GENESIS64 Load Balancing

APPLICATION NOTE

July 2012

Description: Guide to setting up automatic load balancing for large GENESIS64 applications
OS Requirement: Windows Server 2003 x64/Vista x64/ Server 2008 x64/Windows 7 x64/ Server 2008 R2 x64
General Requirement: Installation of GENESIS64 v10.70 and advanced knowledge of GENESIS64 structure and redundancy

Introduction:

Load balancing is a computer networking methodology to distribute workload across multiple computers or a computer cluster, network links, central processing units, disk drives, or other resources, to achieve optimal resource utilization, maximize throughput, minimize response time, and avoid overload. Using multiple components with load balancing, instead of a single component, may increase reliability through redundancy. The load balancing service is usually provided by dedicated software or hardware, such as a multilayer switch or a Domain Name System server. Load balancing is especially important for networks where it's difficult to predict the number of requests that will be issued to a server. If one server starts to get swamped, requests are forwarded to another server with more capacity. Load balancing can also refer to the communication channels themselves.

In GENESIS64 v10.6, load balancing, clients are assigned to a server with the least load when a session is created.

All load-balancing servers must be identically configured, including its security and licensing setup at the middle tier layer.

The rule of thumb is, to serve more clients, you add more middle-tier servers. To expose more data, you add more back-end servers.

Note: For more information about Middle-tier and Back-end Server and GENESIS64 redundancy, please refer to application notes *GENESIS64 – Using Middle-Tier and Back-End Servers, GENESIS64 – Typical Redundancy Setup* and *GENESIS64 – Platform Services*.

Setting up load balancing in GENESIS64:

In a Load Balancing scenario, there are five different types of computer roles, as shown in Figure 1:

- The Primary/Secondary Middle Tier FrameWorX server
- Load Balancing Middle Tier FrameWorX servers
- Back End data servers
- Load Balancing Back End data servers
- Clients

Each type its own specific settings, which will be explained in this application note.

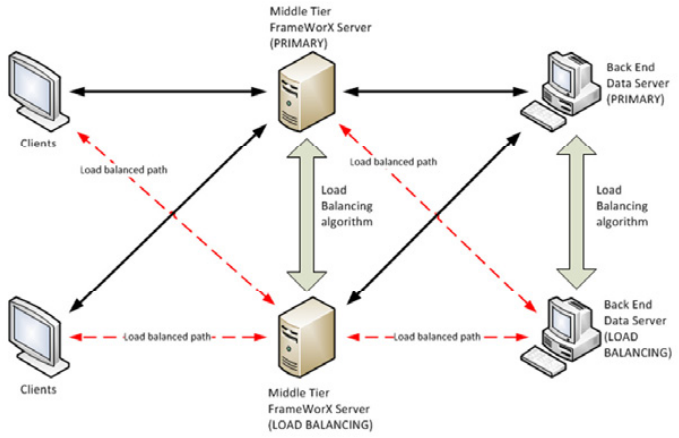

Figure 1 - Load Balancing overview with no redundancy

Setting up load balancing Middle Tier Servers with no redundancy:

Primary Middle Tier FrameWorX server setup

1. Open Workbench and select the Tools tab from the ribbon.
2. Select Platform Services as shown in Figure 2. This will open Platform Services Configuration window.

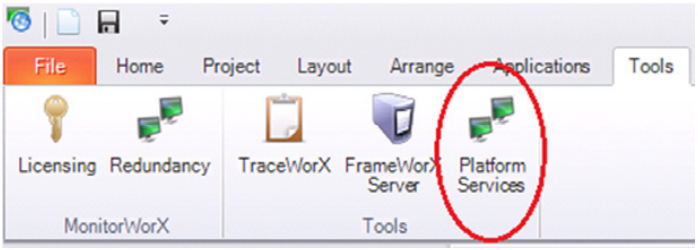

Figure 2 - Platform Service Configuration setup

3. Under the Basic tab, select 'Middle Tier' as its server role, as shown in Figure 3 since we are setting up a Middle Tier server.
4. In Redundancy Option, select Primary, because we are not using redundancy.
5. Under the Advanced Tab, add load balancing middle tier server's computer name or IP address into the New Server field and click the '+' button to add this server into the list.
6. Repeat step 5 if you have more load balancing middle tier servers. After these steps, the configuration should look similar to Figure 3.
7. Click OK and you have properly configured the primary middle tier server.

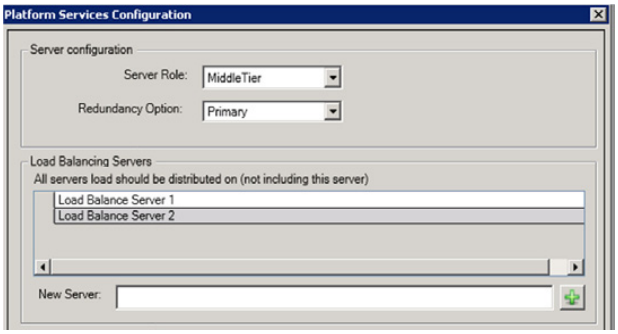

Figure 3 - Configuration of Primary FrameWorX server

Load Balancing Middle Tier Servers Setup

1. Now we will configure load balancing middle tier servers, i.e.: Load Balance Server 1 and Load Balance Server 2, which were referenced in steps 5 and 6 before.
2. On Load Balance Server 1, open Platform Services Configuration and for server role, select Middle Tier and for Redundancy Option, select LoadBalancing.
3. Repeat step 2 for Load Balance Server 2.
4. The settings for the Load Balancing Servers should be similar to Figure 4.

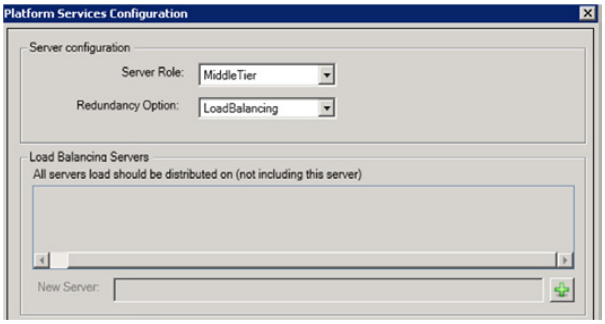

Figure 4 - Configuration for Load Balancing servers

Setting up Middle-Tier Servers load balancing with redundancy:

The only difference in setting up Load Balancing with redundancy is that we have two FrameWorX servers – Primary FrameworX Server and Secondary FrameWorX Server, as shown in Figure 5. You must setup the **Redundancy Option on the Secondary FrameWorX server to Secondary**. The rest of the settings are identical as in the examples above, including the settings for Load Balancing Servers.

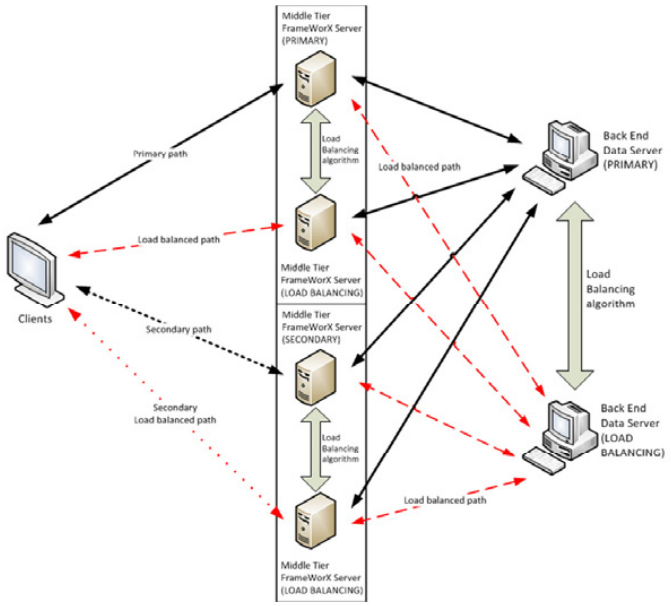

Figure 5 - Load Balancing overview with redundant FrameWorX servers

Setting up Load Balancing on Back-End Servers:

Setting up Load Balancing for Back-End servers is similar to the Load Balancing settings for Middle-Tier Servers. The only difference is in the Server Role option. Here you must select **BackEnd**. The rest of the settings are identical to the middle tier settings as outlined in the examples above. This is also true for a redundancy scenario.

Figure 6 - Configuration of Primary FrameWorX server

Setting up client computers:

As you can see on Figure 1 and Figure 5, each client machine's FrameWorX Server is redirected to the Primary FrameWorX server. To set this up, do the following:

1. Open Workbench and select Tools → FrameWorX Server

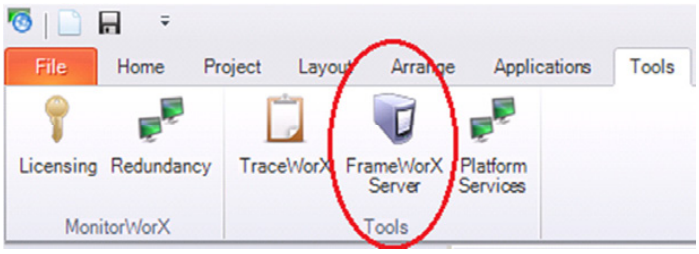

Figure 7 - FrameWorX Server settings

2. Insert Primary FrameWorX server's name into Primary Default Server Node field and click OK.

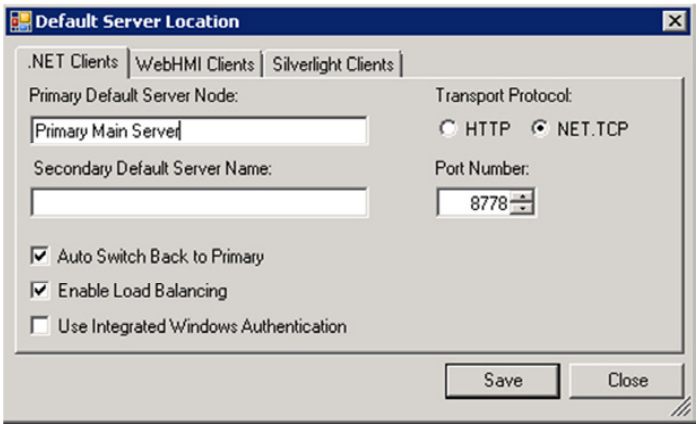

Figure 8 - FrameWorX Server Settings for Clients in scenario with no redundancy

NOTE: If you are configuring a redundancy setup, you must also insert Secondary FrameWorX server name into Secondary Default Server Node field.