Comparison of the High Availability and Grid Options
Overview

This article compares the following PowerCenter options:

- **High availability option.** When you configure high availability for a domain, the domain can continue running despite temporary network, hardware, or service failures. PowerCenter provides some high availability features in the base product. The high availability option provides automatic failover and recovery.

- **Server grid and session on grid options.** When you configure the Integration Service to run on a grid, the Integration Service can run service process on each available node of the grid. The server grid option allows the Integration Service to distribute workflow tasks across the nodes in a grid. The session on grid option allows the Integration Service to distribute session threads to multiple DTM processes on nodes in the grid. The grid options increase performance and scalability of your environment.

**Note:** The high availability, server grid, and session on grid options can be packaged with other PowerCenter options. Use the Administration Console to view the options that are included with your license.

Comparing Features of Each Option

The following table compares the feature difference between the PowerCenter base product, and combinations of the base product with the high availability, server grid, and session on grid options:

<table>
<thead>
<tr>
<th>Product Options / Feature</th>
<th>Base Product</th>
<th>Base Product + Server Grid + Session on Grid</th>
<th>Base Product + High Availability</th>
<th>Base Product + High Availability + Server Grid + Session on Grid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal PowerCenter Resilience</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Repository Database Resilience</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Automatic Failover of the Domain to a Gateway Node</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Automatic Restart of Application Services on the same node</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Automatic restart of the Integration Service and Repository Service on a Backup Node</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Run Workflows or Session on a Grid</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Description of Features

This section provides a brief description of features that are included in the high availability option, the server grid option and the session on grid option. For more information on the features provided by these options, see the PowerCenter documentation.
**High Availability**

To avoid a situation where the Integration Service or Repository Service is unavailable due to node failure, use the high availability option. With the high availability option, you can configure backup nodes for the Integration and Repository services, and PowerCenter can automatically recovery workflows.

In Figure 1, the Integration Service and the Repository Service run on different nodes:

**Figure 1. Domain with High Availability (No Grid option)**

If one node fails, the domain and application services can run on the other node. Since this environment does not have the grid options, workflow tasks and session threads run on the node where the Integration Service runs. Therefore, the Integration Service cannot use the second node to balance the load of workflow task or session threads.

If the environment in Figure 1 did not have the high availability option, you could not configure a backup node for the Integration or Repository Service. If the node where the Integration Service runs failed, the Integration Service would not fail over to another node.

**Server Grid and Session on Grid**

To increase performance and scalability of your PowerCenter domain, use the grid options. When you have the server grid or session on grid option, the Integration Service can run on one node, but the Integration Service processes can run on multiple nodes.

When you run a workflow on a grid, the Integration Service distributes workflow tasks across the nodes in a grid. The Load Balancer dispatches tasks to Integration Service processes running on nodes in the grid based on node availability and resource availability.

When you run a session on a grid, the Integration Service distributes session threads to multiple DTM processes on nodes in the grid. The Load Balancer distributes session threads based on node availability, resource availability, and partitioning configuration.
In Figure 2, the Integration Service runs on Node 1. The Integration Service processes run on Node 1, Node 2, and Node 3:

**Figure 2. Domain with a Grid option (No High Availability)**

The distribution of workflow tasks and session threads to multiple Integration Service processes increases performance and scalability. However, if the node where the Integration Service runs fails, the Integration Service will not fail over to the other node. You must have the high availability option to configure a backup node for application services and to automatically recover workflows and terminated tasks.

If the environment in Figure 2 did not have the session on grid or server grid options, the Integration Service Process would run on the node that runs the Integration Service. Therefore, a single node would process all workflow tasks and session threads.

**High Availability and Grid**

When you have the high availability, server grid, and session on grid options you can create the following setup:

**Figure 3. Domain with Grid and High Availability Options**

The Service Manager can fail over services, the Integration Service can run workflows or sessions on a grid, and the Integration Service can automatically recover workflows. When at least two nodes are available, the Integration Service distributes workflow tasks or session threads to nodes in the grid.
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