NED Resolver TOPCAT Plug-in and AGN Candidates

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Motivation

- New detectors enhance our understanding of the universe...
    - New phenomena, new sources...
- Theories predict the existence of new phenomena, and sources...
    - → Observational Verification
- VO can help us to make observational strategies.
- Synergies of VO and other databases

Screen Shot
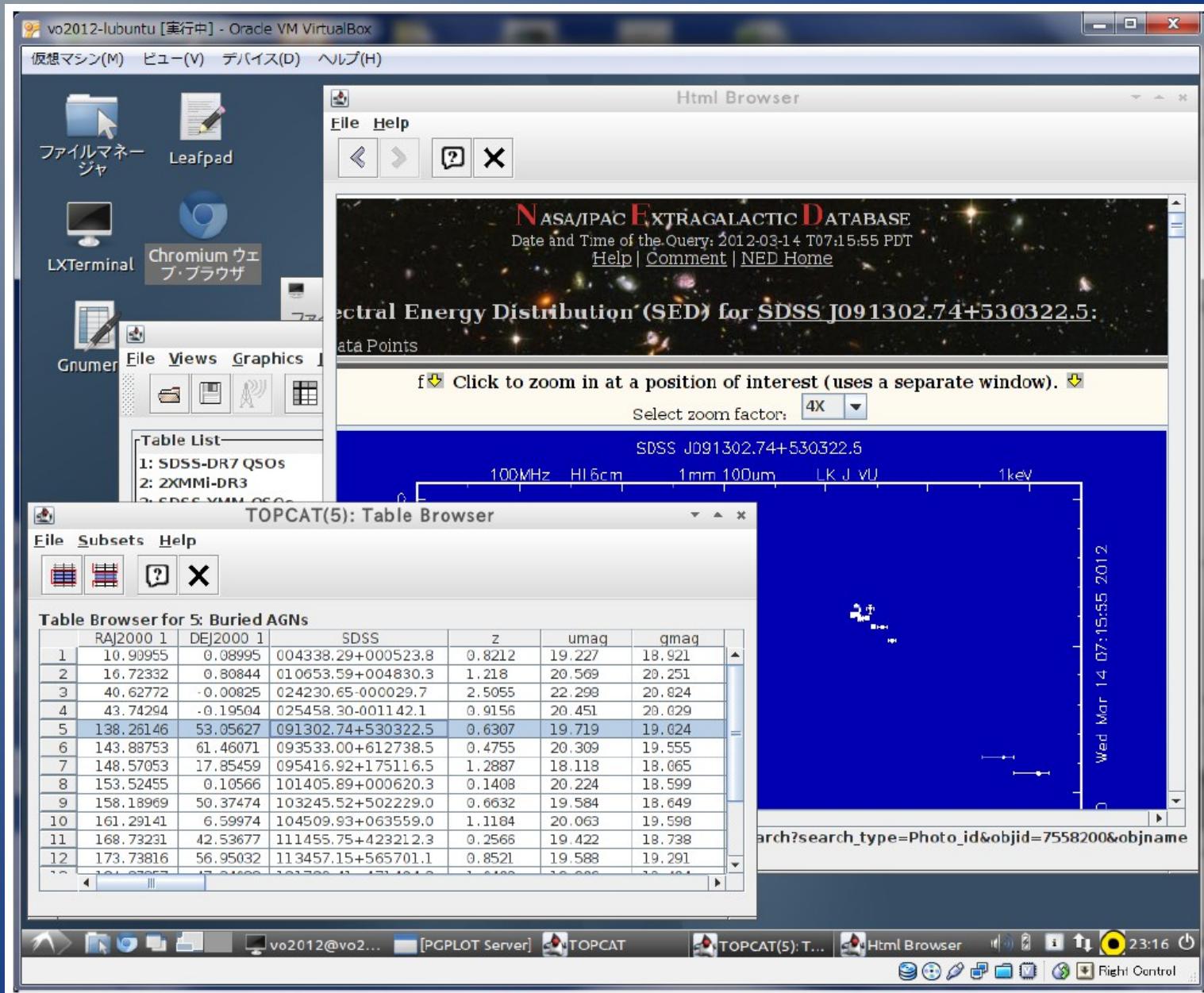
NED Search Interface

- ## The NED FAQ page
    - http://ned.ipac.caltech.edu/help/faq1.html#1e
- ## ConeSearch-like query language

http://nedwww.ipac.caltech.edu/cgi-bin/nph-objsearch?

search_type=Near+Position+Search&in_csys=Equatorial&in_equinox=J2000.0&

lon=233.73798d&lat=23.50319d&radius=1.0&

out_csys=Equatorial&out_equinox=J2000.0&of=ascii_tab

- center position : (R.A., Dec.) = (233.73798, 23.50319)
- radius : 1.0 arcmin
- output format : space separated ascii table

*VOTable format is also available : of=xml_main*

Implementation of the Plug-in

- Implemented as a user defined function

  http://www.star.bris.ac.uk/~mbt/topcat/sun253/jelExtend.html

  - input : R.A., Dec., radius
  - output : String (access URL)
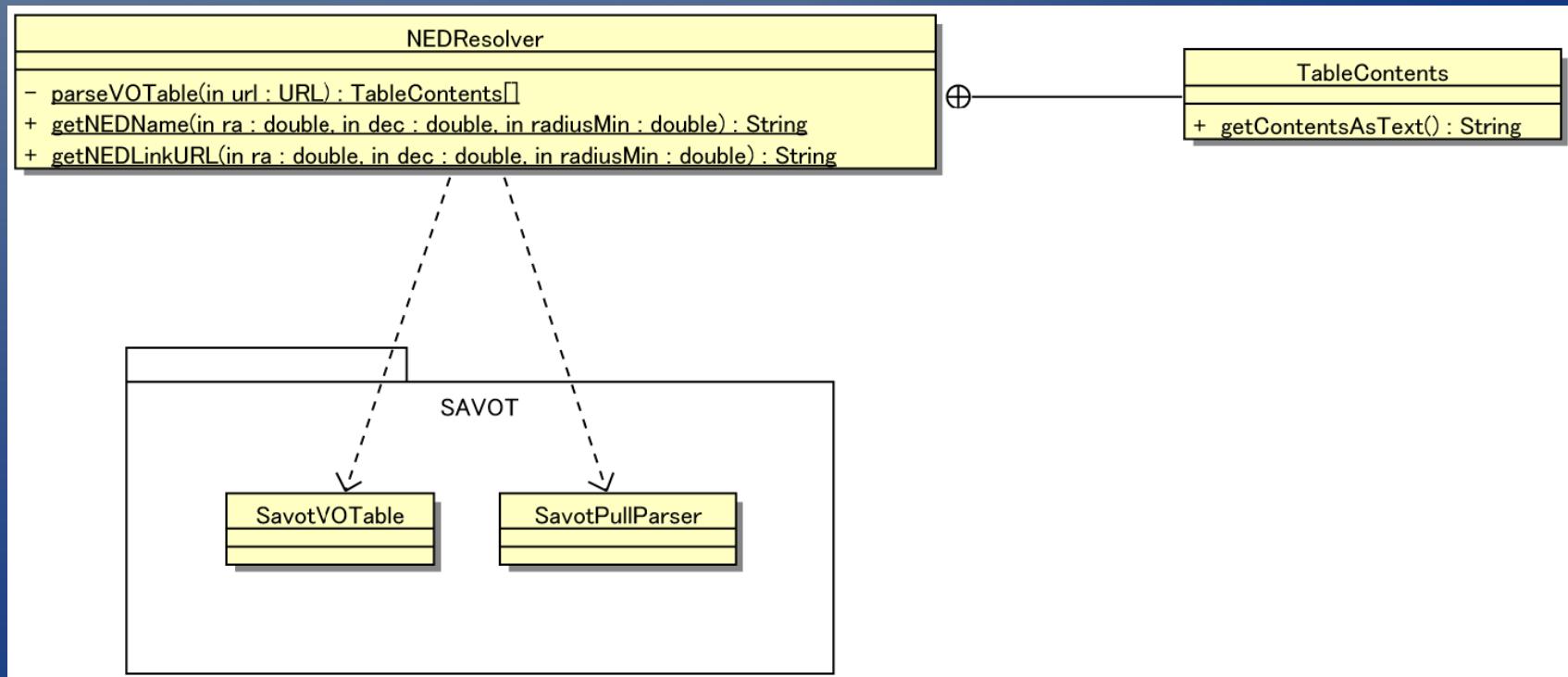
Demo / Note

- TOPCAT seems to evaluate each cell every time the GUI draw events are issued...

  - Very slow response

  - Once I save all the session to a file and restart TOPCAT, everything goes fine!

Use Case – Follow-up Observations

- A theory predicts that each galaxy experiences a heavily obscured AGN phase in the early stage of their growth. (Hopkins+ 2005)

- Heavily obscured AGNs are only observable in the >10 keV band due to the strong photo-electric absorptions.

- Hypothesis: absorbed photons can be reradiated in infrared bands.

Strategy

- Search for candidates in SDSS and XMM catalogs on VO

- Check the SED of each candidate
    - NED provides useful information for this purpose.

Demo 2
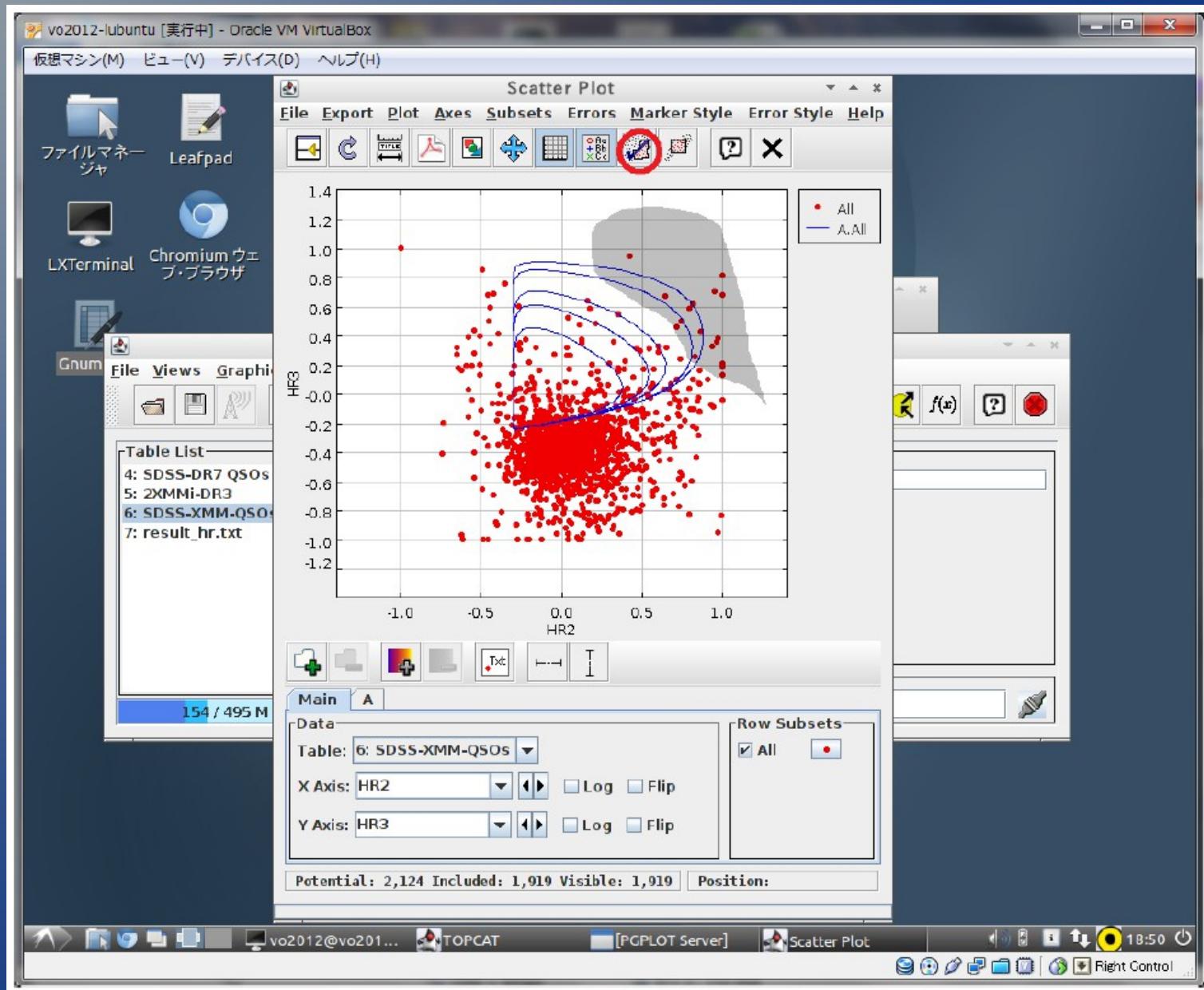
Conclusion

- Seamless connections between VO and external databases via web browsers are surprisingly useful in some cases.