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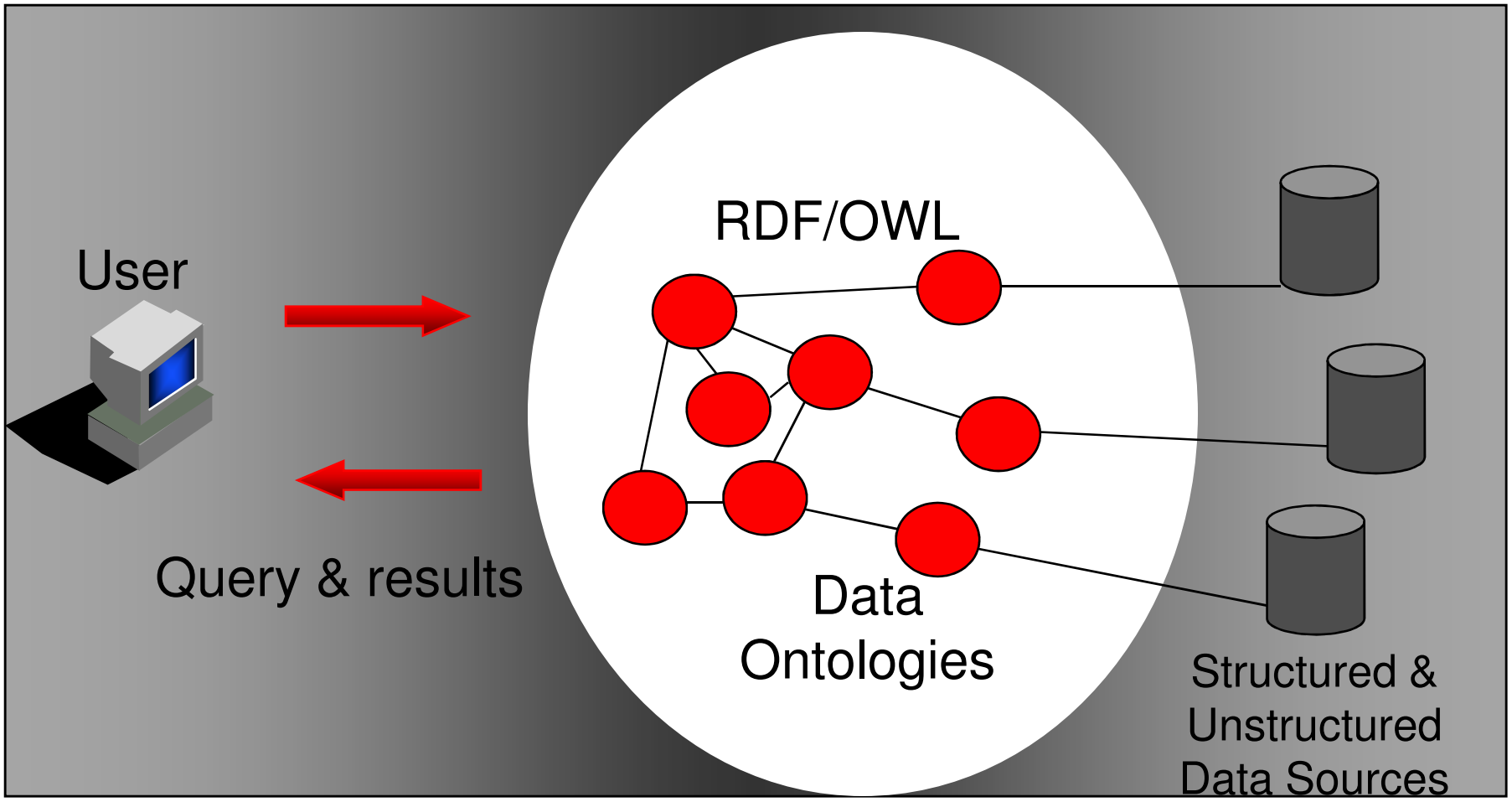
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A Brief Overview of RDF Database Approaches

Jeff T. Pollock, Senior Director Fusion Middleware

Application Integration

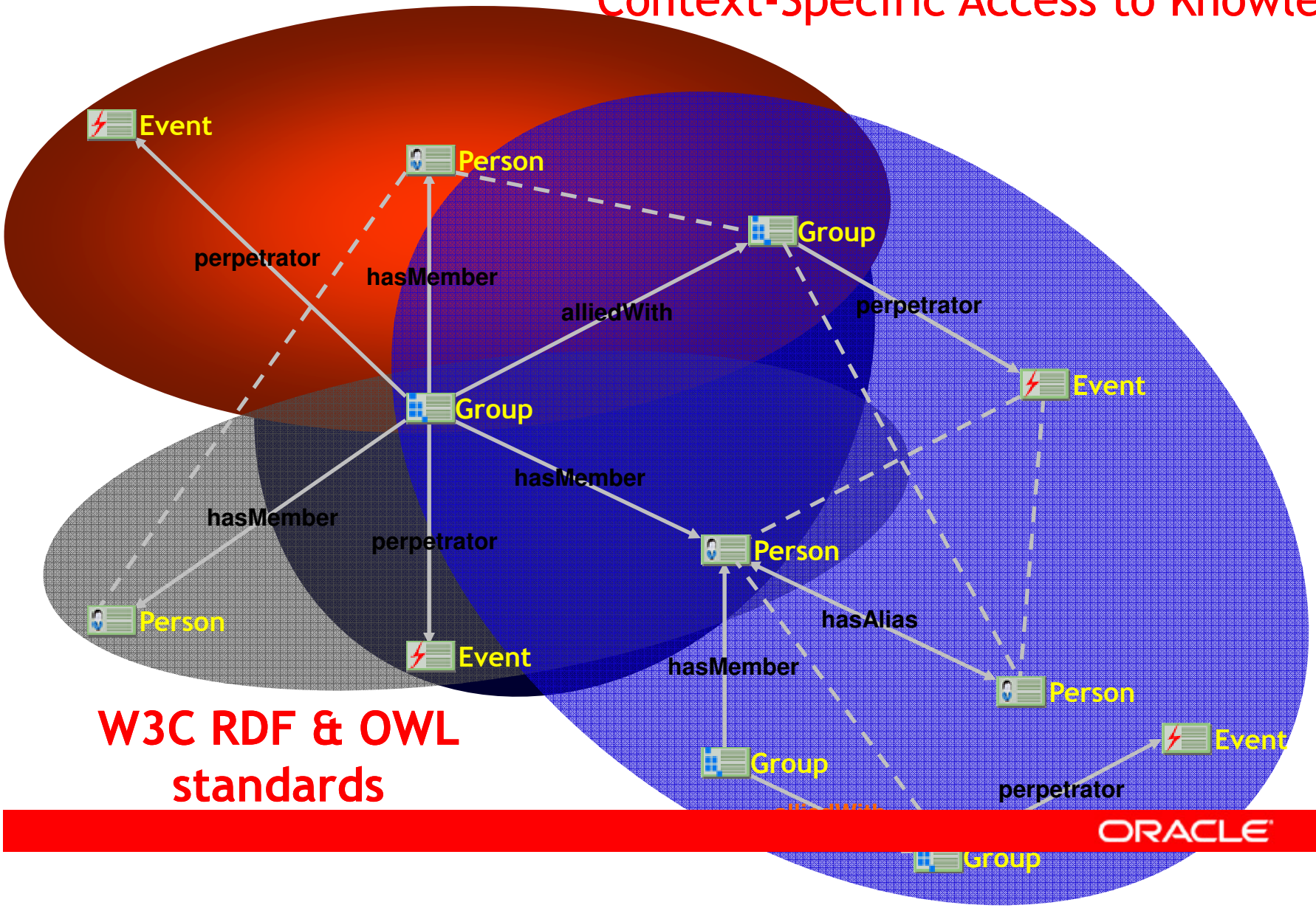


Areas of Applicability

- Intelligence, Law Enforcement:
  - Threat analysis, asset tracking, integrated justice
- Integrated BioInformatics:
  - Bio-Pathway analysis, protein interaction
- Finance
  - Fraud detection, Compliance Management
- Web and Social Network Solutions
  - Recommender, Social Network Analysis, Activity Analysis
- Enterprise Business Applications
  - Grid resource mgmt, EII, BI, Configuration mgmt.

Analytic Intelligence

Context-Specific Access to Knowledge

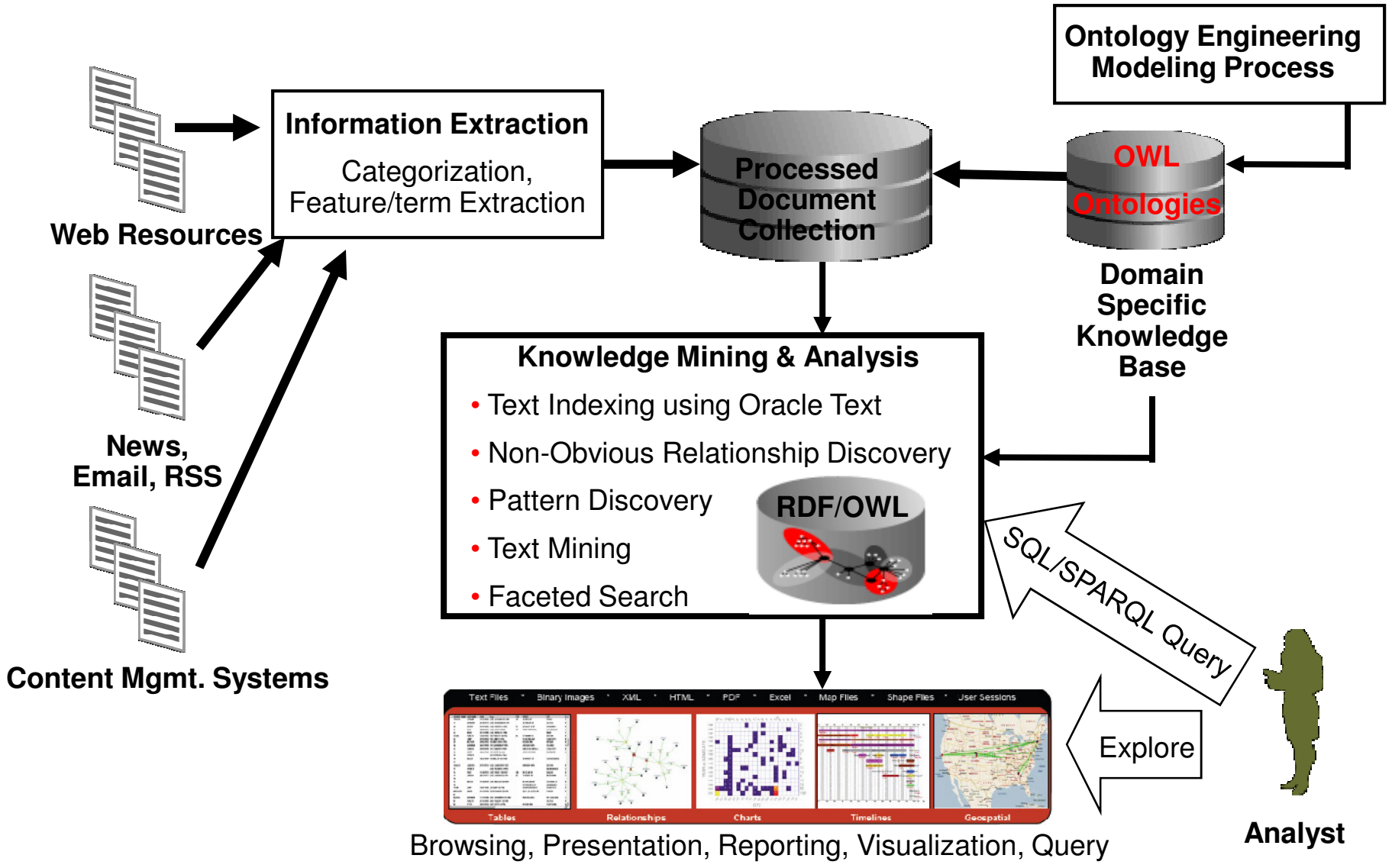


W3C RDF & OWL standards

Semantic Data Management Characteristics

- Discovery of data relationships across…
  - Structured data (database, apps, web services)
  - Unstructured data (email, office documents) Multi-data types (graphs, spatial, text, sensors)
- Text Mining & Web Mining infrastructure
  - Terabytes of structured & unstructured data
- Queries are not defined in advance
- Schemas are continuously evolving
- Overcome isolated systems design
- Built on open, industry standards:
  - SQL, XML, RDF, OWL, SPARQL

Knowledge Mining Workflows



Why is this Useful?

- Designed to represent knowledge in a distributed world
- A method to decompose knowledge into small pieces, with rules about the semantics of those pieces
- RDF data is self-describing; it “means” something
- Allows you to model and integrate DBMS schemas
- Allows you to integrate data from different sources without custom programming
- Supports decentralized data management
- Infer implicit relationships across data

Business Value Summary

- These technologies, collectively referred to as semantic technologies, are important to business leaders because of their ability to create exponential value in:
  - reducing operational costs
  - aiding decision-making, and
  - improve the transparency of business operations

Who Supplies Products?

Triple Stores / Reasoners

- @Semantics RDFStore
- Franz AllegroGraph & RacerPro
- IBM Boca
- Intellidimension RDF Gateway
- Mulgara open source RDF
- Northrop Grumman Tucana Suite
- Ontotext OWLIM / BIGOWLIM
- OpenLink Virtuoso
- Oracle Database 10g & 11g
- Vertica (C-Store with some RDF uses)
- Pellet (Clark & Parsia)

Search and Collaboration

- OpenLink Semantic Web Data Spaces
- Radar Networks
- Siderean Seamark Navigator

Middleware

- IBM WSSR
- Microsoft Connected Services Framework
- Metatomix
- Ontology Works
- Ontoprise
- Oracle Fusion Middleware 11g
- Profium Semantic Information Router
- Software AG (webMethods)
- Thetus Publisher

Metadata Tagging

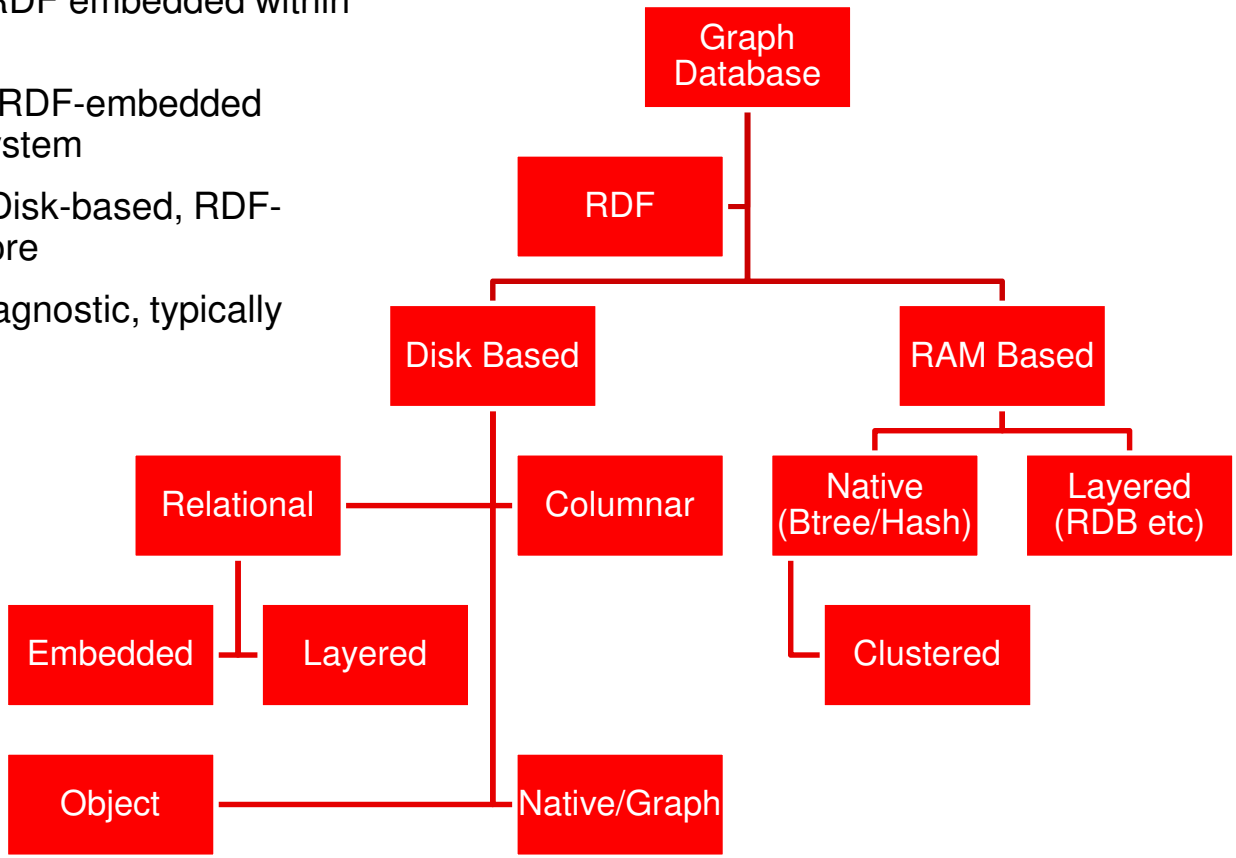
- Adobe XMP & Aduna Metadata Server

Development Environments

- Altova SemanticWorks
- HP Jena
- TopQuadrant TopBraid Composer

Simplification of RDF DB Approaches

- Franz → Disk-based, RDF embedded within Object DB
- Oracle → Disk-based, RDF-embedded within Relational subsystem
- Vertica → (optionally) Disk-based, RDF-layered on top of C-Store
- HP Jena → API is DB agnostic, typically used on Relational DB
- Sesame → Disk-based RDF layered on top of Postgres RDB
- OWLIM → In-memory over RDB (Sesame) or Native (binary graphs)
- Siderean → In-memory, Federated across RAM



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