

JPMORGAN CHASE & CO.

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Graph and Machine-Learning Enhance Trust

Our graph journey



Better-Understand
Our
Relationships



Create
Higher-Quality
Inputs



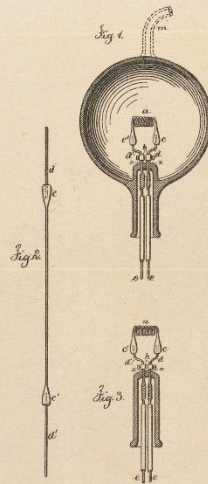
Produce
Better
ML
Models

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200 year history built on
trust

No. 223,898.

Patented Jan. 27, 1880.



Witnesses
Chas. A. Smith
Geo. P. S. P. S.

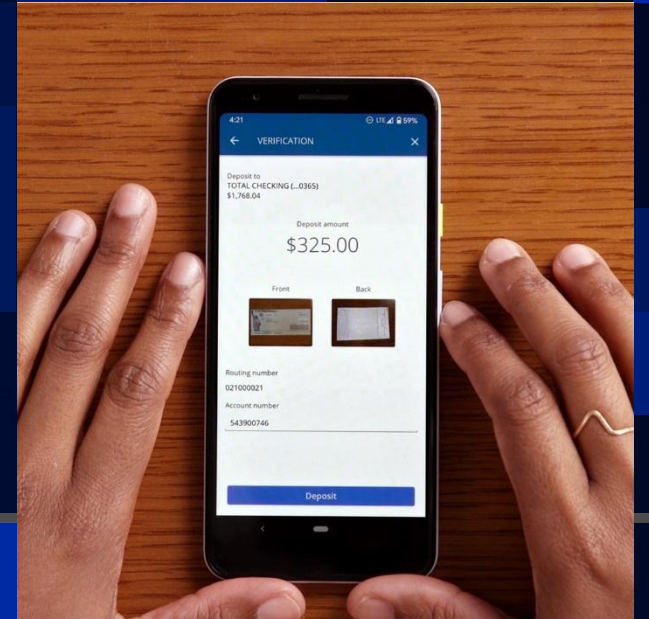
Inventor
Thomas A. Edison
+ Lemuel W. Spruell

Funded Thomas Edison's first lightbulb

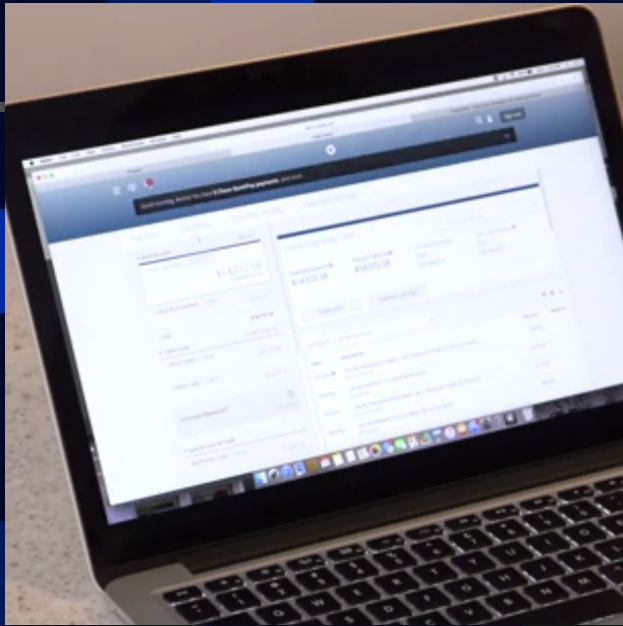
Early enterprise ATM banking

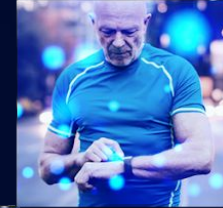


Mobile computing

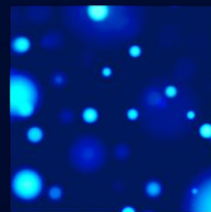


Online banking services





Graph Analytics



Our vision



Graph
Analytics

**ENHAN
CE**

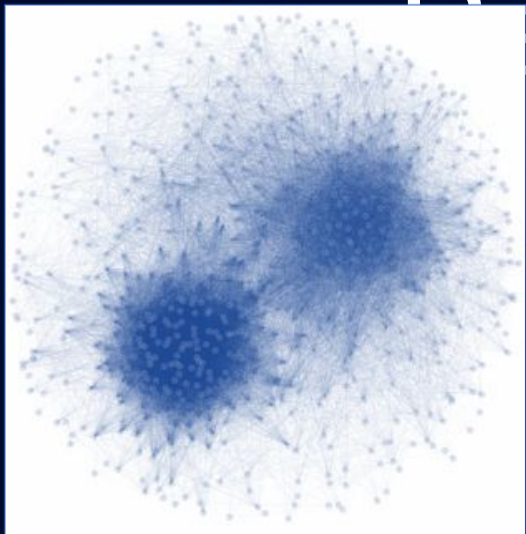
Machine
Learning



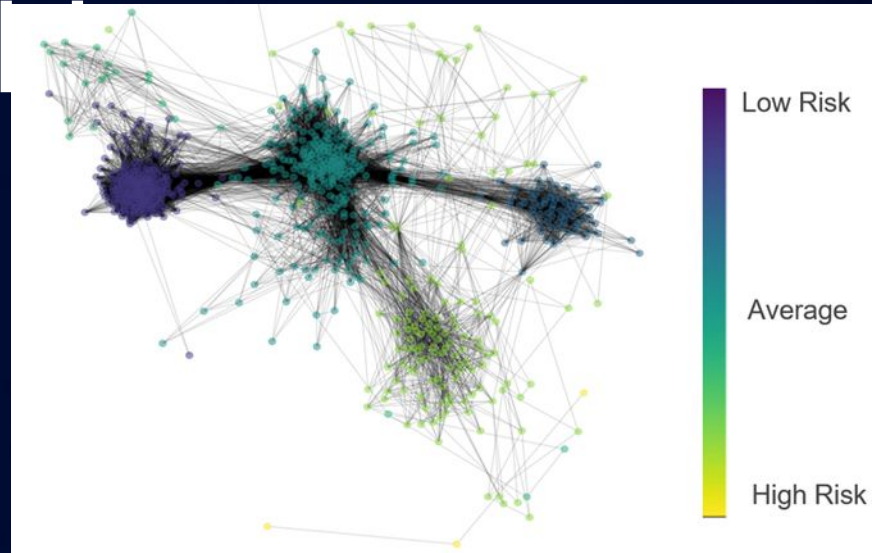


Graph Needs

Graphs Clarify Relationships



Initial
"Hairball"



More-Nuanced
Insights

Graph Analytics

Clustering

Betweenness

Page Rank

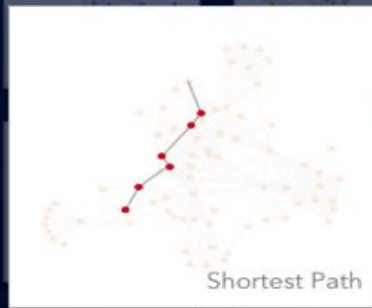
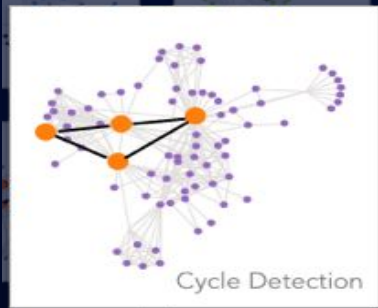
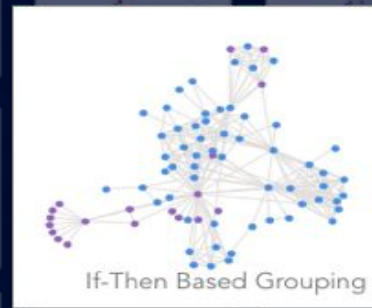
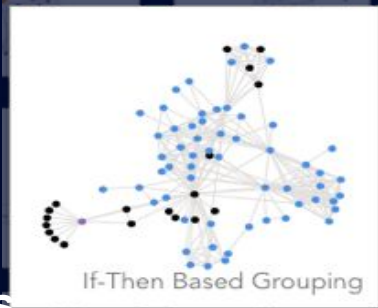
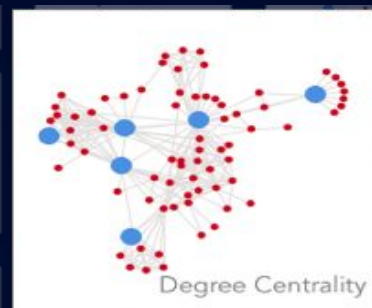
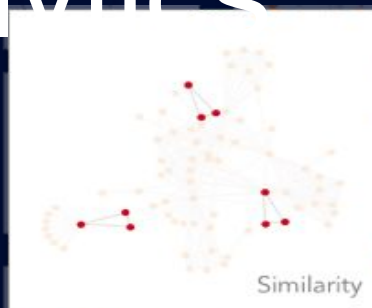
Shortest Path


Connected Components

Random Walks

Entity Resolution

Subgraph Isomorphism



The background is a dark blue color with several bright blue squares of various sizes scattered across it. The text is centered in a bold, orange-yellow font.

Graph Insights
Require
Scalability



250k
Employees



6k
Applications

35k
Developers



450PB
Data





\$23T

Assets under custody



\$6T

Payments processed daily



50%

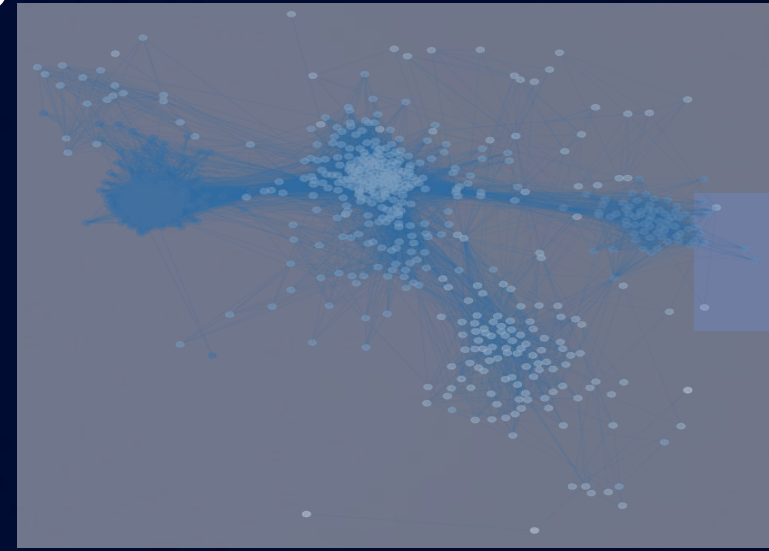
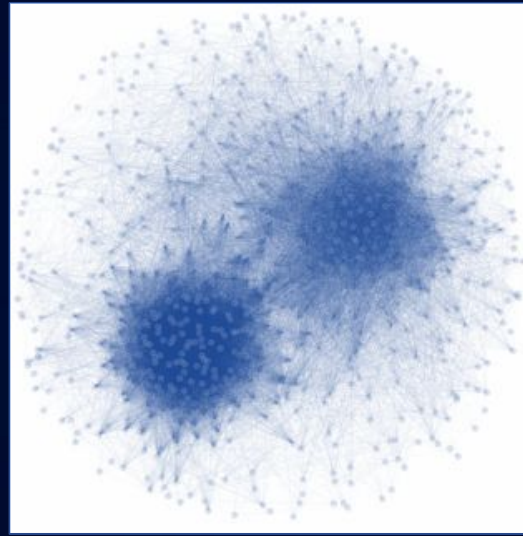
U.S. households



52MM

Active digital
customers

Graphs Pose Daunting Computing Challenges



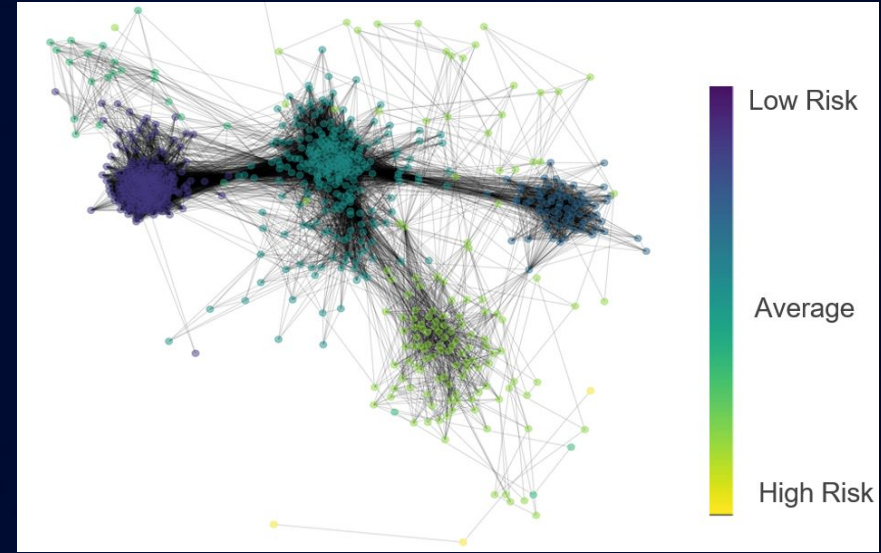
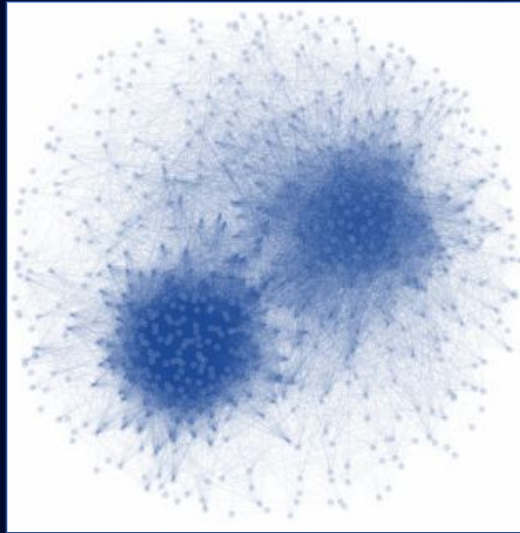
Analyzing
Growing
"Hairballs"

Can Result
in
No Answers

Graph Platform Choices

Matter

Dependable Graph Insights



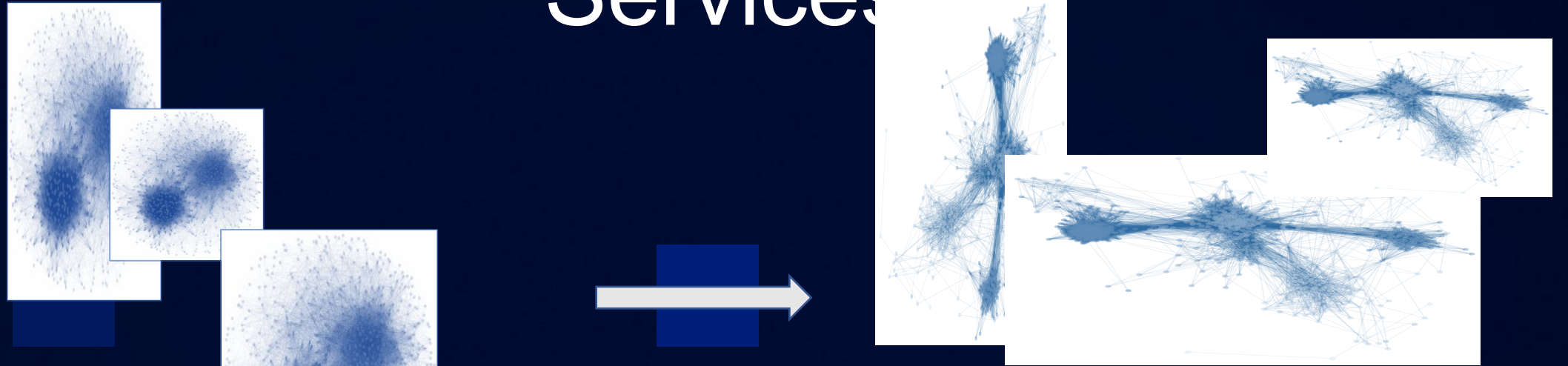
Reliable Analysis
Of Graph
"Hairballs"

Produces
Business
Outcomes

Drive Business

Outcomes

Demands Grow Again for 'Graph Services'



Many
Graph

s

Graph Services Increase Platform

Stress

Many
Insight

s

Graph Algorithms Scale Exponentially

Begin with the End in-Mind

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Graph Requires Scalable
and Maybe High Performance
Software
Computing

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200 year history built on
trust
