edgewater NETWORKS Knowledgebase Solution

Updated: 5/23/2016

Goal

Understand the configuration and behavior of SIP Registration Rate Pacing on the EdgeMarc.

Note:
See Knowledgebase article *Application Note - Configuring Survivability features* for information on when SIP Rate Pacing should be used.

Solution

SIP Registration settings allow the EdgeMarc to manipulate the pacing of Register message between the phone and EdgeMarc and between the EdgeMarc and SIP server. These rates do not need to be – and when modified, generally should not be – the same.

Below is an example of the SIP Registration Control section on the Survivability page on VOS version 14.7.0.

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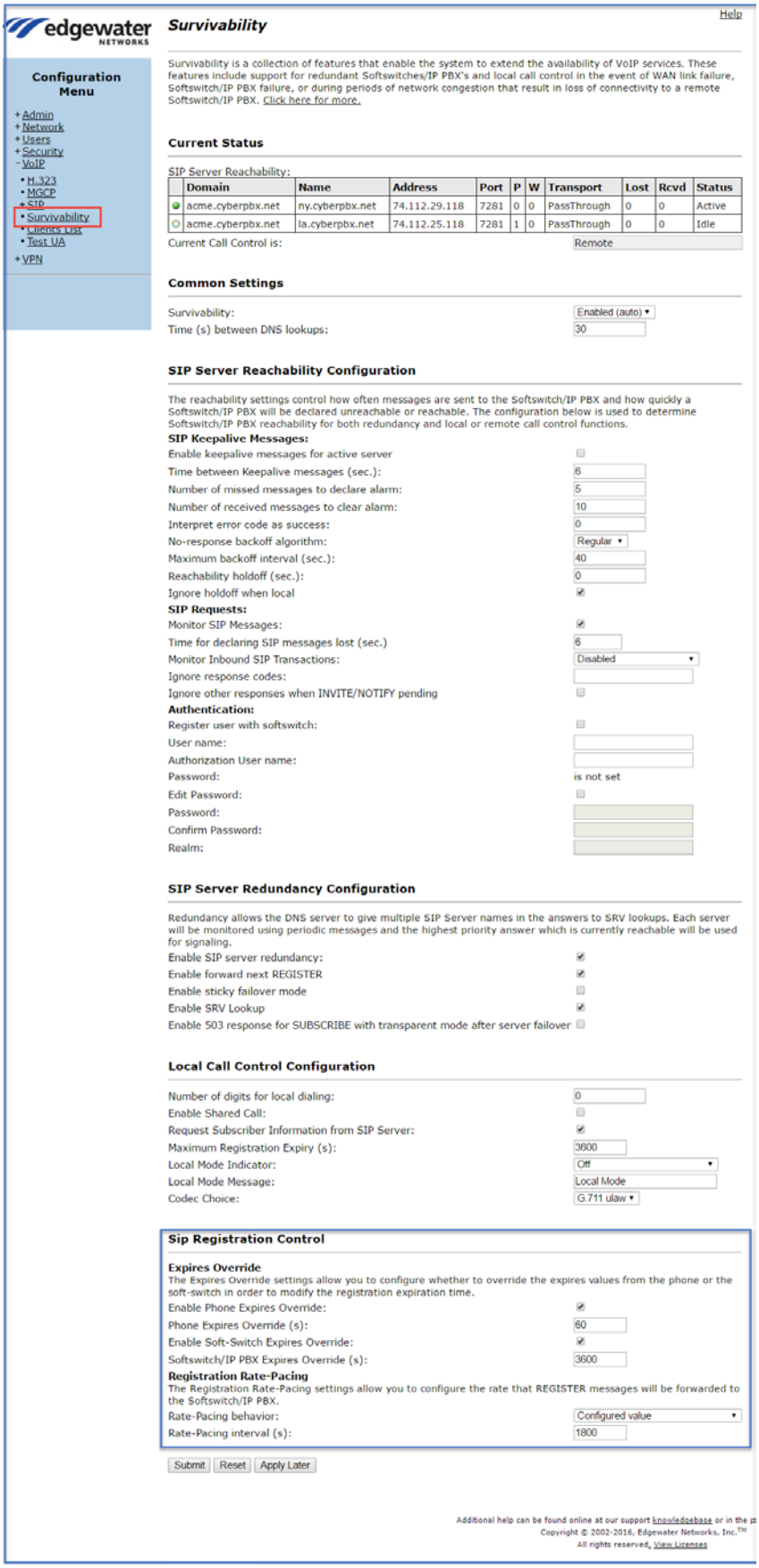


Figure 1: SIP settings in the VoIP ALG page

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Softswitch/ IP PBX Expires Override



Figure 2: Softswitch /IP PBX Expires Override settings

The Softswitch / IP PBX expires override value is passed from the EdgeMarc to the softswitch. This is the number of seconds for which the softswitch should consider the phone's Register to be valid. Default value: 3600 seconds. Most softswitches have the expiry timer set to 3600s but there are certain exceptions. Some providers set the expiry timer so a short value like 300 s, because they want to keep the port alive (they assume that the phone is behind a data firewall).

If the 'Enable softswitch Expires Override' is unchecked, then the value that the phone sends will be sent out to the softswitch unchanged.

For example, with the Soft-switch Expires Override setting at 3600s, the EdgeMarc will overwrite this expires timer in the registrations from the phone.
The reason for this is that we don't want to set the registrations in the softswitch to expire every 60 secs and we don't want to keep sending registrations to the softSwitch every 60 secs.

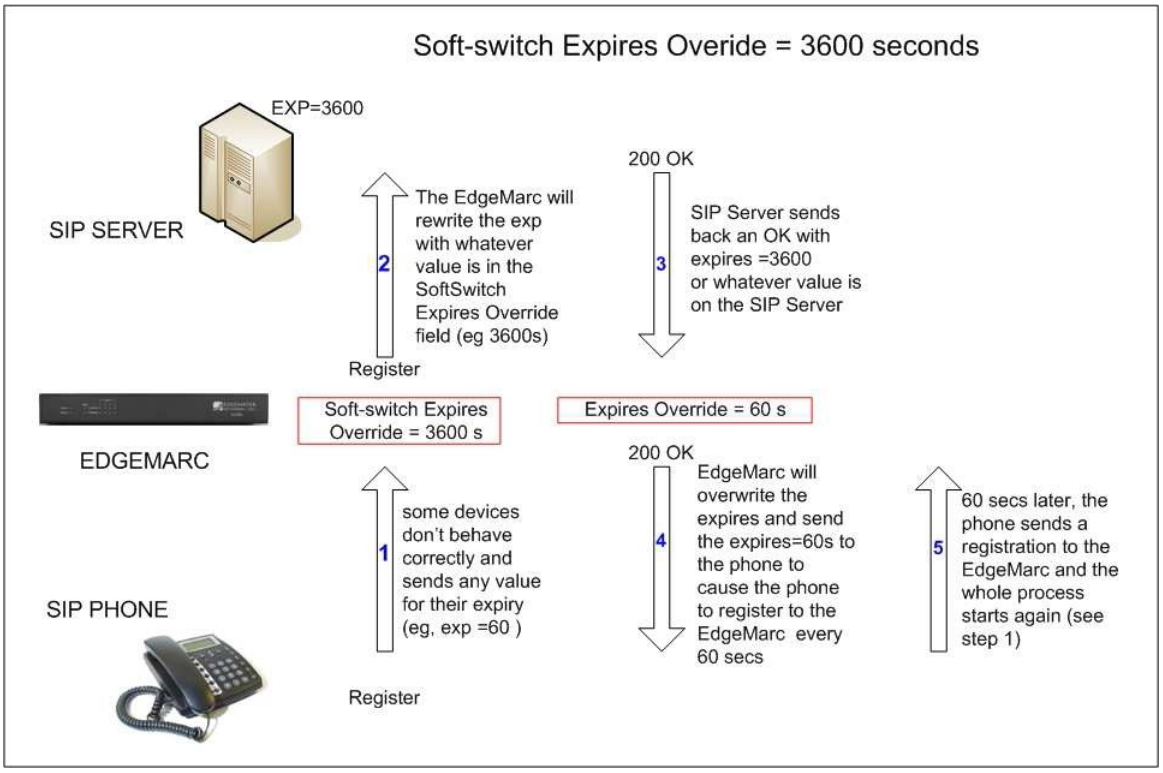


Figure 3: Soft-switch expires override

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Phone Expires Overide

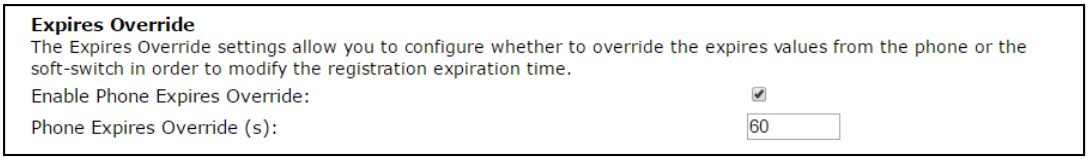


Figure 4: Phone Expires Override settings

The SIP Expires override value is passed from EdgeMarc to phone. It specifies to the phone the number of seconds its most recent registration will be valid. Default value: 60.

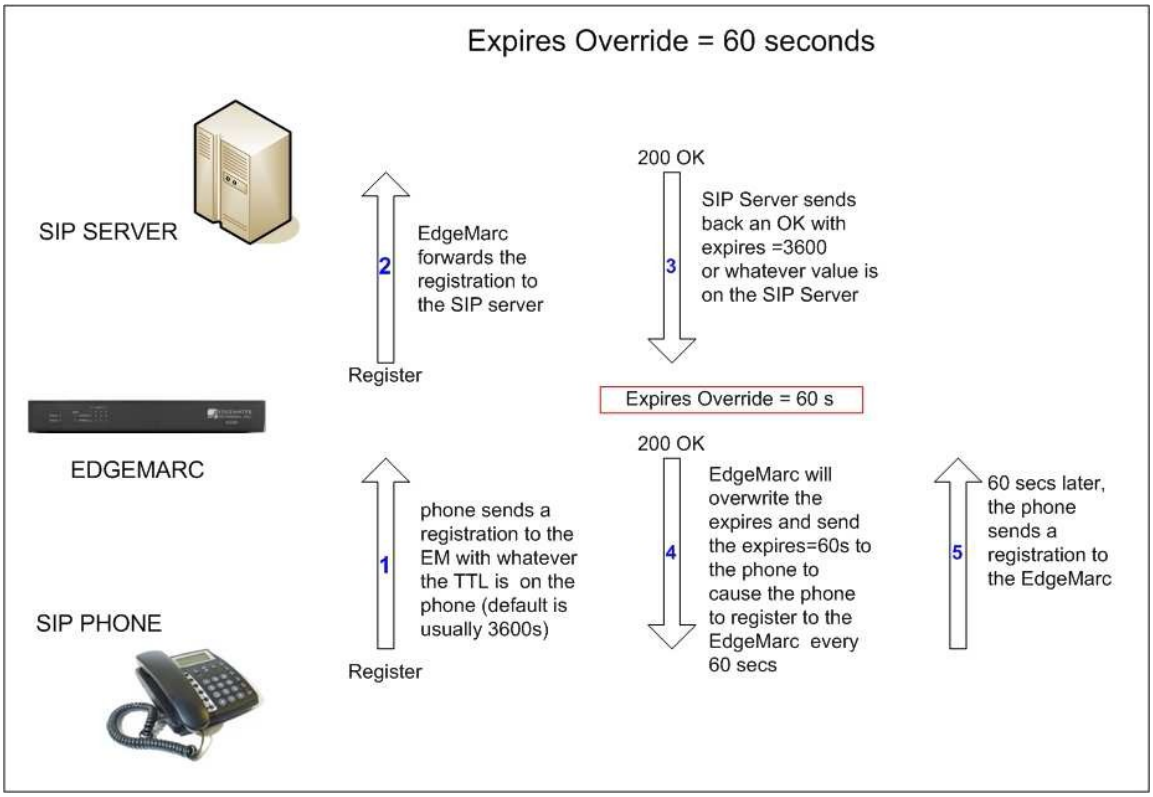


Figure 5: Phone Expires Override

The standard setting of 60s is chosen in the setting because we want the phone to send a Registration to the EdgeMarc as often as possible. The EdgeMarc uses this setting to determine if the phone is still active or not, If the Registration Rate Pacing setting in the next section, is enabled, the EdgeMarc will not forward all Registration from the phone out the WAN but will cache all the Registrations and only allow out the ones that are the first Register after the Rate Pacing Interval has expired. That ensures that the Service Provider's SBC or Softswitch is not inundated with multiple Registration messages from the phones and EdgeMarcs.

Another benefit is that if the 'Enable Forward Next Register' in checked, then if there

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was a situation where there was a SIP server failover to Secondary or the EdgeMarc was going into local mode or coming out of local mode, the longest time when there will be an outage would be 60 sec because the phone would try to Register out within the 60 sec window. The same applies when the EdgeMarc is coming out of Local mode to Remote Mode. The ALG will forward the next Register from the phone out to the SBC for immediate registration.

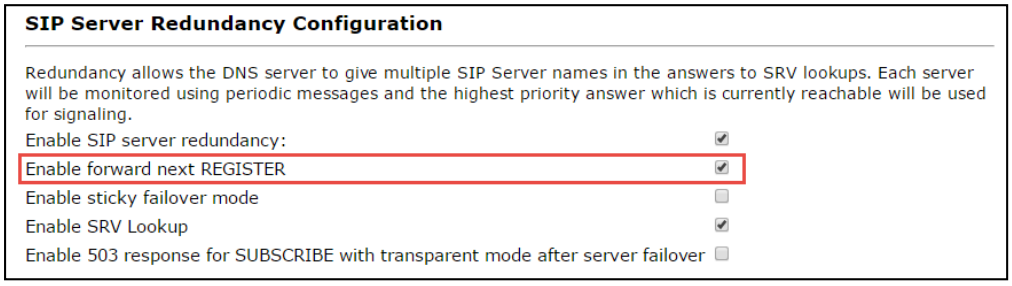


Figure 6: Enable Forward Next Register

Register Rate Pacing

The Register rate pacing value is the number of seconds the EdgeMarc should wait until passing a phone's Register through to the softswitch. When this interval expires, the EdgeMarc will pass the next Register from the phone through to the softswitch. Default value is 1800 seconds.

The EdgeMarc will respond to all other phone registration locally, up to this interval.

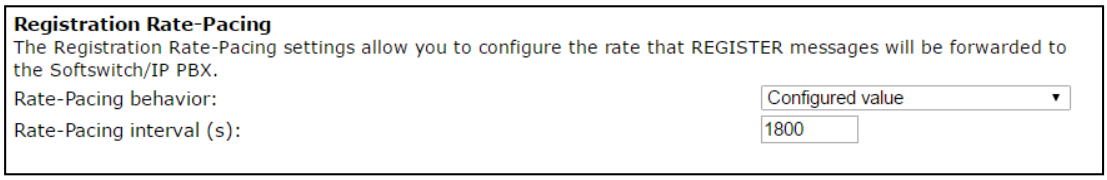


Figure 7: Registration Rate Pacing

If the register rate pacing field is set to too low, the number of registration messages may overload the soft-switch. This value should be no higher than ½ of the Expires value of the device on the softswitch. This is to ensure that at least two Registers from the phone goes out to the softswitch before the device expires on the softswitch. (If there was a network issue and the first registration attempt doesn't get to the softswitch, at last the second register should get to the softswitch before the device has expired)

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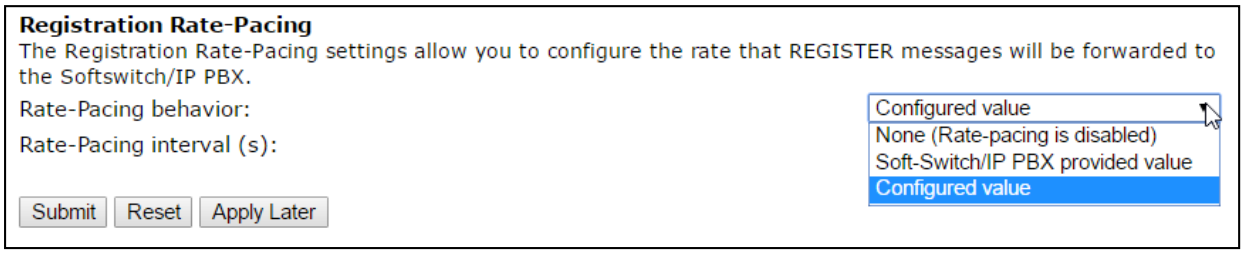


Figure 8: Rate Pacing behavior

There is a pull down menu for the Rate Pacing behavior.

1) **None** – this disables the Rate pacing on the EdgeMarc. Any Registration received on the LAN side will be forwarded out the WAN. The rate pacing interval will be greyed out.

2) **Softswitch / IP PBX provided value** – Certain SBC provide varying values for various phones. Usually this is a count-down value where during the first registration from the phone, it could be 3000 sec. The EdgeMarc will honor this and just before the 3000 sec is expired, the ALG will allow a registration from the phone to the SBC. The SBC could then respond with a timer of 2000 sec. Then the whole process starts all over again. The Rate Pacing interval is greyed out.

3) **Configured Value** – This is the default setting. The Rate Pacing interval will be editable and the default setting is 1800 sec.

TIP !

How do you see what the expire value that your Service Provider has set for the phone registration?

1) Take a tcpdump on the WAN side and save it to a pcap
2) Download the trace to your local PC and open with Wireshark.
3) Look for the 200 OK response from the softswtich, for a Register. The expires value (highlighted below) shows you the duration that the device will be registered on the softswitch.

```
SIP/2.0 200 OK
From: "403 "<sip:5151234403@167.42.94.61:5060>;tag=0c863f8b0e
To: "403 "<sip:5151234403@167.42.94.61:5060>;tag=f8a072f8-a78e5ea1
-13c4-6006-eb7a58-7e8c36f4-eb7a58
Call-ID: 75376d6f7045ff3d
CSeq: 658092379 REGISTER
Contact: <sip:5152345403-
8d762553@207.17.49.81:5060;transport=udp>;expires=3600
Via: SIP/2.0/UDP 207.17.49.81:5060;branch=z9hG4bK960ed9f4c35a43d8b
Supported: 100rel,replaces,timer
Content-Length: 0
```

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Overall Result

Below is an example of all three values put together (as in Figure 1)

If you may set the expires value to 60 and the pacing value to 1800 to have the phone register to the system every minute, but only let a register message through to the soft-switch every 1800 seconds (30 minutes).

Imagine that the Service Provider has deployed hundreds of EdgeMarcs and they all don't have any rate pacing enabled. If each of these EdgeMarcs, each have a hundred phones behind it. Can you imagine the number of registrations hitting the SBC in a given minute. By configuring rate pacing, you would have prevented unnecessary load on the SBC / SIP server.

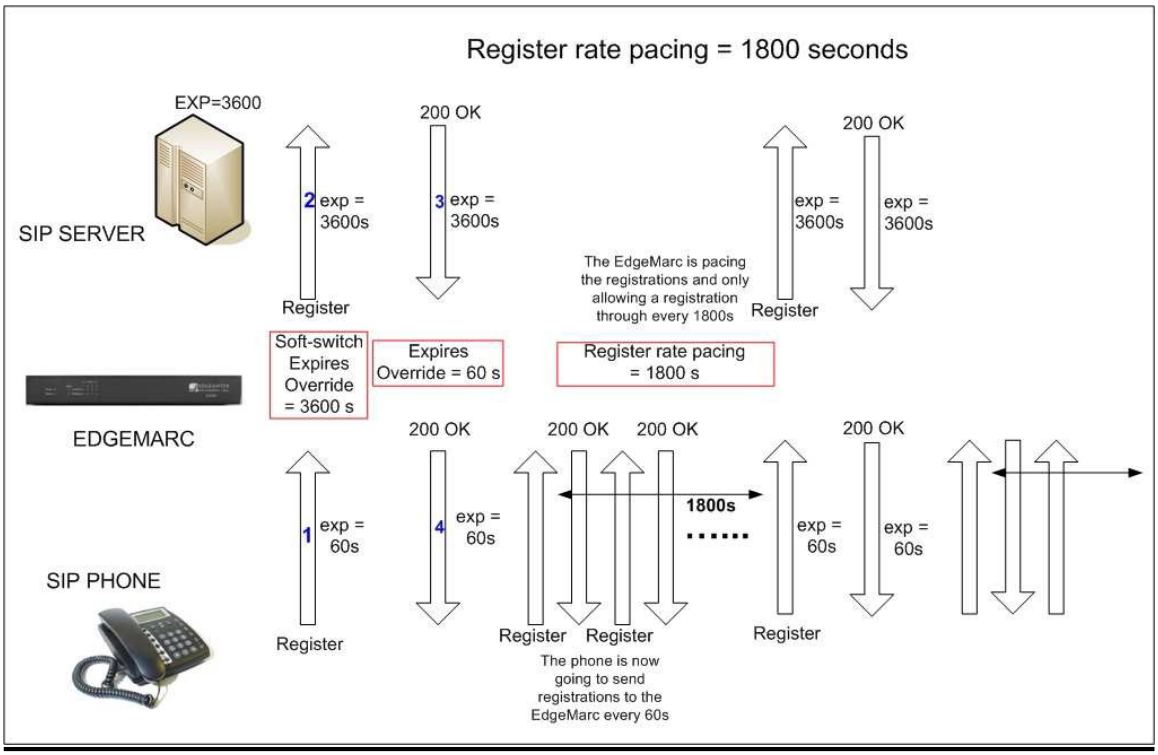


Figure 9: Example of how it works

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