

Monitoring APM Session Limit Availability from GTM



Jason Rahm, 2013-20-02

F5er Harry Kleinbourg came up with a great solution for monitoring the availability of BIG-IP APM targets not just based on the availability of the virtual service but also on its ability to handle service based on the licensed session limits.

Goals

The goal of this solution is for BIG-IP GTM to redirect SSL VPN users to an available BIG-IP APM. The BIG-IP APM must be considered down if the number of users reaches the license limit. However, there is not an existing built-in monitor that allows BIG-IP GTM to act on this scenario. The setup:

- 2 or more datacenters
- 1 BIG-IP GTM in at least two datacenters
- 2 or more BIG-IP APM in each datacenter

Solution Target

The solution is to utilize an external monitor on the BIG-IP APM. The external monitor uses an snmp request for the `apmAccessStatCurrentActiveSessions` OID against a local self IP address. This OID returns the number of current active sessions in APM. An iRule checks the pool status (the pool member is irrelevant, no traffic is sent to this pool member, it's just a placeholder for the OID call) and returns an UP/DOWN status to the GTM HTTP monitor. Very clever, Harry!

Solution Details

Create an HTTP Monitor in BIG-IP GTM. This monitor is bound to the virtual server that represents the BIG-IP APM listeners.

Global Traffic » Monitors » Monitoring_APM

⚙️ Properties

General Properties

Name	Monitoring_APM
Partition / Path	Common
Description	
Type	HTTP

Configuration: **Advanced**

Interval	Specify... 5 seconds
Timeout	Specify... 16 seconds
Probe Timeout	5 seconds
Ignore Down Response	<input type="radio"/> Yes <input checked="" type="radio"/> No
Send String	GET /monitoring
Receive String	Monitoring:OK
User Name	
Password	
Reverse	<input type="radio"/> Yes <input checked="" type="radio"/> No
Transparent	<input type="radio"/> Yes <input checked="" type="radio"/> No
Alias Address	10.100.8.42
Alias Service Port	HTTP

The Alias address is the virtual server called VS_Monitoring on the BIG-IP APM. Over on the BIG-IP APM, add the [snmp-check external monitor](#) to the system under /config/monitors or via the GUI under System-> File Management-> External Monitor Program File List, then, create the external monitor:

Local Traffic » Monitors » snmp_monitor-apm_current_active_sessions

Properties Instances

General Properties

Name	snmp_monitor-apm_current_active_sessions
Partition / Path	Common
Description	
Type	External
Parent Monitor	external

Configuration: **Advanced**

Interval	Specify... 5 seconds								
Up Interval	Disabled								
Time Until Up	0 seconds								
Timeout	Specify... 16 seconds								
Manual Resume	<input type="radio"/> Yes <input checked="" type="radio"/> No								
External Program	snmp-check								
Arguments									
Variables	<table border="1"> <thead> <tr><th>Name</th><th>Value</th></tr> </thead> <tbody> <tr><td>result = 2</td><td></td></tr> <tr><td>OID = .1.3.6.1.4.1.3375.2.6.1.4.3.0</td><td></td></tr> <tr><td>community = public</td><td></td></tr> </tbody> </table>	Name	Value	result = 2		OID = .1.3.6.1.4.1.3375.2.6.1.4.3.0		community = public	
Name	Value								
result = 2									
OID = .1.3.6.1.4.1.3375.2.6.1.4.3.0									
community = public									
Alias Address	10.100.8.11								
Alias Service Port	SNMP								

The value of the variable "result" is the number of current sessions NOT to exceed (ie, your license limit). If the value is reached the the monitor will be marked down. The alias address is a self-IP address of the BIG-IP APM to monitor (recommendation would be the floating IP in the case of an HA or pair). This is the IP the SNMP get will be sent to. Next, bind the monitor to a pool that will be used in the iRule:

Local Traffic » Pools : Pool List » pool_monitoring_apm

Properties Members Statistics

General Properties

Name	pool_monitoring_apm
Partition / Path	Common
Description	
Availability	● Available (Enabled) - The pool is available

Configuration: **Basic**

Health Monitors	<table border="1"> <thead> <tr><th>Active</th><th>Available</th></tr> </thead> <tbody> <tr><td>/Common snmp_monitor-apm_current_active_sessions</td><td>/Common gateway_icmp http http_head_f5 https</td></tr> </tbody> </table>	Active	Available	/Common snmp_monitor-apm_current_active_sessions	/Common gateway_icmp http http_head_f5 https
Active	Available				
/Common snmp_monitor-apm_current_active_sessions	/Common gateway_icmp http http_head_f5 https				

Add a single member here. Again, this member is not used for traffic, but you need at least one member. Based on that monitor, the pool will have an available member or not, and based on that information, the iRule will send a specific HTTP reply. Now, create the iRule:

```

1: when HTTP_REQUEST {
2:   if { [HTTP::uri] eq "/monitoring" } {
3:     set response "Monitoring:OK"
4:     if { [active_members pool_monitoring_apm] eq 0 } {
5:       set response "Monitoring:NO"

```

```
6:     log local0.info "ERROR, Pool pool_monitoring_apm failed -> No members available"
7:   }
8: }
9: # Final HTTP Response
10: HTTP::respond 200 content $response "Content-Type" "text/html" "Cache-Control" "no-cache, must-revalidate" "Connection:close"
11: }
```

Finally, create the virtual server VS_Monitoring. This is the virtual server that the BIG-IP GTM will check. It only has an iRule resource, no pool is necessary.

Local Traffic » Virtual Servers : Virtual Server List » vs_monitoring

Properties Resources Statistics

General Properties

Name	vs_monitoring
Partition / Path	Common
Description	
Type	Standard
Destination	Type: <input checked="" type="radio"/> Host <input type="radio"/> Network Address: 10.100.8.42
Service Port	80 HTTP
Availability	●
State	Enabled

Configuration: Basic

Protocol	TCP
OneConnect Profile	None
NTLM Conn Pool	None
HTTP Profile	http

Local Traffic » Virtual Servers : Virtual Server List » vs_monitoring

Properties Resources Statistics

Load Balancing

Default Pool	None
Default Persistence Profile	None
Fallback Persistence Profile	None

Update

iRules

Name	Monitor_APM
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HTTP Class Profiles

Name	No records to display.
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Now with the solution in place, the BIG-IP GTM will monitor via HTTP to the BIG-IP APM, which will return a status message of availability based on its own pool status for the SNMP OID return value. Again, very clever, Harry, and thanks for sharing your solution with the DevCentral community.

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