Lesson 4

NEO4J Native Graph Databases

Examples of Graph DBs

- Neo4J,
- AllegroGraph,
- HyperGraph,
- Infinite Graph,
- Titan, and FlockDB

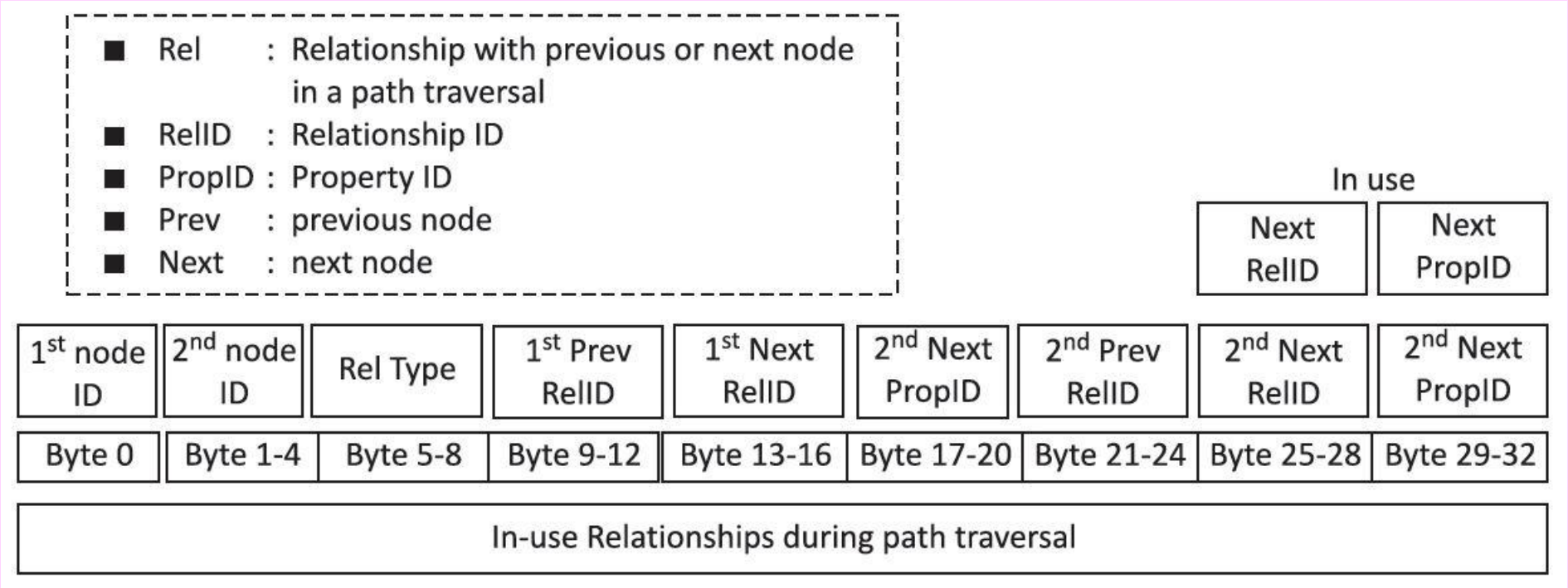
Relational Database and Graph Database

- Relation DB distributes implicitly the relationships and stores as tables
- Graph DB explicitly store the relationships
- Path traversal from a vertex to vertices retrieves the multi-step relationships in a Graph DB

Native Data Store for Graph DBs

- Big Data analytics needs an efficient storage mechanism with ease in path traversals
- NativeDB graph stores nodes and relationships directly. Direct storage makes retrievals efficient
- Neo4j DB enables designing fully ACID rules compliant DBs

Figure 8.3 Native data graph relationships



Features in Neo4J DBs

1. Can add additional path traversal in between the transactions so that data consistency maintains and the transactions exhibit ACID properties
2. Design is architecture aware design

…Features in Neo4J DBs

3. Design provides for workload of memory management, query engine, and query language at storage
4. Design provides the safe storage, efficient querying consistently and without the aid of other components

…Features in Neo4J DBs

5. Organizes the graph data and models both graph structure, vertex properties and edge properties
6. Represents the graphs in-memory and on-disk.

…Features in Neo4J DBs

7. Caches the graph data in-memory either in batch mode or on-demand from the on-disk
8. Enables timestamps
9. Persisting updates of graph along with the timestamps from in-memory graph to on-disk

…Features in Neo4J DBs

8. Provides graph data streaming, graph data updates for modifying the graph structure and/or property data accordingly
9. Provides addition of the edges, removal of vertices and updates of properties

…Features in Neo4J DBs

10. Finds neighbours of a vertex, retrieves property of an edge bypath traversals.
11. IBM G system2 for graph analytics, visualization and applications support NativeDBs

Querying

- Performs querying of graph data by loading the graph structure and/or property data

Neo4J Query Language (SPARQL)

- Cypher for the NativeDBs
- Tests for execution times in the searches for 2nd, 3rd, 4th and remote neighbours show that the Neo4j Native Data Store is faster compared to other formats.

Summary

We learnt:

- Graph Database as Neo4J DBs,
- Can add additional path traversal in between the transactions so that data consistency maintains
- Direct store of nodes and relationships
- *Cypher* query language for Native DBs

End of Lesson 4 on
and
Neo4J Native Graph Databases