NNP Actor Interactions

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Nationwide number portability use case

• Based on draft-mcgarry-nnp use-case-00 and draft-peterson-modern-problems-04

• A new non-geographic area code in the US for routing calls to NNP TNs
  – The non-geographic routing numbers (NGRNs) would be hosted on IP switches called non-geographic gateways (NGGWs)

• CSPs could also assign non-geographic TNs (NGTNs) to Users for traditional voice and text service
  – All NGTNs would have an associated NGRN

• A MODERN registry would administer the assignment of NGRNs and NGTNs
  – NGRNs would be assigned at the 10 digit level, not the CO code level
  – NGTNs would be assigned to CSPs at the 10 digit level and be subject to service provider portability
  – Registry could be either a single registry or a distributed registry

• NGRNs are hosted on IP switches called NGGWs
  – Each NGRN is associated with a specific NGGW for routing purposes

• Interactions assumes similar processes to today
NGRN/NGTN Registries, Registrars and Assignees

- **Registries**
  - Are authorized by the numbering authority to manage NGRNs/NGTNs
  - Can be authoritative or distributed
  - Does not assume CSPs could not act as Registry

- **Registrars**
  - Are authorized by the Registry (or authority) to acquire NGRNs/NGTNs
  - Create a relationship with one or more Registries
    - A profile is created that could include administrative data and qualifying information (i.e., Registrar’s right wrt acquiring resources)
  - CSPs will likely act as Registrars

- **Assignees**
  - Acquire NGRNs/NGTNs from Registrars
    - NGGW providers – NGRNs
      - CSPs can be NGGW providers
    - Users and CSPs – NGTNs
  - Create a relationship with one or more Registrars
    - A profile is created that could include administrative data and qualifying information (i.e., Assignee’s right wrt acquiring resources)
NGGW provider acquires NGRN

1. NGGW provider requests NGRN from Registrar/CSP
   - Administrative data has already been provided
   - Submits credential provided by registrar to prove identification and existing relationship
   - Submits service data
   - Note: NGGW provider and Registrar/CSP may be same entity
   - Note: request may be for specific NGRN or random based on policy

2. Registrar/CSP reviews request
   - Authenticates NGGW provider based on credential
   - Authorizes request, i.e., reviews that it is qualified to receive a new NGRN

3. Registrar/CSP requests NGRN from Registry
   - Submits credential
   - Submits NGGW provider administrative and service data

4. Registry reviews request
   - Authenticates and authorizes Registrar/CSP
   - May also authorize NGGW provider

5. Registry approves assignment to Registrar/CSP and NGGW provider
   - Removes NGRN from available pool

6. Registrar notifies NGGW provider of assignment

7. Registry notifies other Registrars of assignment
   - Is this simply a notification of change in state?
   - Is there a corresponding Retrieval transaction (Registrar->Registry) to populate local caches?

8. Other Registrars notify CSPs & Service Enablers
   - CSPs and Service Enablers will likely be Registrars
   - Same questions as 7
Comparison: CSP acquires network resource

1. CSP requests network resource from Registrar
   - Examples of network resources are numbering blocks and carrier codes
   - Administrative data has already been provided
   - Submits credential provided by registrar to prove identification and existing relationship
   - Submits service data
   - Note: CSP and Registrar may be same entity
   - Note: request may be for specific network resource or random

2. Registrar reviews request
   - Authenticates CSP based on credential
   - Authorizes request, i.e., reviews that it is qualified to receive a new network resource

3. Registrar requests network resource from Registry
   - Submits credential
   - Submits CSP administrative and service data

4. Registry reviews request
   - Authenticates and authorizes Registrar
   - May also authorize CSP

5. Registry approves assignment to Registrar and CSP
   - Removes network resource from available pool

6. Registrar notifies CSP of assignment

7. Registry notifies other Registrars of assignment
   - Same questions

8. Other Registrars notify CSPs & Service Enablers
   - Same questions
User acquires (NG)TN from Registrar/CSP

1. User requests (NG)TN from Registrar/CSP
   - Establishes a relationship with Registrar/CSP
   - Submits administrative data
   - Note: request may be for specific (NG)TN or random based on policy

2. Registrar/CSP reviews request
   - Authorizes request, i.e., reviews that User is qualified to receive a new (NG)TN

3. Registrar/CSP requests (NG)TN from Registry
   - Submits credential based on existing relationship
   - Submits service data, e.g., (NGGW) network address
   - Maintains administrative data (e.g., Assignee contact info), provides reference address to access admin data (e.g., for Govt Entity)

4. Registry reviews request
   - Authenticares and authorizes Registrar/CSP
   - May also authorize Assignee

5. Registry approves assignment to Registrar/CSP and User
   - Removes (NG)TN from available pool

6. Registrar/CSP notifies User of assignment

7. Registry notifies other Registrars of assignment
   - Same questions

8. Other Registrars notify CSPs & Service Enablers
   - Same questions

• NGTN and TN same
• Similar flows to network resource
• Same questions
Next steps/questions

• Information model for acquisition transactions
  – Administrative data
  – Service data

• Identify options
  – Registrar maintains administrative data, i.e., thin Registry
  – Registrar submits administrative data to Registry, thick Registry

• Identify retrieval processes
  – Registry pushes state changes and service data
  – Registrars/CSPs pull service data
  – Per call/text basis
  – Local cache
Distributed Registry - User acquires TN from Registrar/CSP

1. User requests TN from Registrar/CSP
   - Establishes a relationship with Registrar/CSP
   - Submits administrative data
   - Note: request may be for specific TN or random based on policy

2. Registrar/CSP reviews request
   - Authorizes request, i.e., reviews that Registrar/CSP is qualified to receive a new TN

3. Registrar/CSP requests TN from Registry
   - Submits credential based on existing relationship
   - Submits service data, e.g., (NGGW) network address
   - Maintains administrative data (e.g., Assignee contact info), provides reference address to access admin data (e.g., for Govt Entity)

4. Registry reviews request
   - Authenticates and authorizes Registrar/CSP
   - May also authorize Assignee

5. Registry interacts with other Registries to secure assignment
   - E.g., DRiP

6. Registry approves assignment to Registrar/CSP
   - Removes (NG)TN from available pool

7. Registrar/CSP notifies User of assignment

8. Registry notifies other Registries of assignment
   - Provides service data and reference address to administrative data

9. Other Registries notify Registrars of assignment

10. Registrars notify CSPs & Service Enablers of assignment

• CSPs/Service Enablers likely also Registry/Registrar
• Consolidates 2, 3, 4&6 and 9&10
NNP Actor Interactions

• Questions?

• Thanks!

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