# EPICS Office
## Current Status

Matthias Clausen
DESY

# EPICS Office and EPICS –V4


- The new EPICS Version will provide new features that must be supported also by the applications
- The existing applications (mainly written in X-Window) run (nearly) only on Unix machines.
- The existing applications are similar to the first set of Microsoft applications. They do not share a common look and feel.

# V4 – Executive Summary

(relevant to applications)


1. **Provide online add/delete of I/O to support continuous operation.**
2. **Provide redundant control of remote I/O to support improved reliability.**
3. **Provide name introspection and domain control in support of seamless integration of large control systems**
4. **Provide triggers, filters, and rate limits to improve resource use of network and client side processing**
5. **Provide atomic read/write of multiple fields in *a* record**
6. **Remove limitations on string lengths, device states, number of input links to support arbitrary sizes.**
7. **Record Library to provide pluggable functionality**
8. *Provide hierarchical devices to support higher level view of application in the front-end processors.*
9. *write with read-back*
10. *Provide channel access diagnostics*
11. Provide a Channel Access Server to Sequences and their diagnostic information
12. Revisit Database Library
13. Alternate protocols
14. Provide automatic backup and restore to support bump-less reboot and synchronization of redundant controllers.
15. Support international users with uni-code and time.

**Bold – Must do**, *italic – would like to do*, underline – someone else can do in parallel plain – lower priority/no effort

# Good reasons to think of a new set of applications


- The new EPICS version 4.0 will provide several new features in the IOC and in Channel Access. These will only be available if the clients get modified accordingly.
- Where are the experts supporting our (legacy) X-Window applicarions?
- The ‚individual' look and feel, - configuration, - data exchange and - runtime environment should be replaced by:
  - Common look and feel
  - Data exchange by objects and not only by name
  - Compile once run ‚in many places'
  - Common programming interfaces
  - Application style guides
  - Pluggable applications

# The selected Environment

Language:

- Java

Proposed development environment:

- Eclipse

Proposed Rich Client Platform:

- Eclipse

# Task list from last EPICS meeting Spring ‘2005


The proposed environment was well accepted

- The AWT/Swing versus SWT/Jface question was raised.

  (Does SWT limit the compile once run anywhere paradigm?)

  It shall be clarified and a performance test shall be carried out.
- Starting to collect requirements for the data access API in Eclipse

# Results

- Most of the feedback concerning the Eclipse approach is positive
- The gumtree project can be taken as a proof of principle for the EPICS Office idea.
  (more during the Eclipse workshop)
- The performance tests are available (since last night).
  - Variation of 2 to 4 in both directions depending on conditions
    (more to be published under http://epics-office.desy.de
- Collecting requirements is really a tough job. We need your help to be able to produce the software you need!
  *Otherwise we have to work the way we always did: We decide and you take it or leave it.*
  Let's try do change it – at least this time!

# Work in Progress (API)


- DESY contracted Cosylab to write the specification for the Eclipse data access API
- Cosylab is trying hard to collect requirements and to work with the EPICS core team.
- Design goal:
  - An API that covers 100% of the new (V4) data access functionality, optimized for process control and high level tuning/machine applications.
    (-> your requirements?)
  - An API that supports in addition:
    - EPICS V3
    - TANGO, TINE, … simulators

# Work in Progress
## Eclipse Environment

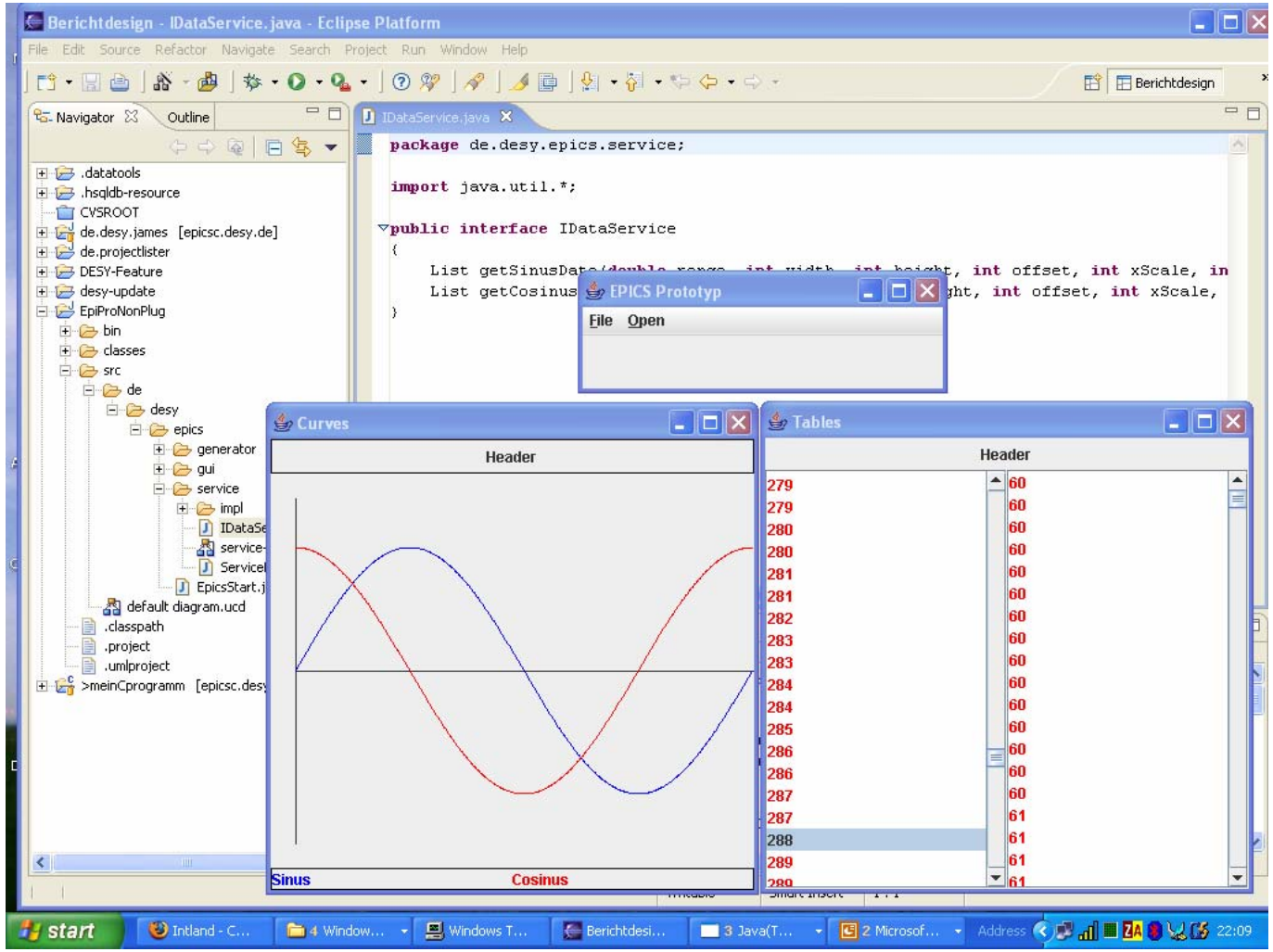

- C1-WPS (spin off from Hamburg University) contracted as consultant for Eclipse Framework
- Design goal:
  - Eclipse – EPICS-Office application wizard supporting:
    - specified API's **(data access**, name service, archive, error handling, messages… )
    - drag and drop
    - *record/playback*
  - Setup for a web based Eclipse update site (for plug-ins)

# Work in Progress
## Eclipse Environment

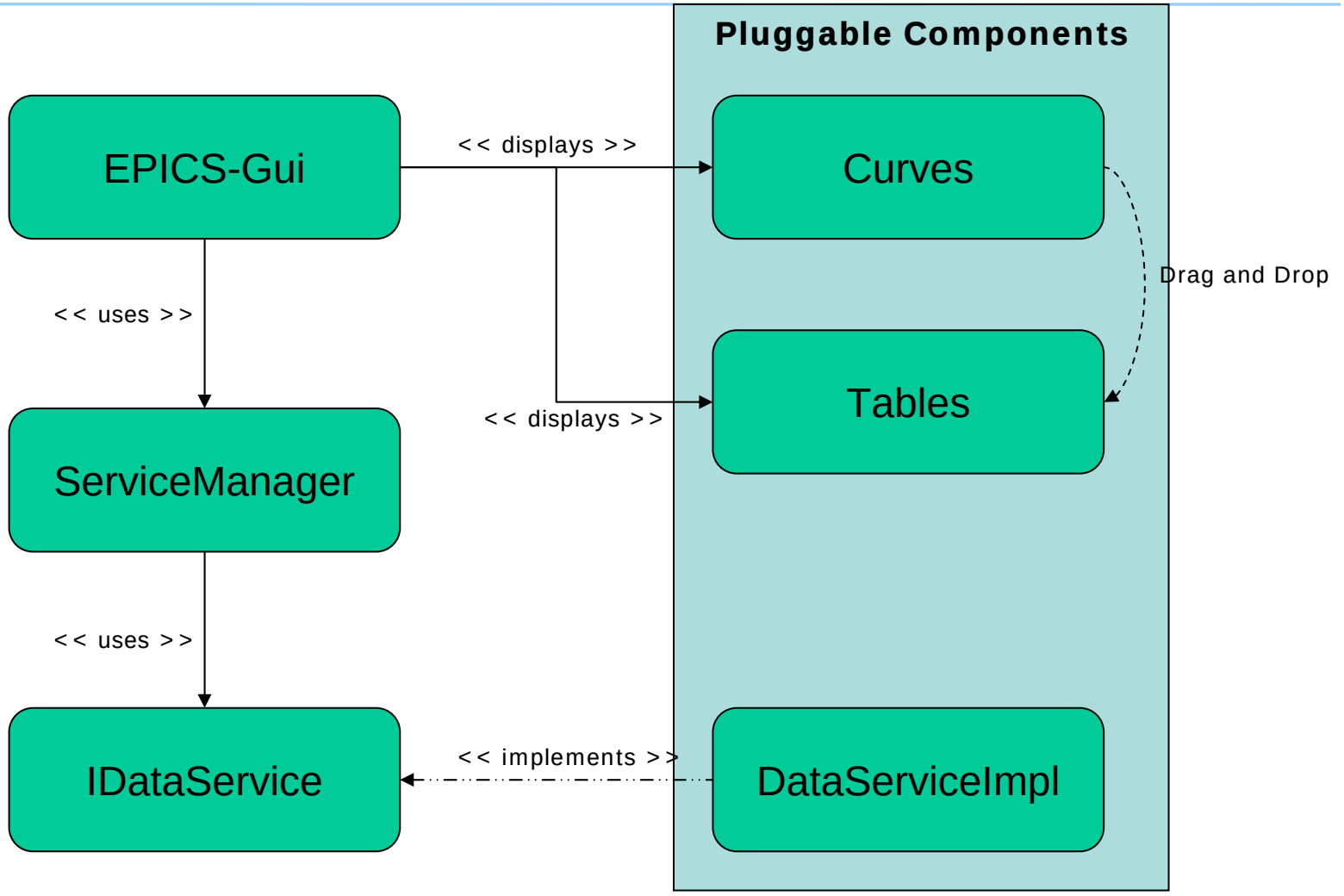

First drag and drop results.

- Dragging and dropping not only the (record) name but the access to the whole object

# Drag and Drop Example



# Architecture

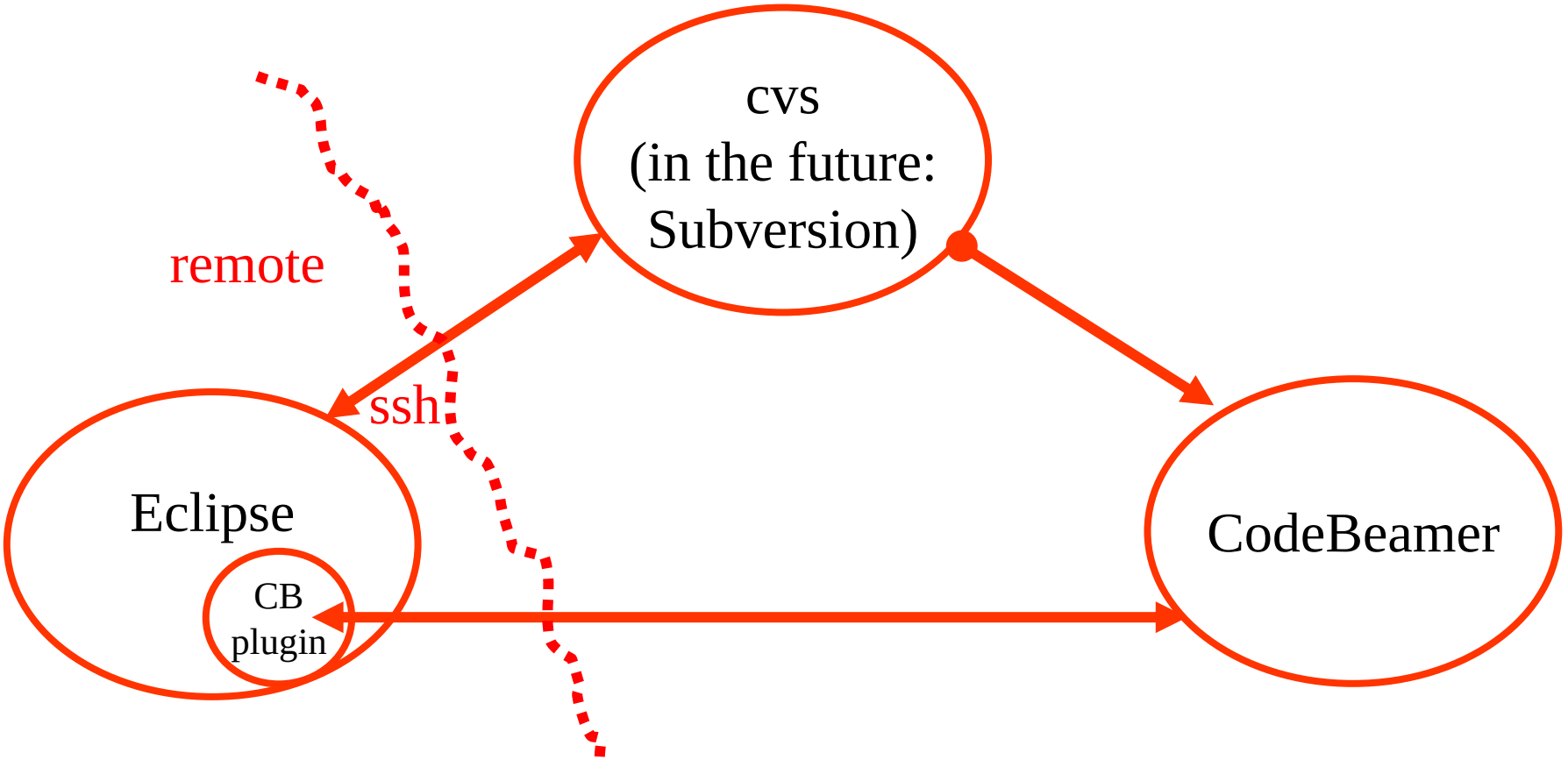


# Next

Test GEF (Graphical Editor Framework)

- Full MVC support
  - Built applications for RCP
  - Built Thin Client Applications (Web interface)
- Built in support for drag and drop

# The development environment for ALL EPICS-Office developments



# CodeBeamer

- http://elogbook.desy.de:8081
- All documents created (local or by contractors) are/will be placed here
- Many code examples are available (better by direct access to cvs repository -> get your DESY-afs account for cvs access)
- Use guest account to read public available documents

# Outlook

- The XFEL-TDR is due end of this year (2005)
- We have to define and calculate the costs for XFEL cryogenic and utility controls.
  - Which of the existing applications will be designed and written within the EPICS collaboration?
  - Which packages do we (DESY) have to contribute? (in order to be ready – beta testing – autumn'2006)
- We'll have to define milestones for:
  - EPICS-V4 core
    - Database
    - **Data Access**
    - Redundancy
  - EPICS-Office

It’s an exciting time!

Come and join