IBM Tivoli Network Manager V3.9
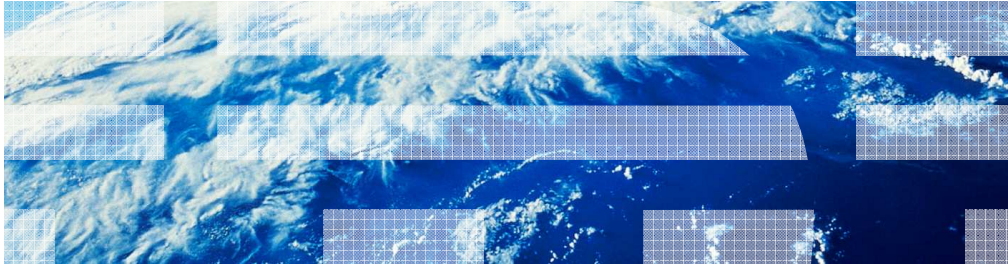
Architecture and configuration for shared and replicated NCIM

IBM Tivoli® Network Manager V3.9, Architecture and configuration for shared and replicated Netcool® Common Information Model (NCIM).

Objectives

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

- Explain the difference between a shared and replicated Netcool Common Information Model (NCIM)

- Configure failover for Tivoli Network Manager V3.9

When you complete this module, you can explain the difference between a shared and replicated NCIM, and configure IBM Tivoli Network Manager for a failover environment.

Architecture of shared NCIM

ITNM failover Architecture – shared NCIM
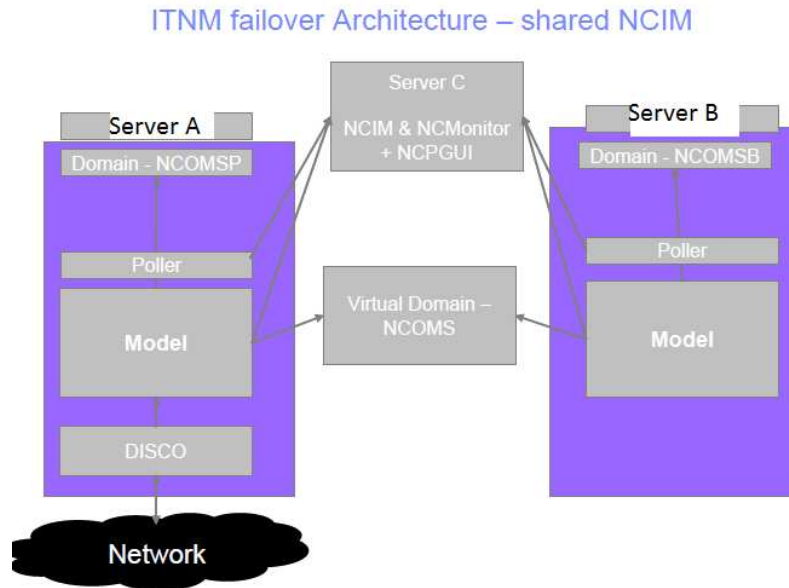
Architecture and configuration for shared and replicated NCIM © 2013 IBM Corporation

This diagram illustrates a shared NCIM. IBM Tivoli Network Manager runs on Server A with the name NCOMSP, and runs on Server B with the name NCOMSB. This architecture is called Tivoli Network Manager failover. The NCIM or database for the two servers runs on Server C. Servers A and B share this NCIM, and this configuration is called shared NCIM. Although both Servers A and B can connect to the network, DISCO or discovery runs only on the primary Server A in a failover environment.

Configuration changes for both server A and B

$NCHOME/etc/precision/ConfigItnm.DOMAIN.cfg
```
insert into itnmDomain.failover
(
    FailoverEnabled,
    IsReplicatingNcim,
    PrimaryDomainName,
    BackupDomainName,
    VirtualDomainName
)
values
(
    1,
    0,
    "NCOMSP",
    "NCOMSB",
    "NCOMS"
);
```
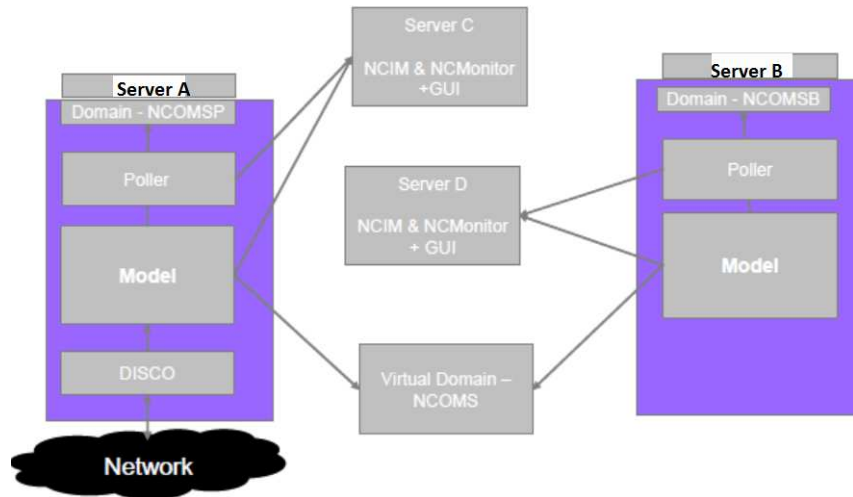
Architecture and configuration for shared and replicated NCIM

A simple configuration is required to enable shared NCIM. Both Server A and Server B changes are made to the ConfigItnm file. FailoverEnabled is set to 1 to indicate that a Tivoli Network Manager failover configuration is in use between two servers. By setting IsReplicatingNcim to zero, this configuration becomes a shared NCIM. NCOMSP is the name of the primary Tivoli Network Manager domain, and NCOMSB is the backup Tivoli Network Manager domain. NCOMS is the name of the virtual domain connection between the two domains.

Architecture of replicated NCIM

ITNM Failover with NCIM Failover Architecture

This diagram illustrates a replicated NCIM. Tivoli Network Manager runs on Server A with the name NCOMSP. Tivoli Network Manager runs on Server B with the name NCOMSB. The NCIM or database for Server A runs on Server C. The NCIM or database for Server B runs on a fourth server, Server D. This architecture offers another layer of redundancy in the event of the failure of the NCIM database.

Configuration changes for both server A and B (replicating)

$NCHOME/etc/precision/ConfigItnm.DOMAIN.cfg

```
insert into itnmDomain.failover
(
    FailoverEnabled,
    IsReplicatingNcim,
    PrimaryDomainName,
    BackupDomainName,
    VirtualDomainName
)
values
(
    1,
    1,
    "NCOMSP",
    "NCOMSB",
    "NCOMS"
);
```

Architecture and configuration for shared and replicated NCIM

A simple configuration is required to enable replicating NCIM. Both Server A and Server B changes are made to the ConfigItnm file. FailoverEnabled is set to 1 to indicate that a Tivoli Network Manager failover configuration is in use between two servers. By setting IsReplicatingNcim to 1, this configuration becomes a replicating NCIM. NCOMSP is the name of the primary Tivoli Network Manager domain, and NCOMSB is the backup Tivoli Network Manager domain. NCOMS is the name of the virtual domain connection between the two domains.

NCIM supported technologies

- MySQL
- DB2®
- Oracle
- Informix®

In both shared and replicating NCIM, the databases can be MySQL, DB2, Oracle, or Informix. The NCIM can also be configured in Tivoli Network Manager replicating failover that the two databases are different technologies. For example, with a replicating NCIM the primary database can be Oracle and the backup database can be Informix.

Configuring the virtual domain connection

```
ServerA:/opt/IBM/tivoli/netcool/precision/bin #
./ncp_virtualdomain -domain NCOMSP
 ( IBM Tivoli Network Manager  )
Copyright (C) 1997 - 2010 By IBM Corporation.  All Rights
Reserved.  See product license for details.

IBM Tivoli Network Manager Version 3.9 (Build 97) created by
ncpbuild at 17:09:54 Fri Feb  8 GMT 2013

Attempting to start message broker.
ncp_virtualdomain[30473] Becoming Primary for tier 1
ncp_virtualdomain is dead.
```

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On the primary server, Server A starts the ncp_virtualdomain binary. It immediately stops, but it leaves port configuration information in the $NCHOME/etc/precision/ServiceData.cfg file.

itnm39_ncim_availability.ppt

Copy the virtual domain information to server B

```
ServerA:/opt/IBM/tivoli/netcool/etc/precision # cat
ServiceData.cfg
--
-- Server data file - contains info on servers and the general

SERVICE: ncp_virtualdomain DOMAIN: NCOMS ADDRESS: 192.168.0.1
PORT: 54808 SERVERNAME: ServerA DYNAMIC: NO
```

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Copy the single line beginning with the word SERVICE, and add it to the same file $NCHOME/etc/precision/ServiceData.cfg on Server B.

Identical entries for virtual domain

```
[ServerB]# cat ServiceData.cfg
--
-- Server data file - contains info on servers and the general

SERVICE: ncp_virtualdomain DOMAIN: NCOMS ADDRESS: 192.168.0.1
PORT: 54808 SERVERNAME: ServerA DYNAMIC: NO
```

Architecture and configuration for shared and replicated NCIM

Both Server A and Server B now have an identical entry in their ServiceData.cfg file. Communication can occur between the two Tivoli Network Manager domains in failover for both shared NCIM and replicating NCIM configurations.

Primary synchronizes data on the backup domain

- The topology data or activeModel file
- Network Views
- Polling policies
- Password configuration files

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With the virtualdomain component set up between servers A and B, the primary server sends topology data, also known as the activeModel file to the backup Tivoli Network Manager domain. Network views and saved polling policies are represented by .xml files on the primary Server A. These files are also sent to the backup domain Server B. Password configuration such as TelnetStackPassword.cfg and SnmpStackSecurityInfo.cfg are synchronized to the backup Server B.

Copy conf.key to the backup server with shared NCIM

- Save $NCHOME/etc/security/keys/conf.key on backup server
- Copy $NCHOME/etc/security/keys/conf.key to back up server from the primary server

Architecture and configuration for shared and replicated NCIM

Passwords that are encrypted on the primary server can be unencrypted only on that server. In a shared NCIM configuration, copy the conf.key file from the primary server to the backup server. The backup server can then unencrypt passwords from the primary server. Maintain a copy of the original conf.key file from the backup server before replacing it.

Summary

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

- Explain the difference between a shared and replicated Netcool Common Information Model (NCIM)

- Configure failover for Tivoli Network Manager V3.9

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Now that you have completed this module, you can configure IBM Tivoli Network Manager V3.9 in either a shared or replicated NCIM configuration.

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