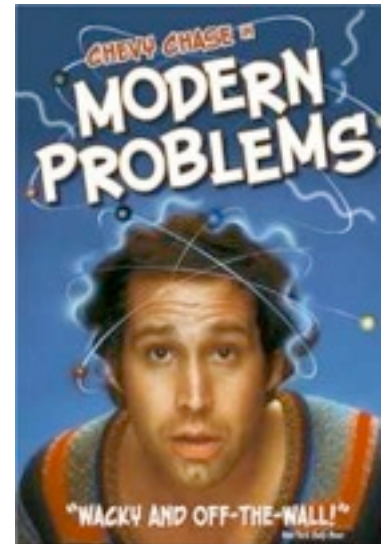


# draft-peterson-modern-problems-01

MODERN WG  
IETF 93 (Prague)



# MODERN problems 01

- Problem statement – nothing new
- Actors – some new
- Mechanisms – not much new
- Use cases – all new, more to be done
- Distributed registries and data stores – all new, more to be done

# Problem statement

- Problem
  - Utilizing telephone numbers (TN) for Internet telephony
- Mission
  - IP-based mechanisms for management, administration and routing in an IP environment

# Actors – new in 01

- Separation of Numbering authority from Registry
  - Numbering authority is policy role, not involved in protocol interactions
  - Registry is administrative role, involved in protocol interactions
  - Can be the same entity, but protocols will deal mostly with the functions performed by the Registry
- Service enabler
  - Works with CSP to enable communications service for Users, e.g., vendor, integrator
- Should there be 2 categories of Actors?
  - Administration – Numbering Authority, Registry, Govt Entity
  - Service Management – CSP, Service Enabler, User
- Assignee and Delegate
  - Assignee has direct relationship with Registry, Delegate does not (i.e., gets TNs from Assignee or other Delegate)
  - Is Delegate an Actor?

# Actors – relationship to Registry

Relationship	CSP	Service Enabler	User
Assignee	X	X	X
Delegate	X	X	

Can a User delegate? e.g., a doctor delegate to their office.

# Mechanisms

- Three IP-based mechanisms for managing TNs
  - Acquisition – acquiring TNs
  - Management – provisioning information about TNs
  - Retrieval – retrieving information about TNs

# Use cases

- Acquiring TNs
- Accessing TN information
- Service management

# Use cases – Acquiring TNs

- CSP acquires TN from Registry
  - CSP enrolls with Registry
    - Provides profile data and perhaps other qualifying information
      - Is communication of qualifying information part of the protocol?
  - CSP requests TN
    - Will likely be from specific pool, e.g., mobile, wireline, tollfree
    - May be requesting inventory or TN for a specific User or Delegate
    - May need to provide additional qualifying information, e.g., forecast, utilization
  - Registry assigns TN to CSP
    - Verifies profile and qualifying information
    - Removes TN from available pool
    - Updates metadata related to TN and perhaps CSP
    - Provides credentials to CSP



# Use cases – Acquiring TNs

- User/Delegate acquires TNs from a CSP
  - User/Delegate enrolls with CSP
    - Provides profile data
  - User/Delegate requests TN
    - TN is linked to service activation
  - CSP assigns TN
    - CSP verifies User/Delegate
    - TN is assigned from CSP's available pool or CSP acquires TN from Registry
      - If from available pool, it removes TN from that pool
    - CSP updates metadata about assignment
    - CSP provides credential to User/Delegate
      - Can be new credential or delegated from Registry credential

# Use cases – Acquiring TNs

- Commonality
  - Enrollment
  - Request
  - Assignment
    - Verification
    - Metadata update
    - Credential provided

# Use cases – Accessing numbering information

- Two types of information
  - Administrative
  - Service
- Information can be stored at the Registry or CSP
  - Others need access to information
  - Access to information would be authorized based on requestor

# Use cases – Accessing numbering information

- Service information access
  - Network nodes need access to provide service to their Users
  - Registry could contain reference to correct SP
    - Alternately, registry could host data
  - Authorization of requestor may be necessary
- Privileged access for Govt Entities
  - Govt Entity is authorized by National authority
  - Registry and/or CSP establish access for Govt Entity

# Use cases – Service management for numbers

- Service management – updates to TNs that have been assigned and provisioned
- Updating service information
  - Service data changes for a CSP's User, CSP updates Registry
- Updating administrative information
  - User changes contact info, notifies CSP, CSP updates its data
- Changing the CSP
  - Old CSP deletes data, new CSP provisions data, issues credential
- Terminating service
  - User cancels service, returns number to Registry
  - Registry deletes all User data (other than relevant history)

# Distributed registries and data stores

- Distributed Registries
  - Multiple Registries maintain TN data
  - Actors have relationship with one Registry
  - Registries update changes to each other
- Distributed data stores
  - Duplicate copies of administrative and/or service data maintained by multiple entities
  - For example a CSP could initiate an update of new service data to multiple entities
- Challenges
  - Avoiding clashes, e.g., assigning the same TN to different entities
  - Synchronizing data, e.g., ensuring all data is up to date in a reasonable timeframe

# Next Steps

- Next iteration of draft taking 93 and list input
- Thank you
- Questions, Comments