Problem Statement and Use Cases

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What is E2MD

- E2MD:
  - E.164 To Meta-Data mapping

- Use cases are about providing further information on E.164 numbers

- Why not use ENUM (E.164 To URI Mapping)?
  - ENUM has limitations for usage for metadata
    - Result must always be a URI, and
    - Using the URI establishes a communication session

Differences ENUM / E2MD

ENUM:

- **E2U** "label"

- Result must **always** be a **URI**

- Establishes a **communication session**

E2MD:

- **E2M** "label"

- Result can be either a **URI or** a (short) **ASCII String**

- Provides information about a phone number (i.e. **Meta-Data**)

Common to ENUM and E2MD (1/2)

- Framework approach, specifying
  - DDDS application (E2U / E2M)
  - Template and process for IANA registration of ENUM / E2MD services*

- Any new ENUM / E2MD service* follows this registration process
  - Specification Required (implies Expert Review)

- ENUM and E2MD may share the same tree
  - e.g. sub-delegations within e164.arpa.

service refers to Enumservices / metadata types

Common to ENUM and E2MD (2/2)

- Both make use of DNS NAPTR RR

- Privacy issues must be handled in each service registration
  - Base-specification will mandate security considerations section in each registration and guidance on privacy
  - Security / Privacy considerations shared by all services can be described in the base-specification

- There are more commonalities than differences between ENUM and E2MD

Some E2MD Use Cases

- **Unused**
  - Indicator that number is not in use

- **send-n**
  - Information about the numbering plan

- **cnam**
  - Name of calling party

- **Global Service Provider Identifier**

unused

- Indicates whether an E.164 number (or number range) is allocated or assigned for communications service.

- Lets client know that a call will fail without wasting the effort of a session setup
  - E2MD lookup is faster than SIP INVITE
  - The user can be provided with a correct announcement (or other indication)

- See: draft-ietf-enum-unused-04

send-n (1/2)

- Increases efficiency of overlapped dialing
  - Reduces DNS lookups and SIP INVITEs
  - Decreases frequency of timeouts
  - Could extend SIP "484 address incomplete" handling: no need for a new SIP dialogue for each dialed digit

- Deployed in empty non-terminals (i.e. in the branches)

- Indicates the minimum depth of the tree below this record

- "You must send N more digits before any leaf-node NAPTRs will be returned"

- Designed for private ENUM, but works also in public ENUM

- See: draft-bellis-enum-send-n-02
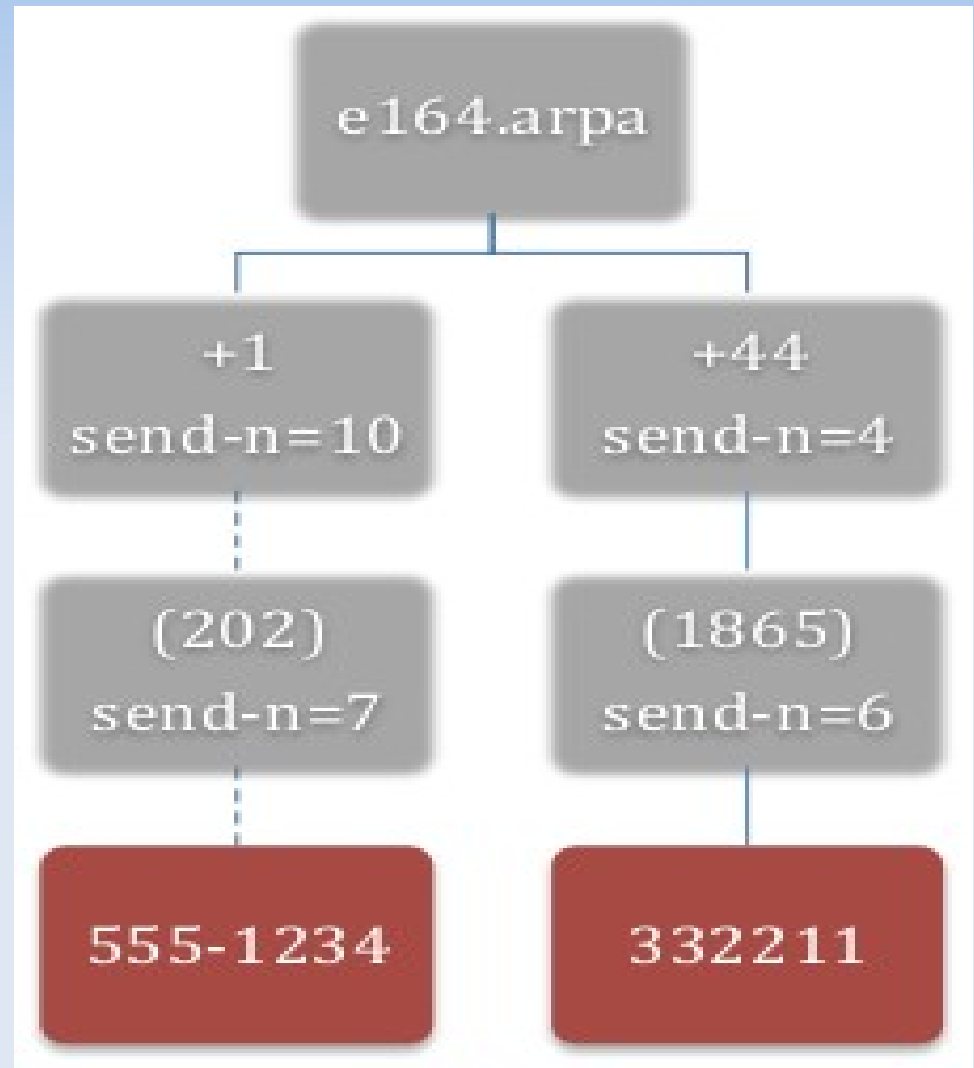
cnam

- Returns the Calling Name (like directory name) for a given phone number.

- Used in cases where this information is not available or lost:
    - Calls that originate on (or transited via) the Public Switched Telephone Network (PSTN)
    - Calling Name to be displayed on VoIP or other Real-time Clients

- See: draft-ietf-enum-cnam-08

Global Service Provider Identifier

- Indicates the Communication Service Provider (CSP) responsible for this number
  - AKA the "carrier-of-record" or "ITAD identifier"

- Potential uses:
  - Optimize routing
  - Advising end-users about costs when charging depends on the terminating CSP

- Not yet documented in an Internet-Draft

Questions?

More E2MD Use Cases

- Service capabilities:
  - SMS | MMS | video calls | presence | IM | …

- Payment Type:
  - PrePaid | PostPaid | ...

- Network Type:
  - TDMA | GSM | 3G | …

- Region Code:
  - Numeric value indicating a region within a country

- Least cost routing information
  - e.g. preferred gateway

Potential E2MD Use Cases

- Charging information
  - In particular useful for premium rate numbers

- Assignee address information
  - e.g. to report abuse of premium rate number

- Emergency Call routing:
  - Location information
  - PSAP (Public Safety Answering Point)