

# Visual Rules Execution Platform

Manage Rule Agility within the Enterprise and across Platforms to Drive Truly Dynamic Business Applications

Bosch Software Innovations



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## At a Glance

- ▶ Centralized deployment of rules as web services
- ▶ Rule updates with zero interruption
- ▶ Comprehensive versioning and dependency management
- ▶ Support for metadata and dynamic request routing
- ▶ Monitoring and detailed execution traces
- ▶ Clustering support

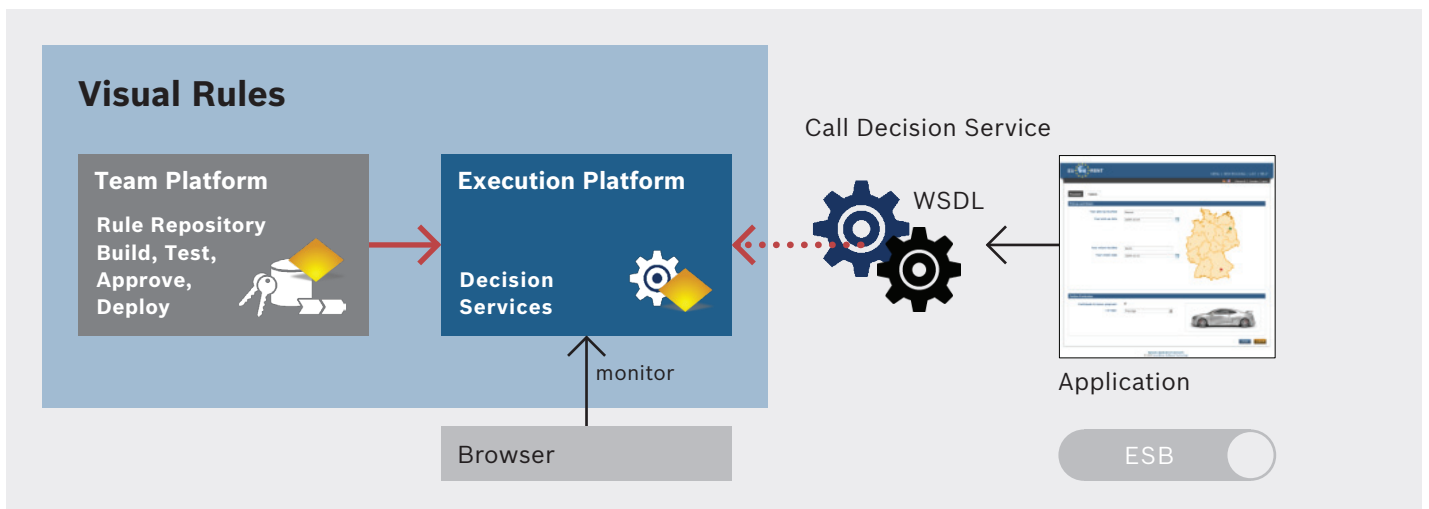
## Agility needs Integration

In order to bring rule agility into existing processes and applications, both the integration of rules and the continuous deployment of rule changes need to be well managed, but also very simple. Rule owners must be able to make rule changes whenever necessary, plan the date when the changes should become effective, and test and

publish these changes without IT intervention. The rule engine must automatically ensure that the correct version of the rules is used for each and every case. And finally, rule execution needs to be monitored and audited not only to meet compliance requirements but also to gain valuable feedback as input for future rule changes.

Visual Rules Execution Platform provides an elegant, centralized rule deployment and execution environment that allows rules to be easily integrated into many applications running on any platform. Its support of SOA integration standards and its advanced versioning capabilities robustly manage the simplest to the most complex rule management scenarios.

Let the power of dynamic business rules become an essential part of your SOA/BPM strategy using Visual Rules Execution Platform.



# Rule Services

Any rule models deployed to Visual Rules Execution Platform automatically become available as standard web services. These services can be consumed by a wide variety of clients, not limited to Java architectures only but also available to heterogeneous architectures or legacy systems.

The necessary WSDL and XML schema files are automatically generated and contain a detailed rule interface description that enables easy integration with any web service client. Services clearly indicate their inputs and outputs to support compile time validation of service calls.

Visual Rules Execution Platform also provides a generic service interface for scenarios where a more loosely coupled binding is desired.

<.NET Support/>

The rule services deployed to Visual Rules Execution Platform provide excellent integration into .NET applications and tools, enabling development teams to harness the unique power of graphical business rules for their .NET-based applications and systems.

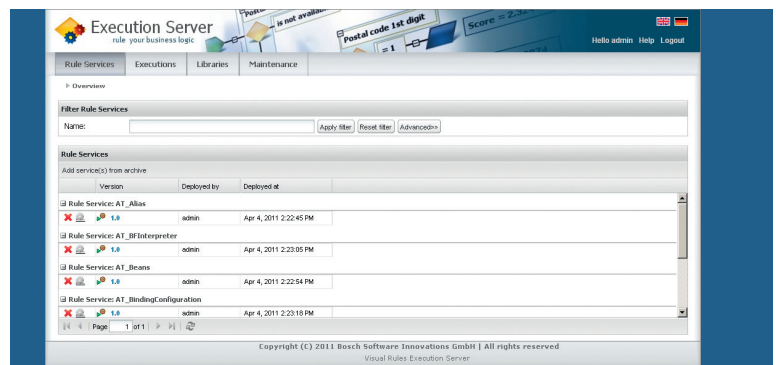
## Multiple Versions and Dynamic Request Routing

Rule-based systems often have very demanding rule versioning requirements. Rules constantly change and these changes usually have to come into and out of effect on specific dates.

The rule engine must always ensure that it executes the rules in effect. This includes the ability to go back in time and execute rules that were effective at some point in the past. And often it is not just time that needs to be considered, but also country, organization or client, for example. These may be additional parameters which need to be considered when selecting the correct rules and version to be executed.

Visual Rules Execution Platform enables you to handle such scenarios flexibly and easily by dynamically routing incoming requests to the correct version of the rules. Any number of rule models and versions of the same rule model can be deployed to Visual Rules Execution Platform and used at the same time (see figure 1).

Incoming requests are automatically routed to the correct rule model and version, based on effective date or any other metadata associated with the rules. The metadata and routing logic can be fully customized if necessary (see figure 2).



**Figure 1:** Web Administration Console displaying rule service versions available on the Execution Server, a part of the Visual Rules Execution Platform

Additional Metadata	
Add metadata	
Name	Value
Effective Date From	08/10/2007
Effective Date To	08/10/2011
Country	DE

**Figure 2:** Effective dates and country as metadata for request routing and execution of a rule

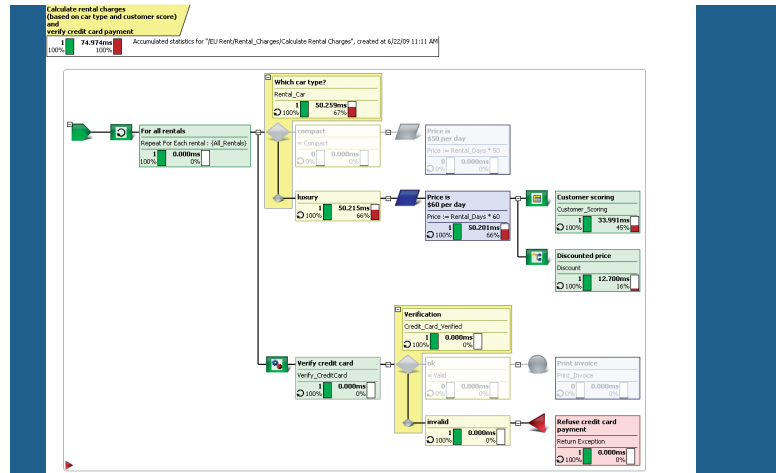
## Auditable Rule Execution History

Compliance regulations often require enterprises to be able to fully explain any decision they made. When was something decided? Based on which data? Using which rules? Visual Rules Execution Platform automatically produces rule execution traces (at custom levels of detail) and keeps a history in its database (see figure 3).

Using execution statistics combined with Visual Rules' unique visualization capabilities gives auditors full insight into the inner workings of rule execution and related business decisions (see figure 4).

Date	Rule Service	Version	Rule path	Execution time (ms)	Request ID
Apr 4, 2011 2:20:00 PM	Downstream_LGB	3.3.0	KRRFDownstream_LGB	1091	b25cc401-54b5-11e0-8584-21a1050001180
Apr 4, 2011 2:20:09 PM	FD_Calculation	3.0.0	KRRF_FD_Calculation	1091	b25cc401-54b5-11e0-8584-21a1050001180
Apr 4, 2011 2:40:59 PM	Downstream_LGB	3.3.0	KRRFDownstream_LGB	1046	b25cc401-54b5-11e0-8584-21a1050001180
Apr 4, 2011 2:45:54 PM	F-RS_EAD	3.0.3	KRRF-FRS_EAD	1046	b25cc401-54b5-11e0-8584-21a1050001180
Apr 4, 2011 4:26:59 PM	FD_Calculation	3.0.0	KRRF_FD_Calculation	1046	b25cc401-54b5-11e0-8584-21a1050001180
Apr 4, 2011 6:16:02 PM	Downstream_LGB	3.3.0	KRRFDownstream_LGB	42	b25cc401-54b5-11e0-8584-21a1050001180

**Figure 3:**  
Overview of execution history

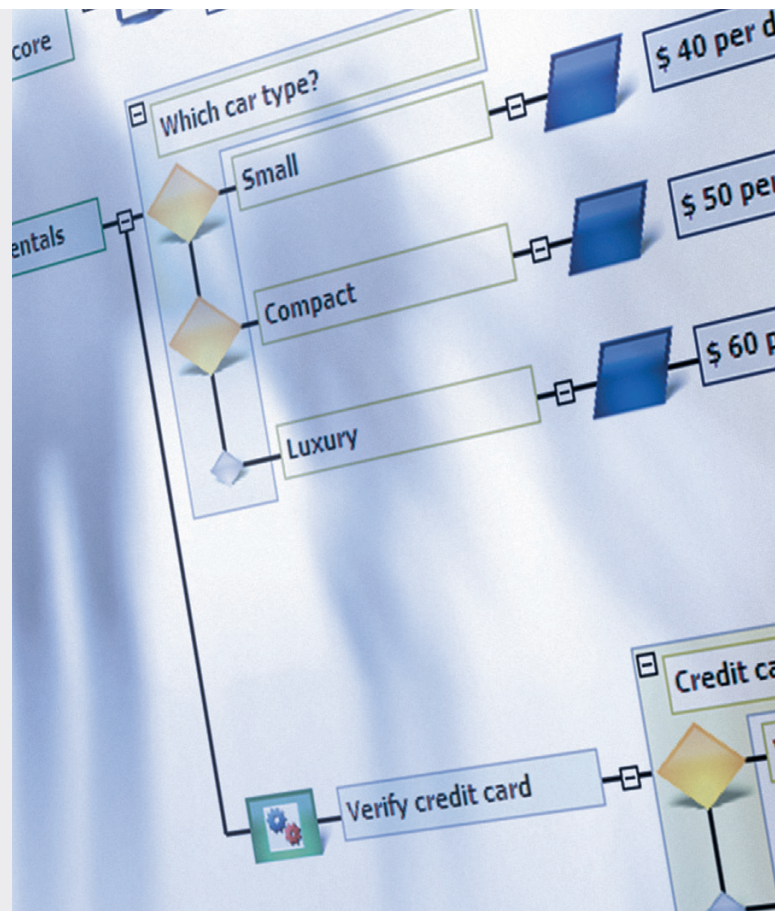


**Figure 4:**  
Rule execution statistics visualized in the graphical model

## High Scalability and Performance

Rule execution on Visual Rules Execution Platform is extremely fast. At runtime, Visual Rules uses pre-generated Java code to execute the rule logic at maximum performance and without any inferencing. Any number of simultaneous threads can execute the same rule logic without affecting each other. The sequential and stateless execution mode of the rule engine provides optimal linear scalability. Visual Rules Execution Platform can be deployed into standard Java EE application server clusters and automatically makes full use of all cluster members.

Dynamic loading of rule code and automatic unloading of unused rule versions ensure a small memory footprint, even with thousands of individual rule models (and versions thereof) deployed simultaneously.



#### Visual Rules Execution Platform lets Business...

- ▶ manage and publish rule changes automatically
- ▶ use multiple versions of rules simultaneously, e.g., with defined effective dates
- ▶ monitor and visualize rule execution in detail
- ▶ review decisions for any given time in the past
- ▶ automate complex decisions and remain fully auditable

#### Visual Rules Execution Platform lets IT...

- ▶ easily integrate rules with any web service client, such as .NET clients
- ▶ enable rule management for any business scenario, e.g., batch analysis
- ▶ ensure correct execution of multiple rule versions, e.g., by organization
- ▶ deliver an infrastructure for automating even complex decisions
- ▶ fulfill high performance and scalability needs for enterprise decision management

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