

-Characteristics

- **Performance**

They have superior performance for querying related data, big or small. A native graph has the so-called [index-free adjacency](#) property, where each vertex maintains its neighbor vertices information only, no global index about vertex connections exists.

- **Better Problem-Solving**

Graph databases solve problems that are both impractical and practical for relational queries. Examples include iterative algorithms such as PageRank, gradient descent, and other data mining and machine learning algorithms.

- **AI Infrastructure**

Graph databases serve as great AI infrastructure due to well-structured relational information between entities, which allows one to further infer indirect facts and knowledge. Machine learning experts love them

- **Storage**

The underlying storage mechanism of graph databases can vary. Some depend on a relational engine and “store” the graph data in a [table](#). Others use a [key-value store](#) or [document-oriented database](#) for storage, making them inherently [NoSQL](#) structures

- **Index-free adjacency**

Data lookup performance is dependent on the access speed from one particular node to another. Because [index](#)-free adjacency enforces the nodes to have direct physical [RAM](#) addresses and physically point to other adjacent nodes, it results in a fast retrieval.

Some of the following particular features make Neo4j very popular among developers, architects, and DBAs

- **Cypher**, a declarative query language similar to SQL, but optimized for graphs. Now used by other databases like SAP HANA Graph and Redis graph via the [openCypher project](#).
- **Constant time traversals** in big graphs for both depth and breadth due to efficient representation of nodes and relationships. Enables scale-up to billions of nodes on moderate hardware.
- **Flexible** property graph schema that can adapt over time, making it possible to materialize and add new relationships later to shortcut and speed up the domain data when the business needs change.
- [Drivers](#) for popular programming languages, including Java, JavaScript, .NET, Python, and many more.

-References:

- www.dzone.com
- www.neo4j.com
- www.Wikipedia.com