CSS – Control System Studio

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Overview

- Motivation

- CSS Design

- Eclipse RCP

- CSS Core Features

- Outlook

- Getting CSS

Motivation

Existing GUI Applications for EPICS

- Running mostly on UNIX
- Individual programs
- Different Look&Feel
- Data exchange via copy / paste of strings

Requirements

- Operation system independent
- Control system independent
- Common Look&Feel
- Easy data exchange between applications
- Easy to extend

CSS Development / Collaborating

DESY – project coordination

University of Hamburg, C1-WPS (Scientific contract, CoEUD project) – CSS – Core, Synoptic Display Studio

DESY, ORNL – Applications: Databrowser, PV Table, Name Space Browser, Alarm System, …

Cosylab (contract) – Data Access Layer

Josef Stefan Institute – Student exchange

Eclipse

Eclipse Rich client platform (RCP)

- Operation system independent (JAVA)
- Implements OSGi
- Based on plugins
- Configurable workbench
- Drag and Drop, Object contribution
- Update mechanism
- CSS adds features on top of Eclipse

CSS Design

CSS Core Features

- Control system datatypes (e. g. process variable)
- Data Access Layer to use different control systems
- Logging service
- Common libraries (JDBC, JMS, …)
- Authentication, authorization
- Management for CSS instances
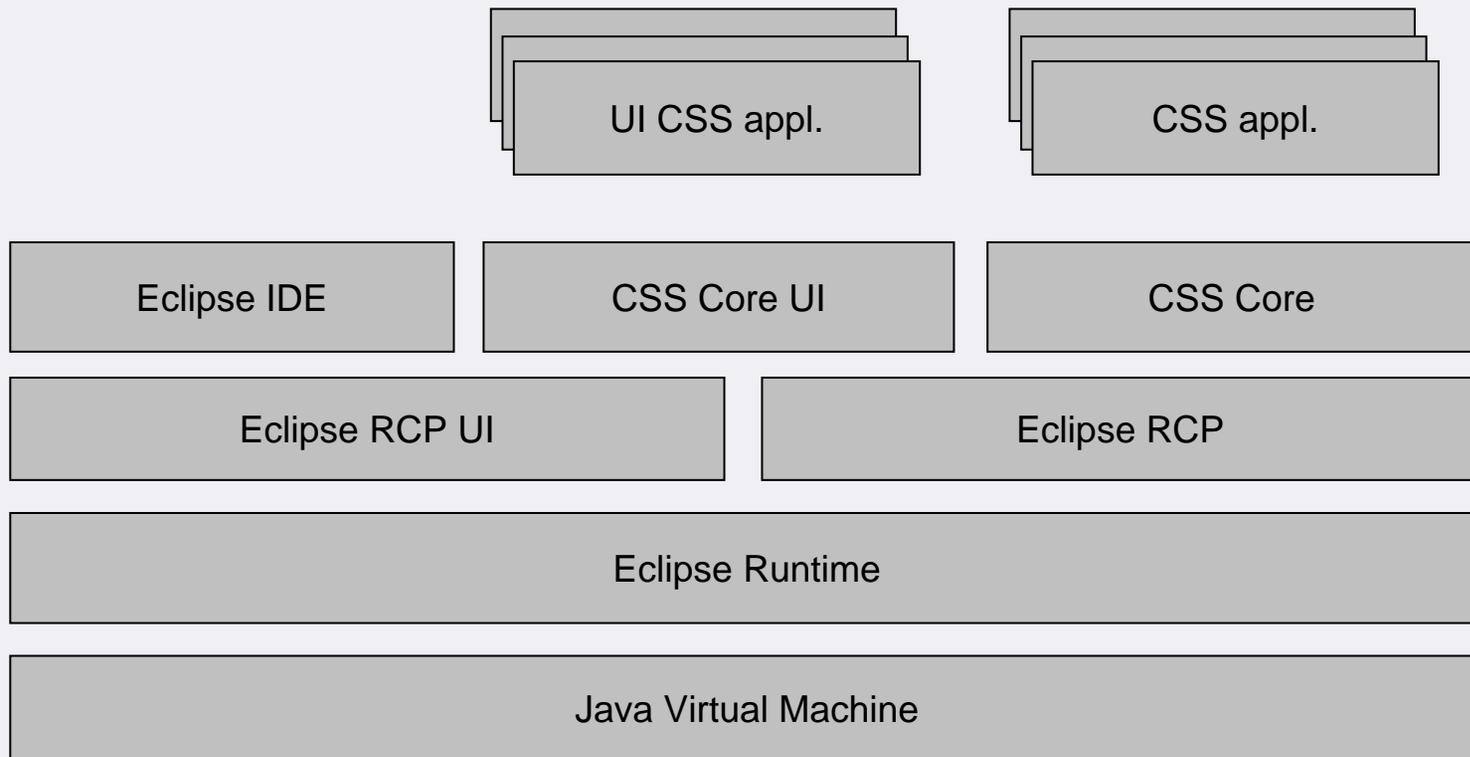- Preference deployment

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Pros and cons

+ CSS is based on a widely used framework (Eclipse)

+ Technically a CSS application is an Eclipse plugin

+ Many levels of integration in CSS
'Wrap my Java Code in an Eclipse plugin and run it in CSS'

'Using all CSS features for my plugin'

+ Quick creation of new plugins

+ Single JVM for all CSS applications / plugins

- The effort to get familiar with the Eclipse API is high

- It is difficult to use AWT / SWING for Eclipse plugins

Eclipse RCP
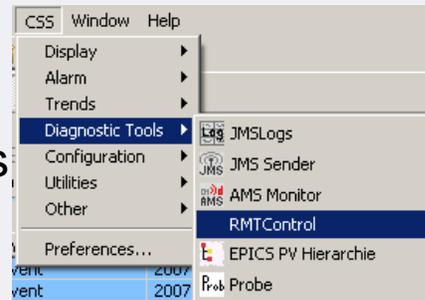
**IDE with
CSS applications**

CSS UI

CSS Headless

| UI CSS appl. | CSS appl. |

| Eclipse IDE | CSS Core UI | CSS Core |

| Eclipse RCP UI | Eclipse RCP |

| Eclipse Runtime |

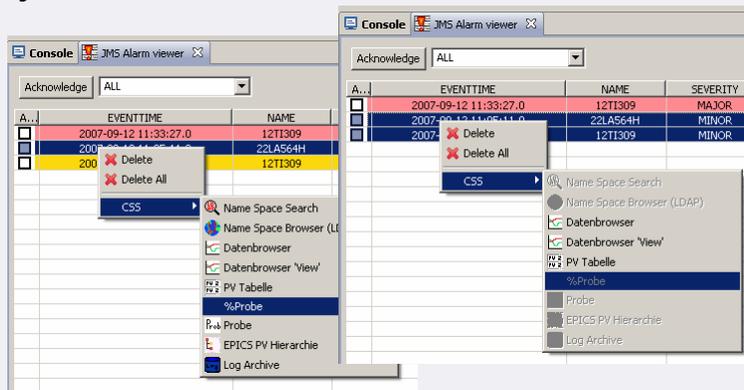| Java Virtual Machine |

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Eclipse Features

CSS definitions for
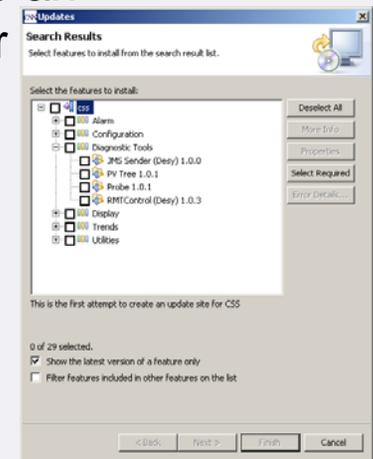
- CSS menu
- Help system
- Preference pages

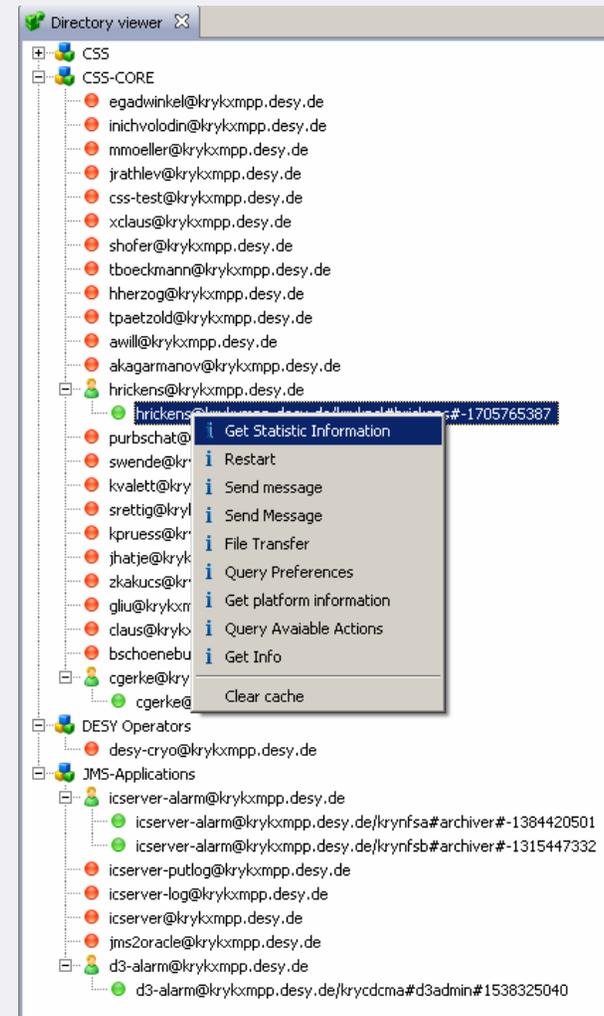## CSS Datatypes for DnD and Object contribution

CSS update site

- Get new plugins for your CSS installation
- Update current plugins
- Eclipse checks for dependencies of plugins
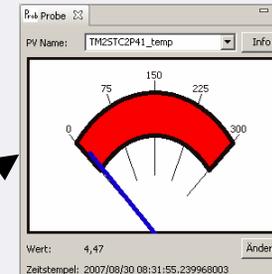- Easy to create an update site for your own applications

CSS Management

- Build on top of the XMPP protocol

- Query for existing CSS instances

- Control if and when CSS instances get updated from Eclipse Update Site

- Get statistical information from CSS instances

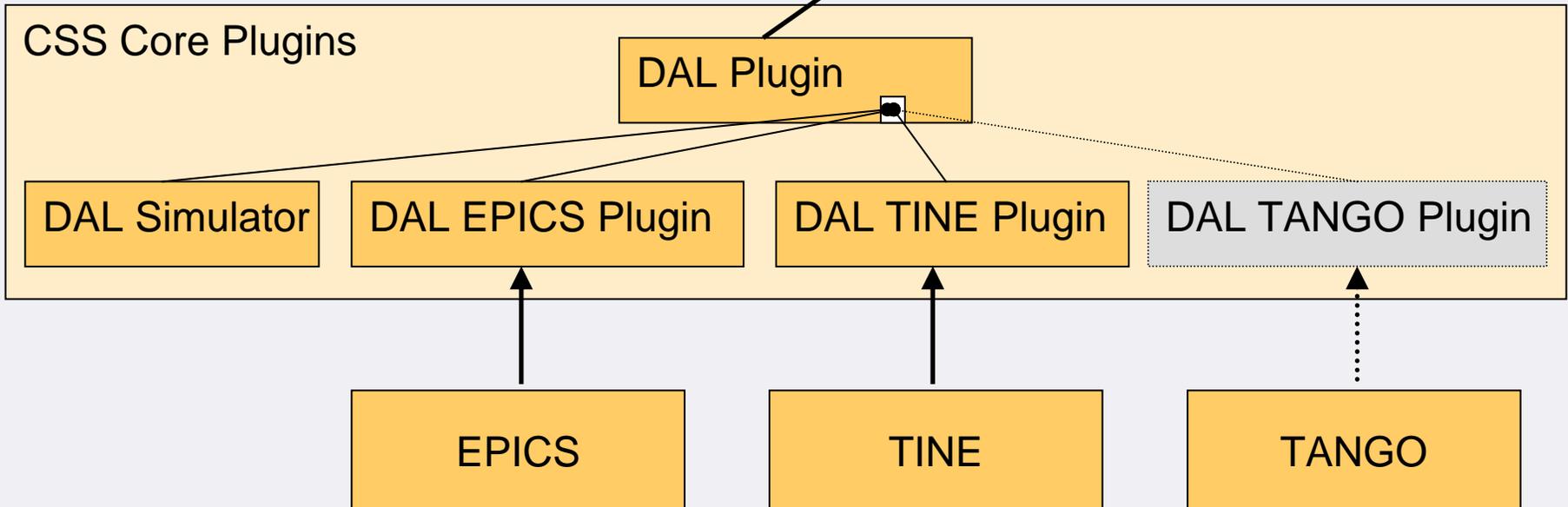- Stop CSS instance in case of problems

Data Access Layer (DAL)

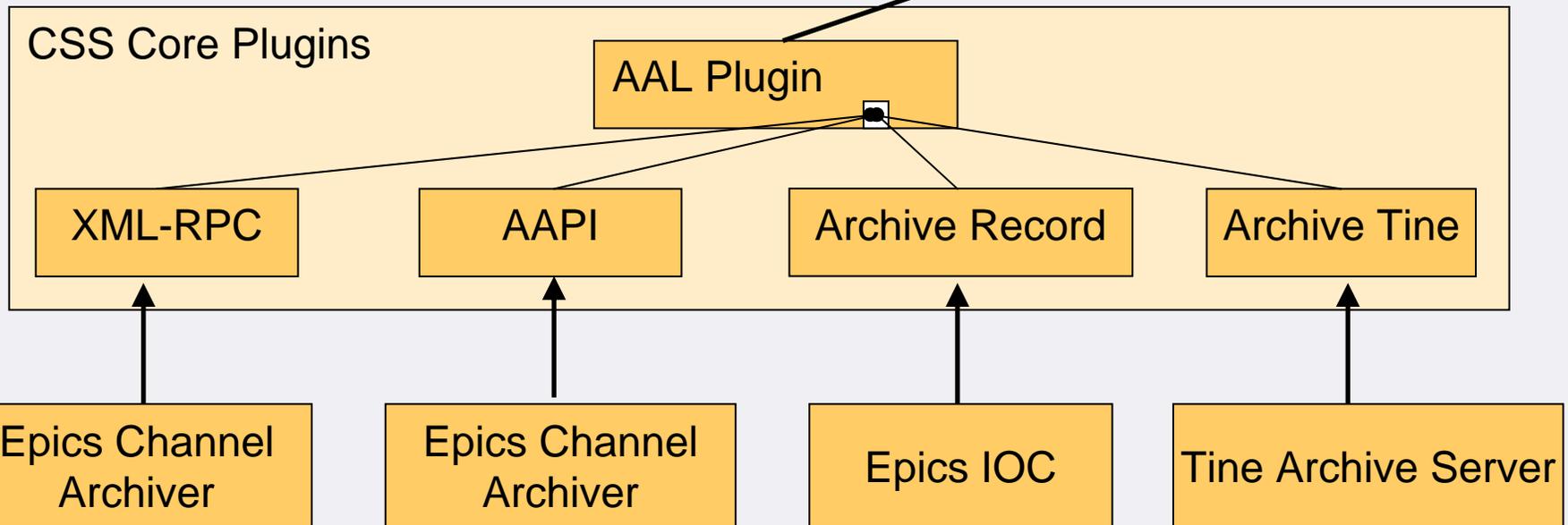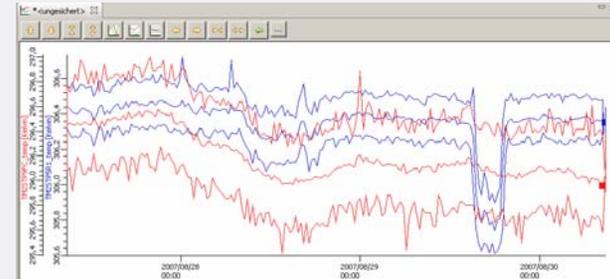- Common API for accessing data from different control systems

Data

CSS Core Plugins

DAL Plugin

DAL Simulator   DAL EPICS Plugin   DAL TINE Plugin   DAL TANGO Plugin

EPICS   TINE   TANGO

Archive Access Layer (AAL)

- Defines an extension point and interfaces for archive access

Data

CSS Core Plugins

AAL Plugin

XML-RPC	AAPI	Archive Record	Archive Tine

Epics Channel Archiver	Epics Channel Archiver	Epics IOC	Tine Archive Server

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Synoptic Display Studio

- Many CSS applications are now available, see talk: Kay Kasemir (ORNL/SNS) "CSS Applications"

- SDS based on GEF

- All properties can be dynamic

- Rules for dynamic behavior

- Macro substitution

- Easy extensible

- ADL converter

Property View

Workspace   Editor field   Widget palette
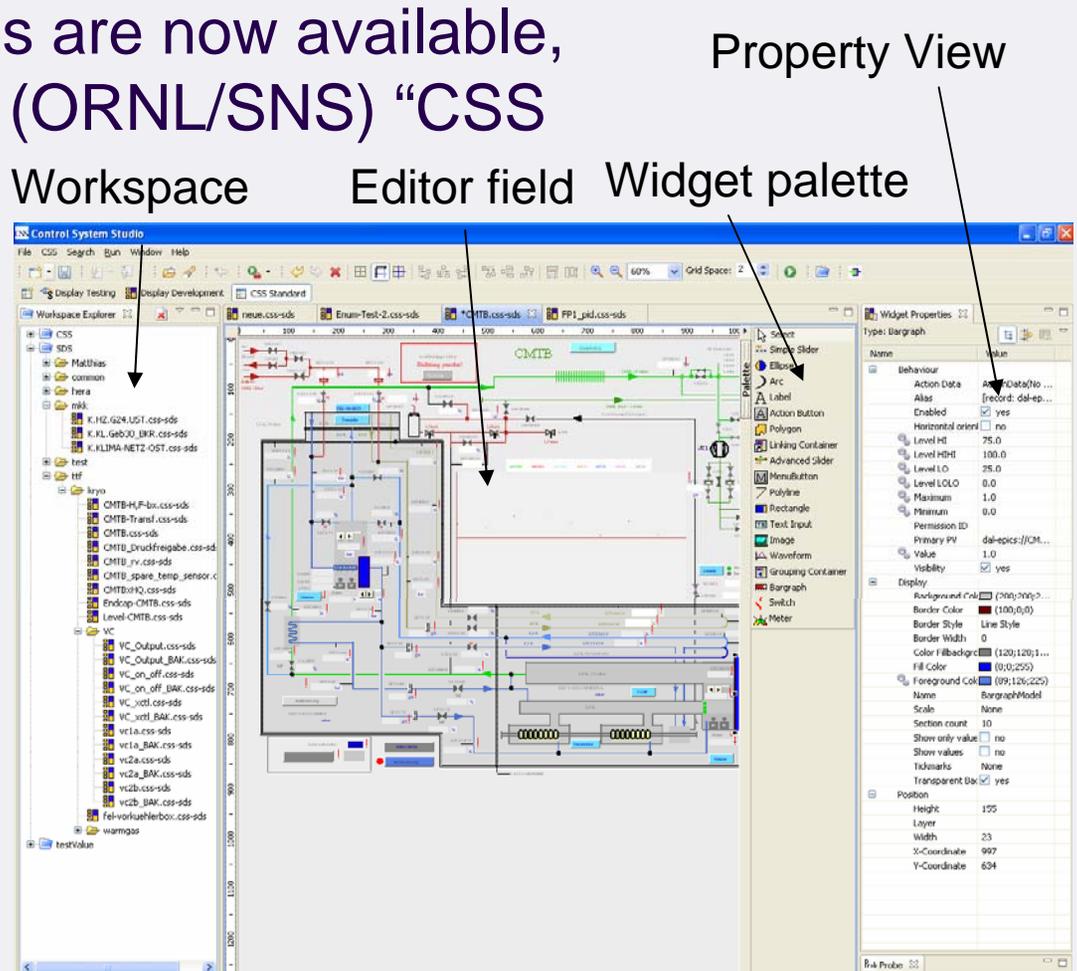
CSS in Production

@SNS
- Data Browser
- Probe
- PV Table

@DESY
- Alarm Views
- Alarm Configuration
- Data Browser
- Probe

@DESY Spring 2008
- Synoptic Display Studio
- SNL Debugger
- SNL Language sensitive editor based on (Eclipse) CDT

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Outlook

- DAL Plugs for other control systems (TANGO, …)

- Managing specific preferences via XMPP

- Wizards and example plugins for developers

- @SLAC: 'SLAC's Save/Restore Application Development in the Eclipse RCP Architecture'

- Enabling user authorization by using existing implementation

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Further information, getting CSS

- For more information or to download CSS please see the CSS website: **http://css.desy.de**

- To get the CSS applications please use the update mechanism: **Help → Software Updates → Find and Install → Search for new features**

- The CSS source code you find in the cvs repositories on **kryksunc.desy.de**:

  /afs/desy.de/group/m/mks/cvs/css-core,
  /afs/desy.de/group/m/mks/cvs/css-applications
  (a DESY account is necessary)

- For questions please contact: **matthias.clausen@desy.de**, **jan.hatje@desy.de**

- Thank you -