Microsoft Forefront TMG ISP Redundancy Mode

Abstract

In this article, I will show you how to use the Internet Service Provider (ISP) Load Balancing in Microsoft Forefront TMG.

Let's begin

First, keep in mind that the information in this article are based on a beta version of Microsoft Forefront TMG and are subject to change.

A few months ago, Microsoft released Beta 3 of Microsoft Forefront TMG (Threat Management Gateway), which has a lot of new exiting features.

One of the new features of Microsoft Forefront TMG is ISP Redundancy. With the help of this feature it is possible to load balance the network traffic between two different ISP (Internet Service Provider). One other configuration mode is to configure Microsoft Forefront TMG for ISP Failover. In this case Forefront TMG will use one ISP link as the primary connection and if this link gets broken, TMG will automatically failover to the second configured ISP.

Configuration of ISP Redundancy

Let us start with the configuration of the ISP Redundancy Mode. Start the Forefront TMG Management Console, navigate to the Networking node and select the ISP Redundancy tab and in the Task pane click Configure ISP Redundancy.



Figure 1: ISP Redundancy window

The ISP Redundancy Wizard gets started and will guide you through the configuration process.



Figure 2: ISP Redundancy Configuration Wizard

First you have to choose between two modes for the ISP Redundancy behavior.

- ISP Load Balancing
- ISP Failover

ISP Load Balancing is used to balance the network traffic between the two configured ISP links

ISP Failover is used to provide an alternative method for a connection to the Internet if the primary ISP link is down due to problems or maintenance reasons. . ISP Failover is s great feature for small and medium sized businesses with an simplier network infrastructure which wants to provide failover capabilities for two ISP links. The primary ISP link is often the fastest and cheaper connection and when this connections becomes unavailable TMG will failover to the backup ISP.

ISP Redundancy Wizard	×
Select ISP Redundancy Behavior Determines how ISP redundancy is implemented	\mathcal{H}
Load balancing between two ISP links Distribute load between the ISP connections according to the selected criteria. Acts as failover when one of the connections is not responding.	
Failover using a primary and backup link An ISP connection will be defined as primary and the others as backup. When the primary connection is not responding a backup connection will be used.	
< Back Next > (Cancel

Figure 3: Select ISP Redundancy Behavior

ISP Load Balancing

In our first example we choose Load Balancing between two ISP links. You must specify the Network Adapter used for the ISP. First select a name for the ISP and the network adapter which is used to connect to that ISP.

ISP Redundancy Wizard	<u>2</u>	×
Select Network Adapter - ISP 1 Define the ISP connection by sele parameters can be reviewed and network adapter is an optional st	ecting a network adapter. Network adapter edited manually in the next step. Selecting a ep.	
ISP Connection Name:	ISP1	
Network Adapters:	EXTERN INTERN	
Subnet/Mask:	192.9.200.240/24	
	< Back Next > Cancel	

Figure 4: Select Network Adapters for ISP Redundancy

After we selected the first ISP link, the following configuration dialog allows us to configure ISP connection properties like the Gateway IP address and the DNS Server used by this connection.

ISP Redundancy Wizard										×
Connection Properties - ISP Modify or enter the ISP con	• 1 nection	pr	operi	ties	1					\mathbb{A}
Gateway Address	192	•	9		200		240	/ Mask	24	•
Subnet	255	•	255	•	255	•	0			
Primary DNS	82	•	25	•	23	•	12			
Alternate DNS		•		•		•				
					< E	Back	¢	Next >		Cancel

Figure 5: Connection Properties of ISP

The TMG wizard automatically creates TMG computer objects which can be used as a list of Servers which should route through this ISP.

ISP Redundancy Wizard	
ISP 1 Dedicated Servers List List the servers that should route to this ISP. Examples for these servers are the ISP's DNS and SMTP servers.	
	lick Apply.
ISP 1 Primary DNS Server Add	haining 1
ISP1 Primary DNS Server Properties	<u>? ×</u>
General	
Name:	
Computer IP Address: 82 . 25 . 23 . 12 Browse	
Description (optional):	
OK Cancel	Apply

Figure 6: ISP DNS Server properties

After the configuration of the first ISP has finished you have to configure the second ISP in the same manner as the first ISP.

After both ISP connections are configured, you have the choice to balance the load between the two configured ISP. If your ISP bandwidth is the same for both links, it is best practice to configure a even load between both ISP. If one ISP has a lower bandwidth as the other ISP move the slider to set the percentage of traffic this ISP link should handle.



Figure 6: ISP Load Balancing Factor

Click Finish to end the ISP configuration wizard and after that click Apply to save the configuration changes.

Monitor ISP Redundancy

Microsoft Forefront TMG has some capabilities to monitor the ISP Redundancy feature. If you want to see the load and the status of each configured ISP, you can use the Dashboard of the Microsoft Forefront TMG Management Console. The Dashboard function allows you to see the uptime of each ISP and the actually transmitted Bytes per second through each ISP link as you can see in the following screenshot.

Network Status		_	8
Object	Status	Uptime	Bytes/Sec
🐼 ISP2	Internet	0d. 0h. 0	0
🖉 ISP 1	Internet	0d. 0h. 0	0
 Figure 7: Monitoring ISP R	Redundancy	/	

ISP Failover

After we successfully configured the ISP Load Balancing feature, I will show you how to configure the ISP failover feature of Forefront TMG. To change the TMG behavior from Load Balancing to Failover, click the ISP Failover link in the task pane of the ISP Redundancy feature tab.

Forefront [®] Threat Management Gateway	Beta				Networking Enterprise Edition
Networks Network Sets Network	Rules Network Ad	apters Routing Y	Web Chaining 15	P Redundancy	Tasks Help
ISP Redundancy Mode: Load balancing	and failover]	
Name A	Gateway Address	Subnet Mask	Connectivity Test	Dedicated Server	
ISP1	192.9.200.240	255.255.255.0	Automatic	📃 ISP 1 Primary D	ISP Redundancy Tasks
ISP2	192.9.201.241	255.255.255.128	Automatic	ISP2 Primary D	Disable ISP Redundancy
					🚰 Set ISP Failover
					Related Tasks
					Monitor ISP Redundancy
					Export ISP Redundancy configuration
					Import ISP Redundancy configuration

Figure 9: Display ISP Redundancy Mode

ISP Connection Test

The ISP Redundancy configuration has also the option of simulating a broken link or forcing Forefront TMG to mark another ISP connection as active. This can be useful for simulating a broken link or to test the functionality.

ISP1 Properties		×
General		
ISP Connection Name	ISP1	
Gateway Address	192 . 9 . 200 . 240 / Mask	24 🚦
Subnet	255.255.255.0	
ISP Connection Test	Automatic	
Connection Role	Secondary 💌	
	OK Cancel	Apply

Figure 8: ISP Failover Connection Role

It is possible to choose between three Test options:

- Automatic
- Always On
- Always Off

ISP1 Properties		×
General Dedicated Server	r List	
ISP Connection Name	ISP1	
Gateway Address	192 . 9 . 200 . 240 / Mask 24 💌	
Subnet	255.255.255.0	
ISP Connection Test Load Balancing Ratio	Automatic Always Off Always On Automatic	
	OK Cancel Apply	

Figure 10: ISP Load Balancing Ratio

ISP Failover Alerting

Microsoft Forefront TMG has some builtin capabilities for alerting the TMG Administrator if there are any problems with the ISP Redundancy feature. TMG comes with five new alert options which are:

ISP link is available – Monitors when the ISP link is (again) available

ISP Link address missing – No IP address is configured on a network adapter of the TMG Server which can be associated with the ISP Link

ISP Link is active – This alert is triggered when an ISP link is active and network traffic passes through this adapter

ISP Link is unavailable – Alerts when the ISP link is unavailable or not connected Both ISP Links are unavailable - Both ISP links are unavailable and unusable

If one conditions reachs this status the Forefront TMG Administrator has many options to get informed by sending an e-mail or a network message. It is also possible to execute custom commands or to start/stop/restart some services.

erts Prope Alert Definit	ions	?)>		
	Alert	Category 🔺		
🛛 🔇	Access to Configuration Storage se	Other		
🛛 🔇	Account Name Resolution Failed	Other		
🖸 🔇	Alert action failure	Firewall Service		
🗹 🔔	Application Filter Not Registered.	Security		
🖸 🔇	Array Member Status Verification F	Firewall Service		
🗹 🛈	Array Member Status Verification S	Firewall Service		
🗹 🔔	Array-Level Policy Rule Was Deleted	Other		
🗹 🎯	Both ISP links are unavailable	Firewall Service		
🗹 🔔	Broken Reference in Cross-Array C	Other		
🗹 🔇	CA Certificate Expired	Firewall Service		
🖸 🔇	CA Certificate Expiring Soon	Firewall Service		
🖸 🔇	CA Certificate Failed To Sign Firewall Service			
🗹 🛈	CA Certificate Imported Successfully Firewall Service			
🗹 🔇	CA Certificate Issuer Not Trusted Firewall Service			
🗹 🔇	CA Certificate Not Yet Valid Firewall Service			
🖸 🔔	Cache Container Initialization Error Cache			
7				
Add.	Edit Remove	Refresh		
	ОК Са	ancel Apply		

Figure 11: ISP Load Balancing / Failover alerting

Conclusion

In this article, I tried to show you how to configure Microsoft Forefront TMG for ISP Load Balancing to failover between different ISP. This new feature is excellent for small and medium business who wants to share multiple ISP connections or want to have a way of failover between a primary and most powerful ISP link and an lower bandwidth link for backup purposes.

Related links

Forefront Threat Management Gateway Beta 3 http://www.microsoft.com/DOWNLOADS/details.aspx?FamilyID=e05aecbc-d0eb-4e0f-a5db-8f236995bccd&displaylang=en Forefront TMG Beta 3 is released http://blogs.technet.com/isablog/archive/2009/06/09/forefront-tmg-beta-3-isreleased.aspx What's new in Forefront TMG Beta 2 (Part 1) http://www.isaserver.org/tutorials/Whats-new-Forefront-TMG-Beta-2-Part1.html Installing and configuring Microsoft Forefront TMG Beta 2 http://www.isaserver.org/tutorials/Installing-configuring-Microsoft-Forefront-TMG-Beta2.html Keeping High Availability with Forefront TMG's ISP Redundancy Feature https://blogs.technet.com/isablog/archive/2009/02/16/keeping-high-availability-withforefront-tmg-s-isp-redundancy-feature.aspx Forefront TMC Feature Dependive USP Redundancy

Forefront TMG Feature Deepdive – ISP Redundancy

http://blogs.technet.com/forefront/archive/2009/03/10/forefront-tmg-feature-deepdiveisp-redundancy.aspx