

NPAC Change Orders NANC 399 & NANC 400

March 8, 2005

Summary: The LNPA WG change management process should continue

- Change orders NANC 399 and NANC 400:
 - Do not impact, change, or contravene any existing or pending FCC rulings
 - Field additions are for continuity of support of existing ported/pooled processes consistent with existing FCC policies for existing LNP Users
 - Field additions/changes have been made in virtually all NPAC software releases over the past 8 years and do not by themselves change the role of the NPAC
 - There are no business rule changes proposed, i.e., industry standard ported and pooled process flows are unchanged
 - Do not change the role of the NPAC
 - New fields allow the NPAC to continue to serve in it's current role in disseminating routing information to be used by existing carrier's for ported/pooled numbers
 - There are no business rule changes proposed
 - New field additions are consistent with purpose of other existing fields (e.g., wireless text messaging)
 - Do not constitute a new VoIP routing service within the NPAC
 - No business rule changes means the NPAC's role in managing ported/pooled number provisioning is unchanged
 - Do not impact other potential industry support functions such as ENUM
 - NPAC's role in managing routing provisioning for ported/pooled numbers is unrelated to ENUM, which is a DNS-based real-time discovery service
 - ENUM is analogous to an IP-capable SCP function, which the NPAC does not perform
- The NANC LNPA WG change management process is being followed:
 - Change orders have been “accepted” by the LNPA WG
 - Change orders have been fully vetted by the LNPA WG
- The LNPA WG change management process should continue

NPAC: Vital Role within Industry

- Centralized master (authoritative) provisioning system for ported and pooled TNs, regardless of underlying network technology employed (wireline, wireless, cable, IP)
- Service providers provision NPAC with routing data for ported and pooled TNs via the Service Order Administration (SOA) Interface and via a web-based GUI
- Current routing information for ported and pooled TNs includes:
 - Location Routing Number – terminating PSTN switch identification
 - DPC/SSN - SS7 routing information for the following services:
 - CLASS - enhanced services such as incoming call screening and missed-call return (*69)
 - LIDB - Line Information Database for enhanced services
 - CNAM – Enhanced Caller ID – calling name display
 - ISVM - enhanced services for voice mail
 - SMS - text messaging for cell phones

NPAC: Vital Role within Industry Cont'd

- NPAC broadcasts routing and administrative data to all NPAC LSMS users simultaneously upon record activation
- NPAC ensures that routing information is current and in sync, and that NANC business processes have been followed prior to accepting any provisioning changes for activation
- Law Enforcement and Public Safety agencies can query NPAC IVR to determine facilities-based carrier for surveillance purposes and emergency assistance
- NPAC is used to generate lists (TNs that have been ported from wireline to wireless and vice versa) for telemarketers to comply with Telephone Consumer Protection Act (TCPA)

NANC 399 & NANC 400: Technical Implementation

- Both change orders are fully backward-compatible:
 - No requirement that a SP and/or vendor take any action to accommodate either change order; their systems do not have to be changed at all unless they want to support the fields; this is similar to the way pooling EDR was implemented
- Both change orders are optional on a SP by SP basis:
 - Election by one service provider does not impact another
 - Use of the NANC 400 is optional at the field level, so even if a service provider elects to use the change order, population/receipt of data for each of the fields can be elected individually
- Even if an SP elects to participate in the change orders, there is no requirement that any new data field actually be populated or that any of the new data fields received actually be used.
- Implemented using embedded XML over the existing NPAC SMS CMIP interfaces
 - XML is an established and well understood protocol used by carriers and vendors that participate in the LNPA
 - The extensible nature of XML means it is flexible and can be easily modified

NANC 399 & NANC 400: The Process So Far

- July 2004 LNPA WG Meeting
 - LNPA WG discussion on possible need, requests to have a tutorial about new IP services to better understand possible impacts caused by LNP on these services
- August 2004 LNPA WG Meeting
 - Jon Peterson, Internet Engineering Task Force (IETF) Area Director (NeuStar employee), lead author of the SIP standards, provides IP technology tutorial
 - LNPA WG Action Item - SPs are requested to provide needs assessments in preparation for discussion at the October meeting
- September 2004 LNPA Meeting
 - Added Change Order NANC 357 to Release 3.3; added “VoIP” as a category for SP type
- October 2004 LNPA WG Meeting
 - Change order packaging for Release 3.3 complete and submits it to the NAPM, LLC
 - On October 13, 2004 NAPM, LLC requests Statement of Work (SOW) from NeuStar for Release 3.3



NANC 399 & NANC 400: The Process So Far Cont'd

- November 2004 LNPA WG Meeting
 - MCI provides update on ENUM development at ENUM Forum
- November 9, 2004: NeuStar provides SOW to NAPM, LLC for Release 3.3
 - Based on LNPA WG discussion and individual SP requests, NeuStar initiates change orders NEU 001 and NEU 002 in the SOW
 - NAPM, LLC asks NeuStar to present the change orders to the LNPA WG to confirm the change orders could be introduced in an “inactive” mode without impact to the NPAC or NPAC Users
- December 2004 LNPA WG Meeting
 - NeuStar presents complete change orders NEU 001 and NEU 002 including GDMO and ASN.1 specifications
 - SPs express support for proceeding with change orders
 - Some vendors, including Telcordia and VeriSign, express concern about the potential change orders
 - LNPA WG co-chairs direct working group members to assess the change orders in light of the concerns expressed

NANC 399 & NANC 400: The Process So Far Cont'd

- December 2004 NAPM, LLC Meeting
 - NAPM, LLC defer change orders NEU 001 and NEU 002 in the Release 3.3 SOW pending LNPA WG approval
- January 2005 LNPA WG Meeting
 - Change orders and impact assessments reviewed
 - Change orders receive NANC 399 & NANC 400 designation
 - NEU 001 becomes NANC 399; no change in requirements
 - NEU 002 becomes NANC 400; no change in requirements
 - NANC 399 and NANC 400 change orders are accepted by the LNPA WG
 - LNPA WG concludes that NANC 399 and NANC 400 are backward compatible
 - LNPA schedules further discussion (entire day) at the February LNPA WG Meeting

NANC 399 & NANC 400: The Process So Far Cont'd

- February 9, 2005: Telcordia, VeriSign, SNET Diversified Group, and NetNumber submit an ex parte to the FCC objecting to the change orders
 - The FCC asks the LNPA WG not to vote on the change orders pending discussion at the NANC
- 2005 February LNPA WG Meeting
 - The LNPA WG dedicates a day to discuss the change orders
 - The change orders continue to receive support from SPs
 - Proposed modifications to change orders scheduled for discussion at March 2005 LNPA WG Meeting

Technical Description of Change Orders

- NANC 399: Description
- NANC 399: Applications
- NANC 400: Description
- NANC 400: Applications
- NANC 400: Example of How it Works

NANC 399: Description

- Currently in the NPAC:
 - Wireline and wireless service is designated at the service provider level not at the TN level
 - There is no ability to designate alternate service provider arrangements such as reseller and Mobile Virtual Network Operator (MVNO)
- NANC 399 adds two data fields to each ported & pooled TN record:
 - A Service Type
 - Can be wireline, wireless, VoWiFi, or VoIP; more could be added later
 - An Alternate SPID, for example:
 - Can indicate the reseller
 - Can indicate the MVNO
 - Can indicate the serving VoIP provider which uses a facilities-based carrier to receive its PSTN-routed traffic
- NANC 399 does not change any business rules

NANC 399: Applications

Network Routing

- Allows for service providers to directly determine the proper Service Type during call processing

Billing

- Allows the billing records to show the correct service provider and service type

Administrative Use

- 911 Record Administration
- CALEA Support

NANC 400: Description

- NANC 400 adds four new fields to each ported & pooled TN record
 - Analogous to existing LRN & DPC/SSN routing information in NPAC
- Does not change any business processes
 - New routing fields would be broadcasted alongside existing fields
 - No behavior, process, or timer changes
- These new fields contain IP routing information to ensure correct operation of service features offered by carriers today, associated with ported/pooled TNs
- New fields are motivated by the deployment of new service provider features and supporting network infrastructure and are subject to existing ported/pooled mandates
 - The fields are not a result of any change in NPAC role or FCC/NANC policies
- The proposed new fields are Universal Resource Indicators (URIs):
 - Multimedia Message Service (MMS) URI
 - Voice gateway URI
 - Push-to-talk Over Cellular (POC) URI
 - Presence server URI

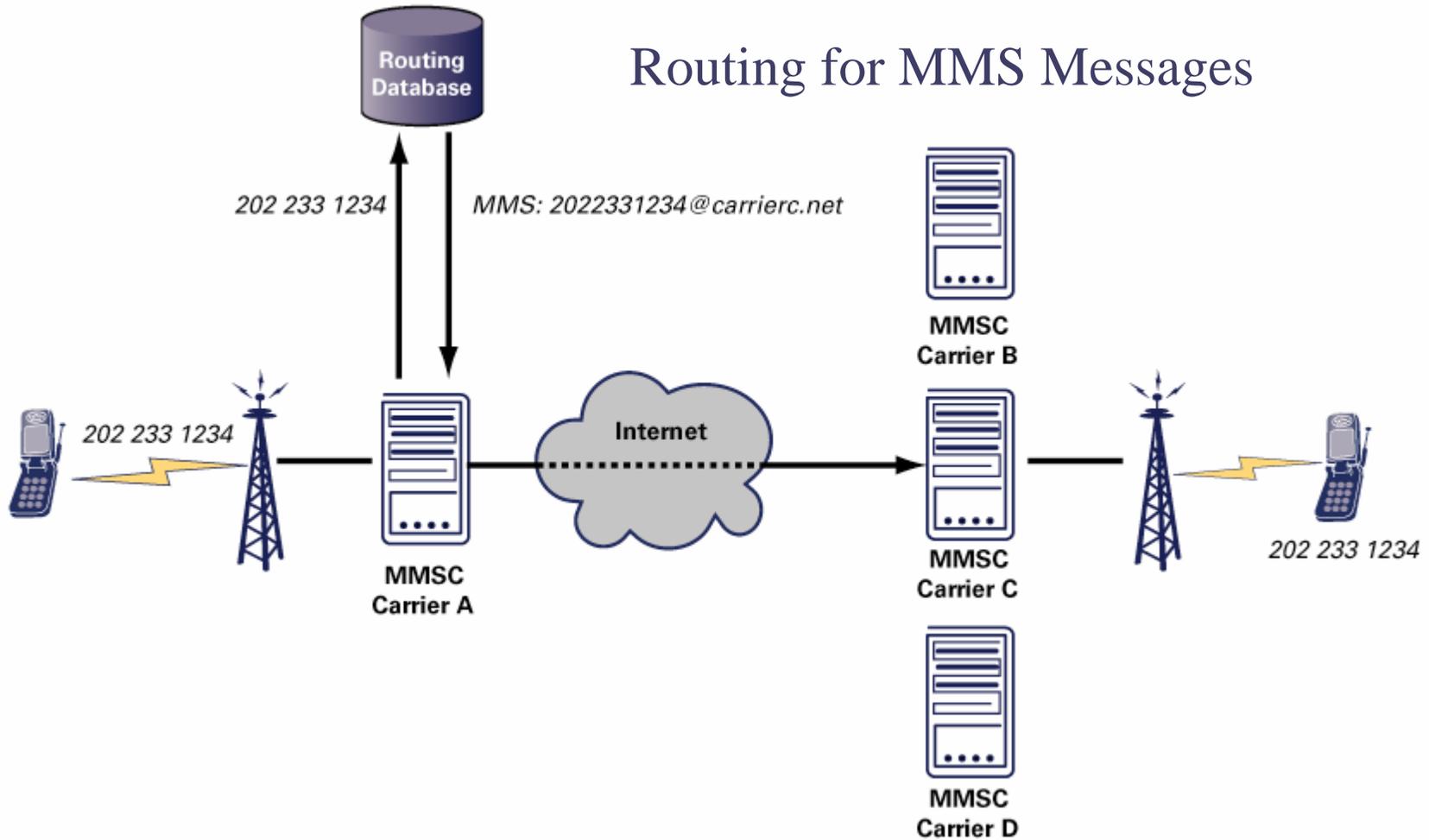
NANC 400: Applications

- Multimedia Messaging Service (MMS)
 - MMS is a wireless service for sending and receiving multimedia messages, such as pictures
 - MMS service is provided via an Internet Protocol (IP) network within and between the wireless carrier's networks
 - IP networks use Internet addresses (URIs) for routing
 - MMS message gateways (MMSCs) uses an MMS URI for routing
 - Carriers today use the SPID field in the NPAC to “approximate” the MMS URI for ported and pooled TNs
 - This solution is not likely to be able to support future growth and configurations such as multiple MMSCs and MVNO architecture
 - NANC 400 allows wireless carrier to provision the MMS URI for ported and pooled TNs, ensuring the integrity of routing and addressing
 - No longer need to “approximate” routing information from SPID

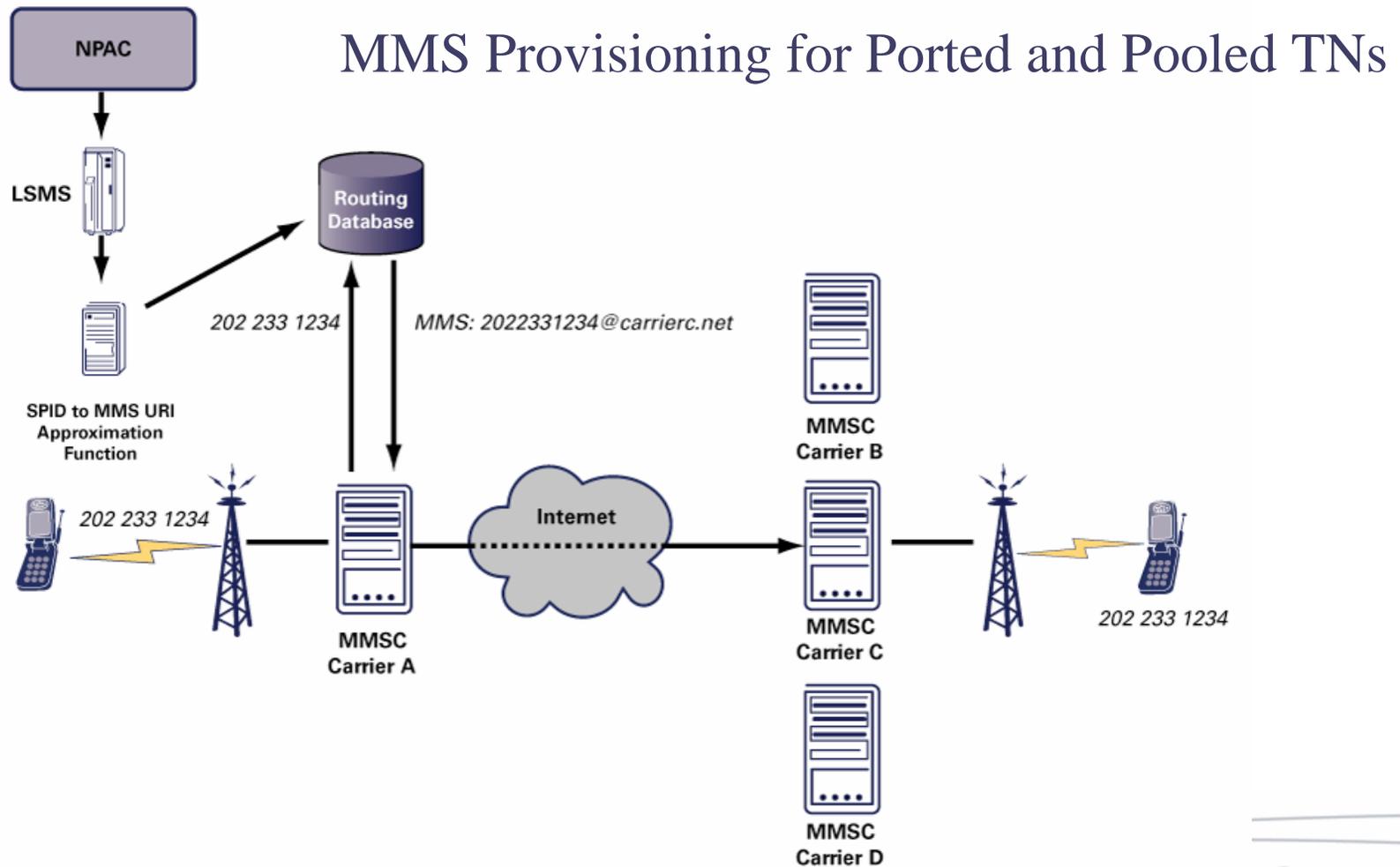
NANC 400: Applications Cont'd

- Voice over IP
 - Service providers are porting VoIP enabled TNs today
 - Service providers are acquiring pooled TNs for enabling VoIP service today
 - VoIP routing works very much like MMS routing
 - The VoIP URI field can be used to designate the VoIP gateway address for a ported/pooled number
- Push to Talk Over Cellular (PoC) and Presence
 - Like MMS and VoIP, both of these applications require mapping a TN to a URI for ported & pooled TNs

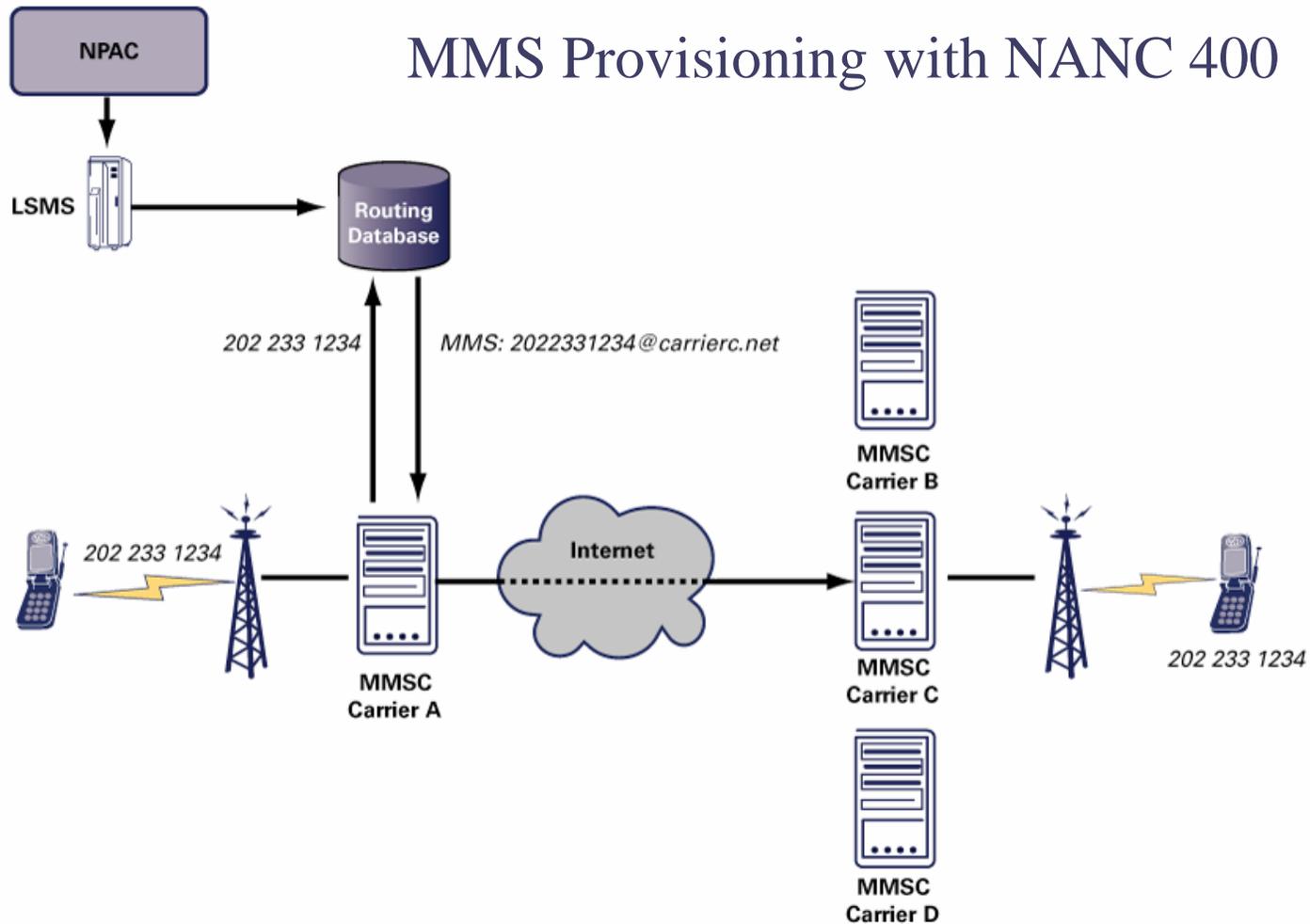
NANC 400: Example of How it Works



NANC 400: Example of How it Works



NANC 400: Example of How it Works



Conclusion: The LNPA WG change management process should continue

- NANC 399 makes the service type of ported & pooled TNs clear and explicit for the purposes of network routing, billing, and service administration
- NANC 400 ensures the integrity of routing information for ported/pooled TNs by allowing carriers to provision Internet addresses (URIs) at the TN level
- Both change orders are non-discriminatory; all new fields available to all NPAC Users (directly or through a service bureau)
- NPAC Release 3.3 is scheduled for implementation in April 2006
- Both of the change orders are within the existing scope of
 - The LNPA WG to recommend
 - The NAPM LLC to approve and order
 - The NPAC to implement
- The LNPA WG change management process should continue