NNP Actor Interactions

IETF 95 MODERN WG Meeting

4-7-16

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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
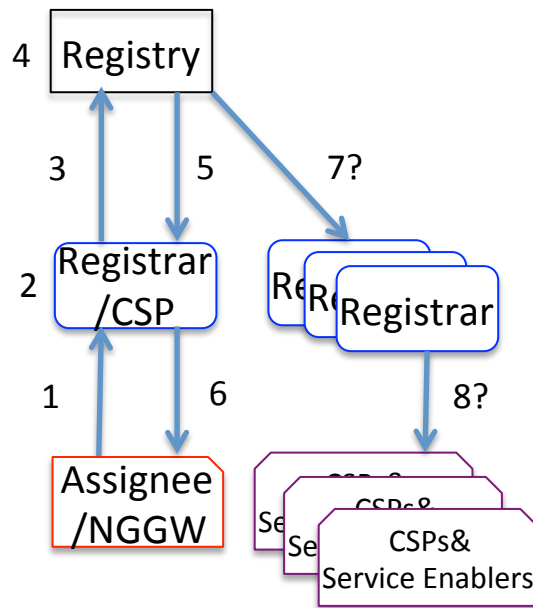
1. NGGW provider requests NGRN from Registrar/CSP
   - Administrative data has already been provided
   - Submits credential provided by registrar to prove identification and existing relationship
   - Submits service data
   - Note: NGGW provider and Registrar/CSP may be same entity
   - Note: request 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
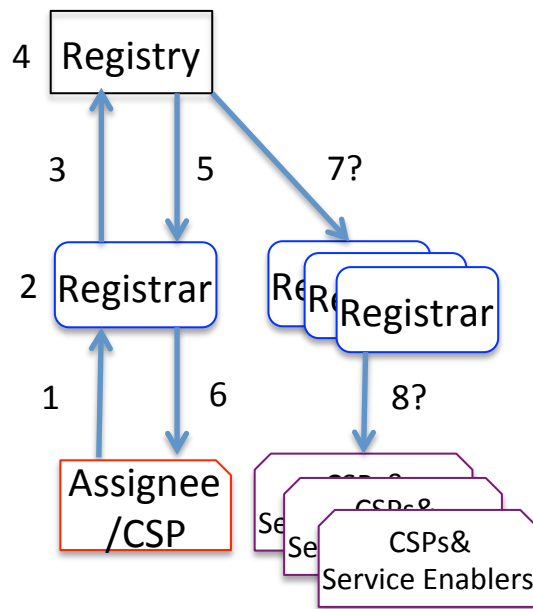
- Same flows
- Same questions

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

- NGTN and TN same
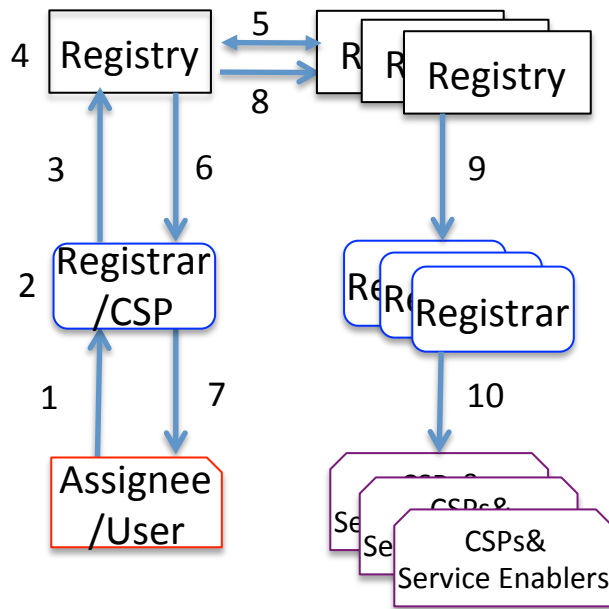- Similar flows to network resource
- Same questions
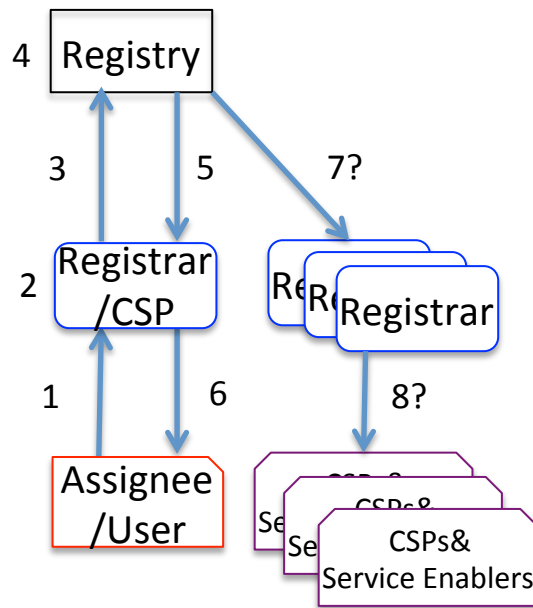
1. User requests(NG)TN from Registrar/CSP
   - Establishes a relationship with Registrar/CSP
   - Submits administrative data
   - Note: request may be for specific (NG)TN or random based on policy
2. Registrar/CSP reviews request
   - Authorizes request, i.e., reviews that User is qualified to receive 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
   - Authenticates 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

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

- CSPs/Service Enablers likely also Registry/Registrar
- Consolidates 2, 3, 4&6 and 9&10

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

NNP Actor Interactions

- Questions?

- Thanks!

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