responsiv

simple · effective · distinctive

Responsiv Cloud Decision Service

RA0021K-PD

Product Description

Responsiv Cloud Decision Service

Responsiv Cloud Decision Service (RC-DS) hosts user defined rule sets that can be combined to make operational decisions.

Rules are requested by calling an API, and the platform can be integrated to other Responsiv Cloud Platforms or your own systems to externalise decisions that change often, or that are complex to program multiple times.

This product description describes the key features, functions, and capabilities of the product or service. It is not intended to fully document the product or to provide support.

Audience

This description is for architects and technical specialists to give a high-level, brief description of the product or service. It is intended to be used to inform users of the broad functions and scope of capability. Refer to linked product documentation for details. Responsiv reserve the right to change the specification at any time and without notice.

Obligations

This document is not an offer or contract. Neither Responsiv nor you have any obligations or liability to the other unless our authorised representatives enter into a separate definitive written agreement. Terms included in this document are not binding unless they are included in such a written agreement.

Observations and recommendations in this document are based on our opinions, experience, and knowledge of the product. Responsiv makes no representation as to accuracy or fitness for purpose.

Underlying Software

This description is for a Responsiv product that is implemented using a combination of capabilities delivered by pre-existing products. References to those products and their documentation are required to improve understanding of the capabilities that are available and how to access them using the available tooling. Responsiv makes no claim that our product provides all documented features. If a feature is of particular interest, please seek clarification with Responsiv.

Responsiv provide and support all embedded software in this product. For a full list of copyright notices please contact Responsiv. Most components are protected by the Apache, IBM, or MIT licenses.

https://www.apache.org/licenses/LICENSE-2.0

https://opensource.org/license/mit/

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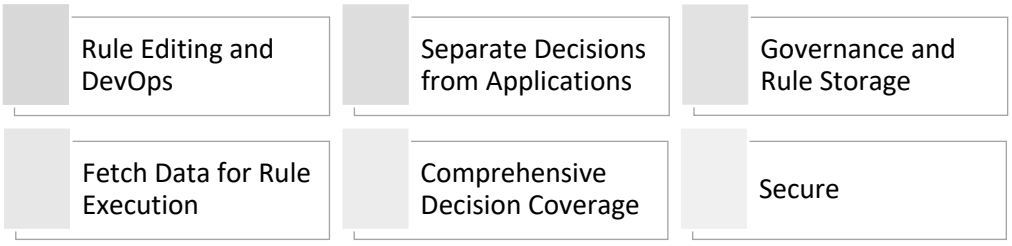
Service Overview

Responsiv Cloud Decision Service (RC-DS) hosts user defined rule sets that can be combined to make operational decisions. Rules are requested by calling an API, and the platform can be integrated to other Responsiv Cloud Platforms or your own systems to externalise decisions that change often, or that are complex to program multiple times.

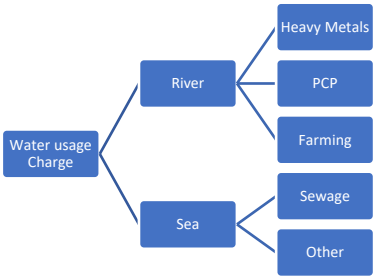


The Responsiv Cloud Decision Platform provides a runtime environment for your rule applications to execute. Separate business logic and policy from application development and allow those rules to be shared.

Rule Editing and DevOps

New rules are developed on downloadable Eclipse tooling and uploaded to the development environment to be tested and promoted directly to production.

The Cloud Service development and test environment has a rule execution server and a rule decision centre to support multi-departmental rule development, and to allow business users to change rule parameters without developer support. Source configurations for rules are stored in a repository on the development environment.



Separate Decisions from Applications

By extracting business decisions from application code, the decision becomes more formal, and can be shared across many applications in a consistent and robust way. The decision can be monitored and changed as the business needs evolve, and the change process can be properly governed.

- Consistent decisions across applications and business
- Simple to change for business users
- Describe and test complex decisions outside code
- Hidden details of how a decision is made to improve security
- Simple decisions made out of business hours and at rates not possible with human staff

Governance and Rule Storage

The business console gives access to revision management, change control, and rule catalogues for strong governance.

https://www.ibm.com/docs/en/odm/8.12.0?topic=services-using-governance-decision

https://www.ibm.com/docs/en/odm/8.5.1?topic=center-governing-rules-business-console

https://www.ibm.com/docs/en/odm/8.5.1?topic=console-business-basics

Comprehensive Decision Coverage

Technical Rules support constructs extend the capability of Business Rules with the addition of loops, IRL mapping and other more technical features. Technical Rules are written by using the ILOG® Rule Language (IRL). IRL is a language that looks like Java and can be run directly by the rule engine. See the Rule Designer documentation for more information.

- Process outcome or next step
- Branching and routing for process automation
- Rules reference external data, including Internet
- APIs to assure up to date informed decisions

Secure

The Responsiv Cloud Decision Platform is integrated and secured by the Responsiv Cloud Security Service. It benefits from multi-factor authentication (optional), as well as federated trust and LDAP synchronisation services.

RN0002C Responsiv Cloud Security Service

Accessing the Service

The service is hosted in Responsiv Cloud datacentres located in the UK and is accessible over the public Internet or using optional dedicated connections. Refer to Cloud Service Terms and Conditions for information about hosting providers.

Responsiv do not charge for data ingress or egress from our cloud platforms. We operate a "reasonable use" policy for network bandwidth and data capacity (see terms and conditions). Connections to public cloud platforms and services may incur data egress overage charges. Please refer to entitlement for details.

Recommendation: An optional service preparation package is available to help you set up connections, share certificates for security, and mentor staff on the use of this platform (See Optional Services).

Public Connections

Public Connections are used by customers and users that are accessing the platform from the public, untrusted, Internet. Most Responsiv Cloud Platforms do not allow public access.

Responsiv Cloud Platforms may be accessed from the public Internet by routing the connection through your own firewalls and intrusion detection arrangements. This ensures that we see the connection as originating from an internal network, and responsibility for its protection is with your security defences. The only platform that allows direct access to the public Internet is the Responsiv Cloud API Platform.

User Connections

User Connections are used by staff and others to access the platform from your internal (semi-trusted) networks. User connections are tunnelled over encrypted, mutually authenticated virtual private networks (VPN), or transport layer security (TLS) connections. These connections are explicitly allowed through our firewalls from a named set of Internet Protocol (IP) addresses.

Responsiv Cloud Security Service intercepts all user traffic. Depending on how the service is configured, the user will be challenged for a security token, then for a username and password. The username and password is checked against the identity store, which can be local to the cloud or external in your own control.

Recommendation: To reduce the management overheads of setting up new users, and the risk of maintained privilege when they no longer require access, Responsiv recommends configuring external identity storage and/or federated trust.

Data Connections

Data Connections are used by systems inside your private network to connect to and from the cloud platform using specific protocols. Connections are tunnelled over encrypted, mutually authenticated virtual private networks (VPN), or transport layer security (TLS) connections. These connections are explicitly allowed through our firewalls from a named set of Internet Protocol (IP) addresses. The Decision platform accept HTTPS, or IBM MQ connections from named addresses.

Decision services expose an API that can be called to receive a decision. The information needed to make the decision can be in the request or fetched by the rules. Decisions are organised as a dependency tree to include other decisions.

Administrative Connections

Administrative Connections accept HTTPS connections to access browser-based tooling and consoles. These connections are not directly accessible to customers or from public Internet connections.

Customer Place Connections

Each Responsiv Cloud customer is assigned their own "Customer Place".

This is a walled garden network environment that is private and secure and may span multiple physical locations. Customer places are protected by state-of-the-art firewalls, governance, and management practices. Responsiv Cloud Platforms are deployed or attached to the customer's place, creating a secure region of capabilities that can be connected. Responsiv Cloud Security Service is attached to each platform and to the Customer Place.

Platforms and Services deployed to the same Customer Place can be connected or clustered to deliver reliable and available business solutions. Platforms and Services deployed in separate Customer Places cannot be directly connected.

Features

Responsiv Cloud Decision Service (RC-DS) supports fine-grained authorisation policies and combinations of access control mechanisms.

RN0002C Responsiv Cloud Security Service

Responsiv Cloud Security Service is described in "RN0002C Responsiv Cloud Security Service". It provides attribute-based access control (ABAC), which uses information about the subject rather than predefined roles to determine authorisation. Role-based access control (RBAC), which uses predesignated roles to determine access to resources. User-based access control (UBAC), which assigns permissions to individual users, and Context and Time-based access control (CBAC).

IBM Decision Server

Decision Server has development and runtime components for a rule-based solution that automates highly variable decisions required by client applications.

IBM Decision Centre

Decision Centre is installed on WebSphere® Application Server (WAS) configured as a single member cluster. Decision Centre is an environment for **business users** to author, manage, and test their business and event rules. Decision Centre offers a ready-to-use method for change management and governance.

https://www.ibm.com/docs/en/odm/8.5.1?topic=center-governing-rules-business-console

https://www.ibm.com/docs/en/odm/8.12.0?topic=center-overview-decision

The Decision Centre repository supports one rule model. If you have rule projects that have a customized rule model, you will need to add other Decision Centres to the topology.

Rule Designer

Rule Designer is an Eclipse-based development environment in which you design, author, test, and deploy decision services.

Design and development of decision services are managed through rule projects.

The decision service allows complex decisions that involve several rule projects to be grouped as one entity. Synchronisation, branching, and change management are applied to all rule projects in the decision service hierarchy, allowing the decision service behaviour to be governed and deployed consistently.

Authoring rules can be completed in the project or through end-user tooling.

You can create the different types of business rules, mainly action rules and decision tables. These business rules are all based on the Business Action Language (BAL), which is designed to look like natural language. In addition, you can create technical rules, which are based on the ILOG® Rule Language (IRL) and require programming skills.

Define vocabulary categories to filter the vocabulary elements that are available when you author business rules. Create rule authoring extensions. You can use these extensions to integrate value editors for specific vocabulary elements, or to define dynamic domains that retrieve values from a data source.

Rule Samples are available to accelerate time to value.

https://www.ibm.com/docs/en/odm/8.12.0?topic=rules-overview-decision-server

https://www.ibm.com/docs/en/odm/8.12.0?topic=8120-samples-environment

Rule Execution Server

Rule Execution Server is an execution platform for business rules that embeds the rule engine. It provides a console to manage and monitor the execution of business rules. Rule Execution Server is installed on a WebSphere® Application Server two-member cluster.

https://www.ibm.com/docs/en/odm/8.5.1?topic=installing-installable-components

Rule Database Archive

Databases are created on a single High Availability Disaster Recovery (HADR) database cluster that supports each environment so that WAS cells and environments are encapsulated except for the Decision Centre. The development and test environments are identical with the Decision Centre cluster shut down.

Optional Services

Optional services are available to extend the capabilities or capacity of Responsiv Cloud Platforms and other products.

RT00094 Responsiv Assist Flex Support

Responsiv Cloud Decision Platform is a supported and fully managed platform. Support can be extended to “float” across all the applications you deploy to the platform. The result is that we will handle problems with the platform and work with you to recover, repair, or work around problems in your applications.

Annual agreement that allows customers to make service requests asking for help with development, designs, problem resolution, and other mentoring and support subjects. You may request support with recovering from an incident, however this service does not offer and is not strictly suitable for incident response.

Responsiv Consulting

Responsiv Consulting can be used to support rule developers with design guidance and development skills and capacity. Use fixed price services to develop specific rules and decision services, or time and materials to augment existing project teams with skilled capacity and mentoring.

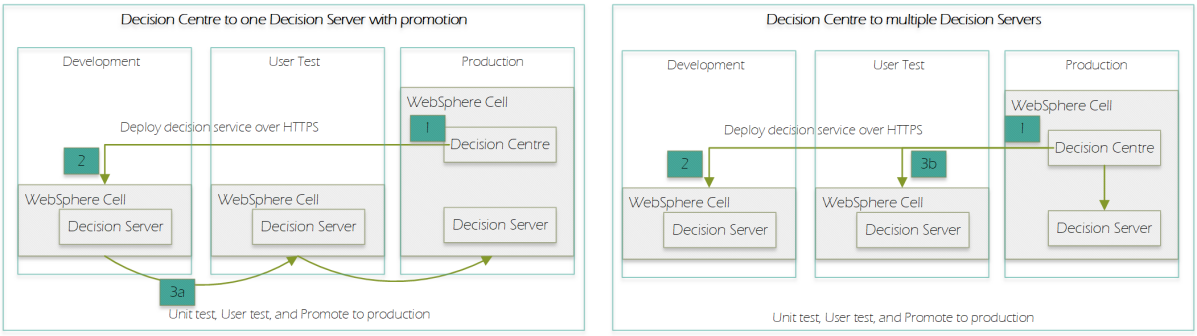
Responsiv Cloud Platforms

Responsiv Cloud platforms is a term used to include all platforms provided by Responsiv from one or more of our cloud hosting locations, including Azure, IBM Cloud, and AWS. Responsiv Cloud Platforms are integrated with the Responsiv Cloud Security Service for role based, federated security, and many can be clustered to deliver a datacentre as a service.

See website for details https://responsiv.co.uk/?s=Responsiv%20Cloud

Developer and Administrator Tooling

Rule Designer is a downloadable Eclipse-based development environment used to design, author, test, and deploy decision services. Design and development of decision services are managed through rule projects.



[1] Develop rules and manage them using the Decision Centre. Responsiv Cloud Decision Platform has a single Decision Centre deployed as part of the production environment.

With this topology, two deployment strategies can co-exist; an executable decision service can be deployed from Decision Centre and then promoted directly from one Decision Server to the next [3a]. Alternatively, the Decision Centre can be used to control all deployments, which may better support branched projects.

The Decision Centre repository supports branching and merging of projects so that you can deploy different versions of your executable decision service across all Decision Servers. This is useful in situations of emergency fixes for example.

[2] Rule packages are deployed from the decision centre directly to development. After unit testing, the package is promoted to User Test and then to Production. Promotion can follow the pathway [3a] or [3b].

Rule Development

A technical rule is made of a condition part and an action part. Other rules and their structures are available and described in the product manuals.

https://www.ibm.com/docs/en/odm/8.12.0?topic=8120-decision-center

https://www.ibm.com/docs/en/odm/8.12.0?topic=8120-decision-server-rules

The condition part, which begins with the keyword when, binds variables to objects and attribute values, and specifies tests on attribute values. This provides a filtering mechanism for objects. IRL condition keywords are collect, evaluate, exists, from, in, Instanceof, not, where.

The action part, which begins with the keyword then, specifies the actions to be carried out if the rule is run. It includes an optional second part that begins with the keyword else, that applies only if the last evaluated statement in the condition part is false. IRL action keywords are Break, Catch, Continue, Foreach, Modify, Retract, Try, Update, Throw, While, Rule Actions, Decision Operations.

Supported Protocols

Connections support all protocols subject to firewall policies. Responsiv limit protocols to those that are used by our cloud platforms.

HTTPS Webservice Calls

HTTPS is the only protocol supported for webservice calls.

IBM MQ and other protocols are available by request.

Service Management

Responsiv manages this service, including active health monitoring, patching, upgrades, and general maintenance. The service is available 7x24.

Service Preparation

This service is prepared by adding it to a "Customer Place" and if needed, configuring the Responsiv Cloud Security Service and networks.

Service Level Agreement

This service is supported by Responsiv from our UK offices.

The service includes product/platform support only and is triggered by automated monitoring built into the platform or manually accessed from our website.

https://responsiv.co.uk/support-hub/support/.

The service level agreement (SLA) for Responsiv Cloud services (RL000F6 Responsiv Support Services Addendum v1.0) see links below. The SLA defines support available for the platform including support hours of availability, response times, severity level, Service Down definition, the claim process and other support information. Responsiv provides the Customer with the following availability service level agreement (SLA). Responsiv will apply the highest applicable compensation based on the cumulative availability of the Cloud Service as shown in the table below.

https://responsiv.co.uk/wp-content/uploads/2023/11/TC-RL000F6-Aug2023-Responsiv-Support-Services-Addendum-v1-0.pdf.

Format and Charging Measures

This product is available in the following formats:

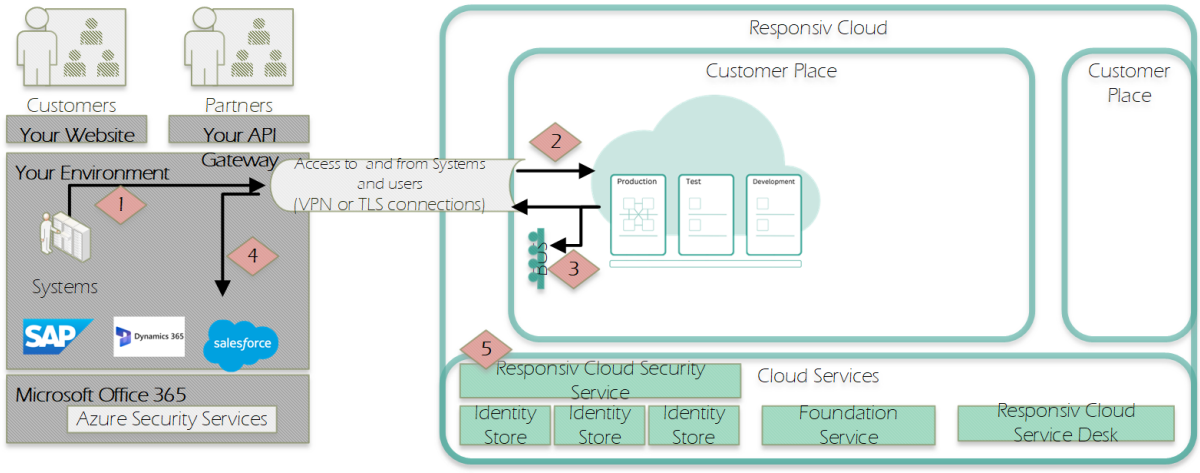
- Responsiv Cloud Platform

This product supports charging by instance, rule executions, defined rule objects, registered users, and duration.

Entitlements use a combination of charging measures that are appropriate to the intended purpose.

Architecture

The Responsiv Cloud Platform is organised into isolated areas known as "Customer Places" to protect and isolate the data and resources owned and used by different organisations. Each organisation can access their place but cannot access other places.



\\Mac\Home\RSL\Corporate Management\Catalogue23\Description Drawings Sep23 v0-2.vsdx

The Responsiv Cloud Decision Platform consists of a production and development environment connected by a deployment pipeline to allow you to develop and test your business rules before authorising their deployment to your production environment.

The Responsiv Cloud Decision Service is triggered by an API call [1] to a decision service [2]. The decision logic is executed and may involve a call to fetch additional information [4]. The result is returned. Decision services can be exposed through a service bus [3] and APIs and user access is protected by the Responsiv Cloud Security Service [5].

Production

The production environment consists of two rule execution servers configured in a resilient cluster. The combination removes single points of failure in the network, hosting, and platform software to deliver a highly available service.

A repository for storing business and event rules, and web interfaces (Decision Centre Business Console and Decision Centre Enterprise Console) for business users to manage decisions.

User Test and Development

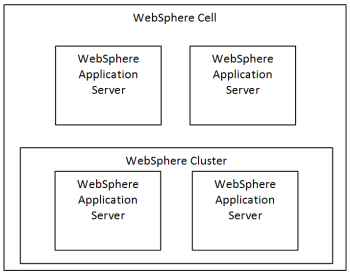
The test and development environments consist of a test rule execution server to support multi-departmental rule development and use.

Databases

The decision service relies on four databases used to store and share developed rules, and to record rule execution.

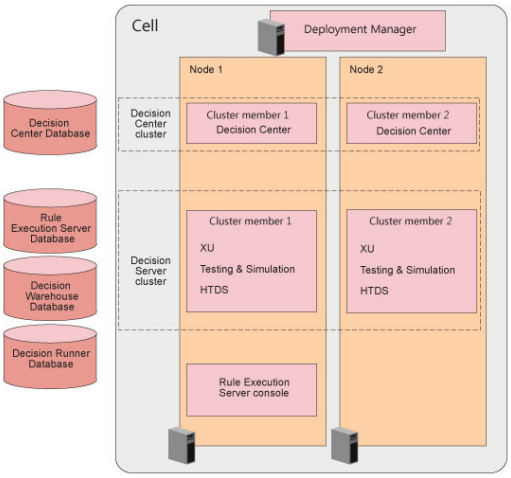
WebSphere Concepts

A WebSphere installation is termed a cell, and many are allowed to co-exist in a network or virtual environment.



Each cell is independent of all others and contains one or more WebSphere Application Servers. A load balancing component is generally placed in front of the cell to balance and route traffic across the cell members.

To provide a level of fault tolerance, clusters of pairs of WebSphere Application Servers can be defined to allow the members to share session data and run identical applications.



Using a WebSphere cluster, several Decision Servers or Decision Centres can be configured identically on different nodes.

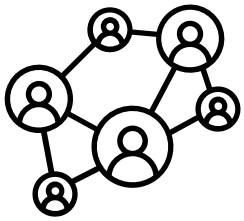
A load-balancing system can be used to distribute the requests to the different cluster members. Also, if one node fails, another one can be used. The production stage of the decision service lifecycle should use clustering.

The following diagram shows a cell containing:

- WebSphere Application Server Deployment Manager that serves as a single management point for all the components of the cell
- Decision Centre cluster with two members
- Decision Server cluster with two members
- Rule Execution Server console that is stand-alone, that is, not within a cluster

Customer Place

Each Customer Place provides “cross platform services”, for example security identity storage, monitoring, time services, and directory services. These support Responsiv Cloud Platforms that are deployed into the Customer Place.



Cloud Platform

Each Responsiv Cloud Platform provides a specific capability in the same way as you might organise your selfhosted enterprise capabilities. Responsiv Cloud Platforms provide production and development/test environments to allow you to develop and support your custom applications, and to connect cloud platforms to deliver enterprise services.

Production

Production operations are based on a two-member deployment that is configured to remove all single points of failure in the software. Rules are promoted to production from test or development environments. Business experts manage the logic of decisions using Decision Centre, which allows users to change and create new rules and decision tables.

Test

Testing can be performed independently of development to allow the development team to deploy a candidate production build for user acceptance and other functional testing. Rules are promoted to test from the development environment.

IT developers produce new versions of decisions using Rule Designer, where they can add attributes and classes to the XOM, generate BOM business terms and facts and create new business rule applications.

Development

The development environment provides development facilities, including a source code repository to store and version control sets of rules.