

SAP DSM/BRFPlus System Architecture Considerations



Applies to:

SAP DSM and BRFPlus all releases. For more information, visit the [SAP NetWeaver Decision Service Management](#)

Summary

This document throws some light on SAP BRFPlus and Decision Service Management system architecture considerations. Decision services are part of and integrated into business applications and thereby impact the overall application performance. The best performance can be achieved when executing pre-compiled coding locally, which is achieved by SAP DSM/BRFplus and a major difference to other rules engines, which must interpret coding (e.g. java based products) or require calls into different stacks and to different servers.

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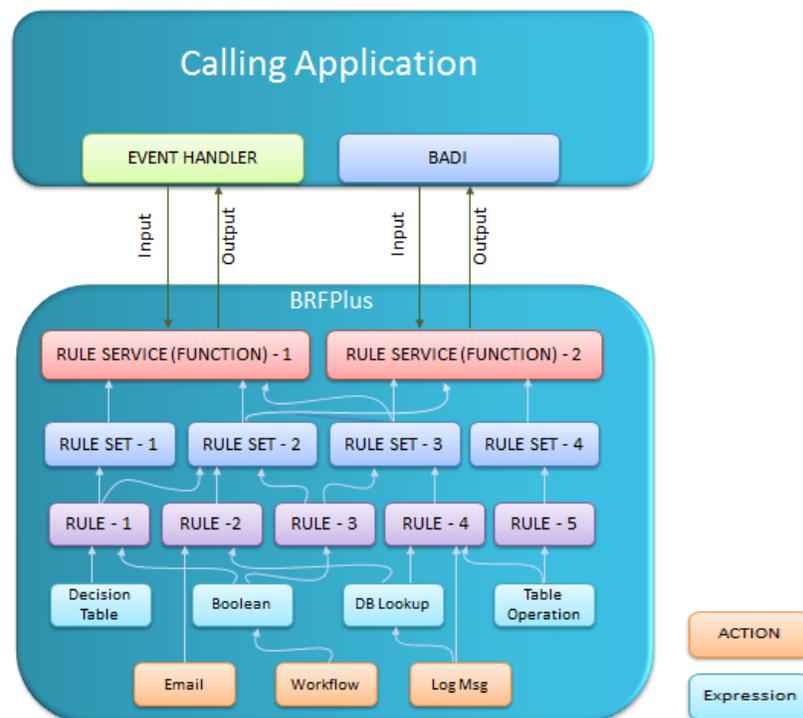
Introduction

SAP NetWeaver (NW) Decision Service Management (DSM)/BRFplus makes enterprises more agile by adapting to the dynamic business environment. Every business has rules and business users want complete control and visibility over these rules executed by the IT systems. BRFplus empowers business users to do so by decoupling business rules from the core application logic, which enables business users to maintain and test these rules without assistance from an IT team. With Business Rule services loosely coupled and exposed business functions can be facilitated, integrated and reused within different applications.

To achieve this, the system architecture plays a vital role for a successful BRFplus implementation. The main driver for the system landscape are the organizations' IT governance and the customer requirements. BRFplus is a SAP NW component and runs on an ABAP stack which means that any NW AS ABAP stack has BRFplus (i.e. ECC, CRM, SRM ...etc.) embedded. BRFplus can be implemented in different (centralized, decentralized and hybrid modeling and execution) models, each of these models have their own pros and cons. This Article will walk you through these models to make an appropriate choice for your landscape requirements.

Deep Dive

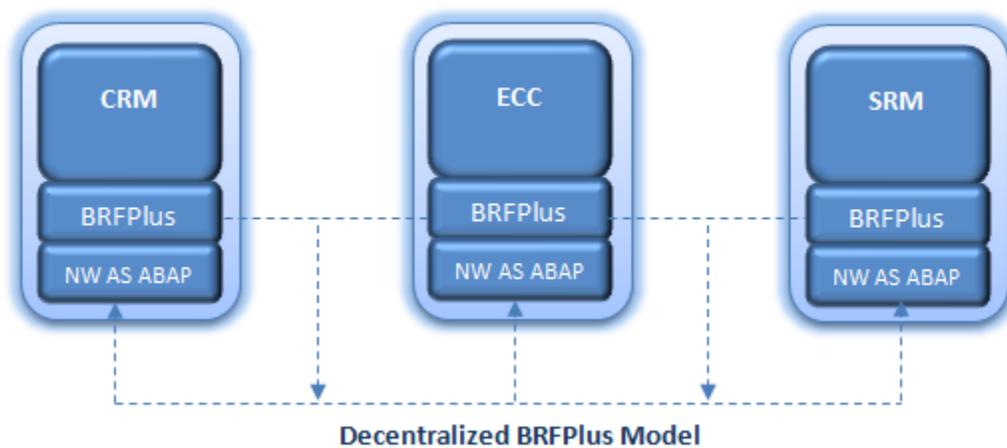
It is very important to have a deep understanding on the technical internal structure of this product to design sustainable system architecture. DSM will be introduced in the "hybrid model" section only as it is an add-on component to BRFplus. BRFplus itself is a model driven tool where the rules are being composed on a special workbench and stored in the rules repository. During runtime, ABAP coding will be generated when the rules are executed for the first time. Any subsequent processing will directly execute the pre-generated coding, which is one of the reasons of its very high performance. BRFplus has different building blocks to compose rules. Expressions & Actions are lowest granular building blocks which contain specific operations like loops, boolean expressions, cases, table operations ...etc.). Each of them will be assigned to rules and the rules will be grouped in rulesets, which are assigned to a function. A function is the executable block, which will trigger the execution of the assigned rulesets. For each BRFplus function an ABAP class will be. If the rules have different versions, separate ABAP classes will be maintained for each version. The generated ABAP class can be found in the BRFplus function section.



Decentralized Modeling and Execution

The best performance for executing BRFplus can be reached when executing the rules locally. As every NW Application Server (AS) ABAP stack has BRFplus built-in, business rules can be modeled in each of these SAP systems (e.g. CRM rules in a CRM system and ERP rules in an ERP system). Both, the BRFplus design time and run time components are tightly integrated into SAP NetWeaver. In some scenarios BRFplus applications require data from others systems (i.e. in order to process CRM business rules for evaluating a lead it may require data from an ERP system to read business partner information as this is the leading master data system). For this purpose, procedure calls can be used to execute any available or newly developed functionality to retrieve data from any SAP system. RFCs, BAPIs or web service calls cannot be directly executed but can be realized via wrapper functionality in ABAP (i.e. custom function module or methods).

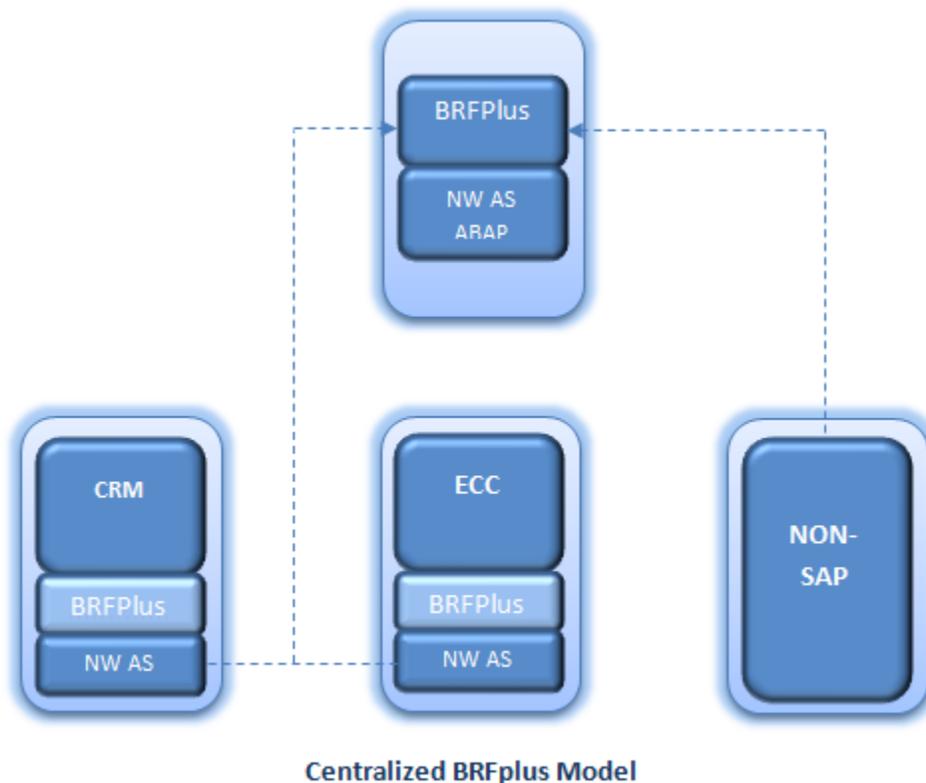
System upgrades have potentially more impact on decentralized than on centralized models if, for example, business rules are shared between an ERP and CRM team. After the release of a new NW version the ERP system shall be upgraded, but not the CRM system. In this scenario the BRFplus version would vary between the systems, which can cause unexpected behavior.



Centralized Modeling and Execution

The centralized modeling and execution approach is more suitable for customers who want to maintain one SAP system as a master system hosting all business rules for and across several systems. Thereby, entire organizations' rules can be developed, tested and executed centrally. Upgrades of satellite systems should not have impact on the central modeling/execution NW AS ABAP system, which respectively could always be upgraded to the latest version without impacting any other system. To realize this approach a separate NW ABAP stack (without any modules) can be installed to make it a centralized BRFplus system or any existing SAP NetWeaver 702 or higher system (recommendation: Use highest EHP) can be determined for this purpose.

The challenge with this central modeling approach (without DSM, following below) is to replicate data from satellite systems into the central modeling/execution system so it can be used for building rules. Furthermore, down times and delays due to replication and upgrades and performance issues due to Remote Function or Service Calls from the satellite systems into the central modeling/execution system for the rules execution will be significant issues. Even if the above issues are handled, certain functionality like data base lookups or calling standard functionality from satellite systems can only be realized via additional ABAP wrappers and procedure calls.



Hybrid Model – Central Modeling and Local Execution (Decision Service Management)

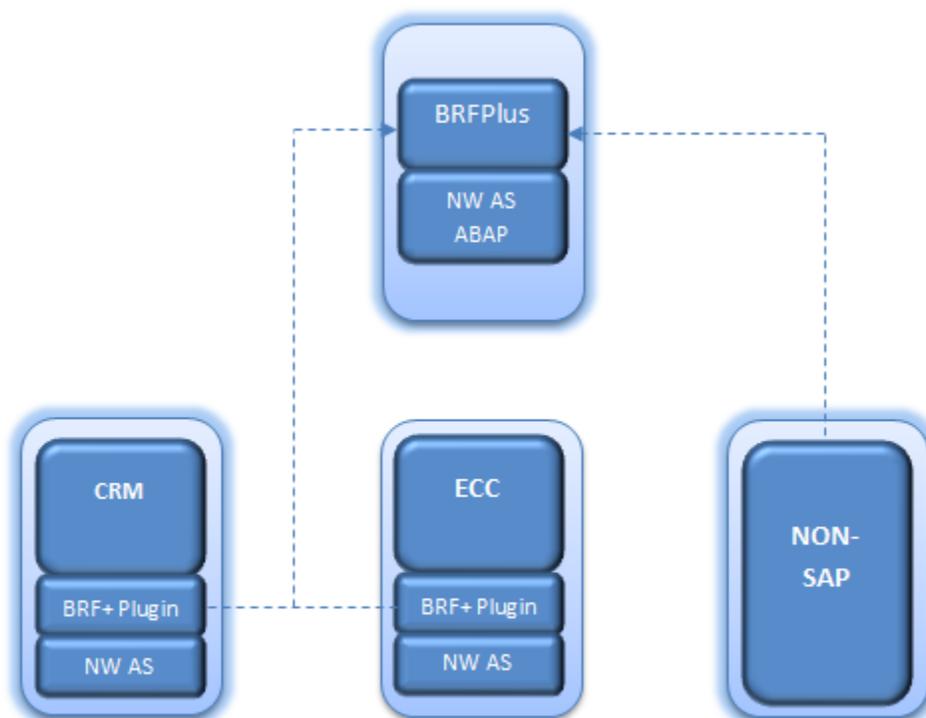
The Hybrid Model is a mix of two powerful features: A central modeling but local execution.

On **NetWeaver 7 Enhancement Pack 3** SAP introduced a new add-on called SAP NetWeaver Decision Service Management, which bridges the gap of centrally modeling while reducing dependencies.

How it works: The rules are composed in a central BRFplus system with DSM installed. At any point in time the rules can be compiled and deployed via the DSM workbench into any connected managed (satellite) system. There, the compiled coding will be executed locally with no need to connect back to the central modeling system.

The benefits of this approach are Zero down time as user sessions will not need to be terminated but any new user session will use the latest deployed version, reversion to previously deployed rules, deploying directly into test and productive systems, simulating rules behavior based on productive data before activating these and others. One central place for all rules in a customer landscape make it easy to manage and to find business rules

SAP also plans to deliver test case functionality for DSM with which test cases can be configured for rules and executed automatically. If changes to rules have been made all relevant test cases can be executed by one click and results can be verified. This can be combined with a security concept, which allows you to control that rules can only be deployed if all test cases have been passed successfully.



Hybrid BRFplus Model

Due to all the advantages explained above the best solution for most scenarios implementing SAP decision and rules services is using BRFplus with the DSM add-on. If this is no option (yet), the recommendation depends on the customers' architecture, policies use cases and ability.

Related Content

[SAP NetWeaver Decision Service Management](#)

[Business Rules Framework Plus](#)

[SAP DSM Help](#)

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