

## Case Study



## ATPCO

## The World's Airlines Rely on Graphs to Offer Better Ticket Prices and Travel Options for Customers

**INDUSTRY**

Airline

**USE CASE**Pricing Engine /  
Graph-Based Search**GOAL**

Provide dependable data and systems to ensure global airline carriers can set fair ticket prices

**CHALLENGE**

Modeling of highly complex route/ticketing variables

**SOLUTION**

Use Neo4j to analyze and map airline fares across the global airline distribution ecosystem

**RESULTS**

- Pricing engine is now the core of 5 ATPCO services to airlines
- Exposed useful data to startups via company's innovation incubator program

*Owned by the world's major airlines, ATPCO blends pricing & retailing data and systems with innovative technology to help airlines best manage their complex products in the marketplace. Neo4j proved the perfect way to model and analyze complex data relationships, and now powers their graph-based pricing platform – the heart of ATPCO's fare and offer management products and services.*

**The Company**

With over 50 years of success, ATPCO is uniquely positioned at the center of the global airline distribution ecosystem as the foundation of flight shopping. Owned by its customers – global carriers – ATPCO exists to provide value to the air travel market, and has offices in Washington, D.C., New York, London and Singapore. Its 500 employees work with every major airline, distribution channel and global distribution system in the world.

**The Challenge**

ATPCO is the world's leading provider of pricing and retailing content, tools and services to airlines, global distribution systems, travel agencies and technology companies. By using compelling, rich content, its retailing solutions are also setting the standard by which airlines differentiate their products and channel partners create informative, next-generation shopping displays.

To deliver such services means dealing with immense amounts of intricate information – information that represents huge value for its users. ATPCO's Chief Architect, Navid Abbasi said, "Getting a competitive price for a plane journey involves a large amount of complex data processing that the traveler just never sees. So it's a big job, and an important one. Just one of our many airline customers estimates that, every day, if you add up all the various markets, flights, seats, and options in what they put in the sky, it's over 100 billion product permutations."

That's why it's so incredibly important that ATPCO do everything possible to always deliver the very best fare and offer management tools to meet the ever-changing needs of their customers.

## Case Study



“The pricing engine helps airlines deliver a better product that’s more closely aligned with the specific needs of their market.”

– Navid Abbasi,  
Chief Architect, ATPCO

“I was able to use graphs to represent different airports as nodes and all the scheduled flights as relations, allowing me to complete this very complex task far more easily than with other tools.”

– David Peart,  
Enterprise Innovation Architect,  
ATPCO

## The Solution

To achieve maximum transparency and functionality, the team knew they needed to interconnect many siloed data sources and applications via a core pricing engine.

ATPCO’s internal R&D team needed a powerful, robust technology to help its customers better utilize their vast data resources. Finding the perfect basis for such a capable pricing engine was actually something of a lucky accident.

David Peart, Enterprise Innovation Architect at ATPCO, recalls evaluating NoSQL databases back in 2010, when he realized that Neo4j was a natural fit to provide the data architecture, power, capacity and scale to represent the millions of data relationships they need to model and understand.

“A trip from Newcastle, UK to Lexington, Kentucky involves multiple possible routes and prices,” Peart said. “But I was able to use graphs to represent different airports as nodes and all the scheduled flights as relationships, allowing me to complete this very complex task far more easily than with other tools.”

That early route planning experiment started a journey that’s led to a special graph-powered pricing engine. Abbasi added, “We now use Neo4j as the core of at least five of the main data services we now offer, from fare management to air travel tax calculation.”

## The Results

Many ATPCO product teams now use Neo4j to help key airline customers. Their clients more easily report back how the pricing engine helps them deliver a better product more closely aligned with specific market demands.

ATPCO’s carrier customers also welcome the simplification in analyzing travel route and pricing options, which makes it easier and quicker to offer the attractive bundled, discounted options travelers are seeking.

And it’s not just the airlines and travelers who are benefitting from the power of graphs. “We have a special tech innovation incubator, Bridge Labs,” said Peart. “That’s all about opening up our APIs to startups, and the pricing engine has already helped one startup offer an innovative new product to the airline sector.”

Summing up his company’s experience with graphs, for Abbasi, “Neo4j has met the needs of our product teams and delighted our customers. It’s performant, scalable, and we expect it to continue to help us expose and build new airline data products and services.”

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?

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