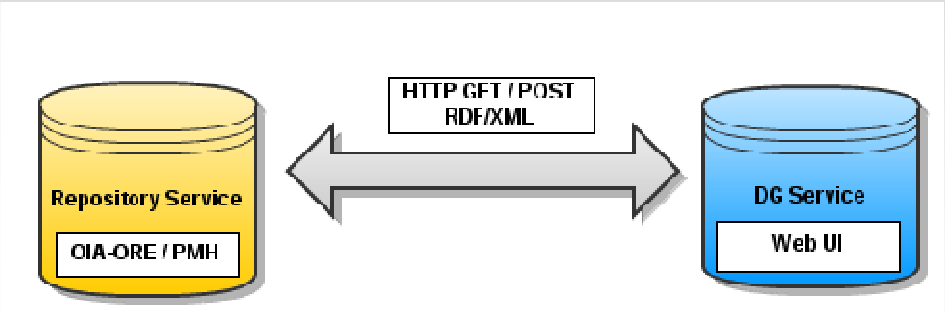
Interoperability Scenario

Producing summary versions of compound multimedia historical documents

Summarisation Process

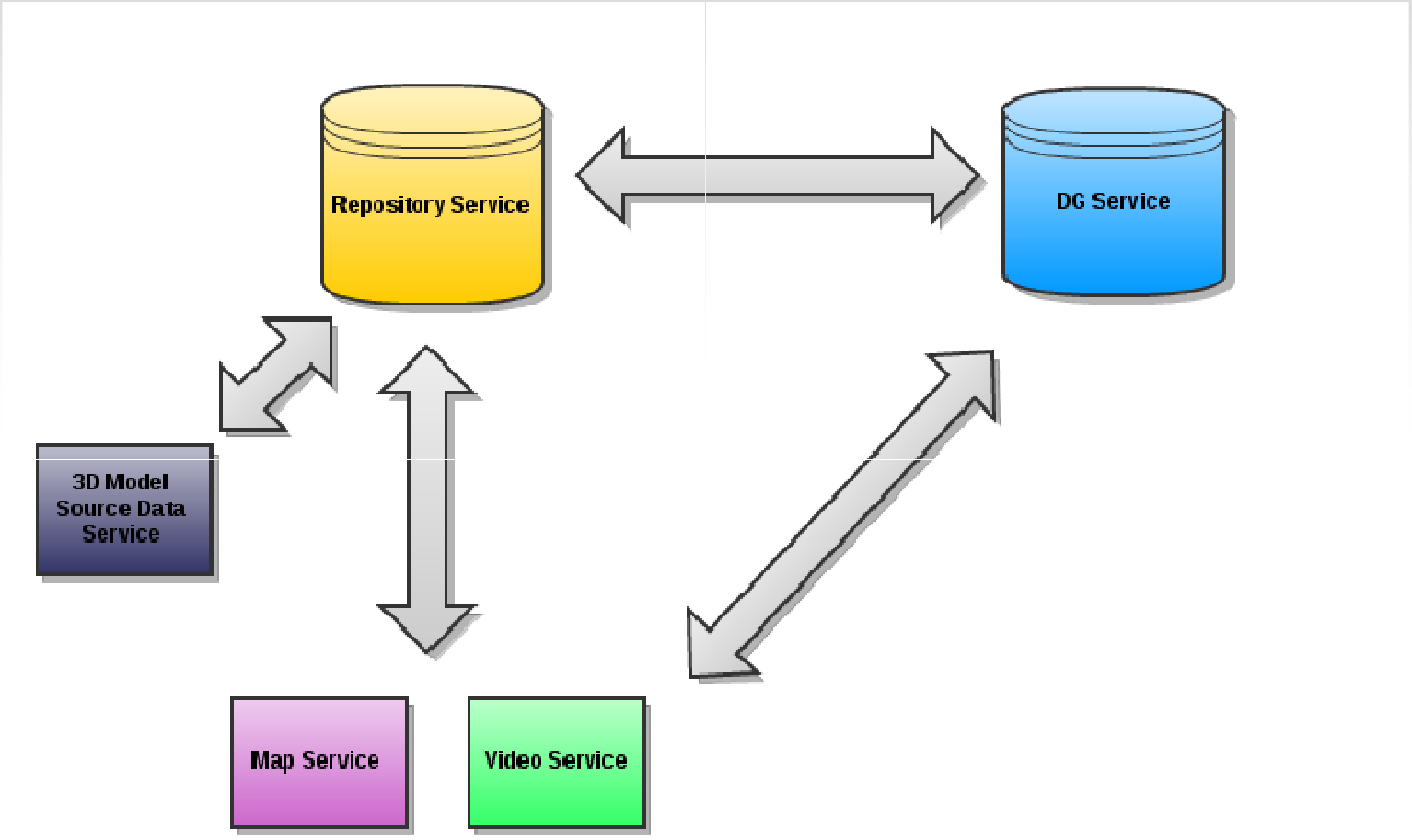


Agreement-based, Provider-orientated Approach

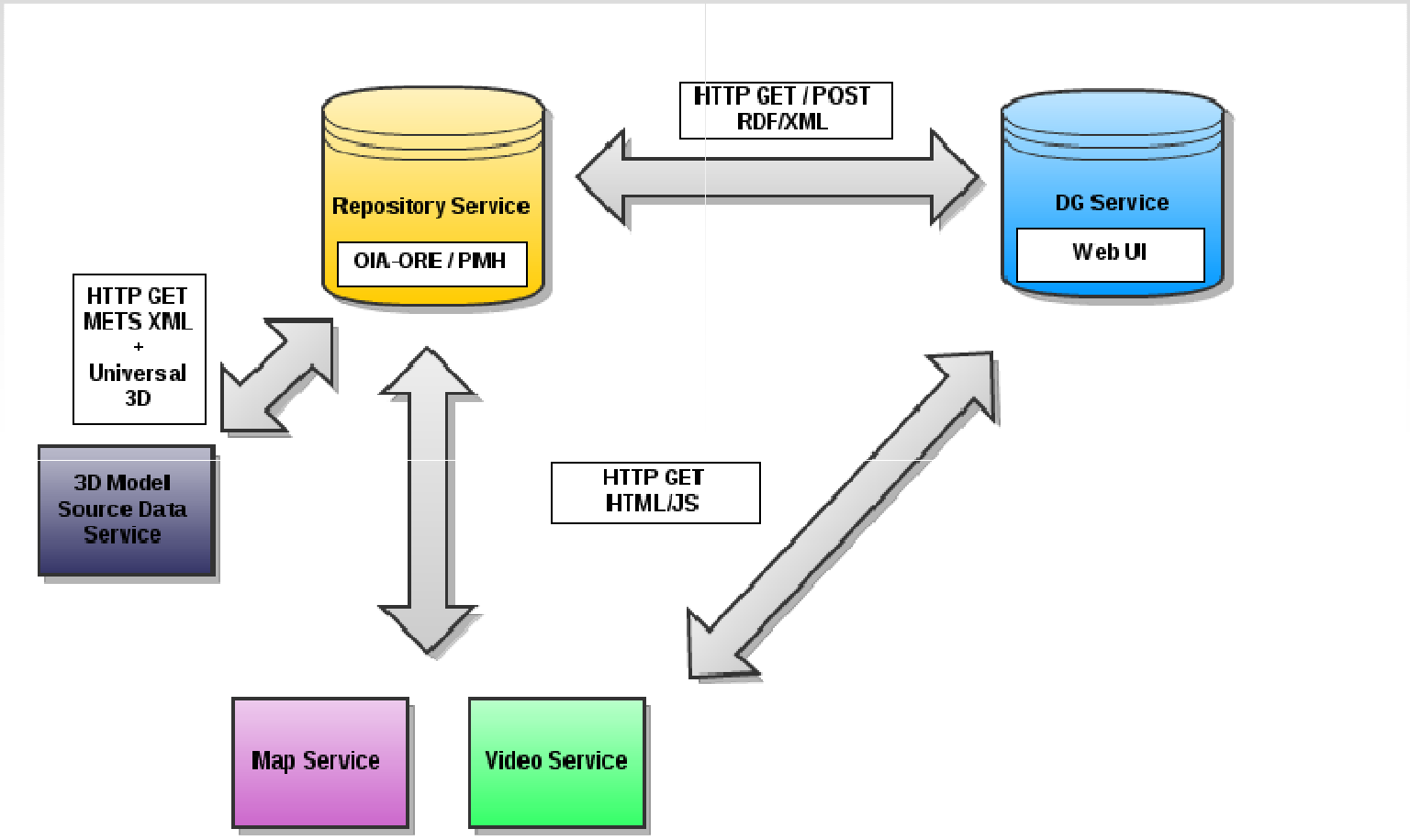
- **Open standards**
- **Common third-party services**

- DG queries RS over HTTP for document with town name: <NA ME>
- RS responds with RDF/XML describing composite document along with component metadata
- DG extracts relevant summary data from RS-hosted resources (text, 3D)
- DG requests (transformed) external data from web sources (map, videos)
- DG aggregates resources into final summary document for end-user

Overview


Repository Service
DG Service
3D Model Source Data Service
Map Service
Video Service

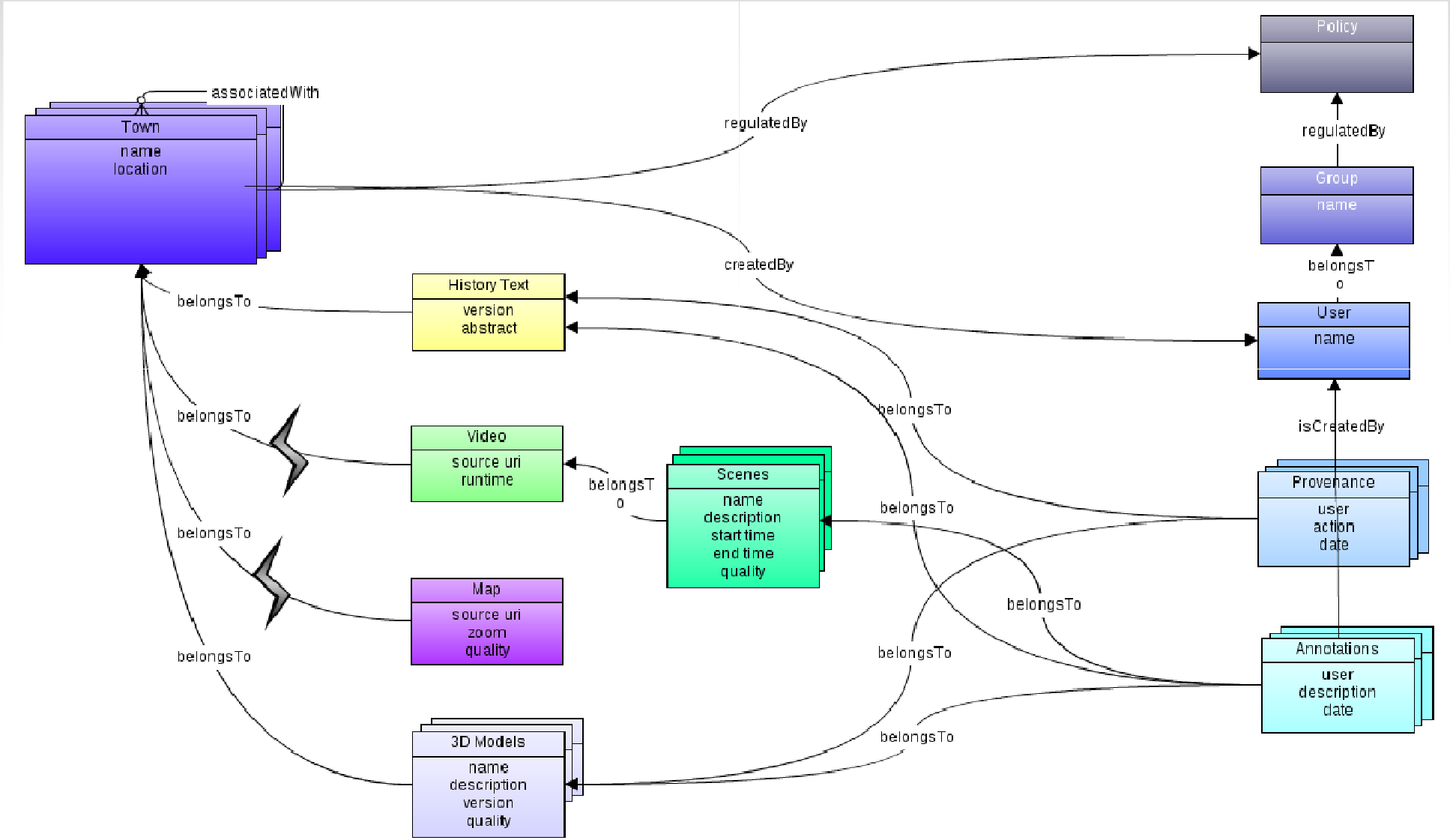
Overview


HTTP GET / POST
RDF/XML
Repository Service
OIA-ORE / PMH
DG Service
Web UI
HTTP GET
METS XML
+
Universal
3D
3D Model
Source Data
Service
HTTP GET
HTML/JS
Map Service
Video Service

Issues

- General service-level interoperability
- High-degree of systemic knowledge required
- Various cross-reference ambiguities, e.g: town names, monument names
- Re-using video without expensive transcoding / editing
- Maintaining integrity / consistency with map / 3D models
- Policy issues transferring privileges from DG users to RS
- Selecting subsets of text, models, video scenes
- Copyright / IP relating to all external content

Document Composition



Text Component

- The historical description text ”belongsTo” the town document
- The actual content is stored in the RS as an **Information Object**
- It can have multiple versions, and is associated with a collection of **Information Objects** describing the User that made which change when
- It could have multiple manifestations in the RS – ODF, PDF, plain text etc

- **Re-use Approach:**

DG extracts the document in XHTML format and assumes that the first # paragraph <p> elements are the relevant part to use in the summary

Video Component

- The complete (restored) is hosted by an external web service (e.g. Vimeo)
- The RS town document contains a Video Resource containing external URI
- The video is associated with a collection of Scene Resources that together comprise an Edit Decision List (EDL)
- Each scene can be annotated / rated by RS users
- When the RS provides its original video composition, it does so by requesting the given EDL from the external video service
    - **NOT** by assembling an original new video to be hosted internally

- **Re-use Approach:**

DG requests the two (?) most popular / annotated scenes direct from external video hosting service as an EDL

3D Models

- RS hosts 3D models as Resources Universal 3D or OBJ files
- Models are sourced by RS via external service using external data
- Models may have multiple manifestations
- Models have a quality parameter, e.g: number of triangles / points / etc relating to the manner in which they were generated
- Models are associated with a collection of user annotations

- **Re-use Approach:**

DG requests the two (?) highest quality / most annotated models and uses an external service to provide a visualisation of them

Map Component

- Map content is hosted via external service, e.g: Google Maps
- RS hosts Resource containing external map service URI
- RS map Resource contains metadata describing parameters of generated map, e.g: resolution
- RS annotated map ”on demand” using map service API based on position of 3D model monuments

- **Re-use Approach:**

DG uses same external map service, and applies ”on demand” annotation according to the 3D models used in the summary

Essential Metadata - Town

Name

- Main query parameter for DG to retrieve document
- Need a common vocab to prevent ambiguities, i.e:
  - Athens, Greece vs. Athens, U.S.A vs. Athina

GPS Location

- Needed for requesting map from external service
- Must be in an agreed format, i.e:
  - 12.3456, -98.7654 vs. 12° 20.736′ N, 98° 45.924′ W

Essential Metadata - Text

Version

- Current ”accepted” edit

Abstract (?)

- Could ***possibly*** be used to indicate content appropriate for summarisation, though might raise metadata integrity

Edits

- User
- Date
- Diff (changes made)

Essential Metadata - Video

URI

- Source of external video service content

Scenes

- Name (Place shown)
- Description
- Start time
- End time
- Quality (rating)

- **Annotations**
  - User
  - Text / Rating
  - Date

Essential Metadata - Models

URI

- URL of external model generator service

Sources

- Mathematical data used to (re-)generate the model

Generation Parameters

- Settings relating to generation

Location

- GPS position of captured monument for map annotation

Version

- Version/manifestation currently disseminated

Description

- Text detailing pecularities of the displayed monument

Annotations: User, Date, Rating, Provanence info

Essential Metadata - Map

URI

- URL of external map generator service

Quality

- Parameters used to generate map, e.g. resolution

Content Domain Issues

URI

- URL of external map generator service

Quality

- Parameters used to generate map, e.g. resolution

Functionality Domain Issues

- RS can make its content discoverable via an OMI-ORE service, returning RDF content
- RS needs to expose functionality to client services to enable re-creation of elements. DG needs to proxy those services to its users.
- DG queries retrieved RDF data to discover the appropriate relationships between:
  - The composite document and its immediate child components
  - The composite document and *others of the same type*
- DG requires custom functionality to:
  - Fetch and truncate historical text appropriately
  - Assemble summary video EDLs from scene selection
  - Request map annotated with 3D Model selection
  - Assemble list of URIs pointing to associated town documents

User Domain Issues

- Multiple users interact with RS services in order to collaboratively edit the historical text
  - These interactions are captured in **Information Objects** associated with both the text resource and user to form a record of provenance
  - These individual users should belong to an ”**historian**” role
  - Could be grouped according to areas of expertise
- Users responsible for the initial generation of entire documents would belong to a ”**content creator**” role
- Users interacting with the system via the DG to prompt re-creation of 3D models would do so via the DG's client service account

Architecture Domain Issues

URI

- URL of external map generator service

Quality

- Parameters used to generate map, e.g. resolution

Quality Domain Issues

URI

- URL of external map generator service

Quality

- Parameters used to generate map, e.g. resolution

Policy Domain Issues

- RS policy requires that Resources only be re-used by:
  - Creator
  - Creator's collaborators
  - Actors authorised by above

Solution

- DG service runs as a registered service user of RS
- DG users interactive *indirectly* with RS via DG