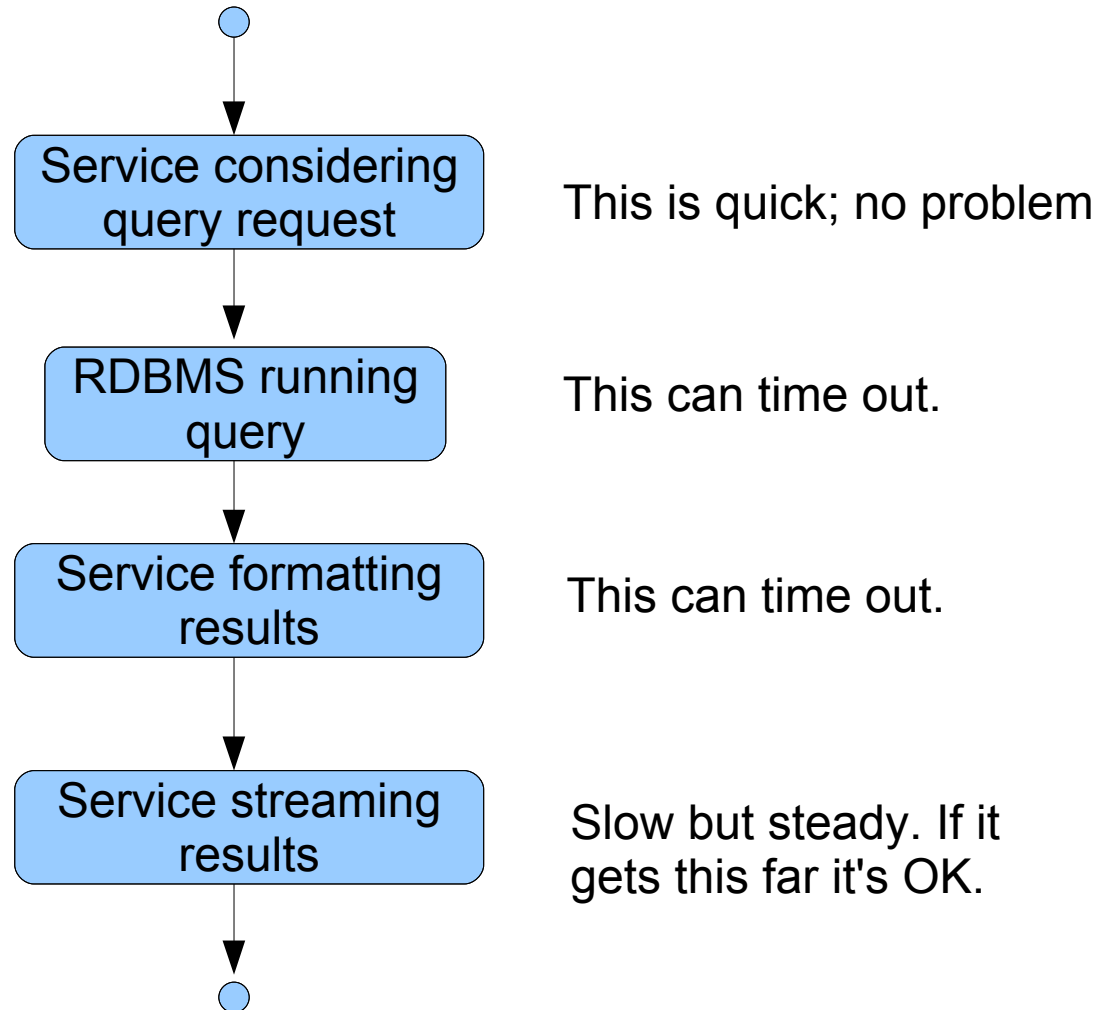


Asynchronous queries in TAP

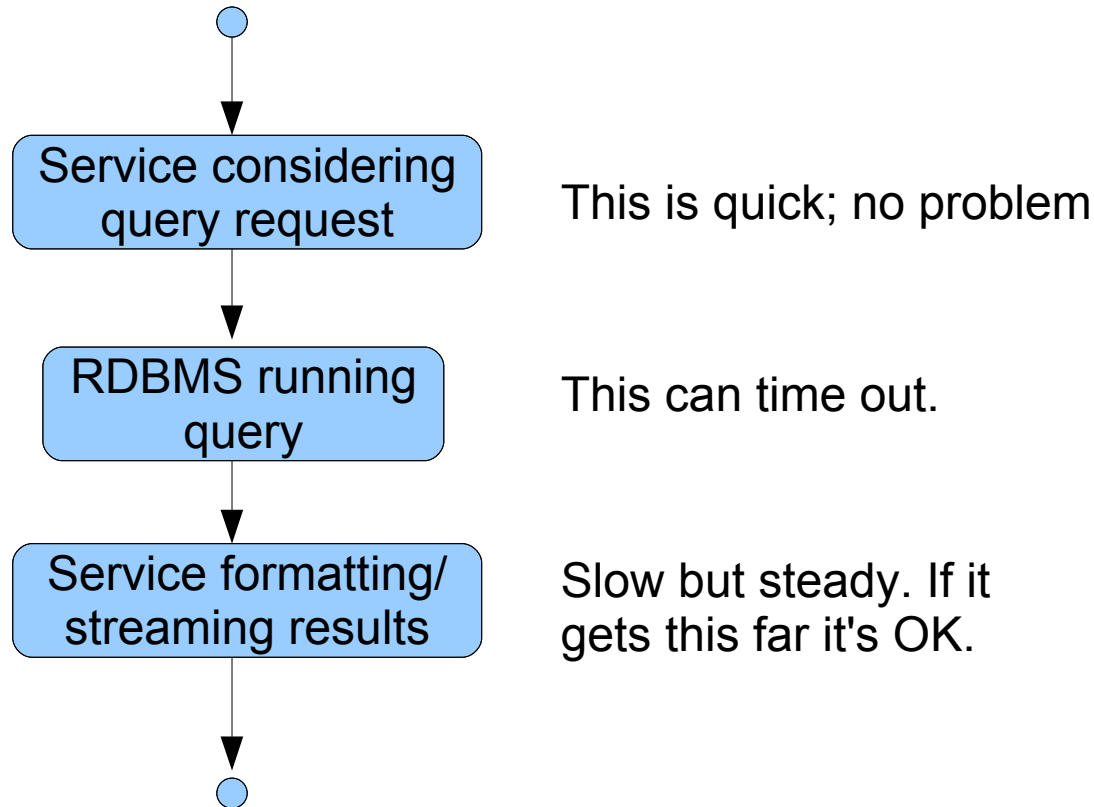
Guy Rixon

VOQL session 4,
IVOA Beijing Interop
May 2007

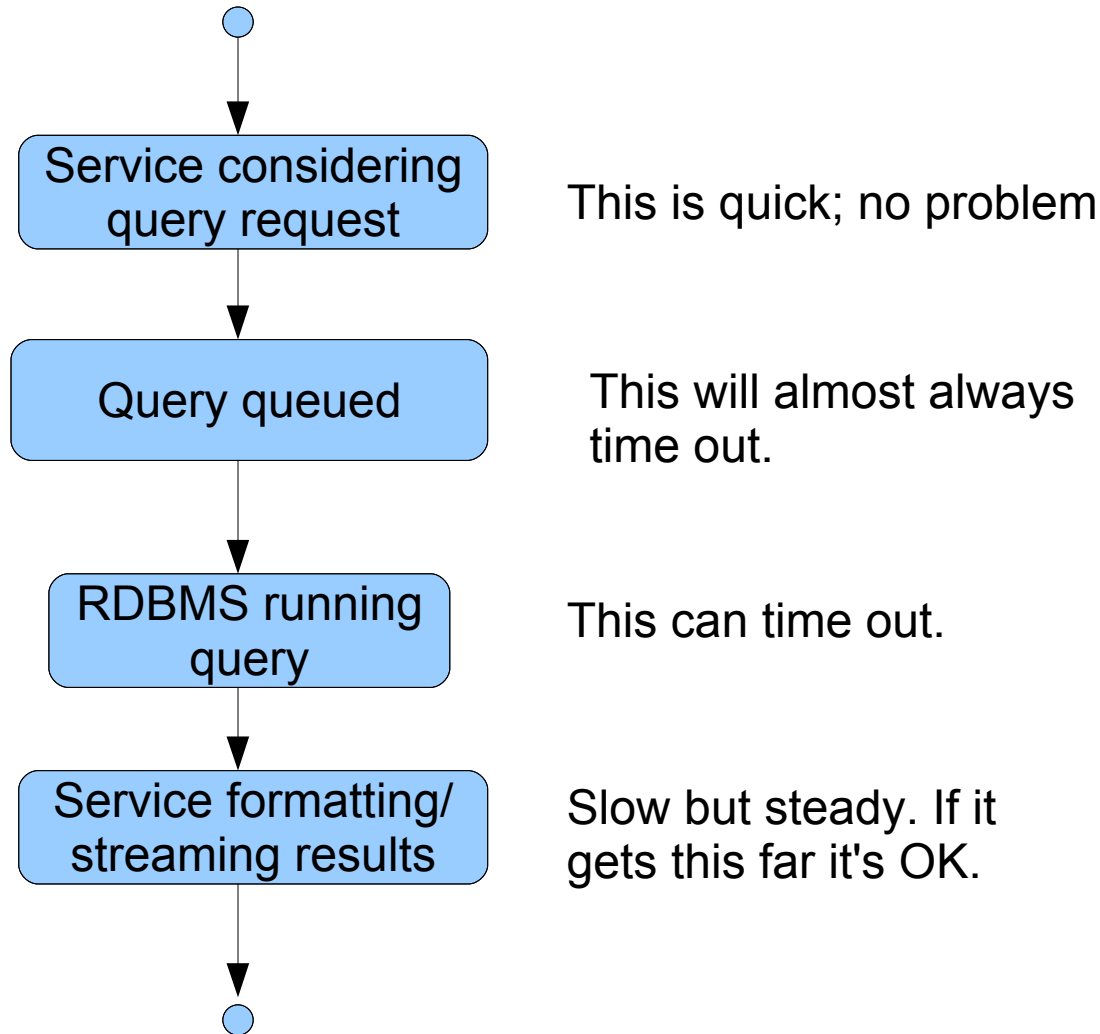
Synchronous query sequence (1)



Synchronous query sequence (2)



Synchronous query sequence (3)

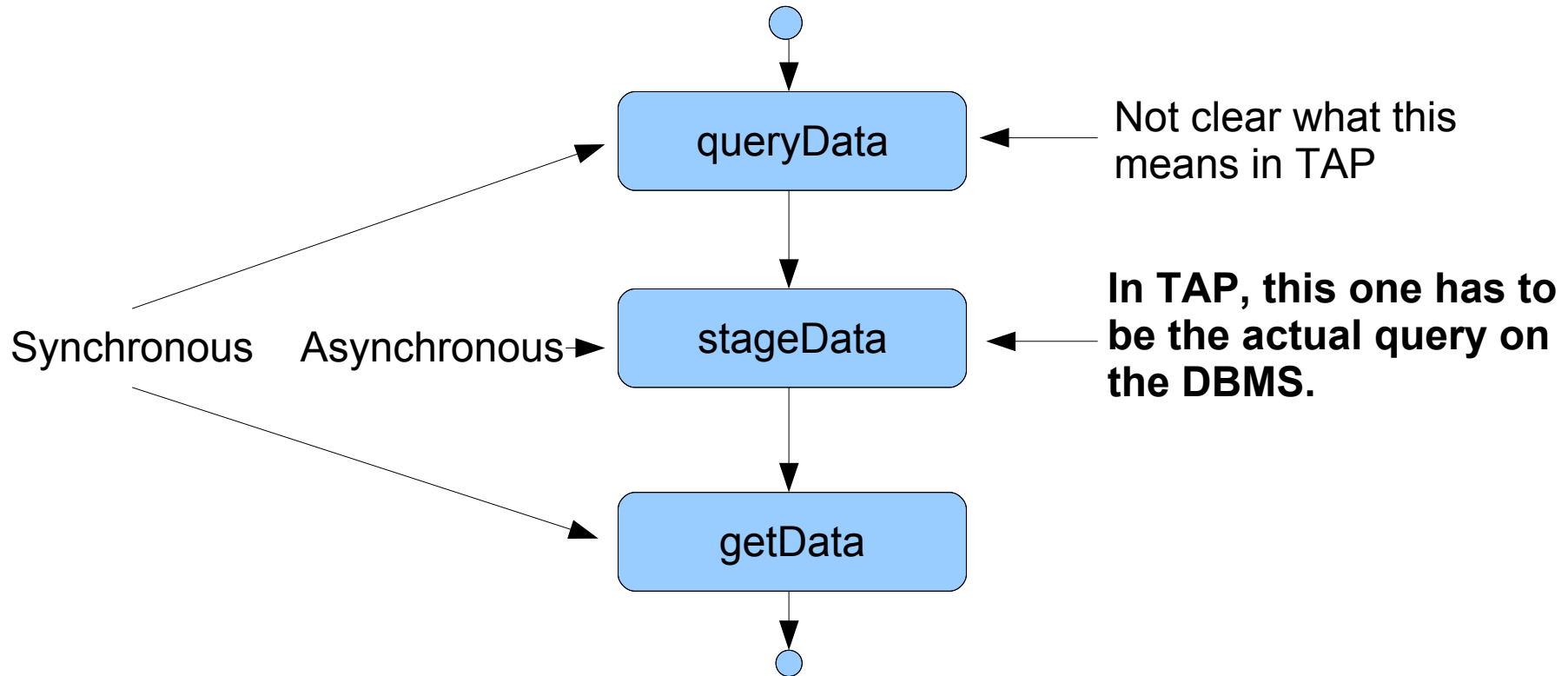


Asynchronicity by default

- Unless your service:
 - refrains from queuing;
 - has a DBMS with bounded query times;
 - starts streaming as soon as the DBMS returns;
- it *will* time out on queries sometimes...
- ...and it will be very hard to predict when.
- If you care about this, ***queries should be asynchronous by default.***

queryData/stageData

- DAL 2nd generation, standard operations:



- Not a natural fit to what TAP does.

Suggestions (1)

- Support at most three query modes:
 - simple/parametric, synchronous
 - complete/ADQL, synchronous
 - complete/ADQL, asynchronous
- This one makes no sense, so don't bother:
 - simple/parametric, asynchronous
- Complete/ADQL, synchronous is flaky, so only use it interactively when a human can handle the errors.

Suggestions (2)

- The queryData/stageData/getData names are confusing w.r.t TAP, so best not to use them...
- ...but if you must:
 - queryData gets the table/column metadata; does *not* do the main query on the data tables
 - stageData does the ADQL, asynchronous query
 - getData does the parametric, synchronous query *and* the ADQL, synchronous query:
 - <http://foo.bar.baz/whatever/getData?POS=...>
 - <http://foo.bar.baz/whatever/getData?ADQL=...>

Suggestions (3)

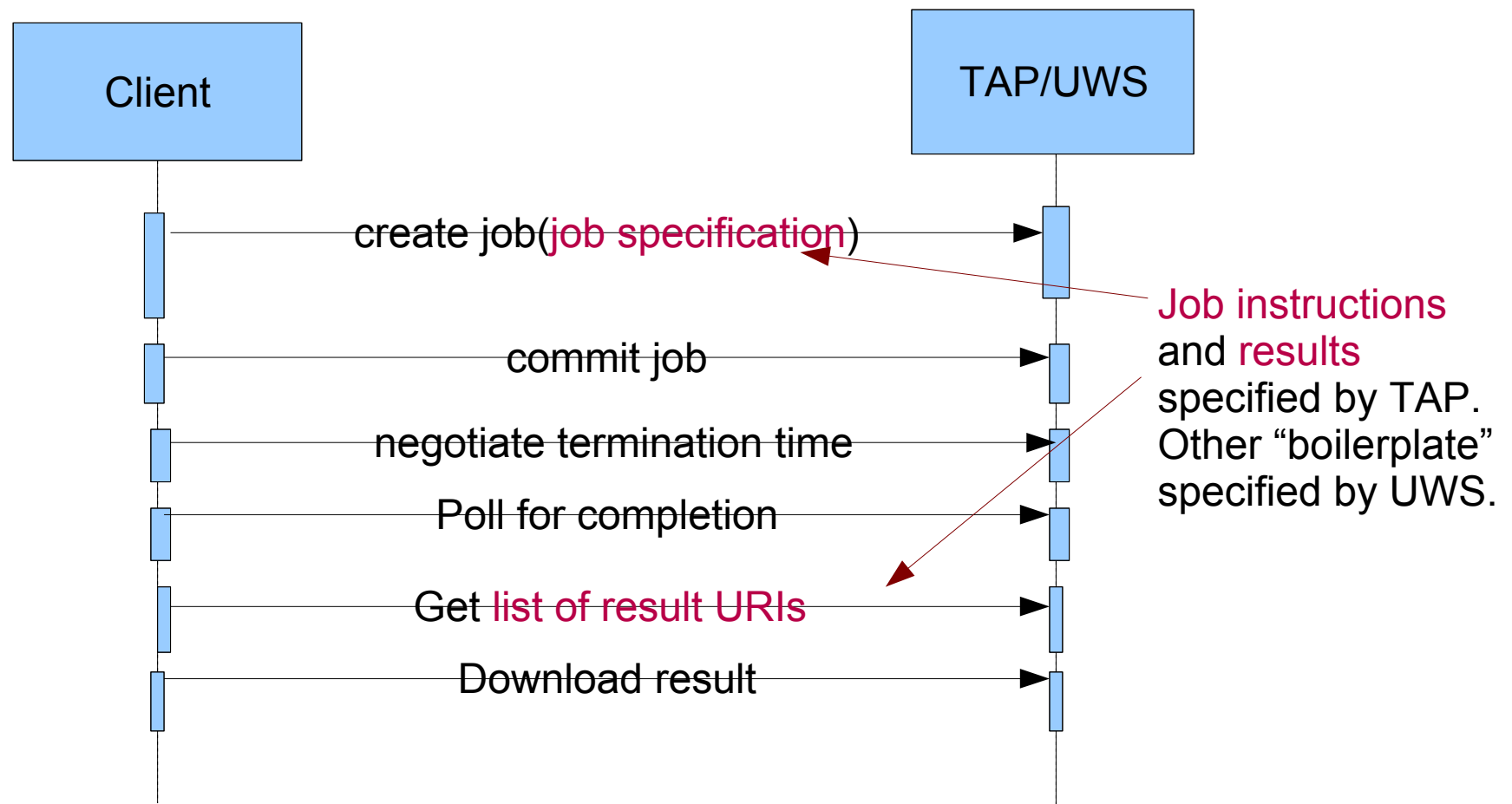
- Use the REST binding of UWS for the asynchronous query
 - IVOA standard
 - Complete standard – all bells, whistles supplied
 - RESTful, not SOAPy
 - Same boilerplate as S*AP 2nd gen
 - Manages stuff cached on server
 - Little code needed to implement
 - You can drive it from a web browser (or *curl*, or...)

What is UWS?

- A pattern for controlling asynchronous jobs
 - Post instructions to UWS to create a **job**
 - Review **quoted completion time**; commit job to execution
 - Poll **phase** of job until “COMPLETED”
 - **Results** cached on a server; client downloads later
 - **Termination time** for results negotiable
 - Delete job when results fetched...
 - ...or just abandon it and let it time out.
- <http://www.ivoa.net/internal/IVOA/IvoaGridAndWebServices/UWS-0.3.pdf>

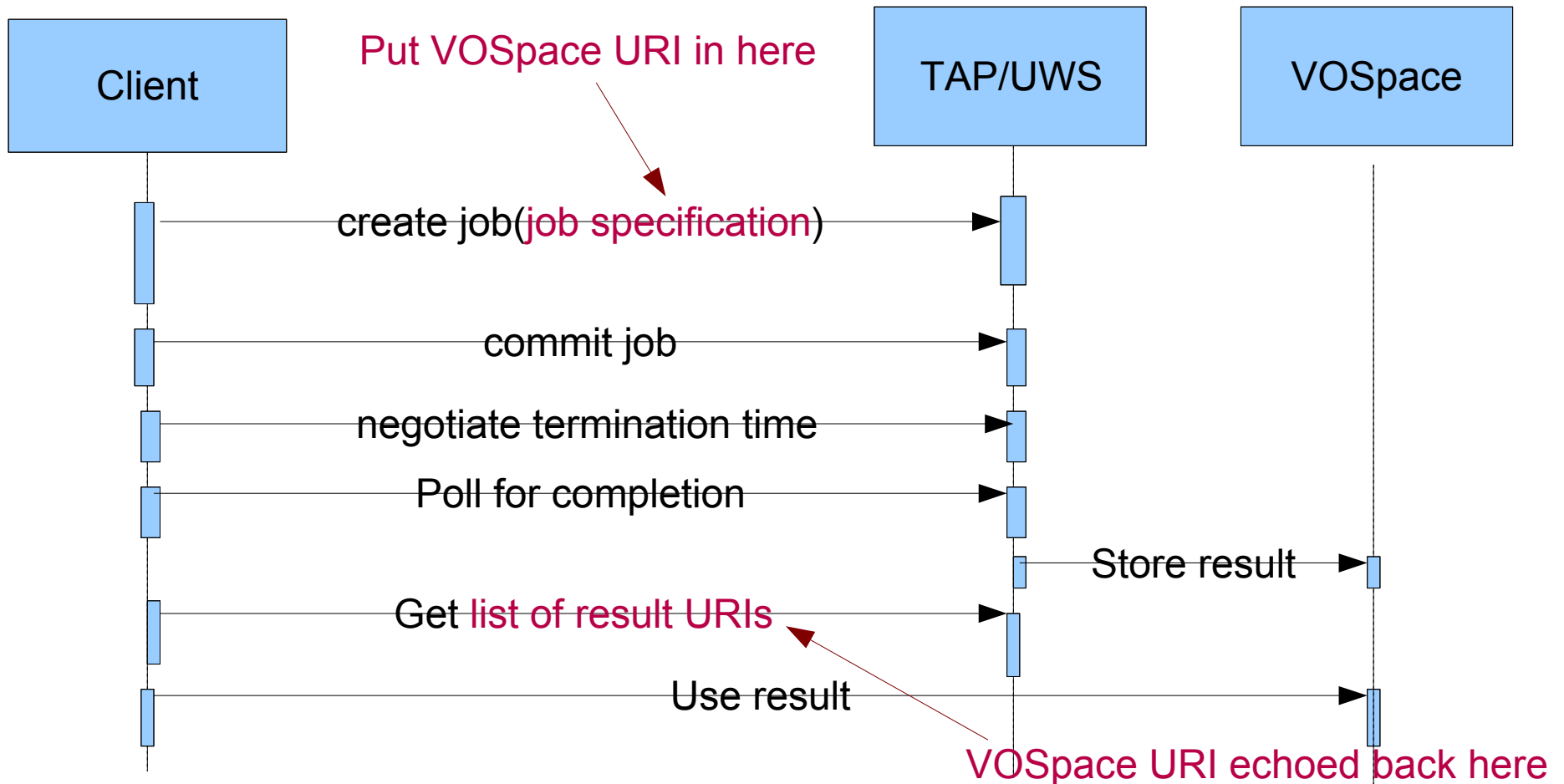
Applying the UWS pattern

- UWS pattern + application = service protocol



Staging to VOSpace

- Nearly the same as staging inside TAP



Further reading

- UWS v0.3:
 - <http://www.ivoa.net/internal/IVOA/IvoaGridAndWebServices/UWS-0.3.pdf>
- Demo of UWS:
 - Come to GWS session 3, Friday; or
 - Ask me for a private showing