HP OpenView
Business Process Insight

Concepts and Modeling Flows

Software Version: 02.00

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contents

1

What is OVBPI?

This chapter provides an overview of HP OpenView Business Process Insight (OVBPI). The chapter briefly introduces HP's business impact solution, which you can use to monitor and raise the visibility of the health of your business processes. OVBPI enables you to understand the performance of your business processes by recording and monitoring:

- business process metrics
- the business impact of problems relating to the IT infrastructure

Introduction

OVBPI enables you to make better business decisions by improving the quality of the business information available to you. It does this by linking and relating the information held for your business and its IT infrastructure.

OVBPI takes events from both business applications and from the IT infrastructure, and presents these events in business terms; for example, rate of loss of orders, backlogs accumulating, value of these backlogs and potential impact on key customers. In other words, OVBPI enables you to visualize and then monitor the state, or health, of business processes within your organization.

Specifically you can use OVBPI to:

- model business processes and then measure key business data associated with these processes; for example, value of order or type of customer.

    OVBPI enables you to define business process metrics and thresholds, which make it easier for you to set business objectives and receive alerts based on these objectives.

- correlate each step in the business process with the IT infrastructure on which it depends and provide IT with the visibility to show its contribution to the business.

To achieve this, OVBPI uses business data events to monitor the status of all the business processes that you have modeled. As a result, when a problem occurs within the IT infrastructure, OVBPI reports on the instances of the processes that are being monitored and that are impacted; for example, OVBPI might report on the number of orders that are affected for a specific customer, for all customers or for a group of customers (gold, silver, bronze-level customers).

The key business data associated with the process are then used to determine the business impact of the problem. Business impact typically takes the form of financial impact, but it can also be the number of key customers affected, or the number of urgent orders affected, and so on.

OVBPI can also record business process metrics such as the time between two steps in a flow. This business process metric information can then used to report on business process Service Level Objectives (SLO). For example, you can configure the system to notify you when an order takes more than one day to complete or when there is a delay with one of your Gold customer's orders.

Audience for this Guide

This guide is aimed at business managers, business analysts, and at System Integrators (SIs) who want to understand HP's OVBPI solution. The guide also covers how to develop an OVBPI solution based on the OVBPI technology.

In addition to understanding OVBPI, you will also find it helpful to understand the business processes and applications within your organization and how they can be used as part of your OVBPI solution. These business processes might be paper-based or automated: they might be complete or they might be partially complete. As an example, you might have internal paper documentation relating to the business processes for your operation. For the purposes of OVBPI, this documentation can be used as input to your business flows.

HP OpenView Business Process Insight

The HP OpenView Business Process Insight (OVBPI) solution provides the environment for you to visualize the progress of your business flows. It enables you to model your business flows and then access business events through products such as openadaptor™ and iWay.

In addition to these business events, you can access operational services and take service impact events from the underlying infrastructure through HP OpenView Internet Services (OVIS) and HP OpenView Operations (OVO). Using OVIS and OVO, you can import operational services that can impact your business process and link these services into the relevant business flows.

This operational information is combined with the business events to provide the health of your business processes in business terms, thus enabling you to:

- Assess the impact of an underlying problem in business terms. For example, the CRM system has just gone down and now $1.4M of orders are blocked.

- Work out the impact of making a change to the underlying infrastructure. For example, if the credit control system is disabled for a backup, you can work out which business processes will be impacted and business impact, such as the potential financial impact.

- Track business process metrics, for example measuring the time between steps in your business flows such as the time it takes for the warehouse to dispatch an order from when the customer placed it through the web-shopping portal.

- Expose the business impact of changing the applications and infrastructure to IT, providing them with the business data when making changes to the infrastructure and applications.

- Report on the business impact using:

  — the OVBPI Business Process Dashboard

  — HP OpenView Service Desk (OVSD)

  — HP OpenView Internet Services (OVIS)

  — reporting applications

  — Email notifications, OVO messages or custom-written scripts using the OVBPI Notification Server

In summary, OVBPI takes business events and combines them with data from operational events to monitor the health of the business flows within your business. OVBPI then reports on your business health through the Business Process Dashboard.

Business flows are the graphical representations of the key business activities for process within the organization. They are the key activities that you want to monitor for their health.

The following diagram shows a high-level functional view of the OVBPI components.

Figure 1   OVBPI High-Level View of Components

Business-Level Views, Reports and Notifications

Business Process Health Monitoring

Business Impact Engine

Operational Events

Business Data Events

OpenView Operations Services

Business Application Data
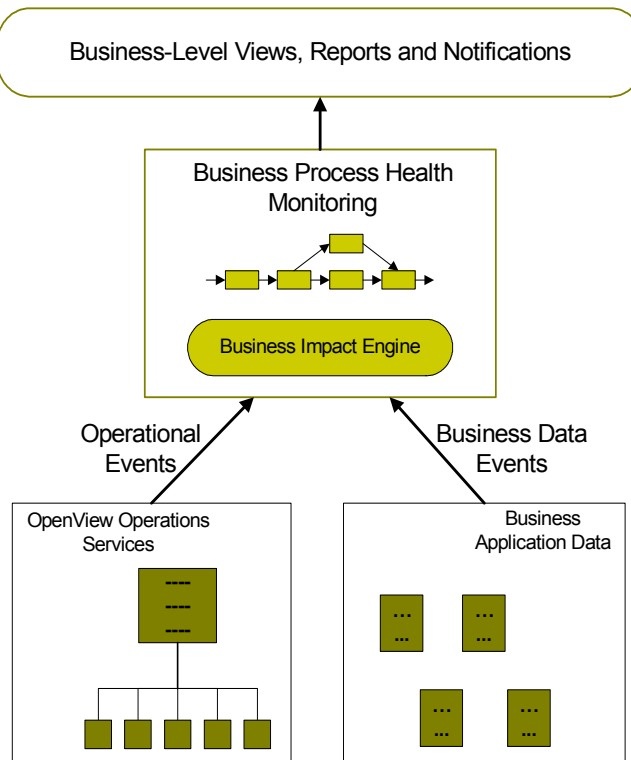
Using OVBPI

Historically, management tools have presented operational events in the context of the application that reported the event; for example, a database error is reported as an operational event on the database. These operational events are typically aimed at the IT manager. However, more recently, businesses want (and need) to understand the impact of these operational events on their business, as well as on their IT operations. This means that rather than just reporting an operational event on the database, the business manager also wants to understand the impact of an event on key business criteria, for example, the manager wants to answer questions such as "What financial impact is the database failure having on my business? Is it causing orders to be blocked, and if so, what is the value of the orders?".

In the case of a database error, an operational event is raised to the IT department; however, a business event might also be raised to show the impact of the database failure on the business. This business event might inform the manager that orders are building up and provide the names of key customers impacted, plus the value of the impacted orders.

In another example, there might be two business events, one indicating that there is little financial effect on the business and one that has a significant financial impact, according to the customer and type of order. The business manager now has visibility of the effects and can make appropriate decisions. For example, they can use the data to identify those transactions that are of most immediate importance to the business.

Why Model?

In terms of OVBPI, modeling enables events, or incidents, to be viewed in a business context. It provides a route for taking data and turning it into information and then knowledge; see Figure 2. Modeling is used to apply context and patterns to data and information in order to create meaningful information for the business.

Figure 2   Data and Knowledge
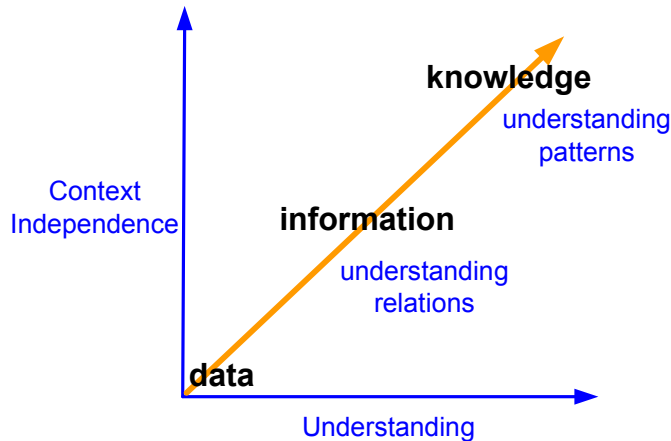
How does this pattern link to modeling? The dictionary definition of model varies according to the context to which it is applied; in terms of OVBPI modeling it provides a simplified representation, or abstraction, of a business activity. A model representing a business flow is an understanding of the business flow at a particular point and evolves as the business evolves. A model is not static; it develops, in the same way as a model of an organization structure develops as the organization itself develops. Modeling enables you

to understand the interaction between the parts of a system providing data and information.; for example, the following diagram (Figure 3) shows a portion of a stock processing business flow model.

Figure 3   Business Flow Model
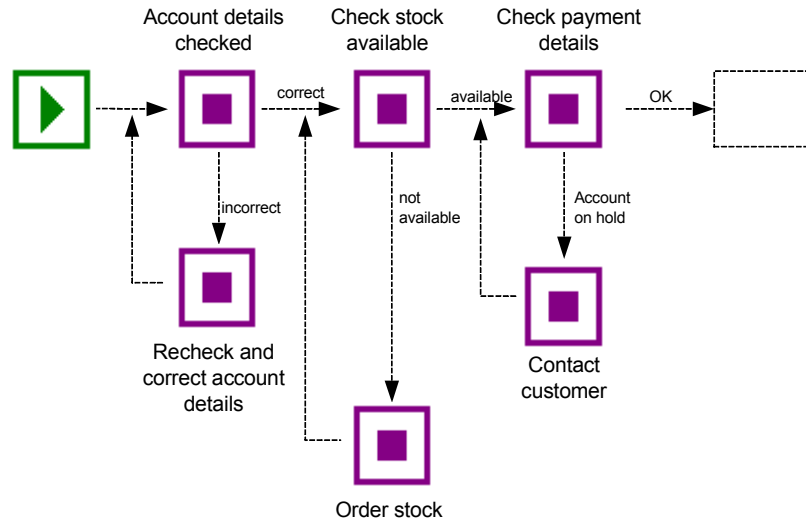
From this diagram, it is possible to visualize the impact on the business if the flow cannot move beyond the Check stock available step, perhaps due the Stock Control System being unavailable. Thus, any flow that is beyond the Check stock available step is not affected; however, flows that have not reached the Check stock available step are potentially stalled until the Stock Control System is available again.

In the case of OVBPI, modeling enables you to represent business services and to visualize and measure the effects of an incident, in an underlying system, on that service. A business flow, when defined within OVBPI, is usually a summary, or subset of the business process that is represents. This is because you do not need to model the complete business process in order to monitor it; you need only model the key activities for the process.

Visualizing incidents in a business context, such as a failure in the Stock Control System, enables you to assign, or reassign, resources to target the areas that provide maximum business benefit.

What is a Service?

The terms business and operational services were used in previous sections, but what are these services exactly?

A business service can be defined as "a meaningful business function that can be encapsulated in software", for example, mortgage application processing, or credit checking, or customer record updates are all services. A business service can be implemented by a person, or group of people, for example, sending an email confirming the completion of a task.

A business service should perform a function that is meaningful to the business (or its customer). Invoicing a customer is a business service because it is a recognizable business function. However, updating a database is not strictly a business service; it is an application function and has no meaning in a business sense.

An operational service is a component or function within an organization's IT infrastructure that provides a specific function, for example a:

- Database server
- Web server
- Unix Server
- Gateway or Adaptor

In most cases, business services rely on one (or more) operational services, plus other business-related information. This business-related information can come from business applications such as accounting software or customer relationship management (CRM) applications. As an example, OVIS and OVO provide a service catalog, which comprises operational, or IT, services. These IT services represent the applications and other IT infrastructure within an organization; for example, an email system, network or database server. These IT services are in turn used by business applications, for example, an order processing application or a CRM application.

It is not always the case that business services rely on operational services, some business services are entirely business driven. Later sections describe how you can use applications such as openadaptor and iWay to link your business flows to the business applications and business events that are required to progress it.

The Importance of OVBPI

Using OVBPI you can:

- Use business process metrics to indicate the health of your business flows.

- Collect statistical information based on business process metrics and use the statistics for analysis purposes and for reporting.

- Set alerts on specific business flows where it is critical that you know when there are deviations from these flows.

- Link data from business events and operational events within your organization and therefore better understand the impact of a system failure on your customers and business.

- Turn your IT data into knowledge that you can use to improve your business performance.

- Align your systems and IT management with your business requirements.

- Understand the impact of underlying service failure or degradation on your business.

- Extend the System Management software to present system failures in terms of business impact and not systems impact.

- Understand whether your IT services are supporting your company's key business objectives.

Being able to align the business requirements and supporting infrastructure, plus monitor as well as manage, is a key to an organization's success. You need to be able to manage business processes from start to finish and across the IT infrastructure, but from the business perspective, rather than from the IT perspective.

System management software has become more and more complex as you add more hardware and software applications. Traditionally, system management software has enabled you to monitor and manage your infrastructure, but there is little or no mapping of failures and degradation of service to business-critical events. For example, does the fact that the system hosting your online CRM system has failed impact your business, and if it does, by how much? In addition, what is the financial impact of this failure?

It is not always the case that a critical system failure is critical in a business service context, and in a well designed business service architecture, it need not be. However, if a service is degraded for some reason, perhaps due to

increased demand, business and customers might be impacted. If they are, you will want to know. There might be a supply chain problem, where extra demand means that orders are being delayed, and a key customer will be impacted. If you are alerted to this information, then you can make informed business decisions. If you are informed only that system X is running at 50% of its usual capacity, you are less able to make the same informed decisions.

Being able to tie together business requirements (critical business services) with the supporting infrastructure (hardware, software, middleware etc.) and monitor as well as manage this environment is key to the success of both IT and the business as a whole.

Where to go Next

The remaining chapters in the guide describe OVBPI business flows and how to model them in more detail. The remaining chapters also provide a methodology for you to follow when creating your business flows. The *HP OpenView Business Process Insight Integration Training Guide - Modeling Flows* provides examples of how you can use OVBPI to create the flow and integrate it with the data and applications in your business.

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Business Flows

This chapter describes a business flow as defined for OVBPI, how it differs from a business process, and starts to introduce the concepts of OVBPI.

The chapter also introduces the components and tools available within OVBPI, which you can use to create business flows.

What is a Business Process?

Before looking at what an OVBPI business flow is, you need to understand what a business process is.

Business processes are the business activities within your business; for example, for a telecom service provider a business process might include provisioning lines, billing customers and repairing equipment. These business processes might not always be obvious, and they might not be formally recognized, but they always exist within a business.

For an insurance company business activities might include setting up a new policy for a customer and processing an insurance claim. In addition to these line-of-business processes, a business process can also be an internal administration process, such as HR processes, payroll, and so on.

Business processes are not necessarily exclusively within a company; many business processes involve customers and suppliers. Business processes can be automated, using business process management software. However, only a fraction of business processes are fully automated: most business processes are manual and some exist only in the behavior of the organization, that is, they are not formally documented.

In summary, a business process (or a set of business processes) typically includes all the activities of the business.
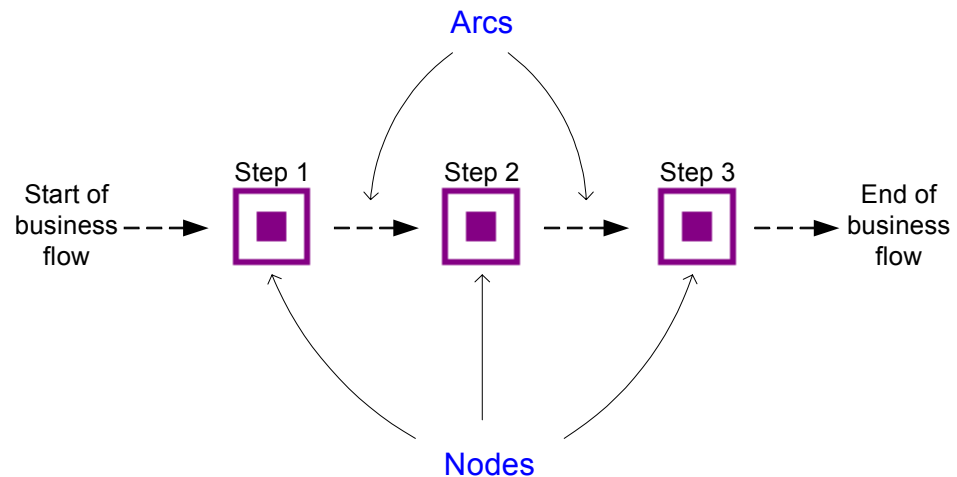
What is a Business Flow?

The activities of a business are consolidated into one or more business processes; this can be partially or completely consolidated. The business processes describe how the business activities are carried out.

A business flow (for OVBPI monitoring purposes) does not need to include all the activities in a business process; it need contain only those activities that you need to understand to determine that your business is functioning optimally. As an example, a vehicle dashboard presents a summary of the key activities that you need to be aware of for the vehicle; it does not present all the information about all the vehicle operations.

The business activities that you need to model in your business are those required to obtain meaningful impact data about the health of your business. The fewer business activities that you monitor, the easier the business flows are to create, manage and monitor.

In the context of OVBPI, a business flow is presented as a series of nodes and connections, which are called arcs. The nodes represent the business activities and the arcs connect the nodes to show the direction of the flow as shown in Figure 4.

Figure 4   Basic Business Flow

A node in a business flow might represent one or more business activities, according to how much detail of the business process you are modeling in order to monitor it.

In Chapter 1, What is OVBPI?, the discussion is around the need to model to provide a business context, and to convert data to knowledge. The chapter also discusses service hierarchies; a hierarchy is a pattern, but it is quite hard to visualize. A much better way of representing a business service is as a graphical flow to show the logical structure of the elements of the service. A graphical flow also provides information relating to the progression of the flow.

Using graphical flows, you can connect business activities into a logical sequence. You need to model sufficient of the structure of the flow to be able to report on the impact of problems in the flow.

Example Business Flow

Figure 5 on page 25 is an example of a business flow for an organization that provides building materials primarily for professionals, but it also has a store where the public can purchase building supplies. The organization is structured as a front office, middle office and back office:

- The front office includes:
    - a Web site for online access
    - a shop
    - a call center

    An ISP hosts the Web site and the shop has a dial-up connection through a point-of-sale checkout. The Call Center is out sourced.
- The middle office is where the orders are processed and validated.
- The back office is where the billing and the execution of the orders occur.

In this example, the middle and back office operational systems are managed using HP OpenView Operations.

Figure 5 shows the important activities of the business process represented graphically in an OVBPI business flow. This is how they might appear within the OVBPI Modeler, which is the graphical tool for creating OVBPI business flows.

As mentioned earlier, not all the steps in the business process are included in the flow. The steps included are those that relate to the key business activities that need to be monitored.

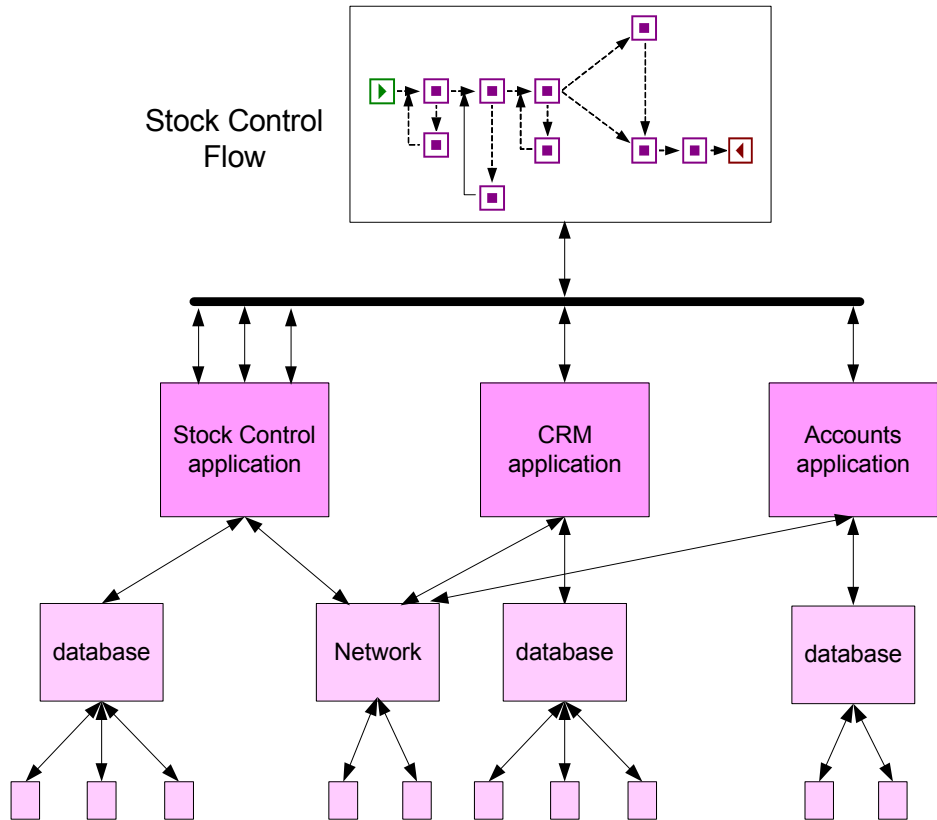**Figure 5   Stock Control Flow**
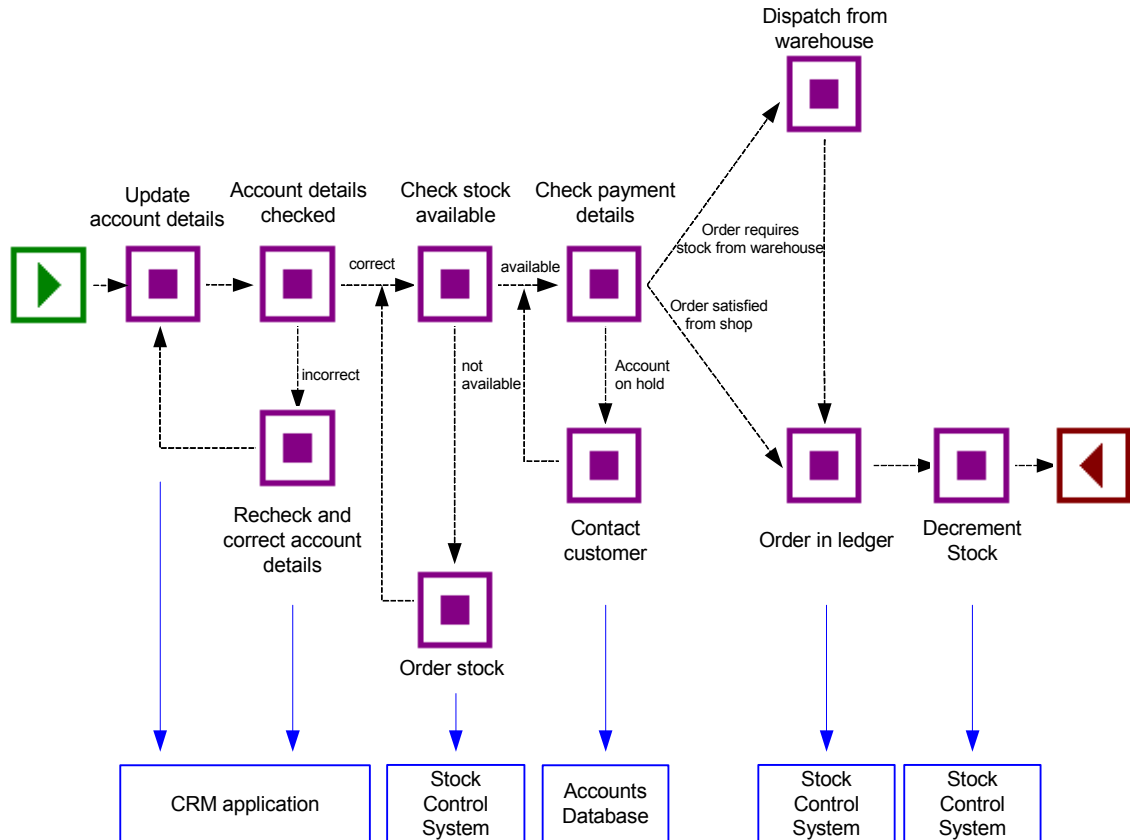
The business flow shown in Figure 5 utilizes underlying business applications and also includes operational services. Some of the business applications might be operationally monitored and therefore represented as operational services within HP OpenView Internet Services (OVIS) or HP OpenView Operations (OVO). There might also be other business applications that are

not being operationally monitored, but are still providing business application data for OVBPI. The business applications in this example are the CRM application, the Stock Control system and the Accounts system.

Within the OVBPI Modeler, these services are properties of the nodes in the flow and are not represented in Figure 5.

Figure 6 shows the hierarchy of the operational services and how they relate to the applications that provide the services.

Figure 6   Stock Control Services Hierarchy

In this example, the Stock Control System is used at several points in the business flow and the Stock Control flow diagram shows this interaction more clearly than the hierarchical model.

Business Services

In order to integrate, or import, business event data from your business applications, you use the OVBPI adaptor technology. This technology enables you to generate business events from sources such as files and databases, and business applications including SAP, PeopleSoft and JMS. These adaptors enable business data to be accepted as the source data for OVBPI business events, which are received through the OVBPI Business Event Handler component.

In the context of OVBPI, an event is an action that causes a state change within the OVBPI system and the data carried in the event is the state that can be changed.

Business Services and openadaptor

The Business Event Handler is based on the openadaptor technology and openadaptor is the underlying mechanism for receiving business events. openadaptor is an open-source Java/XML-based software platform, which provides business system integration with little or no programming. openadaptor provides many ready-built interface components and using the openadaptor platform, you can build adaptors to capture business events from sources such as files, databases, JMS, LDAP, Tibco and MQ Series. OVBPI provides file and database adaptors for use specifically with OVBPI; however, openadaptor is an open source product, therefore you can extend the number of adaptors for use with OVBPI as required.

For more information on openadaptor refer to:

http://www.openadaptor.org/

OVBPI uses a specific version of the openadaptor platform, and the version used is available as part of the OVBPI software.

OVBPI includes an adaptor for iWay as described in section Business Services and iWay.

Business Services and iWay

iWay Software is a company that has developed their own framework for integrating business applications such as SAP, PeopleSoft and JD Edwards into customer solutions. iWay is very similar to openadaptor, as both openadaptor and iWay address the same basic requirement, which is to provide an integration platform for different business applications. There is an iWay adaptor for OVBPI based on the openadaptor technology that you can use if you have the iWay Framework, or intend to purchase it. This enables you to use iWay with OVBPI to monitor any business application that iWay has an adaptor for. The *HP OpenView Business Process Insight Integration Training Guide - Business Events*, describes how to integrate iWay into your OVBPI implementation.

You can find out more about the iWay product at the following URL:

http://www.iwaysoftware.com

There is a list of all the available iWay adaptors at the following URL:

http://www.iwaysoftware.com/products/iWay_adapter_List.html

IT Processes

You can also use OVBPI to monitor HP OpenView Service Desk IT processes, which are created through the OVSD Change Management and Help Desk modules. HP Service Desk Process Insight is a licensing bundle for OVBPI, which is specifically targeted at OpenView Service Desk users. Service Desk Process Insight includes some sample Service Desk flows and adaptors, plus an example dashboard designed to receive business events from OVSD.

Using processes such as ITIL (IT Infrastructure Library) processes is becoming more common for Service Operations processes such as Problem and Incident management, and Service Delivery assurance processes such as Change or Configuration management. OVSD provides a level of automation for these ITIL processes, and OVBPI provides the ability to monitor these OVSD processes. Using OVBPI to monitor these processes helps you understand their real-time performance and effectiveness. OVBPI provides the ability to connect to OVSD, plus example processes and an example Dashboard tailored for use with OVSD ITIL processes.

Within many organization the IT processes are often hidden within the environment in which they have been automated. The processes might have started as fully documented process models, but as they are adapted to the needs of the organizations, the processes change and the related documentation becomes out of date. Using OVBPI helps you visualize processes that are hidden within the organizational structure.

In addition, larger organizations often have multiple service management or help desk environments, which further compounds how visible the IT processes are, as individual processes can span multiple environments and applications. Using OVBPI with OVSD, you can regain this process visibility as it enables to understand the real-time performance and effectiveness of your OVSD ITIL processes.

OVIS and OVO Operational Services

OVIS and OVO are HP products that can be used to manage IT services. Using OVIS or OVO, a service can be defined by an administrator as a service group (OVIS) or as a service view (OVO); a service view can be an operational view or a business view. The status of these services is used by OVBPI to evaluate the state of the nodes in the flow that have dependencies on these services.

OVIS

Within OVIS a Service Group is a logical set of service targets, which are monitored by probes. In order to determine whether your targets are operating effectively (or within required operating parameters), you configure probes to check the status of the operational services, or targets.

Service targets are the systems that together provide the foundation for a business service. This business service could be an application, such as a CRM application, or an accounts application.

From the results that the probes return, OVIS produces operational events that contain data on the operational status of the services that are being probed. OVBPI then uses the statuses in these operational events to determine the impact of the change in state of the service on the flows that are defined.

In addition, you can configure OVIS to monitor OVBPI. You do this by configuring OVIS probes specific to OVBPI and that are provided with OVBPI. These OVBPI probes, and how to configure them, are described in more detail in the *HP OpenView Business Process Insight System Administration Guide*.

The flow state data measured by the probes within OVBPI can then be used as the basis of service objective definitions. These objective definitions are in turn used to report on service-level objective (SLO) and service-level agreement (SLA) violations.

OVO

Within OVO, operational service views are the representation of monitored entities in hierarchies. These hierarchies present the operational service views to the IT support organization; see Figure 7. Operational services are focused on presenting the impact of technical problems to the technical staff that need to resolve the problems.

OVBPI can receive services from OVO either on HP-UX, through the HP
OpenView Service Navigator (OVSN), or on Windows, through HP OpenView
Operations for Windows (OVOW).

Figure 7   OVO Services on HP-UX
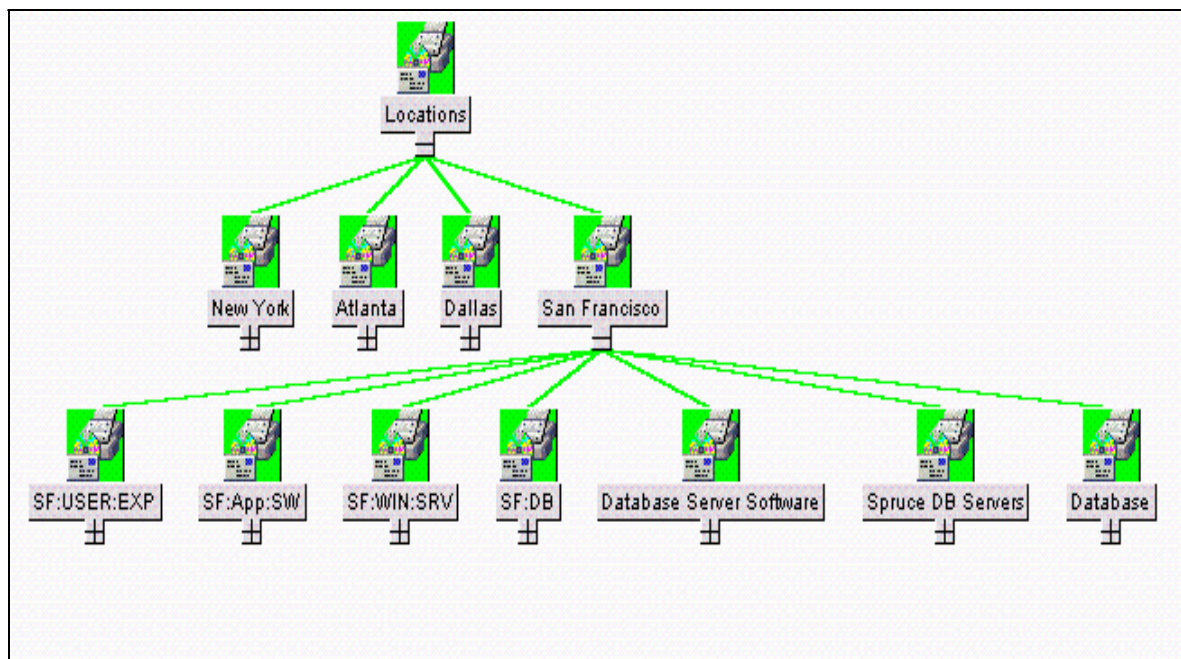
In the example shown in Figure 7, there is an OVO view (through Service
Navigator) based on actual user experience at key business locations; this is
called a business service view. There is also a location-based business service
view defined within OVO.

Business service views are the representation of the OVO services that are
being monitored into higher-level business services; these OVO business
services are based on the operational status of the IT infrastructure. OVBPI
provides the additional capability to integrate business events from your
business applications for monitoring purposes.

Standalone Services

You might also have operational services, within your organization, that are not monitored by OVO or OVIS; for example, they might be monitored by a third-party system. If this is the case, you can define and use Standalone services and configure your business flows to monitor these services.

Summary

By defining a model for your business flows and mapping this model to the underlying services through OVIS or OVO, you can be notified when a step in the flow is impacted by a failure in the underlying infrastructure. Within OVBPI, all the services defined within OVIS, and selected services within OVO, are available through the OVBPI Modeler; the OVBPI Modeler is the GUI that you use to create flows and associate the flows with the services on which they depend.

There are significant benefits to being able to visualize your business flows and relate services to these flows; for example, you can identify the impact a service failure has on the flow and how other nodes in the flow might also be impacted.

However, understanding only service impacts does not enable you to answer questions such as:

- What is the financial impact of the service failure?

- How many transactions are waiting to be processed at a particular point in the flow?

In order to answer these types of question, you also need business data from your business applications, plus you need the OVBPI system to maintain data on individual instances of the business flows.

Using rules, filters and database queries, OVBPI can provide monitoring data on the basis of each instance and groups of instances. This, plus the business data that OVBPI receives through business events, enables OVBPI to present business-related information on how your business is impacted by a failure in a service.

Instances of Business Flows

In order to get more detail from your business systems, you need to be able to model the individual instances of the flow and see how these are being impacted. A flow instance is a specific occurrence of a particular flow that you have defined, for example, a specific customer transaction, or a specific flight arrival.

To model instances of your flows, you need to define data objects. A data object usually represents a known object within your organization; for example, an order, an employee record or flight details.

The data captured from the business events, which are being processed by your OVBPI system, are used to update the status of these data objects that you have defined. Finally, rules are used to evaluate how the business flow is progressing, based on the changing status of the data object.

You can also add business process metrics to the instance-level information and use it to provide business measurements to indicate the health of the flow instances that you are monitoring. Based on these business process metrics, OVBPI collects statical information from the data object as it is updated. These statistics are stored in the OVBPI database where they can be processed.

Using this statistical data, OVBPI can present the state of the business back to the business manager, according to the instances of the flows being monitored and the data collected. OVBPI presents the information through the Business Process Dashboard. The types of information presented might be information about how many orders are waiting to be processed, or information about the value of orders that are waiting to have payment details checked.

As a result of modeling these flow instances and setting business process metrics, the business manager can see the impact of the critical business events on the business flows.

Modeling Business Flows

The most effective way to model a business flow is to base it around the primary documents and business processes in your organization, for example, orders or insurance claim applications. As part of defining the flow you need to identify the:

- Data that will be used to drive the flow.

    These are the data that define the conditions under which a business task is deemed to have started and to have finished, and used to progress the flow.

- Data required to answer the business questions that you want to monitor.

    These data are obtained from your underlying business applications and can be thought of in terms of the data required for the business measurements that you want to report on for the flow.

- Events, which are required to obtain the data to drive the flow and answer the business questions.

    Events are defined in cooperation with the IT personnel who own the IT infrastructure and who you work with to obtain the data that you need.

- Key business process metrics that you want to measure for your business flows.

By separating the events from the data, OVBPI provides the flexibility to update the data for the flow from multiple sources. Event definitions isolate the sources of the Events from OVBPI in that an Event source can be anything provided it sends the Event into OVBPI in the correct (expected) format. As an example, one event might populate many different Data definitions, for different Flow definitions.

Operational and Business Data

This section discusses the types of data used by OVBPI in more detail.

Figure 8 shows how the nodes in a flow can be related to the operational services of your business, and that these services, when combined with the business data and events received through the Business Event Handler, become the basis for monitoring the health of you business flows.

Figure 8   Business Flow and Events
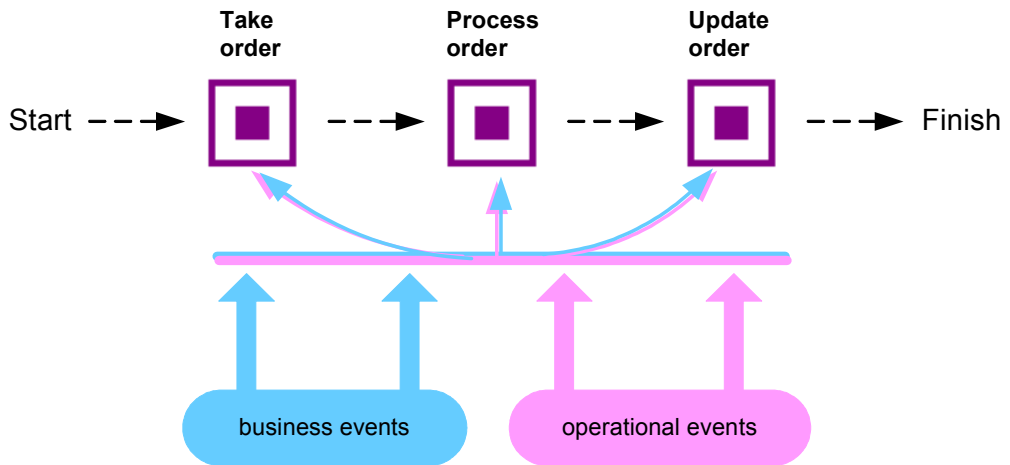
The OVBPI system also manages the data required for the flow (the data models), as Data definitions. In the Stock Control example, it maintains information about the `account` business data and within that, information about `value`, `customer name`, and `customer type` data.

OVBPI does not need to know about all the data related to a flow, just enough to give a business manager information on the business impact of the affected business flows. For example, in the Stock Control flow (see Figure 5 on page 25), the `account` business data might also contain data relating to `customer address` and `customer preferences`, but this data is not required for flow monitoring purposes, so it does not need to be defined or monitored within OVBPI.

The following is a summary of the two types of events received into the OVBPI system:

- Events that carry the data to move the flow through its steps. These are the business events.

  You configure the business events that you need for the business applications that have access to (or hold) the data required for the business flow.

- Events that report business impact information related to the IT infrastructure; these are the operational events.

  Operational events can be obtained through OVIS and OVO.

You need to model business events for your solution. The events from underlying business applications can provide the business data focus.

The data from these underlying systems is defined as part of the business flow and the resultant information used for reports and analysis.

A methodology, described later in this guide, takes you through the steps that help you define and then refine your business flow and its data.

Business Scenario for a Stock Control System and OVBPI

Continuing with the example of the Stock Control system, the following describes the scenario in more detail and shows how OVBPI can be used, by the business manager, to indicate the business impact of failures reported through OVIS and OVO.

The scenario describes what happens when the stock control system fails - the business can accept orders, but it is unable to confirm that it can fulfill them. As can be seen from the business flow diagram (Figure 9), the Stock Control System is accessed at the start of the business flow to check the stock when the order is placed, and at the end of the business flow, when the stock is dispatched.

Figure 9   Business Flow
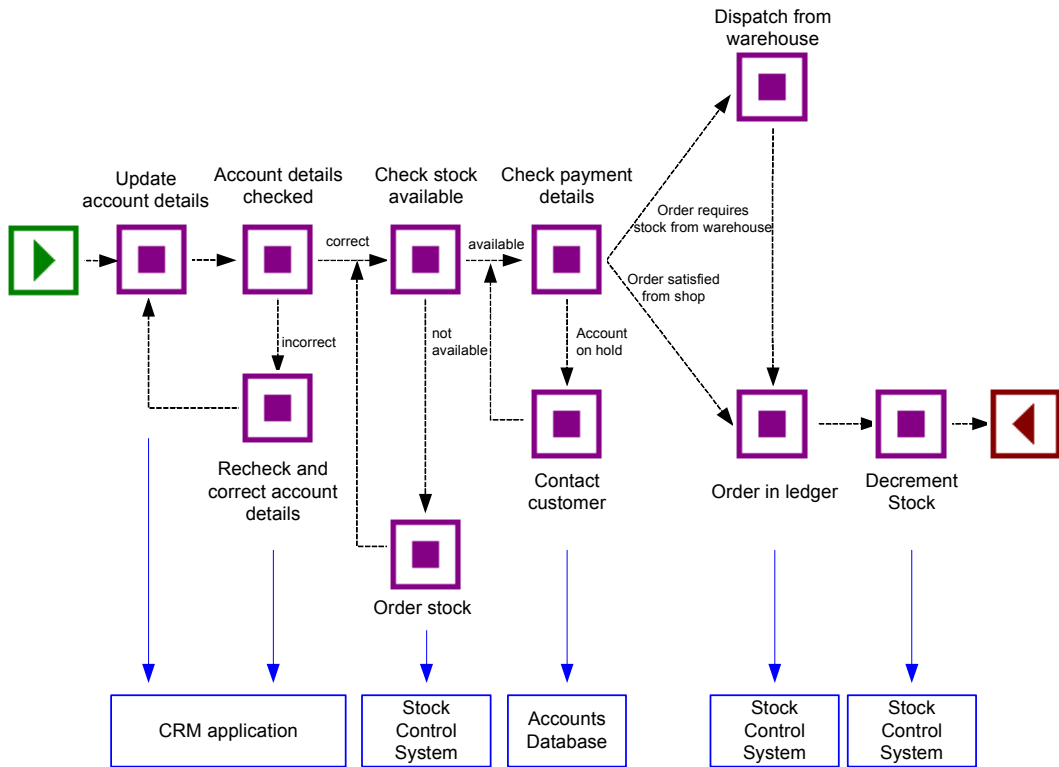
The business also has a Gold Customer scheme whereby key customers are guaranteed their deliveries within a specified time, or significant penalties in the way of discounts are incurred.

Using an OVBPI system, the business manager receives information about:

- the impact of the operational service failures
- the impact of the business service failures

Using both these sets of information, the business manager now has the business process metric data that can be used to better understand the business impact of a failure. As an example, the business manager could define a metric that records how long it takes a specific instance of a flow to move between two activities in the flow. The Business Process Dashboard shows this metric information in terms of statistical information relating to the flow instances and their progress. The business manager can view the information in tabular and graphical form according to their requirements.

In addition to, or in place of, metrics the business manager can request for annotations to be added to the flows as they are displayed through the Business Process Dashboard. These annotations can show information such as the current value of orders waiting to be processed, the frequency at which orders are received, the breakdown of orders received through the web interface and the store front and so on.

The business manager also has the option to define thresholds for the business process metrics and be alerted when these thresholds are violated. These alerts can inform them of critical business events, such as the failure of the stock control system. On receipt of an alert, the business manager uses their Dashboard or portal (whatever their usual reporting tool might be) to query the OVBPI system and obtain more information. As an example, they could determine the following:

- There are 200 customer orders waiting to be processed and 10 of these customers are Gold Account Customers.
- The impact of the current rate of orders, for example, given historical information about the rate of orders, the current number of 200 is likely to be 1,000 within a couple of hours, and 20,000 by the end of the day.
- Using historical information, the stock float should be good for today and tomorrow and most orders can be dispatched without incurring any delay.

- If required, temporary manual stock control can be put in place using the business data provided by the OVBPI system.

- Information about the stock levels

  The stock counters configured in the OVBPI system can be used temporarily whilst the stock control system is offline, so the business manager has an ongoing count of the stock and can monitor the situation. The business manager also knows the levels of stock in the shop, so they have the option to fulfill orders from the stock held at the shop if necessary.

The business manager is now in a position to make a business decision to prioritize the orders such that the Gold Customers and the high value orders are processed first. If any of the stock levels start to get low, the business manager can suspend the transactions, or inform customers that there might be some delay. They can also order additional stock manually based on the OVBPI data presented to them.

The introduction of OVBPI means that the business manager now understands the business impact of the stock control failure and as a result can:

- Continue to process from stock in shop and redirect that stock to Web orders if necessary.

- Use the OVBPI data to manage the stock float manually.

- Aggregate shop and warehouse stock as required.

- Monitor the Gold account customers and minimize the penalty payments.

The business events that provide this information come through the OVBPI Business Event Handler component and the operational events from OpenView, through OVIS or OVO (direct from the applications).

What OVBPI Provides

OVBPI provides the modeling tools that enable you to build a business flow and associate key business services, data and events with the flow. As part of defining the flow, you need to consider what business measurements you are likely to want to take. Later on you can add business process metrics to these flows to record these business measurements.

Using business process metric information, OVBPI can report on and notify the business manager when significant events occur and when business process metric thresholds are violated; this notification can be done through email, through the Business Process Dashboard, or through other OpenView reporting applications, such as Service Desk.

Business managers can also receive the OVBPI impact reports through their own reporting tools, if they choose to. OVBPI writes all its business process metric data to database tables, which are designed and structured to maximize the effectiveness of user and application queries. The database tables are based on a dimensional model with a central table, known as the fact table, plus a number of dimension tables. The fact table comprises all the measurements or data that are required for a specific aspect of a business process metric. The dimension tables, which are much smaller, comprise descriptive fields. These descriptions can be presented through reporting applications, which makes them very usable. The dimension tables are also smaller in order that browse queries on the tables can be completed without delay to the user or application requesting the information.

You can use many well known reporting applications to analyze the OVBPI metrics data; for example, Crystal Reports, Microsoft SQL reporting applications, Business Objects. You can also use development and reporting applications such as Visual Mining and NetCharts. Note however, that you do not need to use these reporting tools as all the metrics information that you define is automatically displayed through the Business Process Dashboard.

All reports are based on the information collected by OVBPI.

The components of the OVBPI system, and their purpose, are more fully described in the *HP OpenView Business Process Insight System Administration Guide*.

The Methodology

The OVBPI methodology is intended to aid business analysts when implementing an OVBPI system. Typically these systems are implemented by business analysts in close collaboration with Business Managers.

The methodology covers how you model your business to determine the answers to business impact questions. It also provides guidelines for creating flows and identifying the data required to provide business information that you need. The methodology in this guide is based on an insurance claim. The following are the high-level steps for working through the methodology:

- Identifying the key business flows that you want to monitor for business impact.

- Defining the data that you need to store in the business model to ensure that you get the correct business impact information and sufficient information to obtain the business measurements that you need.

- Defining the business events that you want your OVBPI system to receive.

- Defining how you want the impact information presented to you.

- Defining business process metrics for the flows according to the business measurements that you need.

- Defining filters and thresholds for the metrics.

- Defining annotations, or other refinements that you want to add to the Business Process Dashboard.

- Identifying the operational services that you want to monitor through OVIS and OVO and linking them into your flow.

- Configuring probes to report on your flows and to report on SLO or SLA violations using OVIS.

The focus of this guide is to describe what you need to do to create business flows using OVBPI. In particular, creating flows using the OVBPI Modeler and creating business process metrics for these flows using the Business Process Metric definer.

The guide also shows how the roles of the people involved with creating the flows and linking them into the underlying services are interlinked; see Figure 10.

Figure 10 OVBPI Activities and Roles
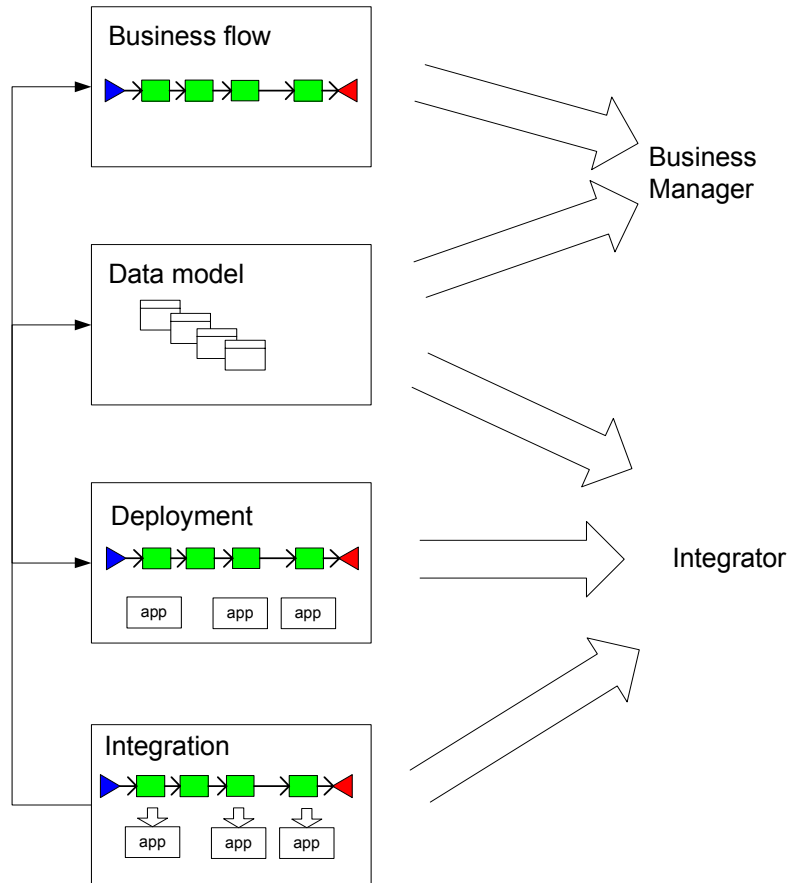
Summary

OVBPI is intended to help you raise the visibility of your business processes and better understand integration points between your business processes and the IT infrastructure. This provides you with improved business data and also enables you to make business decisions, based on this data, in a more timely manner; for example, understanding the business impact if a particular service is made unavailable. This might not be direct financial loss, but other losses, such as reputation, regulation breaches, poor delivery times and so on.

Business disruptions such as these, and hundreds more that happen on a daily basis, unexpectedly and negatively impact the normal business operations of many companies. For example, if you are providing a service and there is a sudden increase in the volume of traffic, perhaps due to a marketing promotion, it could have an impact on the network. The response time for customers might be seriously compromised, which in turn can cause anger, ill-will, and some customers taking their business elsewhere. This is not a failure in any of the underlying systems and applications, but it still impacts your customers.

Where to go Next

You now have a basic understanding of what a business flow is. The next chapter describes the Modeler, which is the interface that you use to design your business flows, which are the basis for monitoring the health of the business flow. In particular Chapter 3, OVBPI Modeler provides details of the interface and how you use it to create a flow.

In terms of the methodology Chapter 3, OVBPI Modeler covers:

• Identifying the business flow

• Defining the data

• Identifying operational services

• Defining business events

3

OVBPI Modeler

The OVBPI Modeler is the OVBPI component that you use to create your business Flow definitions, Data definitions and Event definitions. It is a graphical interface that provides the canvas that you use when defining these definitions.

The details that you enter using the OVBPI Modeler are held in the OVBPI Model Repository schema, which is a series of tables defined in the OVBPI database. Basically, the OVBPI Modeler is the graphical tool for creating and viewing the model data held in the Model Repository schema. The relationship between the OVBPI Server, the OVBPI Modeler and the OVBPI Model Repository schema is described in the *HP OpenView Business Process Insight System Administration Guide*.

➤ Note that there can be only one OVBPI Modeler connected to an OVBPI Server (specifically the OVBPI Model Repository server) at any one time. Otherwise, changes made through each Modeler can overwrite each other.

This chapter covers the following topics:

- The relationship between Flow, Data and Event definitions and how flow instances are progressed through the system; see section The Relationship Between Flows, Data and Events on page 47.

- The layout of the OVBPI Modeler; see section The OVBPI Modeler Interface on page 50.

- Flow definitions; see section Flows on page 52.

- Data definitions; see section Data on page 63.

- Event definitions; see section Business Events on page 65.

- Services; see section Services on page 70.

Defining business process metrics and thresholds is described in Chapter 4, OVBPI Business Process Metrics; you define business process metrics after you have defined your business flows.

The Relationship Between Flows, Data and Events

Before looking in detail at the properties of flows, data and events it is helpful to understand how the Flow, Data and Event definitions work together to progress a flow through the Business Impact Engine.

The Business Impact Engine receives business events as a result of changes to data or states in the underlying applications through the Event Handler. The Business Impact Engine then uses the data in these events to update the Data definitions that are defined in the Modeler.

Within the Modeler, the Data definitions are subscribed to incoming events. The Business Impact Engine then uses this subscription information to update attributes of instances of the Data definitions and then publish new internal events. An internal event is one that is specific to the OVBPI components and not directly related to any external activities.

The internal events are used to create or progress the flow instances, based on start and complete conditions that are defined for each node in the flow.

Figure 11 shows an example of an event that is providing the Claim Handler identifier for a particular claim. This business event is being received from a Claim's Handling System.

Figure 11 Flow Instance Progression
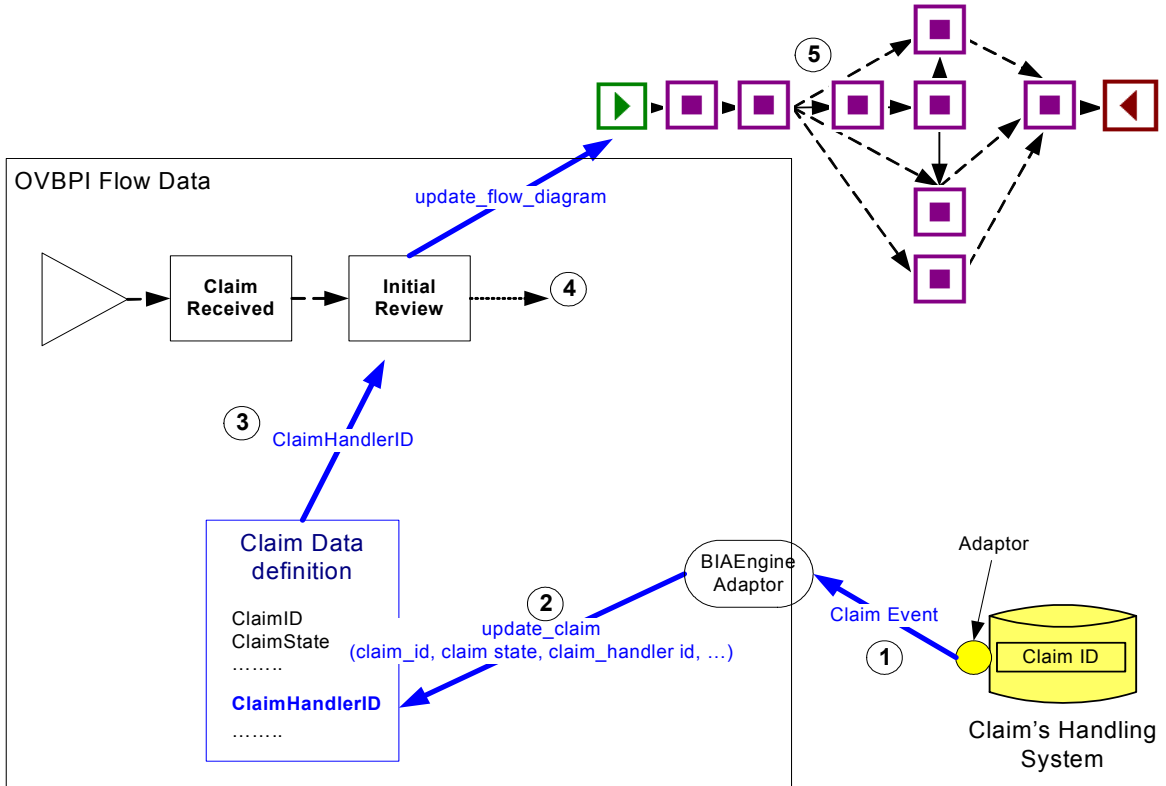
The event shown in Figure 11 is signaling a change of state to an instance of Claim data.

1. In step 1, the Claim Event from the Claim's Handling System is intercepted by an adaptor that you have developed using the OVBPI Event Handler component. The Claim Event data is used to create an update_claim event within the OVBPI system.

2. In step 2, the Claim Data definition, which is subscribed to the update_claim event, receives the event. The event details are mapped to the Claim Data instance, including the ClaimHandlerID property, which is derived from the claim_handler property of the update_claim event.

3. In step 3, the `ClaimHandlerID` property of a specific claim instance has changed; the Claim Data definition publishes an internal event signaling this change. This event is called the `Instance_Modified` event and is an internal event generated by the OVBPI components. It informs other OVBPI components of a change in the data that is being monitored.

   The Claims flow implicitly subscribes to this internal event and the event is used to signal progress within the business flow. For example, the Initial Review node has finished and a new node is starting. In this example, the `Instance_Modified` event contains the `ClaimState` property with a value of Reject. This state change for the Claim progresses the flow instance to the node Reject Claim. (`ClaimState` was also updated from the `update_claim` event).

4. In step 4, the Business Process Dashboard makes its periodic check of the database to determine if there are any changes in states for the flow instances it is monitoring.

5. In step 5, the Business Process Dashboard refreshes the flow instance details that are being presented, to show the progression of the flow to the Reject Claim node, as a result of the Claim data being updated.

The OVBPI Modeler Interface

The OVBPI Modeler is the tool that you use to create and deploy your business Flow definitions, including the Data and Event definitions. The Modeler is a design-time tool, therefore any changes that you make do not affect a runtime system until you have deployed the changed definitions to the Business Impact Engine.

Figure 12 shows an example of the layout of the OVBPI Modeler when you open it.

Figure 12 OVBPI Modeler Interface
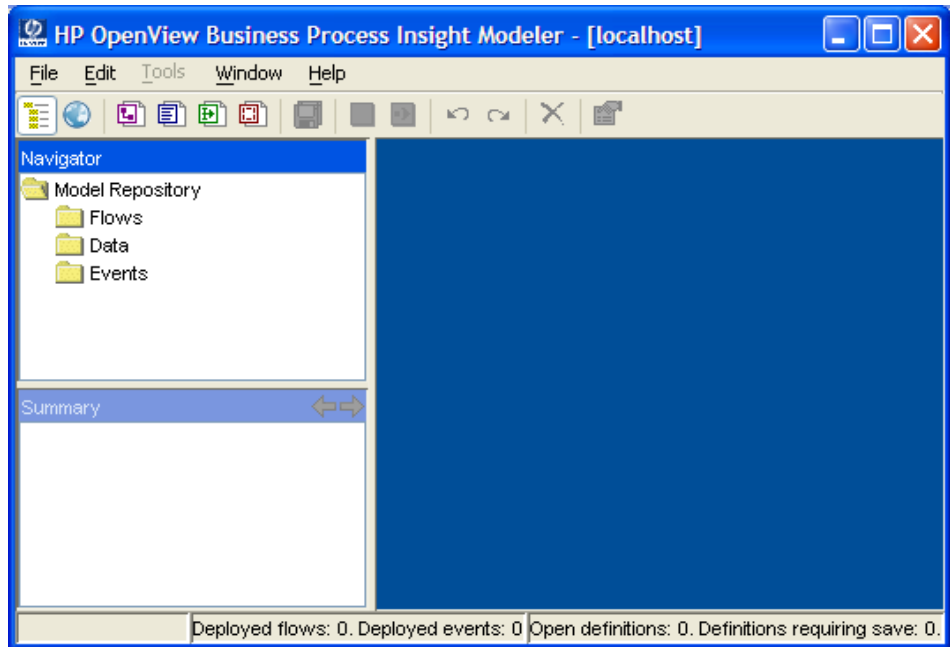
The OVBPI Modeler comprises:

- an upper-left-hand frame, called Navigator. This is an explorer style navigator window view, which enables you to navigate through Flow, Data and Event definitions, and Services.

- a lower-left-hand frame, called Summary, which provides details of the Flow, Data or Event definition selected in the Navigator frame.

  This frame shows details of a definition that you create and keeps these details in view when you are editing definitions on the right-hand frame. The content of this frame matches what is selected in the Navigator pane and not what is being displayed in the right-hand frame.

  This frame also shows the dependencies between the definitions and enables you to quickly move between the definitions (using hyperlinks) to better understand how the definitions relate to each other.

- an upper-right-hand frame, which displays the Window for the definition that has been opened from the Navigator frame. In Figure 12 on page 50 this is blank as no definitions have been defined or opened.

- a lower part of the right-hand frame, called the Todo List. This is not shown in the above diagram as the Todo list is presented when a definition is being viewed or modified. The Todo list maintains a list of all the tasks that need to be completed before the definition can be deployed.

The interface is slightly different for each of the different definitions; however, the overall layout is the same.

In order to create a business flow that you can monitor within OVBPI, you need to understand more about defining Flow, Data and Event definitions using the OVBPI Modeler. The following sections describe this in more detail.

Flows

Flow definitions are created using the OVBPI Modeler. Flow definitions are the graphical representations of the Business Flows that you have created to be managed and monitored by OVBPI.

The Flow definition Window (see Figure 13) offers the following options through tabbed Windows:

- Identity tab

- Flow Editor tab

- Related Data tab

Figure 13 Flow Definition Window
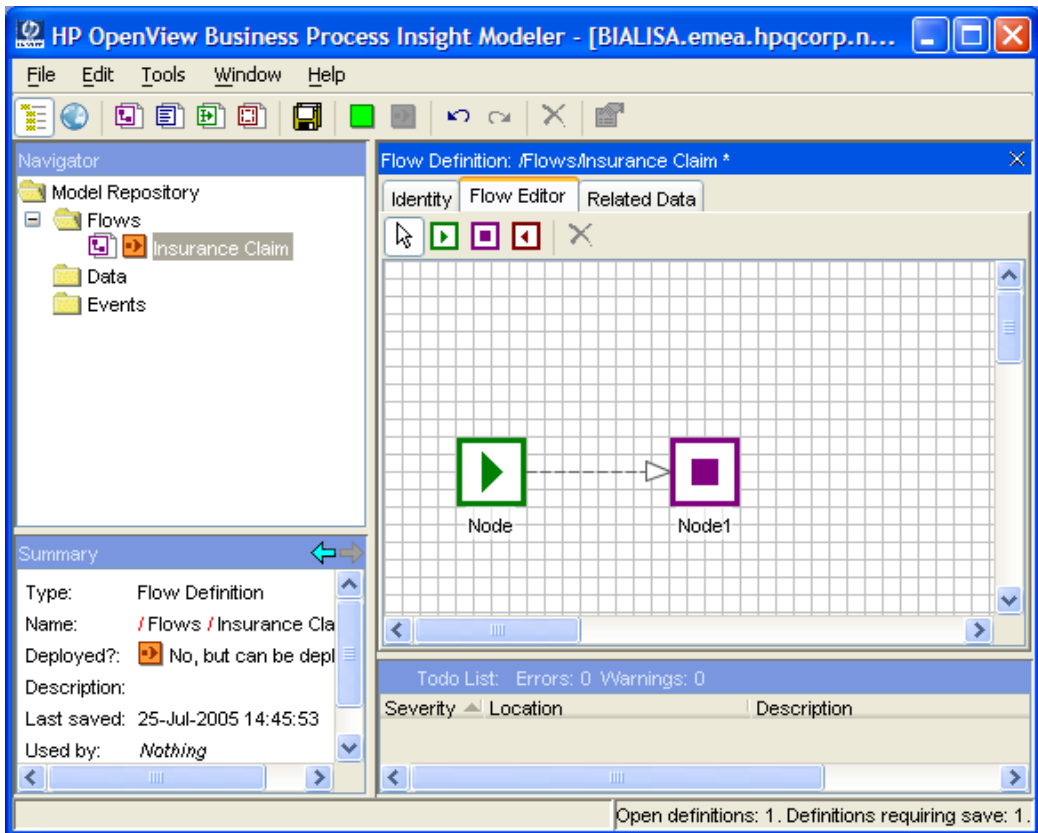
Identity

To create a Flow definition, you enter a:

*   name

    This is the name of the flow, for example, Order Processing.

*   description

    This is a description of your choice; the description is optional.

Flow Editor

The Business Flow represents the key business activities that you want to monitor from your business processes. The graphical Flow definitions are created through the Flow Editor tab; the components of the model are shown in Figure 14.

Figure 14 Flow Model Components
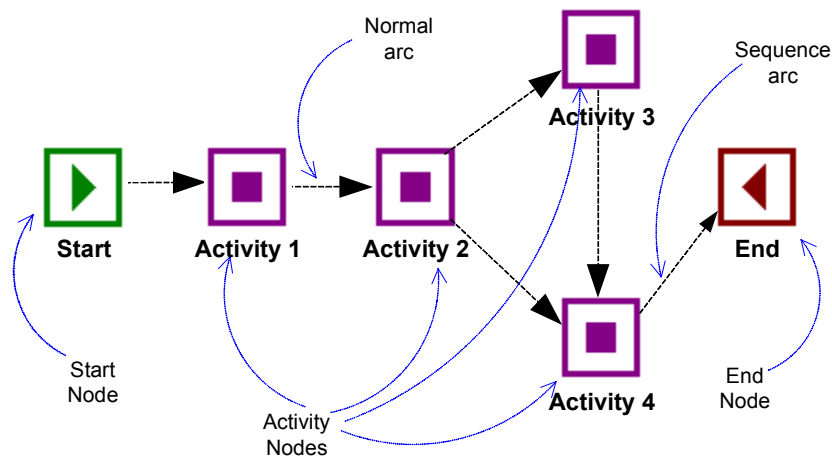
The following sections describe the components that are available from the OVBPI Modeler for defining your business flow.

Activity Node

This node is a normal step within the flow that gets activated and deactivated according to its start and complete conditions. The start and complete conditions are the rules that you define to progress a flow and are described in section Flow Progression on page 57.

If an Activity Node is expected to be active for a period of time, while an activity within the business flow occurs, set different start and complete conditions for the node; for example, in the case of checking account details.

If the Activity Node is instantaneous, and deactivated as soon as it is activated, you need only set one of a start or a complete condition for the Activity Node; for example, in the case of decrementing a stock total. In this case, the Business Impact Engine maps the start condition to the complete condition and vice versa. When the start and the complete conditions are the same, an Activity node has a duration of zero (0) milliseconds when evaluated by the Business Impact Engine.

Activity Nodes can, but do not have to, have arcs entering and leaving them.

Start Node

This is a normal starting point for a flow. The start condition for the Start node must be based on the Data definition for the flow, which is set through the Related Data option for the Flow definition.

You can choose to log a warning if one (or more) attempt is made to start a flow for a second time. This is where the start conditions for the Start node are met more than once. If you select this option, and a second Start Node is activated after the flow has started, the Business Impact Engine issues a warning as the flow is not progressing as expected.

This might be the case where an instance of the flow has been created by a different Start Node, or by an Activity Node with the following flag set:

```
OK to start the flow if not already started
```

If the Start Node is instantaneous, set the start and complete conditions as described for the Activity Node as the Business Impact Engine treats the nodes in the same way. If your business flow expects that the activity related to the Start Node is not a transient activity, set different start and complete conditions for the node.

Start nodes cannot have arcs leading into them. Start nodes can, but do not have to, have arcs leaving them.

End Node

This is a normal end point for a flow. When an End Node meets its complete condition the whole flow is deemed to have completed, and the Business Impact Engine is free to stop monitoring it.

However, it is possible that out-of-sequence events can still arrive after this point, so the Business Impact Engine marks the flow as completed, but continues to monitor it for out-of-sequence events.

If the End Node is transient, set the start and complete conditions as described for the Activity Node. The Business Impact Engine treats the nodes in the same way. If your business flow requires that the End Node is active for a period of time, set a different start and complete conditions for the node.

If a flow has parallel paths, these paths should be merged before the End Node. If the paths are not merged, the flow ends when an End Node is first activated, which might not be the intended behavior.

End Nodes can, but do not have to have arcs entering them; however, they must not have arcs leaving them.

Arcs

Arcs are used to indicate the direction of your flow and the expected order that nodes are to be executed. Normal arcs (non check-sequence arcs shown as dotted lines on a flow diagram) show the direction of the flow, but do not have any effect on how the flow is progressed. These arcs can be omitted with no effect on the flow progression; however, arcs are used to determine the status of a flow, for example, whether it is blocked or impeded. If you do not include arcs in your flow, OVBPI is unable to make as accurate a judgement of the flow state as it can when arcs are included.

Check-sequence arcs are used to inform you when nodes in your flow are executed in an unexpected order. A check sequence arc is represented as a solid line between nodes and causes the Business Impact Engine to raise an alert if the nodes that are connected are not activated in the correct order. You change the properties of an arc by right-clicking the mouse on the arc that you want to modify.

When either the start condition or the end condition for a node is executed, the Business Impact Engine validates whether the complete condition for the previous node has also been executed. If the complete condition for the previous node has not been executed, and a check-sequence arc has been defined, an alert is raised.

In Figure 15, an alert is raised by the Business Impact Engine, if the Review Report node end condition is executed before the complete condition for Request Report is executed. In this case, you want to make sure that the report is definitely requested before sending it for review.

Figure 15 Checked Arcs
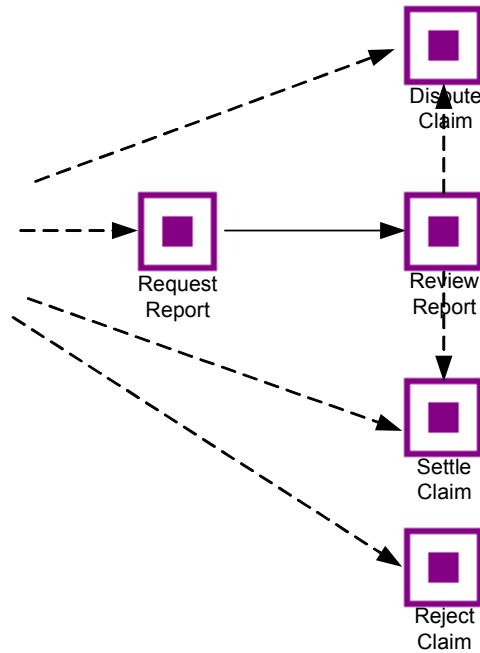
You are advised to set check-sequence arcs with care, as out-of-sequence events can legitimately be received by the OVBPI system (and are resolved when the complete set of events are received); this might result in the sequence arcs being triggered excessively. This is most noticeable in a recovery situation, following a system failure.

Flow Progression

Each node in a flow has properties, which describe the node and the conditions for the flow progression; these are the start and complete conditions for the nodes.

The starts and complete conditions are the expressions (progression rules) that specify the conditions for a node being started and completed (or activated and deactivated). It is these conditions that provide the information to progress the flow. The start and complete conditions are based on the data that you have defined for the flow. The instances of the Data definitions are populated by the Event data; see section Event Subscriptions for Data Definitions on page 67.

If you want to enter complex start and complete conditions, you need to understand the grammar for the rules. This grammar is documented in the *HP OpenView Business Process Insight System Administration Guide*. An example of defining these criteria is given in the *HP OpenView Business Process Insight Integration Training Guide - Modeling Flows*.

Note that there are specific requirements for the start and complete conditions for nodes. The start and complete conditions must be based on the Data definition identified as the Related Data, which is another property of the Flow definition, and is described later.

You cannot create the start and complete conditions for a node until you have identified the Data definition to be used by the flow, as the properties of this Data definition are used as input for the start and complete conditions.

▶ You cannot enter a Data definition in the Related Data field until you have created the Data definition. Data definitions are described in Data on page 63.

The behavior of the nodes in the flow varies according to the start and complete conditions that you define:

- If the start and complete conditions for a node are the same, the node is entered and exited instantaneously. This is typically the behavior you expect for a Start or an End node.

- If the start condition differs from the complete condition, then typically there is time spent on the activity that the node represents. This behavior is more typical of an Activity node.

- If the node does not have either a start or a complete condition set, there is no activity for the node. However, if the node has a service assigned to it, you can monitor the service impact for that node in the flow.

When you select the properties for a node, you are presented with a dialog called Node Properties; see Figure 16. You use this dialog to enter properties of the progression rules (in addition to other details of the nodes).

Figure 16 Node Properties Dialog
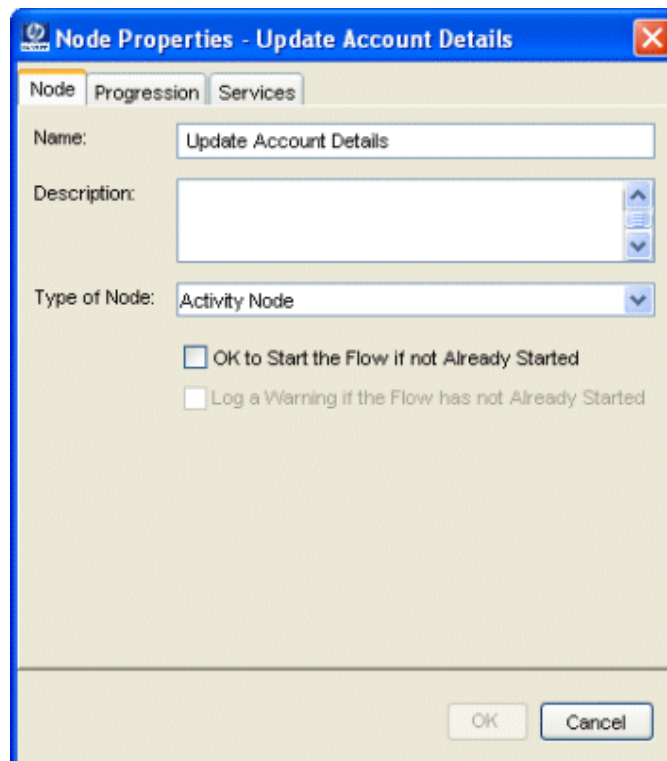
The properties of the Node are:

- Node

  This is where you provide details of the node name and text to describe the node:

  — Name

    This is the name of the node, for example, Review Report, and must be between 1 and 40 characters.

  — Description

    This is an optional description of the node.

  — Type of Node

    This can be one of Start Node, Activity Node or End Node.

  In addition to these properties, there are up to two check boxes offering additional options. There are two check boxes for all node types, with the exception of the Start node, which has only one. The options are:

  — `OK to Start the Flow if not Already Started`

    When this option is selected, OVBPI starts the Flow when the start conditions for the node are met even if the start conditions for the Start node have not been met.

    This represents an abnormal start to the flow. However, there might be a situation where events arrive out of sequence in cases where different applications are generating the events, which are then used at different nodes.

  — `Log a Warning if the Flow has not Already Started`

    This option is available only if you have selected the check box for `OK to Start the Flow if not Already Started`. Select this option if you want the Business Impact Engine to log a warning message if the Flow starts when it meets the start condition for the node. You want to be alerted to the fact that this is happening as it is an abnormal situation.

- Progression

  This is where you enter the start and complete conditions for the node.

  There are a number of styles of progression rules that you can select from and the data required to complete them varies according to the style that you select. Each style requires you to enter progressively more details of the rules that you want to specify, with the final style requiring you to enter complete conditions using the grammar described in the *HP OpenView Business Process Insight System Administration Guide*. The following are the styles of progression that you can select from:

  — `Complete on first assignment`

    In this style, the activity for the node is signalled as complete when a value is assigned to the Data property defined in the text box labeled `Property`.

  — `Complete on transition`

    In this style, the activity for the node is signalled as complete when a single data property changes from one value to another value. You are requested to enter details of the expected change and you can select from the data properties defined for the related data for the Flow.

  — `Start and complete on transitions`

    In this style, the activity for the node is signalled as start and complete when a data property changes from one value to another. This can be the same data property, or two different data properties. One data property change is for the node start condition and the other data property change is for the node complete condition.

— `Advanced conditions`

In this style, you can enter start and complete conditions of your choice. This gives you complete flexibility and control to enter more complex start and complete conditions.

Use the ellipses to open further dialog boxes that enable you to enter start and end conditions using the grammar described in the *HP OpenView Business Process Insight System Administration Guide*.

▶ When entering property values for progression rules in the OVBPI Modeler be aware that the Oracle Server does not distinguish between a zero-length string and a string with a value that has not been assigned (null string). This means that if you want to test a zero length string within a start or complete condition, you are advised to use a single blank space (" "), and not an empty string ("").

• Services

This is the list of services that this node is associated with. These might be operational services linked to OVIS and OVO (through Service Navigator on HP-UX or OpenView Operations for Windows), or they might be other services that you have defined.

Related Data

The properties for Related Data enable you to identify the Data definition that needs to be used for the flow. This Data definition represents the data that the flow is based on. In the case of an Insurance Claim flow, this is the details of the claim. In the case of a Stock Control flow, it is details of an order. An event that triggers a Data definition to be created is usually the event that also triggers the flow to be created.

In most cases, the life cycle of a flow instance is related to a business condition, for example the existence of a particular order, or the existence of a particular insurance claim. In this case, changes to the Claim (or Order) Data definition can cause a flow instance to be created. For example, the assignment of a new Claim number could trigger the start of a new instance of the Claim flow; however, there are some cases where the lifecycle of a data instance outlives the flow instance. An example of this might be where the Data definition is `Customer` and the Flow definition is an `Order`.

In addition, the Data definition must be linked to the Flow definition by the identifier of the specific instance of the Data definition. This ensures that the flow instance is progressed using the correct data.

The Related Data property comprises:

- Data Definition

  This is the Data definition, whose properties you want to use for the start and complete conditions in the flow. You can select from the list of all the Data definitions currently defined in the OVBPI Modeler.

- Relationship Name

  This is the name that you want to give to the relationship and is used in the start and complete conditions.

- Identity Property

  This is a drop-down list containing all of the properties of the selected Data definition. You select one of these to be used to identify different instances of the flow as long as the property has been marked as unique within the Data definition. This property is used by the OVBPI Business Process Dashboard as the key property for displaying instances of the flow. Flow instances are ordered by the property entered in this field within the Business Process Dashboard.

- Weight Property

  This is the name of a property within the Data definition that you want used to highlight the most significant business information about the Data definition.

  The Weight property is then used from within the Business Process Dashboard for display and monitoring purposes and in the Metrics definer when creating metrics and thresholds. As an example, in the Dashboard you might have as a Weight property the current value of outstanding transactions. This then shows the relative importance of a flow instance compared to the other instances of the same flow based on the value outstanding. You can select from the list of data properties currently defined.

  Weight is a numeric value (real, integer or double), which can include floating point and currency. The selection list offered for Weight therefore shows the list of properties, however only allows you to select properties of the correct type.

Data

Data definitions are defined within the Modeler. These are the graphical representations of the Business Impact Engine's Business Data Objects. As an example, in your business flow there might be a Data definition for a customer, for an order, or for an insurance claim.

Data definitions can also represent business impact data, for example, the value of an object, and how many of a particular type of object are waiting to be processed. This information is used when presenting the impact data to the business manager through the Business Process Dashboard; for example, total value of a particular customer's orders that are impacted.

The Data definition Window offers the following options through tabbed Windows:

- Identity tab
- Properties tab
- Subscriptions tab

Identity

To create a Data definition, you need to provide a:

- Name

  This is the name for the Data definition, for example, Order Identifier.

- Description

  This is a description of your choice; the description is optional.

Properties

Each Data definition has a collection of properties. Each property comprises:

- Name
- Type, for example: string, double, integer, currency, date, long and boolean

- Constraint, which indicates any constraints on the data type.

  The constraint is linked to the data type and is relevant only to string and currency data types. For a string the constraint specifies the maximum length of the string. For currency, this column specifies the ISO 4217 currency code, for example, USD and GBP.

- Unique, which is a flag indicating whether the property value must be tested to be unique.

  Check this column if the property value is unique for all instances of the Data definition. An example of where a property value is marked as unique is for an order number, customer identifier or insurance claim identifier.

- Description, which is for your own documentation purposes. This property is optional.

In addition to the above properties you need to define subscriptions to your Event definitions as described in section Subscriptions.

Subscriptions

A Business Data definition needs to include references to the Events that it subscribes to in order that the properties of the Data definition can be updated from the data in the event.

Keeping the Event definition as a separate entity to the Data definition enables you to use a single Event definition to update multiple Data definitions.

This provides a level of indirection between the Event and the Flow definition.

The event data required to populate the Data definitions needs to exist as an Event definition within the OVBPI Modeler. Note that you cannot create these subscriptions until you have defined your events; Event definitions are described in section Business Events on page 65.

▶ When entering property values for subscriptions within the OVBPI Modeler be aware that the Oracle Server does not distinguish between a zero-length string and a string with a value that has not been assigned (null string). This means that if you want to test a zero length string within a subscription, you are advised to use a single blank space (" "), and not an empty string ("").

Business Events

Event definitions are defined within the Modeler. These are the business events that provide the data to update the properties of the Data definition and indirectly progress the business flow. This data is used to populate the Data definitions that you have created for your flow.

These business events provide the Business Impact Engine with business data from business applications. This business data is then used by the Business Process Dashboard to add impact information, in the form of annotations, to the business flows and by the Metric Engine to generate the required business process metrics.

As an example, the Business Process Dashboard might show the monetary value of a node not being available for a period of time, or it might show how many transactions are queued and awaiting processing at a particular node in the business flow, both as annotations on the business flow.

Events are received by the Business Impact Engine through the Business Event Handler, which is described in more detail in the *HP OpenView Business Process Insight System Administration Guide*.

The Event definition Window offers the following options through tabbed Windows:

- Identity tab
- Properties tab

Identity

To create an Event definition, you need to provide a:

- Name

  This is the name for the Event definition, for example, `Order`, or `CRM\Customer`.

  Within openadaptor, you can create hierarchies of Event names under groups; however, using the Modeler you can enter only Event names. If you are using groups within openadaptor, you can include the groups in the Event definition name. The group is extracted from the Event name and is all the characters up to the final backslash. The Event name is then all the characters following the final backslash.

- Description

  This is a description of your choice; the description is optional.

Properties

Each Event definition has a collection of properties and each property comprises:

- Name, which is the name of the property
- Type of the property, for example: string, double, integer, currency, date, long and boolean
- Constraint, which indicates any constraints on the property.

  The constraint is linked to the type of the property and is relevant only to string and currency data types. For a string the constraint specifies the maximum length of the string, for currency, this column specifies the ISO 4217 currency code, for example, USD and GBP.

- Description

  This is description of your choice; the description is optional.

The events that you define then need to be associated with the Data definitions that they are required to populate. This is achieved through the `Subscriptions` tab on the Data definition window in the OVBPI Modeler.

Event Subscriptions for Data Definitions

When you have defined the Events required to populate the Data definitions for your Business Flow, you can return to the Data definitions and add the subscriptions for your Data definitions to the relevant Events.

The following information needs to be provided for subscriptions:

- `Event`

  This is the name of the Event that the Data definition is subscribing to. You can select the Event name from the list provided.

- `Subscription Description`

  This is an optional free-form description of the subscription.

- `Event is for a specific instance of this data object`

  This specifies whether the Event data updates a specific instance of this Data definition, or whether the Event updates many instances of this Data definitions.

  If the Event is providing data for a unique customer identifier, the Event is for a specific instance, and you need to define details of how the instance is identified.

  If the Event contains more general information, for example, pricing information, or share price information, there might be many data objects that subscribe to it, in which case, the Event is not for a specific instance of this Data definition.

  When this option is selected, the following additional data is also required:

  - `Unique Property of this Data definition`

    This is the name of a property of the Data Definition property used to match a specified Event property to ensure that a specific instance of a Data definition is identified. The property used to match the definitions should be a property that has already been defined as unique within the Data Definition.

  - `Property of event`

    This is the property of the Event that is used to find one instance of the Data definition.

—   `Can the event create a new instance of this data definition?`

This is the behavior that you enforce when the Event is received into your OVBPI system. The options are:

-    `Create if data definition instance does not exist`

  Create the instance of the Data definition if necessary.

-    `Warn if data definition instance exists, otherwise create it`

  This Event should create an instance of the Data definition; if the Data definition instance already exists, then issue a warning.

-    `Fail if the data definition instance exists, otherwise create it`

  This Event should create an instance of the Data definition; if the Data definition instance already exists, then fail.

-    `Do not create`

  Ignore the Event if the instance of the Data definition does not exist.

-    `Create, but warn if the Data definition instance does not exist`

  This Event should create an instance of a Data definition. If the Data definition instance does not exist, the Business Impact Engine issues a warning message, creates an instance of the Data definition and accepts the Event.

-    `Fail if the data definition instance does not exist`

  If an instance of the Data definition does not already exist, then accept the Event and issue a failure message. (Note that if the Event is not accepted, the Business Event Handler places it in the Event Hospital marked for discharge, and attempts to resend it at a later time).

- Filter expression for the Event

  This enables you to provide a further level of filtering for your Events. So far, the Event is filtered on its type, through the subscription definition, and also through linking a unique property of the Data definition with an Event property.

  The filter expression enables you to specify that you want the Event to update the Data definition under specific conditions. For example, you might only want to update the Data definition if a property within the Event has a particular value, or where a property of the Data definition has a particular value.

- Actions

  These are the actions that need to be taken when the Event is received. These are typically the actions required to update the properties of the Data definition with the data from the Event. The actions are completed in sequence, so the order in which you enter the actions is important.

  Note that if you have a number of actions and there is an error in one of the actions, only the erroneous action fails, the remaining actions are completed. An example of when an action might fail is when it is attempting to coerce a string to an integer, when the string contains non-numeric characters.

- Terminate the Instance of the Data Definition After Handling the Event

  When all actions are complete and the subscribed Event has been received, mark the instance of the Data definition as ready to be deleted from the Business Impact Engine. At some point in the future the Business Impact Engine clears these Data definition instances from its database.

A Data definition is deployed to the Business Impact Engine at the same time that you deploy the business flow. You can also select a Data definition to be deployed. In this case, the Data definition and its dependencies (Flows and Events) are also deployed.

Services

Services represent the underlying resources that the nodes in the flow are dependent on, for example, a Settle Claim node within an Insurance Flow might depend on the Claim Settlement Application, or a claim's administrator.

There are three ways of making services available to OVBPI:

- Referencing operational services from OVIS. The OVIS services groups are imported into the Model Repository from OVIS. The Model Repository then re-imports these service groups either periodically, as a background operation, or on demand through the Modeler. Note that you cannot modify the Service Group properties from within the Modeler; this has to be done through OVIS.

- Specifying a OVO service name within the OVBPI Modeler from the `Access OVO Services` option, within `Import Services` dialog.

  The OVO service name is added to the list of OVO Services listed in the Modeler. The OVBPI Modeler warns you if the service name does not exist within OVO; however, you can still create the service as a placeholder for a service name that has yet to be created. The Model Repository periodically checks the status of the OVO services and links to the service when it is created within OVO. The Model Repository also notifies you through the TodoList if an OVO service is removed from OVO.

  An OVBPI Server can receive service impact information from OVO either on HP-UX, through HP OpenView Service Navigator (OVSN), or on Windows, using HP OpenView Operations for Windows (OVOW).

- Defining a Standalone service, for example, a service that is provided through the Business Event Handler. These services are defined only within the Modeler, and have names. No other consistency checks are completed for Standalone services.

  The status of these services is updated by an event, or events, that you configure using the Business Event Handler.

Services are assigned to one or more nodes in a flow. Once imported or created and saved, a service definition is available to any business flow that you are creating. The OVBPI system is notified of changes in status to OVIS or OVO operational services and these changes are propagated to the OVBPI system as impact events.

Where to go Next

This chapter has provided an overview of the features and functions of the OVBPI Modeler and how to use it to create your business flows.

You now need to read Chapter 4, OVBPI Business Process Metrics, which describes the tools available for creating business process metrics and metric thresholds for these flows.

In terms of the methodology Chapter 4, OVBPI Business Process Metrics covers:

• Defining business process metrics for the flows.

• Defining filters and thresholds for the metrics.

4

OVBPI Business Process Metrics

When you have defined and deployed your business flows, you can define business measurements for these flows using the Business Process Metrics definer. These business measurements provide the information that raises the visibility of how your flows are performing relative to business criteria that you specify.

The Metrics definer is a Web-based graphical interface and it provides the environment for you to create and modify business process metrics and thresholds for these metrics. You can also define filters using the Metrics definer.

When you define a business process metric for a flow, you can also specify that the Business Impact Engine measures and records statistics for the metric. These statistics can then be viewed through the Business Process Dashboard.

This chapter covers the following topics:

- Relationship Between Flows and Business Process Metrics on page 74
- Business Process Metric Definitions on page 77
- Business Process Metric Definer on page 81

Relationship Between Flows and Business Process Metrics

Business process metrics are measurements that have a specific meaning within your business. They are one of the mechanisms within OVBPI that you can use to indicate the health of the business flows that you have defined and are monitoring. Annotations and flow impact alerts are other mechanisms that you can use.

When you define a business process metric for a flow, OVBPI can also collect the appropriate statistical data for the defined metric. This data is written to separate database tables, which are designed specifically for reporting tools and applications. (The tables that store details of Flow, Data and Node instances are designed for transaction processing and are optimized for high levels of processing, rather than reporting.)

Specifically, the metric schema is what is known as a star schema. It comprises a series of fact tables, each of which can be quite large, plus a number of much smaller dimension tables. The fact tables contain the core data for the business process metrics and each dimension table contains information about the entries for a particular attribute in the fact table. Reporting tools typically access the smaller dimension tables for their queries.

The metric star schema is optimized for query type requests and is supported by many business reporting and development tools, some of which make assumptions about how the data is stored and expect a star schema type of structure. However, you do not need to use any additional reporting tools as you can use the OVBPI Business Process Dashboard to monitor and report on all the business process metrics that you define.

In addition to business process metrics, you can define metric thresholds; for example, backlog thresholds and deadlines. If a threshold that you define is violated, OVBPI issues a metric threshold alert, which you can view through

the Business Process Dashboard. You can also subscribe to these threshold alerts using the Notification Server Administration console and receive threshold notifications, through email, or through other OVO applications.

Figure 17 Business Flows and Business Process Metrics
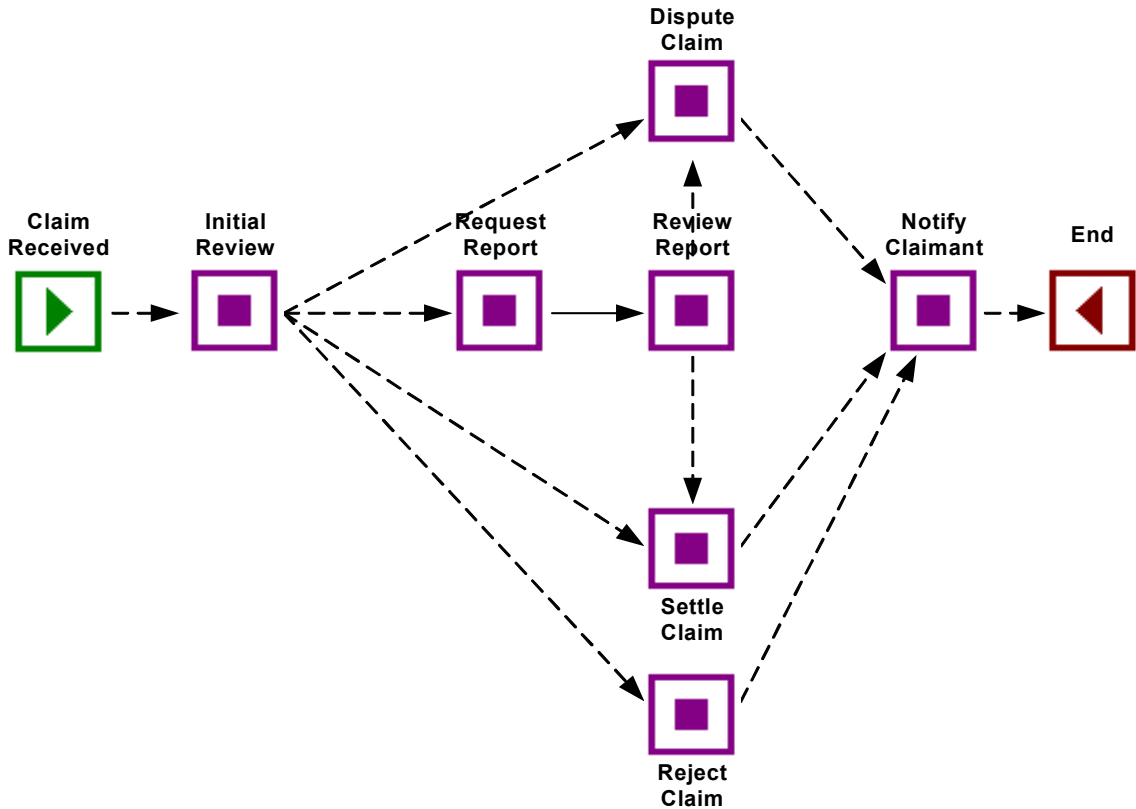
As an example, in Figure 17, you might want to define a Metric that collects information about the Request Report node and how long it takes for reports to complete the review cycle (move to and from the Review Report node). Alternatively, you might want to monitor the backlog of claims awaiting settlement at the Settle Claim node.

To do this, you use the Business Process Metric definer to create business process metrics. You can create thresholds for individual flow instances, or you can collect thresholds for individual instances, plus accumulate statistics for the instances for reporting purposes. In the case of the Metric definer, statistics are a measure of historical metric information.

If requested, OVBPI collects the statistical information and stores it in the metric database tables. The OVBPI Business Process Dashboard uses the data in these tables to display tables and charts showing the results of the metric data, based on the statistics that have been collected. As an example, you can choose to show averages, throughputs or counts over a selected period of time. You can also view the status of any thresholds that are set for the business process metrics through the Business Process Dashboard.

In addition, you have the option to define filters and apply them to the metric data definitions; see section Filters on page 82 describe filters in more detail.

Figure 18 shows the relationship between business process metrics, metric thresholds, threshold alerts and threshold notifications.

Figure 18 Flows, Metrics and Thresholds

A flow can have one or more business metrics, for example:
- Value of order
- Backlog of billing transactions
- Backlog of billing transactions for Gold customers

A business metric can have one or more business thresholds, for example:
- Value of order greater than $10
- Backlog of billing more than $20

A business threshold can have one or more alert levels, for example:
- issue major alert when order value greater than $20
- issue critical alert when billing transactions backlog is more than $1million

A threshold alert can have subscriptions set, for example:
- send manager an email when critical alert on billing is raised.
- Run a script when major alert on order value is raised.

Business Process Metric Definitions

Why do you need to define business process metrics for your flows? The answer is that you do not have to define them. You can proactively monitor your flows using the Business Process Dashboard without specifying business process metrics; however, this means you might miss key events and you do not necessarily get the complete view of how business events are impacting your business. In addition, you cannot record any historical information about your flows and derive statistical information from them.

Having a business process metric defined for a flow enables your OVBPI system to collect metric data and you can therefore obtain historical data relating to the flow. This statistical data then enables you to set thresholds, which can then be used to generate alerts when the thresholds are violated. You can also set business process metric thresholds for flow instances.

You can then use the statistical information collected by the Metrics Engine to analyze your business flows in order that you can generate reports on the flows and which can be used to improve your business processes.

This chapter provides an overview of how you define business process metrics using the Business Process Metric definer and what the options are for creating business process metrics and thresholds. The *HP OpenView Business Process Insight Integration Training Guide - Modeling Flows* provides more detailed information and some examples of defining business flows and business process metrics.

Managing the Business Process Metric definer and the Business Metrics database tables is described in the *HP OpenView System Administration Guide*. Using the Metric definer to define business process metrics and metric thresholds, is described later in this guide.

You can define your Business Process Metrics at any point after you have deployed a business flow.

Metric Results

For each Business Metric definition there is a set of aggregate information that can be recorded and stored in the OVBPI database. This information is recorded for active flow instances, including any superseded instances, and for flow instances completed within the latest `Collection interval`. The

`Collection interval` is an interval that you set when you configure a business process metric and is the period of time over which you want the metrics statistics to be aggregated.

The type of statistical information reported includes:

- Averages, maximums and minimums

  Statistical information for average, minimum and maximums is based on the metric data collected for flow instances, only when the metric instance completes.

- Throughputs

  Statistical information for throughputs relates to the number of completed metrics instances recorded for each hour.

- Backlogs

  Statistical information for backlogs relates to the number of metric instances that have started, but not completed.

- Counts

  Statistical information based on counts, relates to the number of metric instances that have completed, within a specified period.

These statistics calculate the number of metric instances that are recorded for the different metric scopes that you can define. The scope of a metric determines when the Metric Engine starts and completes a measurement for a particular flow instance. There are three scopes that you can define:

- Flow scope

  The Metric Engine starts recording metric data when the flow instance instance is created and stops recording metric data when the flow instance completes.

- Multiple node scope

  The Metric Engine starts recording metric data when either the start or complete condition for a particular node is met, and stops recording metric data when either the start or complete condition for another node is met.

- Single node scope

  The Metric Engine starts recording information when the start condition for a specified node is met, and stops recording when the complete condition for the same node is met.

Setting the metric scope is described in detail in section Create a New Metric on page 87.

Metric statistics can be viewed as graphs and charts using the Business Process Dashboard, or through your own reporting tool. The statistics can be viewed for the active instances or the completed instances.

You can also use filters to further target the statistical data that you want to collect. This has the added benefit of reducing the amount of data stored in the database and therefore maintaining the OVBPI system performance.

Metric Threshold Definitions

You can define one or more thresholds for each Business Metric and associate limits for a particular result within a particular metric. For example, you can define a business process metric with a scope of Single node and then define thresholds as follows:

- when the average backlog for active flow instances at the node reaches three days, generate a `Warning` alert

- when the average backlog for active flow instances at the node reaches four days, generate a `Major` alert

- when the average backlog for active flow instances at the node reaches five days, generate a `Critical` alert.

As well as being able to set thresholds on the aggregated results for completed instances and the aggregate results for active instances, it is also possible to set thresholds for the values in the instances themselves. This means that rather than getting a threshold alert when the average or maximum Business Metrics are violated, a threshold alert is also generated for each flow instance that violates the Business Metric. Using the example above, you could configure the system to generate threshold alerts when any specific flow instance was waiting at a node for longer than the time periods specified.

You can view any threshold violations through the Business Process Dashboard as graphs and charts, or in tabular form. In addition, the statistical results can be grouped and presented as consolidated data within these groups as required. As an example, you might have a set of statistics related to all the terminals within an airport; however, for presentation purposes, you want to group the statistical results according to the terminal.

This can be done, by specifying the groups when you create the business process metric, and then viewing the results using these groups through the Business Process Dashboard.

The statistical data resulting from the business process metric calculations and the threshold alerts are written to the OVBPI database. You can subscribe to the alerts through the Notification Server Administration Console and receive metric threshold notifications through your email client or through other OVO interfaces where they are appropriately configured.

Business Process Metric Definer

The Business Process Metric definer is a Web-based interface and you use it to define your business process metrics and thresholds.

Figure 19 is an example of the layout of the Metric Definer when you first open it and where there are flows deployed within OVBPI.

Figure 19 Business Process Metric Definer
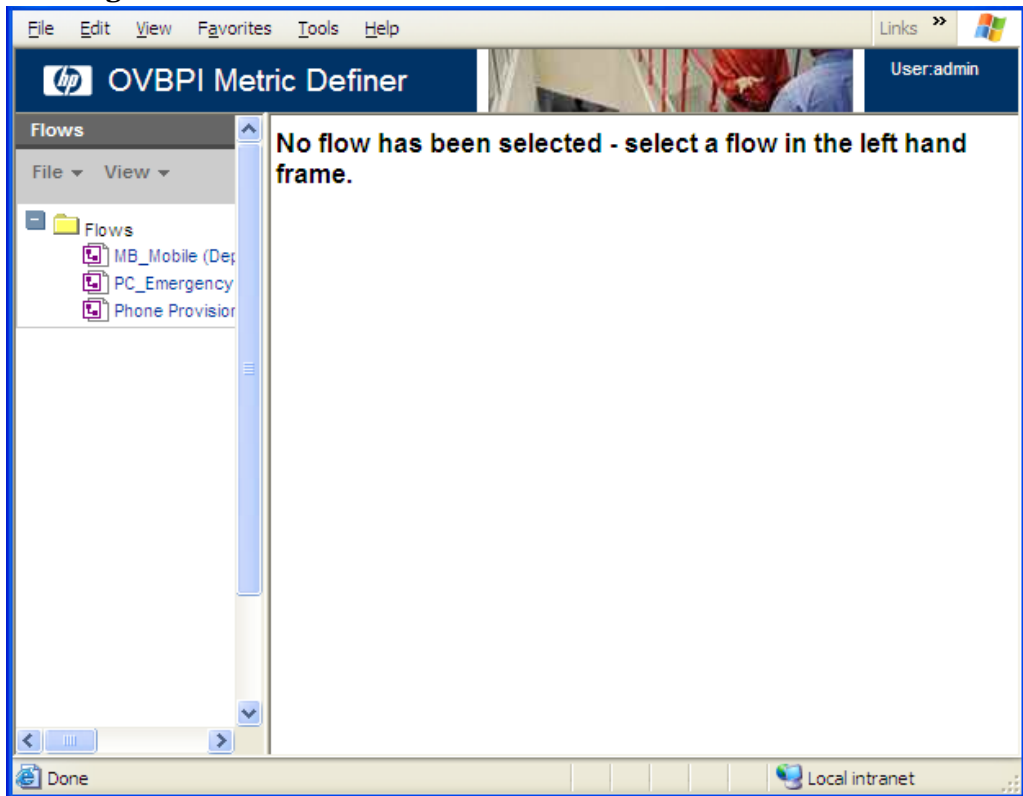
The left-hand frame is a navigation frame and lists all the deployed flows, plus any superseded versions of these flows. You can set and modify business process metrics on superseded flows that are currently active within the OVBPI system.

When you select the Flow from the navigation frame, the right-hand pane opens on the Metrics and Thresholds tab. The right-hand pane also has tabs named `Filters`, and `Metrics and Thresholds`.

You can create, modify and delete Filter, Metric and Threshold definitions using the Metric Definer.

When using the interface, be aware that no changes are committed to the database until you select the `Update` or `Replace` button to complete your modifications; at which point you are returned to the page listing the definition that you are editing. As an example, if the Web page for Metric definer is closed at any point while you are making changes, any modifications made through the interface are not committed to the database and are therefore lost.

Also be aware that Web browsers can have session time outs set for Web pages. This means that if you partially complete a Web page and then leave the Web browser inactive for a period of time, your partial changes might be lost if the Web browser times out.

The following sections describe the features and functions of the Metric definer in more detail.

Flow Summary

When you select the `Flow Summary` tab for a specific flow within the Metric definer, the Metric definer shows the graphical representation of the flow (as created in the Modeler), plus details of the flow description and its deployment status.

Filters

Filters enable you to more finely tune the data that is collected and stored for metrics. This has the effect of reducing the quantity of statistical data related to metric definitions stored in the database and can therefore improve the response times for the reporting tools. As an example, you might choose to collect business process metric data for all credit checks that are completed manually, as these are the credit checks that are the exceptions and require monitoring. (You want ignore the credit checks that are completed automatically, so you can exclude them from your business process metric data.)

Creating filters also enables you to create subsets of metric data for which you can then define thresholds; these thresholds being specifically related to this subset of data. As an example, you might want to define a different metric for your gold-level customers as compared to your silver-level and bronze-level customers. In this case, you define a filter for your gold-level customers and another filter for your silver-level and bronze-level customers. You can then define different metrics for each set of filtered customers. Filters are different to groups, which are described in section Create a New Metric on page 87.

When you select the Filters tab from within the Metric definer, you are presented with a pane that lists any filters that are already defined for the selected flow. The following options are available on this page:

- `Create Filter`; see section Create a New Filter on page 83.

- `Modify Filter`; see section Modify an Existing Filter on page 85.

- `Delete`; see section Delete a Filter on page 85.

Create a New Filter

Use this page to create a new filter definition. The name of the flow that this filter is being assigned to is displayed in the Flow name field. If you want to create a Filter definition for a different flow, select the correct flow, and correct version of the flow, from the navigation frame and navigate to the `Create Filter` option again.

Be aware that if you have not defined a Related Data definition for the Flow definition, you cannot create a filter. If no Related Data definition is defined, the options on the `Create Filter` page are disabled. A message is also displayed to indicate that no Related Data definition is available.

To create the definition, enter, or select, the following details:

- Filter Name

  This is the name that you want to assign to the Filter definition. Filter names can be up to 40 characters and comprise any character, including spaces and punctuation.

  You must provide a name for the Filter definition. The name needs to be unique for the Flow definition, but does not need to be unique across all Flow definitions.

- Filter Description

  This is the optional description that you want to assign to the filter definition. Filter descriptions can be up to 256 characters and comprise any character, including spaces and punctuation.

- Data Definition

  This is the list of Data properties defined for the selected Flow definition; these are the Data properties that are available for you to use within your filter expression. You can select a Data definition and use the Paste button to paste the Data definition into the Filter Expression as you define it.

- Filter Expression

  This is the filter expression that you want to set for this Filter Definition. You must provide a Filter Definition when defining a filter. You can select and paste data defined for the flow from the Data Definition dialog into the expression and you use the same grammar constructs for filter definitions that are used within the OVBPI Modeler for start and complete conditions. The grammar rules are described in the *HP OpenView Business Process Insight System Administration Guide*.

  Examples of using filter definitions for your business flows are provided in the *HP OpenView Business Process Insight Integration Guide - Modeling Flows*.

Click OK to complete and save your Filter definition.

Defining a filter does not have any immediate impact on your OVBPI system. The filter is not used until you have defined a Metric definition that references the filter; see section Metrics and Thresholds on page 86.

Modify an Existing Filter

To modify a filter definition that you have already added, select the filter from the list of filters presented, and then click the `Modify Filter` button.

You are presented with a set of options, which are very similar to those offered when you first created the filter definition.

You can modify any attribute of the filter definition, but be aware that changing the filter definition expression can result in the statistical data for the parent metric definition being impacted.

When you have made your changes to the filter definition, you have the following options:

- `Update`

  This updates the filter definition without resetting any of the metric values already created. All the statistics previously collected for the parent business process metric are maintained. This means the statistical results for the parent business process metric need to be carefully analyzed depending on the properties that you have changed for the filter.

- `Cancel`

  This returns to the list of filters without making any modifications.

Delete a Filter

To remove a filter definition, select the definition that you want to remove from the list and then click `Delete`. The filter is deleted from the database and no longer appears in the list of filters. If the filter is being used by one (or more) business process metrics, a warning message is displayed informing you that there are metrics that reference this filter. If you continue to delete the filter, the metric definition no longer has a filter associated with it.

Metrics and Thresholds

When you select the Metrics and Thresholds tab, you are presented with a pane that lists any Metrics and Thresholds that are already defined for the selected Flow definition. Thresholds are listed under the Metric to which they are related.

The following options are available on this page:

- Create Metric; see section Create a New Metric on page 87.
- Modify Metric; see section Modify a Metric on page 92.
- Create Threshold; see section Create a New Threshold on page 93.
- Modify Threshold; see section Modify a Threshold on page 97.
- Delete; see section Delete a Metric or Threshold on page 98.

Each metric definition has a name and description, as well as measurement and recording periods. You can also apply filters, which you have previously defined, to the metric definition. Filters are described in section Filters on page 82.

Create a New Metric

Use this page to create a new Metric definition. The name of the flow that this filter is being assigned to is indicated in the `Flow name` field and the flow diagram is displayed. Make sure that you select the correct version of the flow from the Navigator pane.

Figure 20 shows the portion of the Metric definer window that lists the parameters that need to be completed for a new Metric definition.

Figure 20 Creating a Metric

To create the definition, enter the following details:

- Metric Name

  This is the name that you want to assign to the Metric definition. Metric names can be up to 40 characters and comprise any character, including spaces and punctuation.

  You must provide a name for the Metric definition. The name needs to be unique for the selected Flow definition, but does not need to be unique across all Flow definitions. However, it is advisable to create a naming scheme that makes it easy to link your metric definitions to the flows to which they are related, as this makes identifying them much easier, particularly when viewing them using the Business Process Dashboard.

- Metric Description

  This is the optional description that you want to assign to the Metric definition. Metric descriptions can be up to 256 characters and comprise any character, including spaces and punctuation.

- Metric Scope

  This option enables you to select the range that you want to measure within the selected flow. There are three options:

  — Whole flow

    Business process metric data is collected for the entire flow.

  — Single node

    Business process metric data is collected for one node, as detailed under the `Metric start node` option. Metrics are collected for the node, including multiple loops through the node.

  — Multiple nodes

    Business process metric data is collected for a number of nodes, as detailed under the `Metric start node` and `Metric end node` options. Metrics are collected between the defined nodes, including multiple loops through the nodes.

- Metric Start Node

  Available with the `Single node` and `Multiple node` Metric scope options.

  When used with the single node scope, Metric start node identifies the node in the flow that you want to collect business process metrics for. Metrics are collected from the point where the start condition is met to the point where the end condition is met for this node.

  When used with the multiple node scope, you have the option of specifying whether you want to collect the metric data at the point where the start condition is met for the selected node or the point where the complete condition is met for the selected node.

- Metric End Node

  Available with the `Multiple node` Metric scope option.

  Identifies the node in the flow where you want to stop collecting Business process metric data. You have the option of specifying whether you want to stop collecting the metric data at the point where the start condition is met for the selected node or the point where the complete condition is met for the selected node.

- Metric Value Type

  Enables you to define the business process metric, specifically, what the business process metric is measuring. The statistics that are collected depend on the type of metric that is defined and the Collection interval. The Collection interval is described later in this section; the Metric value type can be:

  — `Duration`

    The metric definition is a duration, based on the time that the metric instance is started and the time that the metric instance completes.

  — `Weight`

    The metric definition is based on the weight property of the flow, for example, the total of the weight properties measured over the period of one hour.

  — other metric value types

    You can also define Custom metrics. The statistics that are collected for custom metrics depend on the type of metric that you have defined. When created, a custom metric appears in the list of `Metric value types` along with `Duration` and `Weight` value types.

  When you create a Custom Metric it appears in the list of metric value types. The name of the Metric value type in the list is taken from the name of the Custom Metric when it is defined.

  Refer to the *HP OpenView Business Process Insight Integration Guide - Defining Business Metrics*, for details of creating Customized Metrics.

- Statistics Collection

  The Statistics Collection parameter is used to indicate whether or not you want to collect statistics for the business process metric that you are defining.

  If you set Statistics Collection to be set to Off, no statistics are calculated and stored for the business process metric. This enables you to set a business process metric and have OVBPI report on metric instance information only, with no statistical information defined or collected. You can still set metric thresholds on individual instances if required. When you select Off for Statistics Collection, the Collected Data list changes to offer only Instance Duration or Instance Weight or Instance Value, according to the Metric Value Type selected.

  If you set Statistics Collection to be On, you can then also set the Collection Interval for these statistics. Figure 20 on page 87 shows the list of statistics that are created for the Metric value type Duration.

  The Collection Interval is the time period for the collection and analysis of a specific set of business process metric statistics. At the end of each collection interval a new set of records, based on the metric data collected, is written to the database. This metric data is the basis of the data used in the Business Process Dashboard or other reporting tools.

  For each set of metric statistics, the statistics are recorded at the time periods that are complete multiples of the Collection Interval, for example:

  — If the Collection interval is 10 minutes, then the metric statistics are recorded on the hour and 10, 20, 30, 40 and 50 minutes after the hour.

  — If the Collection interval is one day, the metric statistics are recorded at 00:00 each day (based on local time).

  The Collection interval is different to the time specified for calculating the metrics. A metric might be calculated once every five minutes, but collected over a period of 15 minutes.

The Collection interval is used:

— to determine how often metric data is stored historically. It is the period used for evaluating historical averages, minimum, maximums and so on. These statistical results are used to determine threshold violations in the case of threshold types of absolute and relative durations.

— within the Business Process Dashboard as the period over which the current metric status is evaluated for alert status. If a threshold for any metric defined for a flow has been violated within its Collection interval, the summary for Metric status for the flow is marked according to the violation type.

➤ When setting a Collection interval, be aware that the size of the interval determines how much data is collected. The smaller the interval, the more data is collected and therefore more disk space is required to store results in the database. For example, if you are demonstrating business process metrics and using a small `Collection Interval`, say one minute, make sure that you have also set the `Metric Engine Instance Cleaner settings` parameters to periodically remove the unwanted metric instances. These parameters are described in the *HP OpenView Business Process Insight Administration Guide*.

• Apply Filter

   Enables you to assign a predefined Filter definition to the data collection for the Metric. You define a filter using the `Add Filter` option within the Metric definer; see section Filters on page 82.

• Group Results By

   The Data definition property that you want to use as a means of consolidating your metric results; for example, you might choose to group airport terminal metric data by terminal or airline, in addition to, or instead of, the whole airport. The Data definition property must be of the type `string` in order to use this option.

   If you select a Data definition in the `Group Results By` option, you are presented with an edit box to enter a name for the group.

Grouping has an effect on the amount of data collected; for example, if you define two groups, statistics are recorded for each of the groups, and also for the entire metric. Using the airport terminal example, if you create two groups for two terminals, three sets of data are collected: two for the defined terminals, and one set of data for all the terminals.

Be aware that absolute metric thresholds can be set only for the whole group and not individual group members, for example, you cannot set absolute metric thresholds for Gold customers only; if you want to do this, use filters as described in section Filters on page 82.

- Deadline Property

  The Data definition property that you want to use as the benchmark for a deadline threshold. All Data definition properties that are of type Date are available for selection for this option.

  If you have not defined a Data definition property of type Date for the Flow, you cannot create a Deadline property for the metric, and you therefore cannot define a deadline threshold for the metric.

  The Deadline property is not available with a `Metric Value Type` of `Weight`.

Click `OK` to complete and save the Metric definition.

Modify a Metric

To modify a business process metric definition that you have already created, select the metric definition name from the list, and then click the `Modify Metric` button.

You are presented with the same set of options to those offered when you first created the metric definition.

You can modify any attribute of the metric definition, but be aware that changing any attributes of the metric means that all the statistical data for the metric definition are impacted. The exception to this is the name and the description of the metric; these can be modified without impacting any of the metrics data that is being collected.

When you have made your changes to the metric definition, you have the following options

- `Update`

  This updates the metric definition without resetting any of the metric values already created. If you choose to update your business process metric rather than replace it, all the statistics previously collected for the business process metric are maintained. This means the statistical results for the business process metric need to be carefully analyzed depending on the properties that you have changed for the business process metric.

- `Replace`

  This replaces the metric definition and resets all the statistics collected for the metric definition to zero. You therefore lose all the historical data relating to the business process metric definition.

- `Cancel`

  This returns to the list of metrics and thresholds without making any modifications.

Create a New Threshold

Use this page to create a threshold definition for a selected metric. The details of the Flow definition name, Metric definition name and Metric type currently selected are displayed at the top of the page.

To create a new threshold, enter the following details:

- Threshold Name

  This is the name that you want to assign to the Threshold definition. Threshold names can be up to 40 characters and comprise any character, including spaces and punctuation.

  You must provide a name for the Threshold definition; the name needs to be unique for the parent Metric definition, but does not need to be unique across all Metric definitions.

➤ You are advised to have unique and meaningful Threshold definition names as it makes identifying the threshold much easier when it is presented through the Dashboard.

- Threshold Description

  This is the optional description that you want to assign to the Threshold definition. Threshold descriptions can be up to 256 characters and comprise any character, including spaces and punctuation.

- Threshold Type

  These are the types of threshold that can be set for the selected Metric definition. When you have selected a type you can then set the remaining details of the threshold; for example, times for warnings and critical alerts. This is done by setting other fields on the `Create Threshold` pane, and which are revealed when you select the threshold type. You must define a Threshold type when defining a Metric threshold definition.

  The Threshold type can be one of:

  — Absolute duration, Absolute weight or Absolute value (according to the type of metric)

    This enables you to set alerts based on:

    – absolute times measured for each metric instance that completes; this time can be measured and alerts raised as soon as the metric instance completes.

    – the statistics collected over the current `Collection interval`. These statistics results are calculated only for the metric instances that have completed within the `Collection interval`. In this case, alerts are raised at the end of each `Collection interval`.

  — Backlog

    This enables you to set alerts based on backlogs that are measured for active metric instances.

  — Deadline

    Available only if a Metric type has a Deadline property defined.

    This enables you to set alerts based on a deadline, which is provided by a Data definition property for the flow. The Deadline property specifies the time that the threshold is measured against.

— Relative duration (or *value*, where *value* varies according to the type of metric.)

In the case of `Relative duration`, this enables you to set alerts based on relative times measured for each metric instance that completes (the time can be measured as soon as the metric instance completes).

In the case of Relative *value*, this enables you to set alerts based on the statistics collected over the current `Collection interval`. Note that alerts can only be set for metric instances that have completed within the `Collection interval`.

— Throughput

This enables you to set alerts based on throughput rates for metric instances that have completed over the `Collection interval`. Details of the rate that you want to measure are provided in the `Rate` option, which is described later.

Further options for you to complete are revealed according to the Threshold type that you select. Some of the options are common to all the Threshold types and some are unique to individual Threshold types. The following is the complete list of all the options that are available for the Threshold types:

• Rate

This option is available with the Threshold type of Throughput only.

This is the throughput rate that you want to measure for the metric instances, based on either a count of the instances or the value of the Weight property set for selected flow. For example, the Weight property might be the value of a customer order, in which case, the throughput rate could be based on value of orders.

There is also an option to vary the throughput rate units (from seconds to weeks).

• Threshold Measure

This option is available with the Threshold types of: Absolute duration (weight or value), Backlog and Relative duration (weight or value) only.

For a Backlog, the measure can be either based on the number of instances, or the value of the Weight property set for the selected flow; for example, the backlog might be based on the value of orders that are backing up at a particular point in the flow.

For Absolute and Relative durations, the measure is based on one of:

— Any specific instance duration, weight or value

If any metric instance time that completes within the `Collection interval` falls outside the ranges specified, raise an alert.

— Recent average, minimum, maximum and weighted average durations.

This option enables you to select a statistical comparison for all the metric instances that have completed in the most recent `Collection interval`; for example, if the average of all completed metric instances in the recent `Collection interval` falls outside the ranges specified, raise an alert.

- Duration Units

  This option is available with the Threshold type of Absolute duration only.

  Use this option to select the time units for your duration statistics; the time units can be: seconds, minutes, hours, days or weeks.

- Test Condition

  This option is available with the Threshold types of: Absolute duration (weight or value), Backlog, Relative duration (weight or value) and Throughput only.

  This option enables you to further refine your test; for example, you can specify whether you want the statistics calculated to be tested when greater than or less than the threshold times that you set for the alerts.

  The options that are available vary according to the Threshold type that you have selected.

- Warning Alert

  Optional threshold that you want to set for Warning alerts and corresponds to the OVO warning alert level.

- Minor Alert

  Optional threshold that you want to set for Minor alerts and corresponds to the OVO minor alert level.

- Major Alert

  Optional threshold that you want to set for Major alerts and corresponds to the OVO major alert level.

- Critical Alert

  Optional threshold that you want to set for Critical alerts and corresponds to the OVO critical alert level.

- Alert Message

  Optional message that, when set, appears in any notification message generated as a result of any of the thresholds being violated.

Click OK to complete and save the Threshold definition.

Modify a Threshold

To modify a Threshold definition that you have already added, select the Threshold definition name from the list, and then click the Modify Threshold button.

You are presented with a set of options that are very similar to those offered when you first created the Threshold definition.

You can modify any attribute of the metric threshold definition, but be aware that changing any attributes of the threshold can result in the statistical data for the metric definition being impacted. The exception to this is the name and description of the threshold; these can be modified without impacting any of the metrics data that is being collected.

When you have made your changes to the threshold definition, you have the following options:

- Update

  This updates the threshold definition without resetting any of the threshold alerts already created. If you choose to update your business process metric threshold rather than replace it, all the alerts previously collected are maintained. This means the threshold alerts for the parent business process metric need to be carefully analyzed depending on the properties that you have changed for the business process metric threshold.

- Replace

  This replaces the metric threshold definition and removes all the threshold alerts collected for the threshold definition. You therefore lose all the historical data relating to the threshold definition.

- Cancel

  This returns to the list of metrics and thresholds without making any modifications.

Delete a Metric or Threshold

To delete a metric or threshold definition from the database and from the Metric definer, select the definition that you want to remove from the list and then click Delete. The metric or threshold definition is deleted from the database and no longer appears in the list of metrics and thresholds.

If you delete a metric definition, all subordinate threshold definitions are deleted, and all metric instances are removed from the database by the metric instance cleaner.

If you delete a threshold definition, all the threshold alerts for the threshold definition are deleted from the database.

Where to go Next

This chapter has provided an overview of the features and functions of the OVBPI Metrics definer. Chapter 5, Methodology for Creating Business Flows describes the methodology for creating flows.

The methodology describes a top-down approach to creating business models, where you start by creating the definition of the flow. You then define the start and complete conditions for each node in the flow and define the Data definition to represent these conditions and the other data that you need to progress the flow. When you have the Data definition, you can define the events that you need to populate your Data definition properties, and the services that the nodes in the flow depend on.

When you have deployed the business flows that you have defined, you can add any business process metrics that you want to collect data for and monitor. You can then configure thresholds for these business process metrics.

Examples of using the Modeler to define flows are provided in the *HP OpenView Business Process Insight Integration Training Guide - Modeling Flows*. Examples of assigning business processes metrics to your flows are provided in the *HP OpenView Business Process Insight Integration Training Guide - Defining Business Metrics*.

5

Methodology for Creating Business Flows

This chapter describes a methodology for defining the Flow, Data, Service and Event definitions for your business process. Examples of using this methodology are described in the *HP OpenView Business Process Insight Integration Training Guide - Modeling Flows*.

Specifically the chapter includes information on the methodology for:

- Defining a flow; see section Define your Business Flow on page 102.
- Defining data for the flow; see section Data Definition on page 104.

  This includes considerations for the business measurements that you want to include for the flow.

- Defining business events for flows; see section Events on page 117.
- Defining the services for the flow; see section Services on page 118.

The purpose of the chapter is to provide a conceptual understanding of the tasks that you need to complete to build a business flow.

Define your Business Flow

The first task is to sketch out the business flow that you want to monitor. Try and focus on what the flow comprises, rather than the how the flow will be implemented and keep it at a high level. It might be a simple flow with a small number of steps and one linked application, or it might be a complex business flow with several underlying applications. Either way, at this stage you are sketching out only the high-level steps. Think of it in terms of the 80/20 Principle[1] - 80 percent of results flow from 20 percent of causes. You need to identify the 20 percent of the activities that create 80 percent of the impact.

Start with your first thoughts and do not make the flow overly complex. Figure 21 shows the first pass at an example flow, which is used throughout the remainder of this guide and is also used in the training guide as an example.

The example is an insurance claim business flow. Figure 21 graphically represents the key business activities for the Insurance Claim business process.

Figure 21 Stage 1 OVBPI Flow Definition

Keep the flow at a business level and include the business steps that you are interested in, do not over analyze and introduce too much detail; you can always add steps later. These initial steps might represent the logical business areas, or the teams involved, or might be based on your business experience relating to the process.

In reality the claims process has many more steps, but there is no need to represent all these steps for OVBPI. The only steps required are those required to ensure that you receive the business impact data that you need to make sure that the process is running smoothly. The business impact data includes both business process metric information, which indicates the overall health of the your business processes, and the service impact information, which shows the business effect of underlying operational services.

1.Richard Koch, The 80/20 Principle, Nicholas Brealey Publishing Limited: 1998

The number of steps in the flow can be increased over time when you decide that you need more information about how the process is running.

The following is a description of the initial nodes that have been created for this flow.

- Claim Received - when a claim is received, the details are entered into the claims handling system. The claim is not officially recognized until the claims handling system has assigned a claims number. A claims number is not assigned until the input data has passed a number of data validation tests, for example, validating that the customer has a policy that is in date.

- Initial Review - when the claims system has acknowledged receipt of the claim, it is assigned to a claims handler, an individual who oversees the processing of the claim. Initial Review is a review by the claims handler to evaluate the nature of the claim.

- Settle Claim - when a claim has been accepted, a settlement letter is drafted and the payment details are transmitted to the settlement system. A record of the letter and the claim details are archived.

At this stage, you have not defined any data objects for the flow, so it is not yet possible to link the flow to a running system and monitor instances of the flow.

The next step is to look at the data that you need to progress the flow and also collect the statistics for the business process metrics.

Data Definition

You now need to start defining the data that your flow uses. You start this by identifying how each of the nodes in the flow that you have defined is initiated, that is, you need to identify the start and complete conditions for each node in the flow. To do this, you need to understand what activities start the node and what activities signal that a node is complete. For example:

- When a claim number is assigned to a claim, the claim is officially recognized as started and the Claim Received node state is set to the Active state.

- When a claim has been assigned to a claims handler, the Claim flow state is Initial Review and the flow progresses.

- When the claim has been accepted, the Claim flow state is in the Settle Claim state and again the flow progresses.

Note that there are two different states being discussed in the above list: a Flow state and a Node state.

In addition to defining the start and complete conditions, or the rules that are used to progress the flow instances, you also need to define the data to provide the additional business information that you want to use to annotate your flows.

Node State

Within the OVBPI system, a node in a flow can have one of the following states:

- Initial - indicates that neither the complete condition nor the start condition for the node have been met.

- Started - indicates that the start condition for the node has been met.

- Completed - indicates that the complete condition for the node has been met, but does not indicate that any start condition has been met.

- Started again - indicates that the start condition for a node has been met more than once, but does not indicate that any complete condition have been met. A node can only be in the state of Started again, if it has previously been in the Complete state.

These node states represent the conditions that were satisfied by the most recent data changes relating to the node, for example:

- if the most recent data satisfied the complete condition for a node, the node state is completed.

- if the most recent data satisfied the start condition for a node, the node state is started again.

- if only one state change has satisfied the start condition, the node state is started.

When reporting on the impact of a particular Event definition, the Business Impact Engine uses these states. The status of services for each node enables the Business Impact Engine to determine the impact, based on the node state. Each node has a status indicating whether or not the node has been started. The node also has a service status, which records the status of the services on which the node depends. The node service status can be Critical, Major, Minor, Warning and Normal and correspond to the OVIS or OVO severity levels.

The Business Impact Engine generates an alert whenever a node in the flow is impacted. This might be due to events being received in the wrong order, or by an IT service not being available. The impact information is then combined with the Node state information and information about the specific flow instances (flow state) and presented through the OVBPI Business Process Dashboard.

Email notifications can be sent to subscribers who have accounts for the Notification Server and who have been configured to receive notifications based on the alerts.

In addition to subscriptions to email notifications, the Notification Server enables you to subscribe to OVIS SLO/SLA violations; these are reported through the OVIS dashboard. You also have the option of configuring OVBPI-specific probes, which report on the status of your OVBPI flow definitions. This probe information is reported through the OVIS dashboard and can be sent to the OVBPI system and reported through the Business Process Dashboard and Notification Server.

Flow State and Flow Progression

Flow progression is based on the data that you define as part of the flow: it is the information that determines the state for individual flow instances and is derived from the property values of the Data definition that is nominated to be the Related Data definition for the Flow. Flow progression takes the flow through a series of flow states, for the Claim flow, examples of flow states are: Claim Received, Initial Review and Settle Claim.

The flow progression information is different for each flow that you define, but for the Claim Flow definition, it is the data that:

- signals when the flow enters a particular state

  This is usually in terms of the start and complete conditions for the node. For example, you might define a `claim_state` attribute, which is used to show the state of a claim instance as it is processed.

- shows changes in data that have an effect on how the flow is progressed, for example, the assignment of a `claim_hander_id` means that the Claim has been initiated in the Claims Handling System: a Claim Handler has been assigned.

- indicates whether letters have been sent to clients and archived

- indicates whether a report is requested

Sometimes the complete condition from a previous node is also the start condition for the next node to show the progression of a flow. Nodes can progress from one state to another, for example, a customer letter being archived is the complete conditions for the Settle Claim node.

Remember that Flow definition is an iterative process. You will revisit the start and complete conditions for nodes in the flow when you start to define the data and flow service requirements later.

Business Process Metrics

It is worth noting that at this stage, the OVBPI system can monitor all the flow instances and collect statistical information in order to report on them. For example, you can find out:

- How many claims are accepted

- How long it takes to accept a claim

- The value of claims accepted

You can monitor the flow instances by setting business process metrics and thresholds for the flow, or by adding annotations to the flow.

You need to make sure that you identify the activities that you need in the flow to make sure that OVBPI has the data required to calculate the business process metrics that you need.

Building up the Data Definition

As part of identifying how nodes in the flow are initiated and completed, you conclude that settling the claim is not the only outcome of the Initial Review node. A claim can be settled, rejected, disputed or the claims handler can request a medical or technical report.

You need to consider what business process metrics you want to report on and then make sure that the data required to calculate these metrics is available to OVBPI. Again this is an ongoing and iterative process; it is not critical to have all the information at the design stage.

You need to ask yourself if you need to know:

- How many claims are rejected

- How long it takes to resolve a disputed claim

- Whether there are backlogs at critical points in the claim process

- How long it takes to obtain a medical or technical report

- When the number of outstanding settlements exceeds a predefined threshold

These are all questions linked to the business measurements that you want to be able to record for the flows that you define. Business process metrics can be added to a flow at any time after it has been deployed; however, you should be considering the business measurements that you want to report on as you are developing your flows.

As a result of answering these types of question, you might need to introduce more nodes in the flow. You also need to identify the start and complete conditions for each additional node that you add to the flow.

Having decided to add extra nodes, your flow might now look as follows.

Figure 22 Stage Two OVBPI Flow Definition
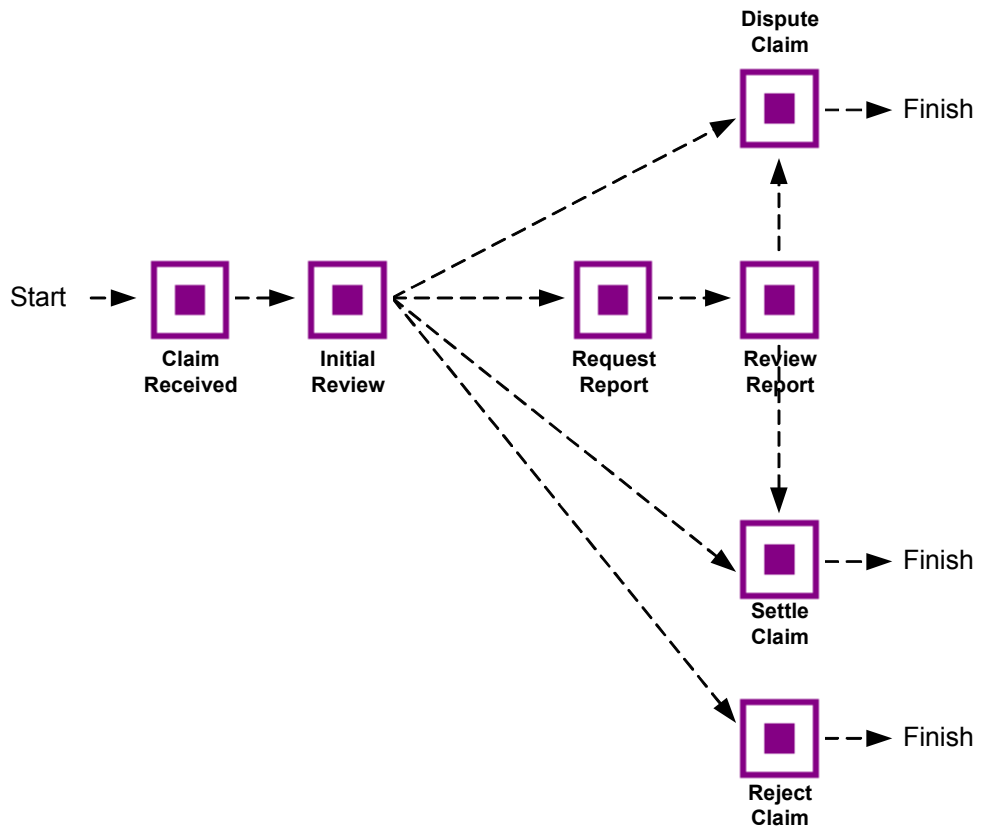
Start and Complete Conditions

The following are descriptions of the nodes, including their start and complete conditions, for the revised flow.

- Claim Received - a flow instance is initiated as a result of the Business Impact Engine receiving an event from the claims handling system, which in turn signals that a claim number has been assigned. The data from the event is used to populate the associated Data definition for the Flow and it is when this Data definition is populated that the Business Impact Engine receives an event signaling the claim number has been received, the flow then enters the Claim Received node. The start and complete conditions for this node are when there is a new Claim record created.

- Initial Review - when the claims handler has been assigned by the claims handling system, the claim moves to the Initial Review node, so the start condition is the assignment of a claim handler identifier to the claim record.

  The review can end with four possible outcomes:

  — the claim is rejected; this may be due to a number of technical reasons.

  — the insurance company disputes the claim; and further information is required.

  — the claim requires further investigation by a specialist (e.g. a doctor or mechanic).

  — the claim can be settled.

  Any of these four outcomes are considered a legitimate conclusion to this step and any one of them could be the exit condition for the Initial Review node.

- Reject Claim - the start condition for this node is that the insurance company has rejected the claim following an initial review. Once a claim has been rejected, a rejection letter is drafted and a record of the letter and the claim details are archived. The complete condition is signaled when the rejection letter is archived.

- Dispute Claim - the start condition for this node is that the insurance company is disputing the claim. Once a claim is in dispute, a dispute letter is drafted and a record of the letter and the claim details are archived. The complete condition is signaled when the dispute letter is archived.

- Settle Claim - the start condition for this node is that the insurance company is settling the claim. Once a claim has been accepted, a settlement letter is drafted and the payment details are transmitted to the settlement system. A record of the letter and the claim details including the settlement are archived. The complete condition is when the settlement system receives the record indicating the settlement letter has been sent.

- Request Report - the start condition for this node is that the insurance company is requesting a report for the claim. Once a report has been requested, a requisition letter is drafted and transmitted (faxed) to the appropriate specialist. The complete condition is signaled when the letter has been sent.

- Review Report - the start condition for this node is when the claims handler receives the report back from the specialist. Note that the flow does not include the precise details of how the report is received or when reminders need to be sent. The acquisition of reports could be flow in its own right; here we are only interested in monitoring the high level flow.

  The start condition is when the claim handler receives the report. The possible outcomes of the review are that the claim is either disputed or settled. The complete condition is either when a settlement letter is drafted and sent to the settlement system, or when a dispute letter is drafted.

Now that the basic flow has been defined, there are some final nodes that need to be included. These are the Start node, the End node and the Notify Claimant node. The Start node indicates that the flow has started. The Notify Claimant step enables you to measure how long it takes for customers (claimants) to be notified of the results of a claim. Both the start and complete

conditions for this step is the letter being passed to the paper mail system. The completion of this step results in the completion of the flow. The End node signals the logical end of the business flow.

Figure 23 Stage Three OVBPI Flow Definition
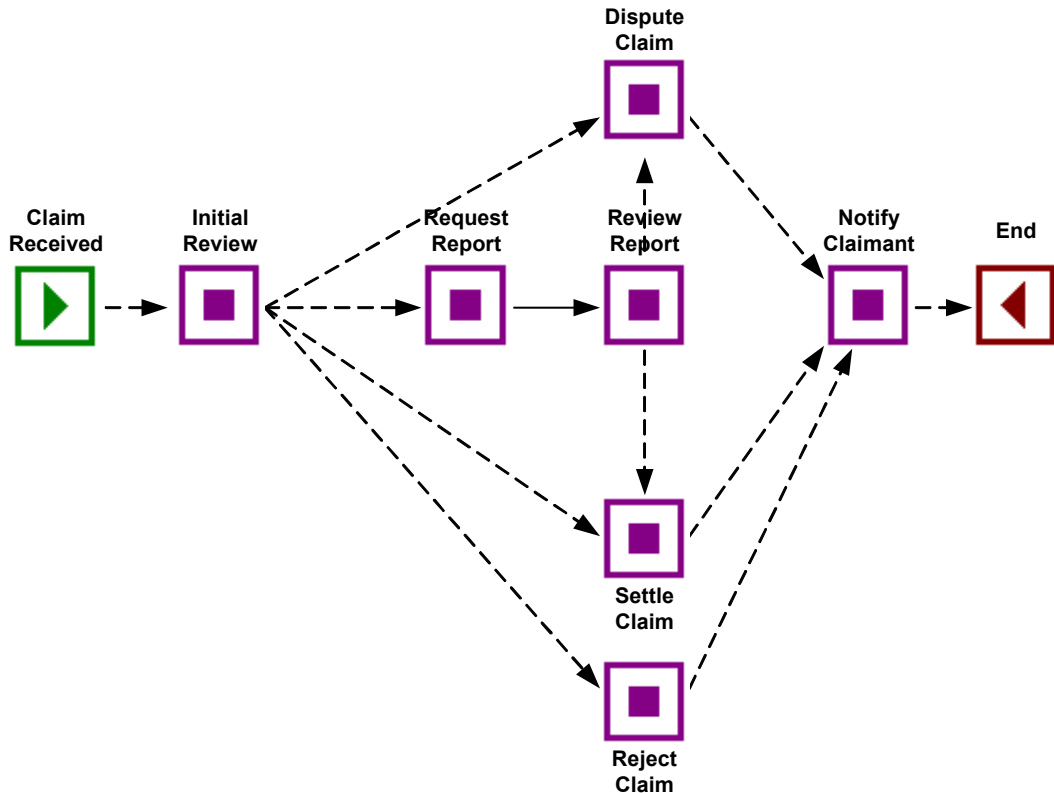
When you have identified the start and complete conditions for each node, you need to assess what other data is required in the flow; for example, you might want answers to questions such as:

- Where are the hold ups in the flow

- What are the most common paths though the flow

- What is the value of claims outstanding

- What are the details of the backlog of claims, which are currently outstanding

At this stage, you need only work out where this data is being sourced; later on you are creating Data definitions to represent it and the business events required to make the data available.

Data Requirements

As mentioned earlier in this guide, developing the flow and associated data is an iterative process and at some point you need to check that the flow can be implemented and that the data that you want to report on can be obtained from the underlying applications. You can check this later with the person who will be integrating the business flow into the operation infrastructure.

If you are unsure about what data to include in the flow, think about what your measures are as a manager. This should help focus on what you want to include in the flow. The flow needs to be based on business-critical metrics, for example, in the case of the Insurance Claim flow, the amount of a claim, backlogs and numbers of outstanding claims. For other flows the measures might be time based or service based.

Data used to Progress the Business Flow

The first set of data that you need to define is the data used to progress the flow, that is, the data that provides the start and complete conditions. This data is obtained from the underlying applications through the Business Event Handler. You need to identify the data that your flow needs in order to move from one step to the next, for example, you might know that a particular step in the flow is complete when a claim number is assigned. You need to define a claim Data definition that contains a claim number in order that the data can be assigned to the correct instance of the flow.

Data Definition

In addition to the data required to progress the flow, you need to define the data that you need for business process metrics and thresholds; for example, amount of the claim, queue size.

You need to identify what it is in the business flow that you want to monitor. Is it the value of an order, the cumulative number of orders, or is it queue sizes to indicate orders building up? The business process metrics that you want to measure for impact dictate the data that you need in your business flow.

Consider the following when deciding on data:

- Why you need the data.

- What is significant about the data from the business point of view.

- Where possible keep the amount of data, or payload, for the flow as minimal and simple as possible.

Be aware that if you define too much data, the performance and manageability of the flow are impacted, so you need to make sure that you include only the data that you need; you do not need to include all the data that is available. Too much data will also create the integrator problems when trying to obtain the data from the lower-level applications and systems. Keep in mind that you are monitoring and not trying to control the business flow.

The following sections provide more information about defining data. This data can then be used to work with the person integrating the systems and when working on presenting the required business reports.

Defining Data

In this section you look more closely at the data that you require and that are maintained in the underlying applications.

Why do you need to define data for your flow? Your operation probably has a number of different applications for holding information about customers and their data. For example, a Customer Relationship Management System, a Claims Handling System and a Settlement System. All these applications have a different view of the Customer, Claim and other data, depending on the function of the application within the business.

You do not want to have to understand how each of these is defined in each of the different applications; you might not even know what is defined, so you need to define your own data object and its attributes for the data in a form that is important and meaningful to you for the business flow that you are creating. This is referred to as the common information model. The following diagram shows an example of business applications and how data is distributed across them.

Figure 24 Common Information Across your Business

The business operates across all of these
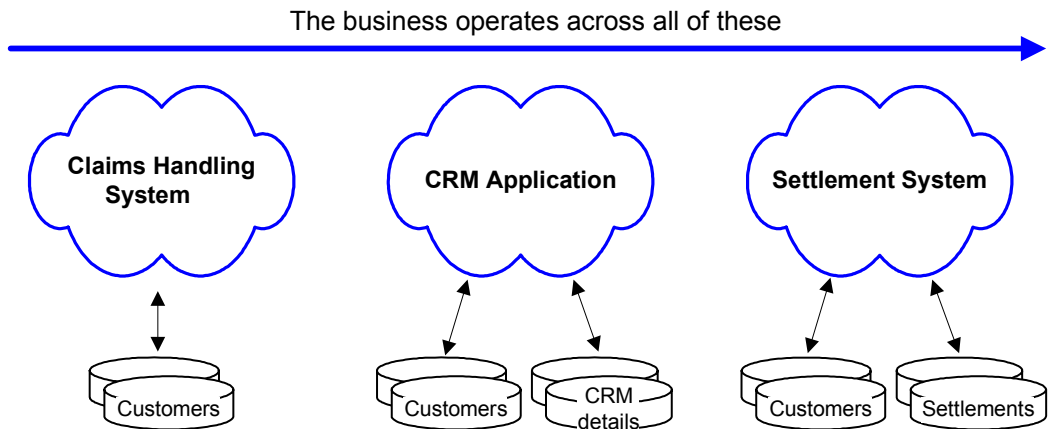
As can be seen in the diagram, each application has its own definition of the customer, which is structured according to the business data that the application is responsible for. This definition might, or might not be, the same for each of the applications.

You need to identify a common way of representing the data that you want to use in your business flow, which is then extracted from the individual systems. The underlying business applications need to provide the data needed within the flow.

When creating a common information model, there are a number of approaches that you can take:

- you could design a model, based on the understanding that you have of the system.

- investigate whether or not an information model already exists within your business; for example, there might be an existing integration system that has a common model defined already.

- you could adopt the information model of the dominant application, or the application model that most closely matches the flows requirements.

The approach that you take depends on a number of factors. The key factor being that you want to present the data in the most useful form for your business. This format might not be the format of the integration system, or the dominant application, in which case you need create your own. Consider:

- the scope of the information model and what the structure of the model might be; for example, what does the information that you need comprise? Does it include lists of claim types or customer information?

- how is a customer record defined? Does it include a separate field for firstname and surname, or are these concatenated into a single name field?

- how is the information to be accessed? Is it being accessed by the customer name or customer identifier?

This list is not exhaustive, but gives you an idea of what you should be thinking about when creating a common information model.

Once you have defined your information model, whenever the Business Impact Engine receives an event that contains information relating to an item, from an underlying application, it copies the relevant data into an instance of the Data definition. This data is then used within the business flow. The same Data definition is also available, through the database, to other components within the OVBPI system, for example, the Business Process Dashboard, which updates business reports using the data.

As an example, for the Insurance Claim business flow, you might decide that the only Data definition that you are interested in is `Claim`.

The data that you define for the `Claim` Data definition depends on what it is that you need to drive the business flow and what you need to understand the impacts of operational and business events.

Events

It is the business events that provide the information to update instances of the Data definition in order to progress the flows (trigger the progression rules) and for business process metrics. These events need to be integrated into the OVBPI system so the Data definitions that subscribe to the events can be populated and in turn progress the business flows.

This section describes how you identify the event data that you need, focusing on the integration tasks that need to be considered and the Data definitions that need to be specified in the Business Impact Engine to accept the data.

Details of how to build adaptors, or how to set up the Business Event Handler is described in the *HP OpenView Business Process Insight Integration Training Guide - Business Events*. Installing the Business Event Handler is described in the *HP OpenView Business Process Insight Installation Guide*.

The decision about what to include and what not to include in an Event is based around the data and whether it is required for the flow. There is no easy algorithm for identifying what you need to define as events and what you do not need to define. As mentioned before, start small and build up your system. It is better to add more data and events as you find that you need to define them, rather than including everything from the start and having a lot of redundant data in the system.

You might think that it is duplication to define both Data and Events for the flow; however, consider the following example.

If your flow is receiving events from a CRM, or a reporting system and the application (or access to the application) fails for some reason, you are likely to have a back up policy to keep your business processes moving.

If OVBPI were taking Events directly from these applications, then the monitoring would stall when the application was not available.

By implementing Data and Event definitions, OVBPI provides the flexibility to update the data for the flow from multiple sources. Event definitions isolate the sources of the Events from OVBPI in that an Event source can be anything, provided it sends the Event into OVBPI in the correct (expected) format.

Services

Services are the underlying systems and applications that the flow that you are creating relies on. It is these services that are monitored by OVIS or OVO, and which in turn report operational impact information to OVBPI.

As you define your business flow and data, you need to identify the services that you need to utilize and what information you want from them. A single node might represent a whole phase of a process and can therefore depend on many services; for example, in Figure 25 the Settle Claim node is dependent on the Claims Handling System and the Settlement System.

The following diagram shows some of the links between the underlying systems and the nodes in the flow. As mentioned before, at this stage, you do not need to worry about how the flow operates, but in this example it is useful to look at the information sources before continuing.

Figure 25 Flow and Applications
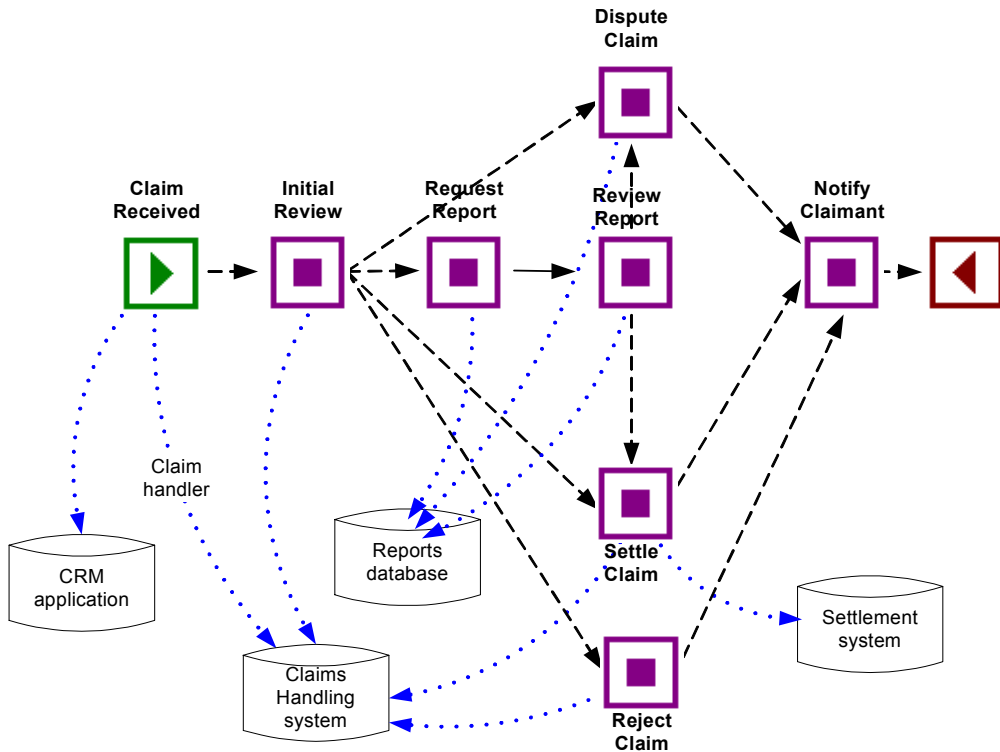
Note that this is not how the flow is shown through the OVBPI Modeler.

Impact information from the underlying systems is passed to the OVBPI components from OVO, or OVIS, according to your configuration; this impact information indicates when a service, on which the flow depends, is impacted.

SLO/SLA Violations

You can configure OVIS to set up operational events, which report whether or not the OVBPI flows that you have defined are violating agreed Service Level Objectives and Service Level Agreements. You can also configure OVBPI to send email notifications when these agreements are violated.

OVBPI also provides a number of custom probes that can be added to the OVIS system and used to report on the status and throughput of your business flows.

Details of how to configure your system to take advantage of these features are provided in the *HP OpenView Business Process Insight System Administration Guide*. Details of how to install the OVBPI Custom Probes are provided in the *HP OpenView Business Process Insight Installation Guide*.

Service Desk Integration

OVBPI provides two types of integration with Service Desk:

1. You can configure OV Service Desk integration through the Administration Console. If you do this, the OVBPI Dashboard can provide links through to appropriate HP OpenView Service Desk (OVSD) incident reports. The Dashboard can do this only if there is incident information available for an operational service that is being monitored through the Dashboard. If the incident information is available, a link is automatically configured within the Dashboard to the OVSD service call and incident information relating to the service. Refer to the *HP OpenView Business Process Insight Administration Guide* for details of configuring OV Service Desk interoperability.

2. OVBPI provides a set of predefined flows, adaptors and a customized Dashboard. These flows and the customized Dashboard are designed for use with the following HP OpenView Service Desk modules:

   — OVSD Helpdesk Manager

   — OVSD Change Manager

There are also adaptors and database triggers that enable you to obtain the required data and define the business events for these flows in order that you can monitor the OVSD processes within these modules.

Refer to the *HP OpenView Business Process Insight Integration Training Guide - Monitoring Service Desk* for details of this integration with OVSD.

Where to go Next

You have a basic understanding of the methodology for creating the business flow, and the data objects associated with the flow. Chapter 6, Business Process Dashboard describes the reporting and monitoring features of OVBPI and also how you can view the business process metrics and thresholds that you add to your flows.

6

Business Process Dashboard

The Business Process Dashboard enables you to monitor all the business flows that you have deployed, plus their associated data. This includes any business process metric data that you have added.

This chapter provides an overview of the key features of the Business Process Dashboard and shows examples of how the Dashboard can present the business flows that you have defined and the business process metrics relating to these flows.

The Business Process Dashboard can also be customized to your own requirements. Modifying the Dashboard is described in the *HP OpenView Business Process Insight Integration Training Guide - Customizing Dashboards*.

This chapter covers the following topics:

- Dashboard Features on page 124.
- Overall Business Health Scorecard on page 125
- Monitoring Individual Flows and Business Process Metric Thresholds on page 126
- Monitoring Individual Operational Services on page 135
- Customizing the Dashboard on page 136.

Dashboard Features

The Business Process Dashboard is the component of OVBPI that enables you to monitor your business flows. It is the interface that you use to view the overall status of your business flows and business process metrics, including any links that you might have to OpenView Operations, OpenView Internet Services and OpenView Service Desk information.

The Business Process Dashboard is a Web interface that provides the following features:

- Overall view of the health and status of the business flows that you have deployed in your OVBPI system, including the status of any business process metrics.

- Overall view of the status of the operational services that you have linked to from your OVBPI system.

- Details of the individual flow instances and their progression through the nodes in the flow.

- Details of the active flow instances at individual nodes in the flow.

- Details of any thresholds that have been violated.

- Graphical representation of your metric data, which can be displayed in terms of times where appropriate.

- View of aggregated metric data, which can include minimums, maximums and standard deviations.

- Ability to configure the types of graphs and the period over which the metric data should be presented.

- Details the status of your Instant On license. The Dashboard shows a message indicating your license status. If there is no message displayed, you have a permanent license installed.

- Ability to search for specific flow instances.

The Dashboard is also designed to be easily customized (using a JSP custom tag library). The *HP OpenView Business Process Insight Integration Training Guide - Customizing Dashboards* provides details of how you can customize the Dashboard, and the following sections provide a more detailed description of the features offered through the Dashboard. These features do not require any customization.

Overall Business Health Scorecard

When you open the Business Process Dashboard, you are presented with a screen showing the overall status of the flows that you have deployed within OVBPI. This is the Business Health Scorecard. This page also shows the status of your temporary license where appropriate.

The scorecard is divided into a number of logical areas, which provide summaries for the currently active business flows, including their operational services. This page also includes business flows that have been superseded but that are still active within the OVBPI system; see Figure 26.

Figure 26 Business Health Scorecard

From this page you can tailor the Business Process Dashboard to show information that is specific to your requirements, for example, you can show:

- all deployed flows, or a subset of the flows that you define, through the Edit My Flows option

- only the flows that have some level of business impact associated with them

- all operational Services defined for your business flows, or a subset of operational Services that you define in the `Edit My Services` option.

- only operational Services that have some level of operational impact associated with them

For more detail on individual business flows, or operational Services, select the business flow or operational service that you are specifically interested in.

Monitoring Individual Flows and Business Process Metric Thresholds

From the Business Health Scorecard screen, you can select an individual flow to obtain more detailed information on the status of the flow and any component on which it has dependencies.

When you select a business flow, the Dashboard presents a screen with a number of tabbed Windows that provide more information relating to the business flow as follows:

- Flow Diagram

- Node Table

- Node Durations

- Metrics

- Alerts

The following sections provide detailed information relating to each tabbed Window.

Flow Diagram

From the Flow Diagram screen you can:

- visualize the business flow, which includes the node annotations to indicate how many flow instances are active at a particular node.

- view a summary of all the thresholds as a series of dials or alarm states. There are different types of dial presentations according to the type of threshold being shown.

  The Dashboard also enables you to select the time period over which you want the threshold summaries shown.

  In the case of alarm thresholds, shown on the dials, if there is data for the whole period that you select, this information is shown on the dials. If there is not data for the whole period, for example, you select Last 24 Hours and the business process metric was created within the last three hours, the dials cannot accurately represent the requested reporting period. In this case, the Dashboard display a message indicating that insufficient data has been collected to display the thresholds in this form.

  In the case of instance thresholds, shown as tables of alarm counts, the behavior is similar, in that there needs to be instance threshold data available for the whole of the selected time period. If threshold data is not available for the selected period, the Dashboard displays a message indicating that insufficient data has been collected for the threshold.

  You can see all the metric and threshold values on the metric graphs within the Dashboard.

- view a summary of the current status of the selected flow. This is a summary with respect to the status of flow instances against the underlying operational services. Specifically, the number of healthy, at risk, blocked and completed instances.

  — blocked indicates that there is at least one instance of the flow that is active at a node and cannot proceed as there is a problem in an underlying operational service.

  — at risk indicates that one or more flow instances has the potential to be blocked in the future.

— healthy indicates that one or more flow instances have passed any nodes that have a problem with underlying operational services. These flow instances can therefore continue to run to completion without being affected by any operational service impact.

— completed indicates that the flow instances have successfully reached an end point in the flow.

The fact that a flow is shown as having no flow instances that are at risk, or blocked, is relative to the operational services that the flow relies on and not to any business process metrics that you might have set. All flow instances for a flow can be shown as healthy but you might have a critical business process metric threshold that has been violated. The Business Health Scorecard screen shows the high-level summary of both the operational services and the business process metrics to provide this information.

You can also select to view all the flow instances in a particular state, for example, all healthy flow instances. Select the link for Healthy Instances to do this. You are presented with a table of individual flow instances, where you can select a specific flow instance for more detailed information. This information includes a flow diagram showing the progress of the specific flow instance, plus timeline and business process metric threshold information.

You can select At Risk, Blocked and Completed instances to view similar information.

Node Table

From the Node Table screen you are presented with a summary for each node in the flow, specifically a summary of the following data relating to each node:

- Number of active flow instances at each node.

- Total number of flow instances that have been processed at a particular node.

- Average time that flow instances have spent at a node.

- The rate that flow instances are being processed at a node.

- Data relating to the Weight property of the flow for the node.

- Status of any operational services defined for the node.

The Node Table screen also repeats the summary of the current status of the selected flow, for example, the number of healthy, at risk, blocked and completed instances.

For each node listed in the Node Table, you can select the node and view more detailed information relating to the specific node. This, more detailed, information includes:

- A repeat of the node summary information as is available on the Node Table page for reference.

- A summary of the status for all the operational services for this node.

- A list of the flow instances that are currently active at this node, plus data relating to the Weight property and the time that the flow instance fulfilled the Start Condition for the node.

From the Node Table screen, you can also select a particular flow instance and view more detail of the flow instance. This, more detailed, information includes a flow diagram showing how the particular flow instance is progressing through the business flow definition and business process metric threshold information.

Node Durations

From the Node Durations screen you are presented with two bar charts. These bar charts show the average and total times that flow instances have spent at each node in the flow. The charts are updated only when a flow instance completes.

The sample size used to construct the data in the bar charts is provided for reference and the scale is adjusted according to the time taken for instances to complete the particular flow.

You can use these bar charts to infer, or calculate, how long a currently active flow instance will take to complete from specific points (nodes) in the flow.

In the same way as the Node Table screen, you can select individual Nodes and view more detailed information relating to the node (Node and Service summary).

The screen also repeats the summary of the current status of the selected flow with respect to the operational services defined for the Node, for example, the number of healthy, at risk, blocked and completed instances.

Metrics

This screen lists all the business process metrics and metric thresholds defined for the flow; see Figure 27 on page 131.

You can use this screen to gain an overview of all the metrics and thresholds reported for the selected flow. In the case of metric thresholds for duration instances, the screen shows the highest alert status for the defined thresholds within the Threshold polling interval. In the case of metric thresholds for weight-based or custom-based metrics, the screen shows the alert status at then end of the Collection interval. The Threshold polling interval is described in the *HP OpenView Business Process Insight System Administration Guide*.

This alert status can be one of the following, displayed as an icon:

- Normal
- Warning
- Minor
- Major
- Critical
- Unknown

The icon descriptions are provided on the Business Health Scorecard page and are the same icons and alerts states as used for other OpenView products.

Figure 27 Dashboard and Business Process Metrics

You can select named business process metrics and metric thresholds and view more detailed information. This information presented differs according to whether you select a metric or a threshold definition:

- metric definition

  If you select a named metric from the Node Durations screen, the Dashboard enables you to display summaries of reports and graphs based on the statistics collected for the metric. You can select to display graphs based on the various statistics that have been created for the business process metric. These statistics can be selected from the `Data Source` option.

  You can also select the period over which you want to report on the metric statistics, the type of graph (bar or line) and select thresholds (if available) to add to the graph.

  A flow diagram showing the metric definition is also displayed on this page. In addition, you can access a table listing a summary of the current metric values is also available from the `Values` tab. The metric values shown are those obtained during the latest collection interval, which is defined within the Metric definer.

- threshold definition

  If you select a named threshold from the Node Durations screen, the Dashboard displays reports and dials for the threshold. The reports include a summary of the threshold definition, the status of the threshold and any threshold alerts that have been violated. The dial presents a visual representation of the business process metric threshold against the measurement criteria.

Alerts

This screen lists all the metric threshold alerts that have been violated for the flow; see Figure 28 on page 134. You can filter the data presented on this screen by alert level.

Details of the alert, plus the details of the associated business process metric, business metric threshold, and the flow instance that caused the violation are also available.

There is a difference in when alerts are updated according to whether they are instance alerts, or statistical alerts:

- Statistical-based alerts, for example, standard deviations and averages, are updated at the end of each Collection interval that you have configured. As an example, if you have configured a Collection interval of five minutes and you are observing the results through the Dashboard at nine minutes past the hour, you see the statistics for the first five minutes only. You do not see the additional four minutes until the end of the next five-minute collection interval.

- Instance alerts are reported as soon as the Metric Engine detects them, so you can therefore see instance alerts immediately.

Note that you can optionally subscribe to these alerts using the Notification Server. If you do subscribe to alerts using the Notification Server, you can receive the alerts. as email notifications through your email client. The email notification includes a link to this page within the Business Process Dashboard, where you can obtain more detail of the alert. You can also subscribe to OVO notifications and scripts within the Notification Server.

Figure 28 Dashboard and Alerts
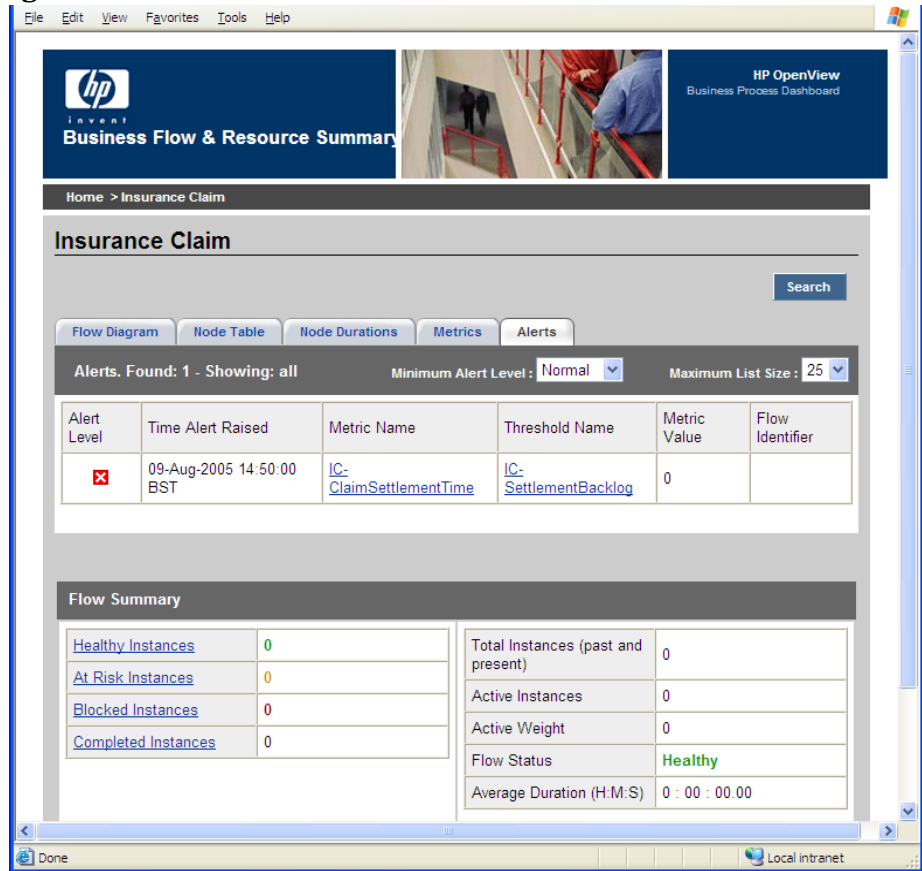
The screen also repeats the summary of the current status of the selected flow with respect to the operational services defined for the selected Node, for example, the number of healthy, at risk, blocked and completed instances.

Monitoring Individual Operational Services

From the Business Health Scorecard screen there is a Service Summary where you can select individual Operational Services to obtain more detail; see Figure 26 on page 125.

Selecting a named Service takes you to a new screen where the Dashboard presents information relating to the current status of the selected Service. You are also presented with information about where the Service is used within the flow, including the name of the business flow, or flows, that the Service is used within and the name of the node in the business flow that is linked to the Service.

You can then select the flow name or node name and link into other screens within the Dashboard that provide more detail about the selected business flow or selected Node.

Customizing the Dashboard

You can also customize the Dashboard if you want your business data to be presented in a specific way or integrate the Dashboard into your solution; for example, as part of a portal reporting on your business. Instructions for how to customize the Business Process Dashboard are provided in the *HP OpenView Business Process Insight Integration Guide - Customizing Dashboards*.

Customizing the Business Process Dashboard is entirely optional. As installed, the Business Process Dashboard provides the capability to monitor all your flows, plus provide all the required detail of the individual flow instances and the business process metric instances relating to these flow instances.

You can also customize your Dashboard to define annotations specific to your flows. By default, the flow diagrams shown through the Dashboard are annotated with the number of active flow instances at a particular node. Other examples of customizing your Dashboard include changing the color of the annotations, perhaps according to the range of the number of instances, or changing the graphic used for specific nodes.

In addition, annotations use the Business Impact Engine data that is already available, and does not require any additional metric data definition or metric data calculations.

Where to go Next

You now have a basic understanding of the methodology for creating the business flow, and how to monitor your flows using the Business Process Dashboard.

You can now work through the *HP OpenView Business Process Insight Integration Training Guide - Modeling Flows*, which takes you through some examples.

You can also continue and look at how business events are used within the OVBPI system and how they are defined. This is described in the *HP OpenView Business Process Insight System Administration Guide.*

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