



# ENUM Explained

ENUM is an IETF interface standard, RFC3761/5067 for Telephone Number querying. It is an extension of DNS and includes recommendations about number registries accessed via ENUM.

## **ENUM and IP Interconnect**

Traditional C7/SS7 networks route traffic by translating telephone numbers into infrastructure point codes which define a destination. In IP Interconnect, including IPX, destination gateway URI and IP addresses need to be established and the telephone number needs to be translated into this form of information. ENUM is the recommended solution.

ENUM is used to provide IP based look up access to number registries. ENUM queries return gateway addresses for the network supporting the queried number for routing purposes.

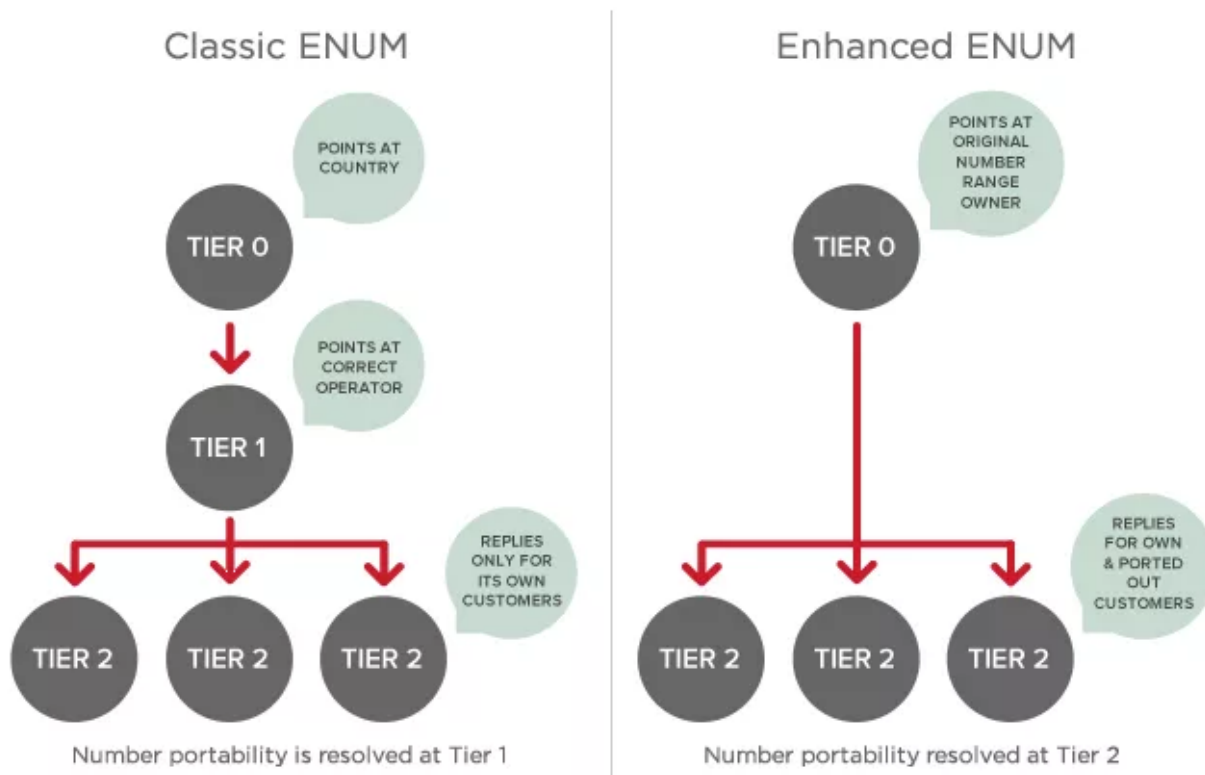
## **ENUM Registry Architecture**

The ENUM architecture enables a hierarchical, distributed network of number registries to be navigated via ENUM queries on a global basis. The architecture uses DNS delegation techniques based on country code and number block ownership to find the registry for any particular telephone number wherever it is stored.

The benefit of the ENUM architecture is that it allows a globally scalable, standardised and accessible numbering cloud to be established, where operators and numbering authorities can implement their local numbering plans and number portability requirements via number

registries, and ensure that these numbering resources can be discovered by those who need the information to deliver traffic.

## Enhanced ENUM



The ENUM architecture is divided into hierarchical Tiers. Higher tier registries point to lower tier registries where gateway address information may be found. GSMA recommends the following Tier options to be used which supports all known numbering regulations.

**Tier 0.** Contains delegations to Tier 1 registries based on Country Code. Tier 0 is run by the GSMA and included in PathFinder.

**Enhanced Tier 0.** Contains delegations to Enhanced Tier 2 registries based on Number Block. Enhanced Tier 0 is run by GSMA and included in PathFinder.

**Tier 1.** Contains delegations to Tier 2 registries based on the full E.164 number. Critically this data is port corrected in number portability countries and directs you to an authoritative Tier 2 registry even when a number has been ported. A Tier 1 registry normally covers all the numbers in a country. PathFinder can host this information.

**Tier 2.** Contains the routing gateway addresses against E.164 numbers. Tier 2 registries cover a subset of the number plan – typically the numbers managed by an individual operator. PathFinder can host Tier 2 data on behalf of an operator.

**Enhanced Tier 2.** Contains routing gateway address information against E.164 numbers administered by the registry owner. Critically this type of Tier 2 registry can only be used in conjunction with the enhanced Tier 0 for a country. The Enhanced Tier 2 must contain data about numbers that have ported out of the host network. For the numbers that have ported out, the Enhanced Tier 2 can supply either a delegation address for the number owner operator or the routing gateway address on behalf of the owner operator.

Registries can be collapsed together in different combinations and PathFinder can support this type of hosting and delegate as adopted by different markets in parallel.

For more information on ENUM and GSMA recommendations click [here](#).

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Interconnect Numbering Services

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