SIP.edu ISN Proposal

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July 2005
ISN Proposal
Why is some other numbering plan needed?

- SIP URIs are the “end-game”, but...
  - No easy URI entry on most SIP phones
  - No URI entry at all on most deployed desksets
- E.164 ENUM exists, but...
  - Root tree is not deployed widely yet
  - No clear dialing differentiation between PSTN and VoIP (“Is this call over the Internet or..?”)
  - Still requires e.164 numbers from some telco vendor
  - No relation of e.164 to entity - arbitrary mapping makes filtering or inference almost impossible
The inability to enter SIP URIs into most standard desksets impedes VoIP interconnection. E.164 dialing has significant problems even as a short-term solution. A numbering plan that resembles SIP URIs but uses only symbols/numbers on a 12 digit keypad seems to be the most logical interim step.
What is an ISN?

- ISN = ITAD Subscriber Number
- An ISN is a numeric-only identifier that works to locate IP-based services. ISN numbers:
  - Are organizationally based (not geographic)
  - Use an ENUM-like method for directory service
  - Use an IANA standard for organizational identification for telephony routing entities
  - May overlay or replace existing numbering schemes within an organization
• Use an ITAD as the entity identifier
• Separate the subscriber ID from the ITAD with ‘*’
• Method looks like:
  • Format: <subscriber>*<ITAD>
  • Examples:
    - 2203*256
    - 3015551212*993
    - 11489*29311
What is an ITAD?

- **ITAD** - *Internet Telephony Administrative Domain* (like an ASN, but for phones)
- **Specified by RFC 3219**

13.5. ITAD Numbers

This document reserves the ITAD number 0. ITAD numbers in the range 1-255 are designated for Private Use. ITAD numbers in the range from 256 to \((2^{32})-1\) are allocated by IANA on a First-Come-First-Serve basis. Requests for ITAD numbers must be submitted to iana@iana.org. The requests MUST include the following:

- Information about the organization that will administer the ITAD.
- Contact information (postal and email address).
What happens next?

- Proxy performs modified ENUM lookup:
  - 2203*256 becomes:
    
    **Query:** 3.0.2.2.256.somedomain.com NAPTR

- 256.somedomain.com has been delegated to the nameservers owned by the managers of ITAD 256. Those nameservers contain:

  3.0.2.2 IN NAPTR 100 10 "u" "E2U+sip"
  "!^.*$!sip:2203@204.91.156.10".
ISN Pros

- <subscriber>*<ISN> is dial-able from a 12 key pad
- ISN is globally unique
- ISN *can be* short
- ISN is verifiable
- ISN is easily mapped to domain
- <subscriber> is completely flexible
- Level of effort: Very low
- Does not interfere or compete with existing ENUM (or Tello) routing methods
- ISNs can be (more easily) grouped into industry-specific lists based on ITAD number
Some systems may have difficulty passing ‘*’
Requires getting ITAD from IANA (minimal effort)
ITAD may not be able to be mnemonic
Still requires a ‘root’ domain or SIP server for lookups
Some proxies/gateways may be too “dumb” to do flexible ENUM queries (Tello can solve this)
1) Manage top-level ISN domain (possibly as temporarily appointed custodian method TBD)
2) Tello can provide ISN DNS resolver re-writes during learning period (end users continue to use “e164.arpa” style lookups)
3) Anyone using Tello resolvers benefits from other e.164 entries in Tello database if query is not an ISN destination
Foundation for the Future

- Meta-presence in network published broadly

- Enhanced collaboration through integrated real-time IP communications
  - Video
  - Web meetings
  - Instant messaging

- Increased security, QoS and control capabilities for real-time IP communications

- Tight integration with core business apps
How Tello can be used

1) As an ENUM resolver capable of looking up ISN formatted numbers. (Query method)
   – Authoritative ENUM server for ISN numbers
     • NAPTR records stored at Tello
     • NAPTR records remain with the originator, who provides NS records

2) As a SIP proxy capable of resolving ISN numbers (proxy method)
   – PBX with SIP Trunk capability
   – PBX with external SIP Gateway
   – PBX with ‘lookaside’ TDM/IP/TDM Gateway
TDM/IP/TDM ‘look aside’ gateway

Is call ISN or e.164?

Yes: Connect via Outbound SIP

No: Connect to Outbound PRI

TDM TRUNK (PRI) → Is call ISN or e.164? → Connect via Outbound SIP → SIP TRUNK

TDM TRUNK (PRI) → Connect to Outbound PRI → TDM TRUNK (PRI)
Advantages of Tello to sip.edu

- Supports new ISN based approach with mapping of ISN to e.164
- System also supports e.164 numbers, allowing pure IP connectivity
- Central interface for
  - QOS
  - Security
  - Number publication
  - Reporting
- Will support additional session based applications
  - Voice
  - Video
  - IM
Getting Started

• e.164 Beta program available now
  – Intra and Inter Enterprise pure VoIP call routing
  – Non-disruptive deployment
  – No cost to participate through 2005

• ISN support can be added to the same tello service if there is enough interest