

RELEASE 3.0 Discussion ‘Backlog of Messages at NPAC’

Jim Rooks, NeuStar, provided a presentation to kick off the discussion. NeuStar collected SOA traffic data for 2 regions Northeast & Mid Atlantic between 3/28/01 and 3/30/01 and did a comparison between the two. Total SOA messages ran 317,000 versus 300,000, respectively; traffic to/from incumbent SOA ran 38% versus 40%, respectively. After Release 3.0 a SOA backlog issue appeared to be worse for the ILEC. With the installation of faster hardware at the NPAC, transactions are processed and broadcast quicker to the industry. These SOA generated notifications are significantly overloading the ILEC due to the fact the ILEC is involved with the majority of port transactions.

Two message types -- per-TN SV modification done, and per-TN status change -- represented 68% of the traffic between the NPAC and SOA and appeared due largely to per-TN notifications for SV-modify messages and partial-fail list content changes. Presentation and data previously sent provides more detailed information.

NeuStar clearly wants us to understand that the NPAC router is not the problem.

Three approaches to the problem to be considered include:

1. **Reduce quantity of messages to certain SOAs:** (i.e. eliminate intermediate updates to partial fail lists, and/or introduce round-robin capability to reduce load per SOA belonging to a single SP).
2. **Make more efficient the transmission of messages** (fine tune application to tool kit/tool kit to stack throughput at NPAC and at SOAs, change to non-confirmed mode for notifications, establish priorities for various notifications; implement NANC 179 – TN Range Notification).
3. **Increase capacity of the NPAC/SOA interface** (increase application to tool kit and tool kit to stack through-put).

ACTION ITEM: NeuStar agrees that a case study needs to be done on the recovery of notifications in the backlog scenerios

Other ISSUES and SOLUTIONs or OPTIONS discussed (some in the May & some in June.) Many of these are discussed in further depth below.

1. Partial failed list (elimination of intermediate notifications) - SHORT TERM
2. T1 T2 timer (eliminate based on SPID) - SHORT TERM
3. Multiple SOA associations - LONG TERM
4. NANC 179 – LONG TERM
5. Partial implementation of NANC 240(no cancel of SV at expiration of T2 timer) – SHORT TERM
6. NANC 240 full implementation - MEDIUM TERM
7. Encryption changes – LONG TERM
8. SP reduce queries - DELETED
9. Prioritization of notifications - MEDIUM
10. Modify status notifies broken down by actual status change (intermediate notifications) – Will require new SOW for data
11. Optimize and Increase the efficiency of the interface (NOT the physical layer) as well as increase the throughput. At the current time it does not appear that the physical layer

(Fractional T1 or T1) is the problem. That is not to say it will not be an issue down the road.

12. Evaluate and analyze stack, toolkit or application layer at both NPAC and SOA sides. The team decided the benchmark to be used is "Pending port request for a new SV create with the maximum number of message relay services included." This should be used to benchmark each of the above identified layers. ***ACTION ITEM: ALL SPs and NPAC evaluate the above and come back with data, ready to discuss for next month meeting.***
13. Proposal – elimination of intermediate notifications i.e. provide initial and final only to old SP
14. Proposal – elimination of intermediate notifications – provide initial and final only to both new and old SP

The group is interested in data on the volume of intermediate partial-fail status change notifications (relative to first/last partial-fail status change notifications) and in the quantity of modifies done on pending SVs versus active SVs. NeuStar explained that collecting such data involves a great deal of work and would require an LLC request to initiate.

15. Extending the NPAC retry timers: DELETE
16. Switching to non-confirmed mode at the NPAC for notifications: This would result in an GDMO and interface change. Possible LONG TERM
17. Handling of batch requests at NPAC – LONG TERM

RECAP OF DETAILS OF POTENTIAL SOLUTIONS: (listed in presentation)

SHORT TERM (3-6 months)

For the first round review of what notifications (and scenarios) are candidates for the SPID-specific filter, only the four major incumbents' needs will be considered to determine which notifications (and sub-categories) should be filtered. (The notification loads are concentrated on the incumbents' SOAs since they are involved in role of "old SP" in most ports; it is the incumbents' SOAs that have the problem at today's load levels.) Questions were raised if SOA notification can be delayed or eliminated and what is the impact to SPs. Some of these notifications are linked to other systems and may be required to kick off other activities. Each SP uses notifications in a different manner, and SPs need to look at the dependency on the timers

A) SPID-SPECIFIC NOTIFICATIONS

Software change at the NPAC to make specific notifications optional on a SPID basis. This requires that the providers agree on which notifications should have this option. This can be accomplished in the short term if not too many types of notifications are included while a better design, in the long term, is to include all notifications in this tunable SP approach.

1. Configurable table on a global basis of the notifications based on ASN names.
2. Can include all notifications (or some) but if all are included it may delay development as well as too much granularity will be confusing for SP profile.
3. Test cases will need to be developed and run.
4. After completion, individual SPs would be able to identify which notifications can be turned on or off for their specific needs using the SP profile

5. May be done with out taking down associations.

B) Partial 240 or 240-LIKE

The change order could be implemented as two change orders: one change order to stop current process of automatically canceling a pending SV upon expiration of the t2 timer (when no new SP create received by expiration of t2 timer) -- and another change order to send notification to old SP that t2 timer has expired (to replace today's notification, upon expiration of t2 timer, that auto cancel has occurred). The first part is a short-term item; the second part is a medium-term item. This is not really so much an improvement in the SOA load situation, however, it would help the SOA operations groups in their interactions with CLECs who are slow to send up their Create messages. It also reduces SOA volumes indirectly by avoiding need for the old SP to send its Create message twice for those cases where CLEC fails to send its new SP create messages before the t2 timer expires and the auto cancel thus occurs.

ACTION ITEM – CMA to will draft a synopsis of NANC 240 changes and flow by end of week (May 25) and distribute.

ACTION ITEM – SPs must distribute internally and determine if the P240 would be beneficial. A vote will be taken at the next meeting so SPs MUST do their homework. If the new proposal is accepted a new CO may be drafted.

C) MINIMIZE/Reduce Digital Signature Encryption

This option is not supported by SPs at this time for security reasons and will be considered in the long term possibility.

MEDIUM TERM (6-12 months)

1. QUERYING – explore how SPs are utilizing the NPAC database; Industry decide to disallow NPAC database to be queried as local user database. Why is there so much querying over the interface rather than SPs using their local databases? This has been DELETED as an option.
2. SPs DETERMINE PRIORITY OF NPAC PROCESSING OF NOTIFICATIONS.- After discussion it was determined that this would require the development of requirements and will be on the agenda for next meeting.

LONG TERM (> 12 MONTHS)

1. Implementation of NANC 179 – Software changes that provide range notification capability. Currently packaged in R 4.0. Some SPs agree that this would have a considerable savings but still considered long term. This CO (change order) consolidates notifications for ranges into a single notification per range. The current approach is one notification for each TN in the range. Since about 50% of the TNs are ported in ranges -- though ranges are only about 3-4% of the *Create* operations, this CO would have substantial impact on notification message volume.
2. Increase the throughput of the SOA interface – this requires major industry changes. Items that could be looked at include binding with a different OSI address, multiple routers per SPID, and moving to a threaded process.

ALL ACTION ITEMS RECAPPED:

NeuStar will distribute a document mapping the IIS definition to the notification name. This will be distributed by Monday May 21st to the team.

ILECs need to review the notifications (concentrating on the two heavy hitters previously identified) and individual impact to their own systems and determine which notifications they can filter out. SPs should focus not only on notifications that can be filtered out but also on notifications they can live without realizing that it may take up to two hours to receive.

NeuStar agrees that a case study needs to be done on the recovery of notifications in the backlog scenarios

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OTHER ISSUES

Questions were raised about impact of these notifications etc. on wireless porting. Over time, feeling is that this could affect other SPs in addition to the ILECs.

OVERALL ISSUE RESPONSIBILITY

The LNPA-WG's Slow Horse subcommittee appears to be appropriate venue to discuss the approaches to mitigate the impact of release 3.0's increased NPAC/SOA message transmission rates and to discuss it in more general terms of "SOA Performance." But for short term fix items, the discussion will remain in LNPA-WG.

Next Meeting

A conference call will be held **June 4th** to discuss further the NANC 240-like change order's impact and to hear the incumbents report on what notification scenarios each can live without in connection with development of the SPID-specific notification filters. Details of the conference call will be distributed shortly.