

# Eclipse RCP on the Way to the Web

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## Abstract

Web-based applications are becoming an increasingly important part of the IT strategy for many organizations. Eclipse supports the development of web applications with its Rich Ajax Platform project and aims to further improve this support in the next major version of Eclipse, which is currently in development and planned for release in summer 2010. Using these technologies, users can run the same Eclipse application on different platforms. At work for instance operators could use the desktop environment to control the machine while at home they configure the alarm system in a browser or cellular phone. The applications for both platforms can be built from the same source code. This paper will give an overview of the Eclipse strategy to support applications on the web and its impact on existing Eclipse RCP applications like Control System Studio.

## Eclipse Rich Ajax Platform

The Eclipse Rich Ajax Platform (RAP) is a framework developed by the Eclipse Foundation which can be used to develop web applications based on existing Eclipse technologies.

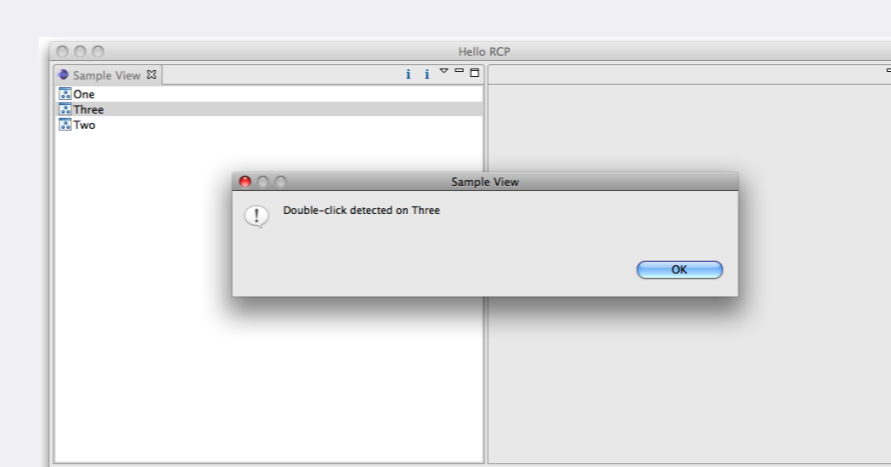
**Reuse of existing technologies:** RAP reuses existing Eclipse concepts and technologies, such as the Standard Widget Toolkit (SWT) and JFace, as well as plug-ins, extensions and extension points, OSGi services, etc. Developers can reuse their existing Eclipse RCP knowledge when they develop web applications based on RAP.

*“RAP brings RCP applications into the browser”*

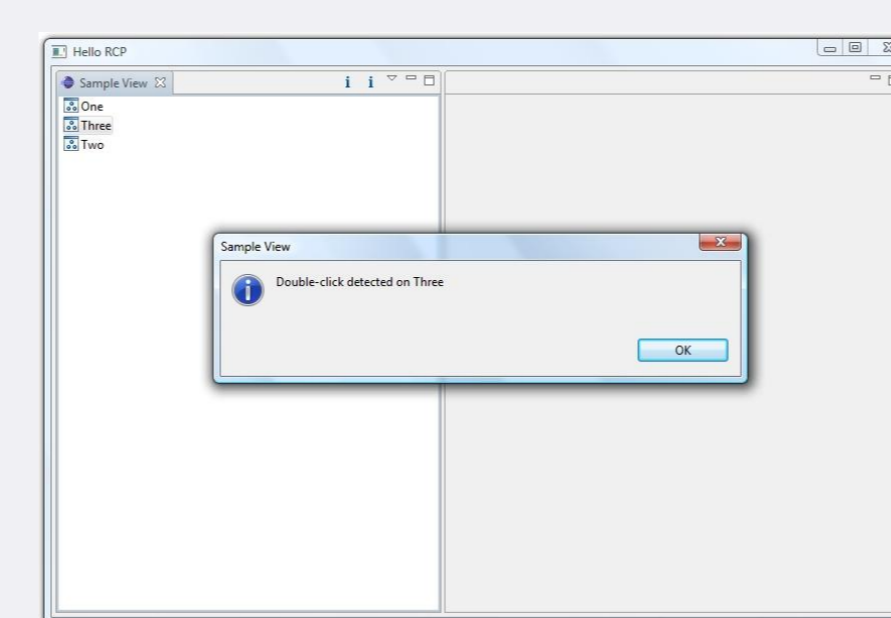
Eclipse Foundation, <http://www.eclipse.org/rap/introduction.php>

## Single Sourcing

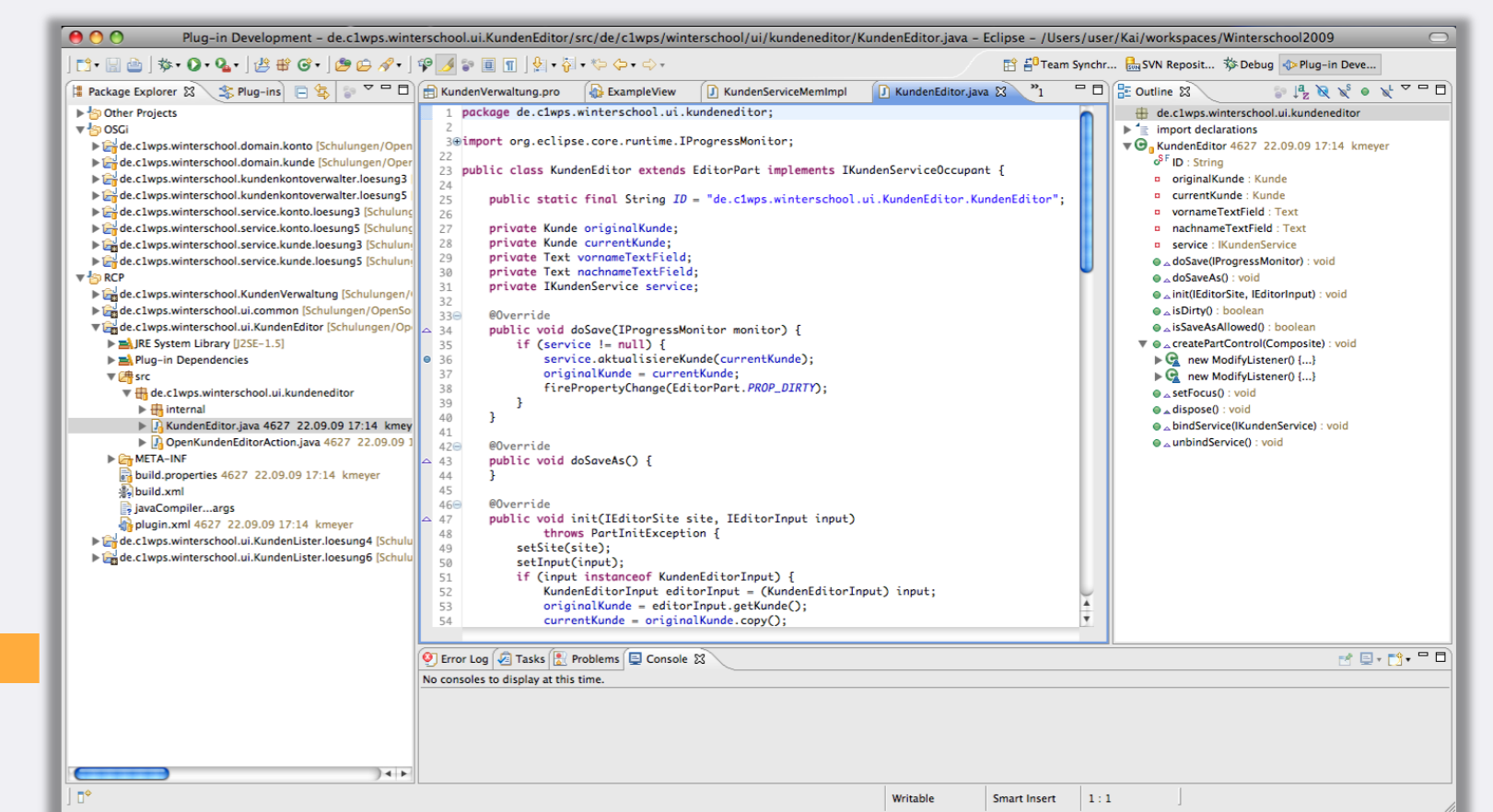
Because RAP applications are developed using the same APIs that are used in RCP, a single code base can be used to create both traditional rich client desktop applications and RAP-based web applications with a high degree of code reuse. This is also called “Single Sourcing”.



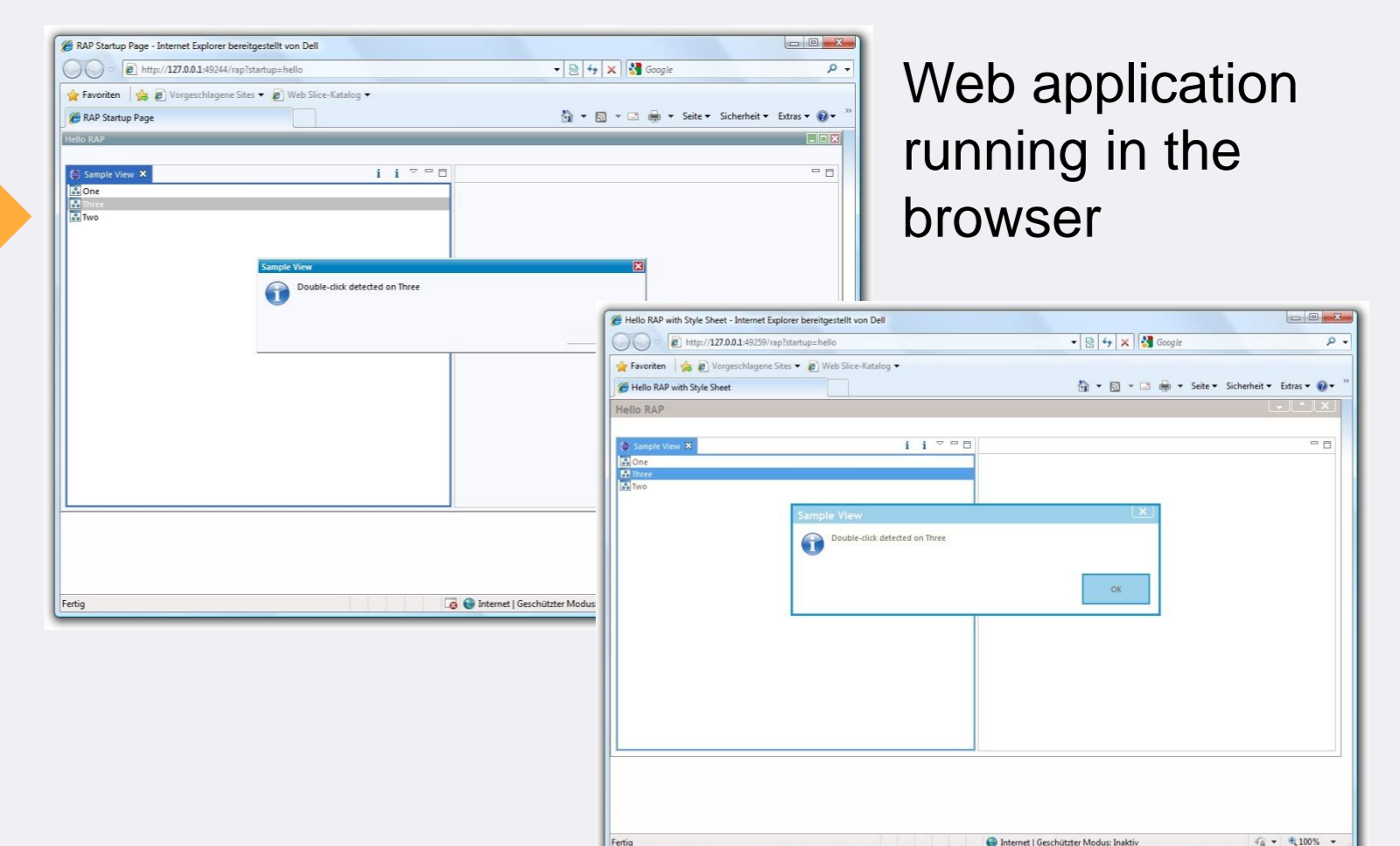
RCP application on OS X



RCP application on Windows



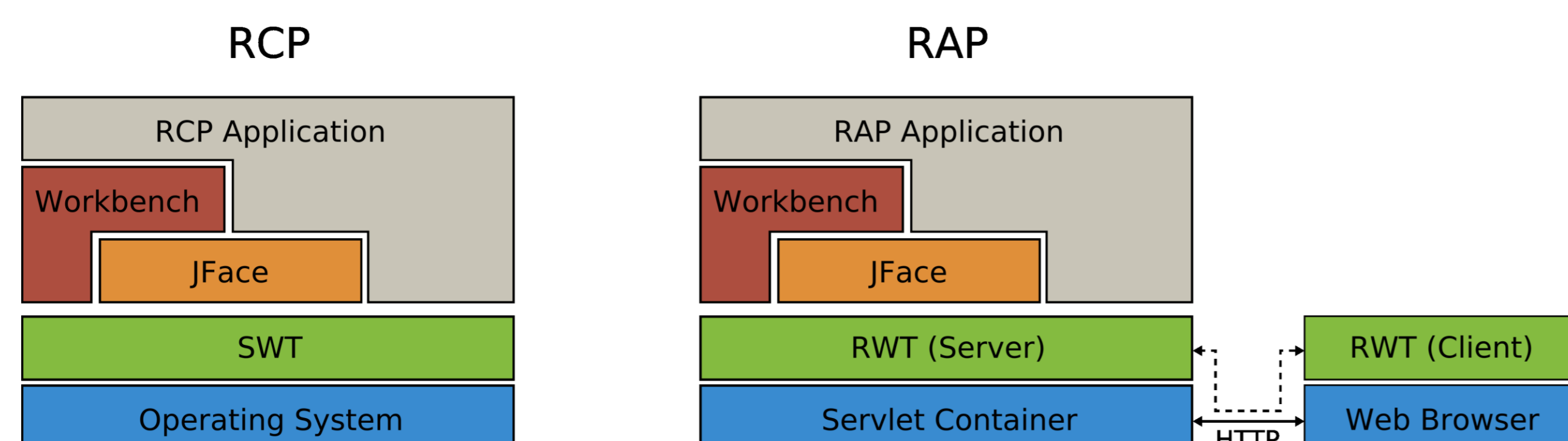
Developing in the Eclipse IDE



Web application running in the browser

**Customizable design:** The look of a RAP application can be customized with web style sheets.

## How RAP Works



## User Interface Architecture

As you can see in the above illustration, the user interface architecture of Eclipse RAP is very similar to that of the Eclipse Rich Client Platform (RCP). RAP comes with its own implementation of the SWT API, the RAP Widget Toolkit (RWT). Instead of using native operating system widgets, RWT renders the widgets remotely on a web browser.

Illustration source: Eclipse Foundation, <http://www.eclipse.org/rap/introduction.php>

## Deployment

On the server side, RAP-based applications can be deployed either as standalone applications (based on the OSGi HTTP service) or as a Servlet-based web application running in a standard JEE application server. On the client side, only a web browser is required.

## Communication

The web browser (client) and RAP application (server) use HTTP for communication. The client uses so-called Asynchronous JavaScript and XML (Ajax) to send a request to the server when the user interacts with the application. The communication is handled automatically by RAP. Developers are not required to implement any communication logic themselves.

## Single-Session vs. Multi-Session

A traditional RCP application is started once for every user (that is, each user runs his or her own instance). RAP applications, by contrast, are multi-session applications: the server-side application is started only once and can be accessed by multiple clients simultaneously. Therefore, applications must be developed with multi-session support in order to work with RAP.