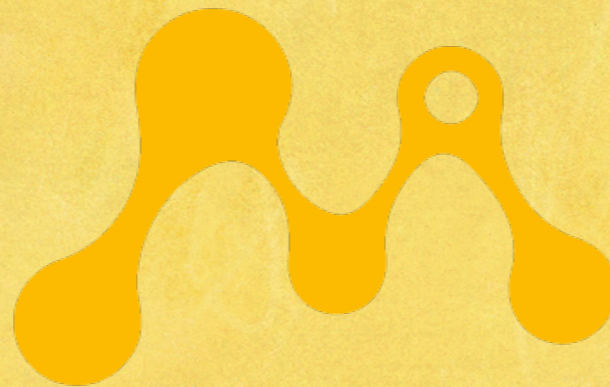




Getting Started with Jakarta NoSQL and MongoDB



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Who's Mike?

- BS in CS from **RUTGERS**
THE STATE UNIVERSITY OF NEW JERSEY
- “Petrochemical Research Organization”
- InfoQ Java Queue News Editor
- Garden State Java User Group
- Jakarta EE Ambassadors





Objectives

- What is Jakarta NoSQL?
- What is Eclipse JNoSQL?
- NoSQL Database Types
- Jakarta NoSQL Layers
- Demo (yea!)
- Jakarta NoSQL Resources



Jakarta NoSQL

What is Jakarta NoSQL (I)?



- Jakarta EE specification
 - Otavio Santana - specification lead
- Streamlines the integration of Java applications with NoSQL databases
- Defines a set of APIs that provide a standard implementation for most NoSQL databases

What is Jakarta NoSQL (2)?



- One API, many databases
- Adopted by the Garden State JUG!



Eclipse JNoSQL





What is JNoSQL?

- Compatible implementation of the Jakarta NoSQL specification
- One defined API for each NoSQL database type
- Uses the same annotations to map Java objects



NoSQL Database Types

- Column Family
- Document
- Graph
- Key-Value



Column Family

Row-key	Columns	
Apollo	Duty Sun	
Aphrodite	Duty {Love, happy}	Color [Pink]
Ares	Duty War	weapon Sword



Column Family

Relational	Column Family
Table	Column Family
Row	Column
Column	Key/Value Pair
Relationship	



Document

```
{  
  "name": "Diana",  
  "duty": [  
    "Hunt",  
    "Moon",  
    "Nature"  
  ],  
  "age": 1000,  
  "siblings": {  
    "Apollo": "brother"  
  }  
}
```

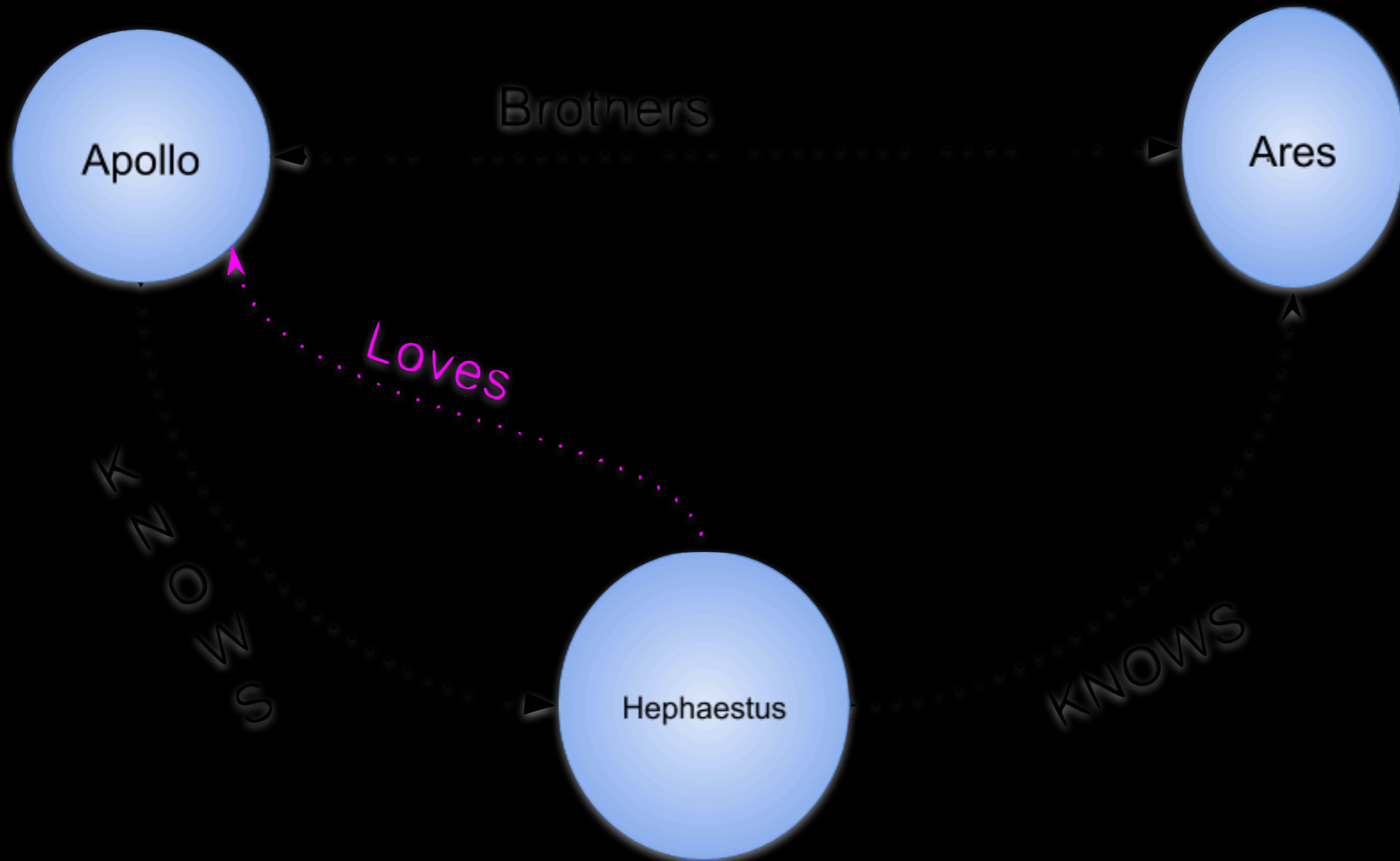


Document

Relational	Document
Table	Collection
Row	Document
Column	Key/Value Pair
Relationship	Link



Graph



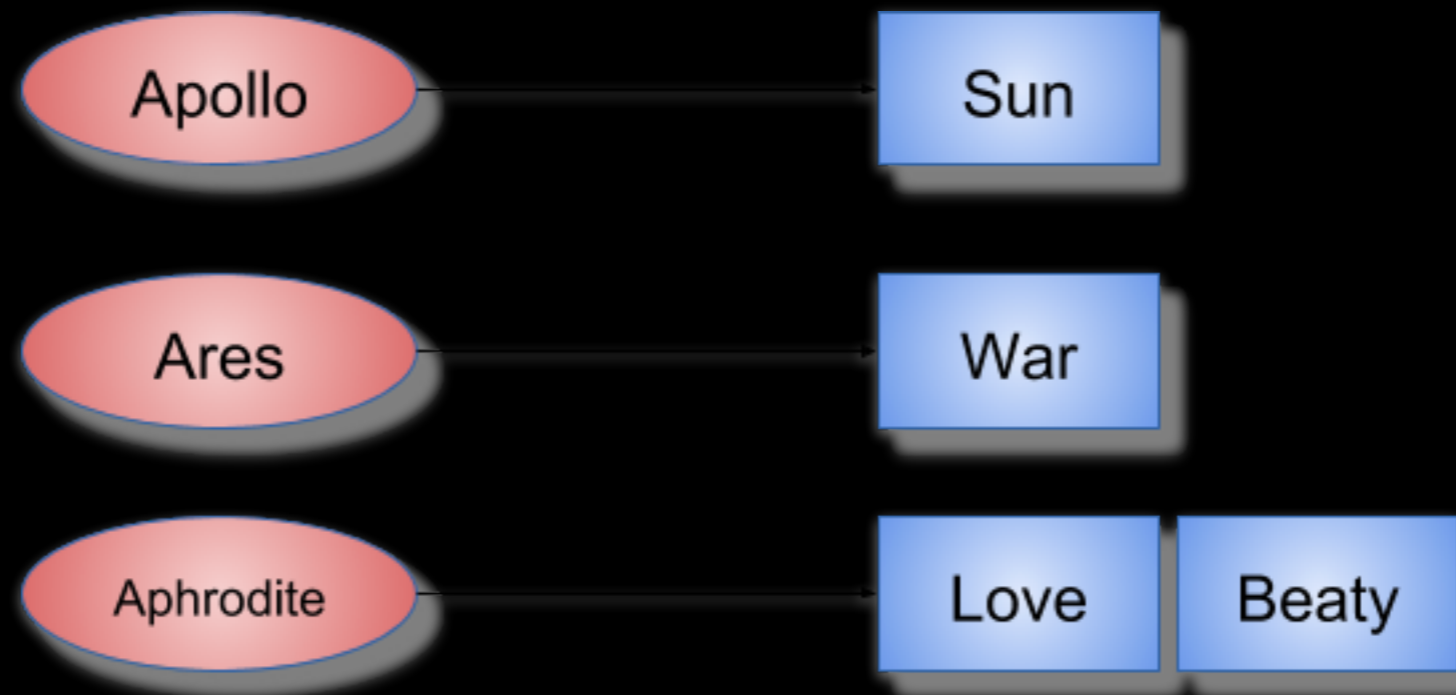


Graph

Relational	Graph
Table	Vertex & Edge
Row	Vertex
Column	Vertex & Edge Property
Relationship	Edge



Key-Value





Key-Value

Relational	Key-Value
Table	Bucket
Row	Key/Value Pair
Column	
Relationship	

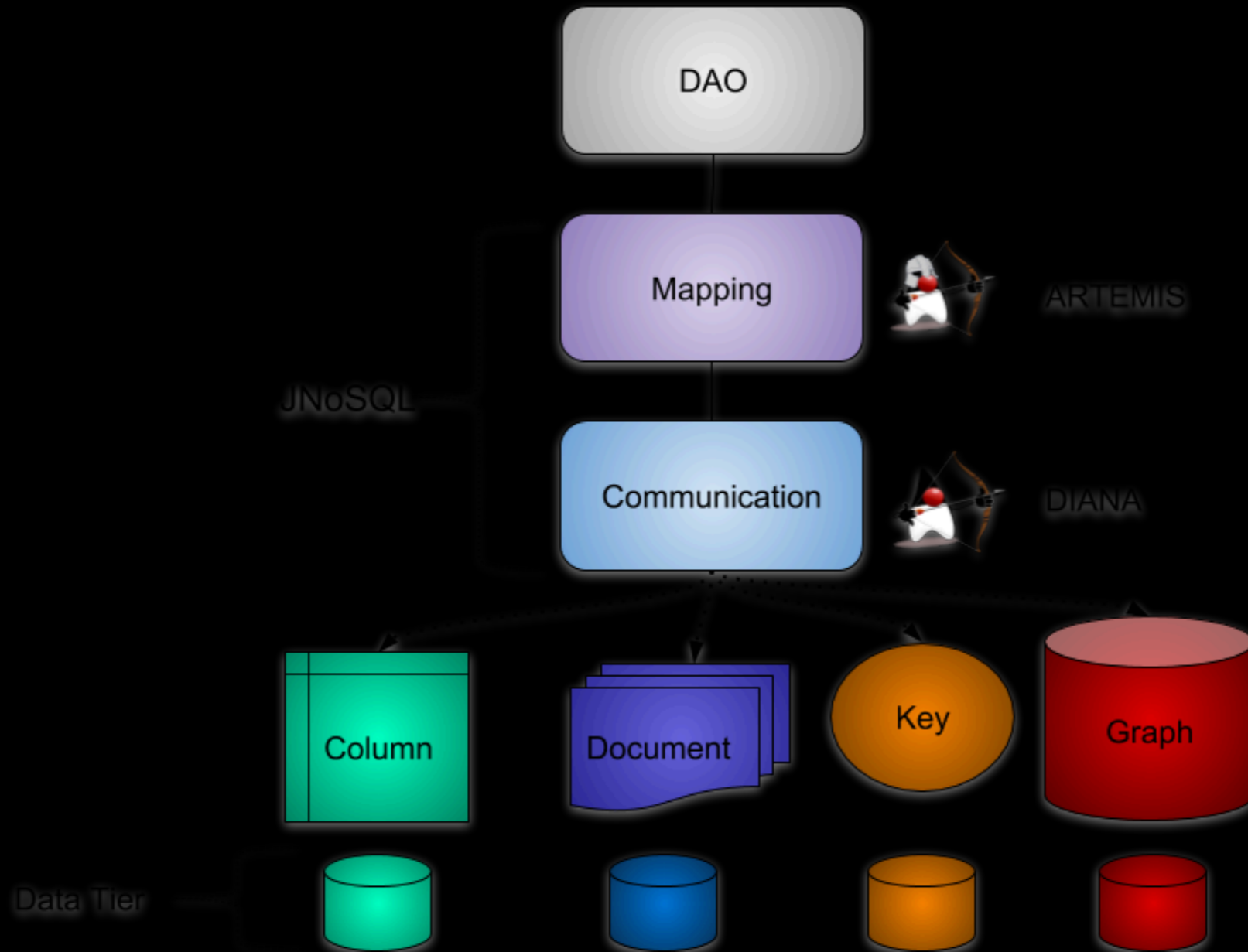


Jakarta NoSQL Layers

- Communication
 - formerly known as “Diana”
- Mapping
 - formerly known as “Artemis”



Jakarta NoSQL Layers





Communication Layer

- A set of APIs that defines communications with NoSQL databases
- Contains modules representing the four NoSQL database types
- May be compared to the JDBC APIs in the relational database world



Mapping Layer

- A set of APIs that map Java objects to NoSQL databases
- Incorporates Jakarta CDI and Jakarta Bean Validation specifications
- Annotation driven
- May be compared to JPA and ORM in the relational database world



Scalability vs. Complexity



Supported NoSQL Databases



 ArangoDB	 Apache TinkerPop	 blazegraph™	 basho	 Tom Sawyer SOFTWARE	 cassandra	 Couchbase
 IBM Graph™	 CouchDB relax	 Infinispan	 elastic	 GRAKN.AI	 hazelcast	 APACHE HBASE
 Azure Cosmos DB	 Stardog	 TITAN	 JanusGraph	 KeyLines NETWORK INSIGHT	 LINKURIUS VISUALIZE GRAPH DATA EASILY	 M
 mongoDB.	 Solr	 SCYLLA.	 neo4j	 ORACLE [®] NOSQL DATABASE	 OrientDB [®]	 redis
 riak	 RAVENDB					



Live Demo

Current Status of Jakarta NoSQL



- In development
- Version 1.0.0-b3
- Migrate to JDK 11 after the release of Jakarta EE 9.1



Jakarta NoSQL Resources

- <https://jakarta.ee/specifications/nosql/>
- <https://www.infoq.com/news/2019/10/jakarta-nosql/>
- https://www.youtube.com/watch?v=EXQf0-y52_0
- <https://www.baeldung.com/eclipse-jnosql>



Want to Get Involved?

- Contribute!
- Fork the `nosql` repository
 - <https://github.com/eclipse-ee4j/nosql>

Acknowledgements



- Otavio Santana



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Thanks!

