



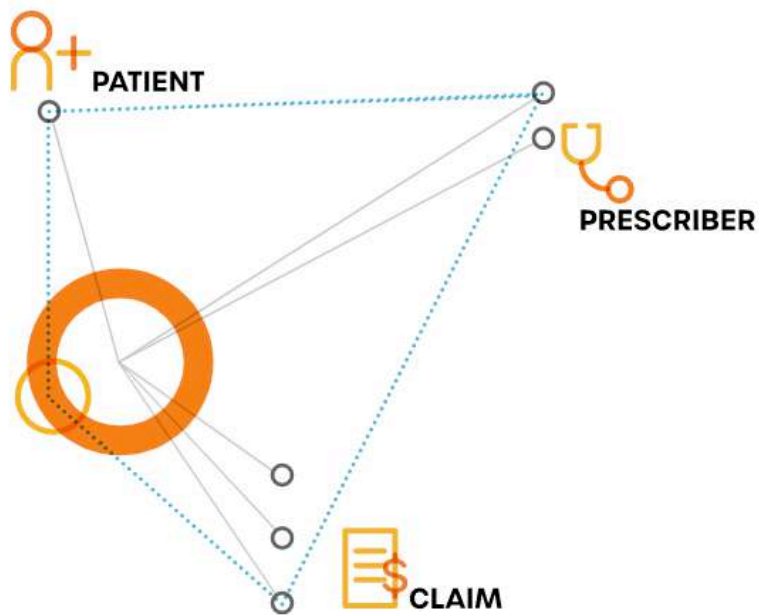
Graph + AI World Opening Keynote

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Advanced Technology Collaborative, R&D,
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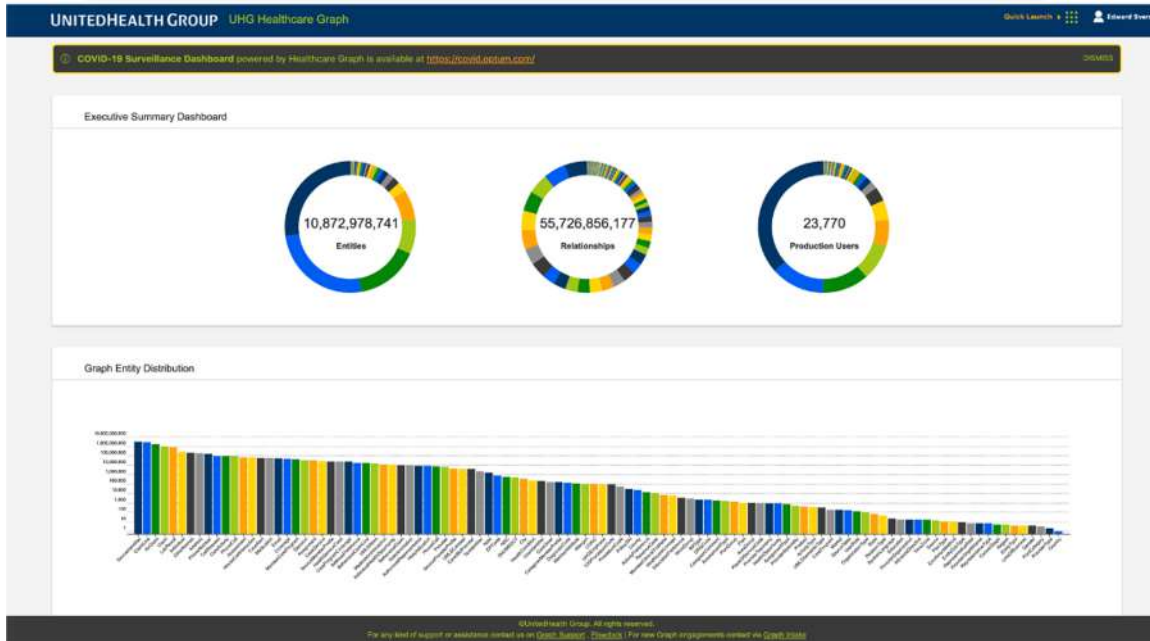


Agenda

- ❑ What We Built
- ❑ Use Cases
- ❑ How We Built it
- ❑ Lessons Learned



Healthcare Graph Facts



- Largest (we believe) connected Healthcare graph data asset in US: 10+B Vertices and 50+B Edges
- Houses 18 months of UHC members, Claims, clinical, providers, calls, house calls, and more
- Graph contains 1.2TB of data
- Data is updated daily and intra-day via a robust intake pipeline that does full reconciliation to source systems
- Supports 23,000+ online users on various apps
- Includes HA Production environment configured in 3-way failover and a Research environment housing copy of production for ad-hoc queries

Member Journey

MemberJourney powered by Graph Technology

NAME: *****
GENDER: ****
DOB: *****
AGE: 55
PHONE: *****
Logout

EVENTS Clear All Select All

Click to toggle events

Enrollment
Medical Claim
Dental Claim
Vision Claim
Behavioral Claim
Rx Claim
Labs
Prior Auth
Admissions
Program Outreach

Inbound Call
Outbound Call
House Call
Chats
Mailing
Surveys
Web Activity
NPS
IOT
HRA

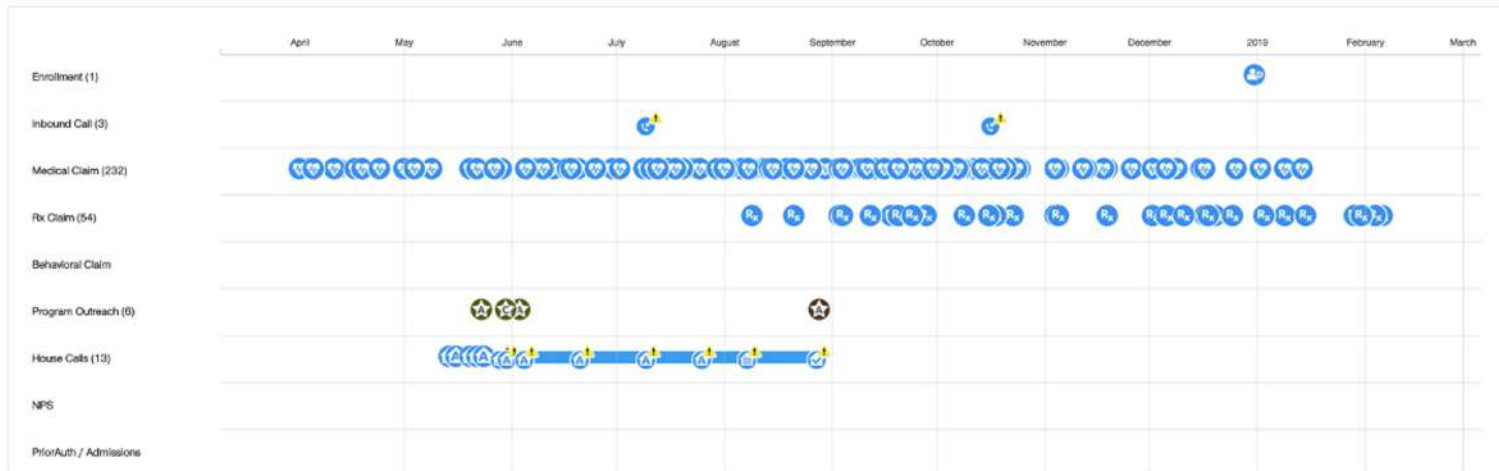
TIMELINE X

Last 1 Day
Last 7 Days
Last 30 Days
Last 90 Days
Last 1 Year

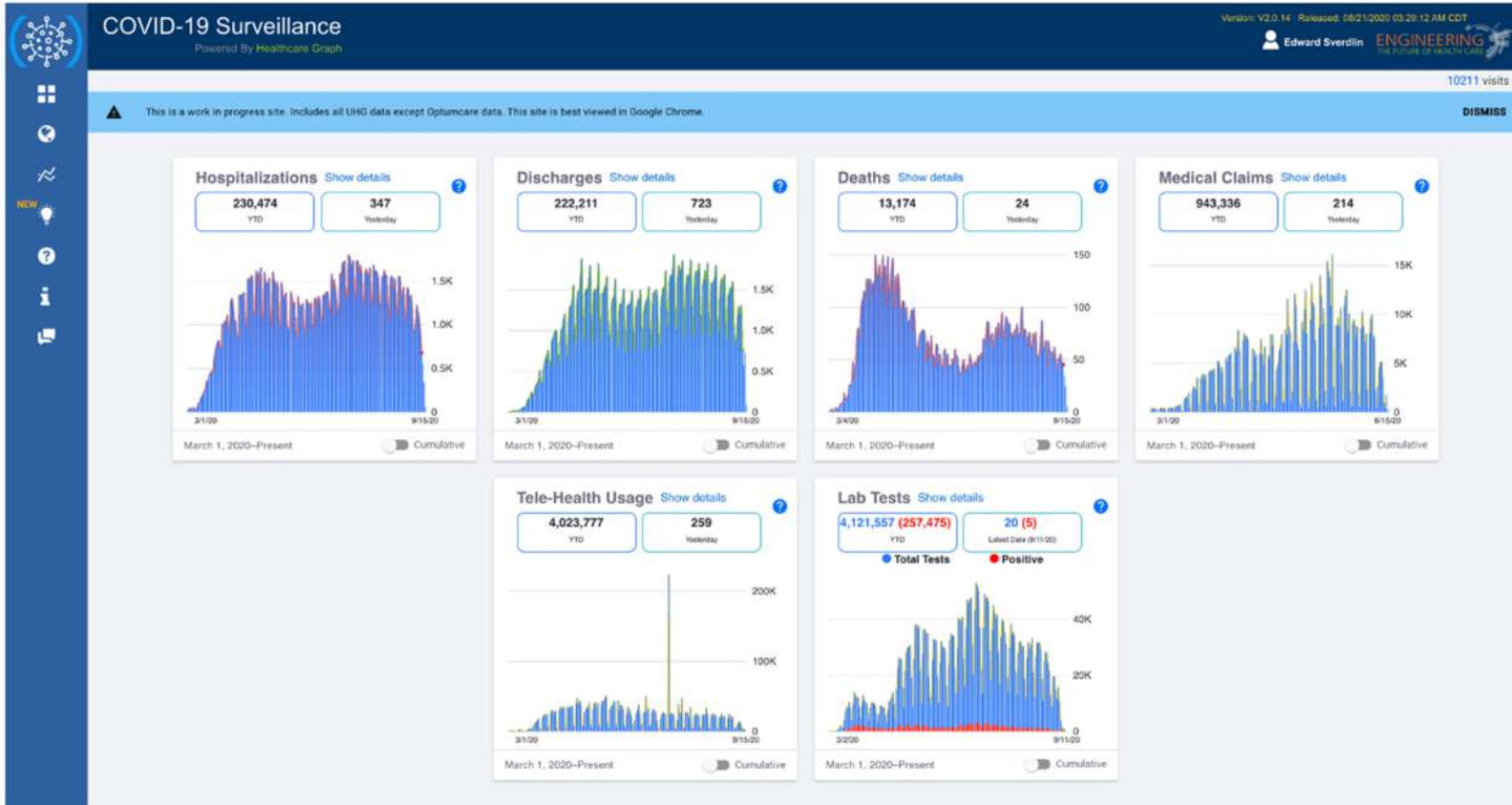
CUSTOM: TO

MEMBER TOUCHPOINTS

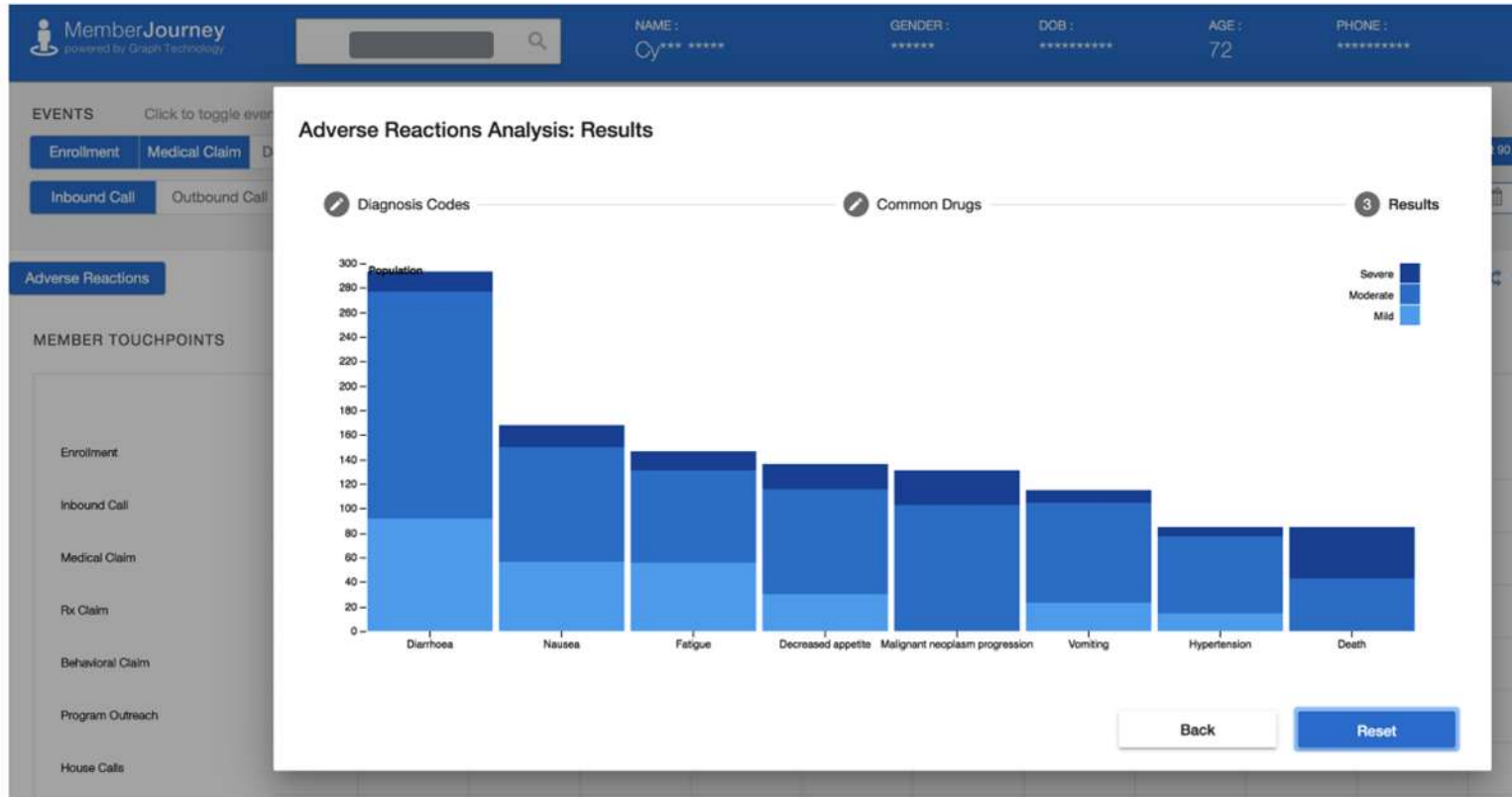
[Similar Members](#)
[Population Analysis](#)
[Care Team](#)
[Hide Filters](#)



COVID Dashboards



Adverse Reactions



Work In Progress – Healthcare Explorer



Home **Members** Providers Claims

Population **Compare**

Filters

COHORT 1 **Criteria**

Age: **Between** 0 AND 20

State: **Includes any** Please select
Minnesota, Minnesota

Diagnosis: **Includes any**
J44.0 **J44.1** **J44.9**

COHORT 2 **Criteria**

Age: **Between** 0 AND 20

State: **Includes any** Please select
Minnesota, Minnesota

Diagnosis: **does not include**
J44.0 **J44.1** **J44.9**

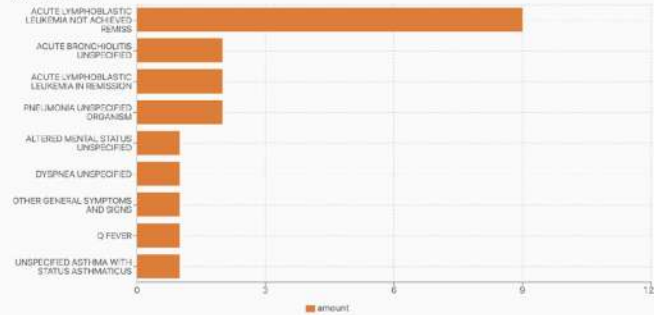
Test

Generate

Admission rates Common diagnoses Common procedures

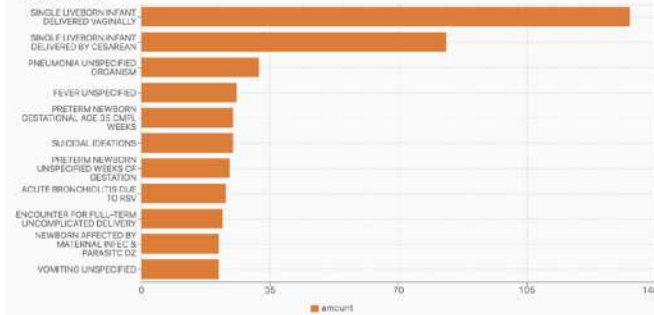
COHORT 1 - Population: 19

Top admissions



COHORT 2 - Population: 262,849

Top admissions

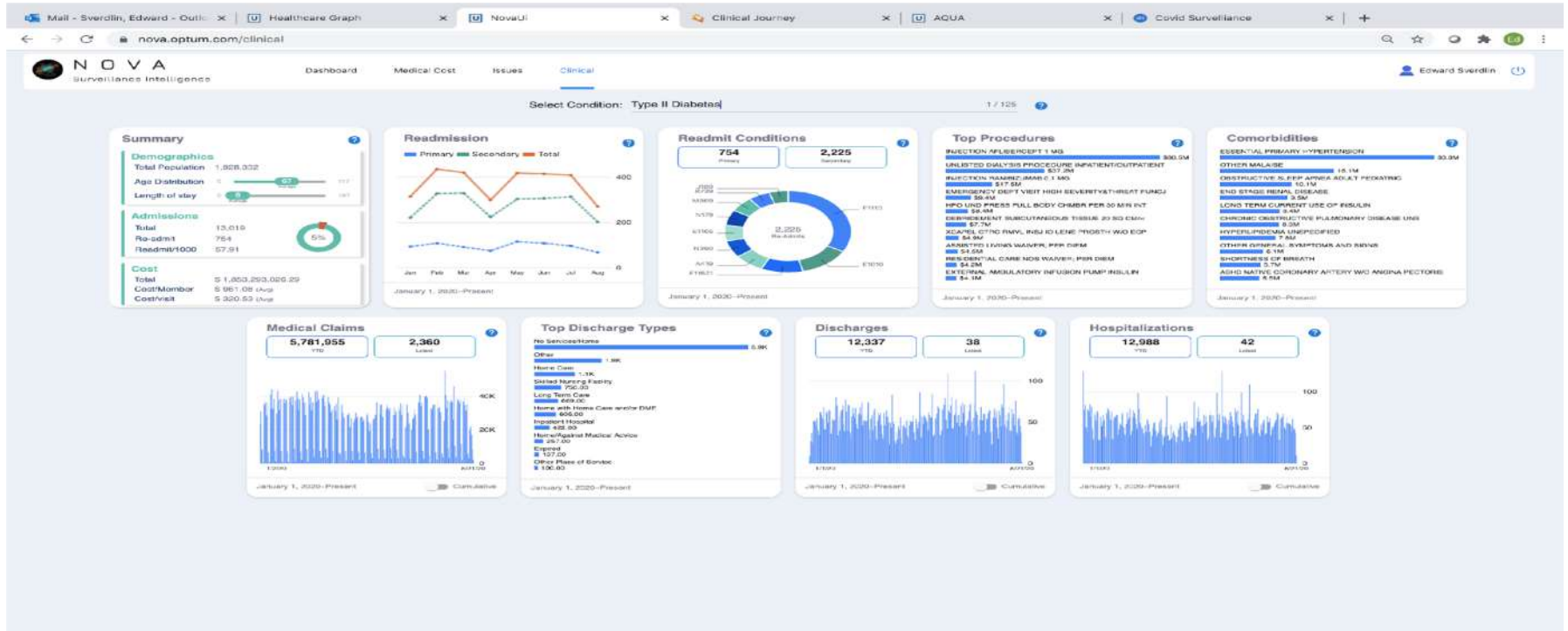


#GRAPHAIWORLD



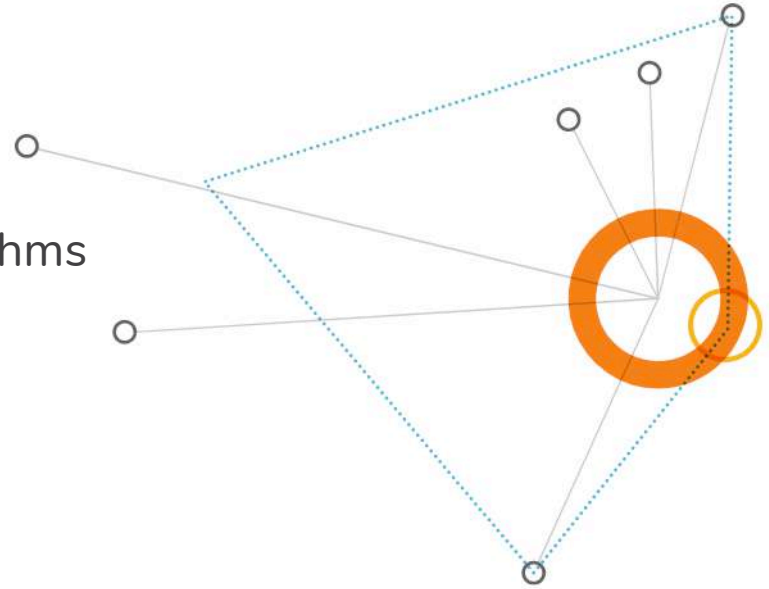
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Work In Progress – Enterprise Monitoring

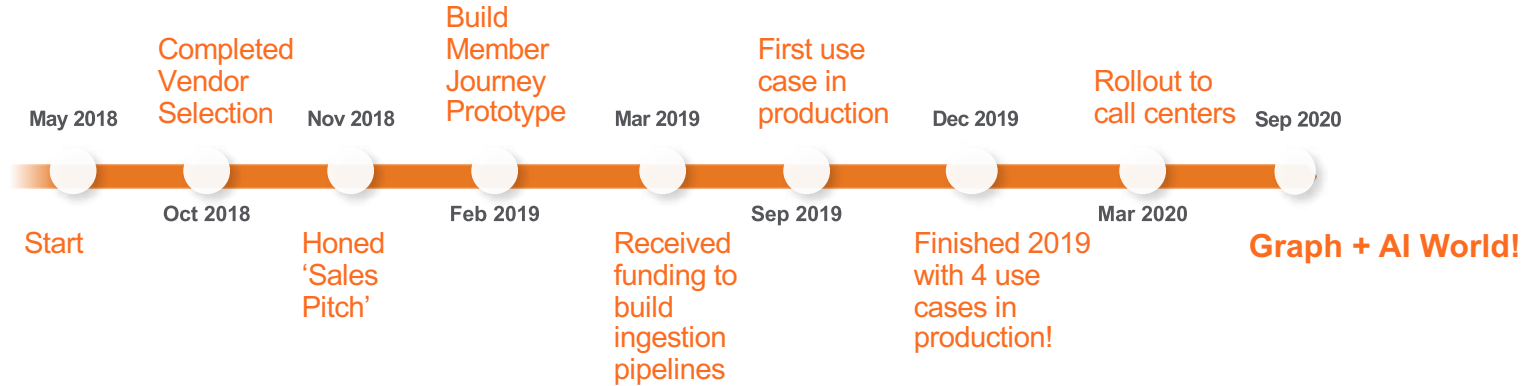


Work In Progress – Graph + AI

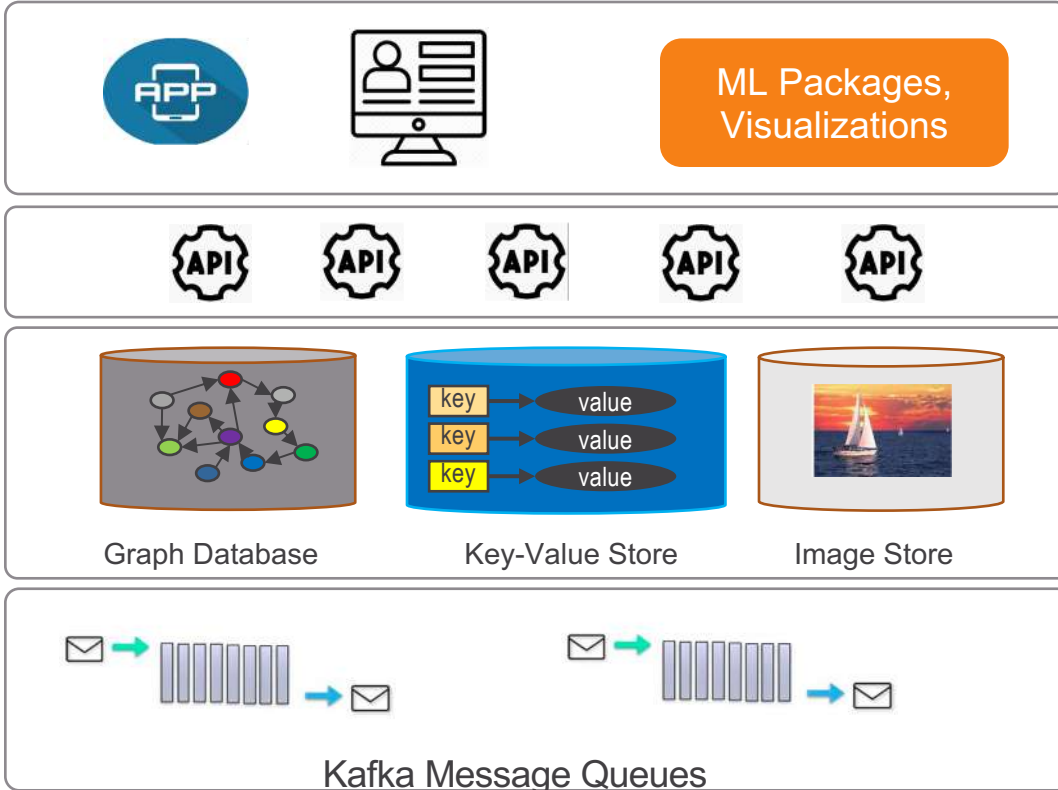
- ❑ Graph + Deep Learning
- ❑ Graph Embeddings
- ❑ Hardware Accelerators of Similarity Algorithms



How Did We Get Here - Timeline



Sample Architecture



- ❑ Graphs fit nicely into modern architectures
- ❑ Most graph products work on prem and in the cloud
- ❑ Queries can be converted to APIs to make access easy and scalable

Team - It Takes A Village to Build House

- ❑ Advanced Technology Collaborative - Technology Vision, Leadership, Deep Tech Domain Expertise
- ❑ Business Partners – Shared Vision, Use Cases, Value, Funding
- ❑ Development Team – Shared Vision, extensive experience in deploying production grade systems at scale, deep expertise in the platform (acquired over last 2 years), horsepower
- ❑ TigerGraph – Shared Vision, Partnership, Awesome Product, Patience

Lessons Learned - Organization

- ❑ Create a compelling business narrative. Lead with value
- ❑ Enable your technology partners to succeed
- ❑ Expect that half of the people will not 'get' it. Focus on the other half
- ❑ Get 'on the technology road map'
- ❑ Get into next year's budget
- ❑ Don't expect the incumbent technologies to yield easily. You will be moving someone's cheese..
- ❑ Making Graph an MBO of a senior executive in IT or business is key
- ❑ Just getting senior executive excited is not enough. Buy in from business middle management is how you get sign off on business cases and value realization