



ENUM

.....in the UK

.....and the NGN standards arena

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ENUM in the UK and in the standards arena

Has been a long bumpy road



but we're almost there!

ENUM - viewed as a key enabler for convergence

The original concept was user ENUM

- lots of hype after the IETF standard (RFC2916)
- initially the focus for, ITU-T, carriers, regulators
- expectation followed by concern

.....control, privacy, access etc

- ITU-T SG2 “Interim” Administration Procedures
- Standardisation

ETSI–ETSI TS 102 051: "ENUM administration in Europe"

ETSI - Minimum requirements for User ENUM

Trials & Implementation

- Lots of requests for cc delegations in .arpa
- National trials
- Few applications
- Few implementations!

The UK trail for ENUM

- Initial workshop to gauge interest Summer 2001
- UK ENUM Group formed 2002
- ENUM Trial 2003
- DTI Consultation on proposed arrangements August 2004
- DTI Response to the Consultation April 2005
- UK ENUM Consortium Ltd created on 9/10/2006 as the recognised body that would assume governance for UK ENUM
- DTI recognise UKEC as having the mandate to operate the T1 registry on 20/11/2006
- RFP issued for T1 Registry provision Jan 2007
- UKEC selected winner (Nominet) April 2007
- Contract negotiations May 2007 onwards
- Transition arrangements concluded
- UKEC 1st AGM March 25 2008

So why so long?

Need to understand the UK environment

The role of the regulator in the UK

The DTI wishes to ensure that the framework will ensure open and fair competition and that it contains safeguards to protect the public interest. This approach is consistent with current Government policy not to regulate the allocation and use of the Internet identifiers on which ENUM relies.

Minister of State for Energy, E-Commerce and Postal Services

DTI ENUM Consultation August 2004

Regulatory issues & concerns

The development of ENUM will be primarily a commercial initiative and the investment and its commercial prospects are issues that will be left to the market players.

The main issues of concern relate to the top level of ENUM, where the management of the UK's numbering space is logically a single monopoly function, and the extent to which the proposed organisational framework allows for open and fair competition.

The DTI is particularly concerned that the arrangements should not allow existing large companies such as the larger telecommunications operators and Internet Service Providers to gain undue influence in ENUM.

The openness and competitive neutrality of the arrangements are especially important.

DTI ENUM Consultation August 2004

How the regulatory environment worked

- ‘Light touch’ regulation corrective steer

UKEG needed to;

- Provide the impetus
- Comply with the principles set out within the Consultation exercise
- Develop the governance structures and rules
- Create a ‘UK ENUM Committee’, an industry led, self governing body of stakeholders with the required checks and balances
- Create a body with legal standing to assume responsibility, and be able to participate in contractual arrangements e.g. with a Tier 1 Registry provider

UK ENUM Consortium now leading the way

- UK ENUM Consortium

a limited company set up with the recognition of the DTI (now BERR) to administer the ENUM top level domain in the UK, to promote competition, self-regulation and the development of the UK ENUM industry.

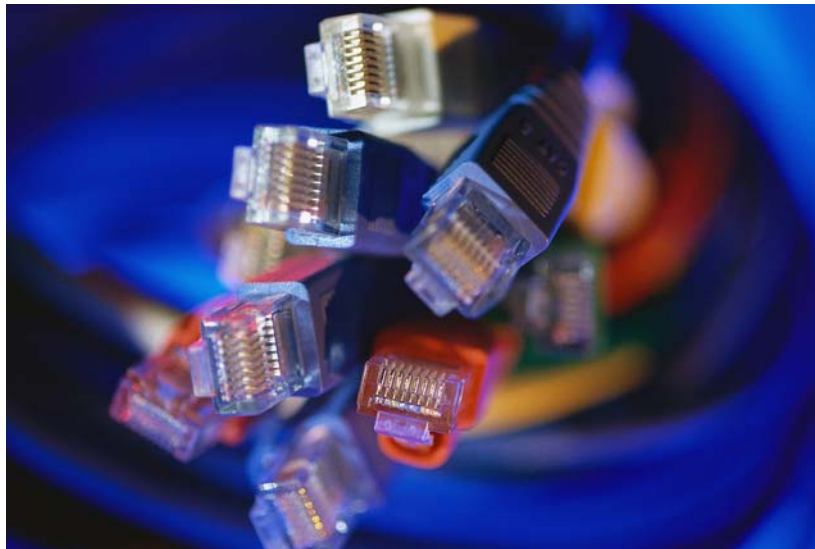
- Initial AGM 25th March 2008 - but lots of work beforehand
- Initial Directors replaced through open elections
- Main goals:
 - to expand to a full membership based organisation
 - help industry supervise the operation of the T1
 - develop associated policies
 - 'Implement!'

How ENUM will be implemented

- **CRUE ‘Carrier Registration in User ENUM’**
- Carriers can register numbers assigned to them
- Carrier ‘opt-in’ (user unaware)
- Tier 1 authenticates against Ofcom database
- Creates 2 NAPTRs; tel or SIP for routing
- Requires process to handle number portability aspects
- If User ENUM picks up, user preference takes precedence

ENUM in the NGN environment

- How to route within and between NGNs ?

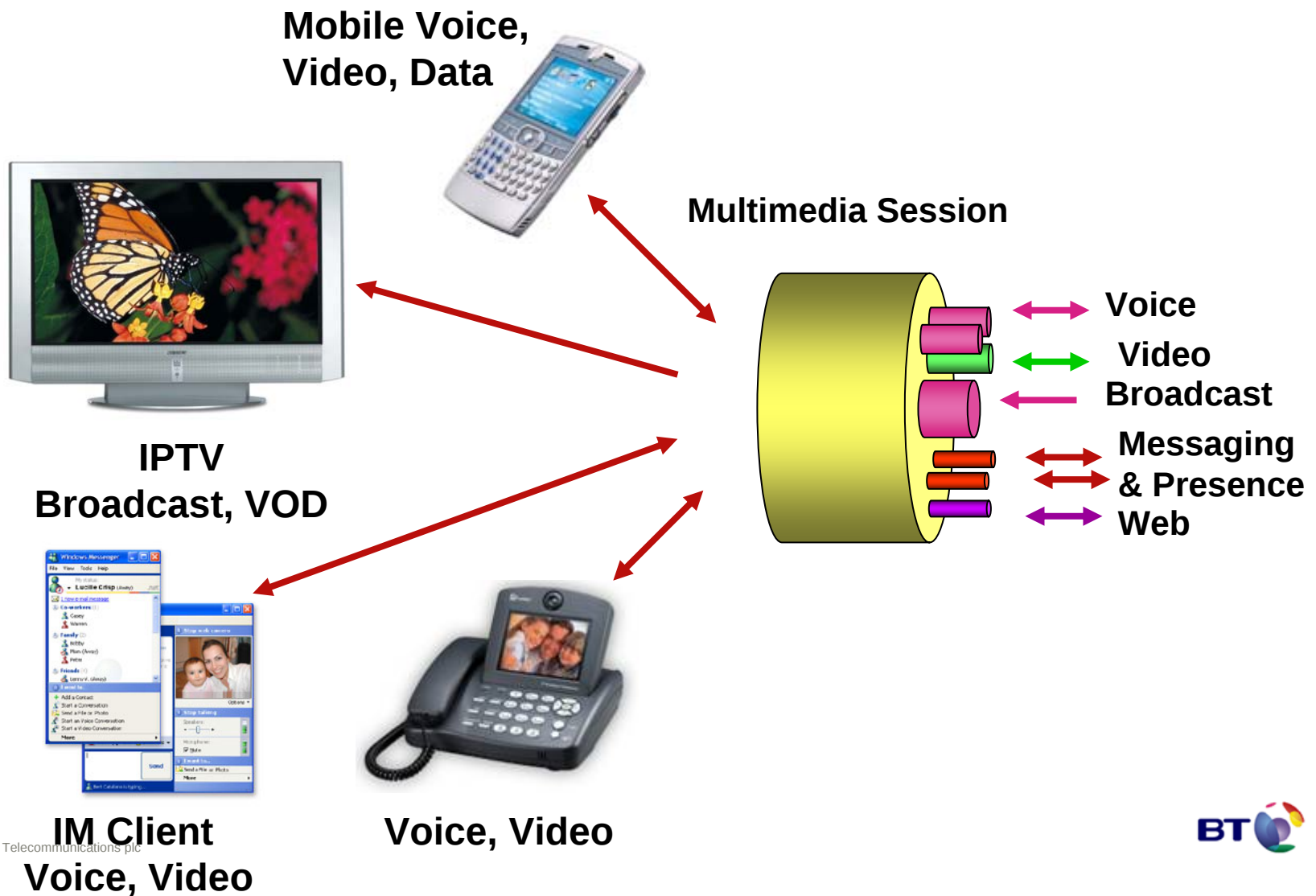


use Carrier ENUM!

The routing and Interconnect paradigm and Carrier/Infrastructure ENUM

- Why Carrier ENUM ?
 - Use of existing standards and protocols
 - Bridges the divide between E.164 and SIP URIs
 - Can map on to existing capabilities
 - Can fit with NGN architecture
- NGNs, VoIP operators, Service Providers, Enterprise networks all require IP based Interconnection
- All require information to route
- Comms Providers have to facilitate Number Portability
- All require a secure and trusted environment
- All need to maintain control of their information
- All want a cost effective answer
- National and Global interconnectivity is required

Building Rich Media through NGNs is an ETSI goal

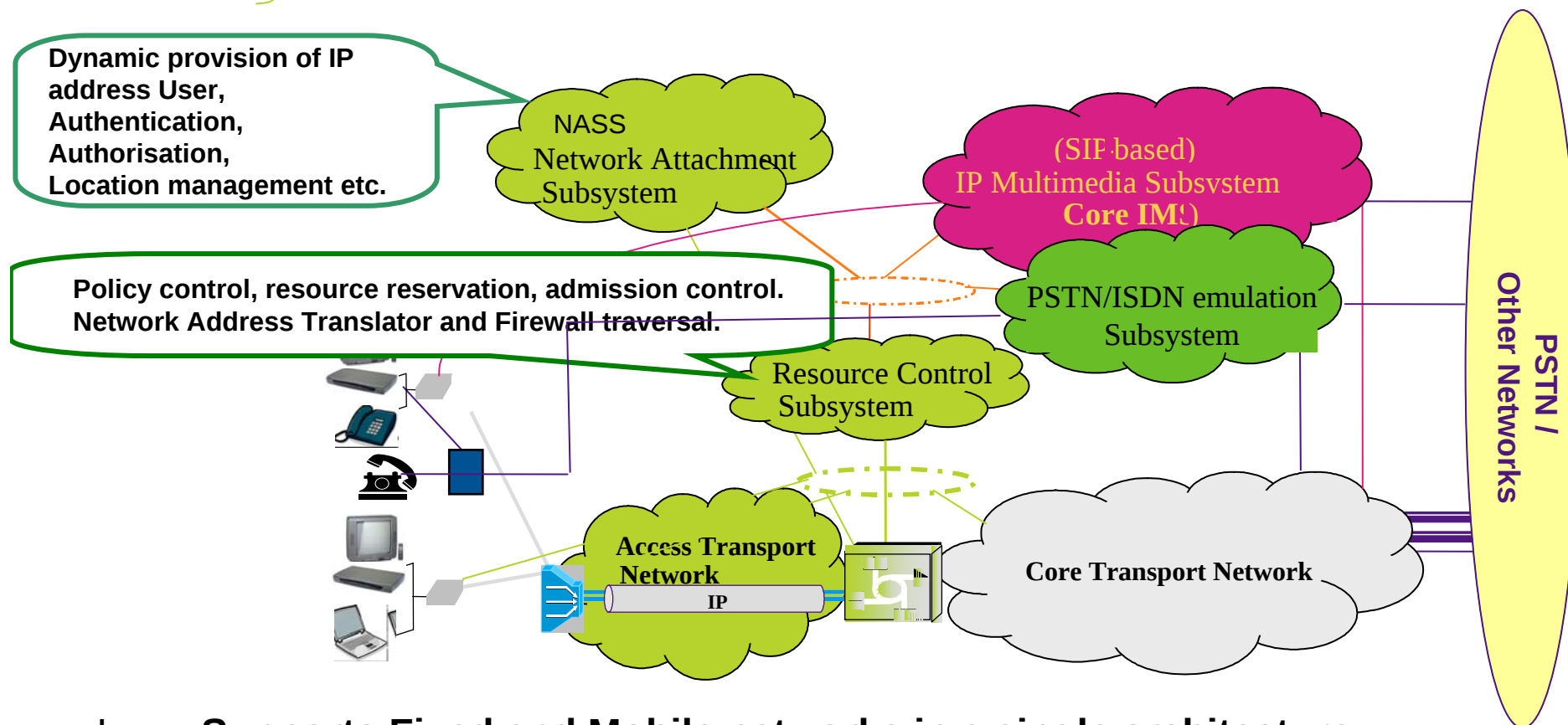


TISPAN NGN Architecture

 **IMS**

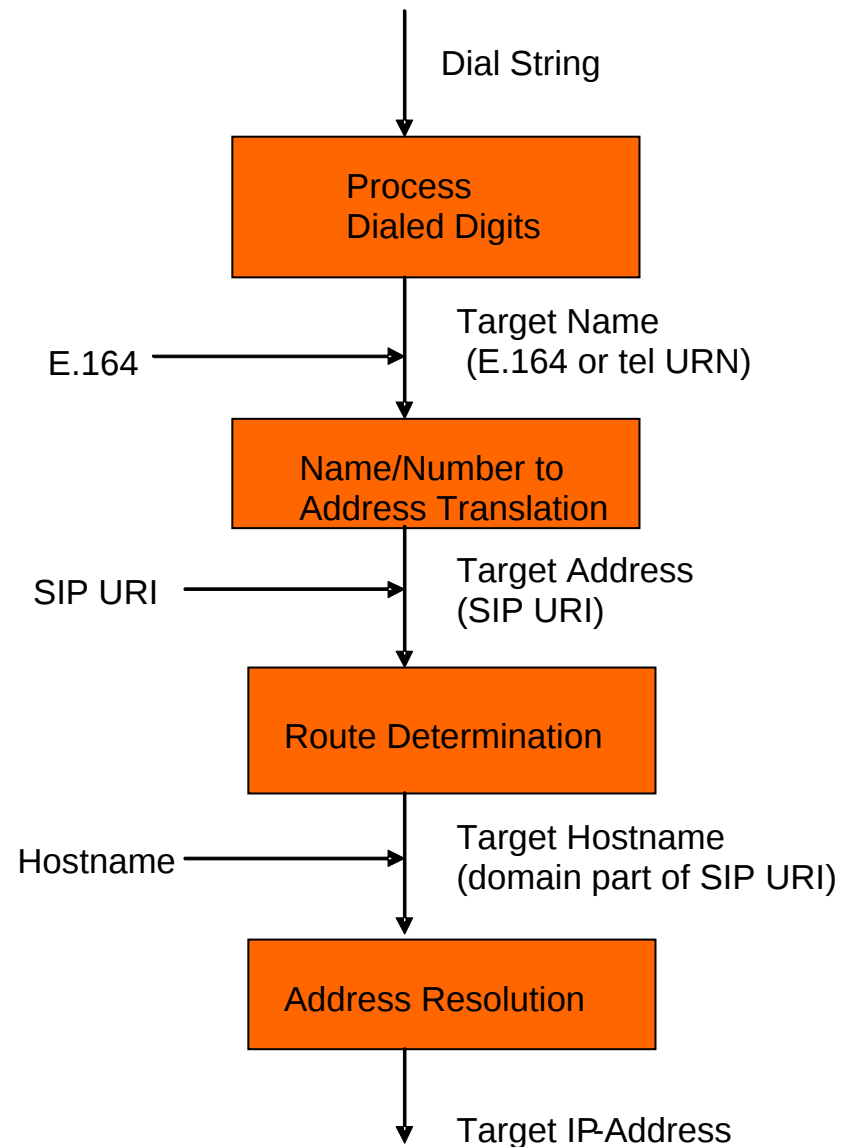
 **TISPAN xDSL Connectivity Network**

 **PSTN/ISDN Emulation to support legacy terminals**



I Supports Fixed and Mobile networks in a single architecture

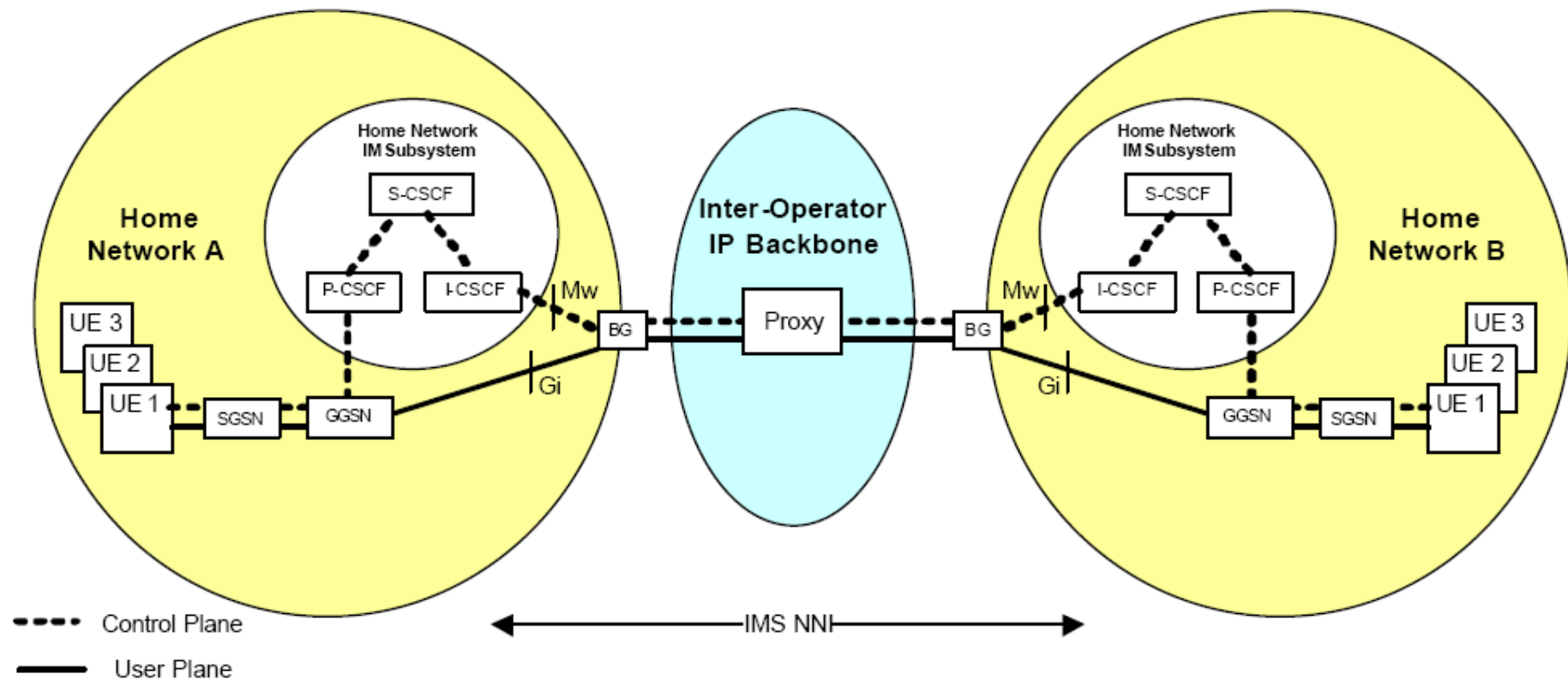
Naming/Numbering Address Resolution overview



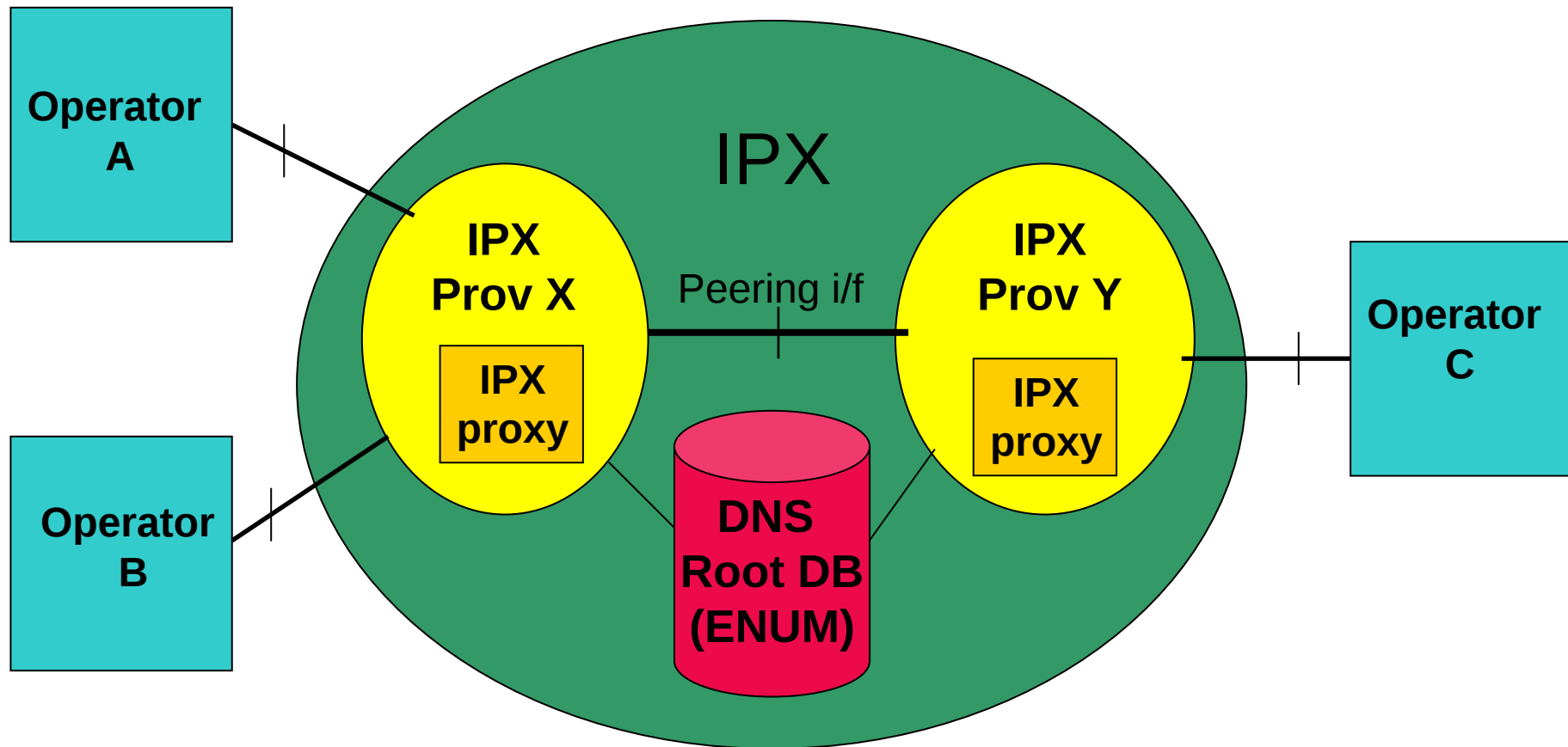
Carrier (ENUM) requirements

- NGN providers need a flexible number translation and routing capability within networks
- Must be able to;
 - facilitate local routing policy
 - facilitate national and global interconnection
 - provide 'real time' resolution
 - take account of number portability requirements
 - be very secure
 - be robust
 - facilitate a competitive environment
 - Must support an IPX (Inter-operator IP backbone)

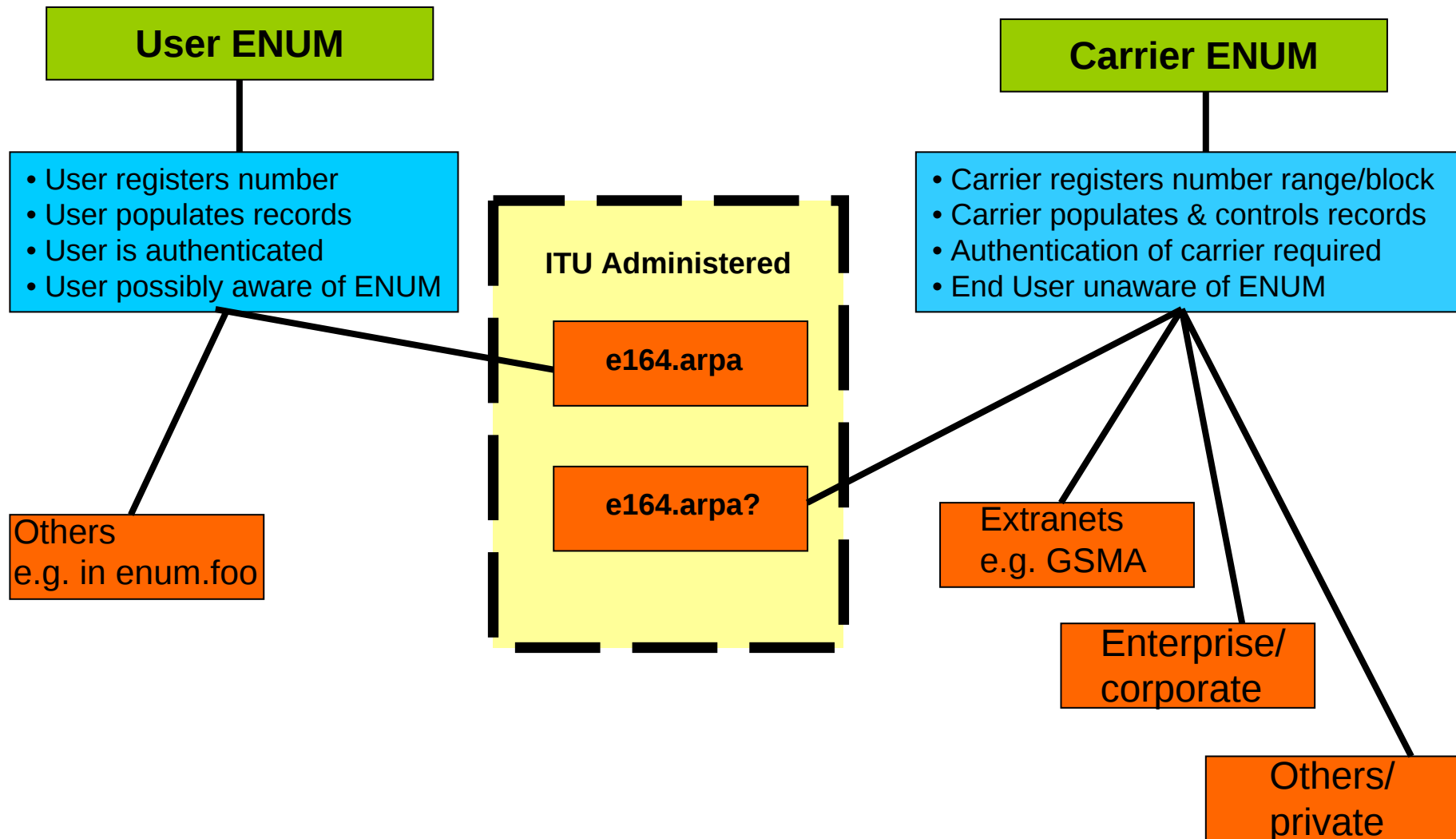
Inter service provider IP backbone



IPX Architecture



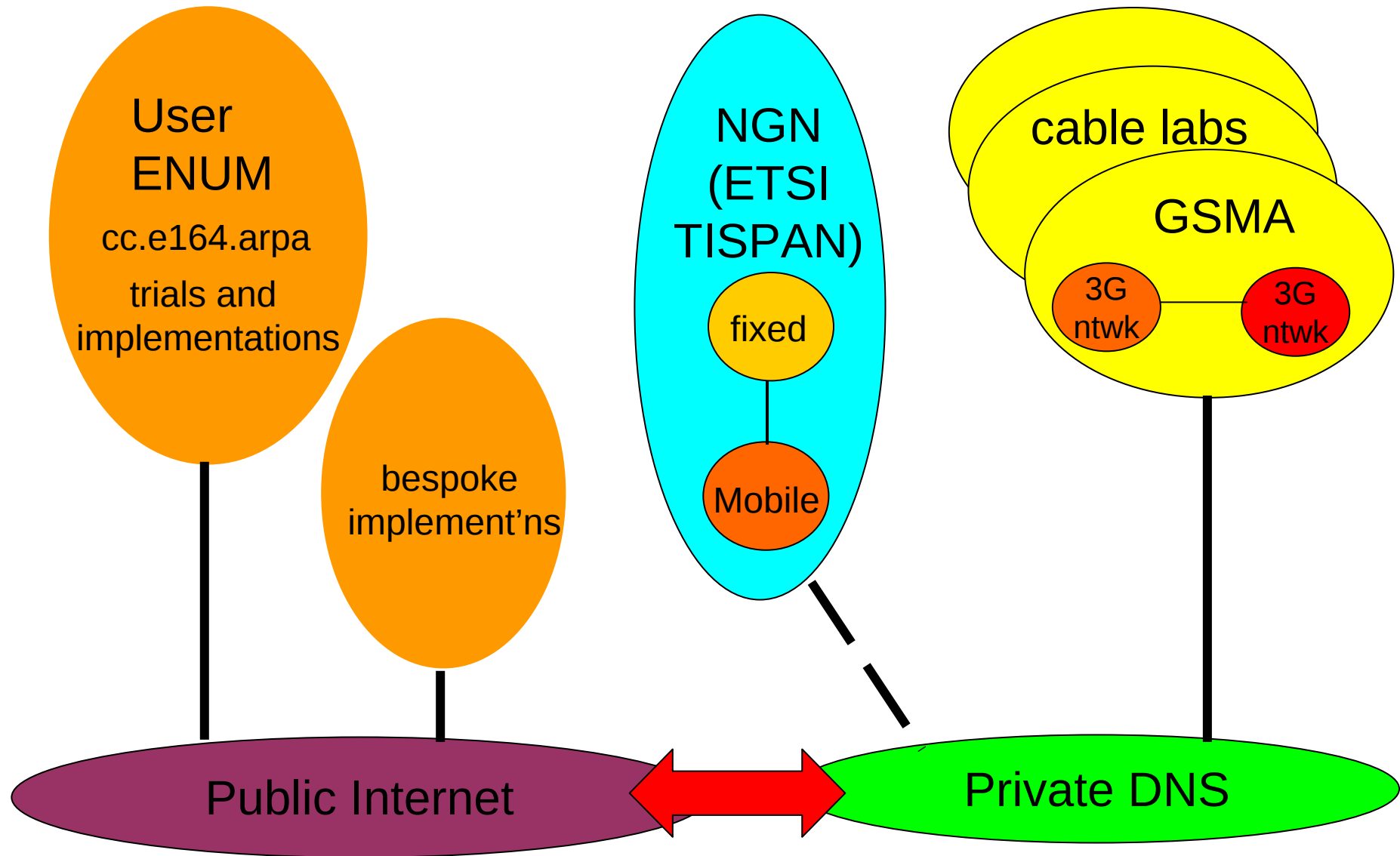
Types of User & Carrier ENUM



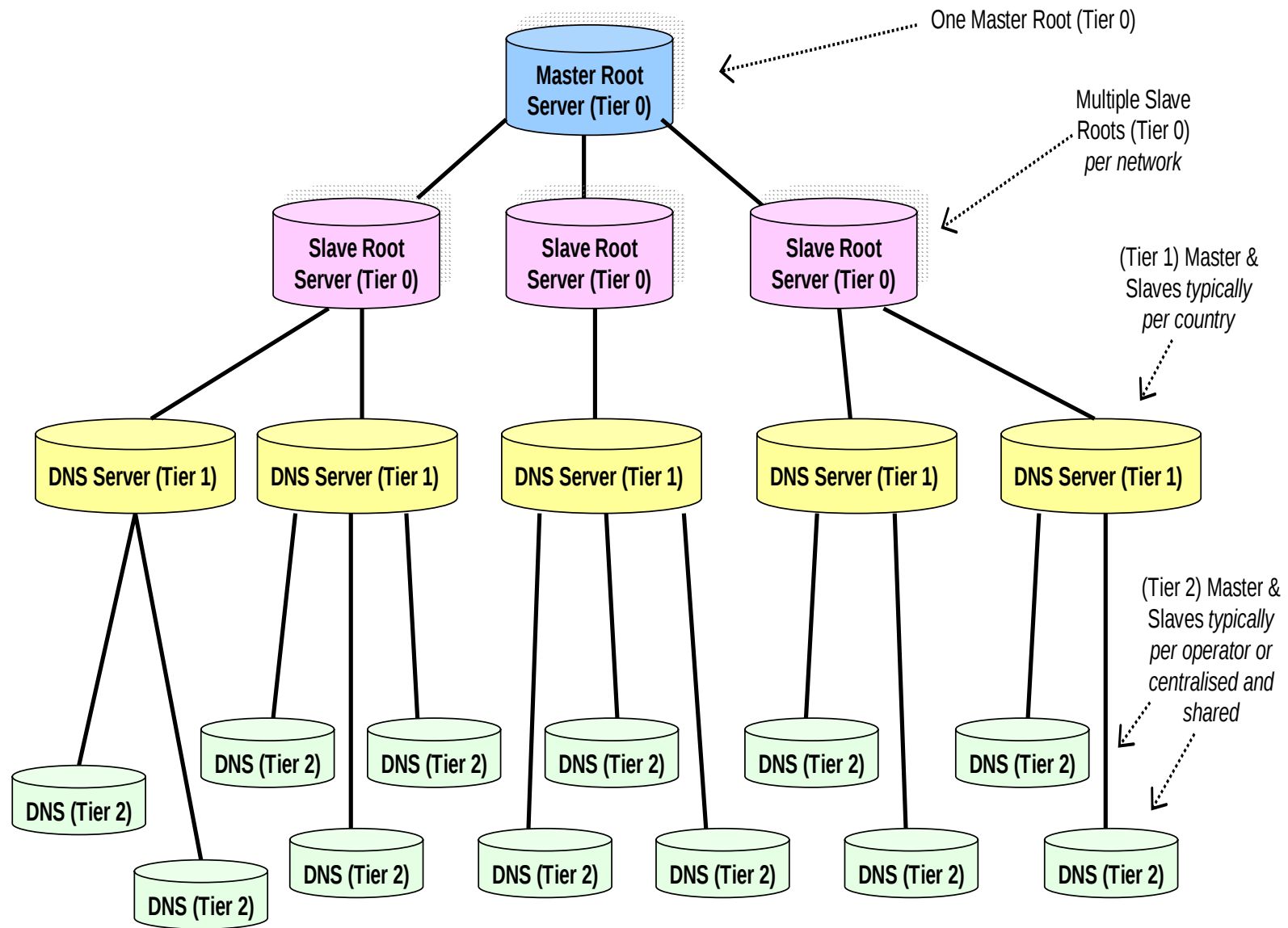
Making the right choice of ENUM in NGNs

- Key Considerations for TISpan
 - There has to be global connectivity/IP Interconnect
 - Bilateral arrangements don't scale
 - Federation's may also cause scaling issues
 - Interconnect requirements must be addressed
 - Competition must be facilitated
 - Number Portability:
 - Compliance with National and EU Regulatory requirements
 - The impact of the 3GPP/TISpan approach on a common IMS
 - Embracing early National arrangements for;
 - NGN Interconnect
 - Routing Provision & Number Portability
 - Centralised & distributed database configurations
 - Level of data held/exchanged
 - Flexibility
 - Work in other bodies (IETF SPEERMINT etc)

The emerging ENUM environment



TISPAN ENUM Architecture



Current state of play in ETSI

- ETSI TISPAN Work Item: *'Infrastructure ENUM options for a TISPAN IPX* proposes ETSI TISPAN use Private DNS Infrastructure for their IPX
- ETSI TISPAN Work Item: *ENUM & DNS Guidelines for a TISPAN IPX* will determine the requirements for ETSI TISPAN.
- TISPAN will then weigh the main differences between their requirements and the GSMA IPX approach
- Decide on the way forward – goal is to complete the full evaluation and make a decision by the end of the year

Thank You

Questions?

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