

Infrastructure-ENUM for +43

Robert Schischka
enum.at GmbH

robert.schischka@enum.at

"What happened so far"



- Recap User-ENUM:
 - From phone numbers to internet addresses
 - Under control of the end customer, „opt-in“
 - Assumption: destinations "freely" reachable
 - One domain per number
 - Validation on registration
 - Recurring re-validation
 - +43 in operation since december 2004
 - 780-numbers available from may 2005

Our service offering



- Why another ENUM?
 - Enabler for Voice-Peering on IP between Carriern
 - "ENUM" as a technology a logical choice
 - However, user-ENUM a limited fit to carrier's requirements
 - Directory for information about phone numbers
 - Routing numbers, tariff information, ...

Infrastructure-ENUM, an overview

ENUM for carriers

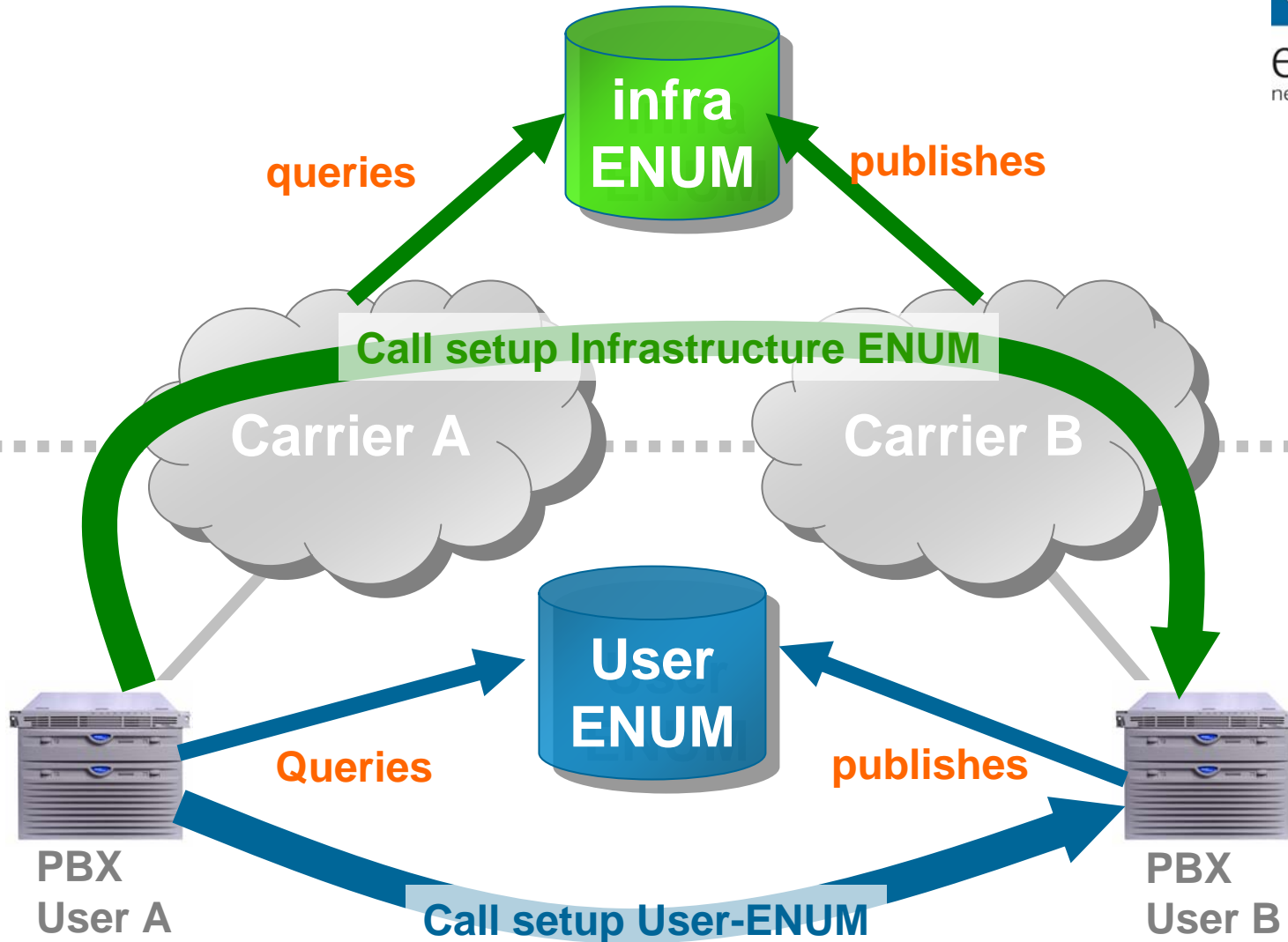


- Requirements from the Carriers view:
 - From phone numbers to internet addresses
 - Under full control of the carrier
 - Carrier stays in the call flow
 - Number ranges possible
 - Minimal provisional expense
 - For all E.164 numbers

ENUM at a glance



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Infrastructure-ENUM and user-ENUM compared

What is entered into ENUM?



■ **User-ENUM:**

- Internet resources of the end customer associated to his number

■ **Infrastructure-ENUM:**

- Internet resources of the carrier associated to his numbers (number ranges)

Infrastructure-ENUM and User-ENUM compared

Who enters data?



■ User-ENUM:

- Entries under full control of end customer – "if" and "what" is his sole decision

■ Infrastructure-ENUM:

- Entries under sole control of the carrier

Infrastructure-ENUM and User-ENUM compared

Reachability of targets



- **User-ENUM:**
 - Target addresses are public reachable
 - Circumvents carriers usual call flow / settlement

- **Infrastructure-ENUM:**
 - Call flow under full control of the carrier – all business models possible
 - Full control of interconnect policy
 - Implementation: „Peering Federations“
 - details: "Policy Announcement" IETF drafts

Infrastructure-ENUM and User-ENUM compared

DNS-Structure



- **User-ENUM:**
 - One number == one ENUM domain
 - NS-Delegation, one zone per number
- **Infrastructure-ENUM:**
 - Whole blocks possible (One block == one entry)
 - Drastically simplified DNS management
 - Resolution without DNS dependency possible (local DB replication)

Infrastructure-ENUM and User-ENUM compared

Validation



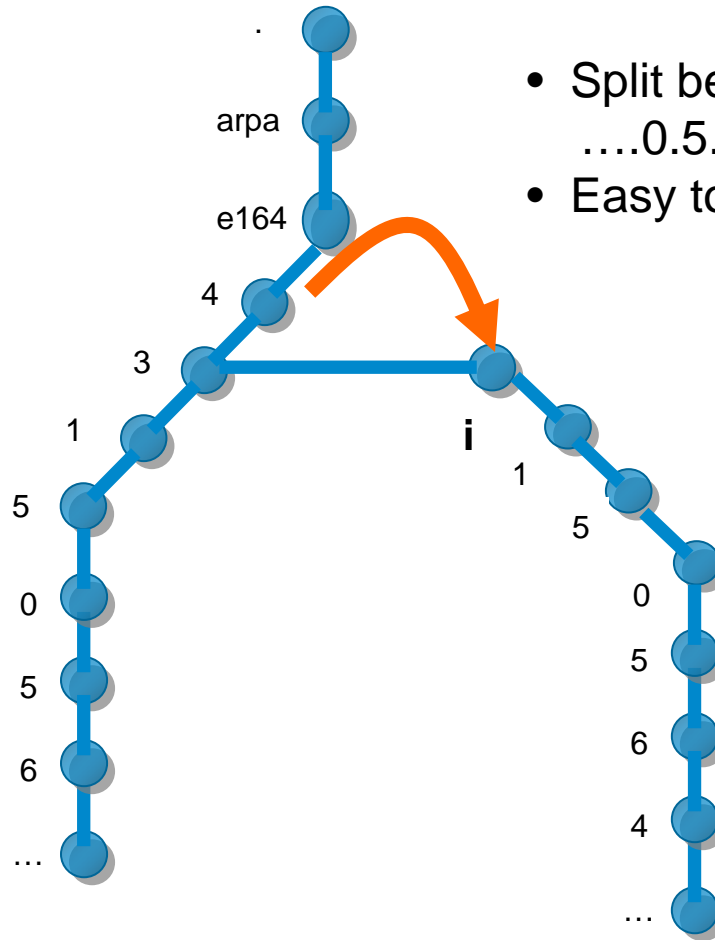
■ User-ENUM:

- All registrars can provision all numbers, given that:
- Validation guarantees quality level of entries

■ Infrastructure-ENUM:

- CSP administrated only his "own" numbers
 - Blocks, imported numbers, directly assigned
- No (re)-validation

Infrastructure-ENUM-Tree +43



- Split below cc
....0.5.0.5.1.i.3.4.e164.arpa
- Easy to change to other location

„Ultimate“ solution



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