Neo4j Graph Database

The Fastest Path to Graph Productivity

As the most trusted, scalable, high-performance graph data platform on the market, Neo4j empowers developers and data scientists to create intelligence-powered solutions. Now you can overcome the most complex data challenges with advanced applications that harness the rich relationships in your data.

The Neo4j Graph Database is the heart of the Neo4j Graph Data Platform. Neo4j is the most widely deployed graph database, serving enterprise use cases across industries, including life sciences, utilities, financial services, cybersecurity, and so many more.

Key Benefits of Neo4j Graph Database

**Graph-Native Scale**
Neo4j’s high-performance, ACID-compliant distributed cluster architecture scales with your data and your business needs, minimizing cost and hardware while maximizing performance across connected datasets without compromising data integrity.

Neo4j offers robust transactional guarantees across billions of nodes and trillions of relationships, with query responses in milliseconds. Analytical workloads achieve unlimited scale-out for reads with a single core server and as many read replicas as desired. Scale reads horizontally 1000x by adding read replicas.

The Neo4j Graph Database gives you unlimited horizontal scalability by enabling you to divide your graph into shards. Shards partition data onto different servers as desired based on business needs, geography, or latency for users. Federated native graph queries analyze the graph as a logical whole using Neo4j Fabric.

“Bet365’s Risk Management Team quickly concluded that the technology would comfortably provide the scalability demanded by its applications for the foreseeable future. Our graph is over 1.5 terabytes yet it is still extremely fast.”

Richard Burton, Head of Management Information Systems, Hillside Technology Ltd.

**Superior Performance**
Graph databases are like rocket fuel for applications, delivering context fast, even for the deepest queries. Neo4j’s native graph database delivers constant high-performance queries, no matter how large your graph is.

Relationship and relationship property indexes triple the speed of deep queries. Relationship chain locks enable faster transaction writes to create, delete, and update dense nodes (nodes with many relationships).

**Operational Trust**
Business requirements and priorities change – and Neo4j is built to keep pace. Neo4j pioneered the property graph model; the model you sketch on a whiteboard is the same as the data stored in the database. This intuitive, concept-first approach spurs rapid development of intelligence-driven applications. As business requirements change, modify the schema or database without disrupting or remodeling current data.
Designed for the Cloud

Neo4j runs everywhere: on-premises and across public, private, and hybrid clouds. About 90 percent of enterprise customers deploy Neo4j in the cloud. Neo4j is designed for ease of operations in cloud architecture so you can build, test, and deploy faster.

Neo4j AuraDB, the fully managed cloud offering, enables developers to get started immediately, with zero administration. Neo4j AuraDB scales to meet the most demanding production workloads. Neo4j makes application development, deployment, and DevOps even simpler with its cloud-native API (HTTP/2), Kubernetes integration and Helm Charts, as well as simplified server-side routing.

Enterprise-Grade Security

Built for the graph, Neo4j includes enterprise-grade database security that guarantees transactions with zero data loss. Neo4j has all the security features that enterprises demand: Single sign-on (SSO), LDAP/Directory services integration, security logging, and strong encryption to protect data in transit and at rest.

Role-based access control enables fine-grained governance of all nodes, properties, and relationships. Securing data at the database level empowers developers to focus on the functionality of their intelligent applications. It also allows organizations to create logical security roles for all users.

Developer Productivity

Neo4j has the largest active developer community, with over 240,000 members. The Cypher graph query language is compact and intuitive, requiring 10x less code than SQL. Cypher delivers massive productivity gains with a minimal learning curve. Features like indexes on node and relationship types and properties make complex Cypher queries even faster. Manage massive amounts of data with the new Cypher CALL (...) IN TRANSACTIONS statement.

A combination of client- and server-side routing makes it easy for DevOps teams to roll out Neo4j with load balancers, orchestration platforms like Kubernetes, application stacks like GRANDstack, and client tools like Neo4j Bloom, Neo4j Browser, and Jupyter Notebooks. Run Neo4j in Docker on Macs with M1 ARM processors.

FEATURES

- ACID compliant for the most demanding transactional applications
- Distributed, high-performance native graph architecture
- DevOps in the cloud with Kubernetes integration and Helm Charts
- Smart IO scheduling for faster startup times and improved TCO
- Relationship chain locks for faster transaction throughput
- Relationship property indexes for fast, scalable query performance
- Server-side routing for simplified networking
- Neo4j Fabric for sharding and federated queries
- Parallelized backup and restore for faster backup and recovery times
- Scale-out capacity for read-intensive analytical workloads
- Scale, swap, and upgrade graph applications without any downtime

Questions about Neo4j?

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