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Web Dynpro Is Just Around the Corner —

Will It Revolutionize Your Web UI Development and Runtime Environments?

Regular Feature

Take Note!

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Conventional ABAP/Dynpro development, ITS, or native JSP development undoubtedly play a role in your SAP application development efforts:

- ABAP/Dynpro has been the tool of choice for many ABAP developers who want to adapt SAP screens or to build their own applications.
- ITS emerged as the workhorse for first-generation Web enabling of SAP applications.
- JSP development has proven invaluable for creating Web applications in a J2EE environment.

However, none of these approaches to UI development provide ideal support for creating browser-based interfaces for the current wave of business applications:

- ABAP/Dynpro cannot really support a modern separation of frontend/presentation and backend/business logic.
- ITS, while able to provide Web-based access with a customized UI, cannot provide the full power and flexibility of modern UI design.
- The JSP approach does not provide browser independence, is still pretty low-level, and is strictly bound to the Java/J2EE platform.

All of these Web-based approaches (except for the original Dynpro) fail to provide a convenient mechanism for input checks, input help, support for multiple languages, and easy-to-use error handling.

Web Dynpro, the soon-to-be-released SAP development and runtime environment for creating browser-based interfaces, addresses these shortcomings. Moreover, it ushers in a new and radically improved approach to creating those interfaces.

Imagine a UI development environment that combines the strengths of the GUI/Dynpro approach offered in SAP R/3 — including such things as dictionary-based field validation and error handling — with Internet innovations such as zero installation, worldwide access, and integration of arbitrary content via hyperlinks. Now imagine a UI programming model that delivers both a comprehensive development environment and a runtime environment, together with seamless integration in a software lifecycle and distribution infrastructure, to handle all installation, upgrade, administration, and monitoring tasks.

Web Dynpro development provides declarative, code-free design of sets and sequences of screens, interactions, data bindings and more. This greatly expands the scope of UI programming beyond control libraries such as HTMLB, basic Server Page technologies such as ABAP Business Server Pages or Java Server Pages (including tag library approaches), and pure "gateway" approaches like SAP GUI for HTML.

Benefits of the Web Dynpro Architecture

This new approach to creating and running business application user interfaces results in a series of end-user, developer, and administrative advantages (see sidebars on the following pages). It also provides very substantial architectural advantages, such as platform independence for

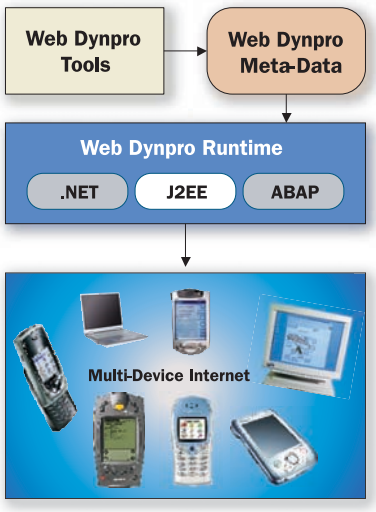


Figure 1 Platform Independence and Broad Platform Support

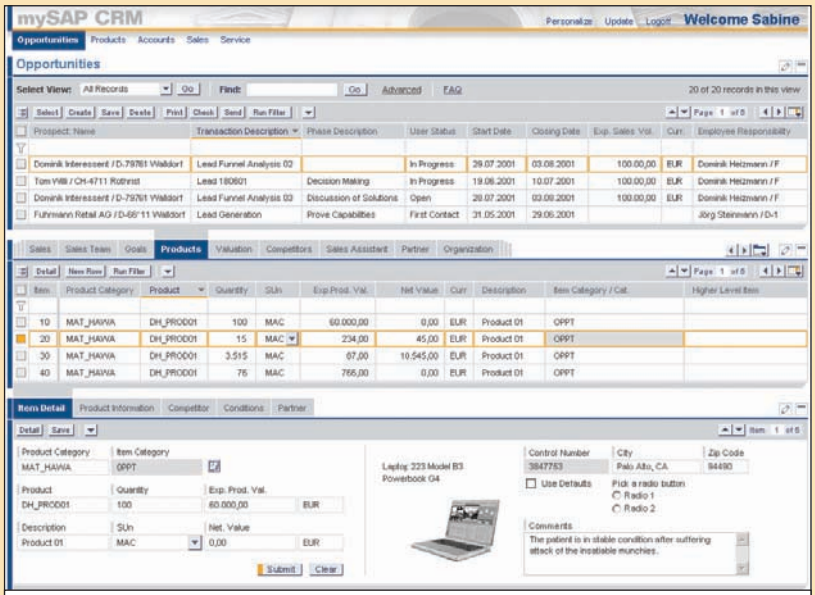
most Web Dynpro declarations (see **Figure 1**). So the migration of a Web Dynpro application to another platform will be much easier than in traditional approaches, since only XML-based metadata has to be moved. With this approach, there is a neat and clean separation of UI logic from business logic, which allows alternative UIs for the same business logic, even on different platforms (the decoupling of JSPs and EJBs only works inside a homogeneous Java world).

The architecture of Web Dynpro is shown in **Figure 2**. Notice the clear division between the presentation layer and the business layer. We designed it in this way to ensure that short-term changes and modifications could be made in both layers without one layer interfering with the other.

The Web Dynpro approach is broad enough so that both SAP and customers can concentrate our investments for further development on a single UI technology. It also allows customers to save on their investments in existing software by using the satisfactory parts of existing solutions (typically highly

Web Dynpro Advantages for the End User

- ☑ Portal integration (EP 5.0 and above) — including client-side eventing and adaptation to portal styles — so Web Dynpro applications are seamlessly integrated into the look and feel of a portal page.
- ☑ Highly interactive, desktop-style usability delivered in the browser, no page reloads or page-by-page scrolling in tables, and more. The avoidance of full-page reloads results in a much better, "flicker free" user experience — it only changes what needs to changed on the screen. (The constant reloading of the pages by traditional browser applications can make the end user really nervous.)
- ☑ Inherent accessibility features — for example, full keyboard support in the UI, section 508 compliance, and so on — that are not available in purely server page-based approaches.
- ☑ Significant performance and bandwidth optimizations compared with other browser-based approaches, resulting in faster response times and better utilization of network bandwidth.
- ☑ Consistent look and feel across all SAP applications based on the Web Dynpro Pattern Framework (see below).



The New Pattern-Based CRM UI Now Makes Use of the Web Dynpro Runtime Framework and UI Controls

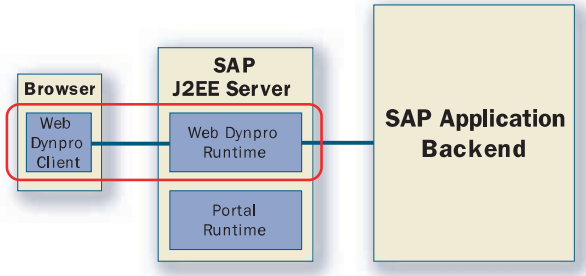


Figure 2 Web Dynpro Accesses Web, Java, and ABAP Backends

Web Dynpro Advantages for the Developer

- ☑ Productivity through declarative approaches to modeling instead of programming, layout, screen usage, navigation, and data binding. So most of Web Dynpro development is really programming language independent, requires less skill, and provides much higher productivity in UI design.
- ☑ Data Dictionary integration for UI services (e.g., automatic value help, type support, reuse of central, localization-dependent texts, short-texts, table headings, etc.).
- ☑ Automatic error handling, matching (and exceeding!) the error handling in classical Dynpros.
- ☑ Cutting-edge efficiency for Java development through full integration into the infrastructure — Design Time Repository for centralized version control, Component Build Server for automated builds, and so on. Many cumbersome and error-prone tasks of building, distributing, and installing components are simplified or even eliminated, again resulting in higher productivity and shorter turnaround times for the developer.

optimized business and data management logic) and concentrating their investments on specific pain points.

It is easy to reuse existing SAP R/3 and mySAP business functionality: the Web Dynpro design-time tools make it easy to access SAP Remote Function Modules, and they also help you to quickly map SAP enterprise data to Web Dynpro applications.[1]

Roadmap and Availability

With SAP Web AS 6.30, SAP provides the Web Dynpro Java runtime and a set of Web Dynpro development tools, which are based on the new Eclipse-based development framework. A full Web Dynpro runtime for ABAP will follow. (Note that the Business Server Page environment in Web AS 6.20 already contains many Web Dynpro features for the ABAP environment.) A Web Dynpro runtime for the .NET environment is also planned.

[1] For more on these development tools, see "Your 'Easy Way In' to Web Dynpro Development," by Karl Kessler in this issue of *SAP Insider* (www.SAPinsider.com).

Initial browser support in Release 6.30 will cover Microsoft Internet Explorer (as of Windows 5.5) and Netscape 7.0 (on Windows, Mac OS, and Linux). In addition to the client-side rendering, later releases will also provide a server-side rendering, which extends support to more browsers and to small devices like PDAs and smart phones.

New applications from SAP will have a Web Dynpro-based UI. Some existing applications will also get a new Web Dynpro-based UI in addition to the existing UI, which will be maintained for compatibility reasons. For example, some applications with Web Dynpro UI will be shipped in 2003 as part of R/3 Enterprise Extension Set 2.

Customers who use Web Dynpro-enabled applications only will not have to master any new technology from a development or administration point of view — they'll just install the application, which includes the newest SAP Web Application Server, and use standard browsers on the clients. If you want to get into Web Dynpro development because you write your own applications, or you want to have a different UI for an existing application, you will find it easy to work with the new tools; however, for some aspects of error and event handling, you will need some Java basics for developing your own Web applications for the Java runtime environment.

Don't Abandon SAP GUI and ITS Just Yet!

Web Dynpro and SAP GUI are very different application models, and they will coexist for some time — a fully automatic conversion to Web Dynpros from classical R/3 Dynpros or custom-

Web Dynpro Advantages for the System Administrator

- ☑ The various existing UI technologies are merged into one unified approach over time. This means that many efforts for installing, maintaining, and running different Web servers, UI servers, and client GUI installations will simply go away. Administration of Web Dynpro does not mean anything more than administration of the SAP Web AS and browser-based clients.
- ☑ Web Dynpro is not a specialized Web UI development environment. It is built on top of the SAP Web AS and therefore offers the same support for multi-user development and software logistics that currently exists in R/3.
- ☑ The Client-Side Framework (CSF) provides a user experience similar to fat-client approaches, yet avoids any specific installation tasks on the clients.

> **✔ NOTE!**
> Web Dynpro is SAP's long-term strategic approach to user interfaces for mission-critical business applications.

developed Dynpros will not be possible. This will be a migration effort, and migration tools will be provided.

The client-based GUIs for Windows and Java will stay around for existing applications like R/3 and will be further supported by SAP. Some upcoming R/3 Enterprise Extensions, though, will be built with Web Dynpro.

Now, how is this related to the SAP GUI for HTML provided by the SAP Internet Transaction Server? SAP ITS currently plays two distinct roles:

- It is the infrastructure for the SAP GUI for HTML, which will be absorbed by the SAP Web Application Server. Therefore, in this role, the ITS can be replaced by SAP Web AS completely.
- It is the infrastructure for some first-generation Web user interfaces. In that respect, it will be needed as long as the corresponding application releases rely on SAP ITS. SAP will continually provide information regarding the transition of applications, such as Enterprise Self Services (ESS), from ITS to Web Dynpro.

Conclusion

Will Web Dynpro revolutionize the way you tackle UI development for your Web-enabled business applications? I believe it will. And I think you will revel in the ease and productivity of the Web Dynpro approach compared to what you are using now.

We anticipate swift and widespread adoption of this tool when it becomes available in SAP Web Application Server Release 6.30, and expect this approach to UI development will soon overtake the current tool set. ■

Franz J. Fritz has a Ph.D. in mathematics and 30 years of experience in all areas of IT. Workflow and business process management have been particular areas of interest for much of his life. He has worked for SAP since 1993 as Program Director and Vice President with responsibility for the Business Process Technology and Internet-Business Framework departments. Recently, he took over the responsibility for technology architecture and technology product management within SAP AG.