

Case Study



Redhorse Corporation

National Government Consultancy Combines Domo BI/Analytics & Graph Database to Stop PPP Fraud

INDUSTRY

Government, Finance

USE CASE

BI/Analytics & Knowledge Graph

GOAL

Effectively detect PPP loan fraud at massive scale, in ways not previously possible.

CHALLENGE

Combining domain expertise, custom IP and unique cutting-edge software into a single, seamless and usable platform to enable PPP fraud detection at scale.

SOLUTION

Create a PPP fraud detection knowledge graph platform to support fraud experts in their pursuits.

RESULTS

– The “Accountable App” platform that enables fraud analysts to sift through and uncover fraud in ways and at a scale not previously possible.
– An AI partner in this Human-AI system that is constantly searching for fraud, proactively sending alerts as fraud is ready for human review and intervention.

Redhorse sought to create a platform called the “Accountable App” that leverages cutting edge data science / machine learning (ML) to not only identify patterns of potential paycheck protection program (PPP) fraud and abuse, but to create a means for analysts to be alerted to instances the system has found using artificial intelligence (AI), including the tools to track and act on the discoveries. In essence, the Accountable App is a Knowledge Graph (KG) using Domo, Graph Database creating a uniquely powerful context in which analysts are able to operate and for the KG to surface previously undetected PPP Fraud.

The Company

Redhorse is a national consultancy focused on Federal Civilian, Defense, Homeland Security, State & Local, Commercial & Utility markets, with unusually deep domain expertise in national security, energy, environment, networking technology and infrastructure.

They combine this domain expertise, with some very sophisticated technical tools, and a passion to solve puzzles to deliver creative solutions to complex problems, with core capabilities centered around data science, digital transformation and mission enablement.

The Redhorse team is predominantly from the government and/or military backgrounds, driving a unique ability to understand the challenges and effect discernible and valuable change for their customers.

The Challenge

Unfortunately, any time there is a crisis, there are those who would try to take advantage of the system in an illegal fashion. And during the COVID-19 pandemic, it was no different for the PPP loan program, where the US government attempted to help millions of businesses to stay open during one of the most significant disruptions in decades.

According to a late [2021 academic paper from researchers at UT Austin](#), up to 15% of PPP loans showed at least one indicator of potential fraud, representing about 1.8 million of the overall 11.8 million loans. One of the authors, Samuel Kruger, indicated to the New York Times that “it’s very difficult to put [anecdotes] together and get at the scale of what’s going on”, which is precisely why Redhorse chose to tackle this issue- to help provide a facts-based and data-driven solution for the problem.

The goal for Redhorse was to take existing domain expertise and IP, combining it with graph-database technologies and graph data science techniques, including powerful and cutting-edge machine learning on unstructured text, to leap-frog the inadequate technology options available today.

Vince Bridgeman, VP of National Security Services for Redhorse, put it this way: “The challenge for detecting the depth of PPP loan fraud simply surpasses the technical capabilities of fraud platforms available today. By integrating our own expertise and IP, together with graph database, with a Knowledge Graph and Graph Data Science - the ability for analysts and even the system itself to uncover fraud-- in time to make a difference-- is massively improved. When we combine that with the highly usable Domo BI/Analytics user experience, now we have an integrated platform that can make a true impact on recovering our tax dollars from illegal and abusive contexts.”

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VP of National Security Services, Redhorse

The Solution

Having worked with the Graphable team on a variety of cutting-edge initiatives both internally at Redhorse and even on classified defense initiatives, Redhorse knew this was the right partnership. Redhorse Director of Data Science Jodi Deprizio remarked, *“Having successfully partnered with Graphable over time and in a variety of contexts, it was clear that combining Redhorse’s domain expertise and custom IP with Graphable’s deep graph database, knowledge graph and Domo technical expertise was a great fit for the Accountable App initiative.”*

The Redhorse and Graphable data science teams conducted a series of innovation sessions to brainstorm the kinds of capabilities required, and more importantly the questions that fraud analysts would need to answer, in what ways and in what timeframes.

In this iterative and cooperative process, the architecture emerged, including the graph model, the user capabilities and interface as well as the analytics output required to support the outcomes and actions.

This process highlighted the unusually strong partnership, the depth of domain, graph, data science and AppDev expertise on both teams, as well as the power of integrating expertise with existing technologies to drive new capabilities to create a net new platform and app that can make a real impact for all of us.

The Results

With Graphable and its unique intersection of skills across graph data science, analytics and the various supporting software platforms we provide, and Redhorse with their deep domain and technical expertise, they have transformed the government and private sector’s ability to not just cobble together fraud “anecdotes” as the aforementioned UT researcher described it (the reality prior to the Accountable App being available), but to proactively identify fraud in a real-time, data-driven fashion, in time to make an impact on behalf of the real stakeholders- the American citizens.

As Google, one of the true thought-leaders in data science pointed out, [the future of data science and AI will be built around graph and related network technologies](#). Kyle McNamara, CEO, Graphable commented, *“The use cases around driving value from graph data science are more and more centered on this idea of the ‘Knowledge Graph’ at the center, where organizations can leverage the combined body of knowledge for a particular domain or problem area— storing both structured and unstructured data— driving outcomes not previously possible, by using modern graph-centered AppDev, ML, NLP and related analytics techniques and approaches. The Accountable App is a perfect example of the value in this industry evolution.”*

The issue at hand is that the old way of doing things across AppDev, analytics, and data science in general are just not working any more as data volumes explode and as use cases more and more center on the connectedness of the data itself, as with the PPP fraud use case. This is just one more example in an ever-increasing set of examples where putting graph database at the core is enabling the successful use cases of today and tomorrow.

Graphable delivers insightful Neo4j graph database, machine learning, and natural language processing as well as Domo analytics with measurable impact. We are known for operating ethically, communicating well, and delivering on-time. With hundreds of successful projects across most industries, we specialize in FinServ, BioTech, Government, Healthcare, and Media. Thriving in the most challenging data integration and data science contexts, Graphable drives your data science and analytics success. Find out more at graphable.ai

Questions about Graphable?

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