

In this article I'm going to configure failover clustering in Windows server 2008. Almost a year has passed on after the release of Windows Server 2008; I'm configuring 2 Node clustering, since I'm planning to provide another article on SQL Server 2008 Clustering. Below are the lists of resources I've used for this testing

Domain : sagar.corp.com

Domain ID : sqlarticlesadmin.sagar.corp.com

Node : Node1 & Node2

Network Card : Private NW (LAN Card 1), Public NW (LAN Card 2)

Server : Windows Server 2008 Enterprise Edition

Cluster Shared Disks : 1 GB Quorum Disk (iSCSI 3) and 15 GB for SQL Data (iSCSI 3)

All the above resources are already configured to the node's, I'm going to just configure clustering using both the nodes mentioned above.

The one thing you need to note in the above is I've used iSCSI – 3 disks, which is the one supported in windows server 2008 clustering. Below is the note from Microsoft on the cluster shared disks, hope this could help you.

For Serial Attached SCSI or Fibre Channel: If you are using Serial Attached SCSI or Fibre Channel, in all clustered servers, the mass-storage device controllers that are dedicated to the cluster storage should be identical. They should also use the same firmware version.

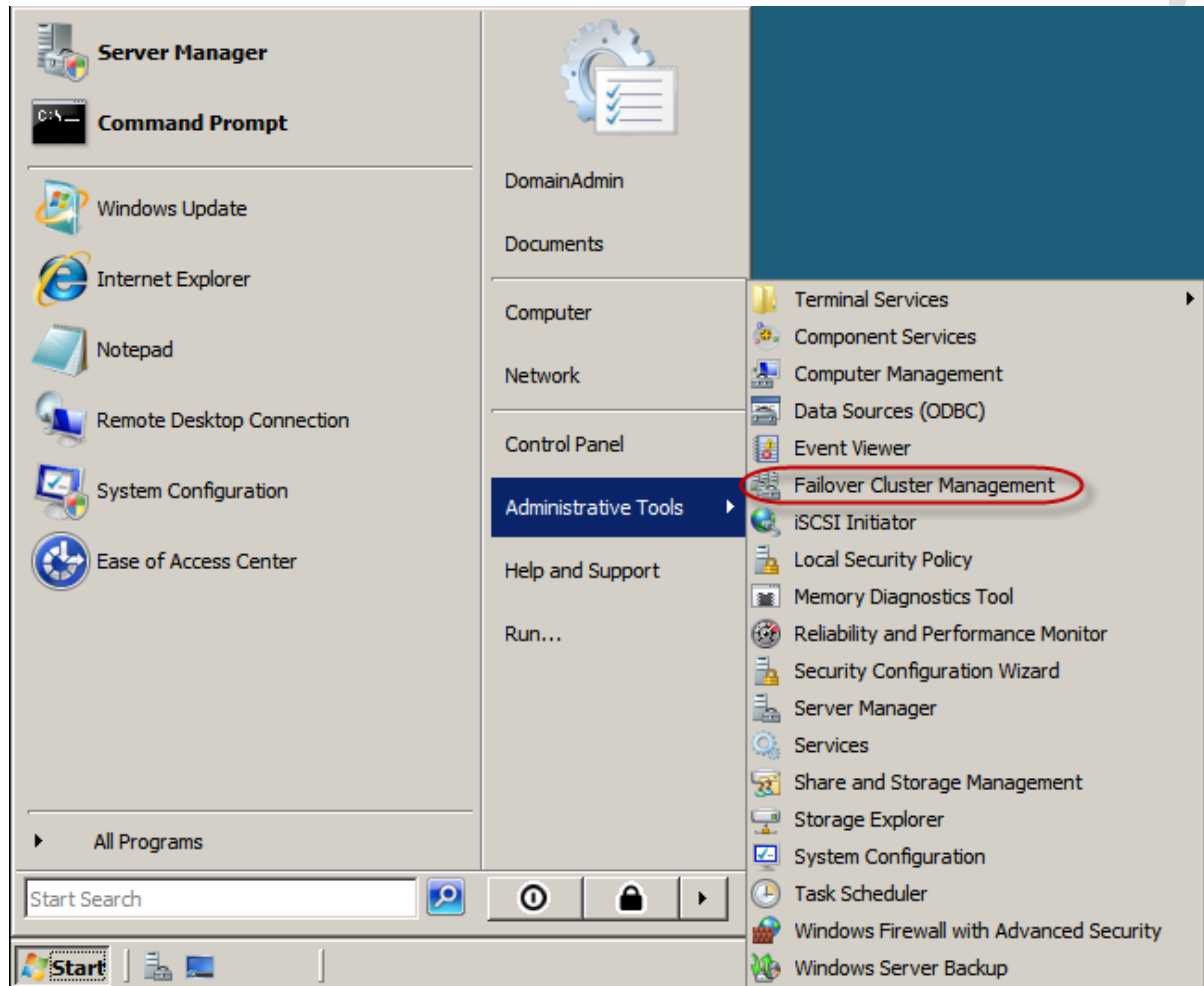
Note With Windows Server 2008, you cannot use parallel SCSI to connect the storage to the clustered servers.

For iSCSI: If you are using iSCSI, each clustered server must have one or more network adapters or host bus adapters that are dedicated to the cluster storage. The network you use for iSCSI cannot be used for network communication. In all clustered servers, the network adapters you use to connect to the iSCSI storage target should be identical, and we recommend that you use Gigabit Ethernet or higher. For iSCSI, you cannot use teamed network adapters, because they are not supported with iSCSI. For more information about iSCSI, see the iSCSI FAQ on the Microsoft Web site (<http://go.microsoft.com/fwlink/?LinkId=61375>).

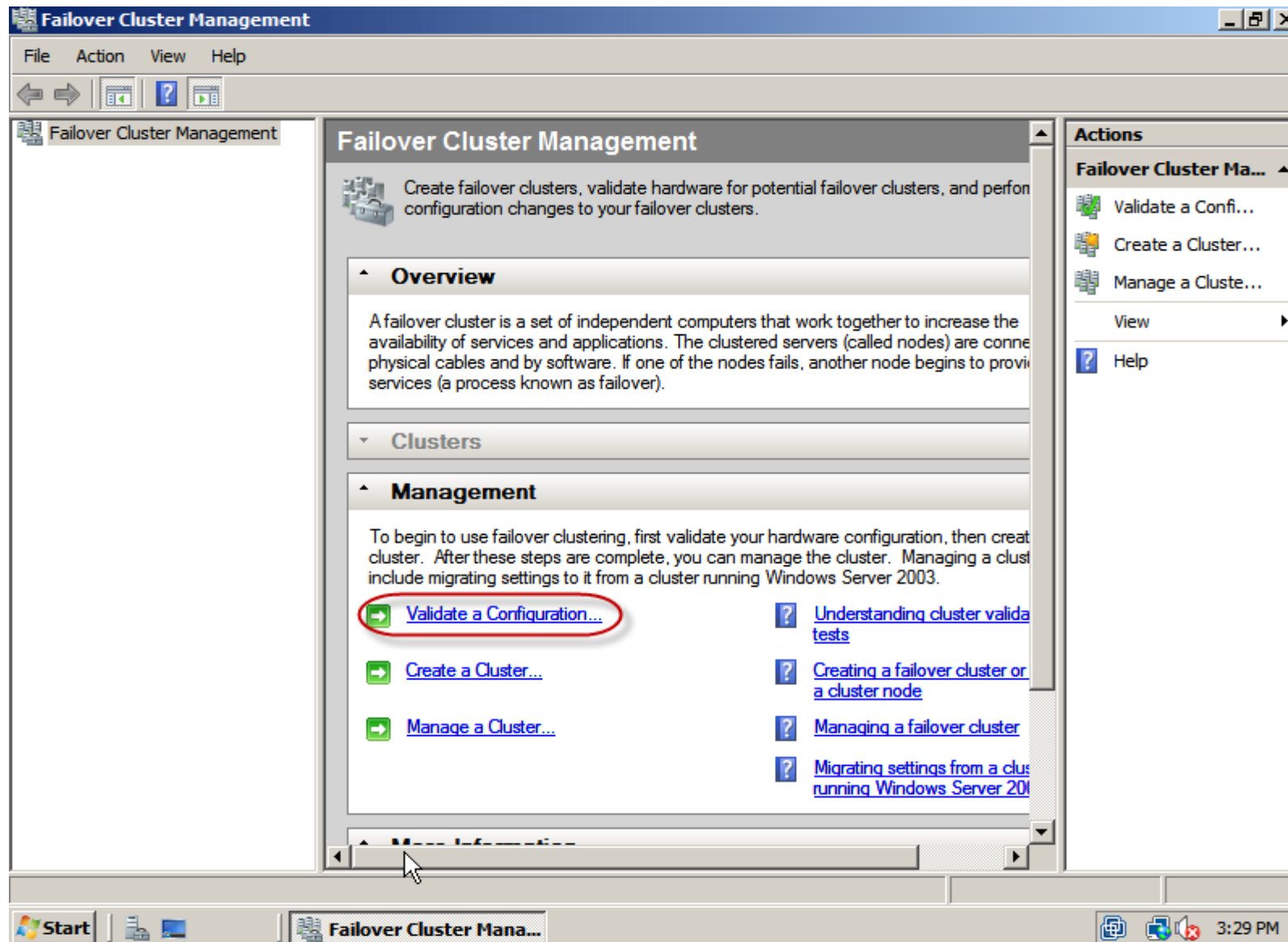
VALIDATE CLUSTER CONFIGURATION

The first step in configuring cluster is to validate the resources that are going to participate in clustering.

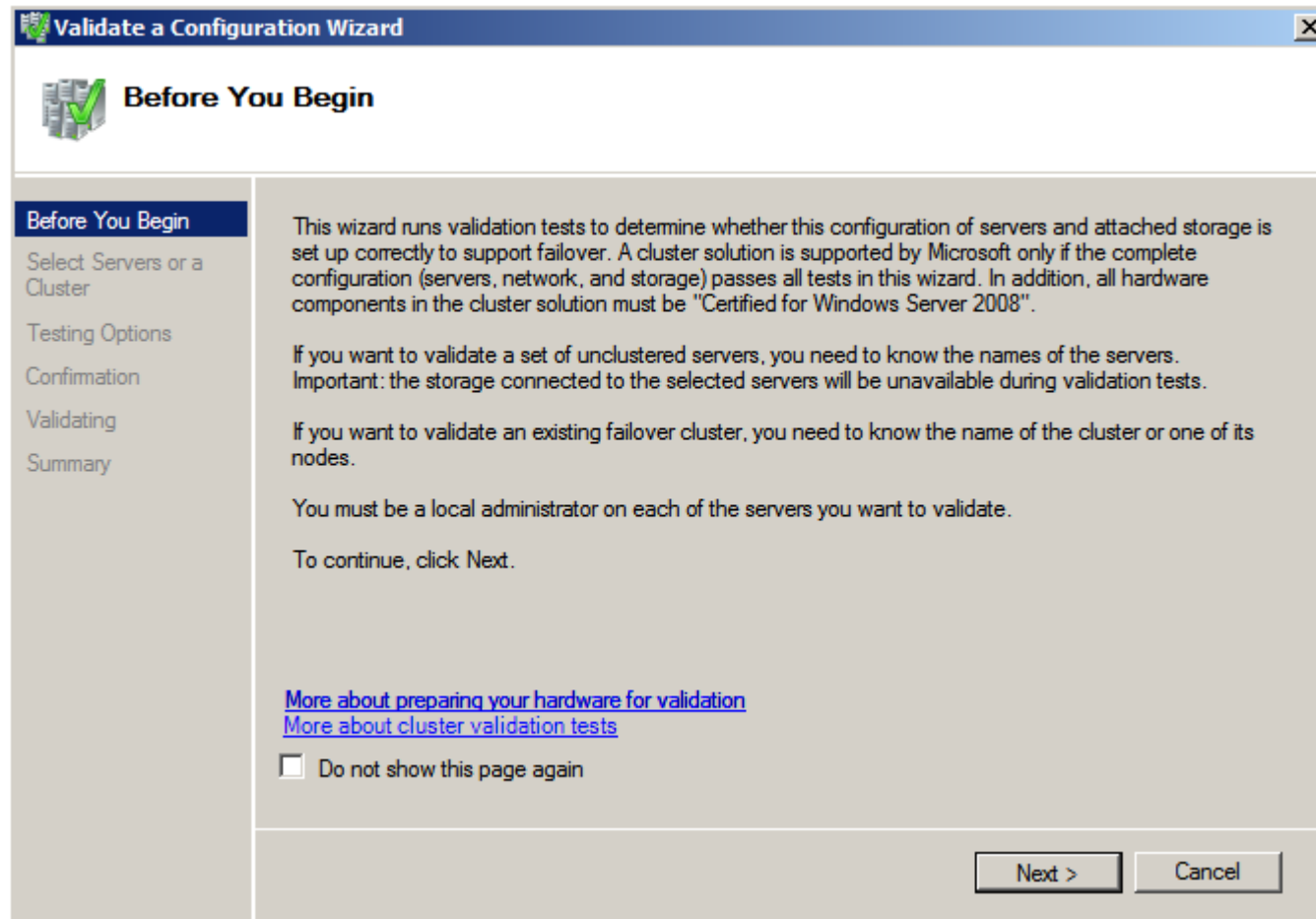
- Connect to Node1
- Go to Start → Administrative Tools → **“Failover Cluster Management”**, click on this to open.



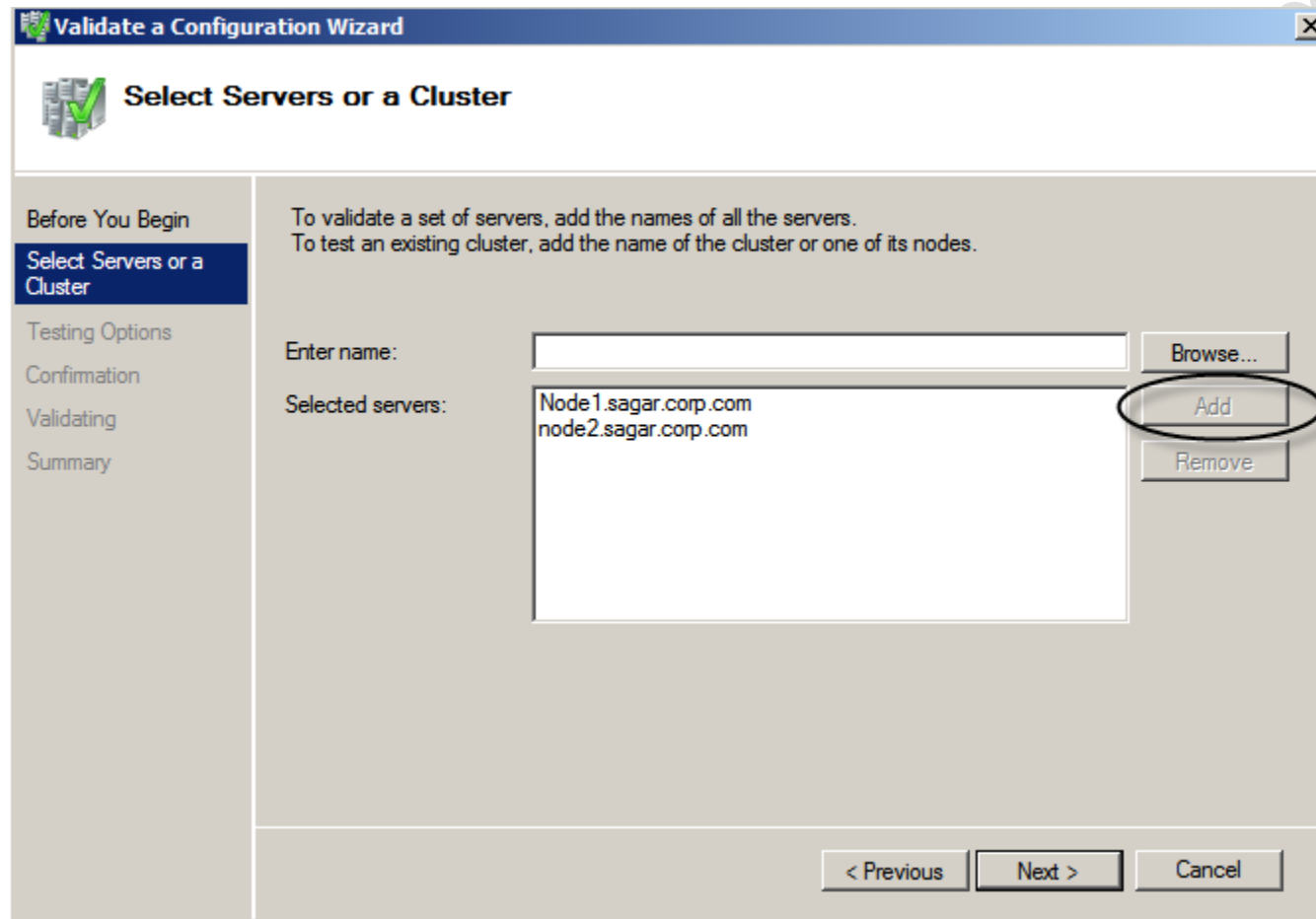
You will be shown with a window similar to the one shown below, click on “**Validate a Configuration**” link



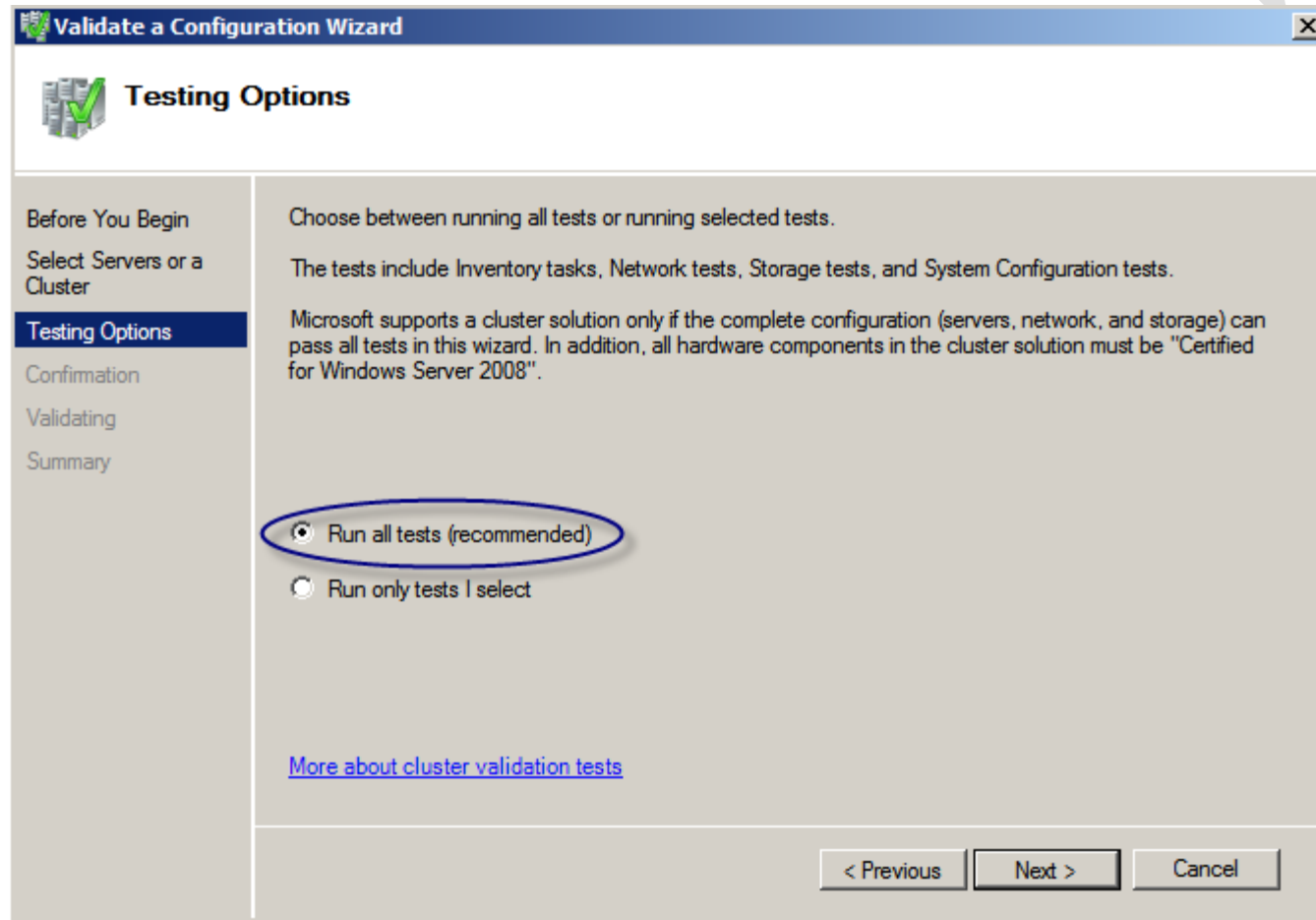
Once you click on that the validate window will appear as shown below



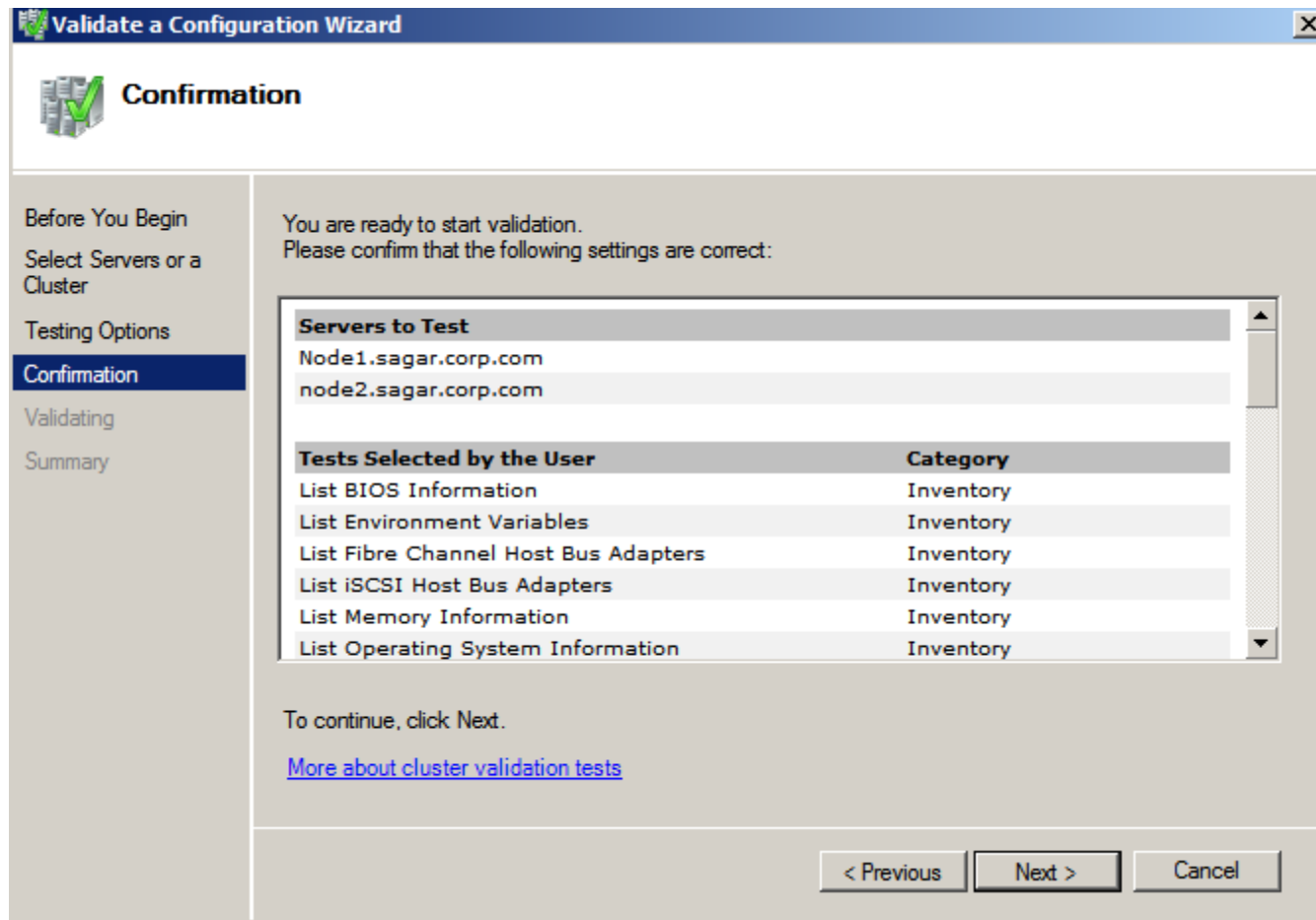
Click on Next to validate the configuration. Enter both the Node names (one by one) in the “**Enter Name**” text column and click on add button. Once both the nodes are pointed click on next to continue.



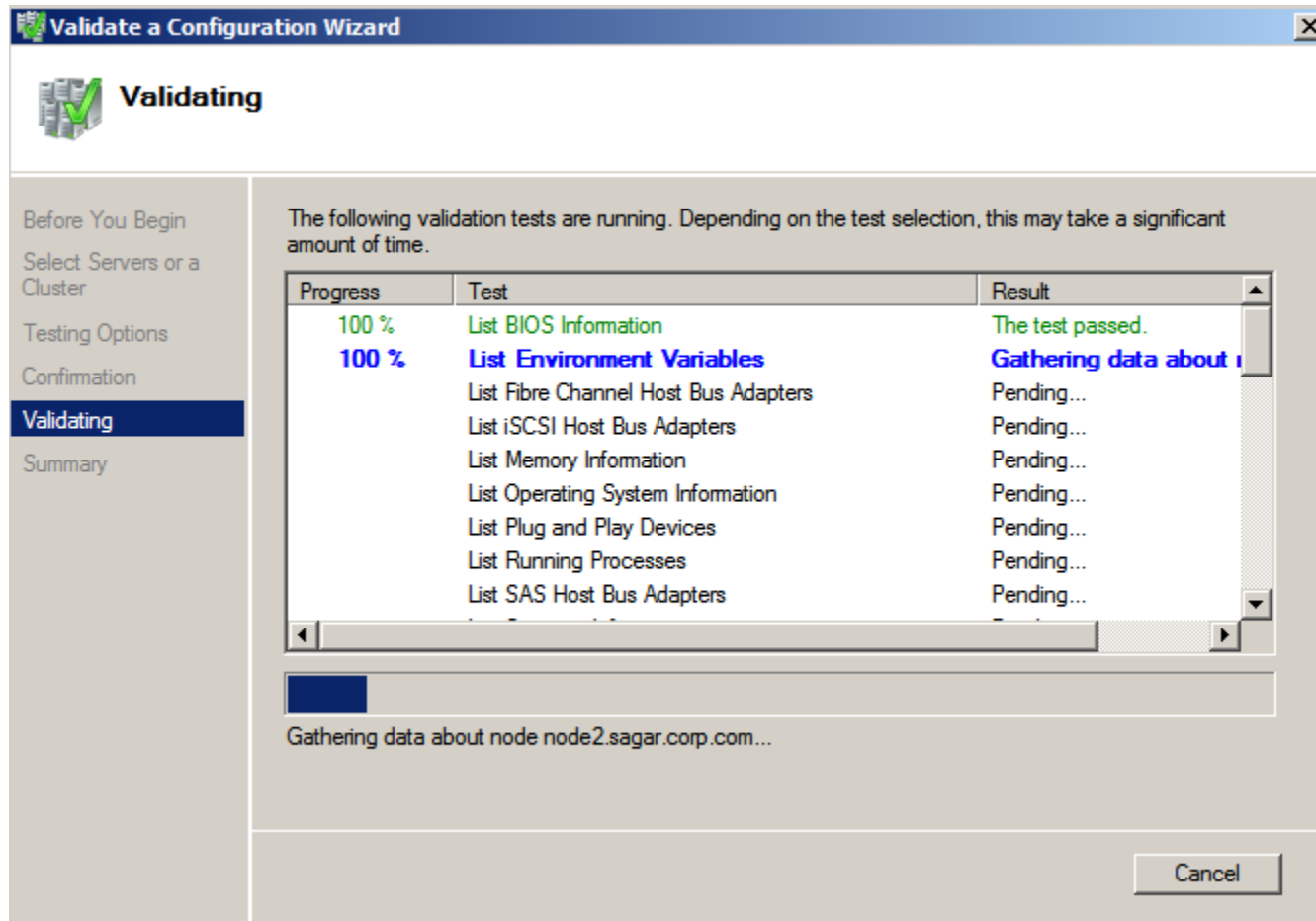
This window will provide you the option to select the tests that need to validate the configuration. Since we are going to check this for the first time, I prefer to **“Run all tests”** as shown below. If any of the tests fail in this, then rectify that and in the next run you can select that particular test case using **“Run only tests I select”**. Click on next to continue



Before validating the wizard will ask you confirmation as shown below, click on next to continue.

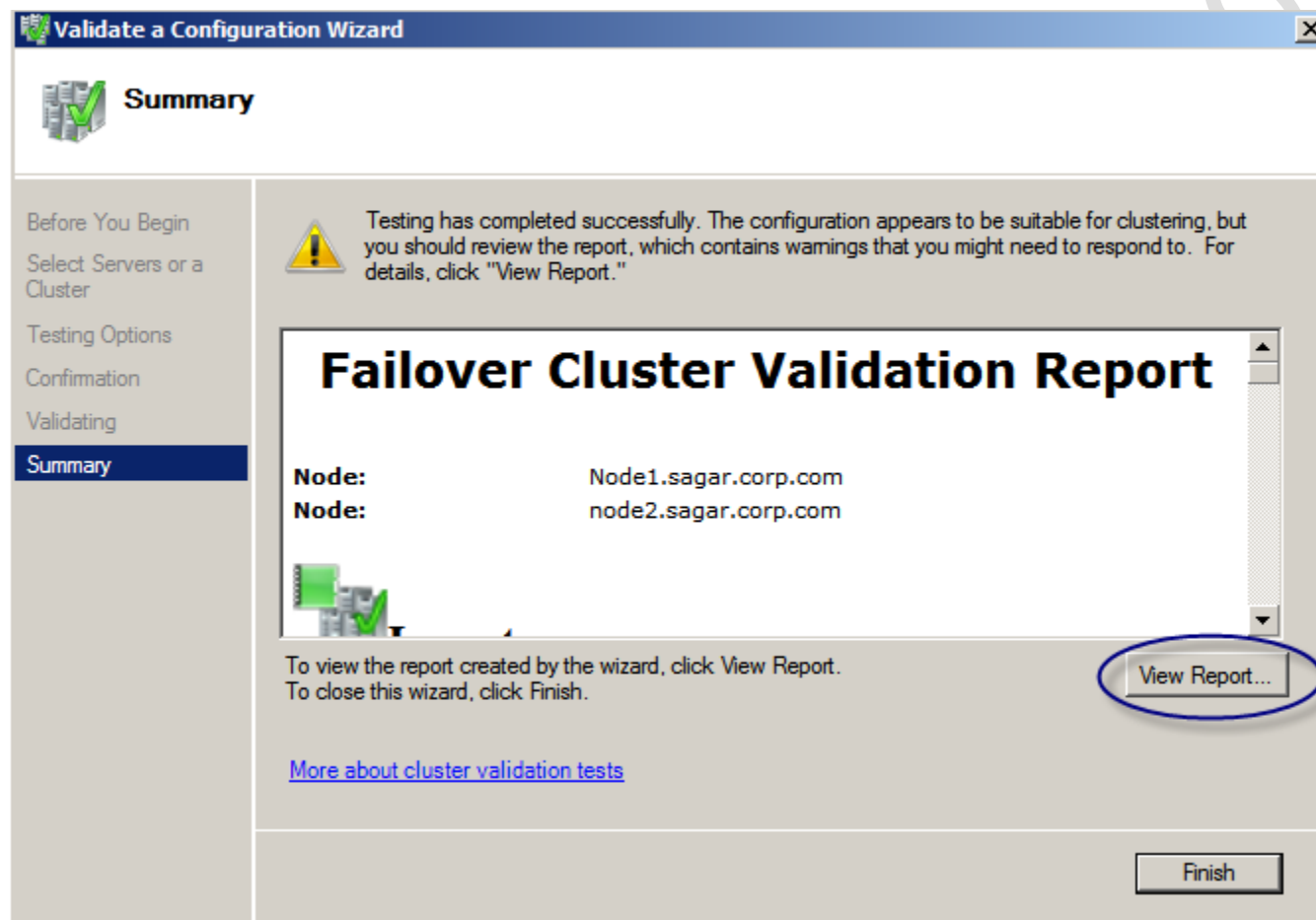


The wizard will start validating the resources used for cluster as shown below. Once it's done it will move to the summary page.

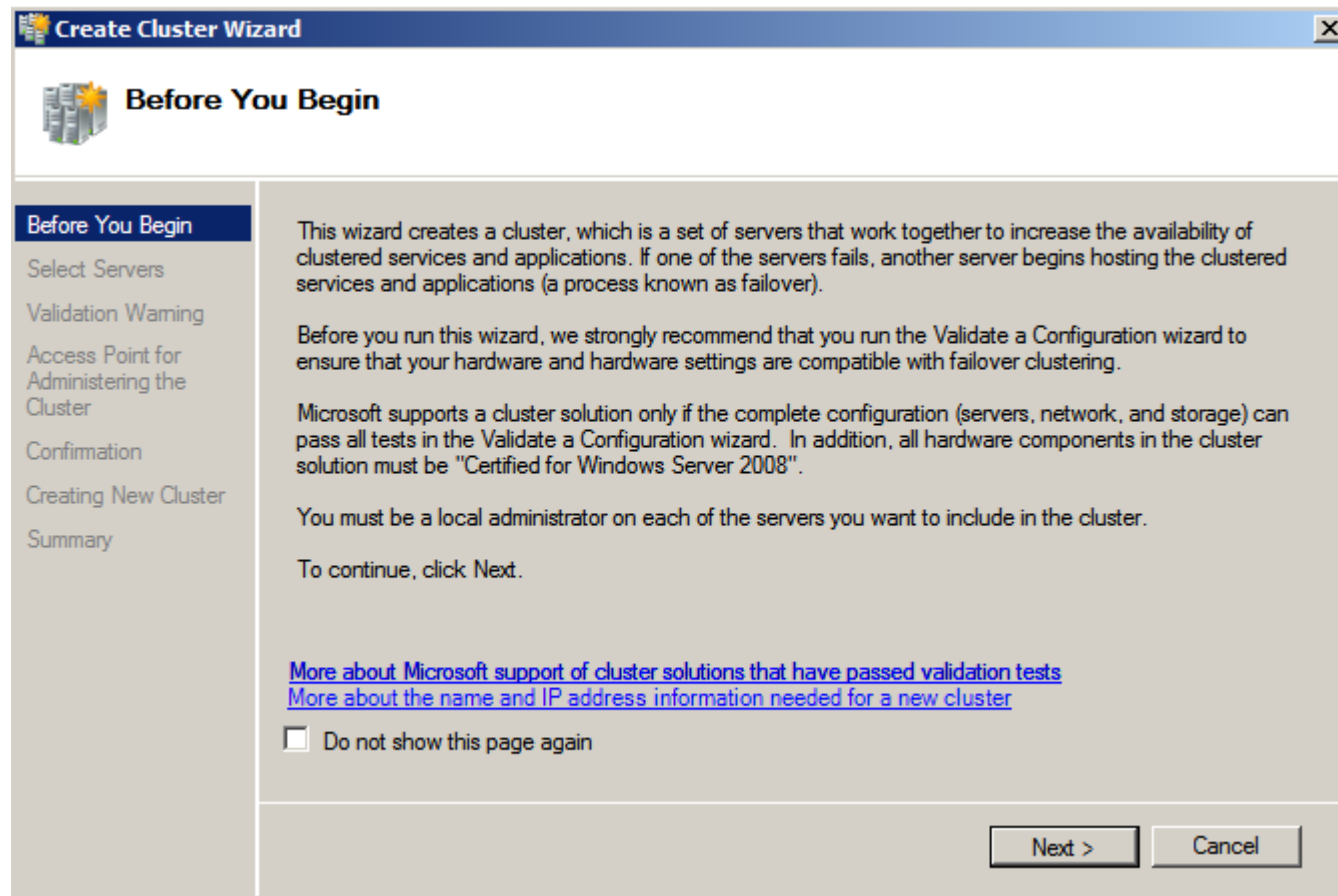


In the summary page you can find the validation report. In my cases there are some warnings which can be ignored as I know already these warnings will occur in validation. If any of the resources are failed, please rectify that before creating the cluster.

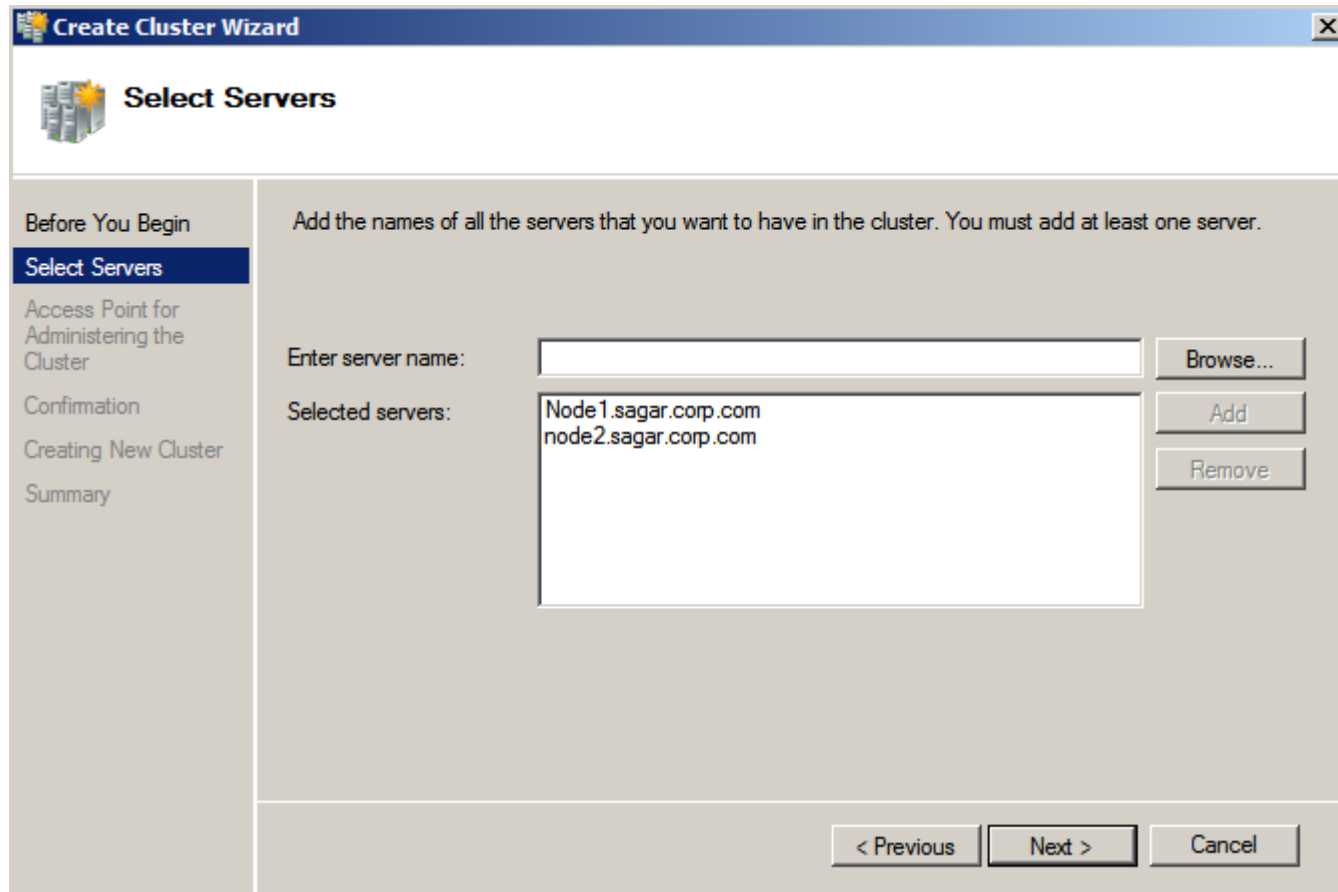
Incase if you closed this window and want to review this report in future you can go the path `%systemroot%\Cluster` and you can find the report in mht format, this report will be more detailed.



Now the create cluster window will open as shown below, click on next to continue



This window will be similar to the one used in Validate option, just add both the nodes to the wizard as shown below. Click on next to continue

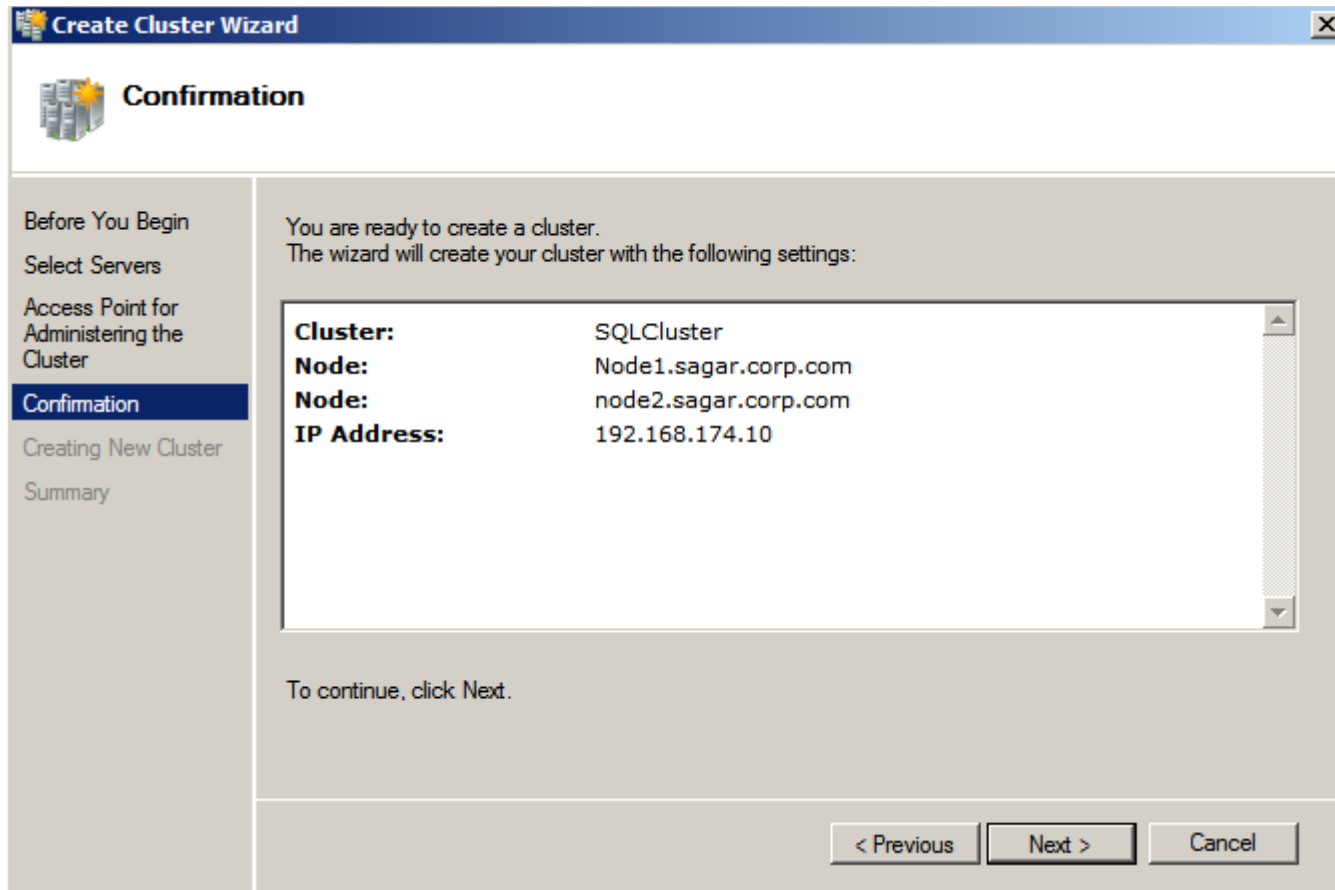


In this screen you need to provide the Cluster Name and the static IP as shown below. If your entire network cards are set to dynamic then this wizard will only ask you Cluster Name, IP will be automatically assigned through DHCP and it won't be shown in this window. Most of them will prefer using static IP, hence it should be like below. Click on next to continue

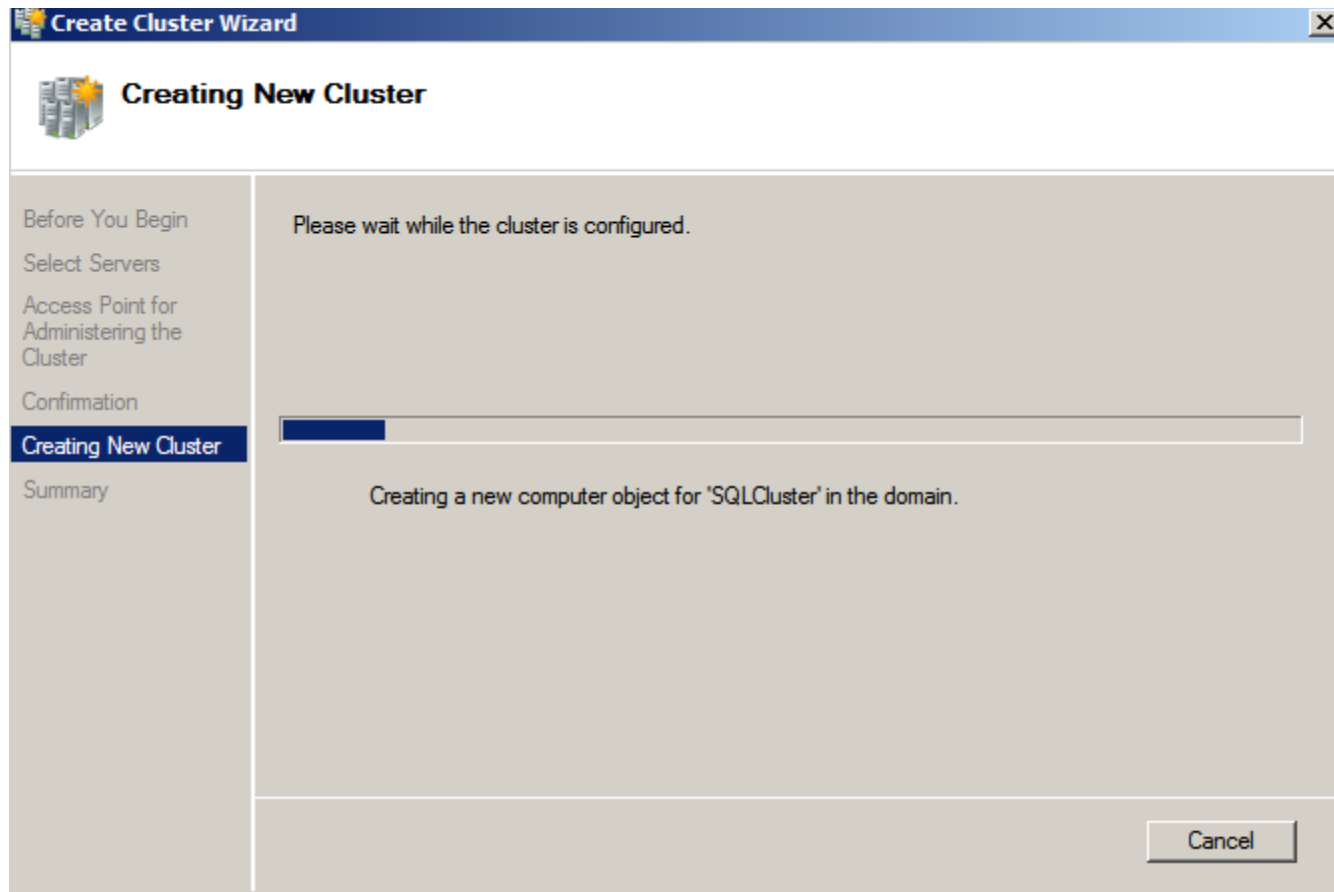
The screenshot shows the 'Create Cluster Wizard' window with the title bar 'Create Cluster Wizard'. The main window title is 'Access Point for Administering the Cluster'. On the left, there is a navigation pane with the following steps: 'Before You Begin', 'Select Servers', 'Access Point for Administering the Cluster' (which is highlighted), 'Confirmation', 'Creating New Cluster', and 'Summary'. The main area contains the following text: 'Type the name you want to use when administering the cluster.' Below this is a text box labeled 'Cluster Name:' containing the text 'SQLCluster'. Underneath, it says 'One or more IPv4 addresses could not be configured automatically. For each network to be used, make sure the network is selected, and then type an address.' Below this is a table with two columns: 'Networks' and 'Address'. The first row has a checked checkbox in the 'Networks' column, the text '192.168.174.0/24' in the 'Networks' column, and the text '192.168.174.10' in the 'Address' column. At the bottom of the main area, there is a blue hyperlink: '[More about the administrative Access Point for a cluster](#)'. At the very bottom of the window, there are three buttons: '< Previous', 'Next >', and 'Cancel'.

	Networks	Address
<input checked="" type="checkbox"/>	192.168.174.0/24	192.168.174.10

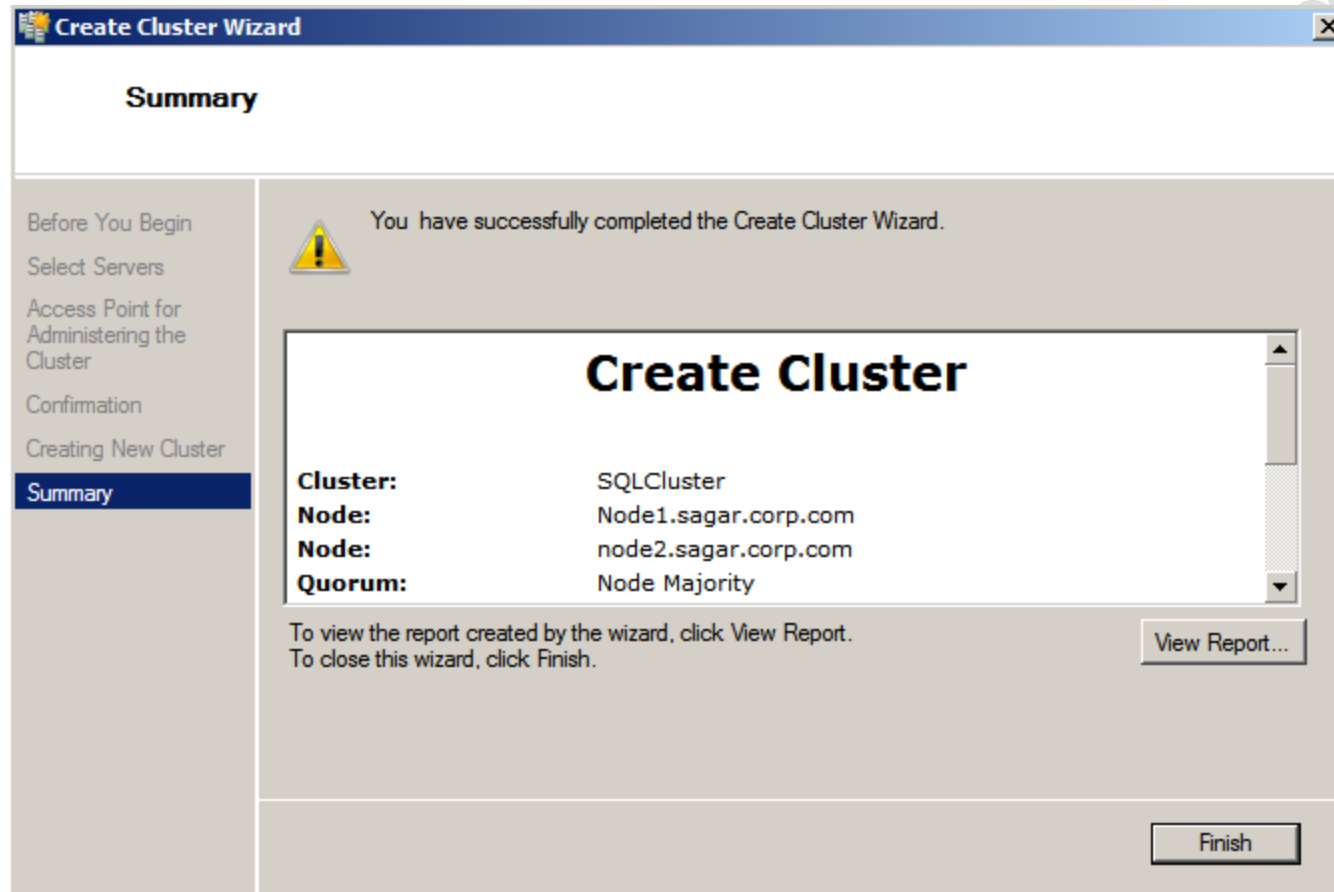
The wizard will ask you for a confirmation. If everything is Ok, just click on next to continue



Ok, now the wizard will start configuring clustering between both the nodes.

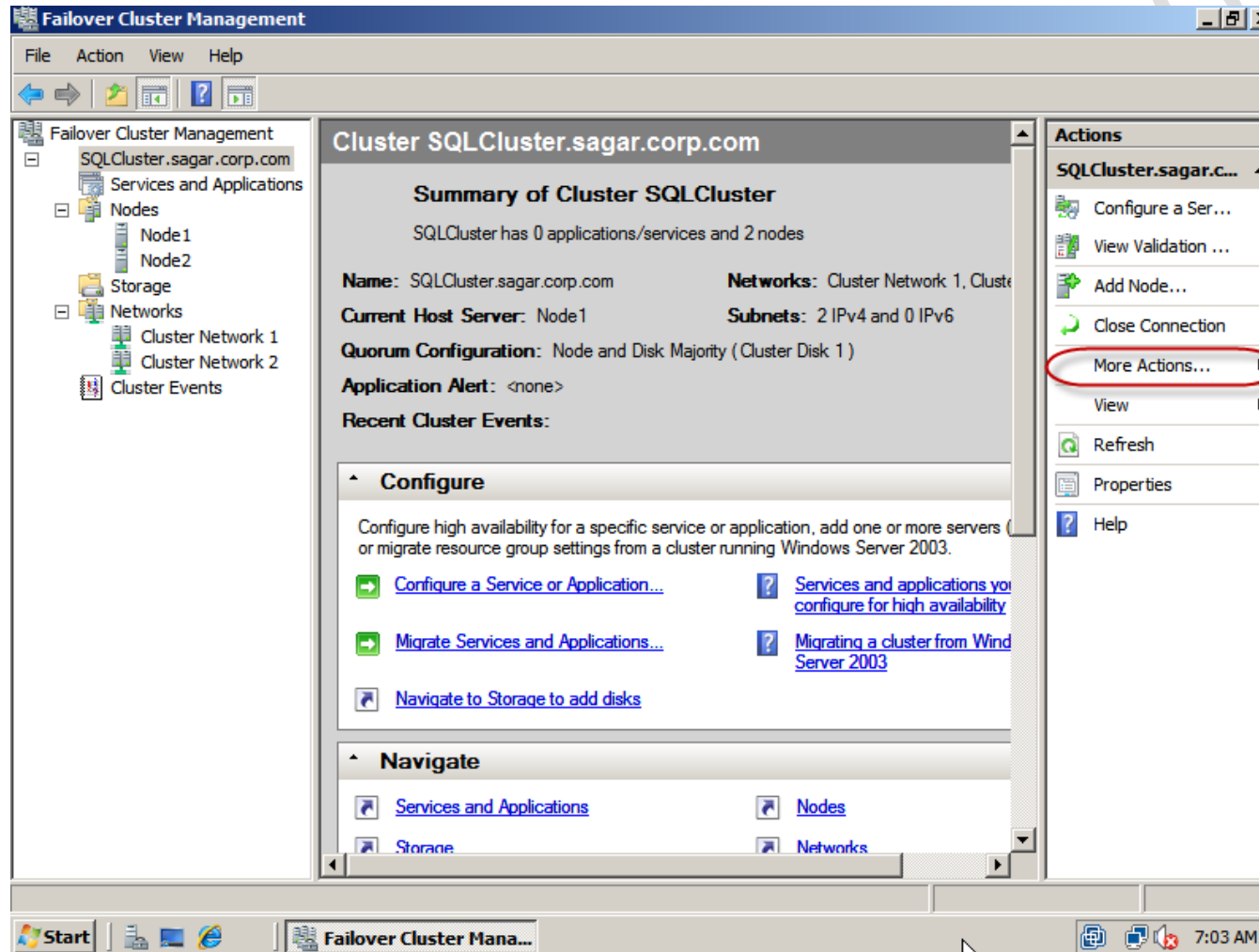


Once the clustering is configured between both the nodes the wizard will show you the below screen. You can find that, it has configured successfully.

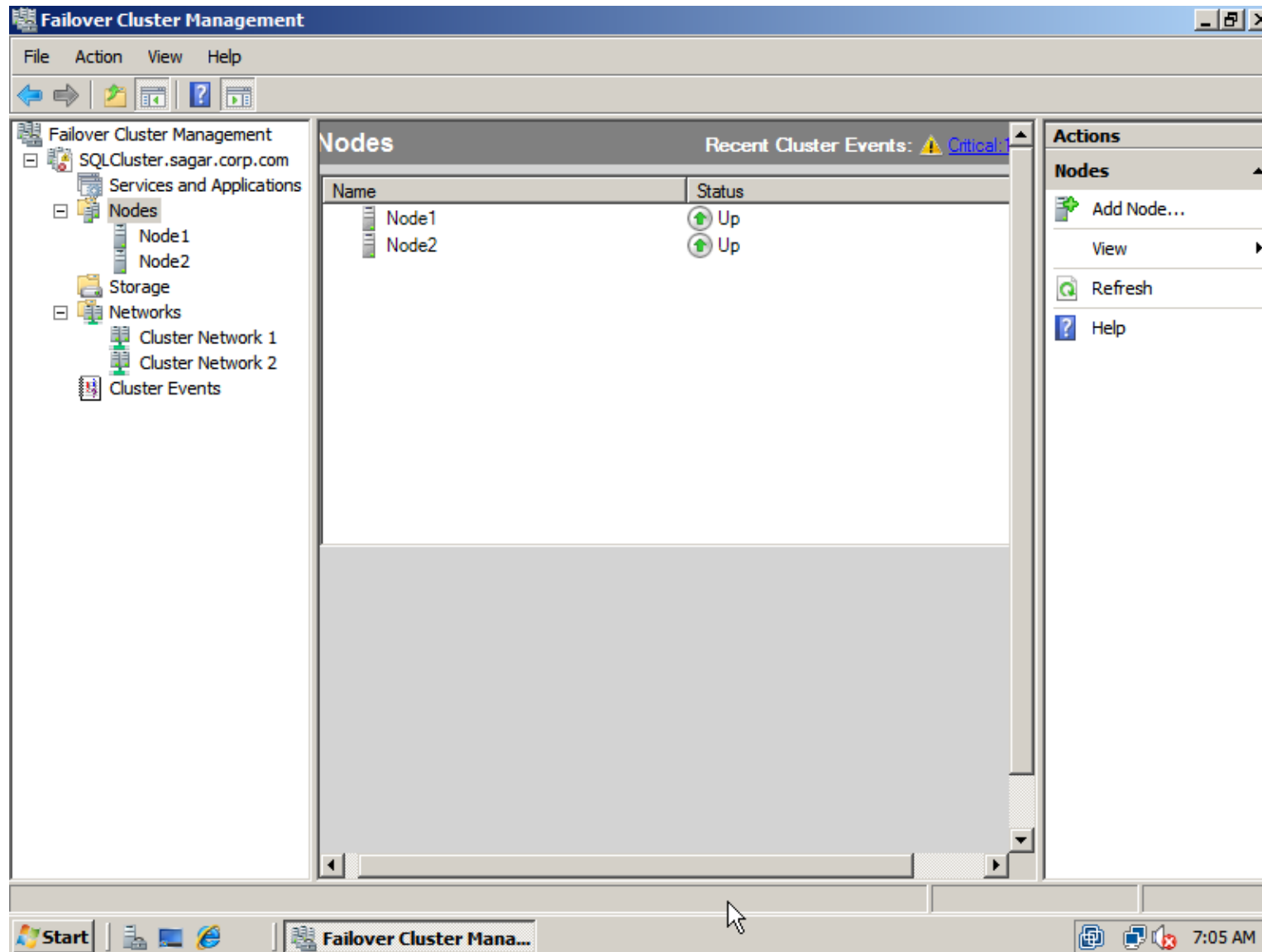


VERIFYING CLUSTER CONFIGURATION

In the “**Failover Cluster Management**” window you can find the newly configured cluster as shown below. If you want to change the Quorum disk then go to “**More actions**” as shown below and change the disk. Right now there is no cluster aware services installed in the machine, I’ll be installing SQL server 2008 cluster aware service some time later.

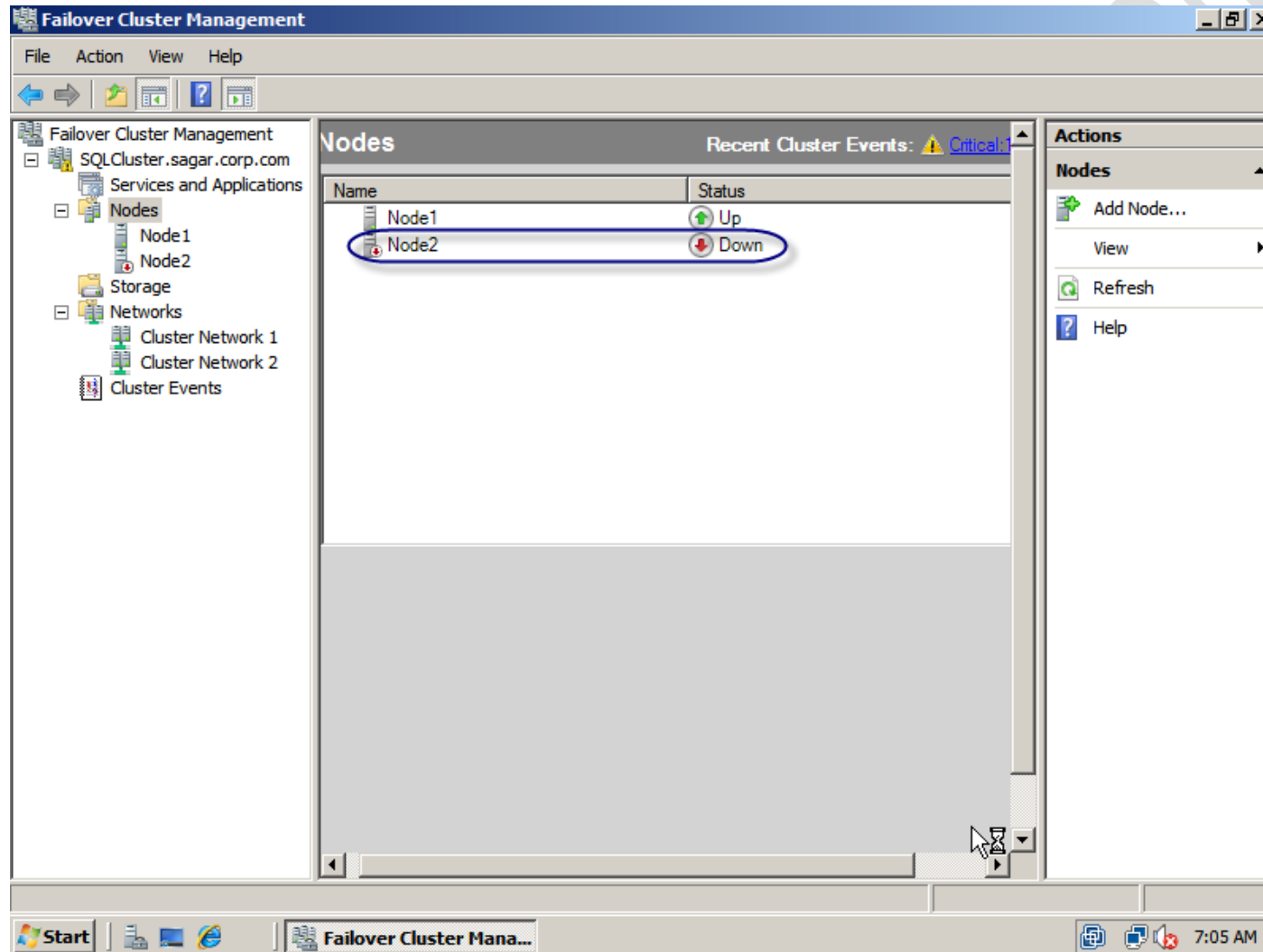


Click on Nodes folder in the left hand pane, you can find both the nodes status right there



TESTING THE CLUSTER

In this case I'm just going to remove network card of Node2 abruptly there by removing the Node2 from network, let's see whether the cluster service can find this. You can find in the below screen that Node2 has been shown as down



In the cluster event viewer the reason for the failure is also updated, check that in the screen print below. All other alerts are related to disk failures, I've just tested the failover for the disks in cluster.

The screenshot shows the Failover Cluster Management console. The left pane displays the cluster hierarchy for 'SQLCluster.sagar.corp.co', including 'Nodes' (Node1, Node2), 'Storage', 'Networks' (Cluster Network 1, Cluster Network 2), and 'Cluster Events'. The main pane shows a list of events with the following data:

Level	Date and Time	Node	Event ID	Task Category
Critical	5/11/2009 7:05:31 AM	Node1.saga...	1135	None
Error	5/11/2009 7:05:22 AM	Node1.saga...	1127	None
Error	5/11/2009 7:00:16 AM	Node1.saga...	1069	Resource C...
Critical	5/10/2009 9:34:56 PM	Node1.saga...	1177	None
Critical	5/10/2009 9:34:56 PM	Node1.saga...	1135	None
Critical	5/10/2009 5:21:51 PM	Node1.saga...	1177	None
Critical	5/10/2009 5:07:13 PM	Node1.saga...	1177	None
Critical	5/10/2009 5:07:13 PM	Node1.saga...	1135	None
Critical	5/10/2009 4:24:30 PM	Node1.saga...	1177	None
Critical	5/11/2009 7:05:36 AM	Node2.saga...	1554	None
Critical	5/11/2009 7:05:36 AM	Node2.saga...	1135	None
Error	5/11/2009 7:05:36 AM	Node2.saga...	1127	None
Error	5/11/2009 7:05:34 AM	Node2.saga...	1127	None

The 'Event Details' pane for the selected event (ID 1127) shows the following information:

- Source: FailoverClustering
- Event ID: 1127
- Level: Error
- User: SYSTEM
- OpCode: Info
- Logged: 5/11/2009 7:05:22 AM
- Task Category: None
- Keywords:
- Node: Node1.sagar.corp.com

The description text reads: "Cluster network interface 'Node2 - Local Area Connection' for cluster node 'Node2' on network 'Cluster Network 2' failed. Run the Validate a Configuration wizard to check your network configuration. If the condition persists, check for hardware or software errors related to the network adapter. Also check for failures in any other network components to which the node is connected such as hubs, switches, or bridges."