DAS Writeback

Creating an interface for a Collaborative Protein Annotation System

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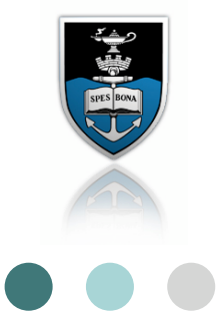

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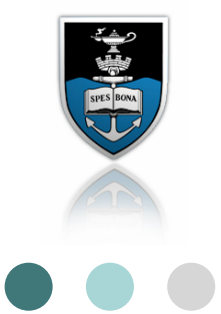


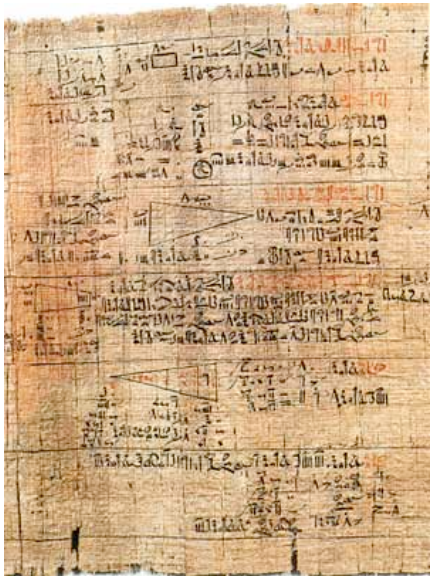
1. Background

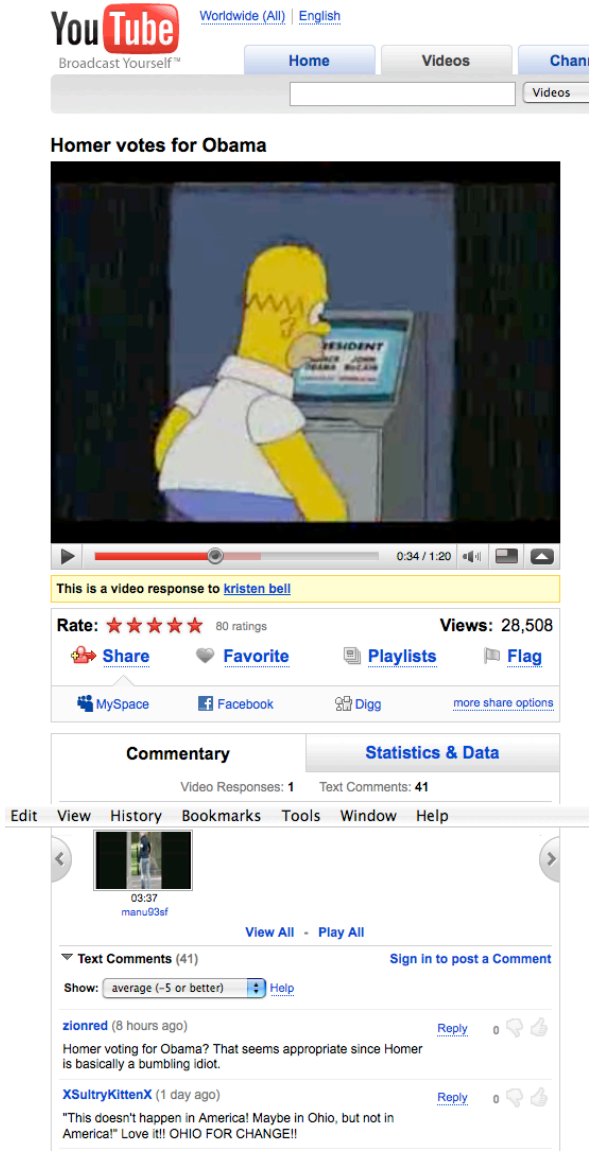
- Annotation:
  - *"A note added as an explanation especially of some literary work"*
  - Since ancient words:
    - Gloss
      - *Short explanation in the margin*
    - Scholium
      - *A commentary specially on a classic text*
    - *Postil*
      - *A commentary or marginal note, as in a Bible*

Agosti M. et al. A historical and contemporary study on annotations to derive key features for systems design, Springer, 2007

1. Background

- Annotations





1. Background

- Annotations:
  - In order to have the whole picture of what is an annotation, a formal model involves concepts as:
    - Document
    - Type
    - Meaning
    - Time
    - Author
    - Permissions
    - Scope
  - Current Research efforts about annotation are focus in standardize annotations for Digital libraries

*Agosti M. Ferro N., **A formal model of annotations of digital content**, ACM Trans Inf Syst, 2007;26(1):3.*

1. Background

- Distributed Annotation System
  - The Distributed Annotation System (DAS) defines a communication **protocol** used to exchange biological annotations
  - DAS allows sequence annotations to be **decentralized** among multiple third-party annotators and integrated on an as-needed basis by client-side software.
  - DAS provides a simple convention to encode a DNA or protein sequence and its annotated features into simple **XML documents** that are exchanged via the Internet (http://www.biodas.org)

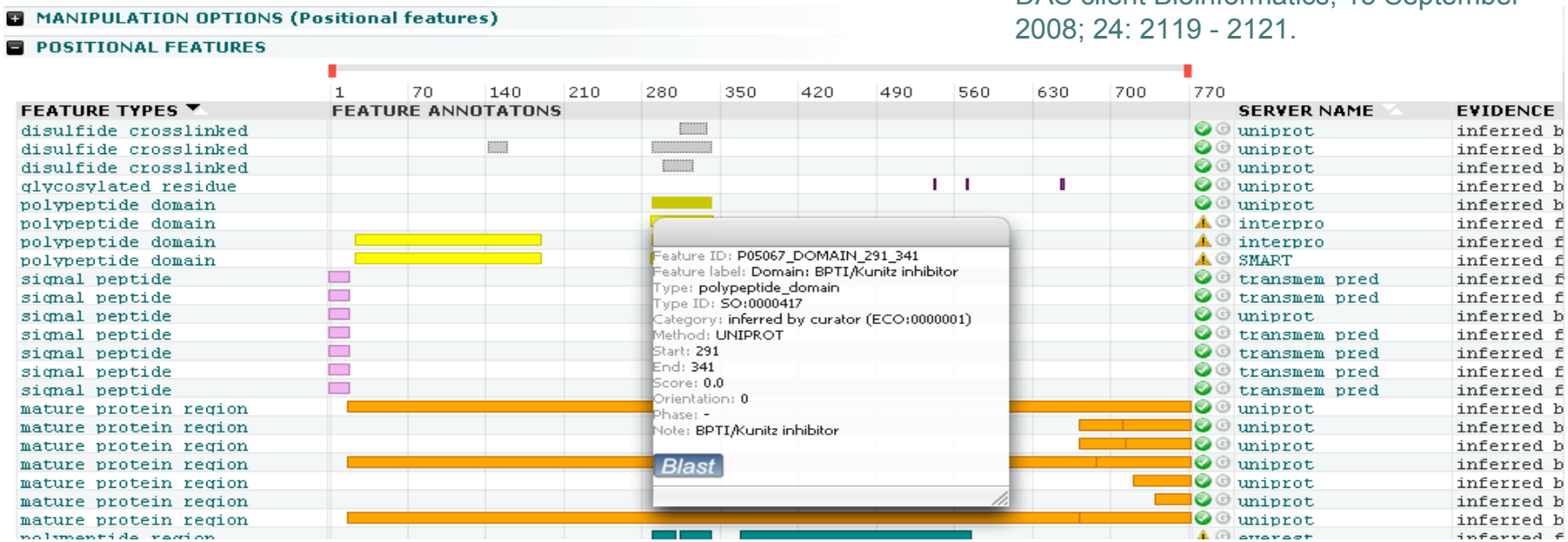
Dowel,R.D. *et al*. (2001) The distributted annotation system, *BMC Bioinformatics*, 2, 7.

Prlic A. *et al*. (2005) Adding some SPICE to DAS, *Bioinformatics,* 2, 21

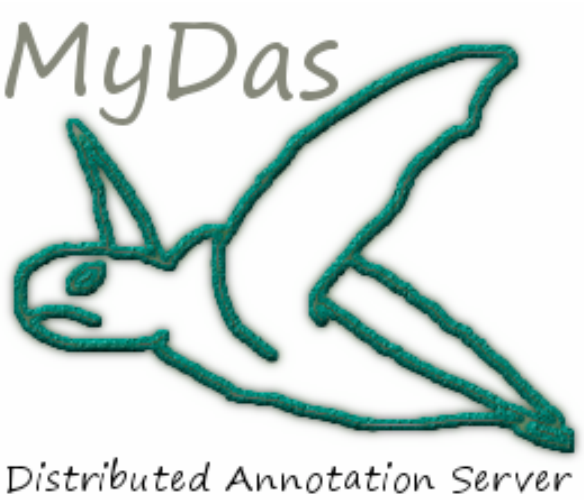
1. Background

- Dasty2
  - It is an Ajax web-based protein DAS client (asynchronous loading + local caching).
  - Lightweight.
- Highly customizable
  - User
  - Developer
- Easy to integrate in other systems.
- Extensible.

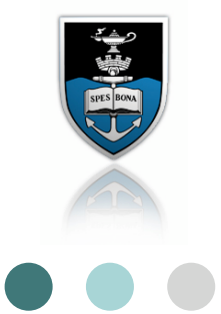
Jimenez R., et al., Dasty2, an Ajax protein DAS client Bioinformatics, 15 September 2008; 24: 2119 - 2121.



1. Background



- MyDAS
  - Java DAS Servlet
  - Generic server. The user develop the data source in a free way as soon as he implements the right interface
  - Implements DAS 1.53



1. Background

- Current DAS writeback
  - DAS 2.0 Protocol
    - One of the goals in the creation of the new version of the protocol was the writeback as a facility that allows DAS2 clients to publish data directly to DAS2 Servers
    - The writeback part of the DAS/2 specification was released as a beta version in November 2006. However, it has not been completely implemented yet.

DAS/2 Final Progress Report, August 2008.

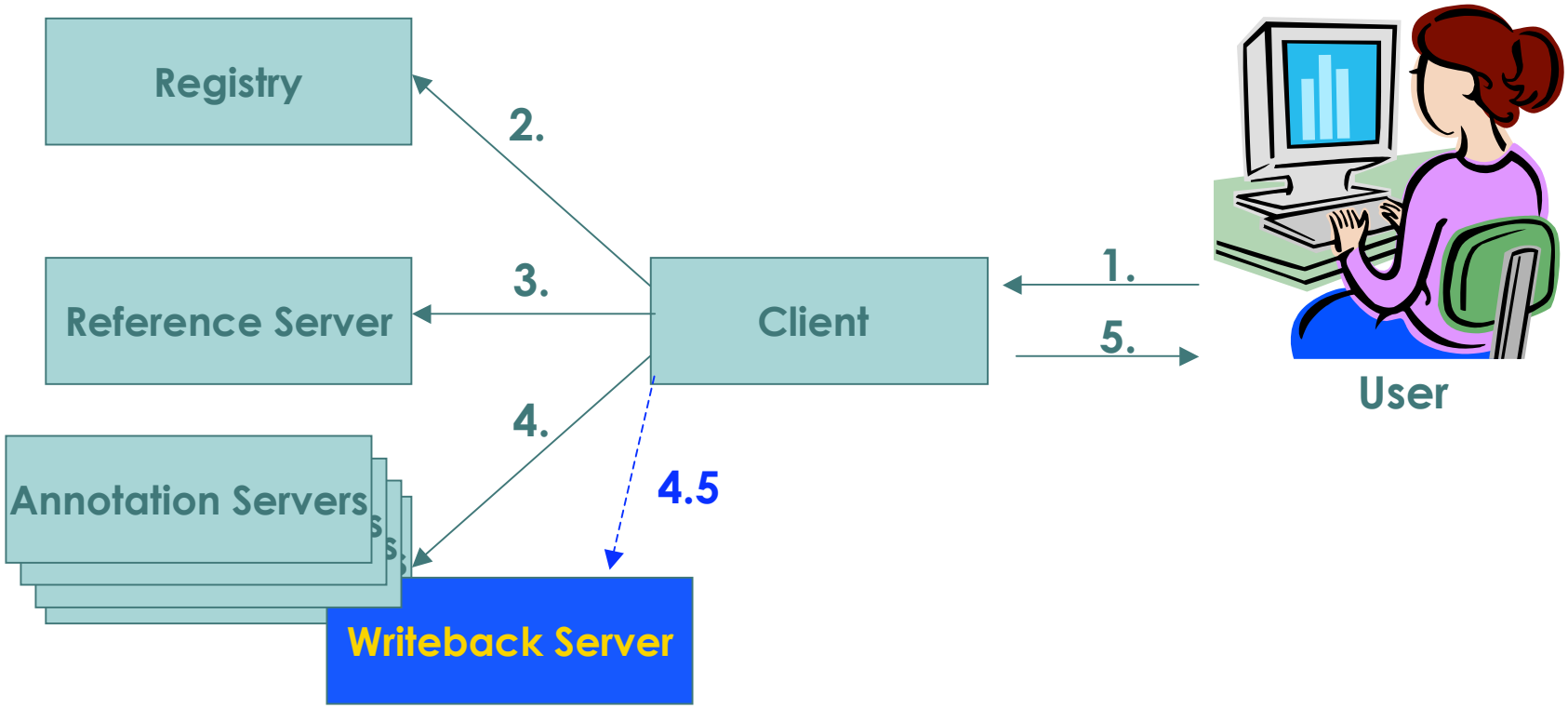
1. Background

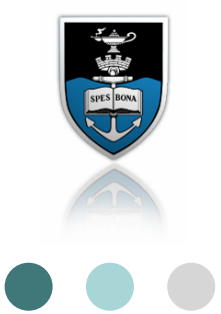
- Current DAS writeback
  - DAS writeback implementation
    - Grzibovska A. in her MSC theses develop an implementation of the protocol using servlets and JSP, however is **not integrated with none of the DAS clients**.
    - The application works **independently** and receive commands from other application as the case of the Dazzle server.
    - The writeback document used in this implementation has small **differences** with the final protocol

Grzibovska A., Prlic A., DAS2 writeback server implementation, Thesis for the Masters Degree in Bioinformatics, Chalmers University of Technology, Sweden, 2008

2. Progress

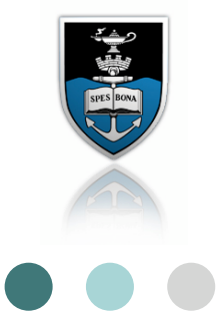
- Design





2. Progress (Design)

- Advantages of an independent features/writeback server:
  - The annotation servers are still in total **control of their owners**.
  - The writeback information is completely **optional** for the clients and/or users
  - The features can be recovery in the **DAS format**, so no necessary extra development to parse the in formation in the clients.
  - The writeback server has control to define the **authorization policies** to add new data.

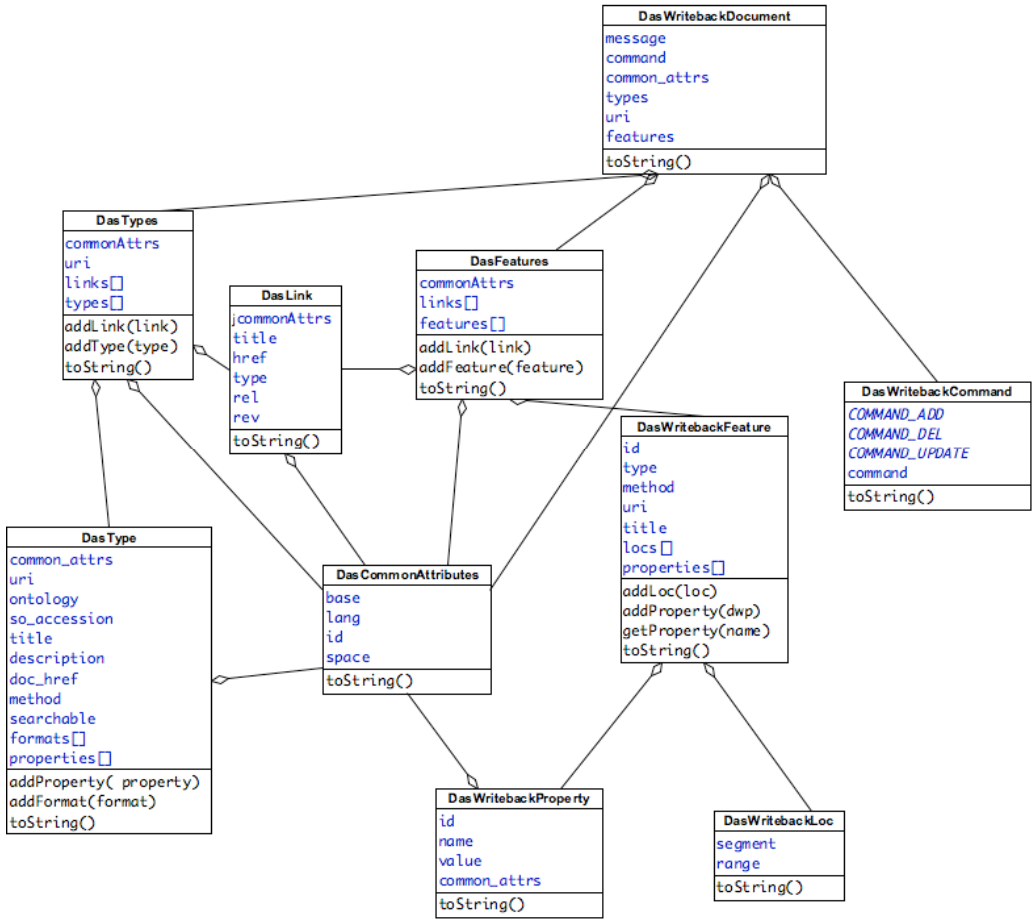


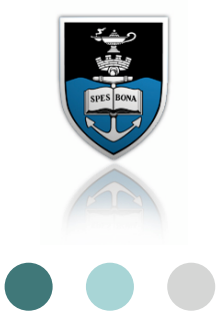
2. Progress (Design)

- Client
  - Should **redraw** the graph of features with the information that comes from the WB server.
  - Should provide methods to built the writeback document on a **user friendly interface**. The user should not required to know about this document.
  - The user can choose to use or **ignore** the information of the WB server.
  - The types and categories of a new annotation should be chosen from the **ontologies**.

2. Progress

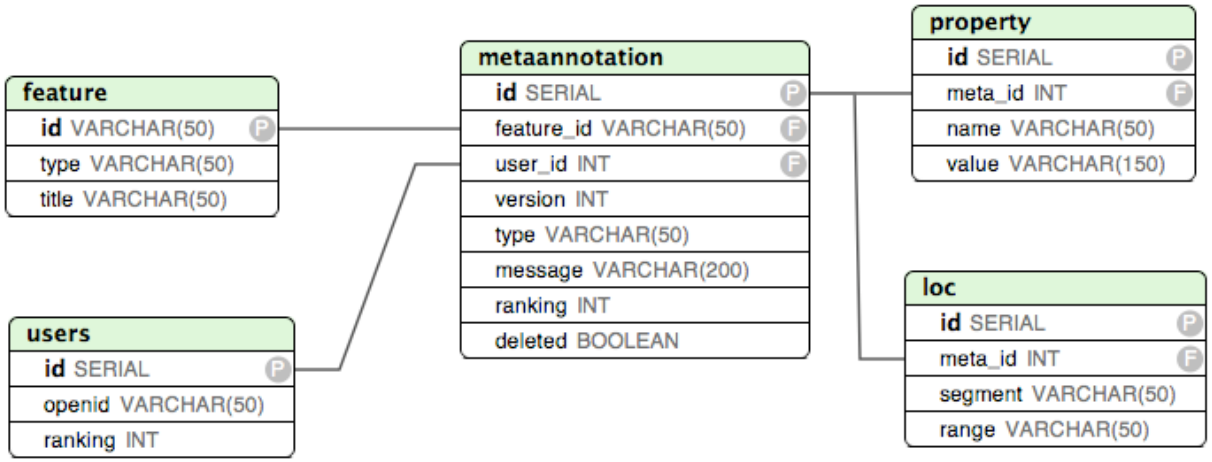
- MyDAS extension - Classes added to the model.





2. Progress

- MyDAS extension - Control - writeback commands
- MyDAS extension - Writeback Source definition

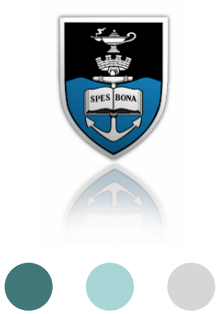


2. Progress

- DEMO

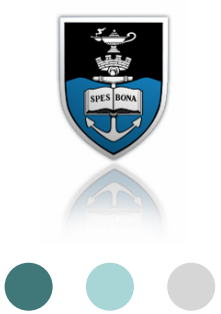
3. Short-term plan

- Extend Dasty2 to display the writeback information as an extra layer and not as different tracks.
- Extend Dasty2 to allow the user feed the writeback from an user oriented Interface.
- Define trustworthy policies for the system.
- Document both client and servers extensions.
- Write my theses document and a paper.



4. Future work

- Extend the karyotype DAS client in order to support the writeback features.
- Define more advance trustworthy policies for the system.
- Writeback version for a DAS2.0 server



5. Acknowledges

- Supervisors
  - Professor Edwin Blake
  - Doctor Nicola Mulder
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- Dasty2
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  - Fernando Martinez
- All the people of the DAS email list

Questions??