

The Alexandria Digital Earth Prototype System

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ADEPT is ...

□ Goals

- distributed digital library for geo-referenced information
- services supporting DL federation and interoperation
- personalized “learning spaces”
- large geospatial collections

□ Activities

- Core system
- Services
- Metadata
- Education
- Evaluation
- Collections
- Research



Core System (inherited from ADL)

□ Architecture

- Library
 - **set of collections**
 - **client (public) services**
- Collection
 - **set of holdings**
 - **metadata reports**
 - **library (internal) services**
- Holding
 - **unique identifier**

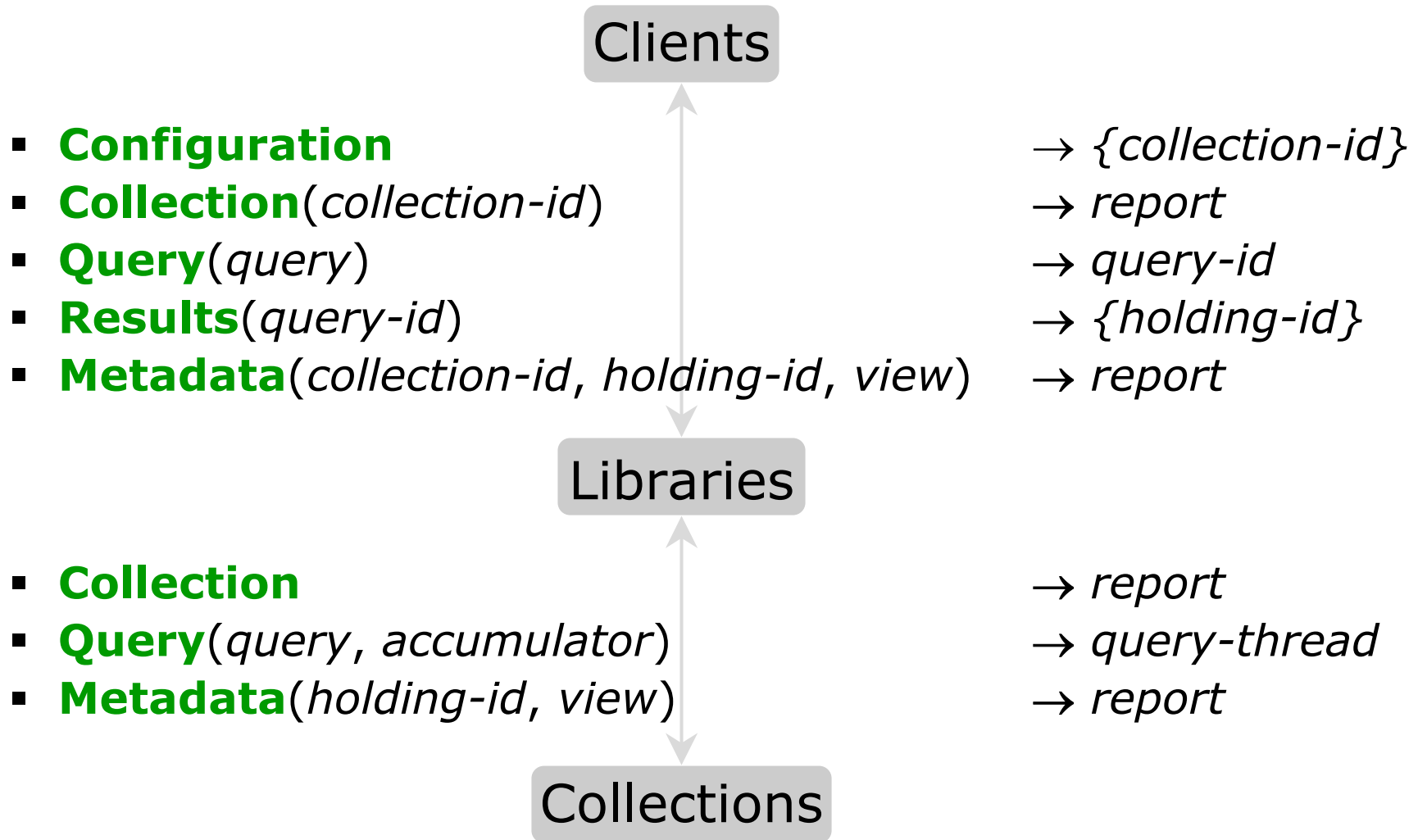
□ = **distributed catalog** system

□ Components

- **Footprints**
 - **location(s) ↔ holding**
- **Gazetteer**
 - **name ↔ footprint**
- **HTTP**
 - **service ↔ URL(s)**
- **Search buckets**
 - **generic query metadata**
- **XML**
 - **all visible messages**
 - ◆ queries
 - ◆ metadata reports



ADL Services





ADL Metadata

□ “Search Buckets” (generic query metadata)

- Geographic locations
- Dates
- Types
- Formats
- Originators
- Subject-related text
 - **Assigned terms**
- Identifiers

□ Reports (descriptive metadata)

- Collection
- Scan
- Full
 - ***New ADEPT/DLESE/NASA standard***
- Browse
- Access

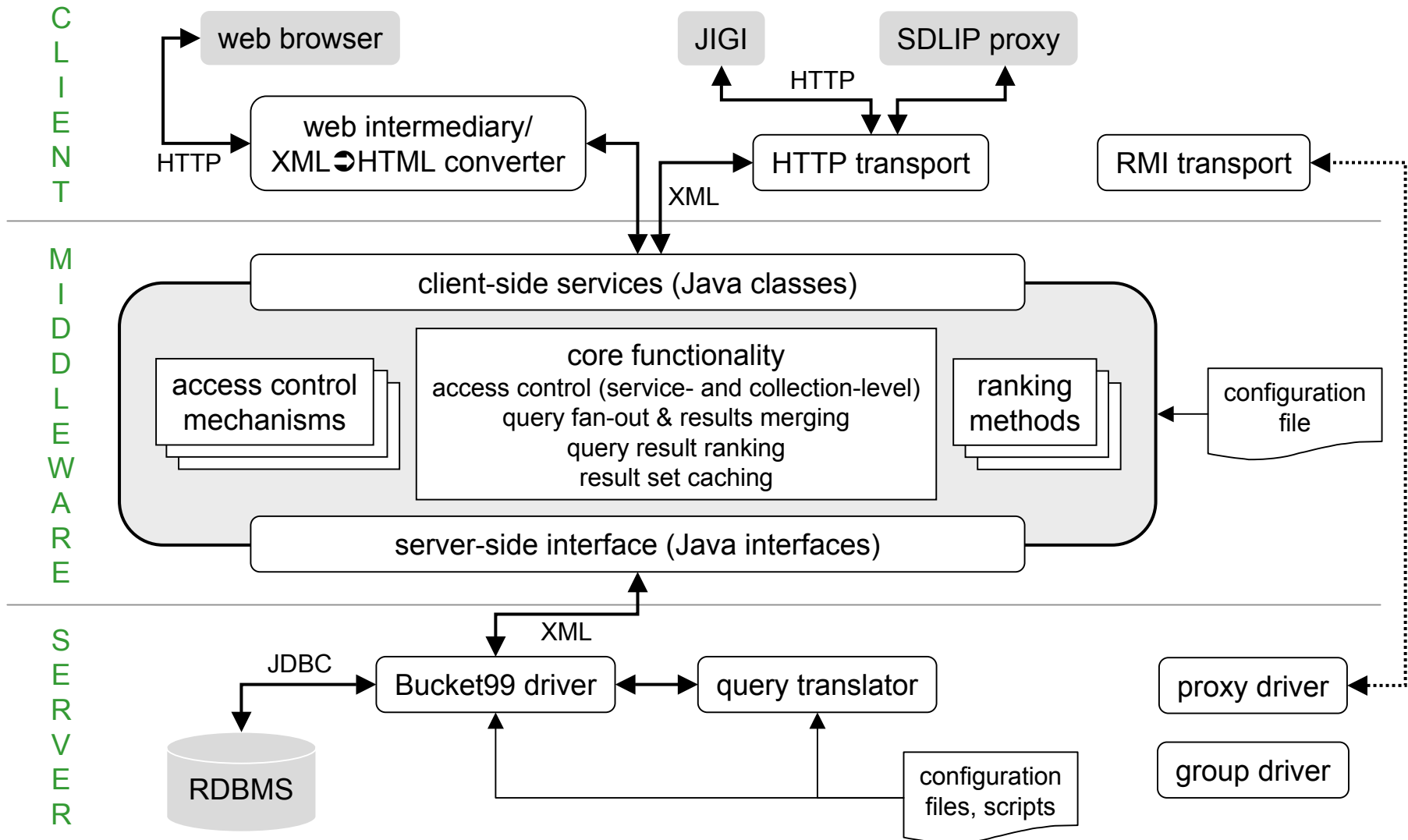


Core System: ADEPT extensions

- Collection discovery
 - Central registry
 - Query by space, time, type
 - **resolution-weighted**
 - **average information density**
 - **type thesaurus**
- Distribution
 - Peer-to-peer
 - **middleware servers**
 - **heterogeneous collections**
 - Dynamic collection linking
 - **proxy thru remote middleware**
 - Access control
 - **remote collection visibility**
- Local collections
 - Dynamic creation, population, management, deletion
 - **XSLT(native XML metadata)**
 - **import from other collection**
- Bucket refinements
 - Metadata → bucket mappings
 - **object level: bucket report**
 - **collection level**
 - Common views
 - **search**
 - **description**
 - “Drill-down” search
 - **statistical guidance**



ADEPT Implementation





New clients ...

- Content rendering
 - GISviewer (UCB)
 - TilePix (UCB)
- “Digital Earth” navigation
 - VGIS (Georgia Tech)
 - TerraVision (SRI)
- Knowledge representation
 - Concept/topic maps (VKB)
- Simulation



New library services ...

- Gazetteer
- Remote collections
- Collection discovery
- Personal collections
 - Metadata extraction & creation
- Reference
 - Dictionaries
 - Thesauri
- Semantic mapping
 - Connect same object, different representations
 - **text** ↔ **location** ↔ **image** ↔ ...



Gazetteer service protocol

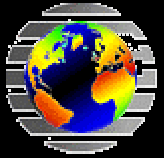
- Formal model
 - Entry
 - **Identifiers**
 - **Names**
 - **Footprints**
 - **Types**
 - Relationships
 - **current vs. historical**
 - **primary vs. secondary**
- Query language
 - Entry/relationship constraints
- Metadata
 - Gazetteer properties
 - Entry
 - **Standard**
 - **Extended**
- Services
 - Capabilities
 - Query
 - Add
 - Relate
 - Remove
- XML encodings

<http://www.alexandria.ucsb.edu/~gjaneer/gazetteer>



Stuff we'd like to share

- Standards and protocols
 - Library
 - **Collection metadata**
 - **Object metadata (joint w/ DLESE, NASA)**
 - **Client API**
 - Gazetteer
 - **Content**
 - **Client API**
- Software
 - “Middleware” (collection ↔ client broker)
 - **portable (Java, Python) servlets**



That's All, Folks!



New connections ...

- Z39.50
- OAI
- SDLIP/GDLIP