HP OpenView Business Process Insight

For the Windows® Operating System

Software Version: 02.10

Concepts Guide

hp

i n v e n t

Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notices

© Copyright 2003-2007 Hewlett-Packard Development Company, L.P.

Trademark Notices

Java™ is a US trademark of Sun Microsystems, Inc.

Microsoft® is a US registered trademark of Microsoft Corporation.

Oracle ® is a registered US trademark of Oracle Corporation, Redwood City, California.

UNIX® is a registered trademark of The Open Group.

Documentation Updates

This manual's title page contains the following identifying information:

- Software version number, which indicates the software version

- Document release date, which changes each time the document is updated

- Software release date, which indicates the release date of this version of the software

To check for recent updates, or to verify that you are using the most recent edition of a document, go to:

http://ovweb.external.hp.com/lpe/doc_serv/

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HP sales representative for details.

Support

Please visit the HP OpenView support web site at:

http://www.hp.com/managementsoftware/support

This web site provides contact information and details about the products, services, and support that HP OpenView offers.

HP OpenView online software support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valuable support customer, you can benefit by using the support site to:

- Search for knowledge documents of interest

- Submit enhancement requests online

- Download software patches

- Submit and track progress on support cases

- Manage a support contract

- Look up HP support contacts

- Review information about available services

- Enter discussions with other software customers

- Research and register for software training

Most of the support areas require that you register as an HP Passport user and log in. Many also require a support contract.

To find more information about access levels, go to:

http://www.hp.com/managementsoftware/access_level

To register for an HP Passport ID, go to:

http://www.managementsoftware.hp.com/passport-registration.html

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 and metric thresholds
- 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. OVBPI provides you with visibility into the health and performance of the business processes that are running over your IT infrastructure. Using this information, you can assess the financial and business impact of delays or blockages in a process due to an IT performance problem or other incident such as an IT outage.

OVBPI achieves this by linking and relating the information held for your business and its IT infrastructure. It 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 be 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, IT managers, 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 OVBPI 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 over your IT infrastructure. Using OVBPI you can model your business flows and then integrate business events through products such as openadaptor and iWay.

In addition to these business events, you can integrate operational services and take service impact events from the underlying infrastructure through HP OpenView Internet Services (OVIS), HP OpenView Operations (OVO) and HP OpenView SOA Manager. Using these products, 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:

- Enable IT to measure business process performance and demand by creating key performance indicators or service level objectives for the business process, and configuring alerts when they are violated.

- 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)

- — HP OpenView SOA Manager

- — HP OpenView Dashboard

- — you own 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 processes 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
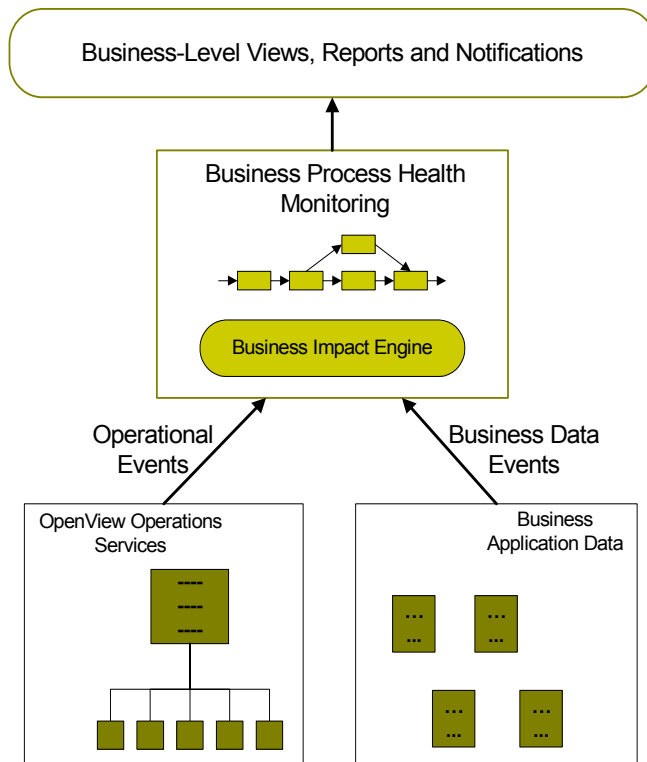
Using OVBPI

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 these events 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
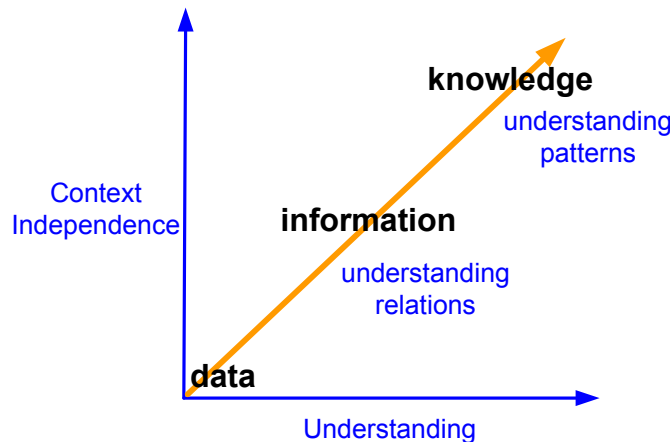
Source: Gene Bellinger, OutSights - http://www.outsights.com/systems/welcome.htm

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
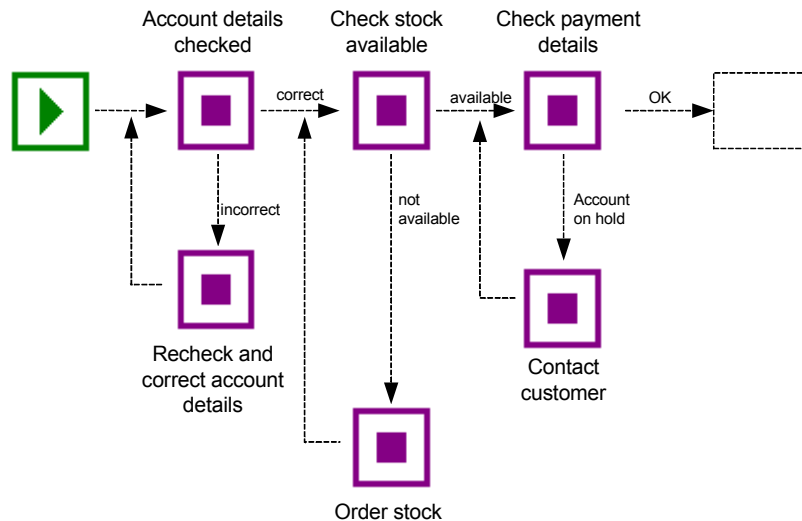
From this diagram, it is possible to visualize the impact on the business if the flow cannot move beyond the Check stock available step, perhaps due the Stock Control System being unavailable. Thus, any flow that is beyond the Check stock available step is not affected; however, flows that have not reached 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. You can also import Business Process Execution Language (BPEL) processes and used them as the basis of your business flows.

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 is a business service.

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 Adapter

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 business applications and to the 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.

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 want to know about it as soon as possible; for example, 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 as you are not aware of the business impact of the loss of service.

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 provide a definition of a business flow in the context of OVBPI and also provide a methodology for you to follow when creating your business flows.

2 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 to one 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.

Structure of an OVBPI Flow

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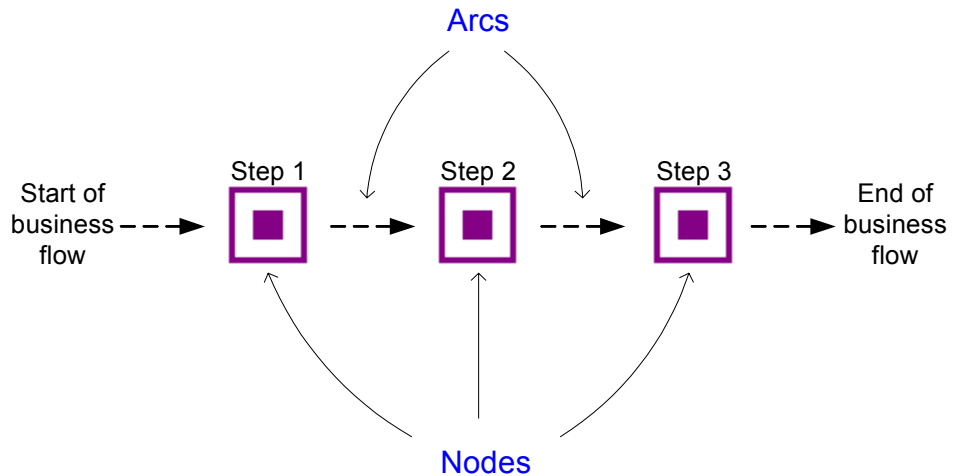
A node in a business flow might represent one or more business activities, according to how much detail of the business process you are modeling in order to monitor it.

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; however, 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 26 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 significant 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.

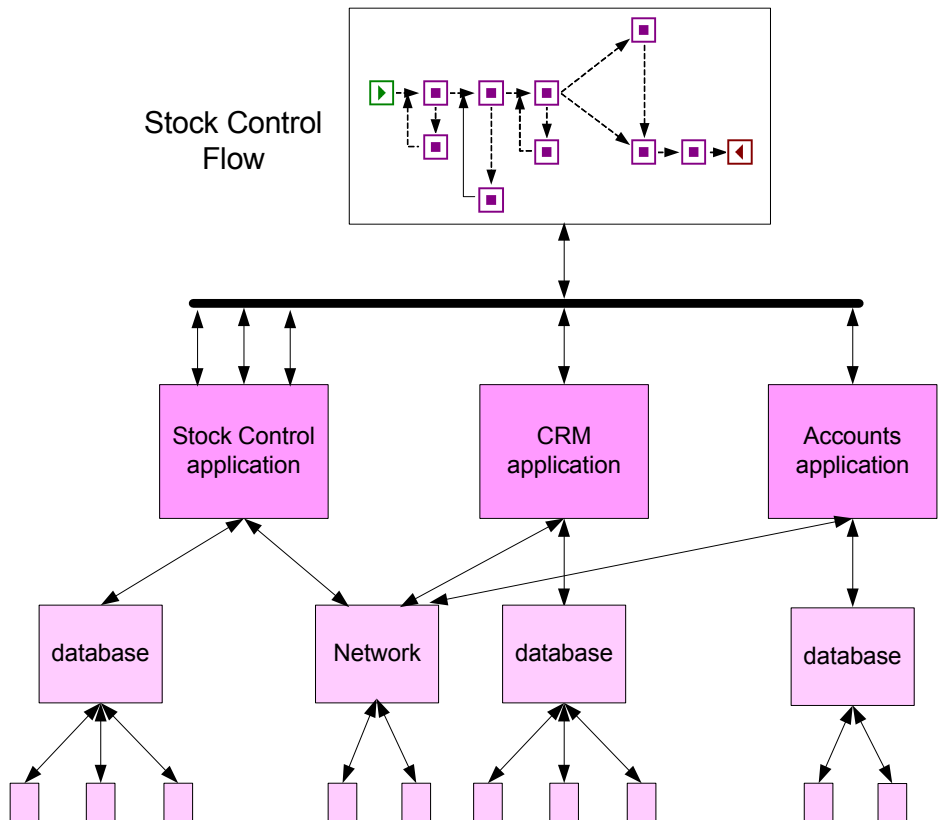**Figure 5   Stock Control Flow**
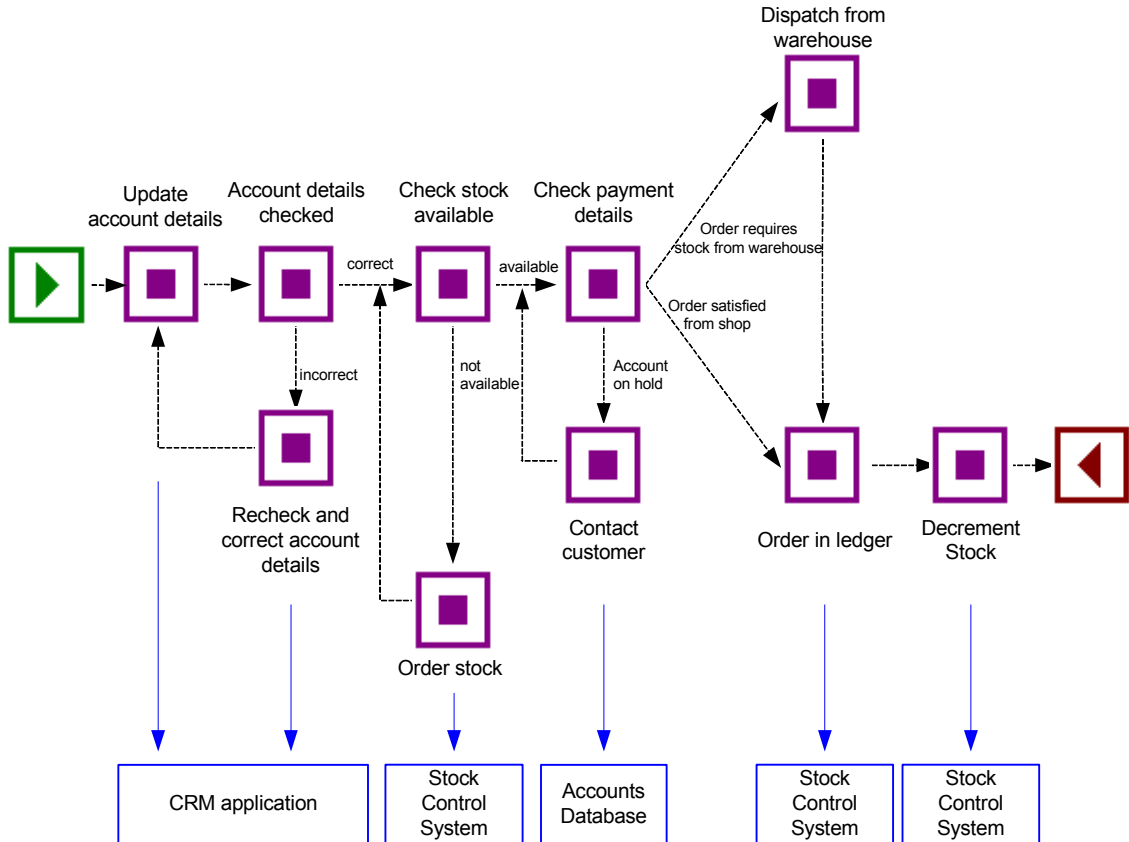
The business flow shown in Figure 5 utilizes underlying business applications and also includes operational services. Some of the business applications might be operationally monitored and therefore represented as operational services within HP OpenView Internet Services (OVIS), HP OpenView Operations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

In order to integrate, or import, business event data from your business applications, you use the OVBPI adapter 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 adapters 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.

The following sections describe business event sources for OVBPI.

Business Events 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 adapters to capture business events from sources such as files, databases, JMS, LDAP, Tibco and MQ Series. OVBPI provides file and database adapters for use specifically with OVBPI; however, openadaptor is an open source product, therefore you can extend the number of adapters 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 also includes an adapter specifically for iWay. This is described in more detail in section Business Events and iWay.

Business Events 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 adapter 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 adapter 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 adapters at the following URL:

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

IT 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 IT processes that are hidden within the organizational structure.

OVBPI provides specific integrations with the following OpenView products:

- OVSD on page 30
- OVIS on page 31
- OVO on page 32
- SOA Manager on page 33

OVSD

You can use OVBPI to monitor HP OpenView Service Desk (OVSD) IT processes. These are OVSD processes that are created through the OVSD Change Management and OVSD 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 adapters, 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
- Service Delivery assurance processes such as Change or Configuration management.

OVSD provides a level of automation for these ITIL processes, and the OVSD integration with OVBPI provides you with the ability to monitor these OVSD processes. This enables you to 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.

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 status information in these operational events to determine the impact of the change in state of the service on the flows that are defined.

You can also configure OVIS to monitor OVBPI. You do this by configuring OVIS probes, which are specific to OVBPI, and which are provided with OVBPI. 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
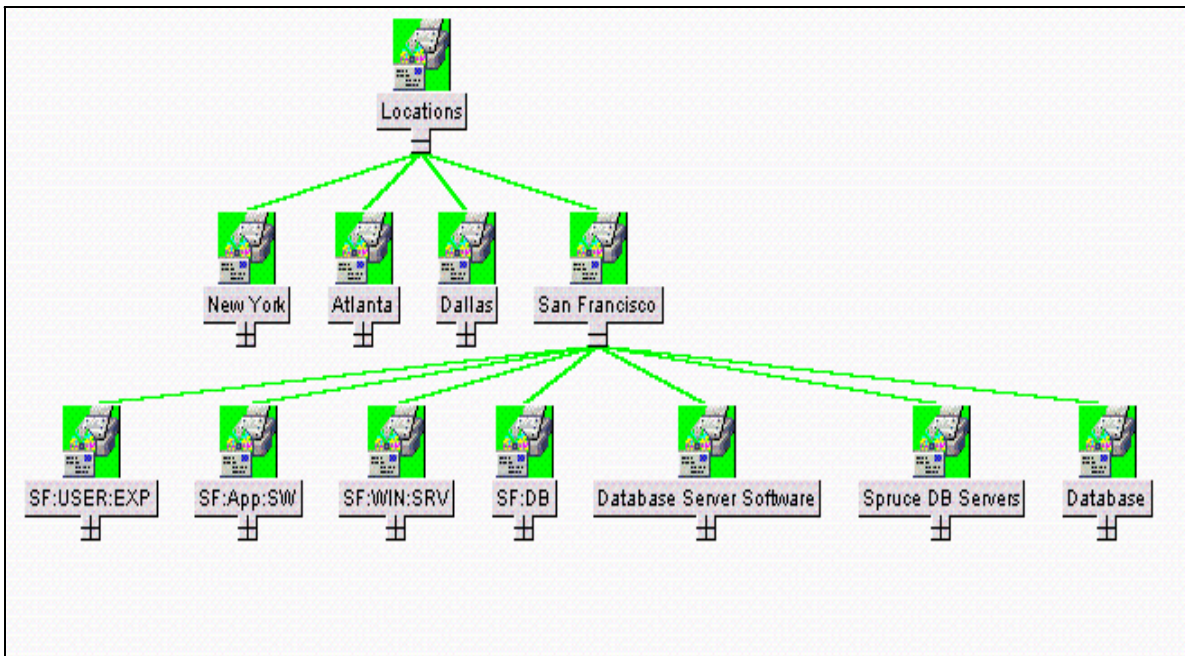
In the example shown in Figure 7, there is an OVO view (through Service Navigator) based on actual user experience at key business locations; this is called a business service view. There is also a location-based business service view defined within OVO.

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.

SOA Manager

HP OpenView Service Oriented Architecture (SOA) Manager is a model-based solution for managing a service oriented architecture.

Within SOA Manager, a service model is a virtual representation of managed SOA resources, for example, Web services and database services. The service model provides an organized view of the SOA resources and their relationships. The elements that make up the service model, within SOA Manager are:

- Business services
- Configurations
- IT Services
- Application Resources

Within OVBPI, it is the SOA Manager Business Services that can be imported and monitored within your Business Flows. These Business Services are the representation of a number of related IT services within SOA Manager; for example, they might represent an Order Status Query, which can comprise a number of Web and Database services. This Order Status Query might need to be available between certain business hours and return responses within a given time. The availability of this service can be monitored by OVBPI as part of an over-arching Business Flow within your organization and you can then report on whether or not this service is available, and if the service is not available, what the impact is on your business.

Standalone Services

You might also have operational services, within your organization, that are not monitored by HP OpenView products; 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.

You can then import these IT services in the same way as you can import business services using the adapter technologies described in section Business Events on page 28.

Summary

By defining a model for your business flows and mapping this model to the underlying services through one of the supported OpenView products, 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 and SOA Manager, 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 base on each instance and groups of instances. This, plus the business data that OVBPI receives through business events, enables OVBPI to present business-related information related to 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
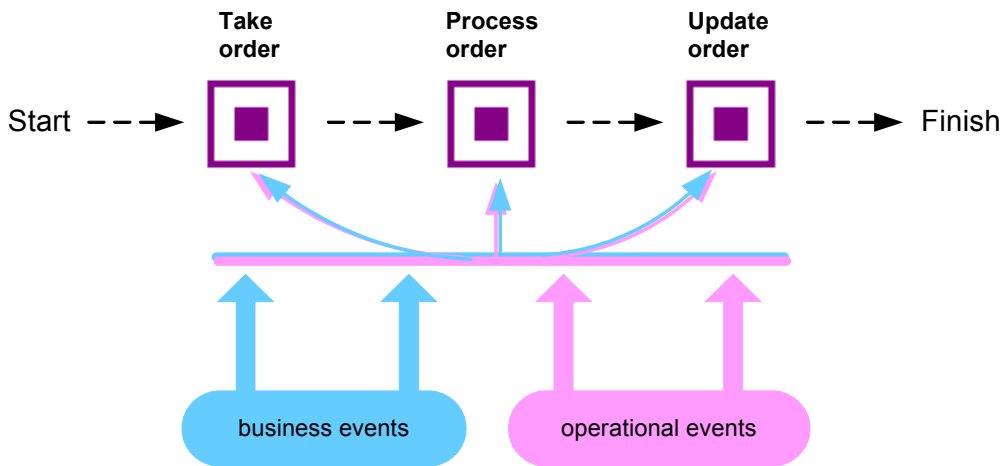
The OVBPI system also manages the data required for the flow (the data models), as Data definitions. In the Stock Control example, it maintains information about the `account` business data and within that, information about `value`, `customer name`, and `customer type` data.

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 26), 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, OVO and SOA Manager.

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, OVO and SOA Manager.

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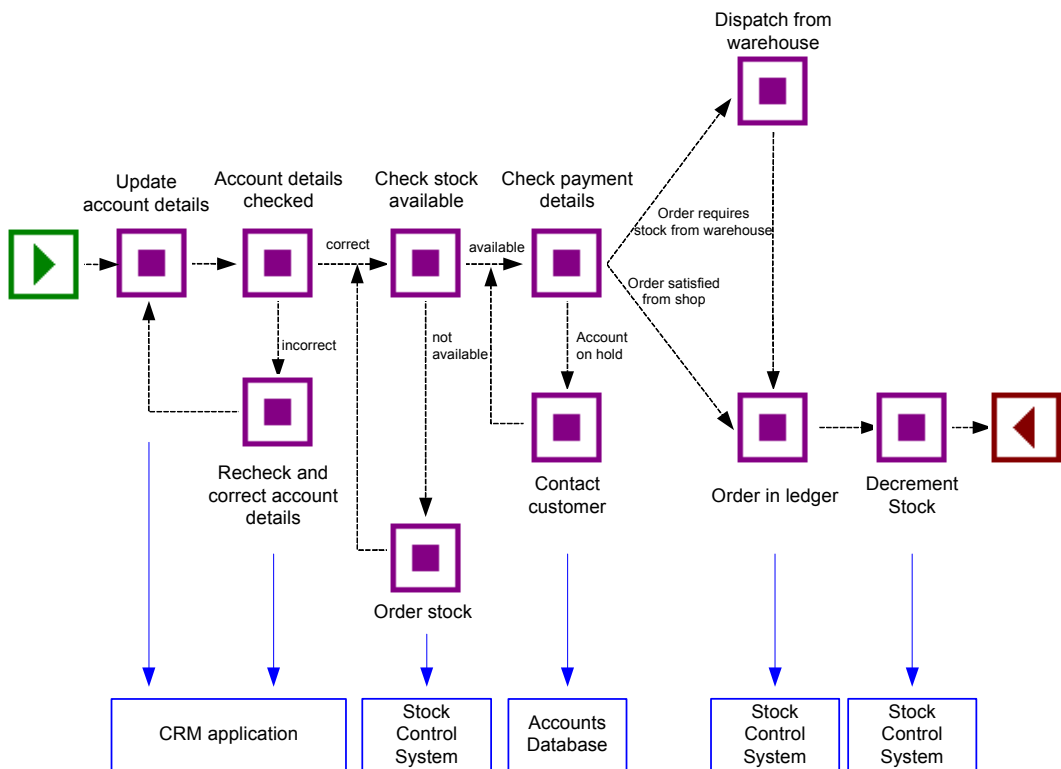
The business also has a Gold Customer scheme whereby key customers are guaranteed their deliveries within a specified time, or significant penalties in the way of discounts are incurred.

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, OVO, or SOA Manager.

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 Reference 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, OVO and SOA Manager, and linking them into your flow.

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

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

Figure 10 OVBPI Activities and Roles
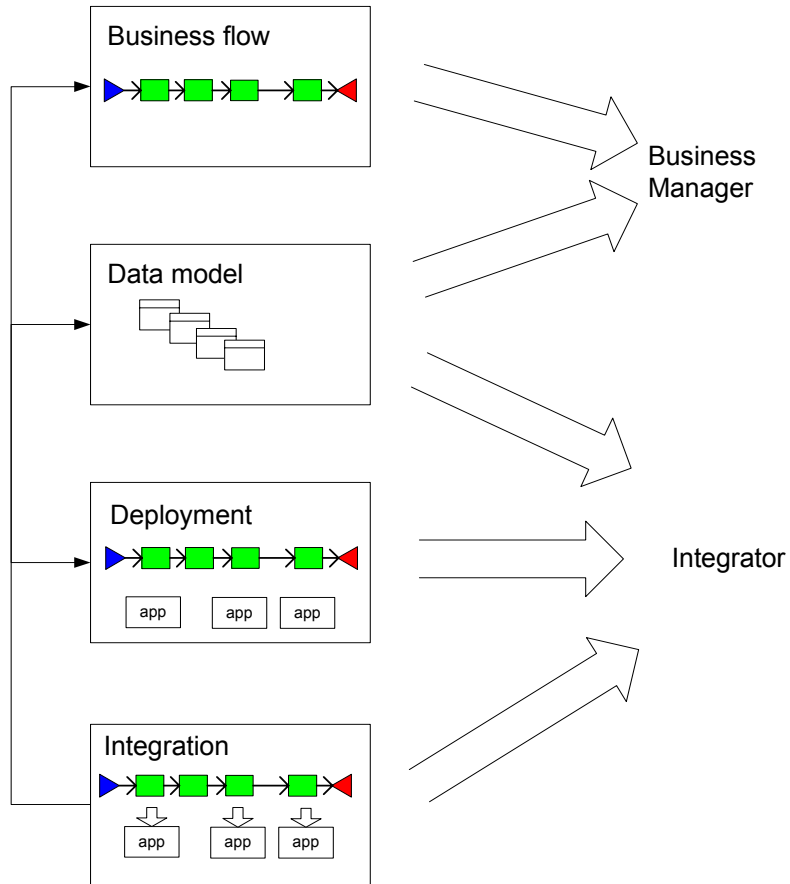
Summary

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. Chapter 3, 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*.

3 Methodology for Creating Business Flows

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

Details of how to add business metrics to your flows, and examples, are provided in the *HP OpenView Business Process Insight Integration Training Guide - Defining Business Metrics*.

Specifically the chapter includes information on the methodology for:

- Defining a flow; see section Define your Business Flow on page 50.

- Defining data for the flow; see section Data Definition on page 52.

  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 65.

- Defining the services for the flow; see section Services on page 66.

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 11 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 11 graphically represents the key business activities for the Insurance Claim business process.

Figure 11 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 HP OpenView 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 12 Stage Two OVBPI Flow Definition
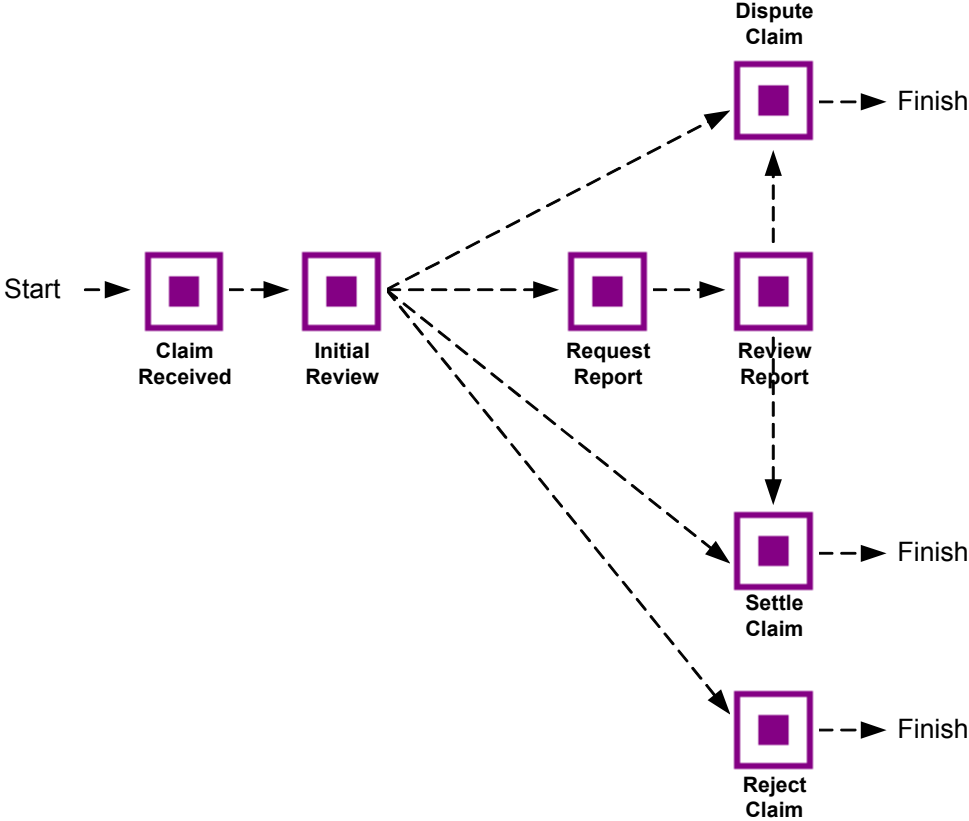
Start and Complete Conditions

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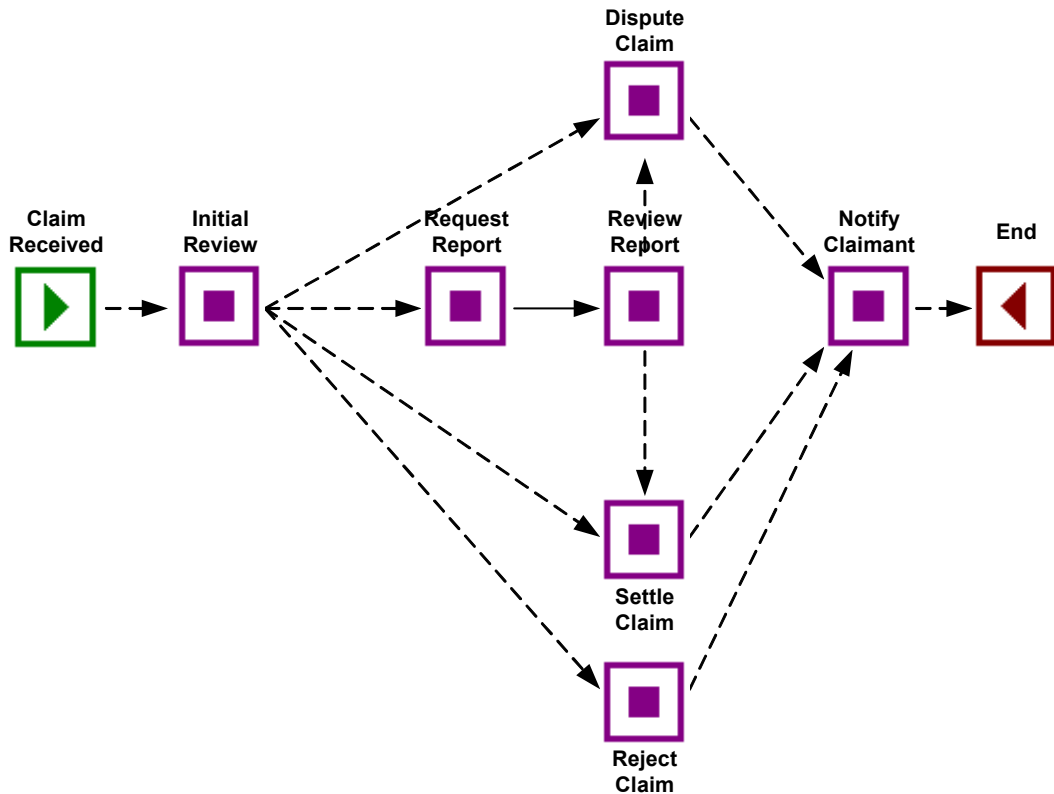
When you have identified the start and complete conditions for each node, you need to assess what other data is required in the flow; for example, you might want answers to questions such as:

- 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 14 Common Information Across your Business

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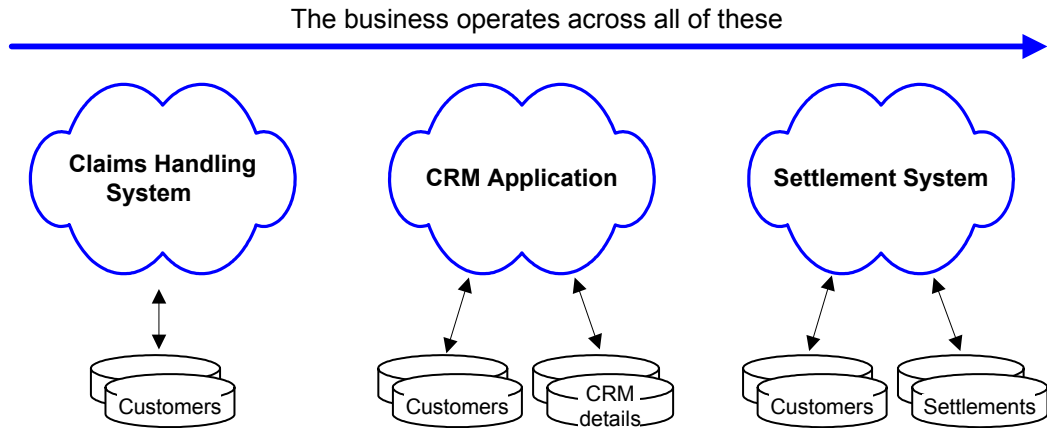
As can be seen in the diagram, each application has its own definition of the customer, which is structured according to the business data that the application is responsible for. This definition might, or might not be, the same for each of the applications.

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 first name 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 adapters, 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, OVO or SOA Manager, 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 15 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 15 Flow and Applications
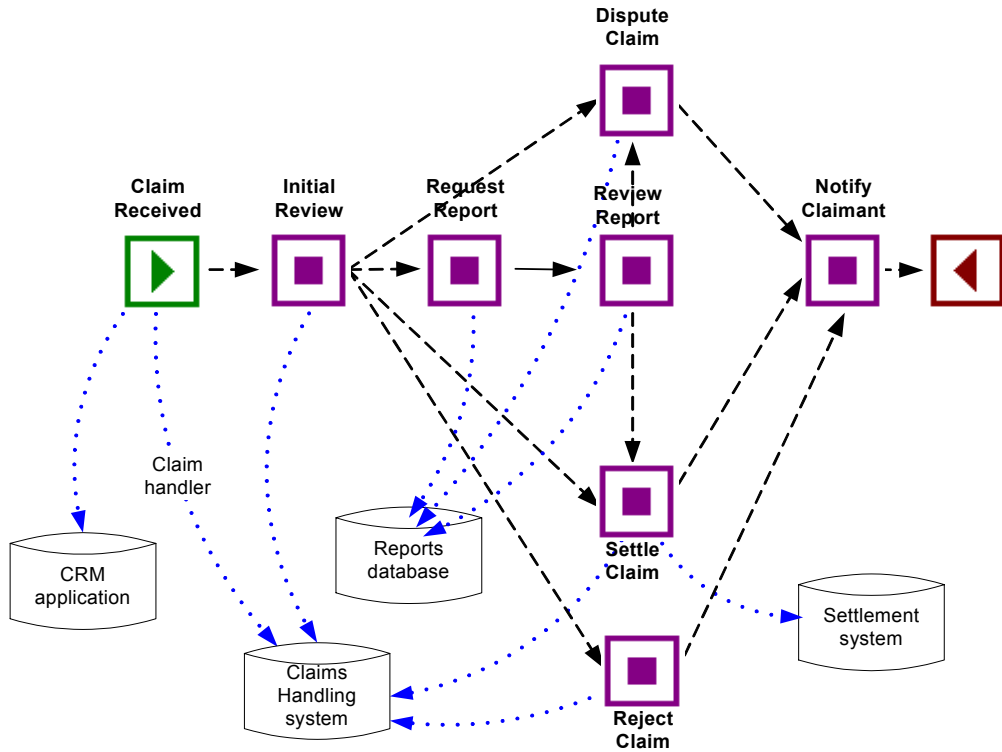
Note that this is not how the flow is shown through the OVBPI Modeler.

Impact information from the underlying systems is passed to the OVBPI components from OVO, OVIS or SOA Manager, 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 Reference 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 OpenView Service Desk integration through the Administration Console. If you do this, the OVBPI Business Process Dashboard can provide links through to appropriate HP OpenView Service Desk (OVSD) incident reports. The Business Process 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 Business Process 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, adapters and a customized Business Process 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 adapters 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 4, 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.

4 Business Process Dashboard

The OVBPI 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.

You can also customize the Business Process Dashboard to your own requirements; see the *HP OpenView Business Process Insight Integration Training Guide - Customizing the Business Process Dashboard*.

This chapter covers the following topics:

- Dashboard Features on page 72.

- Overall Business Health Scorecard on page 73

- Monitoring Individual Flows and Business Process Metric Thresholds on page 75

- Monitoring Individual Operational Services on page 82

- Customizing the Dashboard on page 83.

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 when installed on the same system as the OVBPI Server. The Dashboard shows a message indicating your license status. If there is no message displayed, you have a permanent license installed.

  ▶ If you complete a `Dashboard Only` type of installation where the Business Process Dashboard is installed on a different system to the OVBPI Server, it can not report on the OVBPI license status.

- Ability to search for specific flow instances.

The Business Process Dashboard is also designed to be easily customized (using a JSP custom tag library). The *HP OpenView Business Process Insight Integration Training Guide - Customizing the Business Process Dashboard* 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 16.

Figure 16 Business Health Scorecard
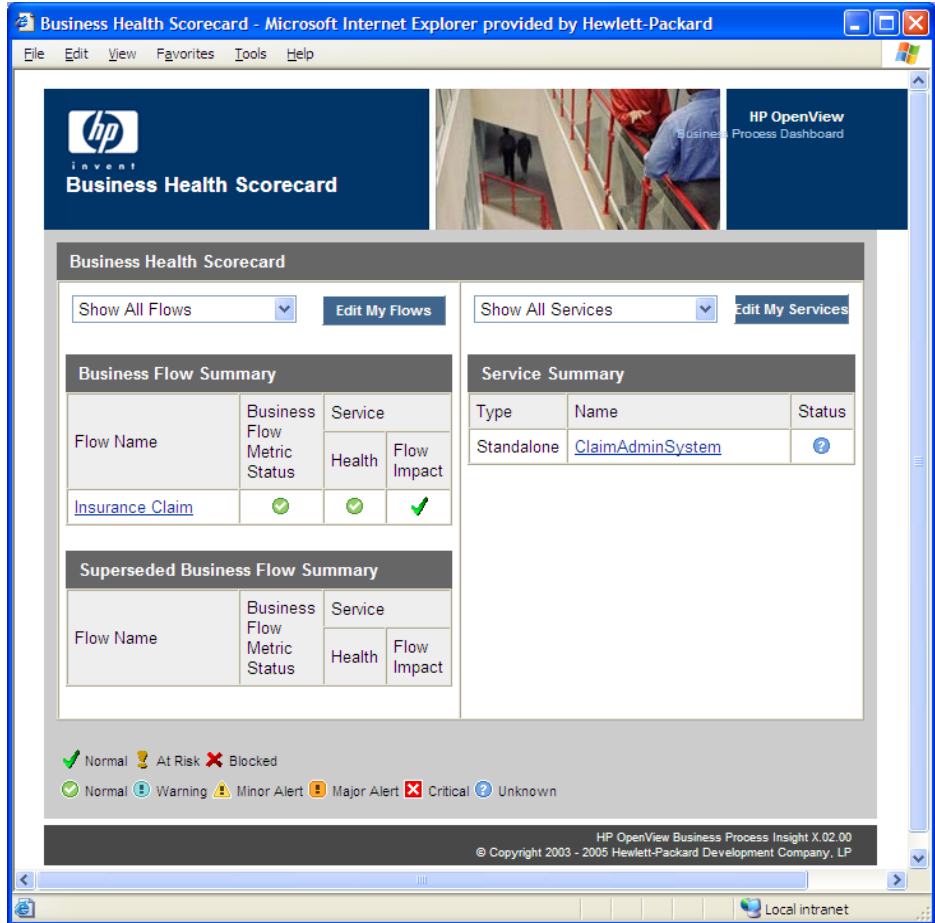
From this page you can tailor the Business Process Dashboard to show information that is specific to your requirements, for example, you can show:

- 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 (or active), 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, or completed, at this node, plus data relating to:
  - the Weight property
  - the time that the flow instance fulfilled the start condition for the Start Node in the flow
  - the time that the flow instance fulfilled the Start Condition for the specified node
  - the time the flow instance fulfilled the End Condition for the specified 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

The Metrics details screen lists all the business process metrics and metric thresholds defined for the flow.

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 instance thresholds for duration instances, the screen shows the highest alert status for the defined instance 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 instance 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.

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 17 on page 81. 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 17 Dashboard and Alerts
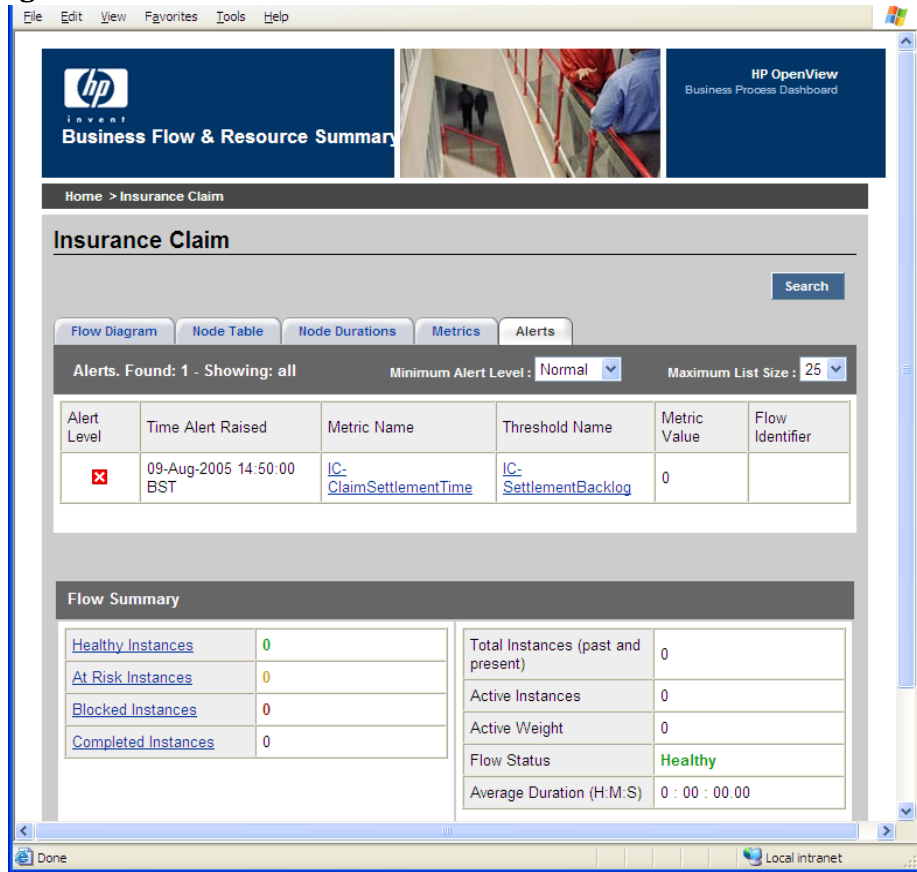
The screen also repeats the summary of the current status of the selected flow with respect to the operational services defined for the selected Node, for example, the number of healthy, at risk, blocked and completed instances.

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 16 on page 74.

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 customize the Business Process 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 the Business Process Dashboard*.

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 Business Process 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.

HP OpenView Dashboard and OVBPI Dashboard

You can enable the HP OpenView Dashboard to navigate to the OVBPI Business Process Dashboard Web pages in order to present service status information through one single interface.

The OpenView Dashboard is an environment for consolidating all the business services within a particular area of a business that you are interested in, and which can include the services being monitored by OVBPI. These business services can come from a number of sources according to how you have configured the OV Dashboard connections.

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* and *HP OpenView Business Process Insight Integration Training Guide - Defining Business Metrics* which describe creating business flows and metrics and take 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 Reference Guide*.

Index

A

Adapters
 for business data, 28

Alerts
 Business Process Dashboard, 79, 80

B

Being, 18

BPEL
 importing into OVBPI
 using for business flows, 17

Business
 adapters, 28
 common information model, 63
 data, 38
 events, 28, 29
 flow model
  example, 16
 health, 12
 Health Scorecard, 73
 scenario, 40

Business Event Handler, 38

Business flow, 21
 definition, 22, 23
 events, 39
 example, 25
 instances, 36
 model, 16
 node, 24

Business impact, 14, 46

Business Process Dashboard
 Alerts, 79, 80
 Business Health Scorecard, 73
 Business metrics and thresholds, 75
 customizing, 83
 features, 72
 Flow diagram, 75
 instance alerts, 80
 JSP custom tags, 73
 Metric, 79
 metric Definition, 79
 monitoring operational services, 82
 monitoring OVBPI, 71
 Node Duration, 78
 Node table, 77
 reporting and monitoring, 36
 threshold definition, 79

Business Process Execution Language. See BPEL

Business Process Insight. See OVBPI

Business process metric, 36
 as part of defining Flows, 55

Business service
 definition, 17

Business visibility, 12

C

Common information model, 63

Completed
 node state, 52