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GSMA Carrier ENUM/PathFinder Seminar

GSMA Mobile World Congress
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Dan Warren

Director Technology
GSM Association



Today's Objectives

- Provide an overview of Carrier ENUM and industry benefits
- Describe operator service applications for Carrier ENUM
- Examine the impact of Carrier ENUM on IP Interconnect
- Understand how carrier ENUM helps global IP routing
- Describe GSMA PathFinder and how it facilitates Carrier ENUM
- Outline the PathFinder Partner Programme
- Provide answers to any questions you may have

Agenda

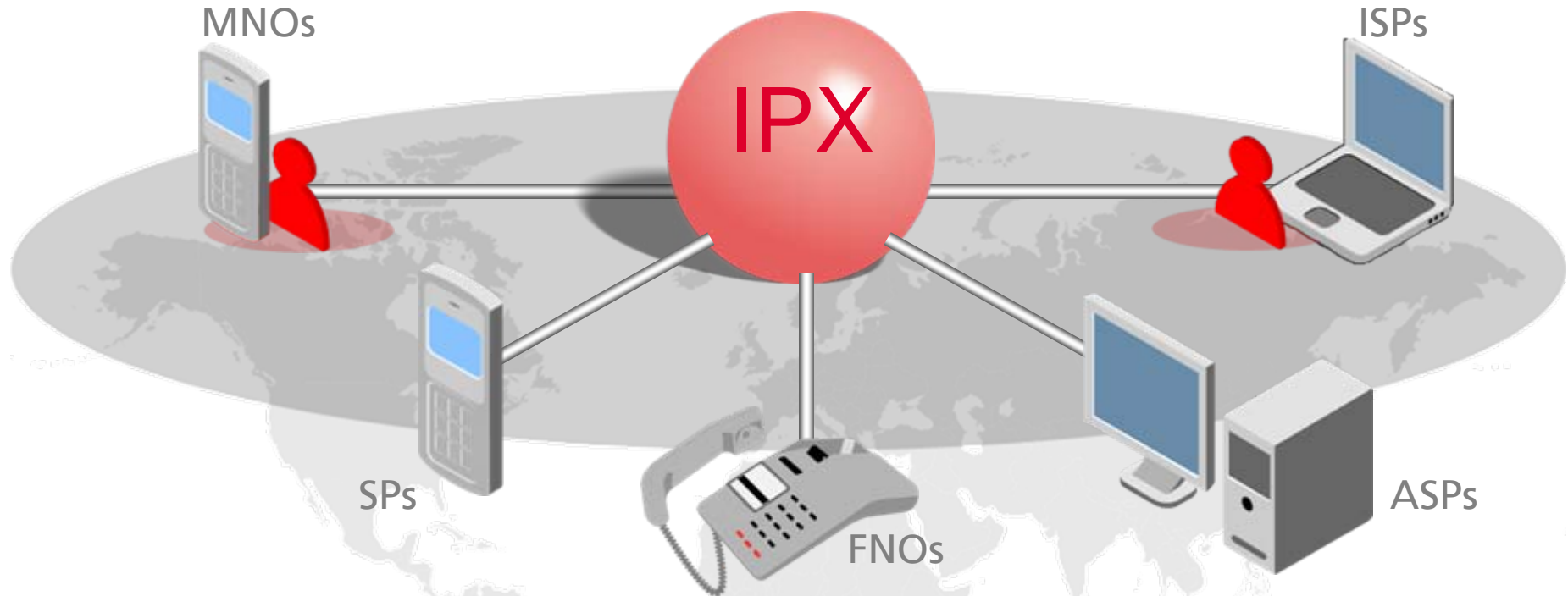
- **Welcome and Introduction**
 - Dan Warren, Director Technology, GSMA
- **Evolution of the GSMA Carrier ENUM Service**
 - Dan Warren, Director Technology, GSMA
- **Global Routing and the Role of Carrier ENUM**
 - John Baldwin, Senior System Manager, Ericsson
- **PathFinder Service Overview and Industry Value Proposition**
 - Steve Granek, VP Business Development IP Services, NeuStar Inc
- **Telekom Austria Case Study - Applications of Carrier ENUM to Voice Services**
 - Wolfgang Brandstätter, Senior R&D Director, Telekom Austria
 - Martin Katzenbeisser, Senior Systems Architect , Telekom Austria
- **Impact of Carrier ENUM on International Traffic Delivery**
 - Mikael Schachne, Head of Data Products, Belgacom ICS
- **Panel Session**
 - All Presenters, moderated by Dan Warren, GSMA
- **Close**
 - Dan Warren, Director technology, GSMA

Evolution of the GSMA Carrier ENUM Service

Dan Warren
Director Technology, GSM Association



Strategic Challenges – Routing of IP Services



- **Reach:** A *universal* addressing scheme for IP services
- **Simplicity:** A *single* identifier for multiple services
- **Interoperability:** Accessible to and *compatible* with any service
- **Portability:** Able to support national number portability

A global private ENUM system is the strategic solution

What is ENUM anyway?

- Telephone Numbers remain the most ***universal personal identifier*** for communications:
 - They are globally unique
 - They can be associated with an individual
 - They can be used for multiple services (e.g. voice, SMS, MMS, video etc.)
 - More than 4.5 Billion people already have one
- The Electronic Number Mapping System (ENUM):
 - Developed by IETF
 - A simple method of harnessing the power of the telephone number...
 - ... to address any number of services for the same individual
 - Based on the same DNS technology that enables the Web

HEALTH WARNING:

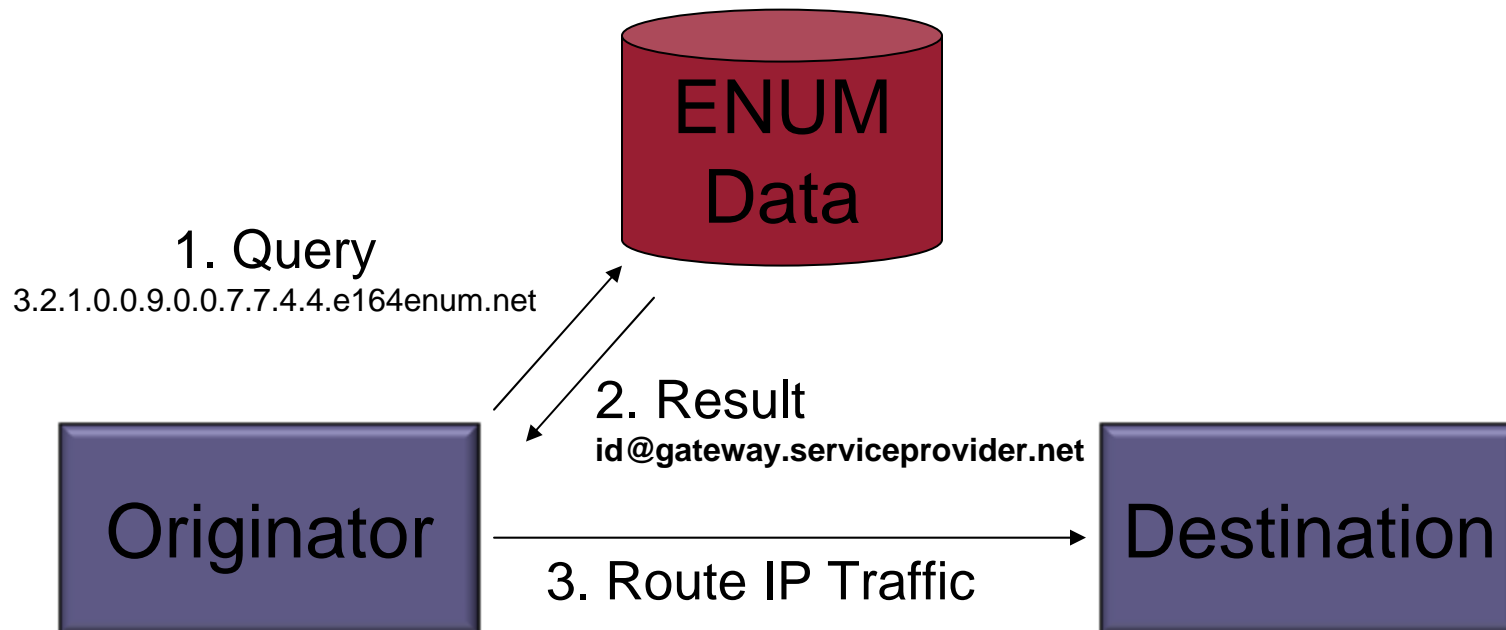
We are talking about ***private*** or ***carrier*** ENUM

We are ***not***, repeat not, talking about ***public*** ENUM



How does it work?

- Standard query interface
- Translate phone numbers into routable addresses
- Dial: +44 7700 900 123
- Query: 3.2.1.0.0.9.0.0.7.7.4.4.e164enum.net
- Result: destination gateway address



Why is the GSMA involved?

- A global solution requires a collaborative approach
- ENUM is DNS-based, a hierarchical tree, a tree needs a “root”
- GSMA provides the Root DNS service for global roaming (GRX)...
- ...and was ideally placed to provide the same service for ENUM
- ENUM addressing for IP-services is already being used for some services, and will be used for many more:
 - MMS already uses ENUM in Country Code 1 (Americas)
 - Evolution of SMS and integration of IM-like services
 - IMS based services (particularly packet voice evolution)
 - Both fixed and mobile
- Hence, GSMA operators took the decision to work on ENUM as an enabling technology for IP Interconnect within the IPX model

A brief history of GSMA ENUM

■ Technical Recommendations

- GSMA members Selected Carrier ENUM in 2005
 - Carrier ENUM places the operator in control of queries – the service is not visible to the end user
- Implementation guidelines produced in 2006 – GSMA PRD IR.67, publicly available

■ Testing

- SIP Trials tested ENUM on IMS services
- Connectivity tested via GRX internationally in 2005

■ Commercial Recommendations

- GSMA IWG developed business model
- Documented ENUM White Paper 2007

■ Implementation

- Approved project to implement Carrier ENUM infrastructure in 2007
- GSMA selected **NeuStar Inc.** as the provider of the Managed Service in 2008
- Carrier ENUM Pilot Programme commenced in April 2008
- Pilot successfully completed and service now Commercially Available.
- Launched vendor partner programme (Acme Packet, Telarix, certified)



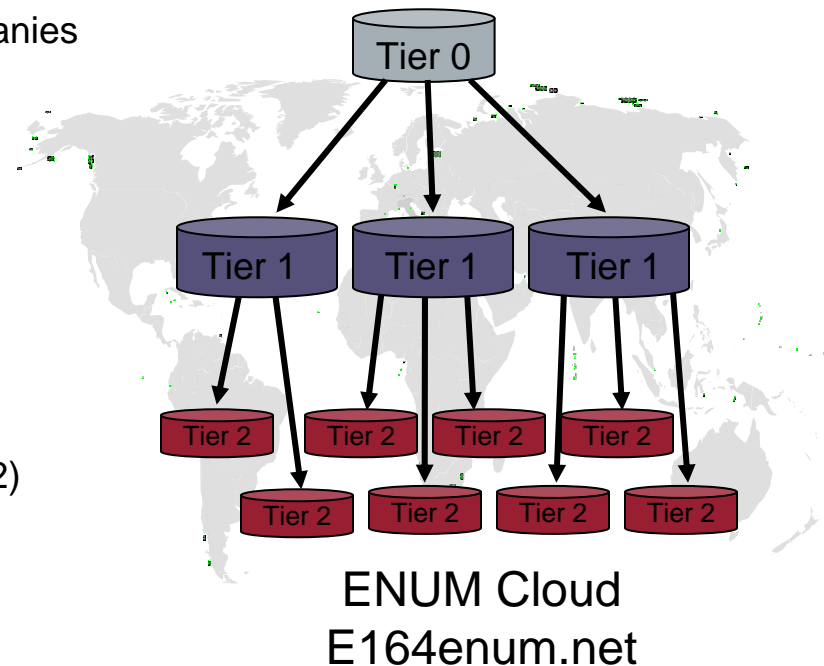
Introducing Carrier ENUM/PathFinder

■ Carrier ENUM

- Allows the end destination associated with a phone number to be “looked up”
- Common mechanism for Voice, SMS, MMS, etc
- Private, trusted system for communications companies
- Multi-lateral easy to adopt approach
- Operators provision their data

■ PathFinder

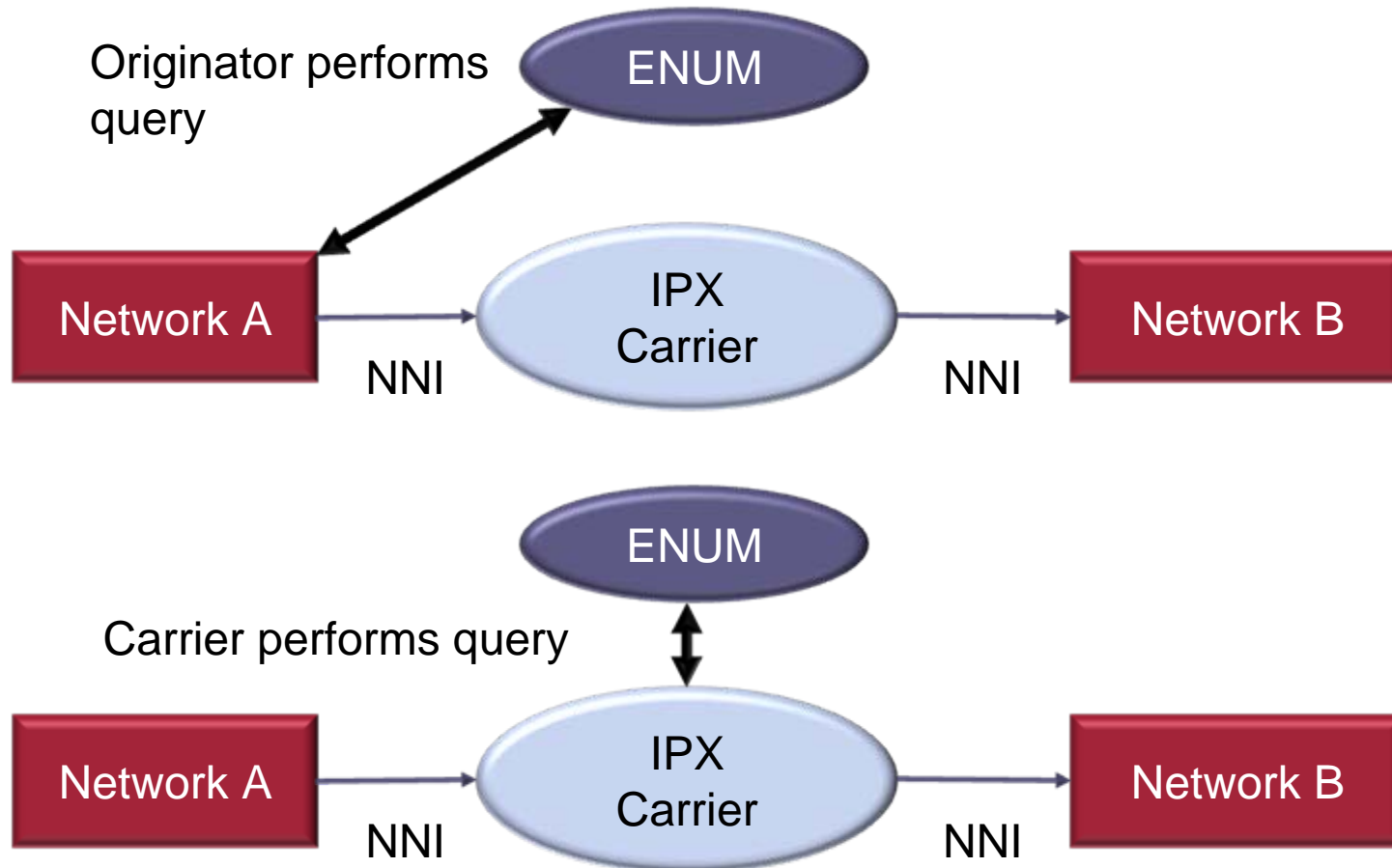
- Implements the Root database
 - Links data on a global interoperable basis
- Solves the “getting started” issue
 - May be used as a national database (Tier 1)
 - May be used as an operator database (Tier 2)
 - Allows operators to move at varying pace
- Operated under a policy designed to assure data authority and security



PathFinder addresses the issues of forming a trusted community



Use Cases: Service Provider and/or Carrier Queries



Carrier ENUM enables all parties in the value chain

The Pilot Programme

- Pilot Programme successfully carried out in 2008 including:
 - Training from NeuStar on the Carrier ENUM platform
 - Establishing connectivity
 - Provisioning data into the system
 - Querying data provided by other operators
 - Exchanging live traffic exchange between operators for Voice and MMS
- PathFinder verified



Status

- **GSMA Pathfinder service is now commercially available**
 - We can start to build the Carrier ENUM community
- **Facility offered as a Managed Service**
 - Carrier Grade SLA
 - Capacity, performance and maintenance managed by GSMA/NeuStar
- **PathFinder Provides the Carrier ENUM Root**
 - Offered free to industry
- **Tier 1 and Tier 2 functionality offered to help “get started”**
 - Designed to be easy to adopt
 - Offered on a pay as you go basis - Per-query metering
 - No capital investment and setup fees
 - Benefits exceed expenses





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