iWD Overview

intelligent Workload Distribution 8.1.0

3/14/2022

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intelligent Workload Distribution Overview

Welcome to the intelligent Workload Distribution (iWD) Overview Guide, where you'll find high-level, conceptual and architectural information about iWD.

This document has three primary audiences:

- IT staff who are responsible for the iWD installation and system configuration (such as servers, connections, and services).
- Business analysts who are responsible for iWD business configuration (such as contracts, business processes, and rules).
- Team managers responsible for managing enterprise resources who are working on tasks that are supplied by iWD.

IWD Overview

Introduction

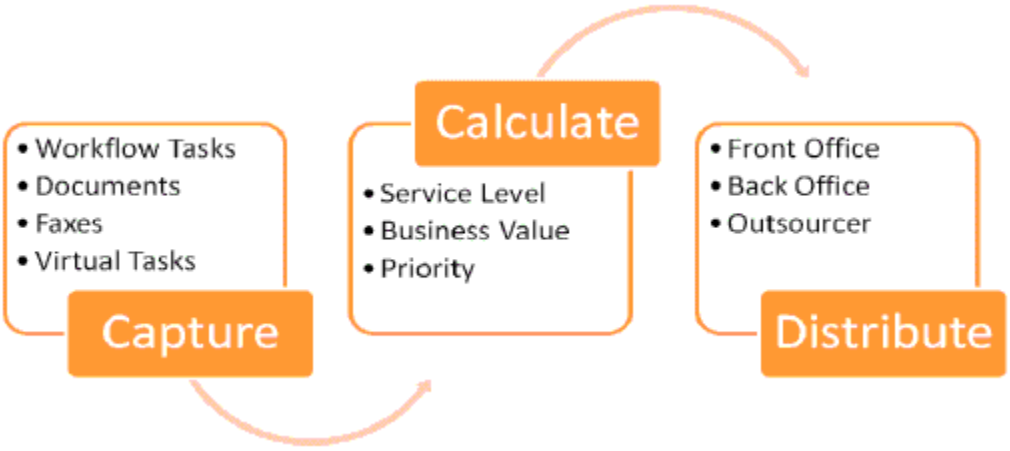
The intelligent Workload Distribution (iWD) solution creates an enterprise-wide task list that is centrally managed and prioritized. It allows work to be presented to the right resource, at the right time, and at the right location. It captures non-real-time work (tasks) from multiple source systems, uses business rules to prioritize or reprioritize the tasks, and then distributes the tasks to the most suitable resource.

iWD works in concert with the Genesys Customer Interaction Management (CIM) Platform—enabling a centralized service delivery platform, and proactively managing interactions and tasks across all channels and media.

iWD uses a Global Task List (which is sorted, based on business value) to ensure that the right resources—regardless of their location—are proactively receiving the most critical or highest value tasks, regardless of media type, at the right time.

As shown in the figure below, iWD supports three main areas:

- Capturing tasks from multiple sources
- Calculating task values
- Distributing tasks



IWD Overview

Capturing Tasks from Multiple Sources

A key function of the iWD solution is the ability to capture work from the multitude of work sources in the enterprise, such as documentation management systems, CRM systems, workflow systems, claims administration systems, legacy host systems, Enterprise Service Bus (ESB) systems and so on. iWD integrates with these source systems through Capture Adapters (also referred to as capture points).

The out-of-the-box Capture Adapters are:

- Web Service—To use with source systems that have service-oriented interfaces.
- XML—To integrate with source systems that include the ability to generate XML files.
- Database—To use with systems that do not offer service-oriented interfaces or provide XML output capabilities.

In addition to these out-of-the-box capture adapters, there is an optional Java Message Service (JMS) capture point available that can be used as an add-on to capture tasks from enterprise source systems that support the JMS enterprise messaging system. JMS is a popular messaging infrastructure that is supported by many enterprise applications and middleware components, including SAP NetWeaver, TIBCO, Oracle Fusion, and IBM WebSphere MQ Server.

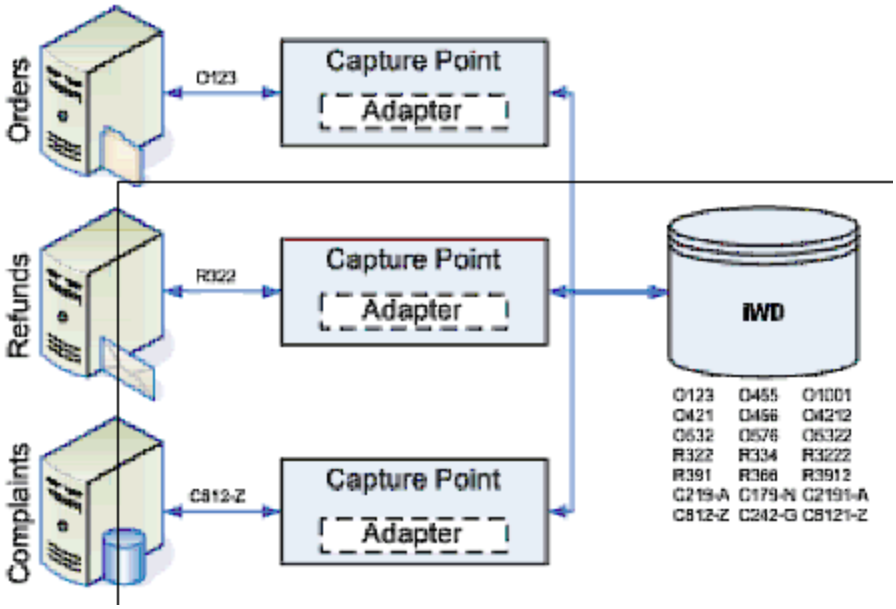
> **Important**
>
> Interaction Server is already a required component of the iWD solution. Therefore, no additional installation is required to enable the capture point functionality, only some additional configuration. For additional information about capture point functionality within Interaction Server, see the *eServices 8.1 Reference Guide* and *eServices 8.1 User's Guide.*

Capture Points are enabled by a Capture Adapter. Each Capture Point is a specific instantiation of the Adapter for capturing a specific sort of work, that is often associated with a specific business process, such as an order, refund, or return. The Adapter is technology-specific, while the Capture Point can be specific to a source system, a category of work that is derived from a particular source system, or even a specific business process.

Capture Point Process Diagram

To establish a connection with the correct source system, each Capture Point requires the configuration of specific properties such as file directories for Capture Points that use the XML Capture Adapter or SQL queries for Capture Points that use the Database Capture Adapter.

In some configurations, the Capture Point is not necessarily specific to a business process. For example, one Capture Point can support capturing orders, billing, and complaints.



Capture Point Process Diagram

Calculating Task Values

Using the business rules that are configured by users, iWD calculates service-level values such as task due date, business value, and priority. By using these values, iWD orders tasks from most important to least important, and monitors and proactively manages tasks to ensure compliance with service-level objectives that are specific to your business.

Prioritization of Tasks

Prioritization is the process by which iWD arranges the Global Task List in order of priority or importance, based on business rules that are configured at the Global level, or for the Department or Process. The fulfillment of one task over another might provide a benefit to the business, such as increased revenue, decreased costs, improved customer satisfaction, or avoidance of a penalty or fine. Business rules within iWD are based on business rule templates that are provided out-of-the-box with the iWD installation. These templates, which are the foundation for the business rules that govern iWD, are normally created or modified by IT personnel by using the Genesys Rules Development Tool (GRDT). After the rule templates are published, business users can create or modify rules by using the Genesys Rules Authoring Tool (GRAT), without having to involve IT personnel.

Reprioritization of Tasks

At any time, the information that is related to a task can change and affect the task's priority. A simple example of where reprioritization can affect the initial priority that is set is the time that remains before the due date of a task. For example, assume that you have a time-sensitive process that includes tasks that involve dispute resolution. If the disputes are not resolved within a specific number of days (for example, 10 days), the organization might be fined. You can configure a business

rule that specifies that if such a task is within two days of its due date, the task should be reprioritized with the highest priority, so that it is immediately assigned to an employee. iWD can be configured so that each captured task receives a task reprioritization interval, when business rules are applied and new values are set for the task. Some tasks might increase in priority, while others might decrease.

Distributing Tasks

iWD distributes tasks to front- or back-office resources, or to external partners like business process outsourcers, working in concert with the Genesys CIM Platform.

All iWD tasks are managed through the Genesys Interaction Server and are assigned (routed) to employees by the Genesys Universal Routing Server (URS). Although iWD performs prioritization and reprioritization, it does so only to set values for priority routing within the Genesys CIM Platform. URS can leverage the iWD-calculated priority and business values in its routing strategies, or it might calculate its own; in either case, URS ensures that the most critical tasks are presented to agents first. URS continues to reevaluate priority for tasks that it has received against real-time voice and other non-voice interactions—ensuring that the most important is presented next.

Reporting

See the main iWD Reporting topic for more information.

Task Archiving

Task archiving changed significantly between iWD 8.0/8.1.0 and iWD 8.1.1.

Releases Between 8.0 and 8.1.1

In post-8.0 releases, every task was updated by business rules to provide an archive destination and an expiration timestamp (iWD_expirationDateTime). When a task reached one of three queues in the iWD Business Process (`iWD_Completed`, `iWD_Canceled`, or `iWD_Rejected`) and the task's expiration timestamp had passed, the task would be moved to an Archive routing strategy. In that strategy, depending on the value of the archive destination attribute associated with the task, the task would either be:

- Deleted
- Moved to another Interaction Server; or;
- The expiration of the task would be rescheduled.

Release 8.1.1

Based on usage patterns of iWD customers, the archiving process was simplified in iWD 8.1.1. The

notion of archiving a task is really about providing a way for a business user, through the Global Task List, to view tasks that are not currently in process. Moreover, these 'archived' tasks may optionally be maintained in a separate database partition in Interaction Server, to improve system performance.

Starting with iWD 8.1.1, the following changes were made to task archiving:

- Any task in `iWD_Completed`, `iWD_Canceled`, or `iWD_Rejected` is now considered archived, as distinct from tasks in any other queues, which are considered current. An Archived filter has been provided for the Global Task List, that will display all tasks in any of those three queues.

When a task is in one of those three queues and its expiration date/time is in the past, the task is moved to a routing strategy where it will be removed from the Interaction Server database. This strategy has been renamed from Archive to Removal to more accurately describe its function.

- The Removal strategy no longer invokes any business rules at the archiving phase, and it no longer provides the ability to move a task to a separate Interaction Server or reschedule the expiration of the task.

Instead, the logic in the strategy simply deletes (stops processing) the interaction. This will remove the interaction from Interaction Server's Interactions table but will maintain the associated events in the Interaction Server Event Log database tables, which is necessary for iWD Data Mart.

The rule action called Archive destination "{archive}" is no longer needed, because expired tasks will always be deleted by the logic in the out-of-box IWDBP Business Process.

The archiving rule phase is still provided in the iWD Standard Rules Template, as is the rule action Archive destination "`{archive}`", for migration purposes. Customers could choose to customize the Removal routing strategy if they had a business reason to do some special processing on tasks that have reached their expiration date, other than simply deleting them.

Centralized Logging

iWD 8.1 also has a centralized logging feature that supports logging of iWD log messages through Genesys Message Server. This feature provides the additional capabilities of viewing these log messages through a centralized log viewer (such as that included in Genesys Administrator) as well as the ability to generate alarms and SNMP traps through Genesys Solution Control Server.

Technical Licensing

To view tasks (interactions) in the iWD Global Task List, iWD Manager connects to Interaction Server on behalf of an agent. The user who is logged into iWD Manager must have a Place ID configured, and the connection to Interaction Server is made on behalf of this user who has this Place ID.The number of iWD Manager users cannot exceed the number of `ics_multi_media_agent_seat` technical licenses that you have provisioned in your Flexlm license file. Keep in mind that Interaction Server also uses agent seat licenses for agents who will be accepting and processing tasks (interactions) at their agent desktops, so that the total number of `ics_multi_media_agent_seat` technical licenses that you have should account for not only the number of concurrent agents who are processing tasks at their desktops, but also the number of concurrent users who will be accessing the Global Task List.

To process the iWD tasks at the agent desktop, Interaction Server also checks the number of licenses that are provisioned in the Flexlm license file for each media type that is being handled by the agents. These media type technical licenses are not required for any iWD Manager usage.

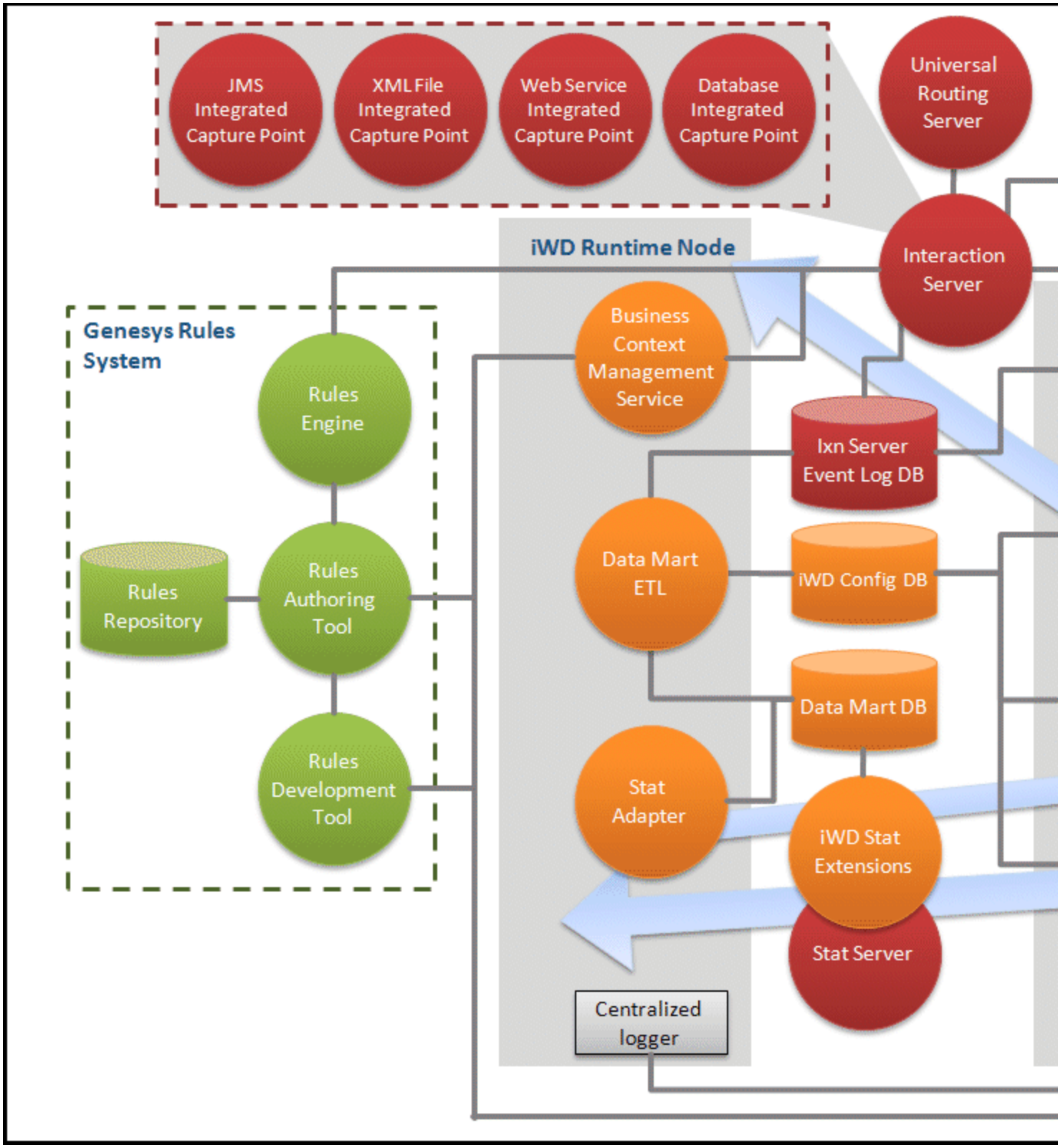
If you plan to use iWD to process emails that are not being “captured” through the Genesys E-mail Server, then it is best to use a custom media type, rather than the media type email. This is because handling the media type email requires a specific Flexlm license to be checked out (`ics_email_webform_channel`), whereas there is a separate general Flexlm license used for all custom media types (`ics_custom_media_channel`). For this reason, it is recommended to create a custom media type (such as `email1`) for work items of type “email” that are not being captured by the Genesys E-mail Server. For more information, see the Genesys Licensing Guide.

IWD Architecture

The iWD Solution is made up of the following major building blocks:

- iWD Manager—A Java web application that runs on a web application server.
- iWD Runtime Node—A collection of Java services that runs on a web application server.
- Genesys Rules System—A set of software components that are used for rule template development, rules authoring, and rule evaluation. The Rules Engine and Rules Authoring Tool are web applications that run on a web application server. The Rule Development Tool is an Eclipse plug-in.
- Genesys CIM Platform—Core Genesys components that provide interaction management (Interaction Server), routing (Universal Routing Server), employee presence and employee and queue-based real-time statistics (Stat Server), and configuration and management services (Genesys Management Framework, including Configuration Server and Message Server).

The figure below illustrates the detail-level building blocks of the intelligent Workload Distribution solution, the relationships among them, and the external components that are involved.

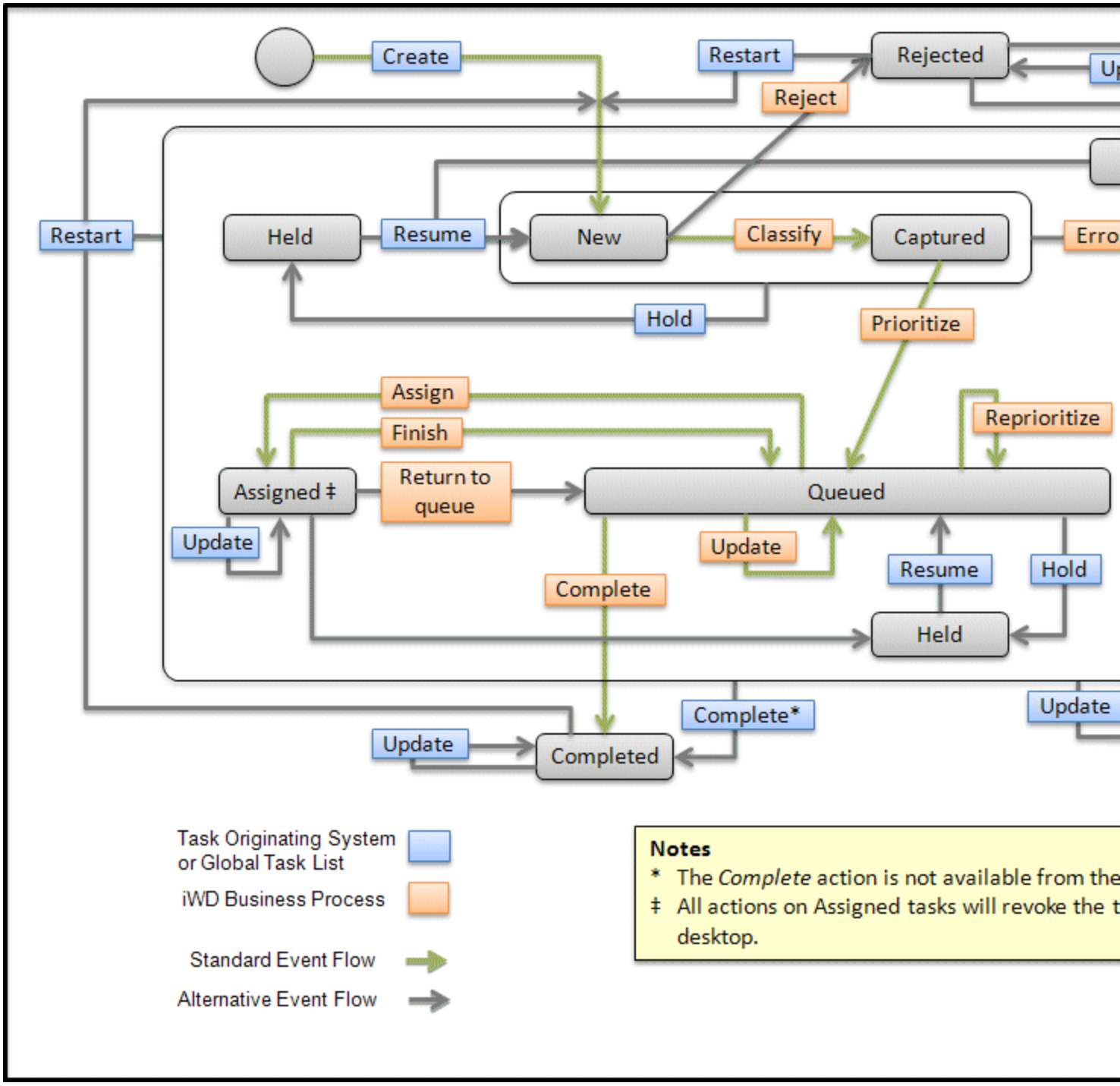


IWD Architecture

Centralized Logging

The centralized logging feature that supports logging of iWD log messages through Genesys Message Server. This feature provides the additional capabilities of viewing these log messages through a centralized log viewer (such as that included in Genesys Administrator) as well as the ability to generate alarms and SNMP traps through Genesys Solution Control Server. Refer to the Deployment Guide for information about configuring centralized logging.

IWD Task Lifecycle



iWD Task Life Cycle

IWD Reporting

The key to achieving the desired business results is having access to actionable business intelligence. Genesys iWD offers comprehensive reporting, providing management insight into business operation. It provides key indicators of performance both through current-day statistics and on an historical basis. The historical metrics are provided based on aggregates and measures that are populated by scheduled ETL processes, which extract data from the Genesys Interaction Server Event Log database and load it into the iWD Data Mart.

iWD monitors the entire lifecycle of tasks, from the moment that they are captured until they are stopped (removed from the system). iWD provides:

- Consolidated reporting across the various systems that are involved in customer-service delivery: fax servers, workflow, customer-relationship management, and Genesys Customer Interaction Management.
- Reporting that is based on business context—with business process, customer segment, and product independent of channel, instead of being limited to interactions, queues, channels, and workflows.

It does this by monitoring a number of events, including the following:

- New—The point at which the task was captured by the Capture Point
- Classification and Reprioritization Rules Applied—All rules that are applied to the task, as well as the values that are calculated and assigned to the task
- Queued—The point at which the task has been classified and prioritized and is awaiting potential reprioritization or assignment to a resource
- Assigned—When the task was assigned to an employee for processing
- Transfer/Transfer to Queue—Whether the employee transferred the task to another employee or back to the queue
- Held—Whether the task was held (manual hold)

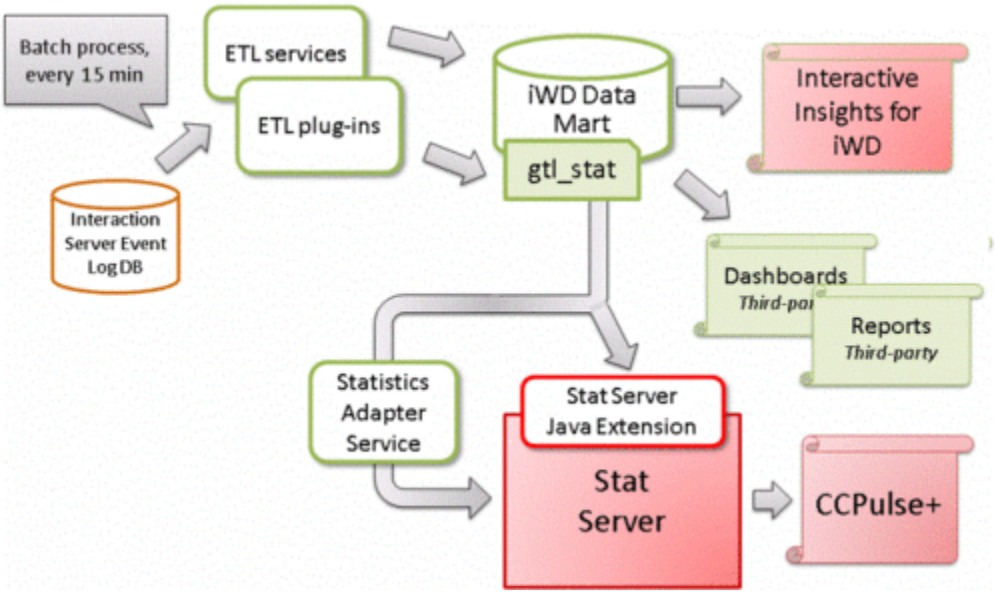
Each record is timestamped and stored in the iWD Data Mart, where the data that is collected can be leveraged in third-party reporting applications.

Customers can build reports by querying the iWD Data Mart by using the reporting tool of their choice. In addition, Genesys offers the Interactive Insights for iWD product, which includes a data universe and nine out-of-the-box reports, built to be used with the iWD Data Mart. In addition to the iWD Data Mart, iWD 8.1 interoperates with Interaction Concentrator and Genesys Info Mart for historical reporting. Certain Info Mart fact tables (for example, `MMEDIA_IXN_FACT_EXT` and `MMEDIA_SEG_FACT_EXT`) store media-specific facts about open media as well as multimedia interactions and multimedia interaction segments.

iWD tasks all flow through Interaction Server queues as Open Media interactions (sometimes referred to as Third Party Media), so that these tables in Genesys Info Mart are populated with iWD data. Refer to the Interaction Concentrator and Genesys Info Mart documentation for more information.

Reporting Architecture

The following figure provides a functional overview of iWD's reporting components. Third-party services can reference iWD statistics from the GTL_STAT table (GTL, for Global Task List) to display data in dashboards or within Genesys CCPulse+.



> **Important**
> Each iWD solution requires its own Data Mart.

iWD Data Mart Database Objects

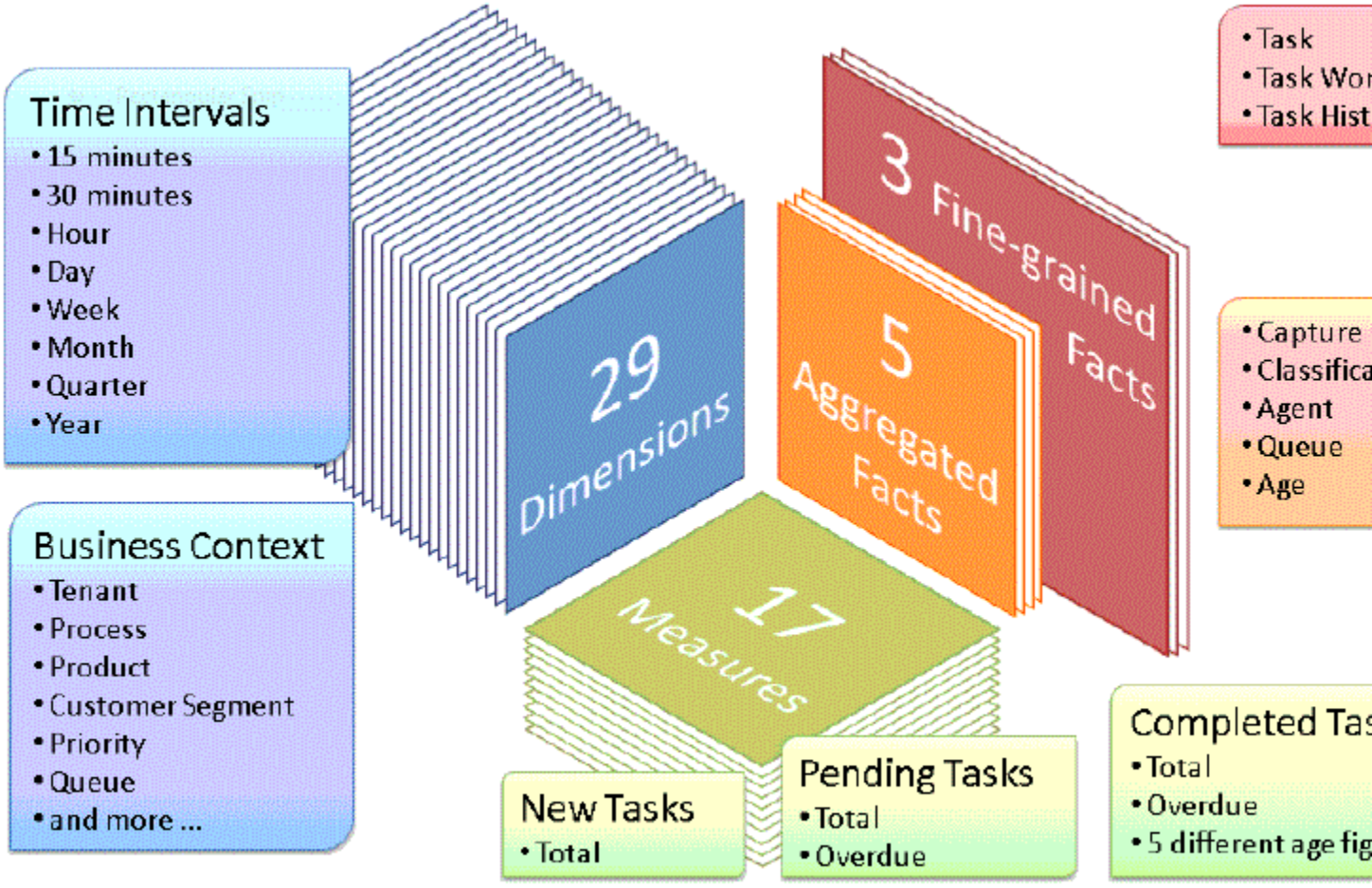
iWD Data Mart consists of the following database objects:

- Fine-grained fact tables—Store all attributes that are associated with tasks (I_TASK_FACT/H_TASK_FACT tables), work-related events (I_TASK_WORK_FACT/H_TASK_WORK_FACT tables), when the task was assigned to one or more agents; and a full audit history of the task (I_TASK_EVENT_FACT/H_TASK_EVENT_FACT tables).

> **Important**
> The term *agent* refers to any resource, configured as a Person object in Configuration Server, that can handle tasks. (Within Genesys Administrator, Person objects appear as User objects within the interface.)

- Aggregated fact tables—Describe tasks in an iWD-oriented context across the various stages, or the iWD life cycle of the task, from capture and classification to distribution to agent.
- Dimensions—Describe task attributes that are common across the fact tables in iWD Data Mart, such as iWD business process, priority, business value, and date and time. Fact tables link to these dimensions through keys.
- Measures—Represent numerical values (such as totals, durations, averages, minimums, and maximums) that are stored in aggregated fact tables across intraday and historical intervals. For example, the total number of completed tasks by 15-minute interval by an iWD process and business value would be captured within the `I_TASK_CAPT_FACT_15MIN` intraday table.

When they are connected to existing enterprise data marts, including Genesys Info Mart, analysts gain access to comprehensive views of the entire customer experience. Analytical reporting leverages existing business intelligence tools, such as those that are provided by Pentaho (which is an open-source product suite for business intelligence) or through a host of commercial products from Cognos or SAP Crystal Reports.



iWD Data Mart–Dimensions, Measures, and Facts

Refer to the Data Mart Reference Guide for more information.

IWD Business Process

iWD 8.1 is packaged with an out-of-the-box Business Process. The Business Process is installed by using the iWD Setup Utility and is also provided with the iWD Manager installation so it can be manually imported through the Genesys Interaction Routing Designer. It is made up of a set of Interaction Queues that map to the iWD state model:

- NEW
- ERRORHELD
- CAPTURED
- COMPLETED
- CANCELED
- REJECTED
- QUEUED

Within this Business Process, from within a routing strategy, External Service Protocol (ESP) blocks are used to invoke methods of the Business Context Management Service (BCMS) and Genesys Rules Engine (GRE). This approach is used to apply classification and prioritization rules to the interaction. When a user goes to the Global Task List view in iWD Manager, to monitor the interactions that are in various states, this component communicates with Interaction Server to retrieve the list of interactions and their attributes.

This out-of-the-box Genesys iWD Business Process maps to the iWD state model, allowing you to use iWD-based reporting for other interaction types (for example, you might want to track Genesys emails along with other task types, under the same Department or Process).

This Genesys iWD Business Process is completely optional for iWD customers who are using Genesys E-mail, Genesys Chat, Genesys SMS, or even third-party email, SMS, or chat. If the Genesys iWD Business Process is not used, iWD Data Mart and iWD Global Task List functionality may be limited.

For Genesys eServices customers, the Genesys iWD Business Process can be left unchanged if you want to use business rules only. In this scenario, what would change would be the routing strategies. The strategies would use the BCMS and ESP block to invoke the Genesys Rules Engine. This means that existing Genesys E-mail, Chat or SMS/MMS customers can use the business rules within iWD without having to change their Genesys Business Processes; or, to access some additional functionality, changes can be made to the Business Processes.

For a detailed description of the iWD Business Process, including its strategies, click **here** (new document).

Integration with Genesys Rules System

Genesys Rules System (GRS) provides all the business rules functionality for the Genesys intelligent Workload Distribution (iWD) solution. The Genesys Rules System enables business users to define priorities, SLAs, and other attributes of tasks.

Starting with release 8.1.0 of iWD, the iWD solution no longer has its own embedded rules engine service, and rules development and authoring user interfaces are no longer integrated into iWD Manager. Instead, GRS provides all of this functionality. iWD provides a Standard Rules Template for use with the Genesys Rules System, and the Genesys Rules Authoring Tool (GRAT) can be launched from iWD Manager without the need for separate user authentication.

The Genesys Rules System is a set of components that provides business rules functionality for use with the iWD solution and other Genesys solutions. It consists of three software components:

- Genesys Rules Development Tool
- Genesys Rules Authoring Tool
- Genesys Rules Engine

Business rule templates are created in the Genesys Rules Development Tool and are published to a rules repository. Users can then incorporate business rule templates into a rule package, by using the Genesys Rules Authoring Tool. Users create and modify rules within a rule package and deploy the rule package to the Genesys Rules Engine. At that point, client applications, such as the iWD business process (IWDBP), can make requests to the Genesys Rules Engine to have rules in the rule package evaluated at various decision points in a task's lifecycle. See the Genesys Rules System documentation.

Support for Workforce Management

The iWD Standard Rules Template enables you to specify the WFM Activity or Multi-Site Activity to assign to a task as part of a business rule. For example, the following conditions and actions could be configured for a rule:

```
if the Product is Widget, and the Customer Segment is Gold, then Set Priority to 200 and Set
WFM Activity to ‘Gold Product Support’
```

This sets an attached data element for the interaction that has the name of the WFM Activity or Multi-Site Activity. Then, in the routing strategy, you can use that attached data element for segmentation to peg the interaction to a specific Interaction Queue or Virtual Queue (the object types that WFM Data Aggregator is capable of monitoring). Refer to Workforce Management documentation for more information.

Support for eServices and Third Party Media Servers

The iWD 8.1 components work together with Interaction Server and the Genesys Rules System to make up the iWD Solution. Interaction Server is an integral component for iWD, whereas formerly it was solely a component of the Genesys eServices solution (formerly called Multimedia). iWD 8.1 uses the Interaction Server database to store task information, whereas the 7.6.1 release of iWD used a separate iWD runtime database.

iWD, Interaction Server, E-mail Server (for outbound notifications and acknowledgements), and Knowledge Management together make up the iWD solution. The iWD application refers to the software components that are packaged on the iWD CD, such as iWD Runtime Node and iWD Manager. Throughout this document, the iWD solution will be referenced. Remember that this solution shares some common components with the Genesys eServices solution, such as Interaction Server and, optionally, Genesys Knowledge Management and Genesys E-mail.

iWD 8.1 can be used with Genesys eServices solutions (for example, Genesys E-mail, Genesys Chat, Genesys SMS, and Genesys Social Engagement) as well as with integrations to third-party media servers that were built by using the Open Media API. When used together, these combined solutions allow an enterprise to apply business rules to any interaction that is managed through the Genesys Interaction Server, such as email, chat, SMS, and social media interactions.

Moreover, these interactions can be managed through iWD Manager's Global Task List—allowing a business analyst to view the status of these interactions, hold/resume the interactions, and modify various attributes of the interactions. See also iWD Business Process (IWDBP).