

WHITE PAPER

The Fastest Path to GDPR Compliance

Graph Technology & Data Connections

Nav Mathur, Senior Director of Global Solutions, Neo4j

The Fastest Path to GDPR Compliance

European Union regulators are dead serious about protecting the privacy of their citizens' personal data.

The new GDPR regulations that took effect on 25 May 2018 apply to all EU and foreign organizations handling personal data of EU residents. They mandate strict compliance and call for steep fines for privacy violations. If you commit infractions or are subjected to random checks, regulators will require you to prove your compliance with GDPR requirements.

Using a graph database foundation for your GDPR solution places your organization on the fastest, easiest, most cost-effective path to GDPR compliance.

White Paper

TABLE OF CONTENTS

Europe Moves to Protect
Personal Data Privacy 1

GDPR Compliance
Is a Top Priority 1

Personal Data Raises
Difficult Questions 2

Tracking Personal Data
Requires Deep Visibility 3

Graph Databases Are the
Right GDPR Foundation 3

Why Graph Technology
Is Superior for GDPR 4

Four Steps to
GDPR Compliance 5

Neo4j Enables Your
Total GDPR Solution 6

92% of multinational companies cite compliance with GDPR privacy regulations as a top data-protection priority.

– PwC, January 2017

The Fastest Path to GDPR Compliance

Graph Technology & Data Connections

Nav Mathur, Senior Director of Global Solutions, Neo4j

Europe Moves to Protect Personal Data Privacy

A seismic shift occurred in the data management world in May 2018 when the General Data Protection Regulation became law in the European Union. All organizations with information about European residents must comply with strict rules about how personal data is stored, secured, used, transmitted and even erased from their systems.

According to Eurostat, 81% of Europeans feel they don't wholly control their online data and 69% worry that firms might use their data for purposes other than those advertised. The European Union's General Data Protection Regulation (GDPR) states that individuals have the right to ensure their personal data is private and protected.

GDPR Compliance Is a Top Priority

According to PwC, 92 percent of multinational companies cite compliance with GDPR privacy regulations as a top data-protection priority. More than three-quarters of those organizations have allocated over a million dollars for related compliance efforts, with nearly ten percent planning to spend more than ten million dollars each.

So why is everyone taking GDPR so seriously? Because penalties for GDPR violations are costly, amounting to the higher of twenty million euros or four percent of worldwide sales for each breach of the new regulations. European regulators demonstrated their commitment to enforcing EU data regulations with the 2.4 million euro fine they levied against Google in June 2017 for anti-competitive search-engine practices.

Organizations that embrace GDPR regulations and provide the right levels of transparency and traceability for personal information have a big opportunity to win the hearts, minds and business of consumers.

Personal Data Raises Difficult Questions

To meet GDPR requirements, you must be able to answer these difficult questions for any of the more than 500 million people in the European Union.

What data do you have?	Where is the data stored?	How and when did you obtain the data?
Why do you have the data?	Who has access to the data?	Do you have permission to use the data? For what purposes?
Is the data secure?	How does the data travel through your systems?	Does the data ever cross international borders?

But GDPR demands don't end there. You must know when and where breaches occur and what data was taken. You have to give people a way to view their personal data and how it's being used. And perhaps most importantly, you must be able to prove to regulators that you are in compliance with GDPR requirements.

GDPR rules are the most far-reaching and technically-demanding [personal data privacy regulations](#) ever established. This high degree of visibility and enforcement provides an opportunity for organizations across the Continent. Enterprises that embrace the new GDPR regulations and provide transparent tracking of personal information have a big opportunity to win the hearts, minds and business of consumers.

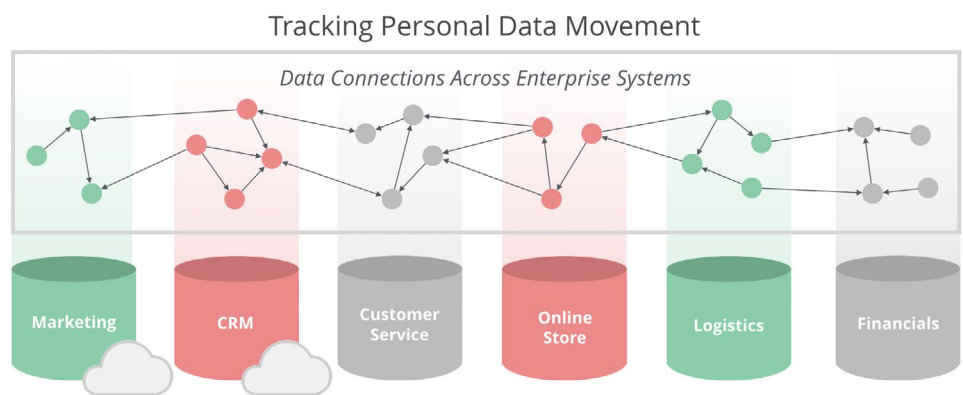
To solve GDPR challenges, you must be able to track personal data movement across all internal and external systems — even as your systems and workflows change.

Tracking Personal Data Requires Deep Visibility

In modern organizations, personal data resides in many applications that span servers, data centers, geographies, internal networks and cloud service providers. GDPR holds you accountable for that data regardless of where it is stored. And it requires you to be able to access, report and remove personal information from all those systems when required by consumers or regulators.

To satisfy GDPR requirements, you must be able to track the movement, or [data lineage](#), of a contact's personal data — where it was first acquired, whether consent was obtained, where

it moves over time, where it resides in each of your systems and how it gets used. The connections among those systems and silos are key to tracking the complex path that personal data follows through your enterprise.



The key to GDPR compliance is tracking data movement across all your enterprise applications

Graph Databases Are the Right GDPR Foundation

Personal data seldom travels in a straight line and instead follows an unpredictable path through the enterprise. That path is best visualized as a [graph](#), so it's not surprising that GDPR personal data problems are best addressed by a [graph database](#). Graph technology is designed for [connected data](#) applications like GDPR in which data relationships are as important as the data itself.

As the leading graph database, [Neo4j](#) includes powerful visualization tools that enable you to model and track the movement of sensitive data through your systems. So you can provide easy, clear answers about personal data to:

- Regulators who demand proof of GDPR compliance
- GDPR-mandated Data Protection Officers and internal staff responsible for preserving privacy across all your systems
- Individual consumers who ask what you know about them and how you are using that data

The Fastest Path to GDPR Compliance

Why Graph Technology Is Superior for GDPR

The complex data lineage problems posed by GDPR are impossible to solve with relational and most NoSQL technologies. A [modern graph database platform](#) like Neo4j is a superior foundation for addressing the connected data requirements of GDPR compliance.

RDBMS Cannot Handle Connected Data

Relational database technologies are built for managing highly structured datasets that change infrequently and have minimal numbers of clear connections. To connect all your operational GDPR data, you need a colossal maze of JOIN tables and many thousands of lines of SQL code. Those queries require several months to develop and are impossible to debug and maintain as you add more systems and data relationships. Most importantly, queries of such complexity can take an eternity to execute and [can easily hang your server](#).

Non-Native Graph Technologies Break Down

Some NoSQL and relational databases claim to have graph capabilities. In reality, they have cobbled a graph layer onto their non-graph storage models. These non-native approaches inevitably omit key system connections and break personal data lineage, making them easy targets for GDPR regulators. Neo4j is a [native graph database](#) that stores and connects data as a graph — just as you visualize it — making it the ideal technology for GDPR compliance.

A Picture is Worth a Thousand Words: Proving GDPR Compliance

The ultimate test for any technology is its ability to satisfy regulators and consumers that your organization is GDPR compliant. Traditional approaches produce tabular output that is hard to follow. In contrast, Neo4j produces simple, easily understood pictures of how personal data flows through all your systems.

A Modern Graph Approach Is Far Superior for GDPR

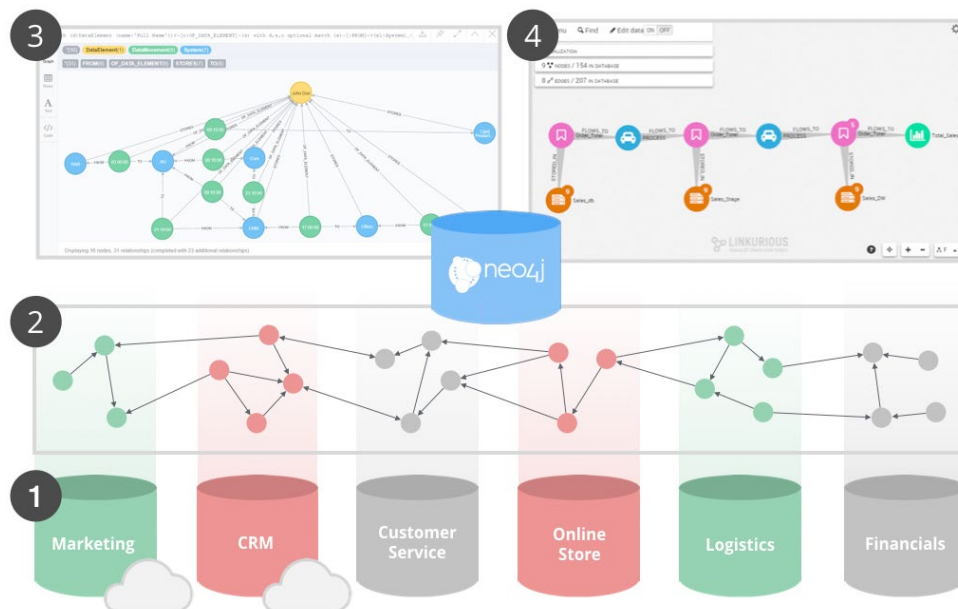
GDPR Task	Traditional Approaches	Modern Neo4j Approach
Trace data through enterprise systems	Complex queries with hundreds of JOIN tables	Simple single query traverses all enterprise systems
Preserve the integrity of data lineage	Broken data paths and lineage, especially with NoSQL databases	Continuous, unbroken data paths at all times
Effort required to add new data and systems	Days to weeks to rewrite schema and queries	Minutes to draw new data connections
Time to deployment	Months to years	Weeks to months
Response time to GDPR requests	Minutes to hours per query	Milliseconds per query
Form of GDPR responses	Text reports that are not visual and prove very little compliance	Visuals of personal data and the path it follows through your systems
Bottom line	Long, ineffective and expensive	Easy, fast and affordable

Personal data connections are impossible to address with traditional SQL and NoSQL databases, making them poor foundations for addressing GDPR compliance challenges.

Using Neo4j, follow these simple steps to plan, create and use a GDPR solution that tracks the flow of personal information across your entire enterprise.

Four Steps to GDPR Compliance

Follow these steps to build your organization's GDPR solution using the Neo4j graph database as its foundation.



STEP 1: Inventory Your Systems

Identify all enterprise systems that use or could potentially use GDPR-regulated personal information. Document where and how those systems store personal data.

STEP 2: Build Your Logical Data Model

Build a logical model of personal data elements, and how and when they flow across your systems. Define system connections including metadata that describes and quantifies them.

STEP 3: Develop & Test Your GDPR System

Using your [logical data model](#), load your data into Neo4j. Then develop and test your solution by creating simple queries that address the personal data requirements of GDPR.

STEP 4: Visualize & Respond to GDPR Requests

Use Neo4j and [graph data visualization tools](#) to display the flow of personal data across your systems. Answer questions quickly about how it is being used by your organization.

The Fastest Path to GDPR Compliance

As the world's leading graph database, Neo4j places your organization on the fastest, easiest, most cost-effective path to GDPR compliance.

Neo4j Enables Your Total GDPR Solution

European Union regulators are dead serious about protecting the privacy of its citizens' personal data. The new GDPR regulations that took effect on 25 May 2018 apply to all EU and foreign organizations handling personal data of EU residents, and they mandate strict compliance and call for steep fines for privacy violations.

As the world's leading graph database, Neo4j places your organization on the fastest, easiest, most cost-effective path to GDPR compliance so you can:

- **Trace the lineage of regulated personal data** from its acquisition to systems across the enterprise
- **Modify your GDPR solution as your business changes** without disrupting existing data and systems
- **Perform ad hoc compliance queries** in milliseconds for fast response to requests from regulators and business managers
- **Deploy your solution efficiently** with 10 times less server hardware
- **Show regulators visual compliance proof** of personal data flows and lineage across your systems
- **Earn the trust of your customers** and establish your organization as a customer advocate and modern industry leader

Take The Next Step in GDPR Compliance

To learn more about how Neo4j can help you comply with the European Union's General Data Protection Regulations, visit <http://neo4j.com/solutions>. Or if you would like to discuss a specific initiative, please contact us and schedule a meeting with Nav Mathur.

Neo4j is the leader in graph database technology. As the world's most widely deployed graph database, we help global brands – including [Comcast](#), [NASA](#), [UBS](#), and [Volvo Cars](#) – to reveal and predict how people, processes and systems are interrelated.

Using this relationships-first approach, applications built with Neo4j tackle connected data challenges such as [analytics and artificial intelligence](#), [fraud detection](#), [real-time recommendations](#), and [knowledge graphs](#). Find out more at neo4j.com.

Questions about Neo4j?

Contact us around the globe:
info@neo4j.com
neo4j.com/contact-us