draft-ietf-modern-problem-framework
&
draft-peterson-modern-teri

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MODERN WG

IETF 96 (Berlin)

draft-ietf-modern-problem-framework

- Now a WG item!
- Issued a minor revision based on two sets of nit reviews
- This went through several pre-WG item revs
- Probably little to change here before WGLC
- Also, Pierce still thinks we've got it all wrong
  - Noted, we discussed on the list

draft-peterson-modern-teri

- Now a -01
- Main focus of the revision was alignment with the framework document
- Added an overview of operations
- Made a few small alignment tweaks to the model
- No list discussion (like, really)

What is TeRI?

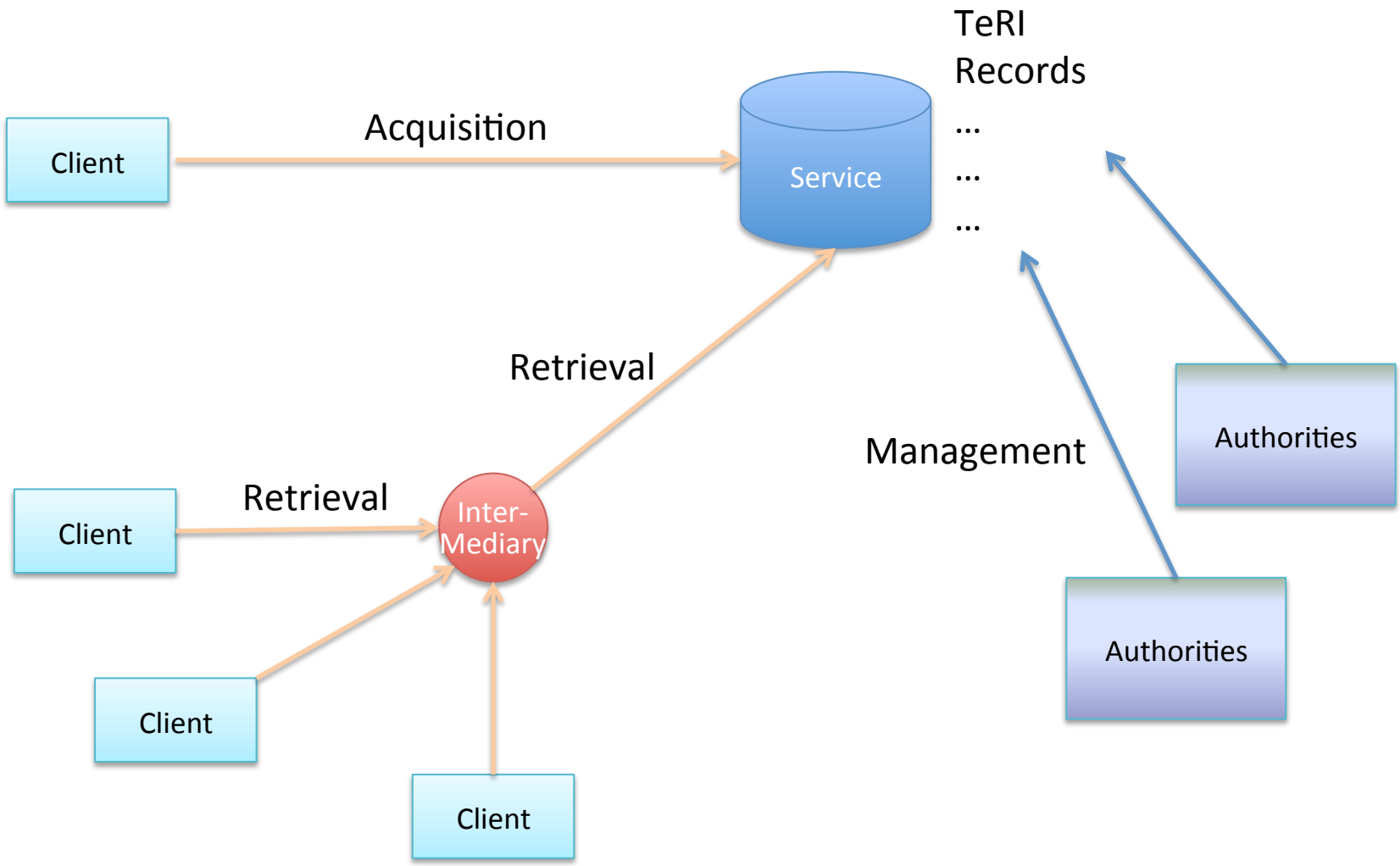
- A model for telephone-related information
  - Based on modern-problem-framework
- Successor to my old TeRQ proposal
  - Generalized to acquisition, retrieval, management
- Like TeRQ, this is an information model
  - Trying to find the right semantics for records and operations
  - We'll worry later about the proper encoding and transports
- We decided in Prague to do this in one spec

Moving Parts

- Acquisition operation
  - How do I request and receive numbers?
- Management operation
  - How do I provision information about a number?
- Retrieval operation
  - How do I get information about a number?

- These protocols access overlapping data
  - If you can provision it, you should be able to query for it
- Surely this is a common information model

The TeRI Interfaces



Operations and Records

- Each Operation consists of a Request and a Response
  - All operate our core building block: **TeRI Records**
- Requests will have a Source, Subject, and Attributes
  - Source indicates the originator of the Operation
  - Subject would typically be a TN itself (or a range)
- Responses will have a Response Code
- TeRI Records contain information about TNs
  - Some Records might cover a range of TNs

TeRI Records

- TeRI Records would be available at Services
  - Services could be public, centralized and monolithic
    - Distributed, or private
    - The Operations and Info Model will be the same
  - Each TN might be associated with multiple Records
  - Records are trusted based on the Authority that generated them
    - Usually not based on the Service that shared them
- Entities from the MODERN framework act as
  - Clients
    - Users, CSP, Government Entities
  - Services
    - Registries, Registrars, CSPs

Roles of MODERN Actors

- **Numbering Authorities**
  - Regulators, etc.
  - Roots of authorities (never acquire blocks)
    - No "golden" root, all is relative
- **Registries**
  - Manages core number allocation functions, handles requests for numbers from registrars
- ***Registrars***
  - *Has relationships with CSPs/Users to provide numbers – often is also a CSP*
- **Communication Service Provider (CSP)**
  - Provides services to users
  - May include traditional carriers, enterprises, OTT providers, etc.
- **Users**
  - Individuals reachable through a communications service
  - Operate clients, black phones, etc.
- **Government entities**
  - Privileged access to data

Records: Think SCRUD

- Search, Create, Read, Update, Delete
- Creation begins the lifecycle
  - A Registry always creates the first Record
    - Registrars then acquire Authority from Registries
  - Bootstrap administration record designating the Registry itself
- Should Records be partially updated, or wholly replaced?
  - Currently, only wholly replaced
  - Any Authority can update or delete its own records
    - In hierarchical assignment models, Authorities above the chain can delete the records of their delegates

The Acquisition Operation

- Query:
  - Source (Query Source, Query Intermediary)
  - Subject (Telephone Number/Range)
    - Used to have SPID, currently removed per MODERN scope
  - Attributes (constrains query, say, to finding a particular number in a range)
- Response:
  - Response Code
  - TeRI Record (newly generated assignment granting authority for this TN/Range)

    Result: This makes the Client an Authority for that TN/range

The Management Operation

- Query:
  - Source (Query Source, Query Intermediary)
  - Subject (Telephone Number/Range)
    - Used to have SPID, currently removed per MODERN scope
  - TeRI Records (including Record ID)
- Response:
  - Response Code

    Result: This replaces/deletes a previous TeRI Record, or creates a new one

The Retrieval Operation

- Query:
  - Source (Query Source, Query Intermediary)
  - Subject (Telephone Number/Range)
    - Used to have SPID, currently removed per MODERN scope
  - Attributes (constrains query: e.g., “voip” if only looking for VoIP, or Route Source, or Record ID)
- Response:
  - Response Code
  - TeRI Record

    Result: Retrieves Record if successful

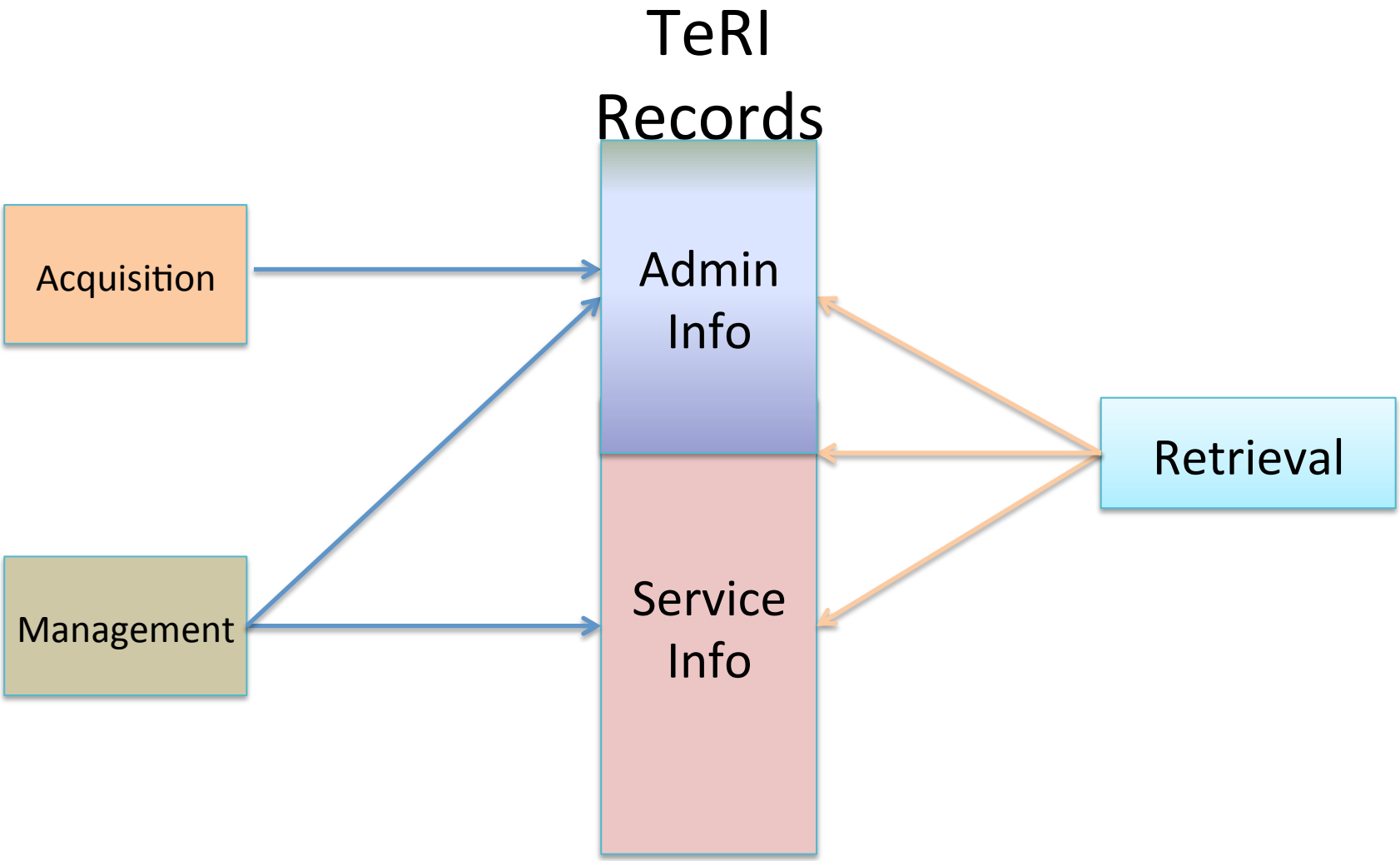
TeRI Record Contents

- TeRI Records would contain
  - **Subject** (the TN or TN range of the record)
  - **Authority** (Source of the data, usually the provisioner)
  - Contact (administrative contact, WHOIS/WEIRDS)
  - Service (a service associated with the TN)
  - **Identifier** (unique ID for the Record)
  - Signature (typically a crypto assurance of the Authority)
- Divided into Service and Administrative Information
  - Services records always have a Service
  - Administrative records always have a Contact
- Obviously different actors would set/get different Record elements

TeRI Record Element Types

- Telephone Number (RFC3966 – but should we revisit?)
  - Ranges – need some work here
- Domain Name
- URI
- IP Address
  - IPv4/IPv6
- Contact
  - Per jCard
- SPID
  - Currently specified as four-digits, other SPID types possible
    - GSPID, ITAD, etc.
- Trunk Group
  - Currently points to the Gurbani/Jennings RFC
- Display Name
  - Support for CNAM as well as a SIP “From” header field
- Extension
  - Reserved for further use

Telephone-Related Information



Just a logical picture

Transport and Encoding?

- Agree on semantics first, then define bindings and profiles
  - A binding is defined as an encoding and a transport
    - We want at least one binding per protocol, maybe allow more
  - Could build on JSON/HTTP, could build on ASN.1/UDP
  - Bindings need to detail how the elements of the data model are mapped to the encoding
    - Other low-level details like chunking, representation of cryptographic security, etc.
  - Requirement: to transcode between bindings without losing data (at an intermediary)
- Aim for maximum applicability
  - While not overcomplicating the model

Next Steps

- Energy needed, and discussion
- Need more input on Record elements
  - Varies by the use case
- Aligning with use cases
  - e.g. DRIP
  - STIR is another
- Define necessary profiles and bindings
  - Probably JSON
- When we have something more concrete, and with some energy, look toward adoption