Origination Date: 1/12/2000

Change Order Number: NANC 301

Description: NPAC Monitoring of SOA and LSMS Associations via NPAC TCP Level Heartbeat (transport layer)

Cumulative SP Priority, Weighted Average: NR

Pure Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	Y			TBD	TBD	TBD

Business Need:

Same as NANC 299.

Description of Change:

Same as NANC 299, but using a TCP level heartbeat (transport layer) instead of an application level heartbeat.

The requested functionality of this change order *"NPAC Monitoring of SOA and LSMS Associations via Heartbeat"* can be accomplished using the TCP Keepalive Timer. Since no data flows across an idle TCP connection (i.e., between the two TCP modules), the Keepalive Timer can be used to poll the other end of an idle connection to make sure the connection is still available. This will also alleviate any situations of a half-open connection, since the Keepalive feature will detect this.

In the discussed configuration, the NPAC SMS will serve as the server side, and the local system (SOA or LSMS) will serve as the client side. This is due to the fact that the NPAC SMS is required to enable the Keepalive feature (which is done from the server side of a connection). The Keepalive feature can also be implemented from the local system side. However, for this change order, it is only be required from the NPAC SMS side.

Optionally (and recommended), the Service Provider can implement the Keepalive Timer to perform the same function, and ensure an available connection. If only the NPAC SMS were to implement the Keepalive Timer it is possible to run into the situation where the local side did not detect the lost connection (and therefore did not try and re-associate), whereas if the local system does implement the Keepalive Timer, they would detect the lost connection (and accordingly attempt to re-associate with a new bind request). In this example, the length of time that the Servcie Provider is un-available will be longer if the local side has not implemented the Keepalive Timer (since they must rely on NPAC Personnel contacting them because of the aborted association, rather than their own system recognizing the abort and initiating a new bind request to the NPAC SMS on their own).

By default *(NOTE: LNPA-WG needs to discuss the actual value)*, the Keepalive Timer is set to 2 hours. If there is no activity on a given connection for 2 hours, the NPAC SMS will send a probe segment to the local system. Four different scenarios can occur at this point: the local system is still there and responds, the local system has crashed, the local system has crashed and rebooted, or the local system is currently unreachable. Only in the first scenario will normal processing continue. In the other three scenarios, the connection will be terminated.

Additionally, the NPAC SMS needs to provide logging functionality (which is documented in change order NANC 219). This is accomplished via an expired Keepalive Timer which in turn generates an aborted association. Since a lost connection will appear as a stack abort to the server (in this case the NPAC SMS), logging will be done as an abort from a client (in this case the local system).

In summary, the requested change is for the NPAC SMS to implement the TCP Keepalive Timer to all local system CMIP connections.

Jan 00, Jim loaded the TCP Keepalive Timer and loaded it into a test box at ESI. He worked with Beth (on actual testing). The TCP level heartbeat worked fine one-way (from NPAC to local system). Beth is planning on loading the heartbeat on the local system and test the other way as well. This functionality meets our needs for keepalive functionality.

Requirements:

Req 1 – NPAC SMS Monitoring of SOA and Local SMS Connections via a TCP Level Heartbeat

The NPAC SMS shall be capable of supporting a TCP Level Heartbeat via the TCP Keepalive Timer.

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

M&P:

No change required.