WebApollo

extending JBrowse to support DAS

&

genomic annotation editing

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Main Goal of WebApollo

Provide an interactive visual editor for genome annotation and curation, that anyone can use via a standard web browser

Build on existing infrastructure

- **For front end start with current version of JBrowse (AJAX-based genome browser)**
- **Port visual editing features of Apollo (Java-based genome curation tool) to JBrowse**
- **For access to non-editable annotations, do whatever it takes to enable WebApollo to access as many types of genomic data as efficiently as possible (DAS?)**
- **Data access implementations and ideas from Integrated Genome Browser (IGB) and Trellis DAS framework**
- **For back end to editable annotations and curations, start with current Apollo backends (mostly GMOD Chado databases)**
- **Evolve later to allow more back end flexibility (DAS writeback?)**

JBrowse

- Mitch Skinner & Ian Holmes, UC Berkeley
- JavaScript Genome Browser
- Version 1.2 just released
- CSS & DIV based rendering for interval data
- Tiled Images for quantitative data
- Nested Containment Lists for speedy interval queries
- jbrowse.org
- WebApollo uses and extends Jbrowse code base

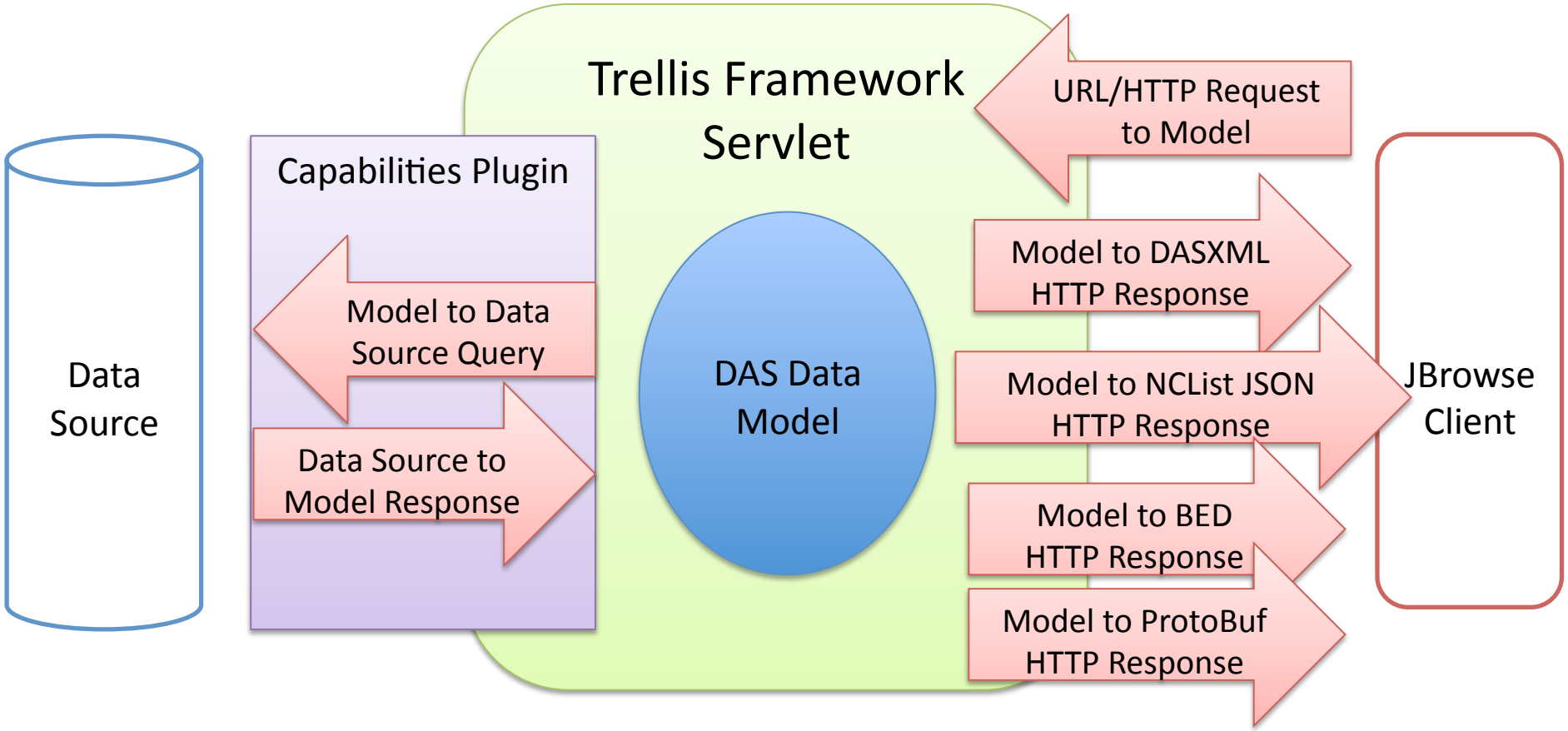
Apollo

- Suzi Lewis, Nomi Harris, Ed Lee, etc., LBNL
- Desktop Genome Annotation Editor
- Implemented in Java
- GMOD Chado database back end
- WebApollo using revised back end GBOL (Java model of Chado schema)

Whatever it takes to enable WebApollo to access as many types of genomic data as possible

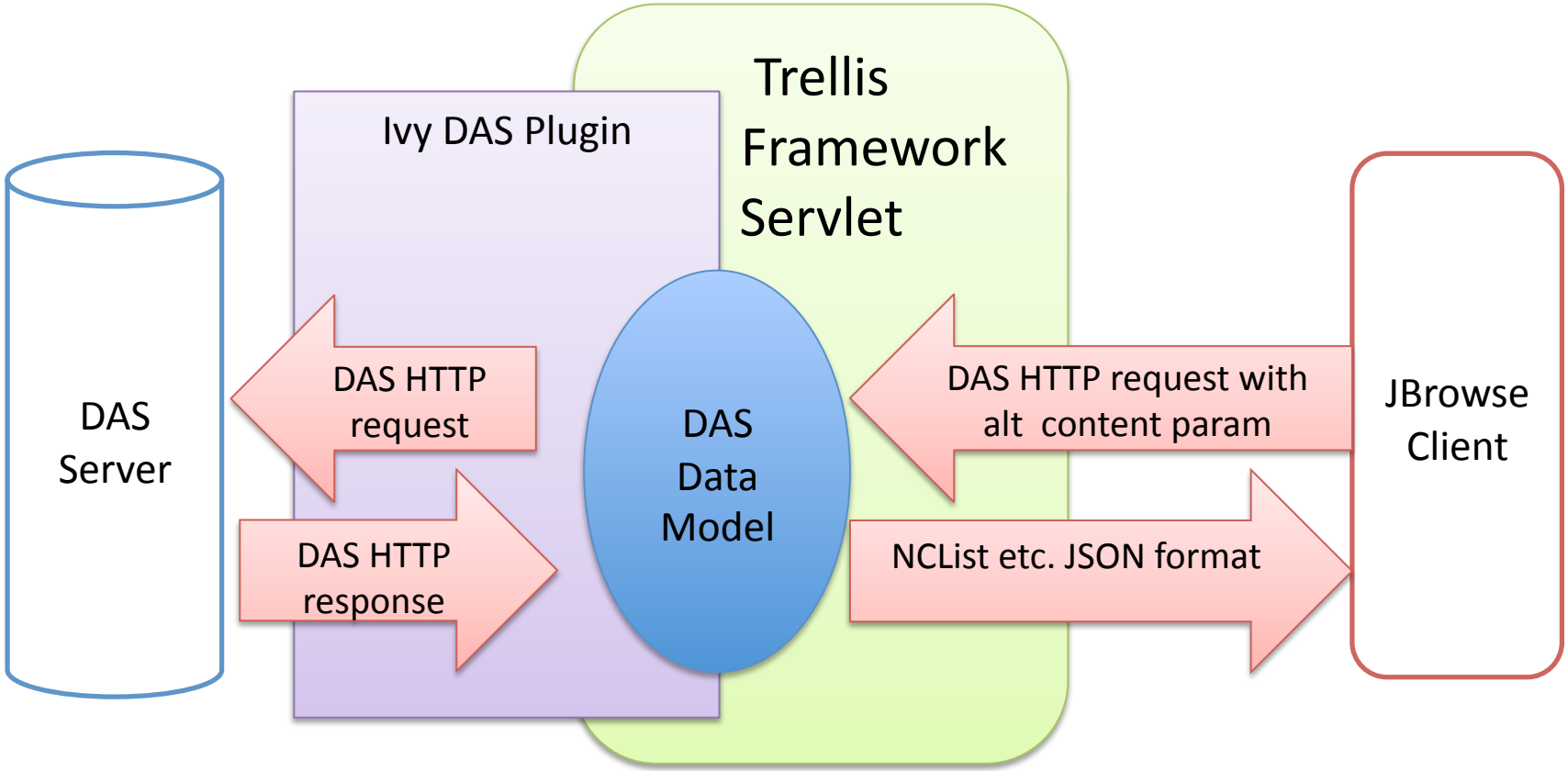
- More practically, efficient access to public data from UCSC, Ensembl, and GMOD Chado databases
- Unified strategy like DAS is preferred
- Leverage efficient JBrowse JSON data formats and nested containment lists
- Solution: Trellis, a modular DAS2 server that supports alternative content formats
- Trellis plugins to proxy for other DAS servers
- Poka Trellis plugin for direct UCSC database access

Alternative Content Format Support (Format Injection)

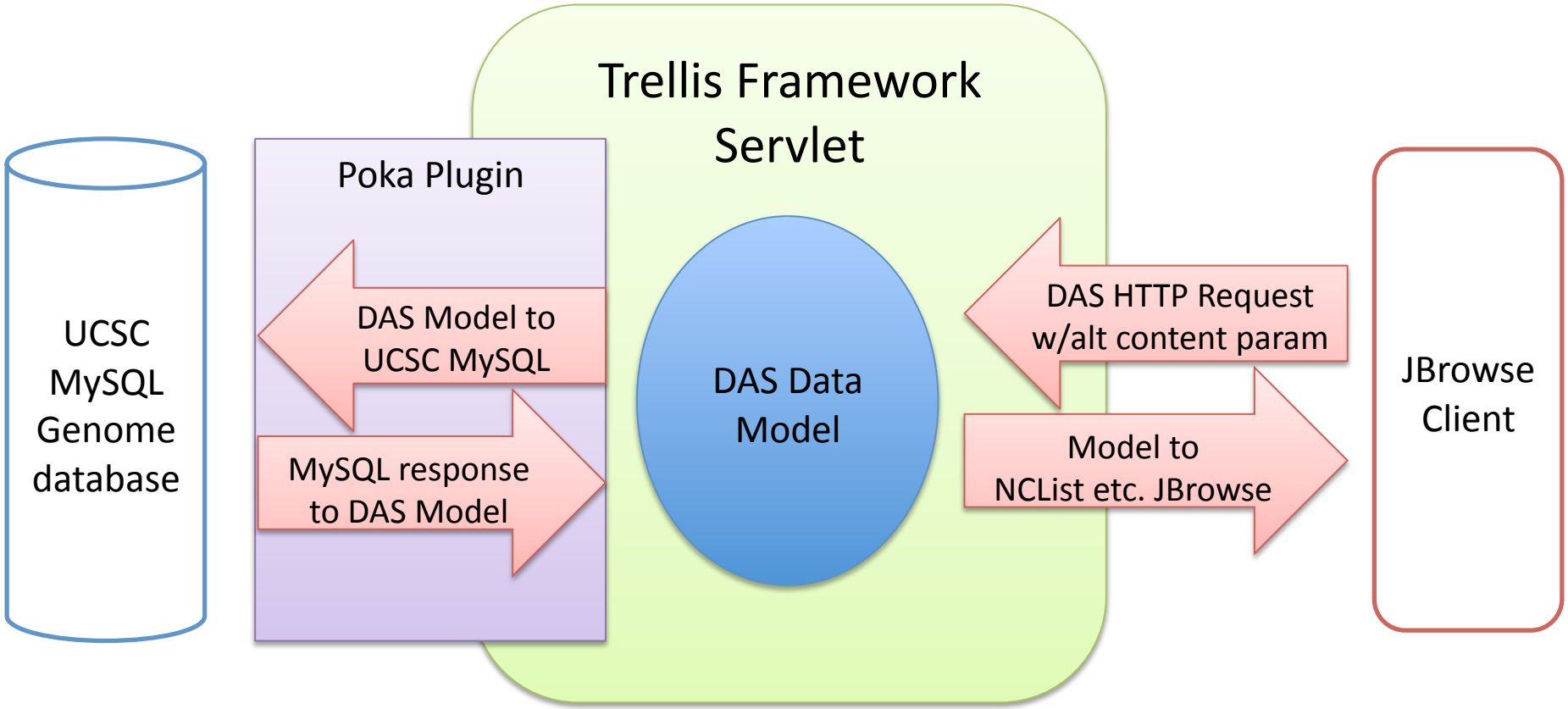


DAS → JBrowse Proxy

Ivy Plugin + Trellis + Format Injection



UCSC → JBrowse Proxy
Poka plugin + Trellis + format injection



WebApollo Demo

WebApollo Demo2

- All open source
- Client Code on GitHub: berkeleybop/jbrowse
- Server Code all over the place
  - Trellis: http://code.google.com/p/genomancer/
  - GBOL: http://code.google.com/p/gbol/
  - WebApollo-specific server bits:
    - http://code.google.com/p/apollo-web/
  - Etc.