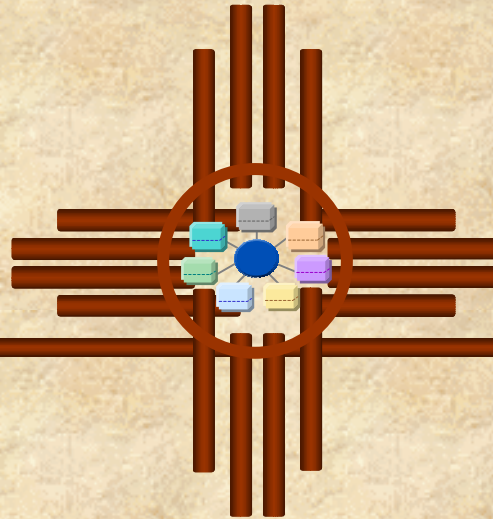


# Storage Resource Broker

Data Grids, Digital Libraries, and  
Persistent Archives



*20th IEEE / 11th NASA Goddard Conference on Mass  
Storage Systems and Technologies*

Reagan W. Moore  
San Diego Supercomputer Center

# Object Storage Systems

- **Data Grids**

- ◆ Data sharing

- **Digital Libraries**

- ◆ Data publication

- **Persistent Archives**

- ◆ Data preservation

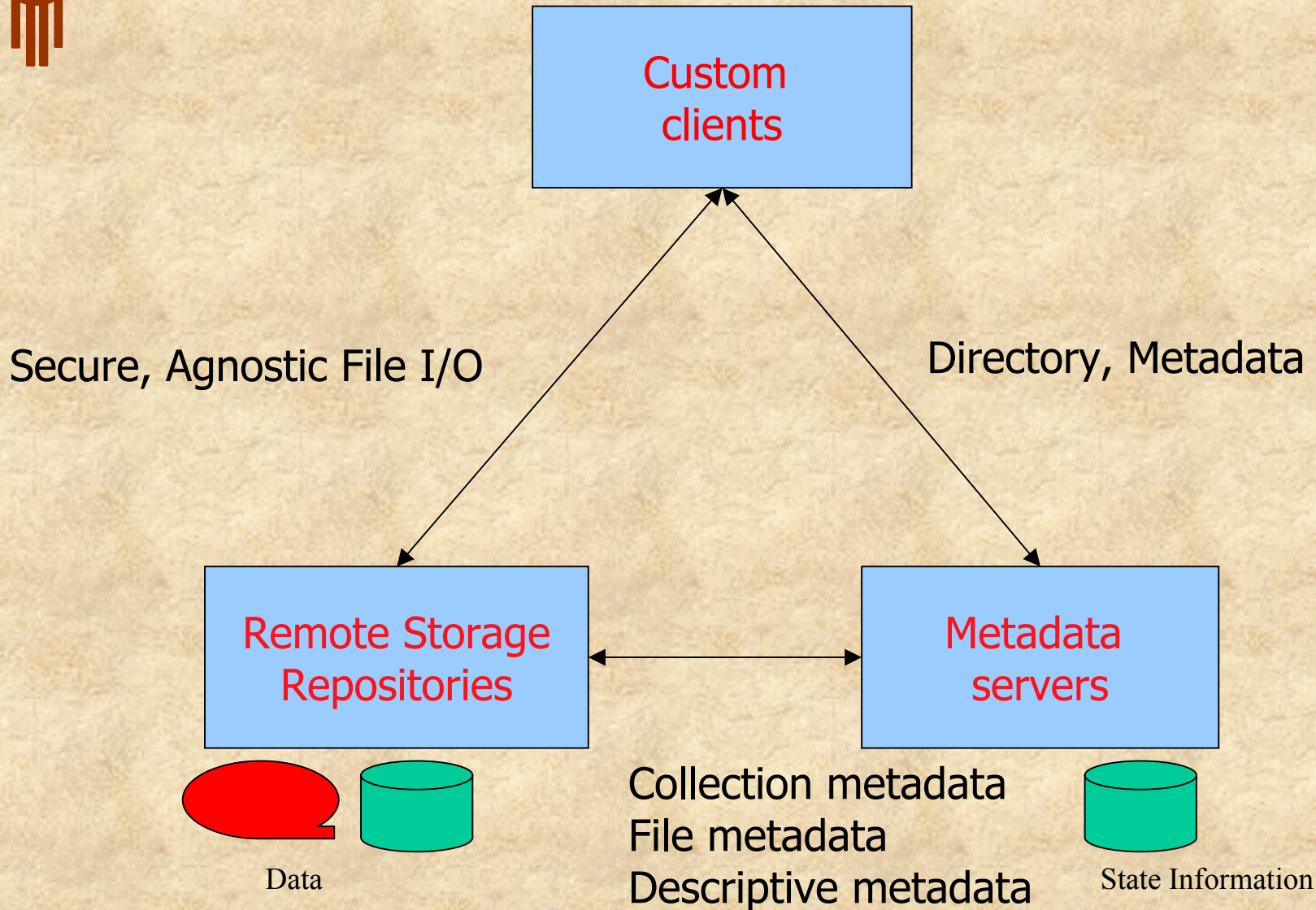
- **Storage Resource Broker** integrates all three data management environments



# SRB Object-based Storage

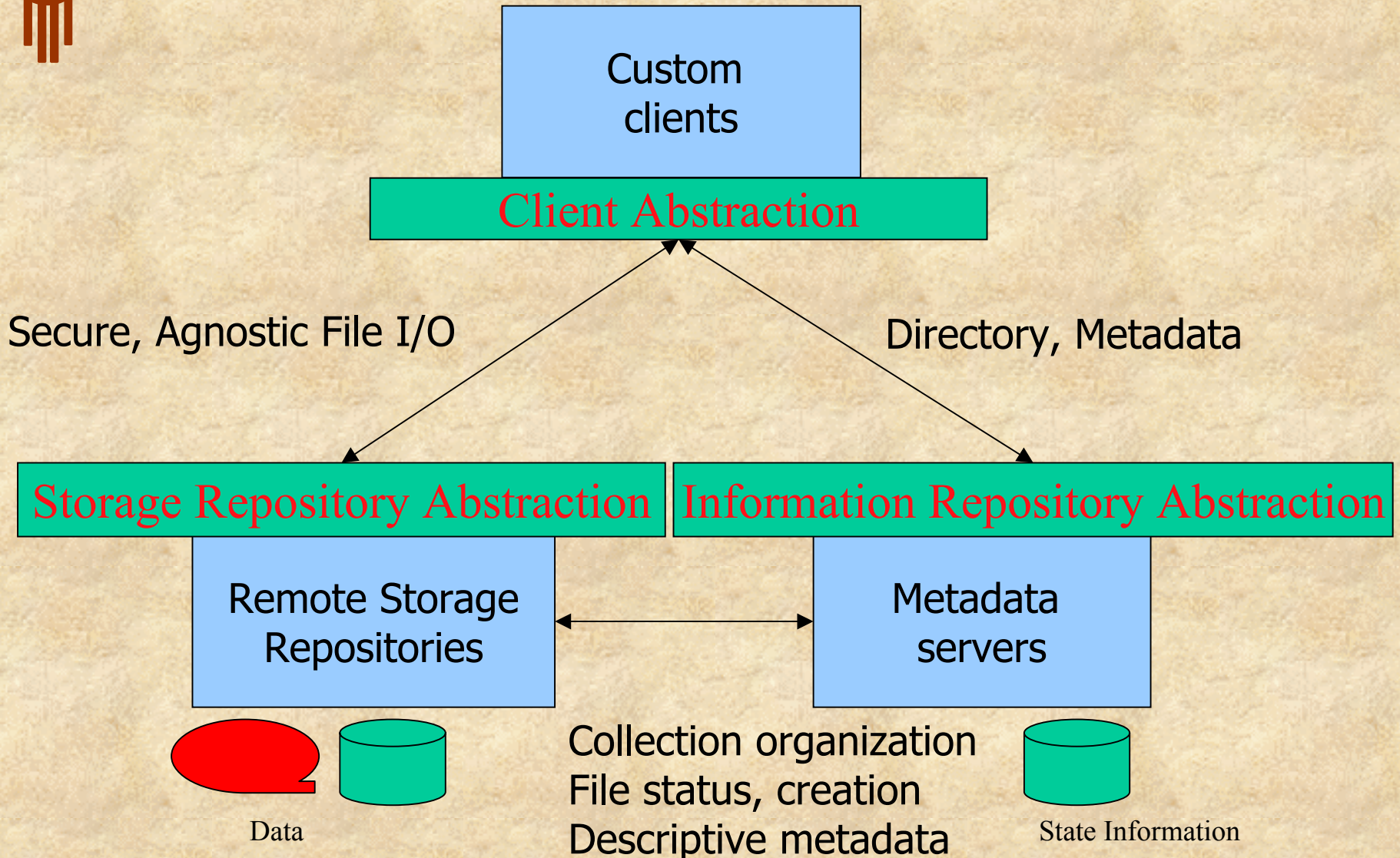
- Reference digital entity by a **logical name**
  - ◆ Map from logical name to physical name
- Assign **state information** to the logical name
  - ◆ Location
  - ◆ Access controls
  - ◆ Encryption
  - ◆ Descriptive metadata
- Provide **collection hierarchy** for organizing the logical name space
- Support **remote proxies** for the manipulation of digital entities directly at the remote storage repository

# Data Grid Approach

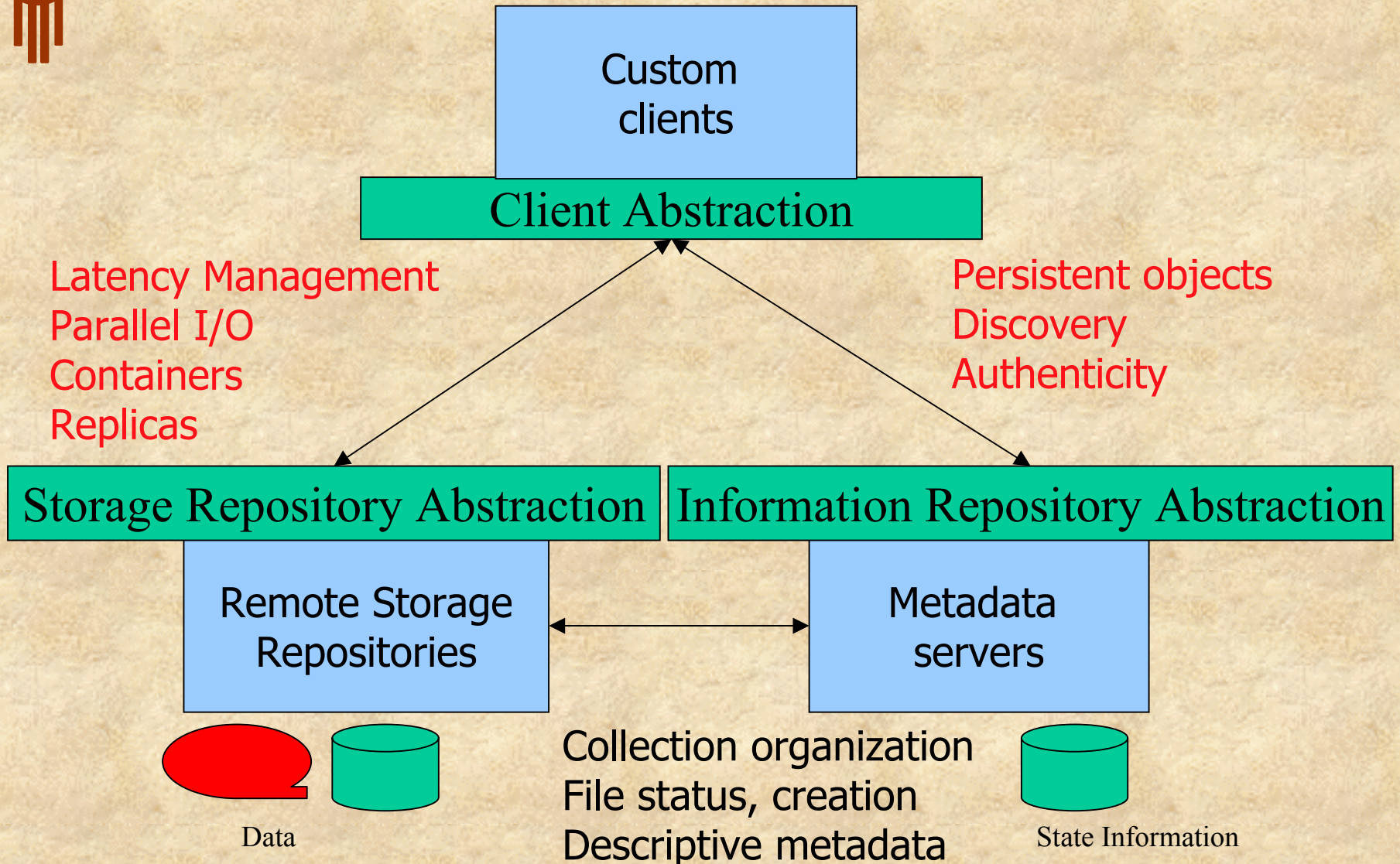




# Data Grid Approach



# Data Grid Approach





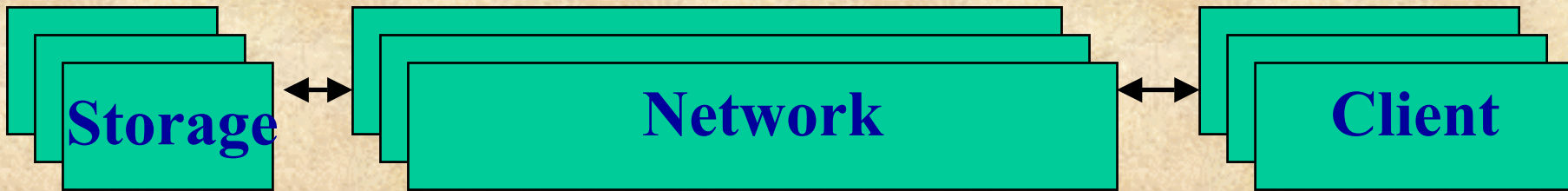
# SRB Latency Management



Remote Proxies,  
Staging

Data Aggregation  
Containers

Prefetch



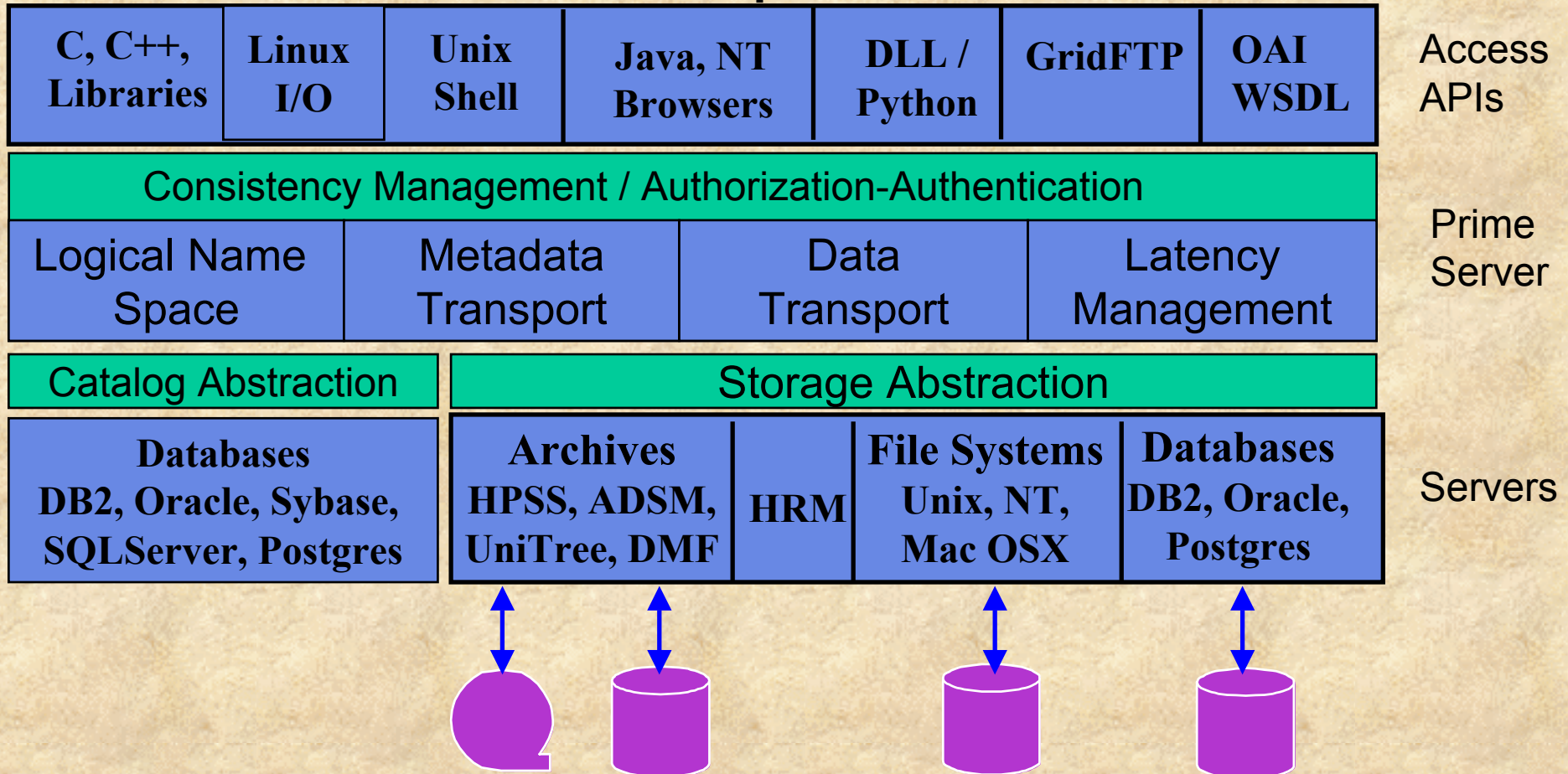
Replication  
Server-initiated I/O

Streaming  
Parallel I/O

Caching  
Client-initiated I/O

# Storage Resource Broker

**Application**





# For More Information



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<http://www.npaci.edu/DICE>

<http://www.npaci.edu/DICE/SRB/index.html>

<http://www.npaci.edu/dice/srb/mySRB/mySRB.html>