VIPR: Verification Involving PSTN Reachability

Cullen Jennings
July 2010

Why Phone Numbers?

Tuesday, July 27, 2010

555-121
2 ABC
3 DEF
5 JKL
6 MNO
7 PQRS
8 TUV
9 WXYZ
0 +
Call
Favorites
Recents
Contacts
Keypad
Voicemail

Cullen Jennings, Ph.D.
Distinguished Engineer
Voice Technology Group

Cisco
170 West Tasman Drive
San Jose, CA 95134-1706 USA

Mobile: 408 421 9990

fluffy@cisco.com
www.cisco.com

867-5309
jenny

Why Route Via Internet

The Growing Disparity ...

IP

Video

CALLING NAME/NUM

BASIC VOICE

Rich Caller ID

Roster

ALERT ON AVAILABLE

COLLAB

PSTN

BASIC VOICE

CALLING NAME/NUM

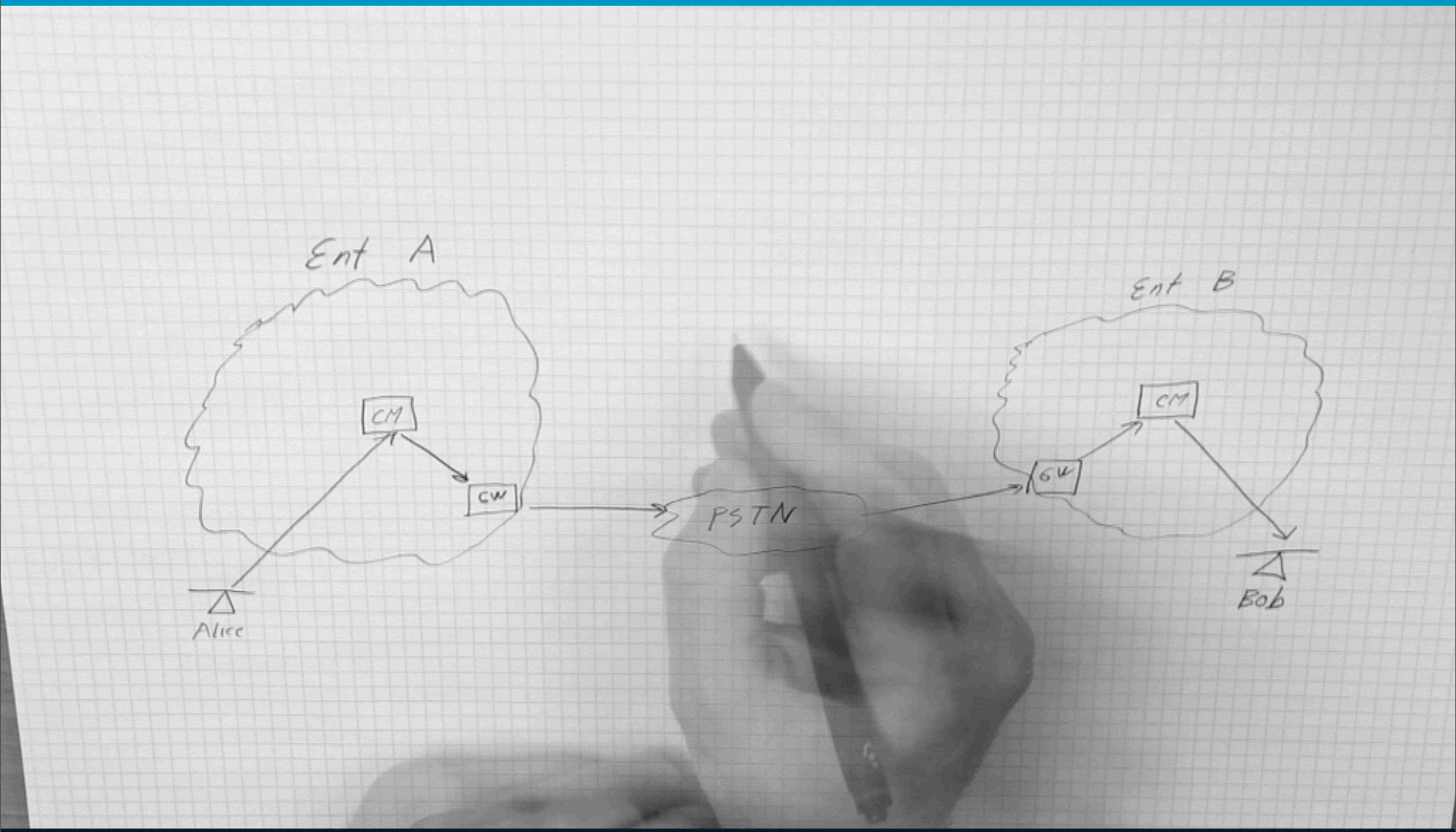
time

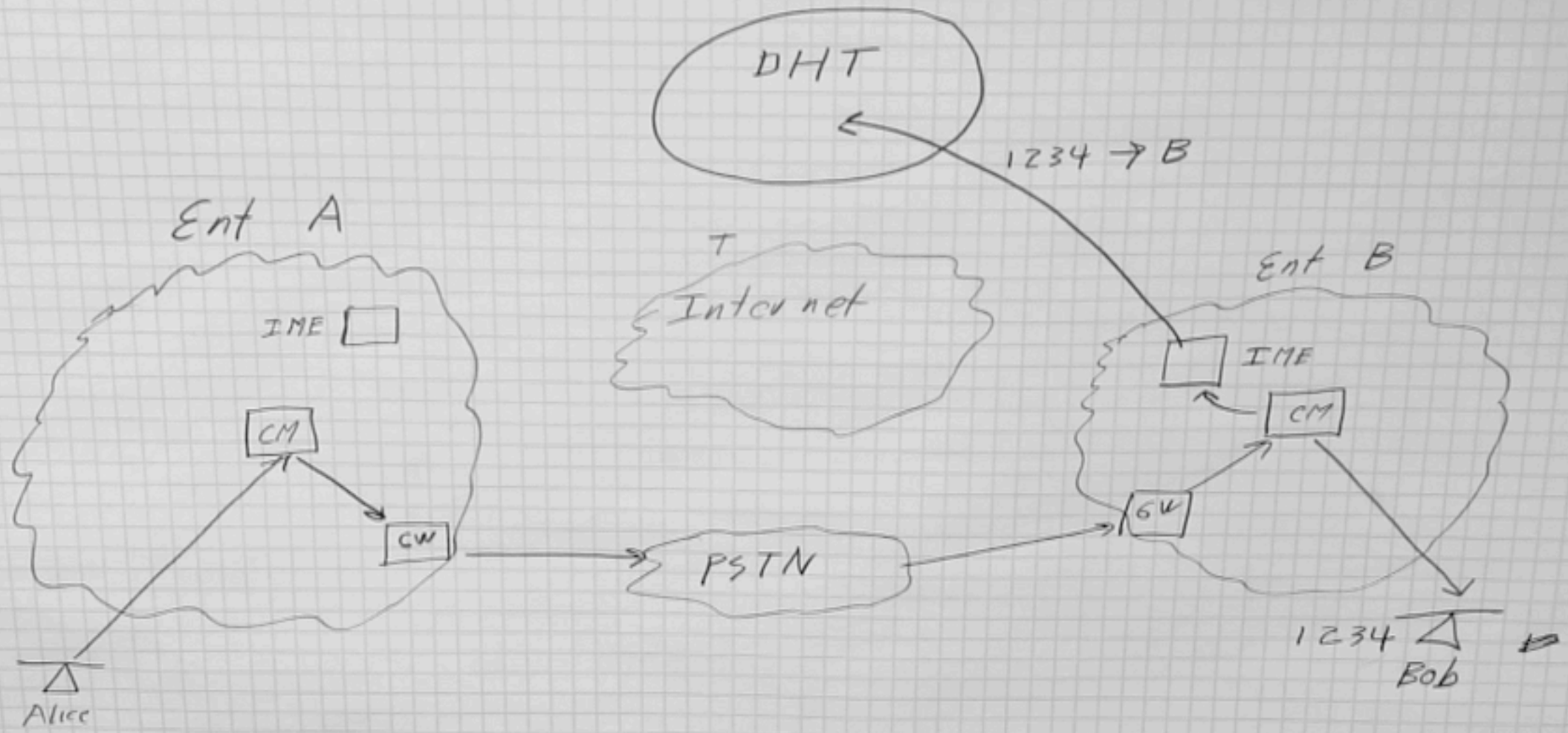
Communication innovation is landlocked by the PSTN

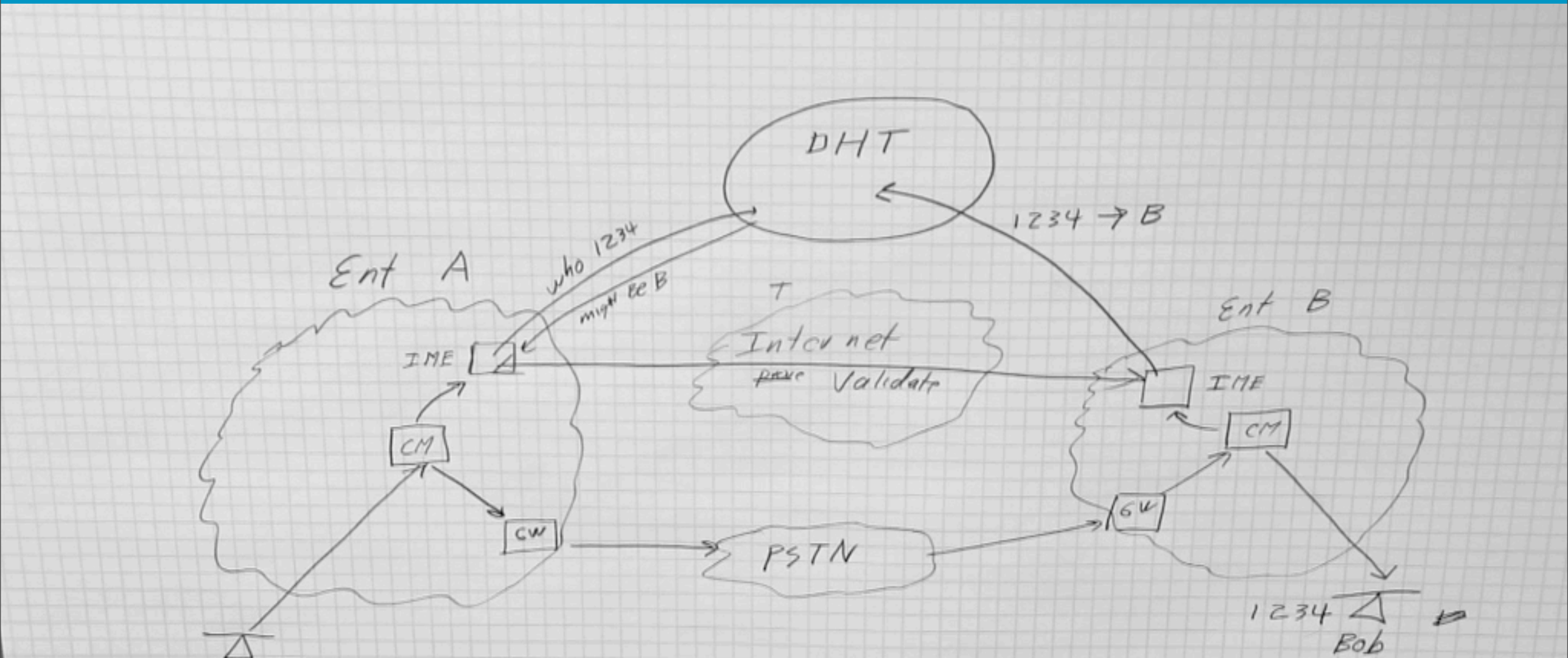
Why not the obvious solution

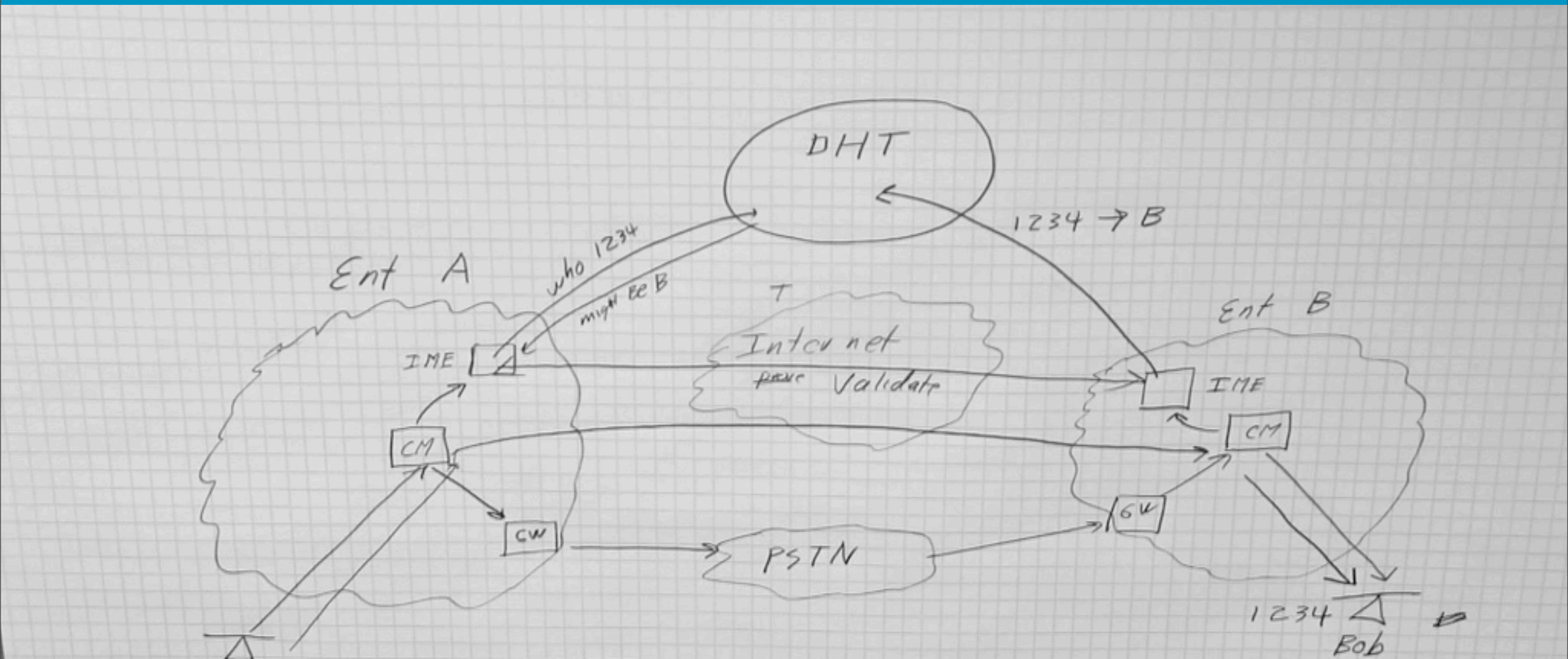
- Phones numbers are allocated using a hierarchal delegation model. Build a global database aligned with these allocations.
- IETF designed such a system in the form of Public ENUM
- RFC 2916 done since 2000

One possible way to skin this cat


Ent A
CM
CW
Alice
PSTN
Ent B
CM
GW
Bob


DHT
1234 → B
Ent A
Internet
Ent B
IME
CM
CM
GW
GW
PSTN
1234
Alice
Bob


DHT
1234 → B
Ent A
who 1234
might be B
T
Internet
Validate
Ent B
IME
IME
CM
CM
CW
GW
PSTN
Alice
1234
Bob


DHT
1234 → B
Ent A
who 1234
might be B
Internet
Validate
Ent B
IME
A
IME
CM
CM
CW
GW
PSTN
1234
Bob
Alice

Back to the problem

Properties

- Decentralized incremental deployment
- Bootstrap using PSTN forward routing
- Gradual discovery of phone to domain mapping
- Use validation to build up mappings instead of delegated trust

Proposal for New Working Group

The IETF should create a WG to develop standard track protocols to:

Allow call controller (PBX, Phones, Call Agents, Proxies) to organically build up a validated mapping of phone numbers to target domains.

Backup Slides