Problem/Issue Identification and Description

**Submittal Date:** 04/06/2021 **PIM # 136 v3**

**Company(s) Submitting Issue**: 10x People / iconectiv

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**(NOTE: Submitting Company(s) is to complete this section of the form along with Sections 1, 2 and 3.)**

1. **Problem/Issue Statement:** (Brief statement outlining the problem/issue.)

LSMS Systems are not meeting industry throughput requirements

1. **Problem/Issue Description:** (Provide detailed description of problem/issue.)

A. Examples & Impacts of Problem/Issue:

NPAC traffic has increased and the rate at which porting needs to occur to meet service provider needs, in some cases, is not sufficient. Some service providers require routing updates be sent to the LSMS for not only 10’s of thousands of numbers a day but sometimes 100’s of thousands to meet their business needs. These changes often need to complete in a predefined window. If one or more LSMS systems have an outage or struggle to keep up, the updates cannot complete resulting in a significant impact on network routing. Should there be an emergency need to make or backout changes, the ecosystem is not set up to move quickly enough to prevent network routing and resulting business impacts.

Delayed LSMS system processing, due to slow processing or outages, results in impacts to NPAC resources, NPAC message queuing, additional resend logic/processing, delays in status notifications, and notifications of partial failed notifications for all porting (activate, disconnect and modify). The partial failure notifications also increase traffic to the SOA systems.

The NPAC use has evolved since the original LSMS performance requirements were written. When the original requirements were written over 20 years ago, the traffic patterns and throughput requirements of today were not a consideration. The original requirements predated the advent of wireless portability and certainly did not take into account the use of the NPAC by wholesale providers. As a result of increased porting, the LSMS requirements have been increased twice. In February 2006, with Release 3.3 of the NPAC the requirements were increased to 4.0 transactions per second. In January of 2011, Release 3.4 the requirements were updated to the current rate of 7.0 transactions per second. Based on current language in the specifications, users may not be aware of the relationship between the SOA request rates and resultant LSMS rates.

Additionally, the interface type may also complicate the definition and understanding of “rates” between the SOA and the NPAC, and the NPAC and the LSMS. The original specifications were developed when CMIP was the only interface type available. This is a connection-oriented interface meaning the connection is established, and stays active (regardless of any or no traffic) until disconnected by one side or the other. In CMIP, Request/Response messages are done for single TNs, ranges of TNs. Since a SPID value could be used for only one CMIP connection, the definition of transactions per second could only be viewed and interpreted one way, i.e., 7 tps, per primary SPID (with a CMIP association to the NPAC).

In October 2013, the NPAC implemented a second interface type, XML. This is a connection-less, session-less interface meaning a network port is opened, a message is sent, an ACK is received, and the port is closed. With the XML interface, the concept of batching was also introduced. This allows messages to be “batched together” yielding fewer messages, but larger payloads. Furthermore, the concept of “grantor-delegate” was also introduced with the XML interface. This allowed not only for a SPID to be used via both the CMIP interface and the XML interface, but allowed a “delegate” SPID to handle messaging/transactions on behalf of a “grantor”. This grantor-delegate functionality allows a single delegate’s interface to be used by multiple grantors. With this concept, no update was done to the FRS transaction definition, delineating whether the 7 tps applied to the grantor or the delegate.

Given all this historical and architectural information, the concept of “rate” for a single SPID using CMIP (one primary SPID, one connection), versus a delegate SPID using XML (multiple grantors, using batching, in a connection-less, session-less environment), needs discussion, understanding, and a reasonable agreement among industry participants.

Finally, LSMS operators may have regulatory requirements regarding timeliness of network updates resulting from NPAC downloads to LSMS, and these requirements need to be taken into account in discussions on rates.

B. Frequency of Occurrence:

Despite NPAC managing traffic to the LSMS systems there are systems that struggle to meet current industry performance requirements that cause outages or delays in network provisioning.

Some SOA systems gate traffic today on a frequent basis throughout the week to prevent excessive message backlog/backup by the NPAC to slow LSMS and/or LSMS outages.

It should be noted that, LSMS maintenance outages outside of the industry maintenance window cause similar issues.

1. NPAC Regions Impacted:

Mid Atlantic \_\_\_ Midwest\_\_\_ Northeast\_\_\_ Southeast\_\_\_ Southwest\_\_\_ Western\_\_\_

West Coast\_\_\_ ALL X

D. Rationale why existing process is deficient:

The LRN routing changes that are enabled by the NPAC system are key to network routing in today’s ecosystem. The number of TNs in the NPAC is increasing at a steady rate.

The current rate of 7 transactions per second is based on the industry needs in 2011. No reassessment has been done in 10 years. It is time for the industry to reevaluate the business needs.

E. Identify action taken in other committees / forums:

None that we are aware of to date.

F. Any other descriptive items:

The following change orders contain information on past NPAC throughput requirement increases.

NANC Change Order 393 implemented in NPAC 3.3

NANC Change Order 397 implemented in NPAC 3.4

1. **Suggested Resolution:**

* Creation of a new “Giddy-up” sub-group to focus on understanding the business requirements and the LSMS throughput and capacity required to meet today’s needs.
* The sub-group should review existing industry requirements to ensure common understanding and to determine if any clarifications to the industry specifications are needed.
* The Giddy-up group can leverage past methods of calculating throughput needs used to determine increased performance requirements in the NPAC 3.3 and 3.4 releases.

1. **Final Resolution:**

**NPIF (only)**

PIM #: 136 v3 Final Resolution Date:

Related Documents: NANC 393, 397

Issue Resolution Referred to:

Why Issue Referred: