Managing SQL Server Databases in Microsoft Clusters with CA Insight for Distributed Databases r11.2

SQL Server 2000 and 2005

Version 3.0

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Introduction
CA Insight for Distributed Databases is a multi-database performance management and diagnostic product for major distributed relational databases management systems. CA Insight monitors the availability and performance of Microsoft SQL Server, Oracle, Sybase and DB2 for Linux, UNIX and Windows databases.

It enables you to monitor diverse multi-databases platform from one console enabling you to pinpoint performance problems regardless of the source database vendor platform. It offers a remotely accessible and integrated browser user interface, flexible agent and remote monitoring architecture, rich presentation of health statistics for easy drill-down and problem remediation, as well as rich integration with CA Unicenter Network and Systems Management.

Database Cluster Management
CA Insight will help you manage the performance of your cluster environments by providing an enterprise view of your physical Microsoft cluster allowing you to quickly see which node is having issues and then being able to drill down into the specific performance of those nodes.

The Performance Summary screen provides a view of the physical nodes of a clustered database and can be sorted by the Quality of Service column so that the nodes that have lower ratings will move to the top of the list. For discussions purposes, we will be using two different SQL Server clusters: cluster A “vinst2” and cluster B “vserver2” as shown in figure 1.

![CA Insight Performance Summary Screen with SQL Server 2005 Clusters](image)

Figure 1: CA Insight performance summary screen with SQL Server 2005 clusters
Cluster A, vinst2, is a SQL Server 2005 active/active cluster with two nodes and cluster B, vserver2, is a SQL Server 2005 passive/active cluster also with two nodes. Note that in addition to the two SQL Server clusters, CA Insight’s Performance Summary screen shows you all the databases in your enterprise.

Note that both clusters have their nodes listed in the Performance Summary screen. You can quickly see that a node in cluster’s A has a performance issue and the Quality of Service index is flagged in red with zero percent. The associated alarm field indicates an alarm on that node and the key performance metrics are not available (“N/A”). This active/active cluster only has one node that is supporting its applications.

Cluster B’s active node, uslidv74, is performing well and currently has little activity. Also important to note is the passive node, uslidv72, displays a 100% for Quality of Service indicating that it is ready to assume an active role upon failure of the active node uslidv74.

When a failure of the active node occurs, the Microsoft cluster management processes will automatically switch to the passive node. When this occurs, cluster B’s uslidv74 Quality of Service will go to either red or to an unknown state depending on whether the database node failed or the entire server is lost. Alarms will be generated for the failure and Performance Summary screen will now report activity on uslidv72.

CA Insight provides the ability to manage your physical nodes. CA Advanced System Management (CA ASM) can also provide management of your entire virtual cluster. Combining CA Insight with CA ASM and you will have complete management of your cluster environment.

Managing your SQL Server Cluster
The following section describes the steps necessary for configuring Insight to monitor your SQL Server cluster. This monitoring is at the database instance and the OS level.

SQL Server Clusters
A SQL Server cluster can be setup in two modes:

- Active/Passive
- Active/Active
The SQL Server database instance becomes another resource in the given Microsoft Cluster.

The diagram in Figure 2 shows a two node cluster, each node having two local disks and access to the three shared disks. Each node has two Ethernet interfaces, one for private traffic and a public interface. The public interface has a number of IP addresses.

Microsoft SQL Server was installed and configured as per the relevant Microsoft documentation with the program files installed on each local node, and the data files on the clustered disks. The cluster is configured with a single resource group, where the SQL Server instance is setup to use the shared resource group and only one SQL Server instance is active at a time in the active node, whereas the other SQL Server instance is waiting to become activated if the MSCS needs to fail over to the passive node.

An “Active-Active” cluster will have multiple resource groups defined and the SQL Server instances will be using different shared resources and different SQL Server instances will be active in different cluster nodes.
Agent installation
Prior to starting the Insight agent installation, the following items are assumed to have already taken place:

- The SQL Server database aliases have been setup properly at the physical node level and the Insight portal system
- There is connectivity from the cluster physical node to the MDB and Insight portal system
- The proper rights have been assigned to the SQL Server user.

Configuration
The SQL Server client connectivity at the portal level should be based on the SQL Server 2005 client, if there is a presence of SQL Server 2005 and SQL Server 2000 database instances in either a clustered or non-clustered environment.

These instructions apply to either 32-bit or 64-bit client installations. You will also need to obtain the SQL Server database instances and their corresponding TCP ports. This information is very critical to be able to successfully monitor this SQL Server database instance.

These steps need to be taken for each SQL Server database instance that resides in the Microsoft cluster. There are usually two physical database instances for each clustered database instance.

SQL Server 2005 Client

- Bring up the SQL Server configuration manager.
- Expand the SQL Native Client Configuration tree node.
- Create a new alias.
- Enter the information as depicted below.
These aliases need to be created at the Insight Portal system, as well as the cluster physical node.

**SQL Server 2000 Client**

1. Bring up the SQL Server client network utility
2. Click on the Alias tab
3. Click the Add button to create a new alias
4. Select the TCP/IP network library
5. Enter the information as depicted below
The port number will be the assigned port number, not the default 1433 port.

These aliases need to be created at the Insight Portal system, as well as the cluster physical node system.

**CA Insight r11.2**

Once the correct SQL Server aliases have been setup at the Insight portal system and physical cluster node, we need to configure the Insight agents.

1. We will start by configuring the OS agent first
2. Configure the SQL Server instance based on the alias entries created previously
3. Go to the Insight workspace and start the agents (OS and SQL Server) on each corresponding cluster physical node

The end result will be a Database System View (DSV) like the one below:
CA Insight and SQL Server Database Clusters

Summary

CA Insight for Distributed Databases provides you with the capability of monitoring SQL Server databases running in either a Microsoft cluster or a non-cluster environment.

CA Insight provides the Database Administrators (DBA) the ability to monitor and correct any problems that might arise from work with SQL Server (2005/2000) database instances in real-time or historical data collected by CA Insight. This information is view via a Database System Views (DSV) running in a portal, which provides DBAs the ability to act quickly on database issues as they arise.

Figure 5: Insight DSV of clustered SQL Server 2005 database instance