

Neo4j Aura and Amazon SageMaker on AWS

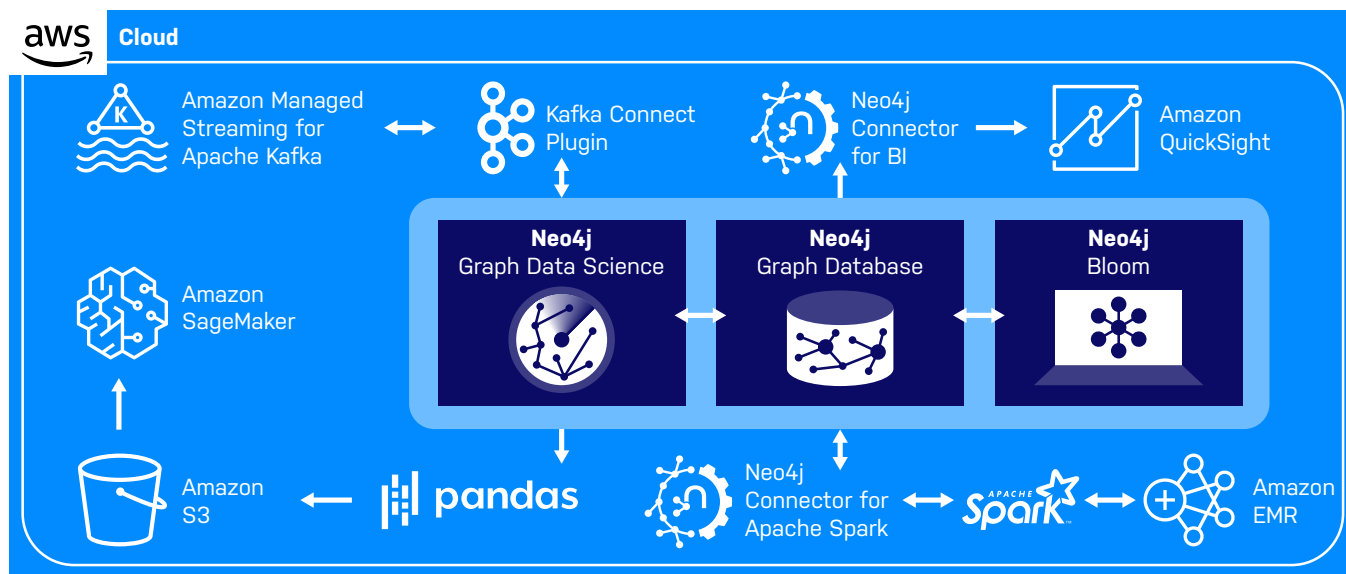
Why are leading data scientists and developers interested in adding graph analytics to their machine learning (ML) pipelines? Because with graph analytics, they know they can quickly gain insight from their data and the relationships between data points. But there's a challenge: graph datasets are nearly impossible to use in traditional ML tasks.

[AWS and Neo4j](#) offer scalable, intelligent tools for making the most of graph data. Neo4j Graph Data Science and Amazon SageMaker make building ML models on top of graph data fast and easy.

The [Neo4j Graph Data Platform](#) is fully integrated with AWS, giving data scientists and developers tools and a managed framework that includes an analytics engine, a robust data science framework, and an insights layer for exploration.

Neo4j AuraDB for AWS is a graph database as a service, enabling you to store, query, analyze, and manage highly connected data. [Neo4j Graph Data Science](#) gives data scientists a unified workspace to improve models and predictions through the signals and patterns in their data and incorporate them into their Amazon SageMaker workflows.

Graph features enable data scientists and developers across industries to increase the business value from their models. The additional value comes from the insight and patterns discovered using over 65 connected data algorithms included in Neo4j Graph Data Science.



Easy Experimentation and Integration

Adding Neo4j to your Amazon SageMaker toolkit is as simple as visiting the AWS Marketplace. Data scientists and developers can get started right away, with simple tools for bringing in data and visualizing its connections and dependencies.

Apply Graph Data Science to Real-World Use Cases

Graph data science is powerful for breakthroughs in complex, interrelated problems such as:

- Fraud detection to uncover shifting patterns and prevent losses
- Real-time recommendations that draw on multiple sources of connected data
- Customer 360 views that optimize customer lifetime value, increase satisfaction, and reduce churn
- Supply chain analysis, optimization, and risk reduction, offering greater visibility and predictability



Neo4j Graph Data Science

Graph Feature Engineering

Trial-and-error feature engineering is frustrating and time-consuming. Use graph data science techniques to find what's predictive fast, fueling more accurate models and streamlining time to production.

Graph Algorithms

Experiment with more than 65 ready-to-run graph algorithms. [PageRank](#) identifies which customers, products, or accounts are most important. Algorithms like [Weakly Connected Components](#) find disjointed communities of account holders sharing common logins, a risk signal for fraud and cyberattack. [Louvain](#) methods help spot rings of fraudsters laundering money.

Graph Embeddings

[Graph embeddings](#) learn the features of your graph data and encode them for machine learning. Embeddings find what's predictive in your data without any guesswork, saving hours of manual feature engineering.

If graph topology – for example, who fraudsters interact with and how they behave – is an important signal, graph embeddings identify previously undetected fraudsters because their embeddings are similar to known fraudsters.

Combine your embeddings with Amazon SageMaker to train a supervised model. Turn graph data into representational learning. Experience the power of combining Neo4j with SageMaker.

Neo4j Bloom

[Neo4j Bloom](#) is a beautiful and expressive data visualization tool enabling you to freely explore graph data. Visualize patterns, which are essential for detecting anomalies and predicting risk. Show intuitive graph visualizations to stakeholders to help them see what you see in the data. Validate findings and improve explainability.

Neo4j Aura

Neo4j Aura provides a seamless and integrated experience for developers and data scientists building mission-critical graph-powered applications on AWS. Neo4j Aura includes both Neo4j AuraDB graph database as a service and Neo4j Graph Data Science. Developers and data scientists are free to focus on what's important: effortlessly building and running rich, graph-powered applications without worrying about managing database infrastructure.

"The most surprising result was really seeing how connected the data was. I used to think that we knew this data really well when we looked at it individually from each different data stream, but when you combine them all together and you actually look at the datasets as a whole, it makes you realize that it's like trying to solve a Rubik's Cube by only looking at one side."

*Benjamin Squire,
Senior Data Scientist, Meredith Corporation*

Neo4j and Amazon SageMaker on AWS: Better Together

Accelerate your AI and ML initiatives with Neo4j and Amazon SageMaker. Effortlessly combine the latest graph data science insights with your ML pipelines. Neo4j AuraDB and Neo4j Graph Data Science integrate seamlessly with SageMaker so you can quickly and effortlessly prepare, train, and deploy high-quality machine learning models using agile graph dynamics and build future-proof, scalable ML solutions.

Neo4j is the world's leading graph data platform. We help organizations – including Comcast, ICIJ, NASA, UBS, and Volvo Cars – capture the rich context of the real world that exists in their data to solve challenges of any size and scale. Our customers transform their industries by curbing financial fraud and cybercrime, optimizing global networks, accelerating breakthrough research, and providing better recommendations. Neo4j delivers real-time transaction processing, advanced AI/ML, intuitive data visualization, and more. Find us at neo4j.com and follow us at [@Neo4j](https://twitter.com/Neo4j).

Questions about Neo4j? Contact us around the globe:

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