netnumber's Response to the Discussion Paper "Review of the Numbering Plan and other instruments"

netnumber

NetNumber, Inc. (**netnumber**), a global provider of Number Intelligence as a Service (NIaaS) solutions that guide messaging and voice traffic and the operator of the North American text message routing and Sender ID registry, hereby provides comments in response to the Discussion paper issued by the Australian Communications and Media Authority called "Review of the Numbering Plan and other instruments".

Background

netnumber was founded over 15 years ago with a mission to equip every telecom operator and enterprise in the world with critical phone number routing and intelligence data to streamline their operations, reduce costs and combat fraud. netnumber offers a broad set of solutions that solve complex ecosystem challenges and reduce both costs and operational complexity for its customers. netnumber's solutions are designed to support a service provider's day to day operations – providing the data that drives their routing, rating, billing, authentication, and fraud prevention initiatives.

netnumber does this by collecting and organizing detailed network and services attributes for telephone numbers globally, including enhanced, high resolution network identification capabilities that are unique to netnumber. The solutions include information about all types of services offered today, including Voice over Internet Protocol (VoIP), Mobile Virtual Network Operator (MVNO), Application-to-Person (A2P) and Rich Communication Services (RCS) information. netnumber combines this data with global number plan information, global title data, global number portability and carrier identification data to enable operators to identify, rate and route telephone calls and text messages. netnumber offers information about any of the telephone numbers in the world (approximately 10 billion), based on several hundred data sets that span countries and networks globally, many of which are updated in real time, eliminating the complexity that operators would face if they sourced these disparate datasets (with different formats) on their own.

We are a global company with customers all over the world. These include mobile and fixed line operators, messaging and voice service providers, fraud prevention vendors, enterprises, and many others.

Fifteen years ago, the predominant use cases for netnumber's solutions involved the routing of voice traffic to fixed-line numbers, mobile numbers, and IP-based numbers. However, netnumber's solutions have been designed to enable new use cases to emerge, provided they are consistent with industry best practices. Increasingly, a variety of attributes and service types associated with telephone numbers are emerging which are not native to the underlying voice network provider. For example, a service provider may route voice traffic over one network but messaging traffic over another provider's network. As these attributes are established, netnumber provides a central platform where the telephone number and such attributes can be published globally, for use cases that comply with policies established by stakeholders (including tier 1 carriers, CLECs, and messaging hubs) in the voice and messaging markets.

netnumber has been operating the central SMS services registry for the telecommunications ecosystem in North America for 15 years. Our solution called the netnumber Services Registry (**nnSR**) enables numerous established, as well as new, innovative use cases, amongst which are the provisioning and distribution of SMS sender IDs and associated Application-to-Person (**A2P**) campaign metadata. The North American messaging industry relies on the nnSR as the authoritative source of information for authenticating SMS sender IDs. Just recently, the United States Federal Communications Commission determined that sender ID spoofing is not a problem for SMS and MMS in the USA[1]. Different technology is used in the US compared to other international markets. netnumber governs the nnSR as a neutral 3rd party being independent from traffic carrying service providers. As of the date of these comments, the nnSR has grown to become one of the world's largest telecom registries with hundreds of millions of entries and tens of millions of updates per month.

Use of Number Types
(in response to questions 4, 29, 42)

We support the repurposing of existing number types for another use. In many countries, like the United States, phone numbers dynamically change their type based on their current use, for example, subscribers enhance landline numbers to behave identically to mobile numbers by changing the respective number type from fixed number to mobile number. Another example from the United States is the use of landline numbers for over-the-top applications like Google Voice. There, landline numbers are text-enabled for SMS and MMS services and calls are being serviced over the internet (VoIP) rather than landlines. The underlying idea is that a number type is managed dynamically, e.g., in a central registry, rather than keeping it static based on the Numbering Plan.

Further, we believe that allowing number types to change dynamically would make the Numbering Plan more robust by increasing the support of future innovation in phone number use and by providing a novel approach to numbering conservation as it would not be necessary to reserve dedicated numbering resources per number type. In addition, new number types could be introduced without the need to reserve new dedicated numbering resources, respectively.

Use of Number Status
(in response to questions 29, 33)

In the United States, the FCC has defined phone number status to report on the use and availability of phone numbers with higher granularity. The definition of such status also allows for defining rules regarding number life cycle management helping with numbering conservation, e.g., a communication service provider has 20% of its allocated numbers inactive indicating that the allocated number inventory is too large, and numbers could be returned for re-allocation.

Use of Number Pools
(in response to question 37)

We have observed issues with pooled numbers where it was impossible for authorities to trace back the assignee and end user of a pooled phone number that was used for malicious campaigns, even when involving the CSP that manages the number pool. Making more numbering resources available at lower costs, e.g., making non-mobile numbers available for SMS and MMS services, is an alternative way to overcome the motivation for pooling.

Use of Multiple CSPs
(in response to questions 43, 45, 46, 47)

We endorse the introduction of rules to manage multiple-service practice. In the United States, it is established practice to use and register a different CSP for messaging than for voice services. This is especially popular with businesses as it allows them to use their established call center numbers for messaging channels. For example, a CSP provides a phone number, VoIP services, but no messaging

services to a business. This business can use another CSP for messaging services on the same number, enriching its customer engagement portfolio. The neutral market for messaging CSPs is competitive and businesses can choose the one that provides the best tools for their needs, for example, GUI, APIs, chatbot functionality, etc.

Central Registration
(in response to questions 24, 33, 45, 46, 47)

Managing complex allocation and assignment setups of numbering resources requires transparent chain of custody and neutral storage. A central phone number registry, like the nnSR, supports cost effective and reliable data storage and distribution.

Telecommunication services and corresponding providers should be registered in association with the phone numbers they are using. For example, a service provider that will originate calls from locations outside Australia should be registered for two reasons. First, this allows terminating service providers to verify the call origin protecting its own subscribers. Second, this allows authorities to trace back calls that are suspicious. A register providing management of individual phone numbers provides the highest transparency and is future proof.

A central register offers the benefit of storing and distributing any number of attributes associated with phone numbers. For example, some phone numbers of distinct types can be labelled as "Do Not Originate", which helps the ecosystem fight brand impersonation. A flexible register can support this use case and many others, without the need to create a dedicated register, interfaces, and processes for each service.

A central phone number register can help the ecosystem to fight fraud in many ways. When allocated phone number ranges and assigned phone numbers are stored centrally and are accessible to the industry in real time, certain types of fraud that rely on sending messaging or voice traffic using illegitimate originating numbers can be detected and mitigated.

Cost-effective solutions exist today, e.g., the nnSR for registering alternative communication services providers. The dynamic configuration of multiple CSPs and communication services for individual phone numbers is futureproof as it provides the flexibility to provision, record and shut down phone numbers, brands, channels, or CSPs.

In North America, the nnSR plays the role of the SMS/MMS Sender ID registry, too. All telephone numbers and toll-free numbers used to originate A2P messaging are provisioned by CSPs in the nnSR. Additional attributes that help identify the brand associated with a campaign, the sender IDs used for each campaign, the campaign type and others empower the industry to route and bill the traffic accurately, monitor it for compliance, and fight fraud.

The netnumber Services Registry already performs the functionality needed for the described use of number type, use of number status, use of multiple CSPs, and central registration like above for the North American messaging ecosystem. The nnSR serves as the single source of truth for messaging and enables powerful use cases unique to the North American market. For example, Number Lock prevents customer-specified non-mobile numbers from being text-enabled, which protects such numbers against their potential abuse by fraudsters for brand impersonation.

In addition to this response, netnumber would like to offer its support to ACMA by sharing and discussing its experience and technical capabilities in a workshop free of charge.

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We encourage the Australian Government and ACMA to assess the benefits of using the netnumber Services Registry as a ready-made solution for implementation of Australia's future rules regarding its Numbering Plan.