Managing Client Voice Peering Provisioning
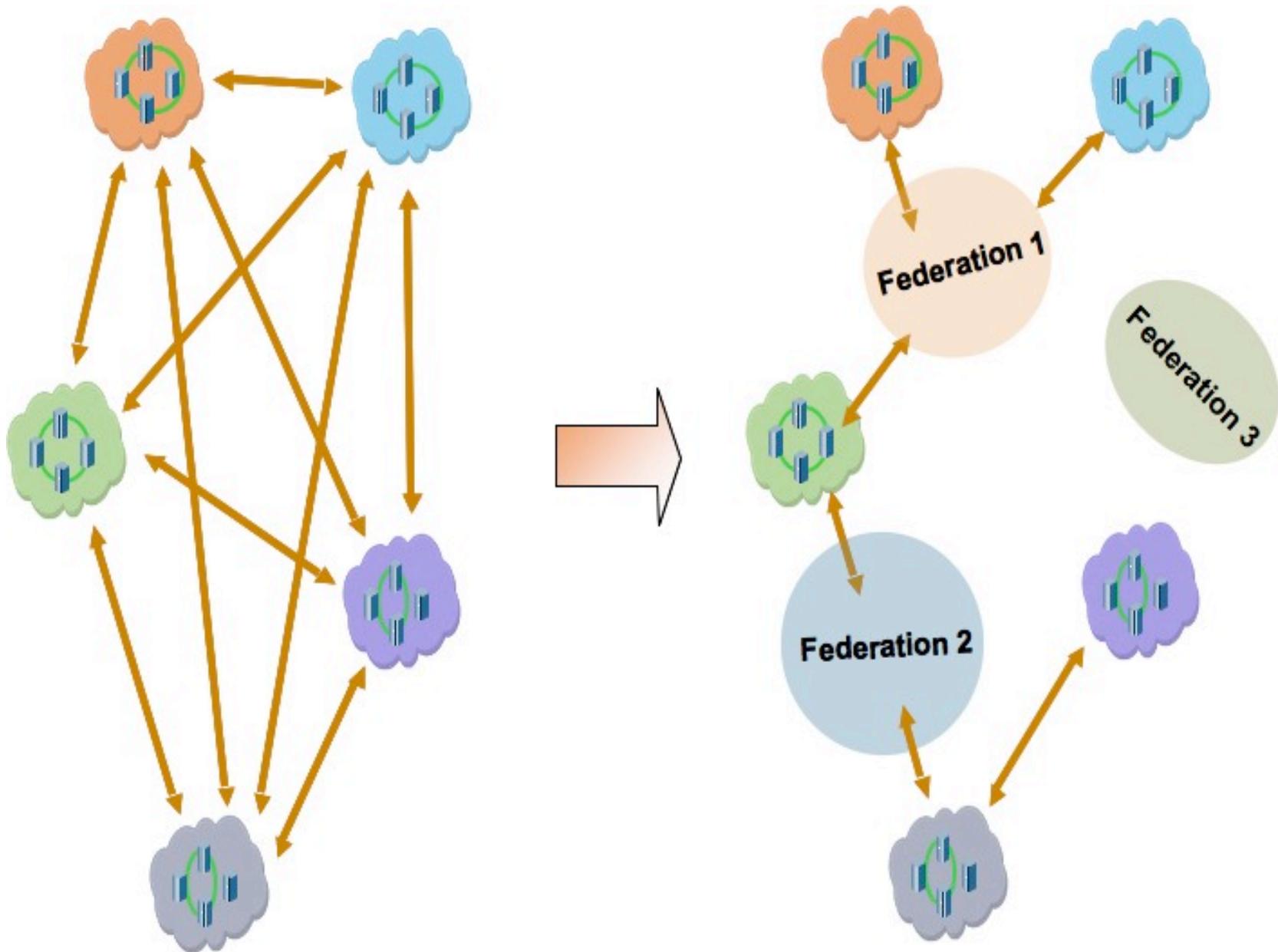## draft-schwartz-speermint-provisioning-problem-00

PEPPERMINT BOF

70th IETF Meeting

Vancouver, British Columbia

December 2-7, 2007

Evolving Peering Relationships

Peppermint Problem Statement

It is clear from discussions in both ENUM and SPEERMINT WGs that Multi-Media Interconnection will require various forms of data to be exchanged among administrative domains outside the normal scope of establishing various forms of a SIP session.

It's all about the exchange of data

- **Who** – Ownership, Permission, Authentication, Policy

- **What** – Data Set/Schema, Connotation

- **Where** – Provisioning Interfaces

- **When** – Upload, Synchronization, Real Time

- **How** – Operations, Protocols

The "Who"

- Does TN exist anywhere (SPEERMINT LUF)?

- Is TN reachable for IP peering (SPEERMINT LF)?

  - o Return "dipped" number and carrier code
  - o New SIP error response code? ("Exists but unroutable")

- Several VSPs may claim some form of responsibility for same TN

  - o Target ("Last Hop") VSP
  - o VSP that national registry assigned the TN to ("First Hop")
  - o FH VSP may have no way of knowing if LH VSP included as well

- Commercial registries also contain information used for LNP

The "What"

- Organization of registry data is based on TN prefixes
  - o Blocks of phone numbers
  - o Regions / Whole countries

- Prefixes…
  - o Global routability
  - o Variable length
  - o Sub/Super prefix – Aggregation

- Data Set
  - o Responsibility
  - o Validity
  - o Attributes
    - ▪ Type (Unknown, IP, PSTN, both)
    - ▪ CC (for prefixes with no IP reachability)
    - ▪ Category (free, landline, mobile, pay)
    - ▪ Media (voice, video, message)
    - ▪ Other? (rate?)

The "Where"

Three Provisioning Interfaces
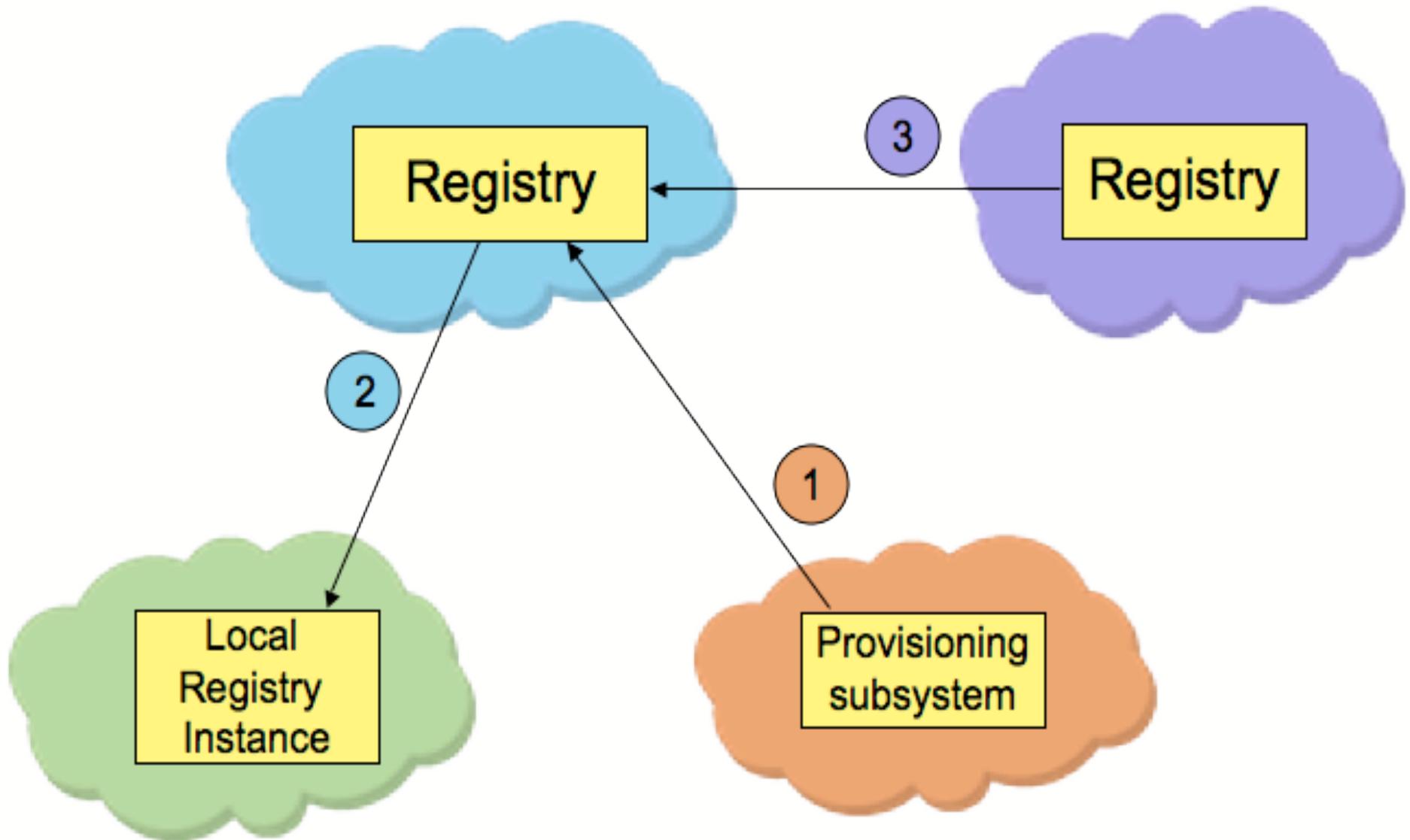
The "When"

1. Upload
   o As soon as available
   o Batch (optimal size?)
   o Throttle / Stagger / Avalanche
   o Scheduled for times of low query frequency

2. Synchronization
   o Push / Pull
   o Master – Slave / Peer
   o Batch / Scheduling / Throttling / As above…
   o Delta Vs Full data

3. Data Exchange
   o "Super" Query
   o Multiple sources
      ▪ Sequential / Parallel
   o Local cache

The "How"

- Logical operations on registry data

  - Add – Add (responsible VSP) data about a new prefix to the registry
  - Delete – Remove prefix as it no longer exists anywhere
  - Port-Out – Prefix exists but previous owner no longer responsible for it
  - Port-In – Prefix existed before and is now being assigned to new owner
  - Transfer – Port-Out followed by Port-in (reduce "failure" time)
  - Renumber – Prefix changed but associated data remains the same
  - Modify – Some other attribute of prefix modified (e.g. target URI)

- Protocol

  - AXFR/IXFR
  - EPP
  - SOAP/XML
  - FTP
  - HTTPS
  - Other

But, perhaps, the most important question of all is…

Why?

- Many peering registries are being formed today

- Standardization needed before proprietary solutions emerge

- Operators are asking for it (use > 1 registry, avoid lock in)

- Large consortiums (e.g. GSMA, National LNP/CDB–UK)

- Multiple in country (Non LNP) registries

- If we wait much longer it will be too late

What Next?

- Is there Interest in this work?

- Where should it be done?

- What previous work can we leverage?

- Who wants to help?