Graph Based Thinking: What's your $100MM Graph Query?

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Dan Woods, researcher at Evolved Media, discusses the connected data paradigm and the need for new ways of querying and storing data.

# GRAPH BASED THINKING
## WHAT'S YOUR $100MM GRAPH QUERY?

Dan Woods, Early Adopter Research

## Who is Dan Woods?

Technology Analyst, Writer, and IT Consultant (EarlyAdopter.com) who also helps vendors explain their products through content marketing (EvolvedMedia.com). Dan is the author of 20+ books on IT, CTO of two startups, worked in large IT organizations, and has done a wide variety of consulting in IT management and building mission critical applications.

**Early Adopter Research content on graph databases**

early adopter research

## Goals

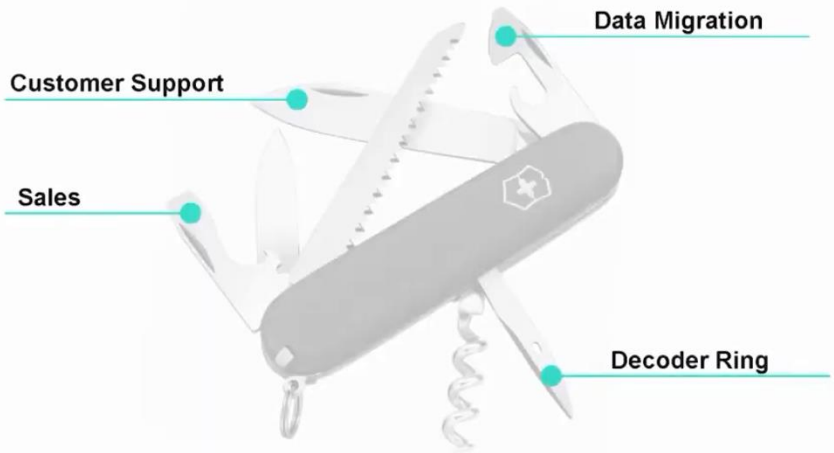
**Early Adopter Research Mission**

1. Explain the power of graphs and the pain points they address
2. Show you how to make this leap and accelerate graph adoption

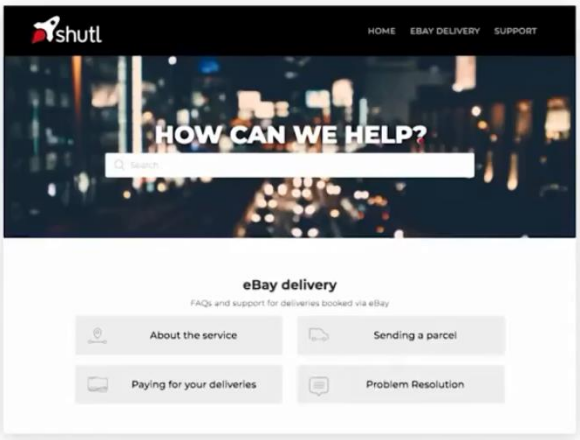
**Takeaways**

- Learn what graphs can do
- Start you down the road to graph adoption
- Explain benefits and challenges along the way
- Offer helpful ideas to those who have started the journey

## Cisco: Graphs as Swiss Army Knife



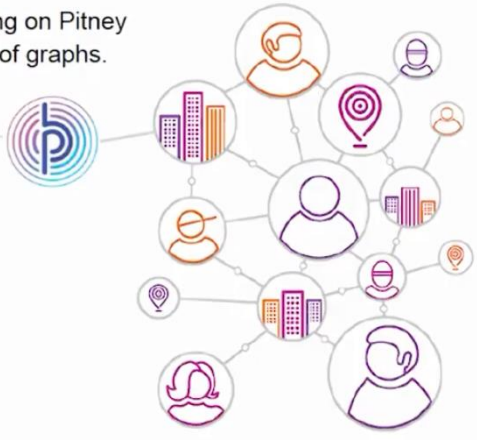

## eBay: Shutl - New business opportunity



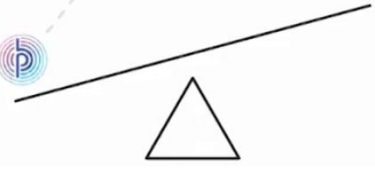

> We run our business on seven lines of Cypher.

## Pitney Bowes: Graphs Complete a Data Hub Product

Single Customer View is a data hub product building on Pitney Bowes' historical strengths amplified by the power of graphs.



pitney bowes



## Pitney Bowes: The Unifying Power of Graphs

> Thinking in graphs is definitely a discipline, but it's one that's very naturally oriented to the way people think. Graphs work great for our product because it's possible to draw a model on a whiteboard that outlines the basics of how a business stakeholder may want to see their problem. For example this question: Which customers own which products within my organization? You can't answer that with data spread around. You need a single consolidated view in a graph.
>
> AARON WALLACE, GLOBAL PRODUCT MANAGER OF CUSTOMER INFORMATION MANAGEMENT

## EY: Creating Knowledge Graphs

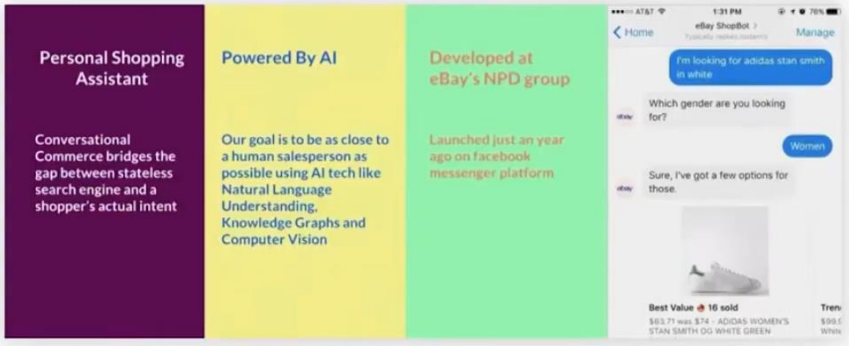
**Problem**

- How can I understand what my customers are saying?
- How can I get a better understanding to give customers a better experience?
- How can I improve my interactions with my customers?

**Solution**

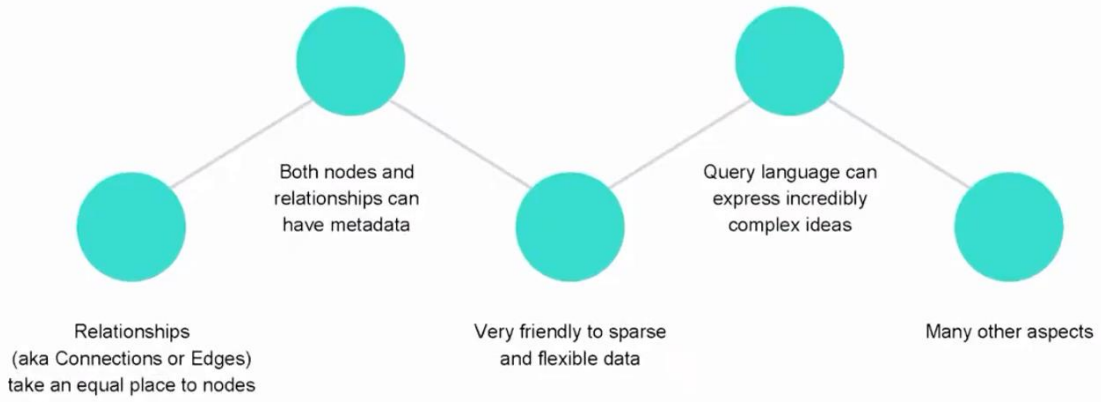
- Extract features from thousands of conversations and emails using Natural Language Processing and connect them in a graph
- Enrich graph with systems of record to create a customer 360 view, then a trader 360 view
- Add in external news sources; use graph to send alerts to those connected to the event (e.g. financial analysts whose clients have Apple stock)

## eBay ShopBot: Graphs and Natural Language



## eBay ShopBot: Graphs and Natural Language


## Graphs are Radically Different ...




## … And Hugely Powerful

- Graphs make other database structures seem limited in their expressive power
- That is the point: graphs can represent really complex relationships
- Thinking in graphs is natural

A graph you draw

A schema you don't

## Pain Points that Lead to Graphs

**Problem**

1. Answer questions in time to matter
2. Understand what is happening
3. Support new types of analysis and applications

## Pain Relief from Graphs

**Answers difficult questions**

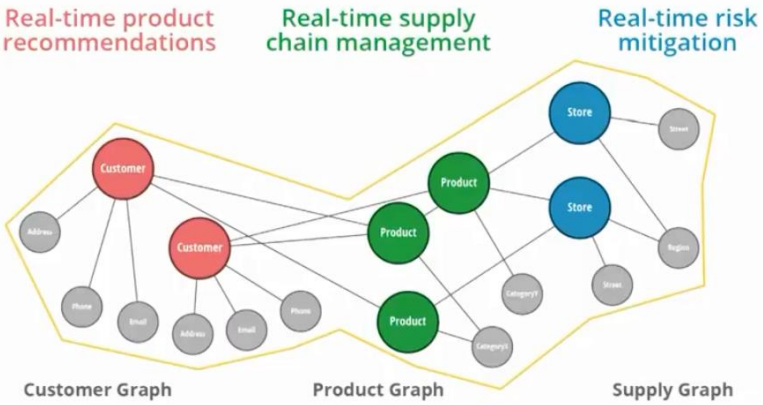
**Brings people in**

**Lowers the curiosity tax**

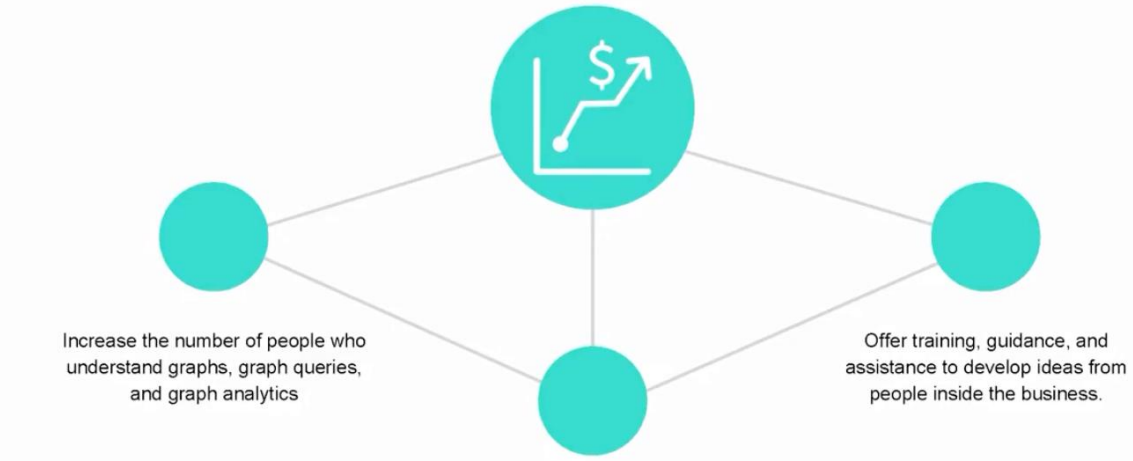
## Business Results

1. You make more and better use of the data you have
2. You have answers and signals you didn't have before
3. You create a unique view of your business that makes the most of your proprietary data

## Connect data — Drive multiple use cases




## How to find the $100 million Graph Query




## 4 Stages to Graph Adoption


**Getting Started**
First Apps and Victories

**Spreading the Word**
About Why It Works

**Mass Adoption**
Creating an Enterprise Class Graph Infrastructure

**Breaking New Ground**
With Advanced Use Cases

## Stage 1: Getting Started: The First Apps and Victories

**Problem**

- Massively complex commission structure
- Deep and wide channel
- Lots of partners involved in deals
- Current commission calculation jobs were taking too long

**Graph to the rescue**

- Graph easily represented the complex structure of each deal
- The commission calculation was a simple query

The challenge is to recognize when you have a graph problem

## Stage 2: Spreading the Word about Why it Works

**This stage is a combination of change management and internal marketing applied to graph.**

1. Who are the champions?
2. How can experimentation be encouraged?
3. What can be done to communicate both victories and how problems were solved?

## What Total Graph Victory Feels Like

## Find Fraud with a Graph


## Stage 3: Mass Adoption
## Creating an Enterprise Class Graph Infrastructure

**Mass adoption happens in two ways:**

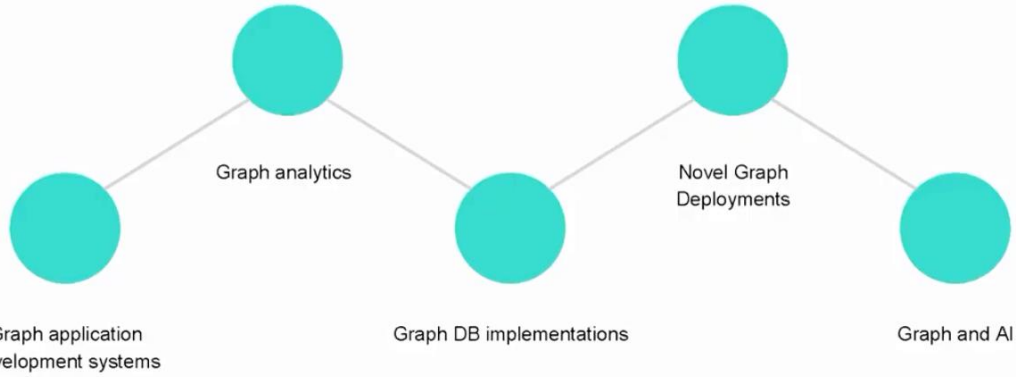
1. The technology becomes productized so it is easier to use and has a complete set of capabilities to support development and use in an enterprise IT context.
2. The development and operations training, tools, processes, and infrastructure are changed to allow graph applications and workloads to move from development to production.

The evolution toward full support of graph tech takes place based on creating larger and large applications that are more mission critical

**Eventually, graph is just another tool in the IT arsenal**

## What does it mean for an Graph DB to be Enterprise Class?

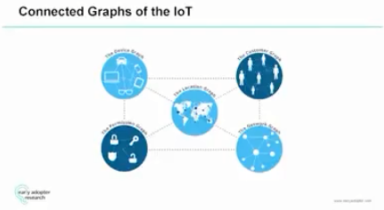
## What Technologies are Arriving in the Graph Ecosystem?




## Stage 4: Breaking New Ground with Advanced Use Cases

In the final stage of maturity, you continue to hit singles and doubles. But, graph is used in new ways.

1. Supercharging existing apps
2. Supporting new apps that could not be created without graph
3. Supporting advanced ML, AI, and analytics that need graph




## Connected Graphs of the IoT