



THE ULTRA4 Development Suite

The **ULTRA4 Development Suite** is a **modular product line** that allows developers and development teams to implement web-based business applications within shortest time.

It is based on Model Driven Architecture (MDA) principles and the Java EE¹ platform. By building a layer "around" Java EE, the **ULTRA4 Development Suite** completely hides the complexity, while fully leveraging the advantages of the Java EE technology.

It consists of the products

- **UltraCore™** (The Rich Internet Applications development platform)
- **UltraTelecom™** (The multi channel application access platform)
- **UltraIntegration™** (The services integration platform)

With the **ULTRA4 Development Suite** you can

- **accomplish with 3 X smaller development teams the same amount of work as with any other tool/framework/platform currently available on the market**
- **be with the same team size, 2 to 4 X faster than with any other development tool/framework/platform**

The particular benefits of each product of the **ULTRA4 Development Suite** are described in the corresponding product leaflet below.

¹ Java EE stands for "Java Platform, Enterprise Edition", that is the leading industry standard for implementing enterprise-class service-oriented architecture (SOA) and portable, robust, scalable and secure next-generation web applications (<http://java.sun.com/javaee/>).



The Rich Internet Applications development platform

UltraCore is more than a framework; it is a complete end-to-end platform for implementing, extending, integrating, deploying and managing next-generation web-based business applications.

UltraCore provides **source code architecture** and an extensive **core software infrastructure** that offers out-of-the-box all the concepts and a big number of basic software components you need in order to build web applications of excellent quality within shortest time.

How is this possible? **UltraCore** is an end-to-end development platform that integrates seamlessly all the tiers of a web application in a unified source code model. It furthermore offers out-of-the-box almost all the core functionality needed by modern web-based business applications (e.g. web templating engine, advanced UI components, AJAX, advanced data model, object-relational mapping, reporting, auditing, asynchronous job processing, user management, security, logging, and much more).

With **UltraCore** **any developer can program web applications** even if he is not familiar with web technologies at all: All he needs is basic knowledge in Java and Relational Databases.

UltraCore development takes place at a high-level of technological abstraction within a predefined code model architecture that covers all the needs of modern business applications: **The developers concentrate in the implementation of business logic and the design of an appealing presentation instead of bothering with low-level technicalities and "reinventing the wheel"**.

The **key benefits** of **UltraCore** are:

- **You develop 4 to 5 times faster ...**

compared to conventional web development (for example PHP, Java EE, .NET, ASP.NET, etc.) and **2 to 3 times faster** compared to framework-based development (for example Spring with JSF, SEAM, Ruby On Rails, Wicket, JSF-centered frameworks, PHP/Symfony, etc.).

- **... generically instead of heroically ...**

UltraCore prevents you from the annoying experience of developing with an overloaded team of programmers attempting to integrate a bunch of technologies and receiving a rigid, over-priced, long time-to-market implementation, without ever reaching the desired quality and efficiency level.

How is this achieved? By raising the level of abstraction and hiding in this way the complexity of the underlying technologies while fully leveraging their advantages. Cost- and time consuming in-depth learning of new techniques with questionable implications for the implementation quality, is no longer needed.

- **... remaining in-time and in-budget ...**

"Software customers continue to be disappointed: Despite of extensive investment of time and money, over 30 percent of the projects will be canceled before they're completed, and more than half of the projects will cost nearly twice their original estimates" (The Standish Group, www.standishgroup.com). With **UltraCore** you will be able to deliver the functionality agreed with your customers while remaining in-time and in-budget.

How is this assured? UltraCore is based on many years of experience in the development of business applications and has already been successfully applied in many projects of different domains (Telecommunications, Logistics, Banking, Finance, Marketing, etc.) by a variety of development teams. These projects have confirmed that UltraCore equips development teams with such a lead that minimizes the risk of exceeding time- and budget.

- **... by keeping total control over your source code ...**

The UltraCore™ code model organizes the application software in a way that makes it easy to **recognize and modify source code developed by others**. In this way you can easily **survive staff changes** and **escape maintenance problems**. Furthermore, the entire UltraCore source code can be purchased. In this way you will be able to adapt UltraCore to your special needs and avoid a lock-in-effect.

- **... with minimal training effort for your team.**

With the on-the-job know-how transfer provided by ULTRA4 and the documentation shipped with UltraCore, team members can become productive and start working in particular projects already after 1-2 weeks. While working in projects, the know-how transfer is completed in approximately 2 months.

- **You achieve high-quality user interaction ...**

Applications developed with UltraCore™ provide a **rich user experience** that is **comparable or even superior to the user's experience in desktop applications**. With UltraCore™ you can easily build applications with features like **drag and drop, asynchronous page block updates, desktop-like organization of information items, visual and cinematic effects**, etc.

How? UltraCore™ is shipped with over 50 ready-to-use user interface components that face the most demanding interactivity requirements. Furthermore, UltraCore supports AJAX (Asynchronous JavaScript and XML), an emerging standard that enables asynchronous user interaction with applications in a web environment, in a way that it can be used by developers without in-depth technical knowledge.

- **... with advanced web templating ...**

UltraCore templating goes much further than just styling. Apart from styling colors and fonts of elements it is possible to define also the position of elements and the overall page layout. UltraCore templates can be directly previewed in Internet browsers. UltraCore comes out-of-the-box with 3 well-defined templates, including one sophisticated template with a 3D look (Perspective Desktop exceptionally designed). Apart from these templates, also any other template can be used (for example highly-designed Joomla templates may be directly used). Given a web template, the **UltraCore templating engine injects user interface components or parts of components into it at runtime**, providing in this way a universal solution for the accomplishment of a rich user experience.

- **... and PDF rendering of all your screens.**

Every screen of an application developed with UltraCore can be rendered to PDF in form of a report. In this way you achieve independency from problematic behavior of the browser's built-in print functionality and can easily communicate screen contents. Last but not least, you avoid the time- and cost intensive development of (customized) reports for most applications.

- **You furthermore receive end-to-end automated testing, ...**

UltraCore provides you with an end-to-end testing framework, allowing you to **play a full animated test in a web browser, testing through from browser to presentation- to logic- and data tier**. At all levels, the testing framework can produce detailed information

regarding failures, and will report it nicely in a structured Excel list, including the exact location of the problem in the source code.

- **... advanced search and discover functionality, etc.**

"People spend on average 15-30% of their time searching for information, whilst 50% of all searches fail to locate the required information" (The High Cost of Not Finding Information, An IDC White Paper). With **UltraCore** you are able to organize your information (data, web content and documents) in a way that allows for a) **full text search**, b) **search on data and meta data**, c) **"Google like" search** including wildcards, Boolean operators, etc., d) **semantic search** based on terminology databases and e) **search in hierarchically structured web content/pages**.

- **And all this ... without any lock-in effect.**

The entire source code of **UltraCore** can be purchased together with the complete know-how on the simple extension methodology. In this way, web-technology-aware developers can autonomously extend the core infrastructure in the case **UltraCore** does not cover a particular need, without waiting for new releases. Alternatively to this, customized extensions of **UltraCore** can be outsourced any time to **ULTRA4** at very competitive prices. By following a special procedure, the changing of the **UltraCore** source code by the customer does not affect any warranty or support obligations of **ULTRA4** towards the customer.

UltraCore™: YOUR JUMP START IN INTERNET TECHNOLOGY



The multi channel application access platform

UltraTelecom is a platform for the development of applications that are accessible via the channels **telephone, mobile phone, e-mail** and **fax**. It furthermore allows the realization of a telephone exchange that serves a particular business or office including the possibility of spanning multiple branches (**PBX**).

UltraTelecom provides a **core software infrastructure** that allows you to rapidly implement **dynamic Interactive Voice Response (IVR) applications, Short Message Service (SMS) applications, subscribe-/receive e-mail/fax applications** as well as **PBX installations** according to the needs of your business.

UltraTelecom integrates with **UltraCore** in a way that it allows accessing the functionality of Rich Internet Applications developed with **UltraCore** via alternative channels like telephone, mobile phone, e-mail and fax.

With **UltraTelecom** **any developer can develop telecommunication applications** even if he is not familiar with telecommunication technologies at all: All he needs is basic knowledge in Java and the documentation shipped with **UltraTelecom**.

The **key benefits** of **UltraTelecom** are:

- **Access your applications over multiple channels ...**

Internet interaction from a PC or a laptop is not always the optimal way to access an application. With **UltraTelecom** you can extend your applications in a way that they are accessible via voice, SMS, fax and e-mail.

By combining **UltraTelecom** with **UltraCore** you get a) out-of-the box multi channel access to the Rich Internet Applications built with **UltraCore** and b) a development environment for building multi channel web applications.

Of course you can also use **UltraTelecom** independently of **UltraCore** in order to build new applications or extend your existing applications with multi-channel access.

What is special about this? **UltraTelecom** integrates all channels while allowing for centralized application logic. In this way, you do not have to redundantly implement the same application logic for every channel all over again. Furthermore, **UltraTelecom** prevents you from the time- and cost consuming experience of having to integrate many different telecommunication platforms without ever reaching the desired quality and efficiency level.

- **... for 1/3 of the costs (or even less)**

compared to other conventional solutions currently available on the market.

How is this possible? **UltraTelecom** is built on top of the leading open source PBX software Asterisk® that is license-free and runs on any PC or server with Linux operating system without demanding any further special features. In this way, highly specialized and thus expensive hardware-software telecommunication infrastructures are not needed (like for example in the case of Cisco or Siemens IVR Systems).

Furthermore, the combination of **UltraTelecom** with **UltraCore** relieves you from the major costs and programmatic effort you have in order to integrate a conventional solution with the business logic residing within your applications: When applying **UltraTelecom** on top of applications/business logic built with **UltraCore** you do not have to connect each channel with the corresponding application in a proprietary (in most cases vendor-specific) programmatic way.

This means, that you avoid rigid and redundant implementations and the costs resulting from the complexity of these implementations: With the combination **UltraTelecom** and **UltraCore** you can access directly any application on the application server on which it is currently running. This relies on the **UltraCore** built-in technologies of Session Syncing and Remote Application Execution. The consequence is that you achieve multi-channel access to your existing applications with zero integration-/deployment effort and a substantial cost reduction.

- **Advanced voice features**

For the access of applications over voice, **UltraTelecom** supports **dynamic multilingual IVR menus** and offers advanced text-to-speech (TTS) capabilities (SAPI-5 compatibility, embedding of high quality natural language voices). This means that the IVR menus can even change dynamically at runtime and that **numeric or text data** (stored for example in the database) **can be automatically transformed to speech in real time** and transmitted to the caller in form of a spoken text.

UltraTelecom can interconnect with different TTS systems and provides a multi-threaded TTS server that allows the simultaneous processing of requests for text-to-speech transformations originating from different systems. **UltraTelecom** can be combined with the **Loquendo TTS** (that is one of the worldwide leading TTS solutions) and provide **out-of-the-box high quality automatic text-to-speech transformation in approximately 25 languages**.

- **Communication via SMS**

Exposing of functionality via SMS makes your application reachable from anywhere. **UltraTelecom** supports the "Request and Reply", "Subscribe" and "Application Interaction" communication modes. This allows for the realization of applications like Tele voting, Breaking News Delivery, Stock Alerting, Information on Demand, Notifications, etc.

- **State-of-the-art PBX**

With **UltraTelecom** you can implement a full-fledged PBX that serves the head office and all the branches of your company. **UltraTelecom** uses the open source software Asterisk®, one of the worldwide most comprehensive PBX solutions, and enables you to set up a reliable telephony network that combines Voice Over IP- and conventional telephony in a way that it minimizes your telephony costs. UltraTelecom also provides a call manager web application that allows you to watch real time all channels and actions, and also functions interactively to monitor calls, transfer, hold, dial out etc. The application is based on the real time technology, provided by **UltraCore**.

- **VOIP support**

Access your applications by calling over the Internet. Secure accessibility via username and password verification of incoming calls. Setup your internal phone infrastructure completely flexible with VOIP network/wireless phones.

- **Powered by Asterisk®**

UltraTelecom uses the open source software Asterisk®, one of the worldwide most powerful PBX solutions.

UltraTelecom™: ACCESSIBILITY FROM ANYWHERE



The services integration platform

UltraIntegration is a platform for the **integration of different applications and systems**. It can integrate applications developed with **UltraCore** to each other, applications developed with **UltraCore** with foreign applications and foreign applications to each other.

UltraIntegration is based on Enterprise Service Bus (ESB) technology and relies on messaging and events. It allows for the integration of applications without any programming effort.

In **UltraIntegration**, all the Use Cases² of any available **UltraCore**-based application are automatically registered as generic events. These events also provide the application-specific data in a generic form (unified data model) so that it can directly be reused in other applications.

By complying with the unified data model, the data and the functions of the application can be mapped dynamically to any available interface/protocol. The standard application model is based on the Java Business Integration (JBI) specification.

Example: In an **UltraCore** application a user is created. It is possible to select this event, map the user data to an e-mail and route it to a foreign application that automatically sends an e-mail to the system administrator.

UltraCore-based applications automatically expose all their Use Cases to **UltraIntegration** in form of generic events, while foreign applications have to explicitly externalize their services as events.

The **key benefits** of **UltraIntegration** are:

- **Automatic exposure of data and services of UltraCore-based applications to the integration platform**

Exposing the services and the data of an application by registering them one-by-one in the integration platform is a maintenance-intensive and error prone process. **UltraIntegration** manages this automatically for you as far as **UltraCore**-based applications are concerned. In this way, the error-free integration of **UltraCore**-based applications to each other is a matter of minutes. Also the integration of **UltraCore**-based application with foreign applications is made easy.

- **Integration by plain configuration without any programming effort**

UltraIntegration provides you with all the advantages of the ESB technology. In this way you can integrate all kinds of applications without any programming effort.

² A Use Case is defined as a set of functions that share a common scope and implement a coherent fraction of the business logic within an application developed with UltraCore. A Use Case can therefore be considered as a service of the application that has to be exposed into the integration platform. Examples of Use Cases are: create user, modify account, delete customer, book ticket, read balance, calculate price, etc.

What do our customers say about our products?

"With UltraCore we succeeded in implementing a comprehensive functionality extent and attaching smoothly a number of external systems within shortest time"

Peter Meyer, Director Workflow and Multimedia, Lufthansa-AirPlus, Neu Isenburg, Germany

"The Status Card Processing & Information System developed with UltraCore is a great success, not only because of the realization of a system that fulfills the customer's functionality needs, but from the customer perspective in particular, due to the punctual delivery"

Thomas Novak, Production Director, Lufthansa-Loyalmaxx, Germany

"We have chosen ULTRA4 and the UltraCore framework because of the technological superiority and the short time-to-market attitude of the company. Especially the advanced user interface capabilities (ajax, drag and drop, etc.) and the possibility of supporting access to portal functionality via multiple channels (phone, SMS, PDAs, etc.) are unique and crucial for a new-generation portal application."

Andreas Halbig von Rooy, Executive Director, GvRmarketing, Frankfurt, Germany

"UltraCore developers concentrate in programming business logic instead of programming low level code", "UltraCore decreases substantially the developer's design effort"

Carsten Hering, Project Manager, Lufthansa-AirPlus, Neu Isenburg, Germany

"The UltraCore code model organizes software in a way that makes it easy to recognize and modify source code developed by others"

Tilo Anschütz, Software Engineer, Lufthansa-AirPlus, Neu Isenburg, Germany

"With UltraCore, even the most inspired design ideas can be implemented with an amazing fidelity"

Marc Würth, Web Designer, GvRmarketing, Frankfurt, Germany

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