GSMA Number Resolution and ENUM

Adrian Dodd, Senior Director GSMA
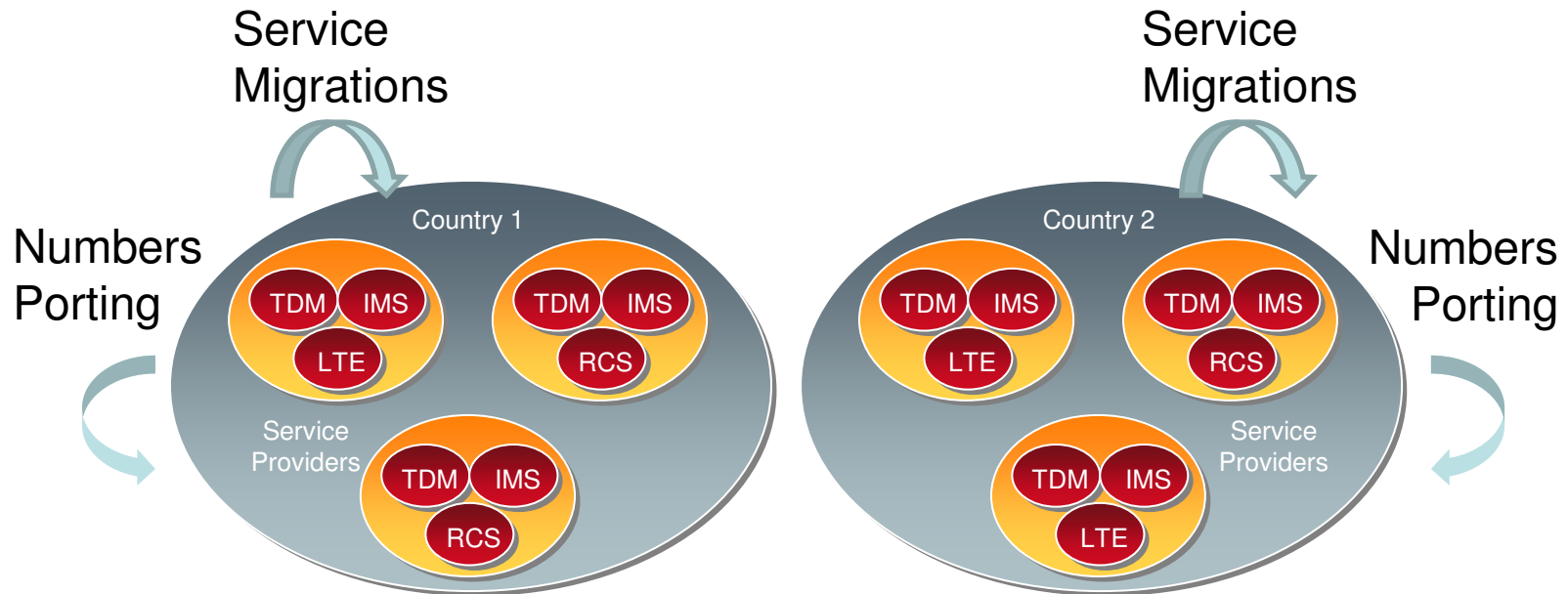
i3F, Warsaw, June 2010

Brief History of the GSMA

- Founded in 1987 by 15 operators committed to the joint development of a cross border digital system for mobile communications.
- Became the global trade group for the mobile industry, representing the vast majority of mobile phone networks across the world
  - Now encompassing commercial, public policy and technical initiatives, ensuring mobile services work globally
- The Association's members now serve more than 3.7 billion customers
  - More than 750 operator Members across 219 countries
  - Over 200 Associate Members (manufacturers and suppliers)
- **Success built on open standards, interoperability and scale**

Interconnect and Routing Challenges

Service Migrations

Service Migrations

Numbers Porting

Numbers Porting

Country 1

Country 2

TDM IMS LTE

TDM IMS RCS

TDM IMS RCS

Service Providers

TDM IMS LTE

TDM IMS RCS

TDM IMS LTE

Service Providers

- Subscribers are migrating to next generation network platforms and porting numbers between networks

- NP is not standardised and in NGN there are variations

- *How do Operators and Carriers route traffic to the correct destinations via the correct technology?*

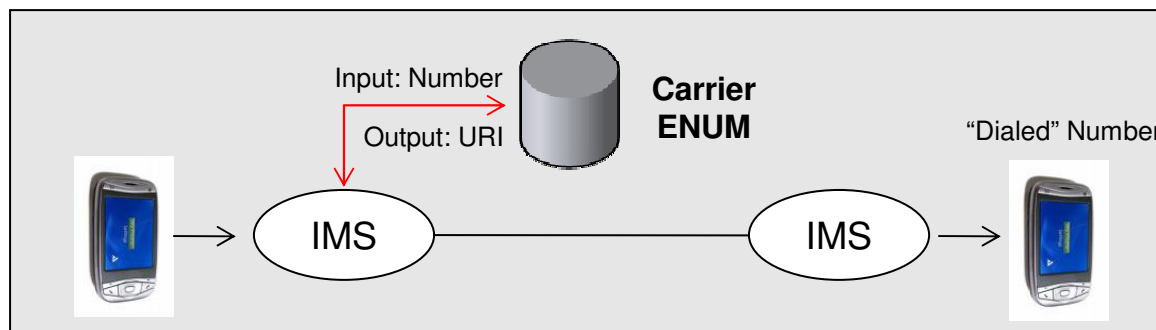- GSMA is spearheading interoperable solutions with Carrier ENUM

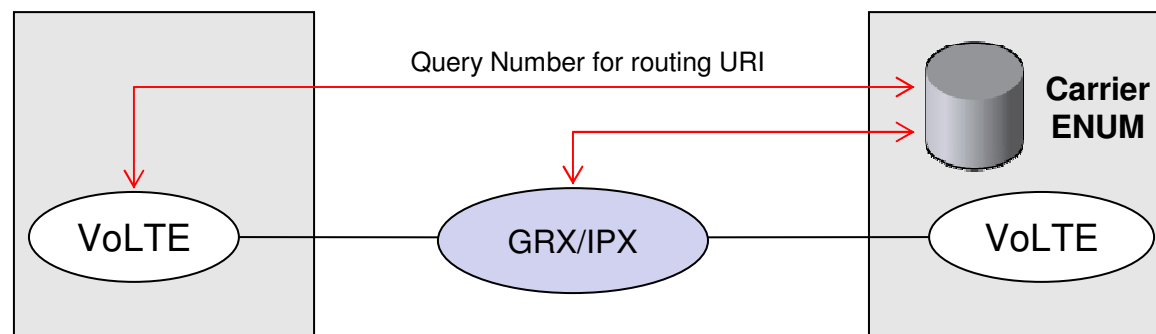**Bi-lateral solutions expensive and not scaleable**

Interoperable Solution - ENUM

- NGN services are IP based
- Phone Numbers must be translated into a routable address
- ENUM provides the number look up translation facility
- Required for internal and external routing
- Solves number portability
- Clean all IP solution
- Any service type
- Connects NGN islands

Internal network routing

Input: Number

Output: URI

Carrier ENUM

IMS

IMS

"Dialed" Number

External routing

Query Number for routing URI

Carrier ENUM

VoLTE

GRX/IPX

VoLTE

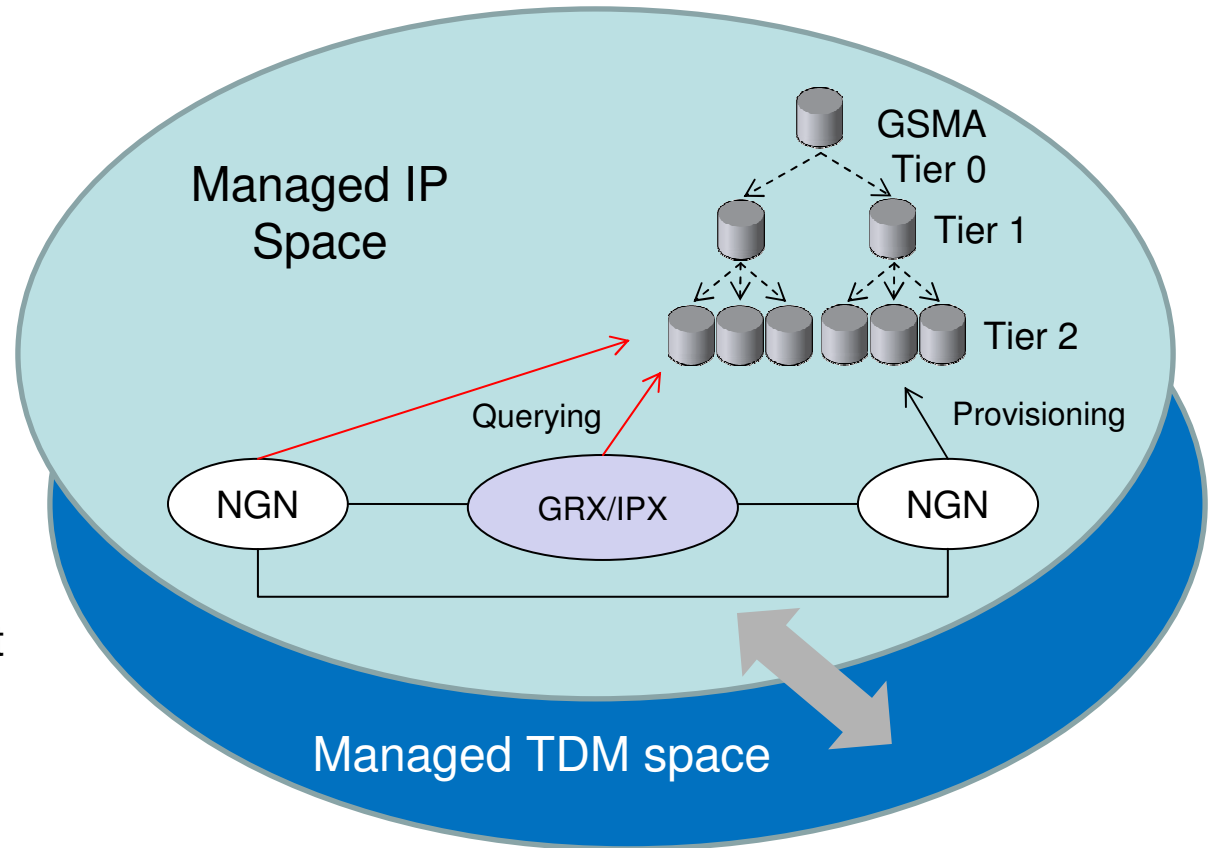## Risk of TDM fallback without destination knowledge

GSMA™

GSMA Number Resolution Requirements

- Frame work for Fixed and Mobile participation

- E.164 based routing enabler for multiple NGN services

- Applicable to global number plan

- Globally scalable

- Technical interoperability

- Commercial interoperable

- Automation and minimal bureaucracy

- Reliable data

- Secure data

- Known trusted user community

- Building on typical conventions for IP network architecture and related GSMA interconnection concepts GRX, Root DNS, IPX
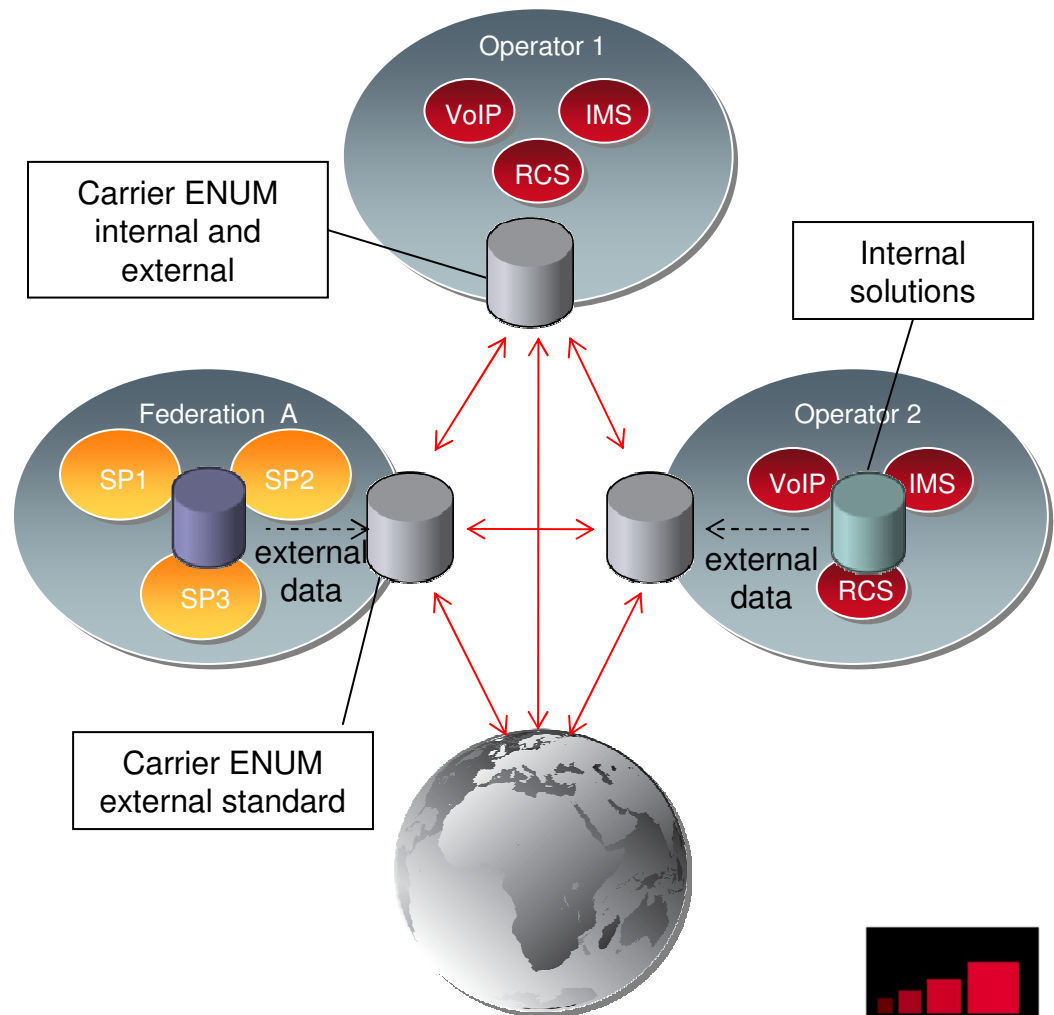
Architecture

- Single root preferred
- Encourages authority and reliability in data
- Supports options for combined tier registries
- Allows partner specific query results
- Can be overlaid and parallel run with existing solutions
- Recognition that there will be other registries – multiple root
- Can be used as a tool to manage interaction with TDM space

Implementation options

- Variety of NGN routing approaches
  - ENUM provides a common global interworking standard
- Pure ENUM solutions
  - Internally route to destinations
- Hybrid ENUM solutions
  - Route internally via a private solution
  - Externally publish network gateways via the ENUM standard
- Federation interworking
  - Intra-federations routing via a regional solution
  - Externally publish federation gateways via the ENUM standard

Operator 1

VoIP   IMS

RCS

Carrier ENUM internal and external

Internal solutions

Federation A

SP1   SP2

SP3

external data

Operator 2

VoIP   IMS

RCS

external data

Carrier ENUM external standard

Carrier ENUM complements other approaches
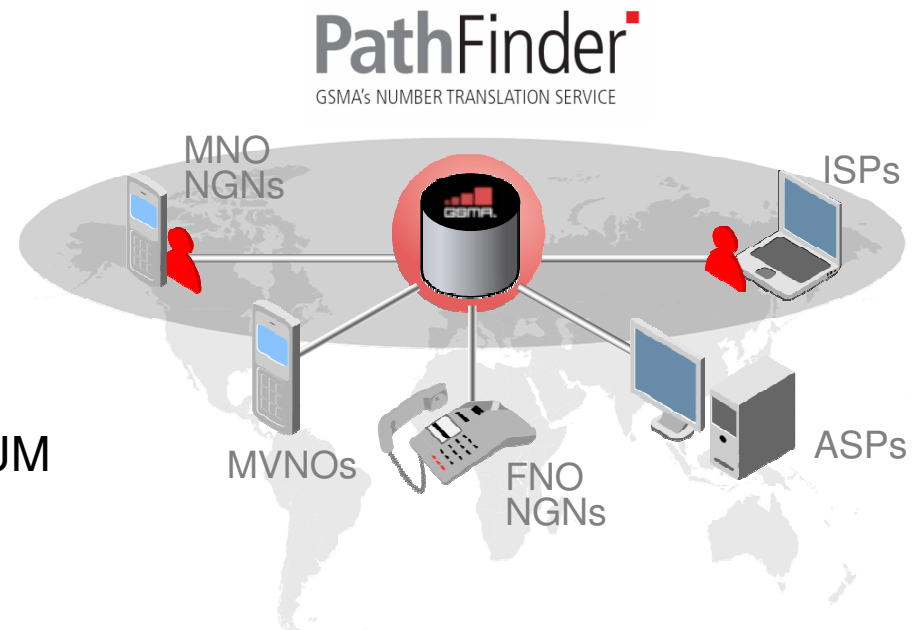
Current GSMA Work Plan

- IWG and IREG are revising Carrier ENUM guidelines

- Requirements being reframed as "Number Resolution"

- IPX is now positioned as "one" interconnect medium

- IPX guidelines being expanded

- Charging Principles in review

- Technicalities of security and query party identification being refined

- GSMA Carrier ENUM guidelines are living documents and will evolve

PathFinder

GSMA's NUMBER TRANSLATION SERVICE

- PathFinder is a global Carrier ENUM number registry

- Acts as the GSMA Carrier ENUM root directory

- Facility where operators can host ENUM data

- Variety of business model options

- One stop shop for 1.8Bn ported numbers

- Operational with more than 40 users and 13 certified vendors

PathFinder
GSMA's NUMBER TRANSLATION SERVICE

MNO NGNs   ISPs   MVNOs   FNO NGNs   ASPs

Service operated by our partner NeuStar

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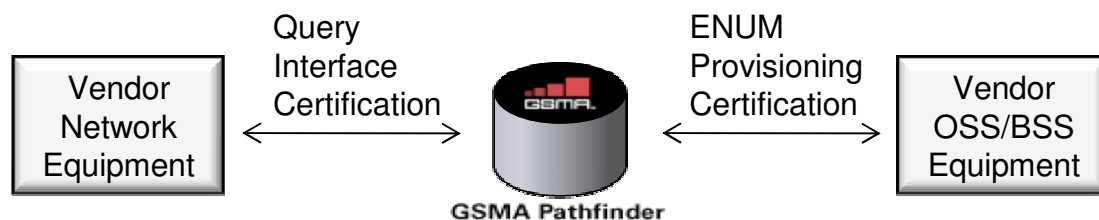Tim Ward, Business Development, NeuStar, +447795840016 timothy.ward@neustar.biz

Information
www.gsmworld.com/pathfinder

PathFinder Partner Programme - Interoperability

Certified PathFinder Partners

- GSMA is running an ENUM Certification programme with the vendor community
    - Vendor solutions tested against PathFinder
    - Certification given to vendors
- Objective - interoperability
- Benefits, operators gain confidence in the interoperability of NGN solutions and ENUM
- Partner Programme
    - www.gsmworld.com/our-work/programmes-and-initiatives/pathfinder/partner_programme.htm

Vendor Network Equipment → Query Interface Certification → GSMA Pathfinder → ENUM Provisioning Certification → Vendor OSS/BSS Equipment

Accelerate and broaden Carrier ENUM compatible vendors

Carrier ENUM Benefits

- Visibility of NGN islands

- Industry solution to IP migration

- Standardisation in NP

- Multi-service number resolution mechanism

- Architectural simplifications

- New services for Carriers

- New functionality for Vendors

- Efficient TDM-IP traffic conversion management

- NGN users obtain best quality, reliability and functionality

Conclusion

- Implement ENUM clients in Product Lines

- GSMA invite any vendor to Certify with GSMA PathFinder

- Thank you

- Questions?