Lync

Using IIS Application Request Routing to Publish Lync Server 2013 Web Services

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Lab: Using IIS Application Request Routing to Publish Lync Server 2013 Web Services

During this lab, you will deploy Application Request Routing for Microsoft Lync Server 2013 using Internet Information Server. Adding the optional Application Request Routing (ARR) 3.0 component to Internet Information Services (IIS) 7.0 or later, allows IIS to handle reverse proxy requests, URL rewrites, and load balancing. This means it can be used to publish the Lync URLs.

In this lab, you will perform a complete installation of all of the roles, services, and prerequisites necessary to deploy ARR, as well as see how to configure it and then test it. You will also configure a network load balancing cluster to provide high availability.

First you will take two virtual machines and install the necessary roles and role services.

Next, you will install the necessary components, which include:

- Web Farm Framework 1.1
- Microsoft Application Request Routing Version 3.0

Then you will configure IIS to have a shared configuration between the two IIS servers. You will then create three Server Farms and perform the necessary configuration changes. These three server farms will be for:

- redext123.lyncignite.biz
- dialin123.lyncignite.biz
- meet123.lyncignite.biz

Note: In a real world deployment, you would also create and configure server farms for all of the external addresses for each site that you would want to publish, such as for Lync Mobility (lyncdiscover) and Office Web Apps server and all of the rules for the Rome site. For the purposes of this lab, we will only create these three server farms for Redmond.

This will be followed by configuring a Network Load Balancing cluster with the two IIS servers.

Lastly, you will perform a series of tests to verify the deployment and successful publishing of the Lync URLS.

Estimated time to complete: ***90 minutes***

What You Will Learn

After completing the exercises, you will be able to:

- Install necessary IIS roles and role services.
- Install the Network Load Balancing feature and services.

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- Install the required prerequisites and components.
- Configure the two IIS to have a shared configuration.
- Configure two servers in a fault-tolerant ARR pool.
- Configure Network Load Balancing cluster.
- Test and verify the publishing of the Lync URLs.
- Test and verify the high availability of the Lync URLs.

Scenario

Management would like to deploy Application Request Routing using IIS in order to achieve high availability and scalability enabling users to maintain full functionality in case of a server outage, they have decided to deploy this using a server farm of IIS servers that will also use network load balancing to maintain high availability.

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Exercise 1: Installing the Prerequisites and Components for ARR and NLB

In this exercise, you will install the necessary Web Server (IIS) role and role services, Network Load Balancing features, and components required for deploying ARR. Please note that the components need to be installed in the order in this lab.

Note: The .NET 3.5.1 feature has already been installed and is a requirement.

Tasks

1. **Add the IIS Role and the Network Load Balancing Feature.**
    a. On both IIS01 and IIS02, on the taskbar, click the **Server Manager** icon.
    b. In Server Manager, under Configure this local server, click **Add roles and features.**
    c. On the Add Roles and Features Wizard, on the Before you begin page, click **Next**.
    d. On the Select installation type page, click **Next**.
    e. On the Select destination server page, click **Next**.
    f. On the Select server roles page, in the Roles window, select the **Web Server (IIS)** check box and then click **Next**.
    g. At the Add Roles and Features Wizard prompt, click **Add Features**.
    h. On the Select server roles page, click **Next**.
    i. On the Select features page, select the **Network Load Balancing** check box.
    j. At the Add Roles and Features Wizard prompt, click **Add Features**.
    k. On the Select features page, click **Next**.
    l. On the Web Server Role (IIS) page, click **Next**.
    m. On the Select role services page, in the Role services window, under **Health and Diagnostics**, select the **Tracing** check box.
    n. Under **Security**, select the **Centralized SSL Certificate Support** check box and then click **Next**.
    o. On the Confirm installation selections page, click **Install**.
    p. When the wizard shows **Installation succeeded** under **View Installation** progress, click **Close**.
    q. Close Server Manager.

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2. **Stop the Windows Process Activation Service and World Wide Web Publishing services.**
    a. On both IIS01 and IIS02, move the pointer to the lower left corner, right-click **Start**, and then click **Command Prompt (Admin)**.
    b. At the command prompt, type the following command and then press Enter.

```
Net stop was /y
```

    c. Leave the command prompt window running.
3. **Install the Microsoft Web Farm Framework.**
    a. On both IIS01 and IIS02, open File Explorer.
    b. In File Explorer, go to C:\LabFiles\ARR and double-click **webfarm_v1.1_amd64_en-us.exe**.
    c. On the Please read the Microsoft Web Farm Framework License Agreement page, select the **I accept the terms in the License Agreement** check box and then click **Install**.
    d. On the Completed the Microsoft Web Farm Framework Setup Wizard page, click **Finish**.
4. **Install Microsoft Application Request Routing.**
    a. On both IIS01 and IIS02, in File Explorer, go to C:\LabFiles\ARR and double-click **ARRv3setup_amd64_en-us.exe**.
    b. In the Microsoft Application Request Routing Version 2 for IIS7 Setup window, click **Yes**.
    c. In the Microsoft Application Request ~~Handling~~Routing… window, click **Yes**.
    d. In the Microsoft Application Request Routing Version 2 for IIS7 Setup window, click **OK**.
    e. Close File Explorer.
5. **Start the Windows Process Activation Service and World Wide Web Publishing services.**
    a. On both IIS01 and IIS02, at the command prompt, type the following command and then press Enter.

```
Net start w3svc
```

    b. Close the command prompt window.
6. **Share the IIS02 configuration.**
    a. On IIS02, move the pointer to the lower left corner, click **Start**, and then, on the Start page, click **Internet Information Services (IIS) Manager.**

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b. In Internet Information Services (IIS) Manager, under **Connections**, click **IIS02 (IIS02\Administrator).**

c. At the Internet Information Services (IIS) Manager prompt, click **No**.

d. Under **Management,** double-click **Shared Configuration.**

e. In the Actions pane, click **Export Configuration**.

f. In the Export Configuration window, in the **Physical path** box, type **\\iis02\config** and then click **Connect As.**

g. In the Set Credentials window, in the **User name** box type **\administrator**

Note: Do not forget the **** before **Administrator**.

h. In the **Password** and **Confirm password** boxes, type **Password1** and then click **OK**.

i. On the Export Configuration window, in the **Encryption keys password** and **Confirm password** boxes, type **Lync!gnit3** and then click **OK**.

j. At the Export Configuration prompt, click **OK**.

7. Configure IIS02 to use the Shared Configuration.

a. On IIS02, in Internet Information Services (IIS) Manager, on the Shared Configuration page, select the **Enable shared configuration** check box.

b. In the **Physical path** box, type **\\iis02\Config**

c. In the **User name** box, type **\administrator**

Note: Do not forget the **** before **Administrator**.

d. In the **Password** and **Confirm password** boxes, type **Password1**

e. In the Actions pane, click **Apply**.

f. In the **Encryption Keys Password** dialog, type **Lync!gnit3** and then click **OK**.

g. At the Shared Configuration prompt, click **OK**.

h. At the next Shared Configuration prompt, click **OK**.

i. Close and reopen IIS Manager.

j. In Internet Information Services (IIS) Manager, under **Connections**, click **IIS02 (IIS02\Administrator).**

k. At the Internet Information Services (IIS) Manager prompt, click **No**.

l. In the Actions pane, click **Restart**.

m. Leave Internet Information Services (IIS) Manager running.

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8. **Configure IIS01 to use the Shared Configuration.**
    a. On IIS01, move the pointer to the lower left corner, click **Start**, and then, on the Start page, click **Internet Information Services (IIS) Manager.**
    b. In Internet Information Services (IIS) Manager, under **Connections**, click **IIS01 (IIS01\Administrator).**
    c. At the Internet Information Services (IIS) Manager prompt, click **No**.
    d. Under **Management,** double-click **Share Configuration.**
    e. On the Shared Configuration page, select the **Enable shared configuration** check box.
    f. In the **Physical path** box, type **\\iis02\Config**
    g. In the **User name** box, type **\administrator**

       Note: Do not forget the **** before **Administrator**.
    h. In the **Password** and **Confirm password** boxes, type **Password1**
    i. In the Actions pane, click **Apply**.
    j. In the **Encryption Keys Password** dialog box, type **Lync!gnit3** and then click **OK**.
    k. At the Shared Configuration prompt, click **OK**.
    l. At the next Shared Configuration prompt, click **OK**.
    m. Close and reopen IIS Manager.
    n. In Internet Information Services (IIS) Manager, under **Connections**, click **IIS01 (IIS01\Administrator).**
    o. At the Internet Information Services (IIS) Manager prompt, click **No**.
    p. In the Actions pane, click **Restart**.
    q. Leave Internet Information Services (IIS) Manager running.
9. **Configure HTTPS Binding on the Default Website.**
    a. On IIS01, in Internet Information Services (IIS) Manager, under **Connections**, expand **IIS01 (IIS01\Administrator),** expand **Sites**, and then click **Default Web Site**.
    b. In the **Actions** pane, click **Bindings**.
    c. In the Site Bindings window, click **Add**.
    d. In the Add Site Binding window, click the **Type** menu, and then click **https**.
    e. Click the **SSL certificate** menu, click **Wildcard Onprem**, and then click **OK**.
    f. On the Site Bindings window, click **Close**.

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g. On IIS02, in Internet Information Services (IIS) Manager, under **Connections**, expand **IIS02 (IIS02\Administrator),** expand **Sites**, and then click **Default Web Site**.

h. In the Actions pane, click **Bindings**.

i. In the Site Bindings window, click **https**, and then click **Edit**.

j. In the Edit Site Binding window, click the **SSL certificate** menu, click **Wildcard Onprem**, and then click **OK**.

k. On the Site Bindings window, click **Close**.

10. Edit the Application Pool.

a. On IIS01 only, in Internet Information Services (IIS) Manager, under **Connections**, click **Application Pools**.

b. In the Results pane, right-click **DefaultAppPool** and then click **Advanced Settings.**

c. In the Advanced Settings window, under Process Model, in the box next to **Idle Time-out(minutes)**, type **0** and then click **OK**.

d. Right-click **DefaultAppPool** again, and then click **Recycling**.

Note: Verify you are not clicking Recycle.

e. On the Edit Application Pool Recycling Settings wizard, on the Recycling Conditions page, under **Fixed Intervals,** clear **the Regular time intervals (in minutes)** check box and then click **Next**.

f. On the Recycling Events to Log page, click **Finish.**

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Exercise 2: Configuring Server Farms for Application Request Routing

In this exercise, you will create and configure three Server Farms in IIS. This includes:

- One for the external web services: redext123.lyncignite.biz
- One for the Meet URL: meet123.lyncignite.biz
- One for the Dialin URL: dialin123.lyncignite.biz

You will also make the recommended configuration changes to each and perform a health test when done.

Note: In a real world deployment, you would also create and configure server farms for all of the external addresses for each site that you would want to publish, such as for Lync Mobility (lyncdiscover) and Office Web Apps server and all of the rules for the Rome site. For the purposes of this lab, we will only create these three server farms for Redmond.

Tasks

1. **Create the Redmond External redext123.lyncignite.biz URL Server Farm.**
    a. On IIS01, in Internet Information Services (IIS) Manager, under **Connections**, right-click **Server Farms** and then click **Create Server Farm**.
    b. In the Create Server Farm wizard, on the Specify Server Farm Name page, in the **Server farm name** box, type **redext123.lyncignite.biz** and then click **Next**.
    c. On the Add Server page, in the **Server address** field, type **lsfe01.onprem.local** and then click **Advanced settings**. Do not click Add yet.
    d. Under **Advanced Settings**, expand **applicationRequestRouting**.
    e. In the box next to **httpPort**, change 80 to **8080**
    f. In the box next to **httpsPort**, change 443 to **4443**,
    ~~f.~~g. ~~and then c~~Click **Add**.
    ~~g.~~h. In the **Server address** field, type **lsfe02.onprem.local.** Do not click Add yet.
    ~~h.~~i. Under **Advanced Settings**, under **applicationRequestRouting,** in the box next to **httpPort**, change 80 to **8080**
    ~~i.~~j. In the box next to **httpsPort**, change 443 to **4443**, ~~and~~ then click **Add**.
    ~~j.~~k. On the Add Server page, after both servers have been added, click **Finish**.
    ~~k.~~l. At the Rewrite Rules prompt, click **Yes**.

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2. **Create the Redmond External meet123.lyncignite.biz URL Server Farm.**
    a. On IIS01, in Internet Information Services (IIS) Manager, under **Connections**, right-click **Server Farms** and then click **Create Server Farm**.
    b. In the Create Server Farm wizard, on the Specify Server Farm Name page, in the **Server farm name** box, type **meet123.lyncignite.biz** and then click **Next**.
    c. On the Add Server page, in the **Server address** field, type **lsfe01.onprem.local** and then click **Advanced settings**. Do not click Add yet.
    d. Under **Advanced Settings**, expand **applicationRequestRouting**.
    e. In the box next to **httpPort**, change 80 to **8080**
    f. In the box next to **httpsPort**, change 443 to **4443** and then click **Add**.
    g. In the **Server address** field, type **lsfe02.onprem.local.** Do not click Add yet.
    h. Under **Advanced Settings**, expand **applicationRequestRouting,** in the box next to **httpPort**, change 80 to **8080**
    i. In the box next to **httpsPort**, change 443 to **4443** and then click **Add**.
    j. On the Add Server page, after both servers have been added, click **Finish**.
    k. At the Rewrite Rules prompt, click **Yes**.
3. **Create the Redmond External dialin123.lyncignite.biz URL Server Farm.**
    a. On IIS01, in Internet Information Services (IIS) Manager, under **Connections**, right-click **Server Farms**, and then click **Create Server Farm**.
    b. In the Create Server Farm wizard, on the Specify Server Farm Name page, in the **Server farm name** box, type **dialin123.lyncignite.biz** and then click **Next**.
    c. On the Add Server page, in the **Server address** field, type **lsfe01.onprem.local** and then click **Advanced settings**. Do not click Add yet.
    d. Under **Advanced Settings**, expand **applicationRequestRouting**.
    e. In the box next to **httpPort**, change 80 to **8080**
    f. In the box next to **httpsPort**, change 443 to **4443** and then click **Add**.
    g. In the **Server address** field, type **lsfe02.onprem.local**. Do not click Add yet.
    h. Under **Advanced Settings**, expand **applicationRequestRouting,** in the box next to **httpPort**, change 80 to **8080**
    i. In the box next to **httpsPort**, change 443 to **4443** and then click **Add**.
    j. On the Add Server page, after both servers have been added, click **Finish**.
    k. At the Rewrite Rules prompt, click **Yes**.

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4. **Edit the redext123.lyncignite.biz Server Farm.**
    a. On IIS01, in Internet Information Services (IIS) Manager, under **Connections**, expand **Server Farms**, and then click **redext123.lyncignite.biz.**
    b. In the Results pane, double-click **Caching**.
    c. On the Caching page, clear the **Enable disk cache** check box and then click **Apply**.
    d. In Internet Information Services (IIS) Manager, under **Connections**, under **Server Farms**, click **redext123.lyncignite.biz.**
    e. In the Results pane, double-click **Proxy**.
    f. On the Proxy page, in the **Time-out (seconds)** box, type **600** and then click **Apply**.
    g. In Internet Information Services (IIS) Manager, under **Connections**, under **Server Farms**, click **redext123.lyncignite.biz.**
    h. In the Results pane, double-click **Routing Rules**.
    i. On the Routing Rules page, clear the **Enable SSL offloading** check box and then click **Apply**.
5. **Edit the meet123.lyncignite.biz Server Farm.**
    a. On IIS01, in Internet Information Services (IIS) Manager, under **Connections**, under **Server Farms**, click **meet123.lyncignite.biz.**
    b. In the Results pane, double-click **Caching**.
    c. On the Caching page, clear the **Enable disk cache** check box, and then click **Apply**.
    d. In Internet Information Services (IIS) Manager, under **Connections**, under **Server Farms**, click **meet123.lyncignite.biz.**
    e. In the Results pane, double-click **Proxy**.
    f. On the Proxy page, in the **Time-out (seconds)** box, type **200** and then click **Apply**.
    g. In Internet Information Services (IIS) Manager, under **Connections**, under **Server Farms**, click **meet23.lyncignite.biz.**
    h. In the Results pane, double-click **Routing Rules**.
    i. On the Routing Rules page, clear the **Enable SSL offloading** check box and then click **Apply**.
6. **Edit the dialin123.lyncignite.biz Server Farm.**
    a. On IIS01, in Internet Information Services (IIS) Manager, under **Connections**, under **Server Farms**, click **dialin123.lyncignite.biz.**

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b. In the Results pane, double-click **Caching**.

c. On the Caching page, clear the **Enable disk cache** check box and then click **Apply**.

d. In Internet Information Services (IIS) Manager, under **Connections**, under **Server Farms**, click **dialin123.lyncignite.biz.**

e. In the Results pane, double-click **Proxy**.

f. On the Proxy page, in the **Time-out (seconds)** box, type **200** and then click **Apply**.

g. In Internet Information Services (IIS) Manager, under **Connections**, under **Server Farms**, click **dialin123.lyncignite.biz.**

h. In the Results pane, double-click **Routing Rules**.

i. On the Routing Rules page, clear the **Enable SSL offloading** check box and then click **Apply**.

7. Remove the http URL Rewrite rules.

a. On IIS01, in Internet Information Services (IIS) Manager, under **Connections**, click **IIS (IIS01\Administrator).**

b. In the Results pane, under **IIS**, double-click **URL Rewrite**.

c. On the URL Rewrite page, click **ARR_redext123.lyncignite.biz_loadbalance** and then in the Actions pane, click **Remove**.

d. At the Confirm Remove prompt, click **Yes**.

e. On the URL Rewrite page, click **ARR_meet123.lyncignite.biz_loadbalance** and then in the Actions pane, click **Remove**.

f. At the Confirm Remove prompt, click **Yes**.

When finished you should have 4 rules listed, 3 with _SSL appended to the end of the Name, and the **ARR_dialin123.lyncignite.biz_loadbalance** rule.

8. Edit the URL Rewrite rules.

Note: The conditions in these following steps are case sensitive.

a. On IIS01, in Internet Information Services (IIS) Manager, on the **URL Rewrite** page, click **ARR_redext123.lyncignite.biz_loadbalance_SSL**.

b. In the Actions pane, under **Conditions**, click **Add**.

c. In the Add conditions window, in the **Condition input** box, type **{HTTP_HOST}**

d. In the **Pattern** box, type ***** and then click **OK**.

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e. On the **URL Rewrite** page, click **ARR_meet123.lyncignite.biz_loadbalance_SSL**.

f. In the Actions pane, under **Conditions**, click **Add**.

g. In the Add conditions window, in the **Condition input** box, type **{HTTP_HOST}**

h. In the **Pattern** box, type ***** and then click **OK**.

i. On the **URL Rewrite** page, click **ARR_dialin123.lyncignite.biz_loadbalance_SSL**.

j. In the Actions pane, under **Conditions**, click **Add**.

k. In the Add conditions window, in the **Condition input** box, type **{HTTP_HOST}**

l. In the **Pattern** box, type ***** and then click **OK**.

m. On the **URL Rewrite** page, click **ARR_dialin123.lyncignite.biz_loadbalance**.

n. In the Actions pane, under **Conditions**, click **Add**.

o. In the Add conditions window, in the **Condition input** box, type **{HTTP_HOST}**

p. In the **Pattern** box, type ***** and then click **OK**.

9. Configure Load Balancing with ARR.

a. On IIS01, in Internet Information Services (IIS) Manager, under **Connections**, under **Server Farms**, click **redext123.lyncignite.biz.**

b. In the Results pane, double-click **Load Balance.**

c. On the Load Balance page, click the **Load balance algorithm** menu, click **Weighted round robin**, and then click **Apply**.

d. At the Application Request Routing prompt, click **Yes**.

e. Under **Server Farms**, click **meet123.lyncignite.biz.**

f. In the Results pane, double-click **Load Balance.**

g. On the Load Balance page, click the **Load balance algorithm** menu, click **Weighted round robin**, and then click **Apply**.

h. At the Application Request Routing prompt, click **Yes**.

i. Under **Server Farms**, click **dialin123.lyncignite.biz**.

j. In the Results pane, double-click **Load Balance.**

k. On the Load Balance page, click the **Load balance algorithm** menu, click **Weighted round robin**, and then click **Apply**.

l. At the Application Request Routing prompt, click **Yes**.

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10. Perform a Health Test on each of the Server Farms.

a. On IIS01, in Internet Information Services (IIS) Manager, under **Connections**, under **Server Farms**, click **redext123.lyncignite.biz.**

b. In the Results pane, double-click **Health Test**.

c. On the Health Test page, under **URL Test**, in the **URL** box, type **https://redext123.lyncignite.biz** and then click **Apply**.

d. Click **Verify URL Test**.

e. In the Verify URL Test window, verify the result for each of the Front End servers shows as **Pass**, and then click **Close**.

f. Under **Server Farms**, click **meet123.lyncignite.biz.**

~~f.~~g. When prompted, click **Yes** to save the changes.

~~g.~~h. In the Results pane, double-click **Health Test**.

~~h.~~i. On the Health Test page, under **URL Test**, in the **URL** box, type **https://meet123.lyncignite.biz** and then click **Apply**.

~~i.~~j. Click **Verify URL Test**.

~~j.~~k. In the Verify URL Test window, verify the result for each of the Front End servers shows as **Pass**, and then click **Close**.

~~k.~~l. Under **Server Farms**, click **dialin123.lyncignite.biz.**

~~l.~~m. In the Results pane, double-click **Health Test**.

~~m.~~n. On the Health Test page, under **URL Test**, in the **URL** box, type **https://dialin123.lyncignite.biz** and then click **Apply**.

~~n.~~o. Click **Verify URL Test**.

~~o.~~p. In the Verify URL Test window, verify the result for each of the Front End servers shows as **Pass**, and then click **Close**.

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Exercise 3: Configuring Network Load Balancing for ARR

In this exercise, you will configure Network Load Balancing for IIS. You will create a NLB cluster and add both IIS01 and IIS02 to it and configure it to be Active/Passive.

Tasks

1. **Create a New Cluster in Network Load Balancing.**
    a. On IIS01, move the pointer to the lower left corner, click **Start**, and then, on the Start page, click **Network Load Balancing**.
    b. In Network Load Balancing Manager, click the **Cluster** menu, and then click **New**.
    c. In the New Cluster: Connect window, in the **Host** box, type **IIS01** and then click **Connect**.
    d. In the Interfaces available for configuring a new cluster pane, click **External**, and then click **Next**.
    e. In the New Cluster: Host Parameters window, in the **Priority (unique host identifier)** menu, verify **1** is selected and then click **Next**.
    f. In the New Cluster: Cluster IP Address window, click **Add**.
    g. In the Add IP Address window, in the **IPv4 address** box, type **172.16.123.30** and then press Tab**.**
    h. In the **Subnet mask** box, verify it auto-populates to **255.255.0.0** and then click **OK**.
    i. On the New Cluster: Cluster IP Address window, click **Next**.
    j. In the New Cluster: Cluster Parameters window, under **Cluster operation mode**, click **Multicast**, and then click **Next**.
    k. In the New Cluster: Port Rules window, click **Finish**.
2. **Add IIS02 to the New Cluster.**
    a. On IIS01, in Network Load Balancing Manager, under **Network Load Balancing Clusters**, click (**172.16.123.30).**
    b. Click the **Cluster** menu, and then click **Add Host**.
    c. In the Add Host to Cluster window, in the **Host** box, type **IIS02** and then click **Connect**.
    d. In the **Interfaces available for configuring a cluster** pane, click **External** and then click **Next**.
    e. In the Add Host to Cluster: Host Parameters window, in the **Priority (unique host identifier)** menu, verify **2** is selected and then click **Next**.

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f. In the Add Host to Cluster: Port Rules window, click **Finish**.

3. Configure the Network Load Balancer for Active/Passive Deployment

a. On IIS01, in Network Load Balancing Manager, under **Network Load Balancing Clusters**, right-click **(172.16.123.30)** and then click **Cluster Properties.**

b. In the (172.16.123.30) Properties window, click the **Port Rules** tab.

c. On the **Port Rules** tab, click **Edit**.

d. On the Add/Edit Port Rule window, click **Single host**, and then click **OK**.

e. On the **Port Rules** tab, click **OK**.

f. When the status for both servers shows as **Converged** (you may have to refresh the display to see this), close Network Load Balancing Manager.

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Exercise 4: Experiencing Application Request Routing and Network Load Balancing

In this exercise, you will use an external client to show that the Lync 2013 environment is now accessible via Application Request Routing. First you will change DNS on the client to point to the new Virtual IP (VIP) of the cluster and disable the TMG 2010 web publishing rule.

You will then access the Lync Web URLs through the Lync client and through Internet Explorer. You will also simulate a web server outage and see that the URLs are still available.

Tasks

1. **Configure External DNS.**
    a. On Client03, start **Notepad**.
    b. In Notepad, open **C:\Windows\System32\Drivers\Etc\HOSTS**
    c. In HOSTS, scroll to the bottom of the file, change the **redext123.lyncignite.biz** IP address to **172.16.123.30**
    d. In HOSTS, change the **dialin123.lyncignite.biz** IP address to **172.16.123.30**
    e. In HOSTS, change the **meet123.lyncignite.biz** IP address to **172.16.123.30**
    f. Close the HOSTS file and save changes.
2. **Disable the Redmond Lync Web Services Rule in TMG.**
    a. On TMG01, on the taskbar, click the **Forefront TMG** icon.
    b. In Forefront TMG, in the navigation pane, expand **Forefront TMG (TMG01)** and then click **Firewall Policy.**
    c. Right-click the **Redmond Lync Web Services**, rule and then click **Disable**.
    d. At the top of the page, click **Apply**.
    e. At the Configuration Change Description prompt, click **Apply**.
    f. At the Saving Configuration Changes prompt, click **OK**.
3. **Verify the External Redmond Lync Web URLs.**
    a. On Client03, sign in to Lync 2013 as **Nuno** with a password of **Password1**
    b. In Lync 2013, click the **Options** arrow, point to **Tools**, and then click **Dial-in Conferencing Settings**.
    c. Verify the Dial-in Conferencing Settings and PIN Management page opens successfully. You should see a page similar to the following image.

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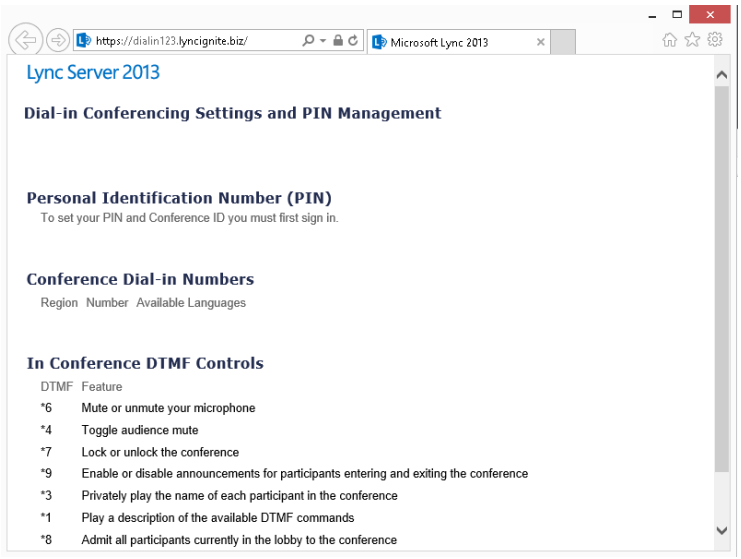

Figure 1: Dial-in Conferencing Settings and Pin Management page

Note: You may see the following error and it can be ignored.

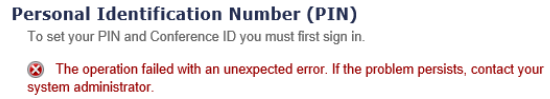

Figure 2: PIN error

As long as you see a page similar to the above screenshot the page has loaded.

d. Leave Internet Explorer running.

e. In Lync 2013, click the **Options** arrow, and then click **Meet Now**.

f. Verify the client is able to start a meet now conference call.

g. In the Conversation window, in the bottom-right corner, click the ellipsis and then click **Meeting Entry Info**.

h. On the Meeting Entry Info window, copy the meeting link, and then click **Close**.

   Note: Do not click Copy All Info, use Ctrl-C to copy the link.

i. End the conference call, and close the Conversation window.

j. In Internet Explorer, in the Address bar, paste the meeting link and append **?SL=1** to the address, and then press Enter.

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It should look similar to the following image.

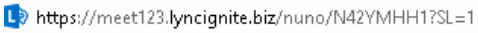

Figure 3: Sample meeting link

k. Verify the Lync Web App page opens and then close Internet Explorer.

4. Simulate an ARR server failure.

a. On IIS01, right-click the Network icon ~~on the system tray~~in the notification area and then click **Open Network and Sharing Center**.

b. In Network and Sharing Center, in the task pane, click **Change adapter settings**.

c. In Network Connections, right-click the **External** network adapter and then click **Disable**.

5. Verify Network Load Balancing uses second host in cluster.

a. On Client03, in Lync 2013, click the **Options** arrow, point to **Tools**, and then click **Dial-in Conferencing Settings**.

b. Verify the Dial-in Conferencing Settings and PIN Management page still opens successfully.

c. In Lync 2013, click the **Options** arrow, and then click **Meet Now**.

d. Verify the client is able to start a meet now conference call.

e. In the Conversation window, in the bottom-right corner, click the ellipsis and then click **Meeting Entry Info**.

f. On the Meeting Entry Info window, copy the meeting link, and then click **Close**.

Note: Do not click Copy All Info, use Ctrl-C to copy the link.

g. End the conference call, and close the Conversation window.

h. In Internet Explorer, in the Address bar, paste the meeting link and then append **?SL=1** to the address, and then press Enter.

i. Verify the Lync Web App page opens, and then close Internet Explorer.

6. Enable the External network Adapter.

a. On IIS01, in Network Connections, right-click the **External** network adapter, and then click **Enable**.

b. Close all open windows.

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