Elevator pitch

- A lightweight sky atlas running in the browser
- Easily embeddable on a web page
- No plugin, no installation required (based on HTML5 canvas)
- Run on any device (desktops, tablets)
Features

- Visualization of any region of the sky
  - available surveys include: DSS, 2MASS, SDSS, GALEX, IRAS, XMM-Newton, etc
  - multi-resolution, HEALPix-tesselated
  - with some interactivity: panning, zooming in and out
- Overlay some VOTables
- Overlay some STC-S footprints
- Lightweight: 72 kBytes +90 kB jQuery (25kB+32 kB if gzipped)
- Will replace the Aladin applet in the medium term
Demonstration

Aladin Lite
A lightweight sky atlas running in the browser

Overview

Aladin lite is a lightweight version of the Aladin tool, running in the browser and geared towards simple visualization of a sky region.

It allows one to visualize image surveys (JPEG multi-resolution HEALPix all-sky surveys) and superimpose tabular (VOTable) and footprints (STC-S) data.

Aladin lite is powered by the HTML5 canvas technology, currently supported by any modern browser.

Aladin lite is easily embeddable on any web page and can also be controlled through a Javascript API.

It is dedicated to replace the Aladin Java applet technology in the medium term.
Aladin Lite API

- API to control Aladin Lite
  - allows one to develop advanced interactions between a web page and Aladin Lite
  
- Available methods:
  - `setImageSurvey`: set the background image survey
  - `setZoom`: set the zoom level
  - `gotoPosition/gotoObject`: point to the given location/object
  - `createCatalogFromVOTable/addCatalog`: parse a VOTable and add it to the current view
  - `createFootprintFromSTCS/addOverlay`: parse and visualize a STC-S footprint
Some canvas performance tricks

- minimize state changes, minimize strokes
- cache frequently-drawn paths as images
- use stacked canvases for multiple layers
- avoid unnecessary redraws
Limitations

- HEALPix javascript library is currently limited to NSIDE=8192
  - Javascript integer limitation: $\text{Math.pow}(2, 53) = \text{Math.pow}(2, 53)+1$

- Canvas performances
  - different performances across browsers/machines
  - random freezes or crashes on some configurations :-(
    - difficult to reproduce/debug

- Graphical overlays (sources, footprints) stored in memory

- VOTable parsing done client-side, but we need a proxy because of cross-domain limitations
  - should IVOA encourage usage of CORS
    - (Cross Origin Resource Sharing: http://www.w3.org/TR/cors/)?
Conclusion

- First version available at http://aladin.u-strasbg.fr/AladinLite/
- Room for improvement: feedback and suggestions welcome
- Next steps:
  - Refine and extend API (enable objects/footprints selection)
  - Improve handling of touch devices
  - Improve overall performances
  - Integrate Web SAMP
  - Investigate usage of HTML5 local storage