IBM Business Monitor
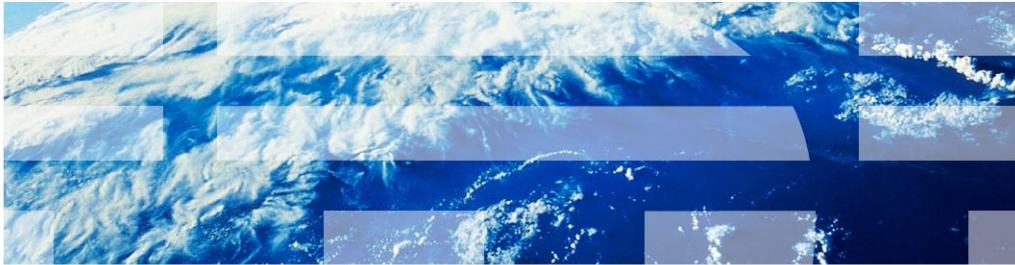
Multi-module Monitoring

This presentation should give you an understanding of multi-module monitoring for IBM Business Monitor.

Goals

- Introduce multi-module monitoring in IBM Business Monitor

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This presentation will give you an understanding of the use of the global monitoring context wizard for creation of monitor models which can monitor multiple modules simultaneously.

Agenda

- Overview
- Using the wizard
- The resultant monitor model
- The generated dashboard

Multi-module monitoring

This is the agenda for this presentation. You will review the pupose of multi-module monitoring. Then you can see screen captures showing usage of the global monitoring context wizard. You will see the resultant monitor model after the wizard has completed the operation. Also, you will see the dashboard that is automatically generated when you deploy the monitor model.

Overview

- In Integration Designer it is easy to generate monitoring models for process applications, business process execution language (BPEL) applications and other modules
- Use the global monitoring context wizard for multi-module monitoring
- The wizard is built into the monitor model editor
    - It works with any number of monitoring contexts
    - It generates a high level monitoring context which uses generated outbound events from the low level contexts

You can use the global monitoring context wizard to create a single monitor model for monitoring any number of modules. You can manually create a model to do this, but it requires some work to build outbound events to send to the global model. The global monitoring context wizard creates these event defintions for you based on correlation that you specify. So you can pick correlation keys in each model to tie them together, for example, using customer order number as the key. The wizard is built into the monitor model editor in the IBM Integration Designer.

Multi-key correlation

- Model generators take care of correlation for you when monitoring a single source, such as one BPM process or one Message Broker flow

- With multiple sources, you must setup correlation manually or use the global monitoring context wizard

- Global monitoring context wizard can handle a common key used in every source or different keys per event source

- Using different keys per event source
  - Requires specification of the mapping of the key used from one monitoring context to the key used in the next one in the flow
  - For example, order ID 4, shipping ID 8, and confirmation ID 15 belong to the same end-to-end transaction
 - A generated global key is added to each low-level monitoring context

Mapped Source and Target Metrics:

Source Context	Source Metric	Target Context	Target Metric	Mapping Key	
Application	Application ID	Analysis	Analysis ID	App ID	Edit
Analysis	Analysis ID	Automated Appr…	Automated Appr…	Ana ID	Remove
Analysis	Analysis ID	Manual Approval	Manual Approval…	Anaman ID	
Automated Appro…	Automated Appr…	Disbursement	Disbursement ID	Aut ID	
Manual Approval	Manual Approval…	Disbursement	Disbursement ID	Man ID	

Multi-module monitoring

If you have multiple event sources such as multiple BPM processes that you want to monitor as a single entity, then you must create the correlation manually or use the global monitoring context wizard. The global monitoring context wizard can handle scenarios that use a common key for all event sources. It can also handle using different keys per event source. As you can see in this screen capture, you can specify a different correlation key between each pair of monitoring contexts in the flow. So this allows you to correlate two sources based on order ID, and another two sources based on shipping ID. The wizard handles adding the global key to each monitoring context in your model.

Milestones

- Group a set of low-level activities into a high-level milestone
- Global monitoring context needs to track metrics associated with milestones
- Generated KPIs such as instance counts at each milestone and average time spent at each milestone
- Generated milestone diagram
- In dashboard you can click instance to see associated diagram data
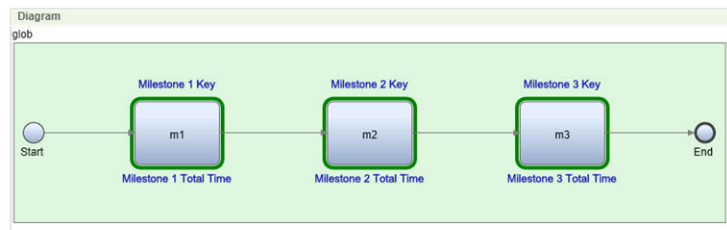
Multi-module monitoring   © 2012 IBM Corporation

For complex processes you don't necessarily want to be aware of every step involved in the implementation. Milestones group activities into a higher level entity. So for example, your process might have a dozen steps, but you only expose three or four milestones. These milestones are generated by the global monitoring context wizard along with metrics and KPI's. The KPI's include instance count and average duration of the milestone. In addition a diagram is generated for the dashboard and it is linked to the instances widget. You can click an instance and see the associated milestone keys and durations for that instance.

Start the wizard

- Start the wizard for the model
  - If you have generated for this project previously then this option is disabled
  - Combine models first before starting the wizard

- Name the new global monitoring context

- Determine if you have a common key
- Select display option for dashboard

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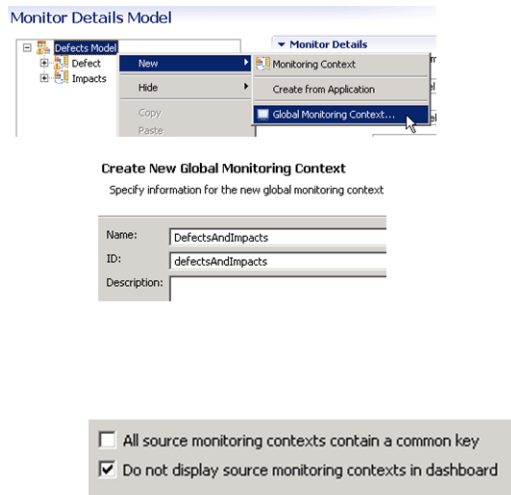
To start the wizard for generating the model, select the menu option called 'Global Monitoring Context…'. You are only allowed to run this operation once, so the option is disabled if you have run the wizard previously. Note that you need to have a single monitor model that contains the monitoring contexts that you will process. Before you run the wizard, combine multiple monitor models into a single model. You can do this with the menu option 'Combine monitor models'. When you start the global monitoring context wizard, you provide a name for the new global monitoring context.

If you have a common key in all the monitoring contexts, then select the check box for this. For example, a common key might be order number in an ordering scenario. So you should have a metric in each of the source monitoring context that contains the order number, although the metric names do not have to match.

Next determine if you want the source monitoring contexts displayed in the dashboard. The default setting will not show them in the dashboard, because this will simplify the dashboard since the global monitoring context should have all the metrics that you selected in the wizard.

Map monitoring contexts to milestones

On the Map Monitoring Contexts to Milestones page, you identify the milestones to track in the model. Just add a milestone, and then select, from the list of existing monitoring contexts, the ones you want to include in the milestone.

Make sure that the monitoring contexts for each milestone are listed in the order in which the instances of the monitoring contexts are to be processed. For example, if an instance of an Order monitoring context must precede an instance of a Shipping monitoring context, make sure Order is listed before Shipping in the Included monitoring contexts list.

In this example, the first milestone 'm1' contains two monitoring contexts, Application and Analysis. At the bottom of the page be sure to indicate which milestone is the one which should terminate the global monitoring context.

If you selected the check box indicating that you will use a common key, then you see this dialog. In it you specify the correlation keys that tie the monitoring contexts together.

In the example the two monitoring contexts track defect numbers, so the metric 'Name' is mapped from one and the metric 'Defect Number' is mapped from the other. Their names are different in the two contexts, but they track the same business payload, namely, defect number. Note that these metrics must be of type string.
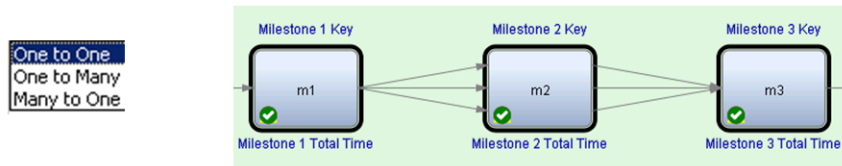
If you did not select the check box indicating that you will use a common key, then you see this dialog. In it you map the metrics for each pair of monitoring contexts. Each line in the table represents the mapping from a source context to a target context. Typically the source and target metrics are the key metrics for their respective contexts. The mapping key is the metric in the target context that maps to the source context. In the example, the first line shows that the target context contains a mapping key 'App ID' which specifies the key information for the source context.

Mapped milestones

- Here you indicate the relationship of the milestones

From	To	Mapping Type
m1	m2	One to One
m2	m3	One to One

Preview Diagram

One to One
One to Many
Many to One

Milestone 1 Key   Milestone 2 Key   Milestone 3 Key

m1   m2   m3

Milestone 1 Total Time   Milestone 2 Total Time   Milestone 3 Total Time

Next you identify the relationship of the milestones. The relationship can be one to one, one to many or many to one. For example, if you select "One to One", you are indicating that one instance of the first milestone flows directly to an instance of the second milestone. This relationship is only used to display indicators on the milestone diagram.
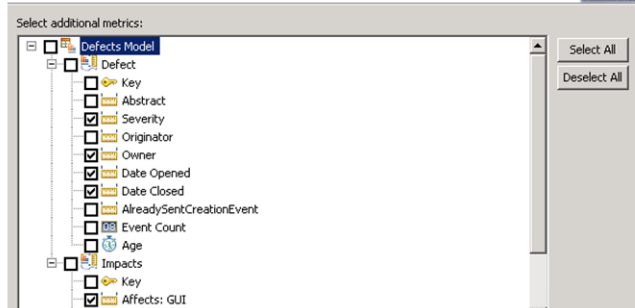
Click Preview Diagram to see a visual indicator of how the milestones flow from one to another. In the diagram sample, m1 flows to many m2's and many m2's flow to a single m3.

Add metrics

- Add metrics from the source contexts to be created in the global context

Add Metrics

Select additional metrics, counters, or stopwatches to add to the new global monitoring context in the Defects Model monitor model.

Select additional metrics:

- ☐ Defects Model
  - ☐ Defect
    - ☐ Key
    - ☐ Abstract
    - ☑ Severity
    - ☐ Originator
    - ☑ Owner
    - ☑ Date Opened
    - ☑ Date Closed
    - ☐ AlreadySentCreationEvent
    - ☐ Event Count
    - ☐ Age
  - ☐ Impacts
    - ☐ Key
    - ☑ Affects: GUI

Select All
Deselect All

In the wizard you add metrics to be placed in the global context. You can select from keys, metrics, counters, and stopwatches. Note that any cube measures or dimensions associated with the selected metrics will also be copied over from the source contexts to the global context.

The output from the wizard

- The result is a new global monitoring context, containing metrics from the source contexts
- KPI model – new KPI context with milestone KPI's
- Dimensional model – new cube created for the global context, copying over existing measures and dimensions

Outbound events are built to create and update the global context instances

The new global monitoring context with key, metrics, inbound events

Monitor Details Model

Defects Model
  Defect
    Key
    Abstract
    AlreadySentCreationEvent
    Date Closed
    Date Opened
    Name
    Originator
    Owner
    Severity
    Defect Closed
    Defect fireCreationEventTrigger
    Defect fireUpdateEventTrigger
    Defect Event
    Defect ModelCreationEvent
    Defect ModelOutboundEvent
    Event Count
    Age
  DefectsAndImpacts
    DefectID
    Affects: Dashboard
    Affects: GUI
    Date Closed
    Date Opened
    Owner
    Severity
    Defect Creation Event
    Defect Update Event
    Impacts Event
  Impacts
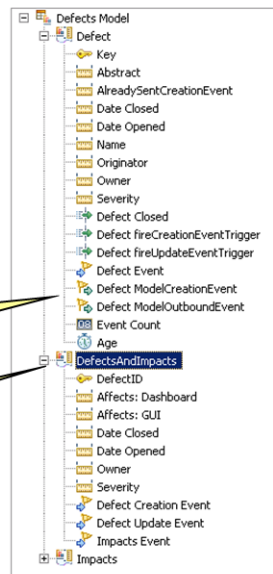
When the wizard completes, the result is a new global monitoring context in the monitor model. The global context contains metrics that are copied from the source context. Also the source contexts are updated to use 'On Value Change' triggers to send outbound events containing the selected metric values. The new global context receives these events and populates the values of the metrics. In the screen capture you see the new global context named 'DefectsAndImpacts' that contains the key information which is the defect number. It also contains all the metrics that you selected in the wizard plus inbound events for updating the values of the metrics.

The KPI model is updated to include a new context which contains the KPI's which track the counts and durations for each milestone.

The dimensional model is updated with a new cube which contains the measures and dimensions that were copied from the source contexts.

Generated dashboard

A dashboard is automatically generated for the global monitoring context when you deploy the monitor model. You will have a tab containing the instances widget and the milestone diagram as you see in this example. You can click a row of the instances table and the diagram is updated to show you the key and total time for that instance. There is a tab containing the KPI's for the global monitoring context, as you can see on the next slide. There is a tab containing the original KPI's for the model. There is also a tab containing the KPI level milestone diagram.

Optionally you will see tabs for the source contexts if you selected to display them when prompted in the global monitoring context wizard. In this example, there are five additional tabs containing the source context instances.

The slide shows an example of the KPI widget for the global monitoring context. For each milestone that you defined you can see KPI's for the average elapsed time and the total count of instances.

IBM

Summary

- Covered multi-module monitoring in IBM Business Monitor

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In summary, this presentation covered the use of multi-module monitoring in IBM Business Monitor. You saw how to use the global monitoring context wizard for use with a common key and for use with a different key per event source.

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