Tivoli® Netcool/OMNIbus V7.3.1, Overview of ncwDataSourceDefinitions.xml in the context of Tivoli Netcool/OMNIbus core

Objectives

After you complete this module, you can perform these tasks:

- Describe the differences and similarities of failover configuration between Tivoli Netcool/OMNIbus core and Tivoli Netcool/OMNIbus Web GUI

- Propagate the failover configuration of Tivoli Netcool/OMNIbus core to Tivoli Netcool/OMNIbus Web GUI

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- Propagate the failover configuration from Tivoli Netcool/OMNIbus core to Tivoli Netcool/OMNIbus Web GUI …

You can configure a failover setup in Tivoli Netcool/OMNIbus Web GUI based on existing configuration in Tivoli Netcool/OMNIbus core.

Agenda

- Introduction
- Failover setup in Tivoli Netcool/OMNIbus core (virtual ObjectServer)
- Failover setup in Tivoli Netcool/OMNIbus Web GUI (ncwDataSourceDefinitions.xml)
- Comparing failover setup between Tivoli Netcool/OMNIbus core and Tivoli Netcool/OMNIbus Web GUI

This module covers several important topics. The introduction section has some basic knowledge about the process. In the next section, you learn how to configure a failover setup in Tivoli Netcool/OMNIbus core. Sometimes, a failover setup in Tivoli Netcool/OMNIbus core is referred to as virtual ObjectServer pairs. In the subsequent sections, you learn how to configure a failover setup in Tivoli Netcool/OMNIbus Web GUI by using the ncwDataSourceDefinitions.xml file. You also learn how to compare failover setup between Tivoli Netcool/OMNIbus core and Tivoli Netcool/OMNIbus Web GUI.

Introduction

- To configure failover in Tivoli Netcool/OMNIbus core, you use the nco_xigen and nco_config tool
    - A bidirectional gateway is required for synchronizing the primary and backup ObjectServers
- To configure failover configuration in Tivoli Netcool/OMNIbus Web GUI, you use the $NCHOME/omnibus_webgui/etc/datasources/ncwDataSourceDefinitions.xml file

Failover configuration in Tivoli Netcool/OMNIbus core is done with the nco_xigen and nco_config tool. A bidirectional gateway is required to synchronize the primary and backup ObjectServers.

Failover configuration in Tivoli Netcool/OMNIbus Web GUI is done with the $NCHOME/omnibus_webgui/etc/datasources/ncwDataSourceDefinitions.xml file. You must set several important attributes for a basic failover setup. These attributes are presented in this module.

Failover setup in Tivoli Netcool/OMNIbus core (virtual ObjectServer) (1 of 3)

- The failover setup in Tivoli Netcool/OMNIbus core is also known as virtual ObjectServer
- The term, virtual, means logical existence, not a physical one
- Three steps to configure a failover setup in Tivoli Netcool/OMNIbus core are:
    1. Configure the virtual ObjectServer in nco_xigen tool
    2. Set the BackupObjectServer property of the backup ObjectServer to true in nco_config tool
    3. Configure a bidirectional gateway to synchronize the primary and backup ObjectServers
- The screen capture shows an example of a virtual ObjectServer in nco_xigen tool

VIRTUAL ████████ 4100
  Backup1: ████████ 4101

- A virtual ObjectServer groups two existing ObjectServers
    - Nominates one of them as primary and the other one as backup ObjectServer

The failover setup in Tivoli Netcool/OMNIbus core is sometimes known as virtual ObjectServer. The term, virtual, is used to describe its logical existence, instead of a physical one.

There are three steps in configuring a failover setup in Tivoli Netcool/OMNIbus core.

1. You configure the virtual ObjectServer in nco_xigen tool.

2. Set the BackupObjectServer property of the backup ObjectServer to **true** in nco_config tool.

3. Configure a bidirectional gateway to keep the primary and backup ObjectServers in synchronization.

In the screen capture, you can see an example of a virtual ObjectServer in the nco_xigen tool. A virtual ObjectServer is basically grouping two existing ObjectServers by nominating one of them as primary and the other one as backup ObjectServer.

Failover setup in Tivoli Netcool/OMNIbus core (virtual ObjectServer) (2 of 3)

After the virtual ObjectServer is configured, set the BackupObjectServer property of the backup ObjectServer to true in the nco_config tool

ObjectServer Properties

| Name	Value	Description
ActingPrimary	true	Acting Primary ObjectServer
AlertSecurityModel	0	Desktop security model
AllowConnections	true	Specifies whether or not non-root users can conn...
AllowISQL	true	Specifies whether or not isql connections are allo...
AllowISQLWrite	true	Specifies whether or not modifications by isql co...
AllowTimedRefresh	false	Allow desktops to apply timed refresh
Auto.Debug	false	Automation debug
Auto.Enabled	true	Automation enable
Auto.StatsInterval	60	Automation statistics interval
BackupObjectServer	true	Backup ObjectServer
ClientHeartbeatDisable	false	Disable client heartbeat messages during data lo...
ClientHeartbeatRate	10	Client heartbeat rate in seconds, during data loc...

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After you configure the virtual ObjectServer, you need to set the BackupObjectServer property of the backup ObjectServer to **true** in the nco_config tool.

Failover setup in Tivoli Netcool/OMNIbus core (virtual ObjectServer) (3 of 3)

- Configure a bidirectional gateway to connect the primary and backup ObjectServers to synchronize them
- After the virtual ObjectServer is configured, it is available to other tools (for example, nco_event) as a logical ObjectServer
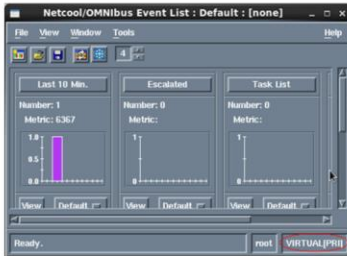
- The system automatically handles the failover to the backup ObjectServer
- To learn more about the failover setup in Tivoli Netcool/OMNIbus core, see:

http://publib.boulder.ibm.com/infocenter/tivihelp/v8r1/index.jsp?topic=%2Fcom.ibm.netcool_OMNIbus.doc_7.3.1%2Fomnibus%2Fwip%2Finstall%2Fconcept%2Fomn_ins_multitieredhighavailability.html

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Next, you need to configure a bidirectional gateway to connect the primary and backup ObjectServers to synchronize them.

This module does not cover the details of the configuration of the bidirectional gateway. However, the information is available at the website shown here.

After you set up the virtual ObjectServer, it is available to other tools, like nco_event, as a logical ObjectServer. Automatic failover to the backup ObjectServer happens after the system detects that the primary ObjectServer is unreachable. After the primary ObjectServer is operational again, the system falls back to it automatically.

Failover setup in Tivoli Netcool/OMNIbus Web GUI (ncwDataSourceDefinitions.xml) (1 of 5)

- When configuring the failover setup for Tivoli Netcool/OMNIbus core, there are at least three components involved

- For Tivoli Netcool/OMNIbus Web GUI, you configure in a single XML file, ncwDataSourceDefinitions.xml

- For more information about the XML file, see:
  http://publib.boulder.ibm.com/infocenter/tivihelp/v8r1/index.jsp?topic=%2Fcom.ibm.netcool_OMNIbus.doc_7.3.1%2Fwebtop%2Fwip%2Freference%2Fweb_con_datasourceconfigfiledataref.html

Next is the failover setup with the Tivoli Netcool/OMNIbus Web GUI. When you configure the failover setup for Tivoli Netcool/OMNIbus core, there can be three components involved. However, with Tivoli Netcool/OMNIbus Web GUI, you need to configure only to a single XML file, ncwDataSourceDefinitions.xml. For more information about the schema of the XML file, see the link shown here.

Failover setup in Tivoli Netcool/OMNIbus Web GUI
(ncwDataSourceDefinitions.xml) (2 of 5)

Types of configuration for ncwDataSourceDefinitions.xml:
- Single data source without failover
  - ~ single <ncwDataSourceDefinition> entry
  - ~ with <ncwPrimaryServer> entry
  - ~ without <ncwBackUpServer> entry
- Single data source with failover
  - ~ single <ncwDataSourceDefinition> entry
  - ~ with <ncwPrimaryServer> entry
  - ~ with <ncwBackUpServer> entry
- Multiple data sources with failover
  - ~ multiple <ncwDataSourceDefinition> entries
  - ~ with <ncwPrimaryServer> entry
  - ~ with <ncwBackUpServer> entry
- Dual-server desktop (DSD)

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On this slide, you see that it is possible to configure ncwDataSourceDefinitions.xml for your particular needs. Examples include single data source without failover, single data source with failover, multiple data sources with failover, and dual-server desktop (DSD). This module focuses on single data source with failover.

Failover setup in Tivoli Netcool/OMNIbus Web GUI (ncwDataSourceDefinitions.xml) (3 of 5)

Here are some basic and important elements of the ncwDataSourceDefinitions.xml file. You must use the <ncwDefaultDataSourceList> element to define all available data sources.

Note that the data source is not directly equivalent to ObjectServer, because it can contain configuration for failover setup. The data source is a name that you provide for a particular ObjectServer, either physical or logical (virtual ObjectServer).

Failover setup in Tivoli Netcool/OMNIbus Web GUI (ncwDataSourceDefinitions.xml) (4 of 5)

- Under the <ncwDataSourceDefinition> element, configure the <ncwDataSourceCredentials> and <ncwFailOverPairDefinition> elements
  - **<ncwDataSourceCredentials> element**: Defines the login information that Tivoli Netcool/OMNIbus Web GUI uses to access the data source
  - **<ncwFailOverPairDefinition> element**: Defines the failover setup
  - **<ncwPrimaryServer> element**: Provides connection information to the primary ObjectServer
  - **<ncwBackUpServer> element**: Is only required for a failover configuration and is used to provide connection information to the backup ObjectServer
  - **<ncwFailOverPairDefinition> element**: Is equivalent to the configuration with the nco_xigen of Tivoli Netcool/OMNIbus core
- Instead of pointing to a logical virtual ObjectServer under Tivoli Netcool/OMNIbus core, configure the primary and backup ObjectServer separately under the <ncwFailOverPairDefinition> element
  - Even with the <ncwFailOverPairDefinition>, you must configure the failover setup under Tivoli Netcool/OMNIbus core
    - Ensures that the data between the primary and backup server is synchronized

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After you configure the <ncwDataSourceDefinition> element, you must configure the <ncwDataSourceCredentials> and <ncwFailOverPairDefinition> elements to form a basic failover setup in Tivoli Netcool/OMNIbus Web GUI.

The <ncwDataSourceCredentials> element is for defining the login information that is required by the Tivoli Netcool/OMNIbus Web GUI to access the data source.

The <ncwFailOverPairDefinition> element is for defining the failover setup.

Under the <ncwFailOverPairDefinition> element, the <ncwPrimaryServer> element is used to provide connection information to the primary ObjectServer. The <ncwBackUpServer> element is required only for a failover configuration and is used for connection information to the backup ObjectServer.

You can see that the configuration with the nco_xigen of Tivoli Netcool/OMNIbus core is now represented by the <ncwFailOverPairDefinition> element of Tivoli Netcool/OMNIbus Web GUI. Instead of referring to a logical virtual ObjectServer under Tivoli Netcool/OMNIbus core, you configure the primary and backup ObjectServer separately under the <ncwFailOverPairDefinition> element. Even with the <ncwFailOverPairDefinition>, you must perform the failover setup under Tivoli Netcool/OMNIbus core to ensure that the data between the primary and backup server is synchronized.

Here, you see an example of how the <ncwDataSourceCredentials>,
<ncwPrimaryServer>, and <ncwBackUpServer> are configured.

Comparing failover setup between Tivoli Netcool/OMNIbus core and Tivoli Netcool/OMNIbus Web GUI

- Failover setup of Tivoli Netcool/OMNIbus Web GUI depends on the failover setup of Tivoli Netcool/OMNIbus core
- The <ncwBackUpServer> ObjectServer requires the backup ObjectServer to be a property that is configured to true with the nco_config tool of Tivoli Netcool/OMNIbus core
- A bidirectional gateway is required to ensure that data between the primary and backup ObjectServers is synchronized all the time
- To configure the virtual ObjectServer, you can now use ncwDataSourceDefinitions.xml file
  The <ncwPrimaryServer> and <ncwBackUpServer> elements of the <ncwFailOverPairDefinition> element provide clear definitions

Overview of ncwDataSourceDefinitions.xml in the context of Tivoli Netcool/OMNIbus core   © 2012 IBM Corporation

Now that you have seen how to configure a failover setup in both Tivoli Netcool/OMNIbus core and Web GUI, compare the two configurations. It is clear that failover setup of Tivoli Netcool/OMNIbus Web GUI depends on the failover setup of Tivoli Netcool/OMNIbus core.

For the <ncwBackUpServer> ObjectServer used by Tivoli Netcool/OMNIbus Web GUI, you must configure the BackupObjectServer property to true by using the nco_config tool of Tivoli Netcool/OMNIbus core. A bidirectional gateway is still required to ensure that the data between the primary and backup ObjectServers is synchronized all the time. However, the configuration of the virtual ObjectServer is simpler with the ncwDataSourceDefinitions.xml file, because it is now clearly defined by the <ncwPrimaryServer> and <ncwBackUpServer> elements of the <ncwFailOverPairDefinition> element.

Remember, you cannot directly see a virtual ObjectServer configured under Tivoli Netcool/OMNIbus core in the ncwDataSourceDefinitions.xml file. The information of the logical entity is not available to Tivoli Netcool/OMNIbus Web GUI. Also, you must provide the host and port details in the ncwDataSourceDefinitions.xml file.

Now that you completed this module, you can perform these tasks:

- Describe the differences and similarities of failover configuration between Tivoli Netcool/OMNIbus core and Tivoli Netcool/OMNIbus Web GUI

- Propagate the failover configuration of Tivoli Netcool/OMNIbus core to Tivoli Netcool/OMNIbus Web GUI

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