



NICK ELPRIN
Co-founder & CEO,
Domino

#DOMINOREV

rev 2

KEYNOTE

**The Era of the Model-Driven
Business**



The Era of Model-Driven Business

Nick Elprin, CEO & Co-Founder, Domino Data Lab



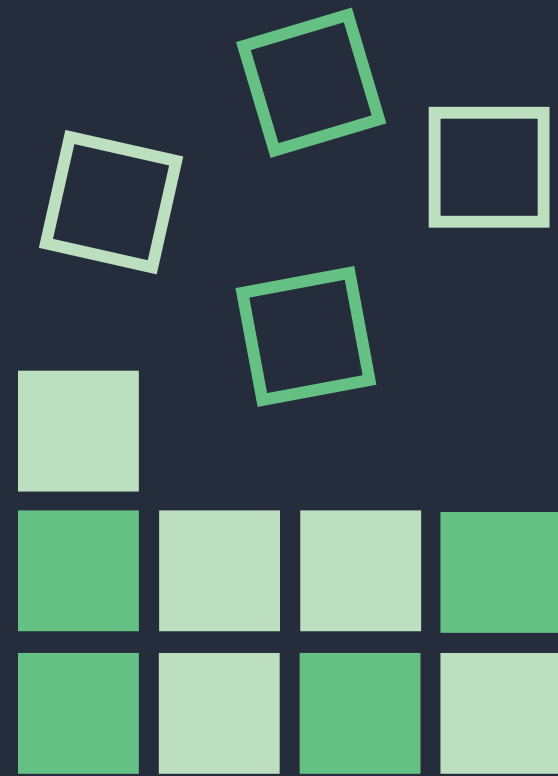


Model Driven

The Model Myth

Models *involve* code and data, so we should treat them like software or data.

Why models are different



Materials

Data, computationally intensive algorithms, fast-moving open source ecosystem



Process

Research-based workflows, experimental and emergent

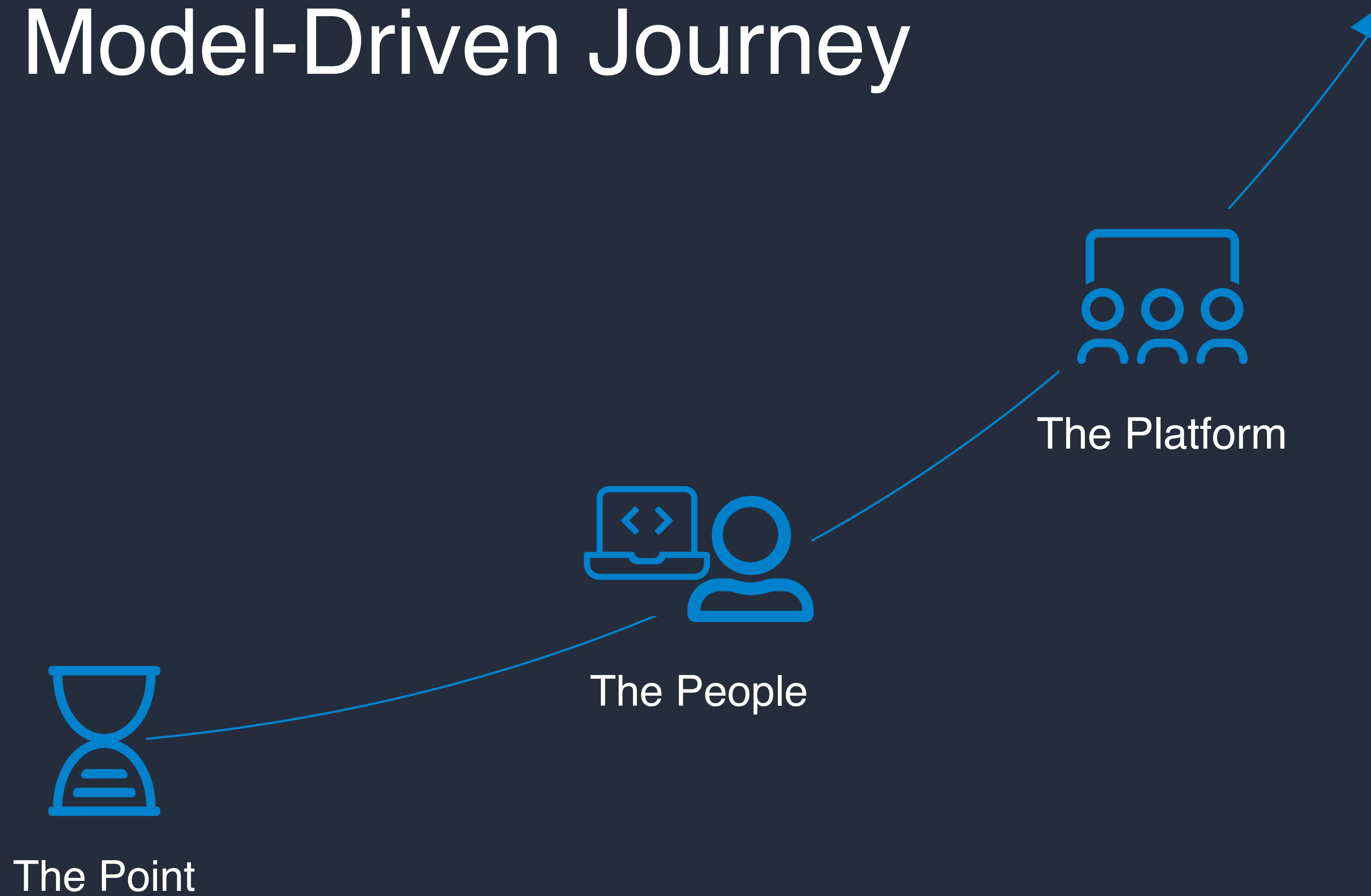


Behavior

Probabilistic and rapidly evolving

Models \neq Big Data
Software
Dashboards

The Model-Driven Journey



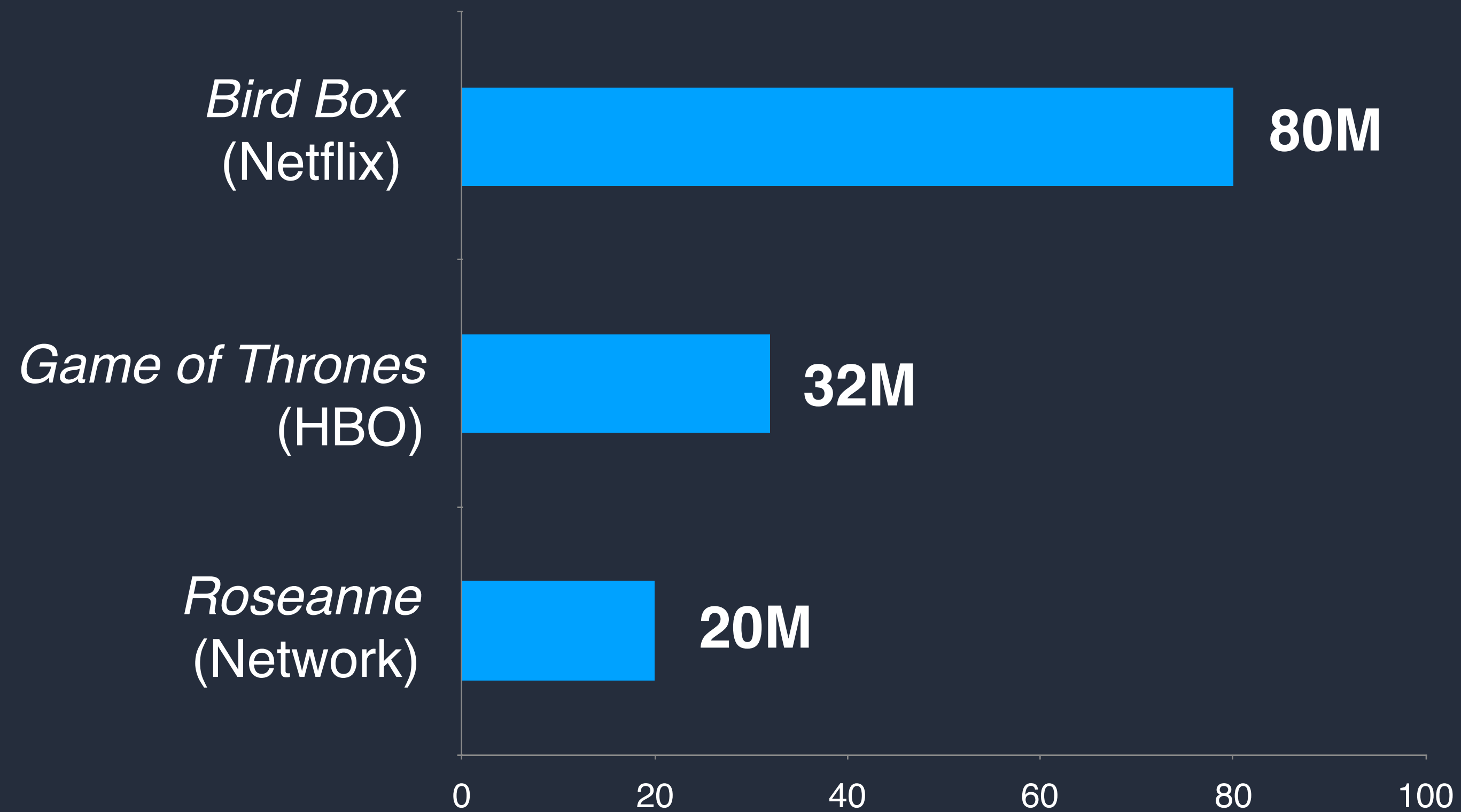
The Model-Driven Journey



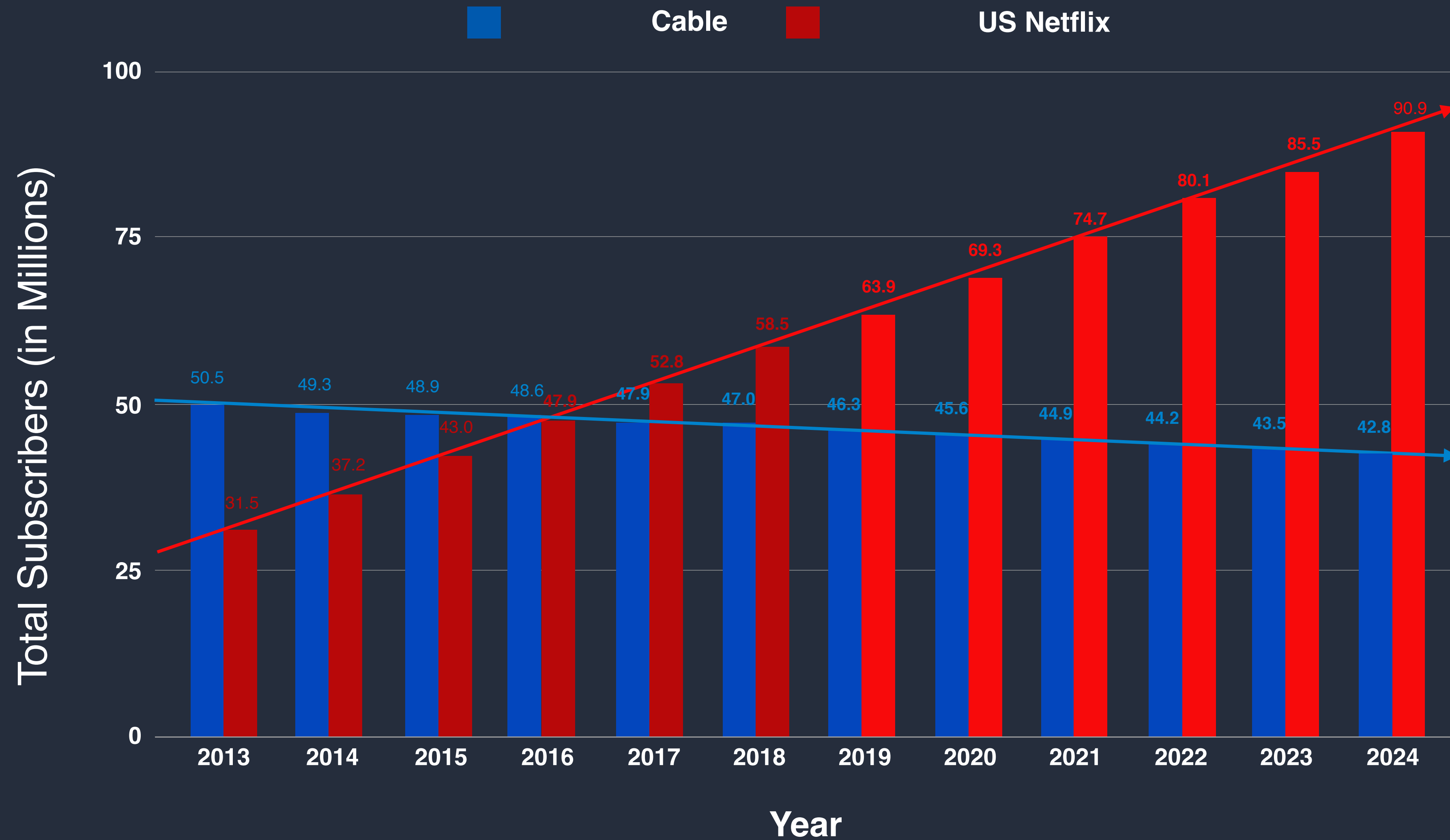


NETFLIX

Netflix's content gets more viewers

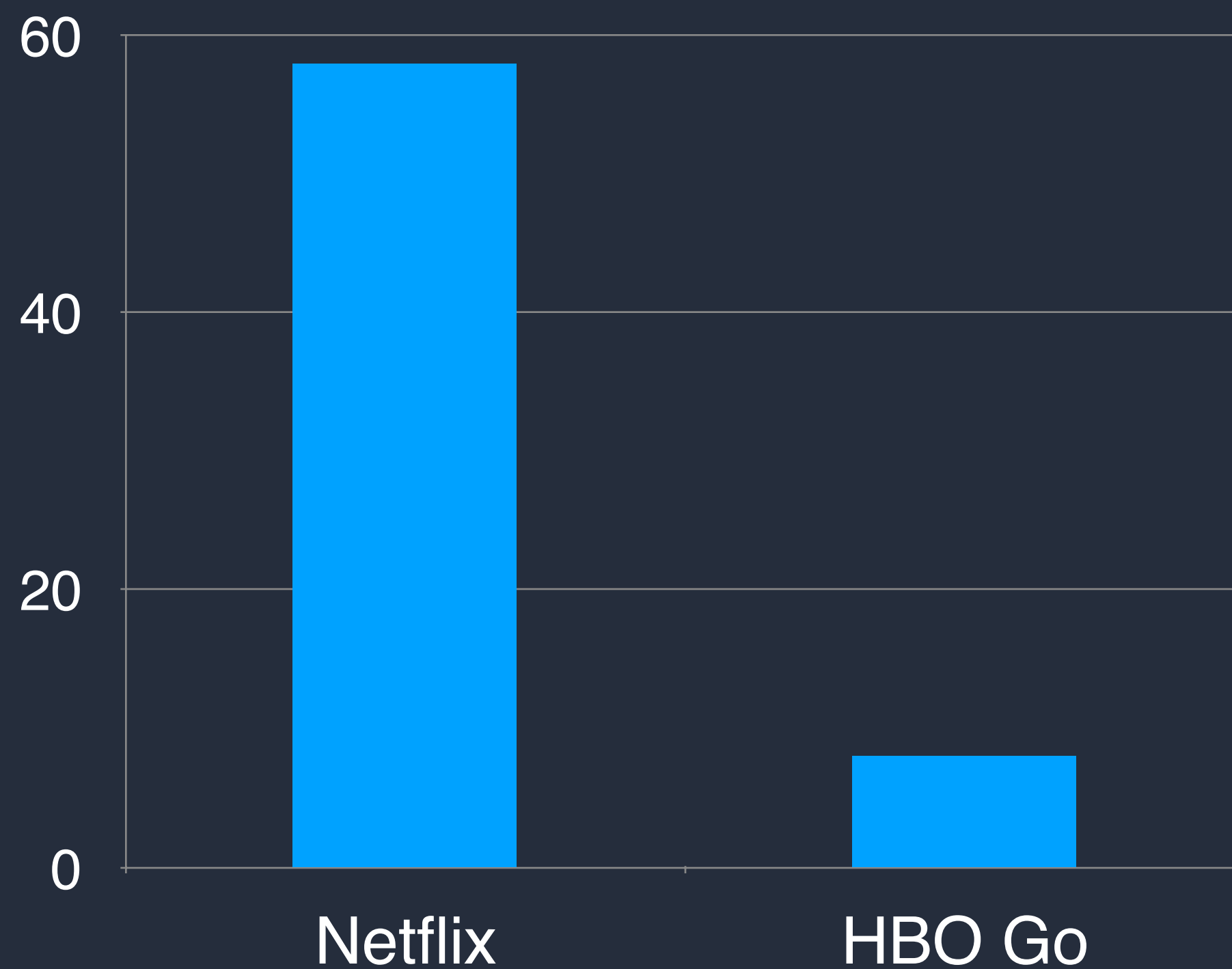


Netflix has more subscribers than cable

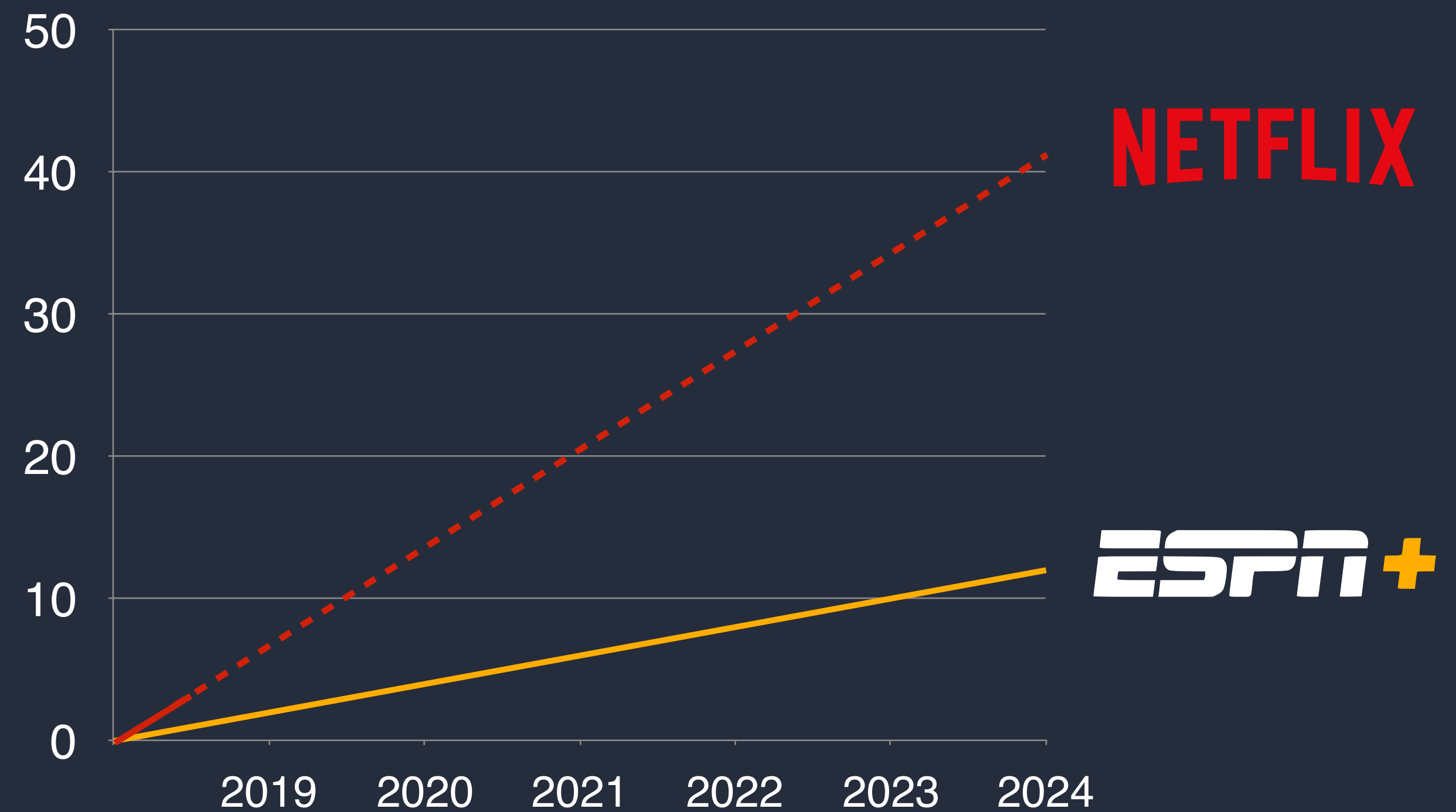


And more than other streaming services

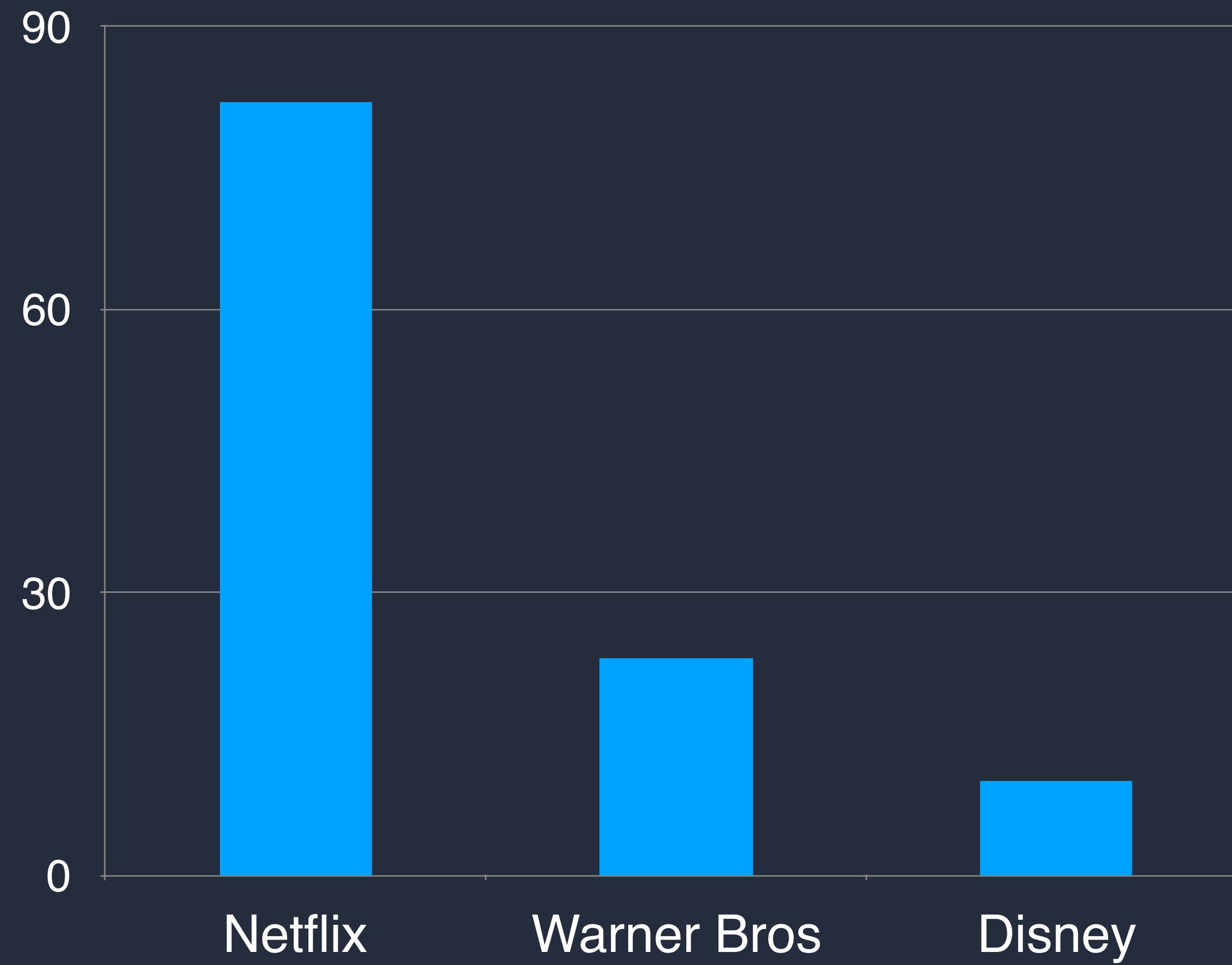
US Streaming Subscribers (M)



New US Subscribers (M)



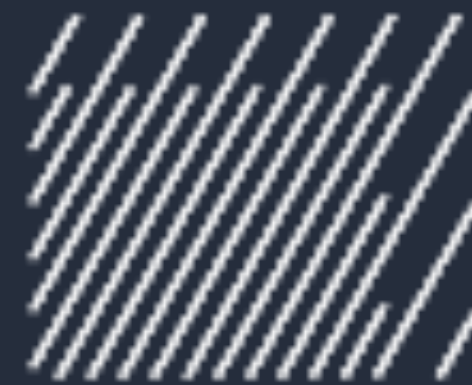
Netflix is making more films than film studios



Netflix Market Cap (\$b)

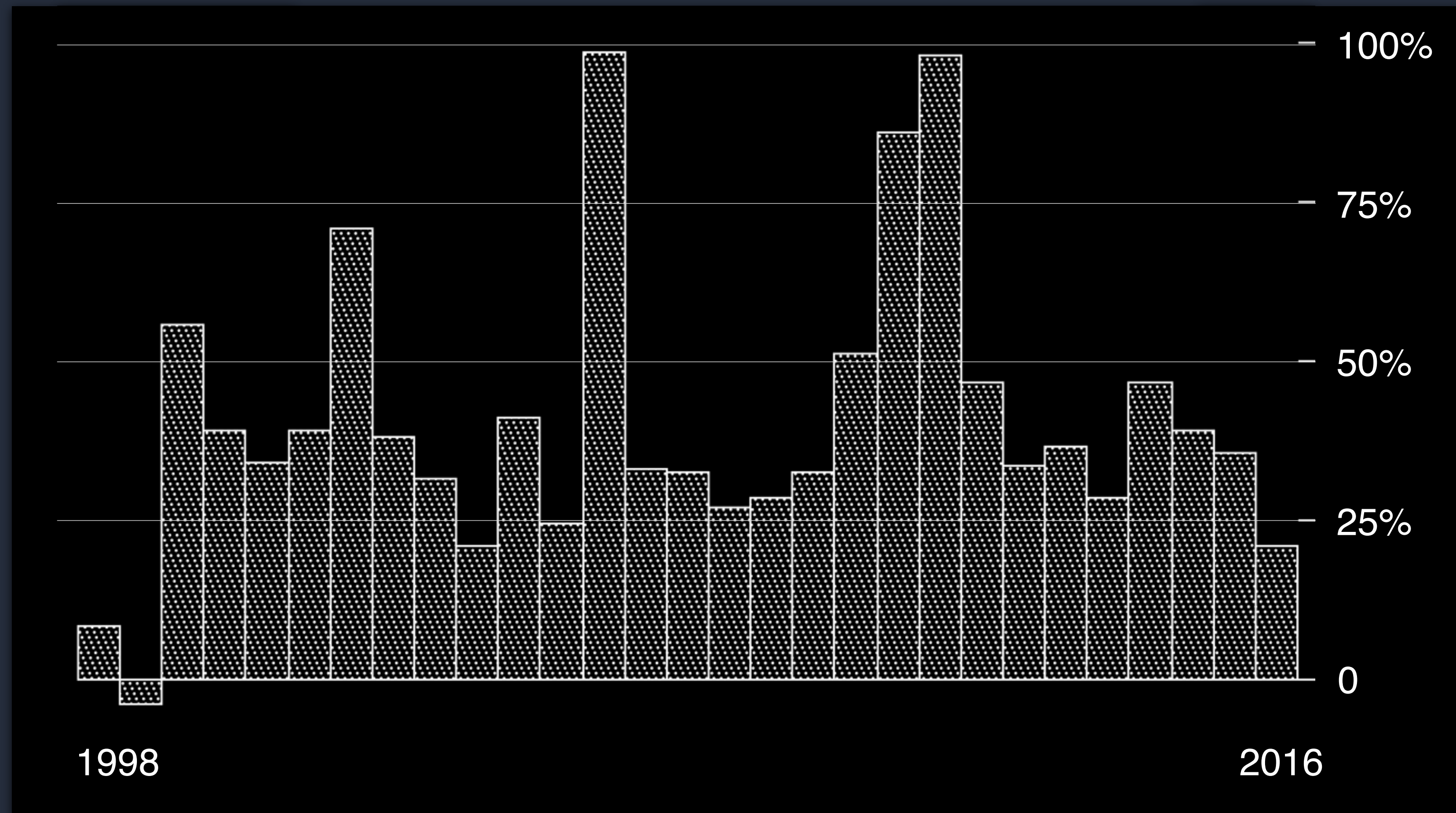


Renaissance



Medallion Fund Annual Returns Since Inception

A beginning balance of \$1,000 would now be worth \$13,830,598



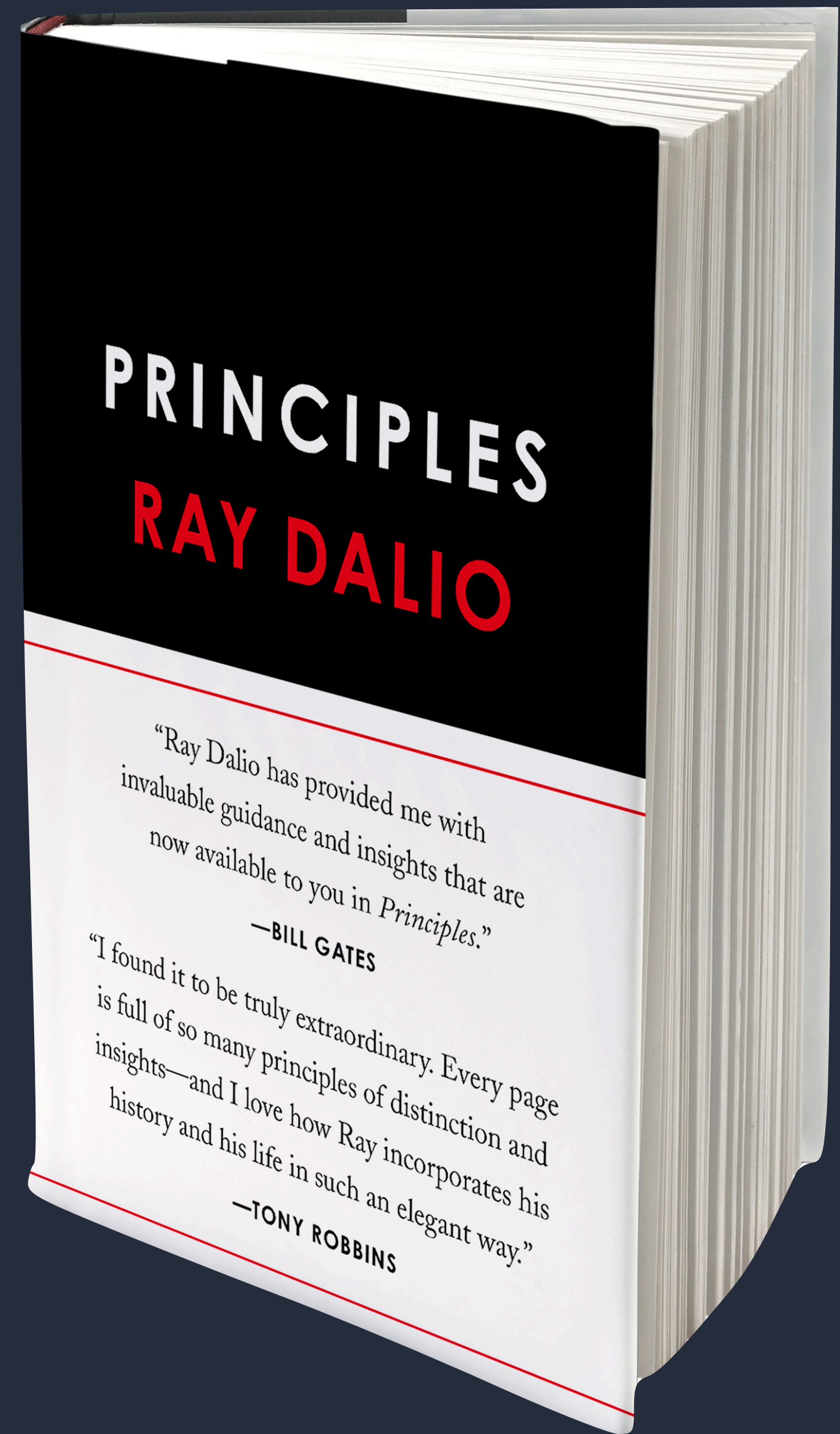
“Although we use different strategies in managing our different funds, all of our strategies depend on the output of our models.”

— Renaissance’s statement to the Senate, 2014

“Some investing firms say they have models, and what they typically mean ...we have a model. It advises the trader what to do, and if he likes the advice he'll take it. Well that's...not science.

If you're going to trade using models you just slavishly use the models. You do whatever the hell it says.”

— Jim Simons, Renaissance Technologies Co-Founder



“Specifying our investment decision-making criteria in algorithms and running historical data through them ... allows us to make more informed and less emotional decisions.”

— Ray Dalio, Bridgewater Associates
Founder

“I need to have deep understanding for the cause-effect relationships.

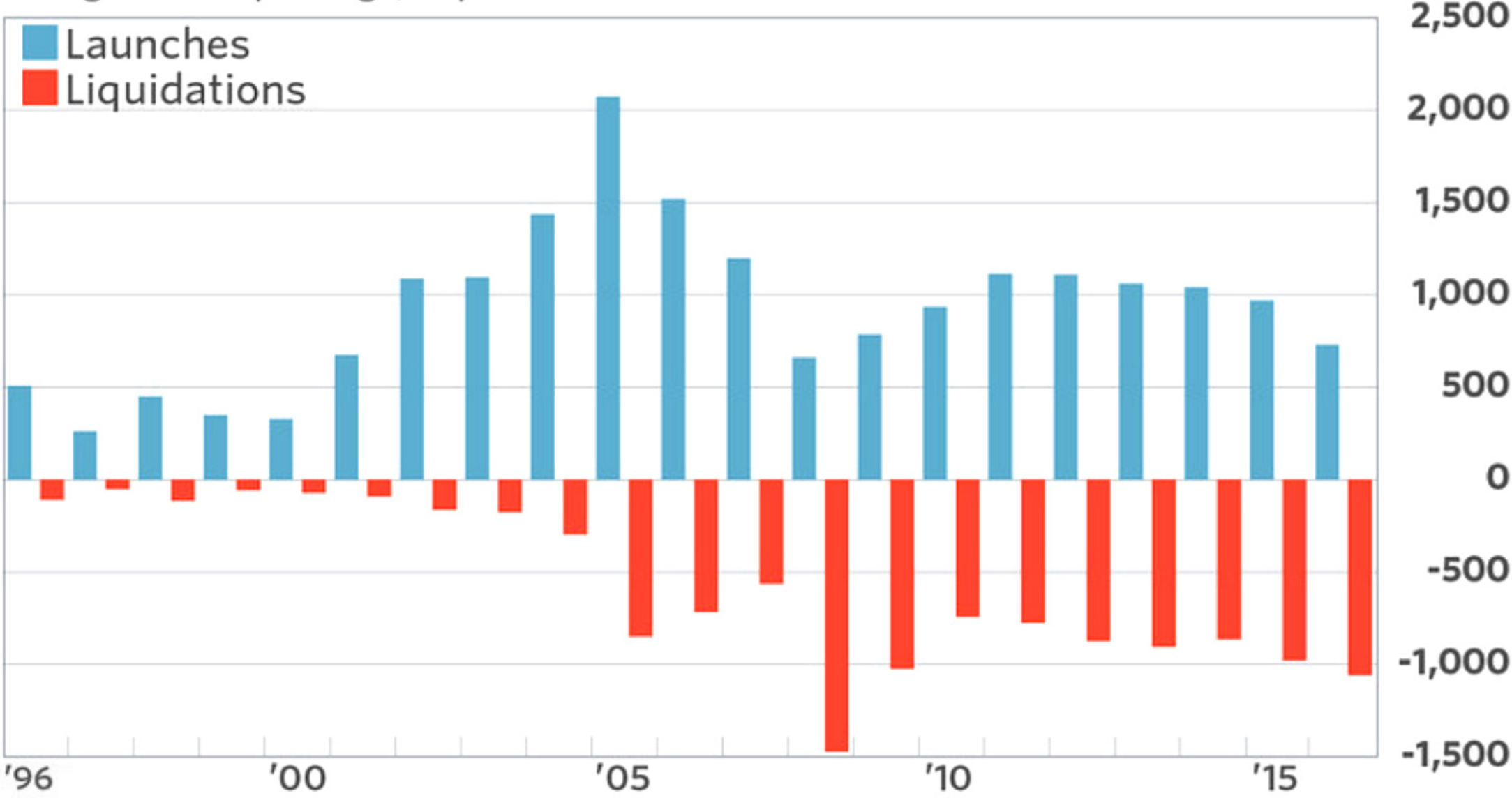
Then, we convert words into algorithms, and then we take those algorithms and back-test how they would have performed in the future, to enhance our learning.”

— Ray Dalio, Bridgewater Associates Founder

1,057 hedge funds shut down last year—the most in any year since the financial crisis

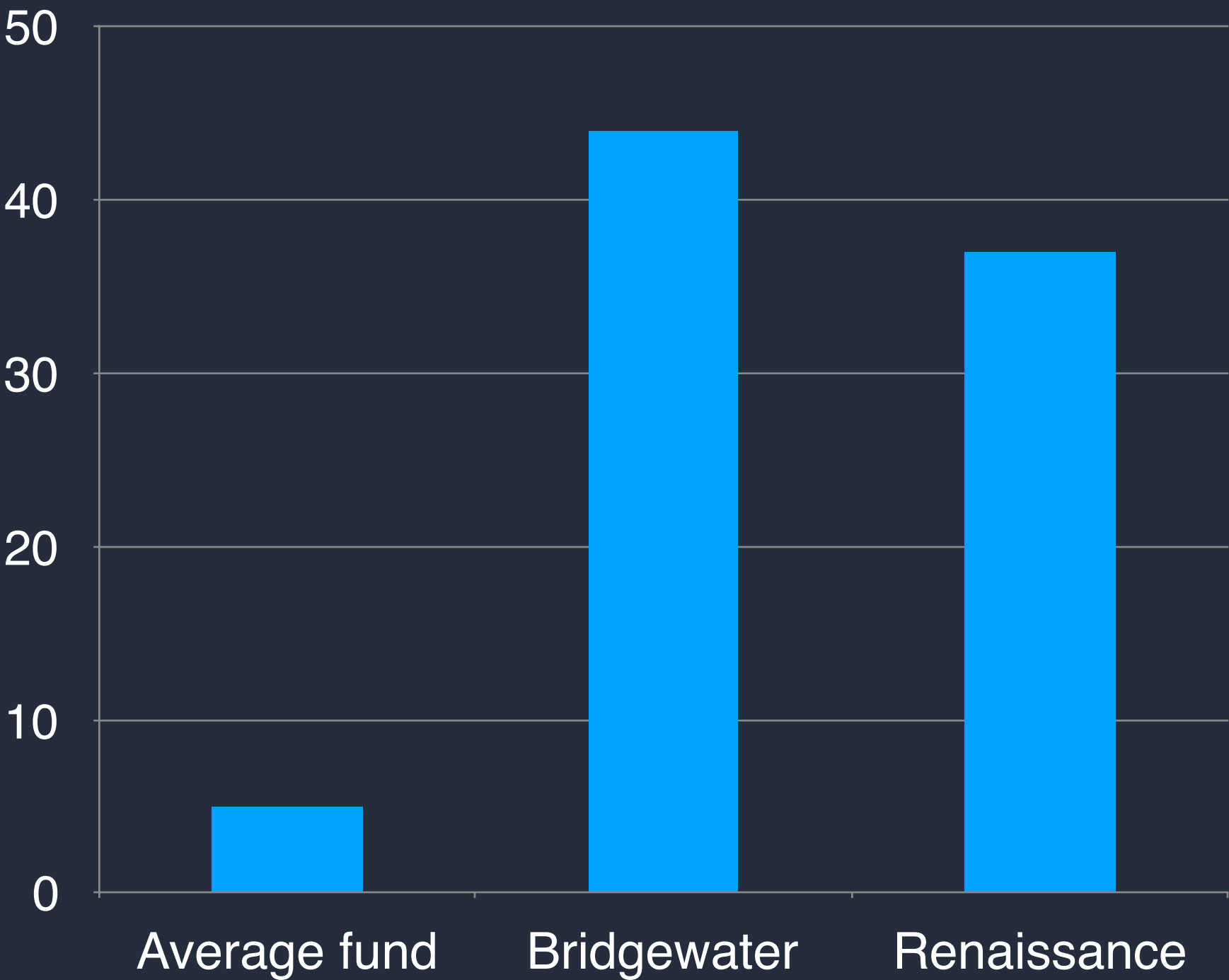
Most closures since 2008

Hedge fund openings/liquidations since 1996



Source: HFR

Lifespan in years



2018 RANKING	2017 RANKING	MANAGER	PORTFOLIO MANAGER(S)	AUM (\$BN)	NET GAINS SINCE INCEPTION (\$BN)	NET GAINS IN 2018 (\$BN)	YEAR OF INCEPTION
1	1	Bridgewater	Ray Dalio	133.0	57.8	8.1	1975
2	2	Soros Fund Management	George Soros*	27.0	43.9	-	1973
3	3	Citadel	Ken Griffin	28.6	30.7	2.1	1990
4	5	DE Shaw	Various	27.5	29.1	2.0	
5	6	Baupost	Seth Klarman	27.4	27.4	0.4	
6	7	Och Ziff	Daniel Och	31.8	26.2	0.2	
7	4	Lone Pine	Steve Mandel	22.5	25.9	(1.3)	

TOP HEDGE FUND PERFORMERS IN 2018	
COMPANY	2018 GAINS
Bridgewater	\$8.1B
Renaissance Tech	\$4.7B
Two Sigma	\$3.2B
Citadel	\$2.1B
DE Shaw	\$2B

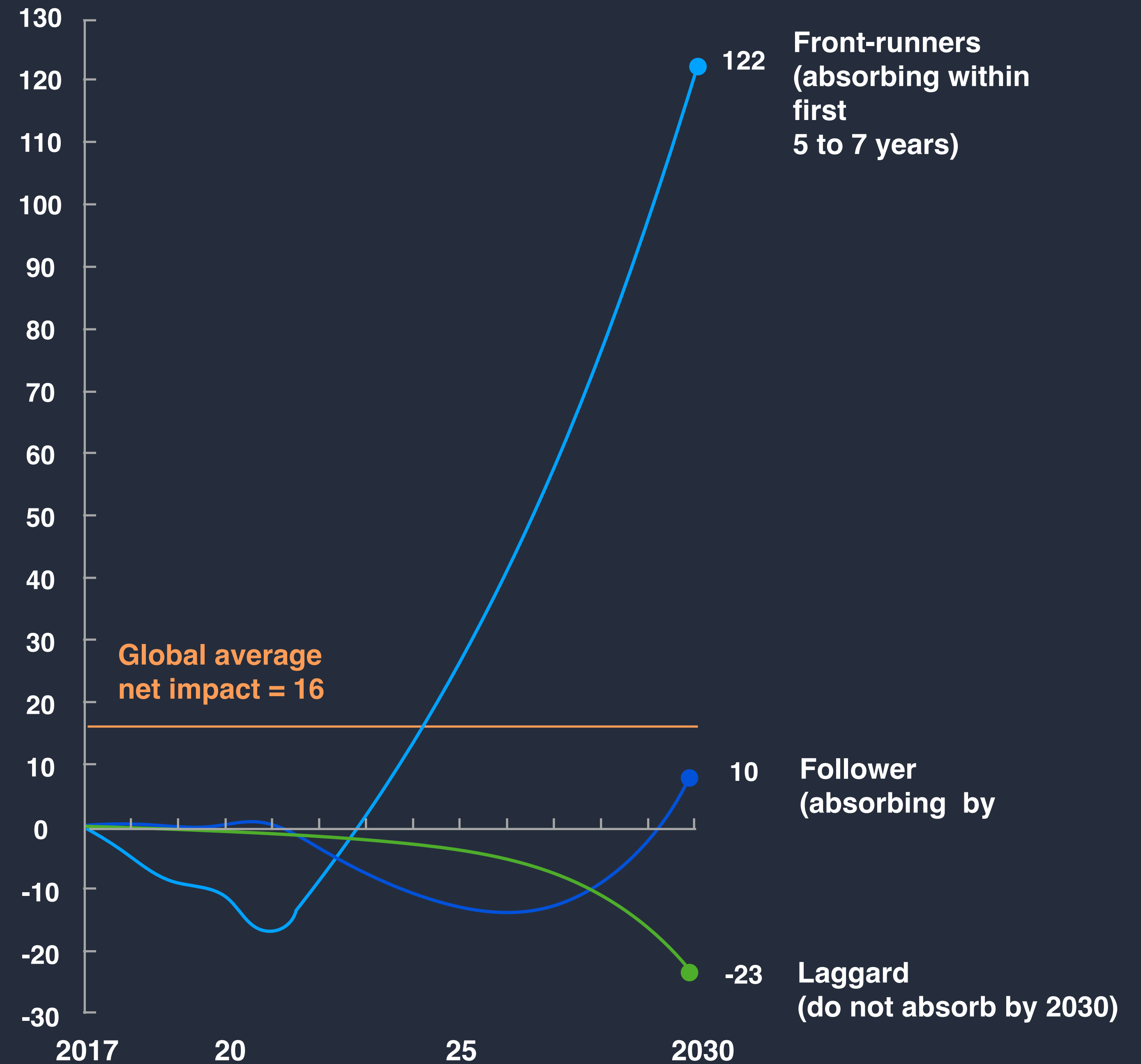
Bloomberg

BRIDGEWATER'S BILLIONS

Relative changes in cash flow by AI adoption cohort

% change per cohort, cumulative

SOURCE: McKinsey Global Institute analysis



If you aren't a model-driven
business, you'll soon be losing to
one.

 **DealerTire[®]**

The Model-Driven Journey



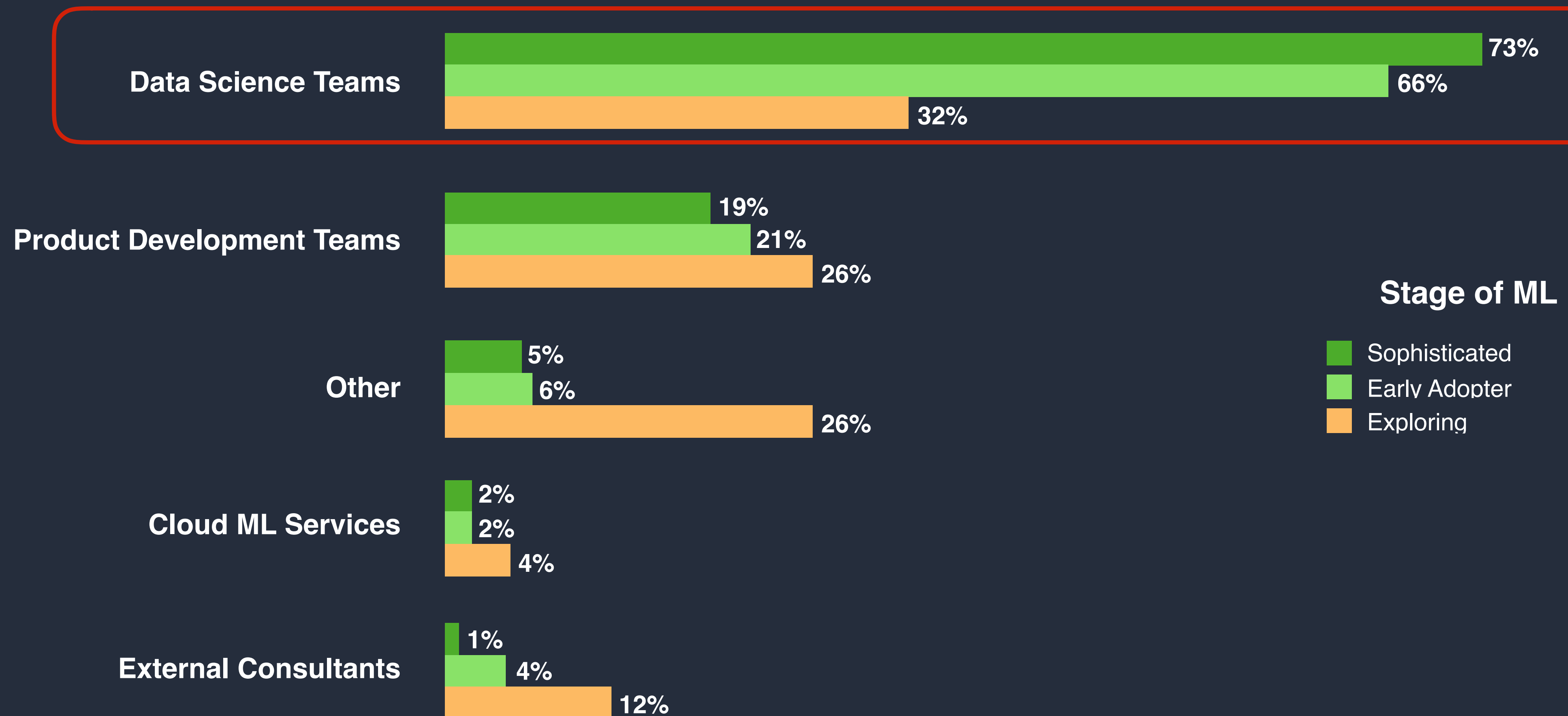
“a citizen data scientist [is] a person who creates or generates models ... but whose primary job function is outside the field of statistics and analytics.”

“Citizen data scientists will surpass data scientists in the amount of advanced analysis produced by 2019”

— Gartner



Among companies with models in production, 73% of models are built by data scientists



The Model Myth (Corollary)

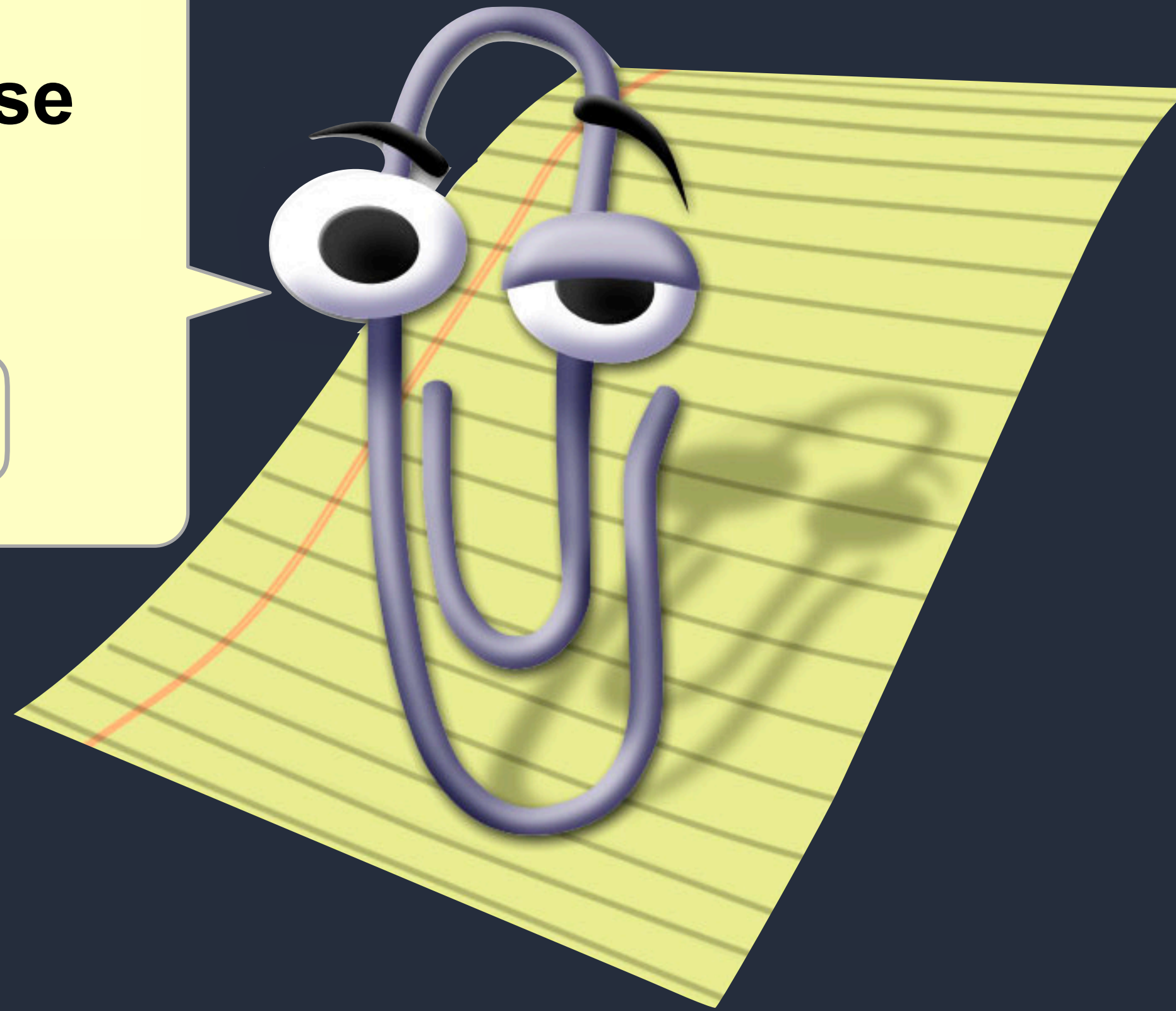
Models *involve* code and data, so analysts and engineers can build them.

**It looks like you're trying to
build a classifier.**

**Would you like me to choose
a model family for you?**

Yes

No





High stakes work requires experts.

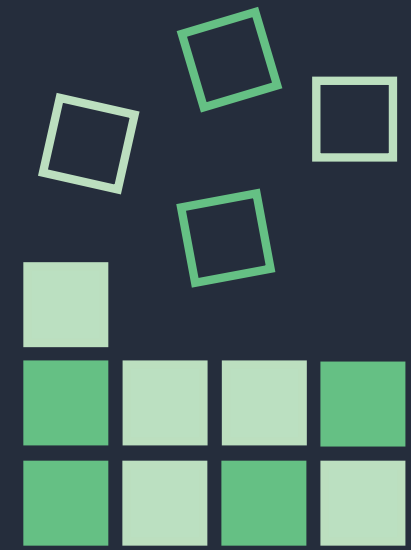


The Model-Driven Journey



The Model Myth

Models *involve* code and data, so we should treat them like software or data.



Materials

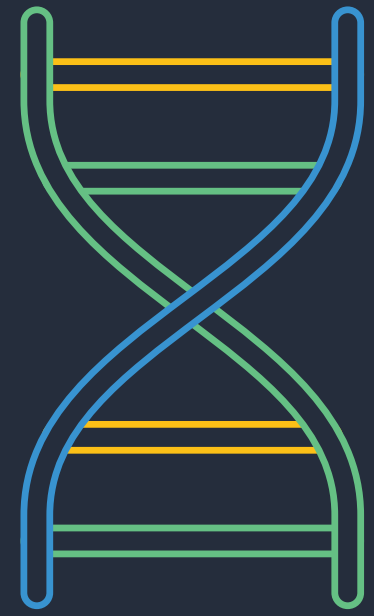
Burst compute, GPUs, open source
packages

Agile infrastructure to accelerate experimentation



Research-based workflows, experimental and emergent

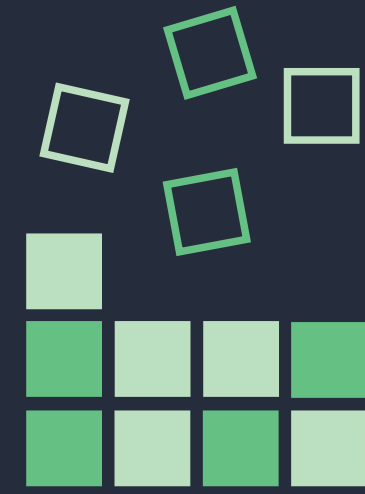
Collaborative R&D **environment** to facilitate iteration, track work, and spark breakthroughs



Behavior

Probabilistic and rapidly evolving

Governance: New ways to monitor, review,
and quality control data science work



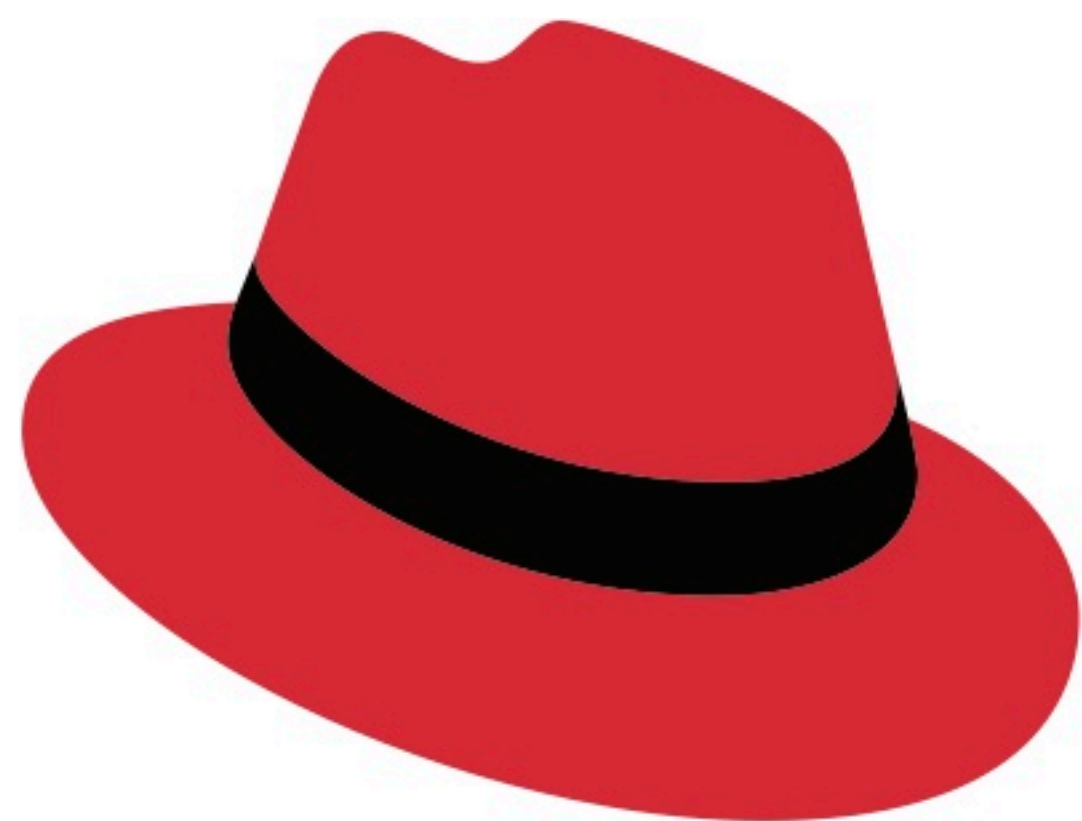
Agile Infrastructure



Collaborative R&D



Governance



Red Hat

“The best way to conduct research on a larger scale is to make sure everyone knows what everyone else is doing.”

“The second thing is we provide people with a great infrastructure. I’ve had people come to us from all over and say, ‘it’s easier to get to work here than any place else.’”

— Jim Simons, Renaissance Technologies Co-Founder

For teams and
organizations

For individuals



Coupled
infrastructure

Open, flexible
infrastructure



Open Infrastructure



Collaborative R&D



Governance



Josh Poduska

Chief Data Scientist, Domino Data Lab

New Compute Grid

Four Native Data Science Workloads



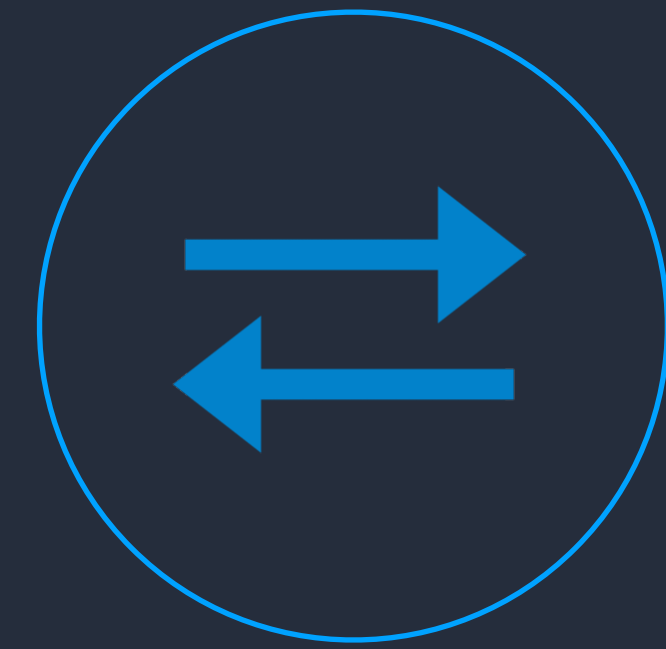
Batch Jobs



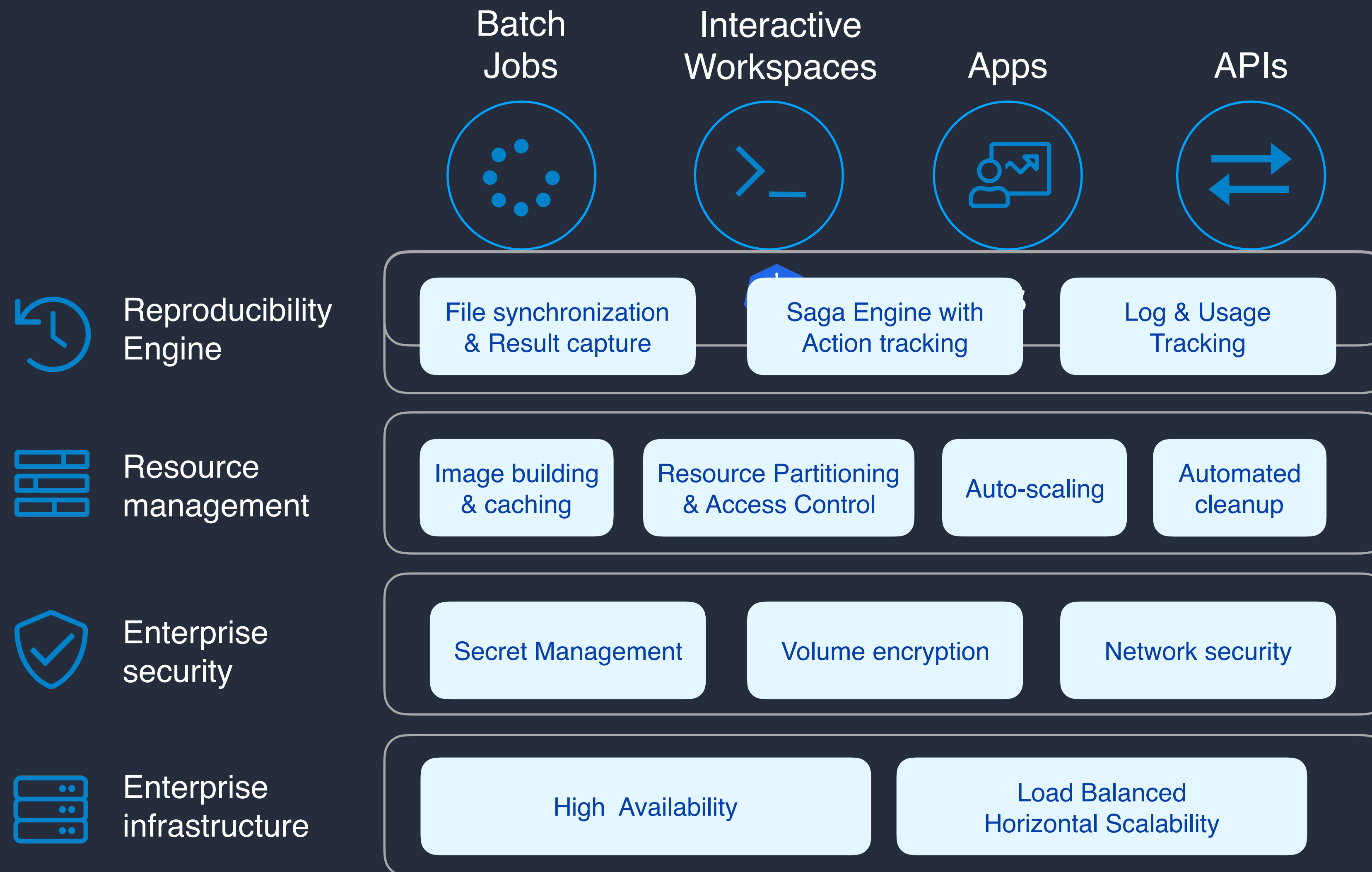
Interactive
Workspaces



Apps



APIs



New Compute Grid

New Compute Grid

New Compute Grid

Domino Lab



Exploratory analysis

Run experiments

Track work

Collaborate



Niole Nelson

Software Engineer, Domino Data Lab

Avinash Joshi

Product Manager, Domino Data Lab

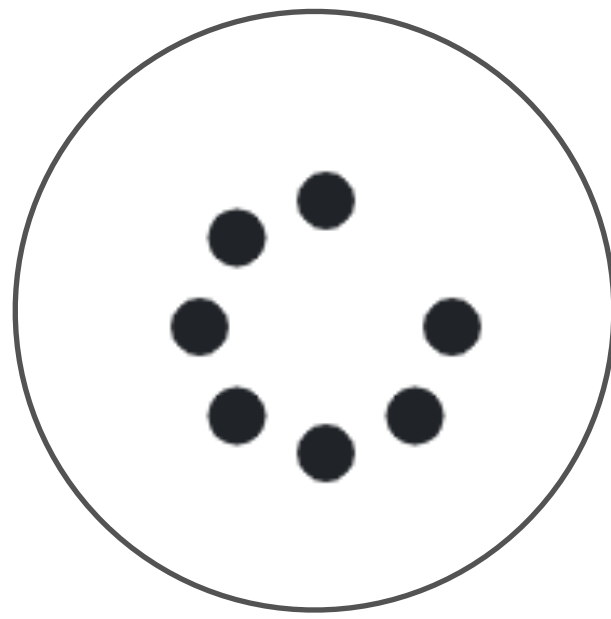
Model Governance



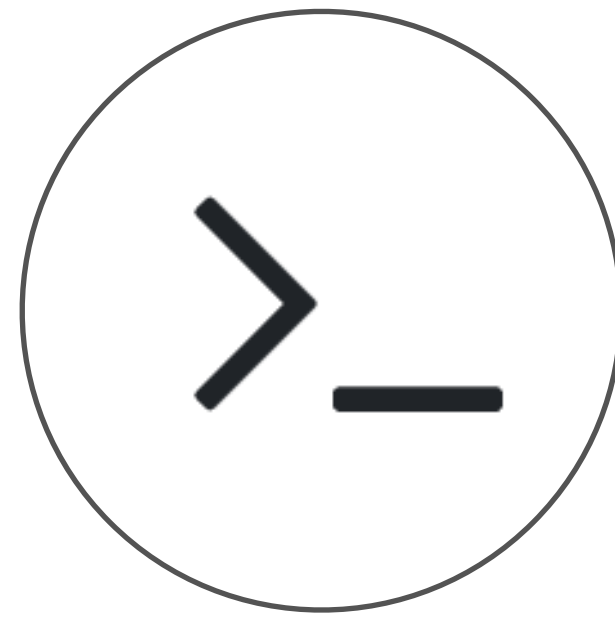
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Four Native Data Science Workloads



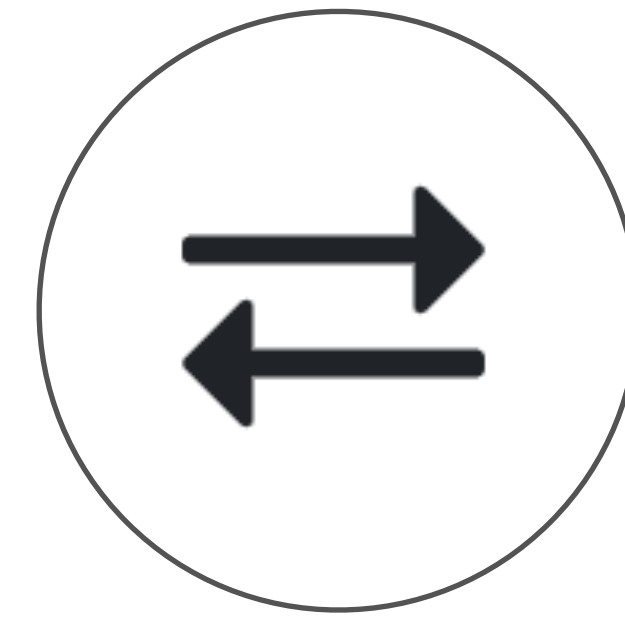
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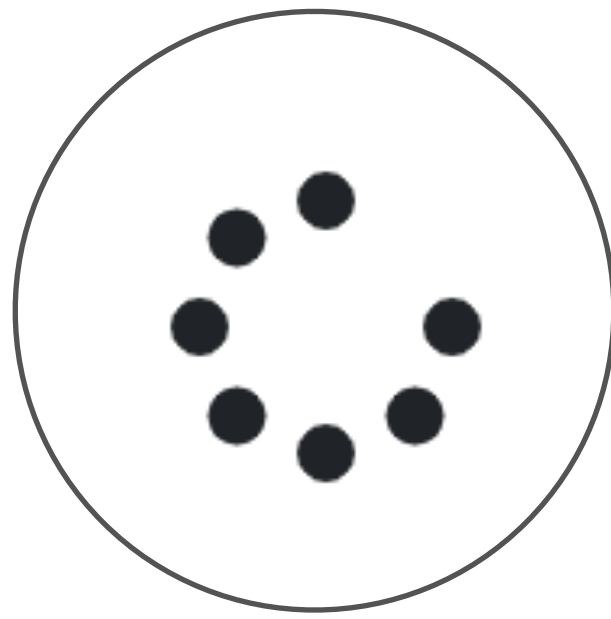
Interactive
Workspaces



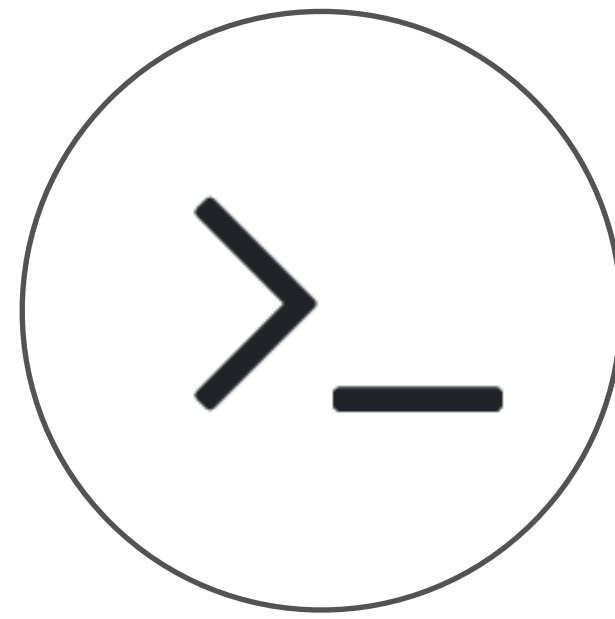
Apps



APIs



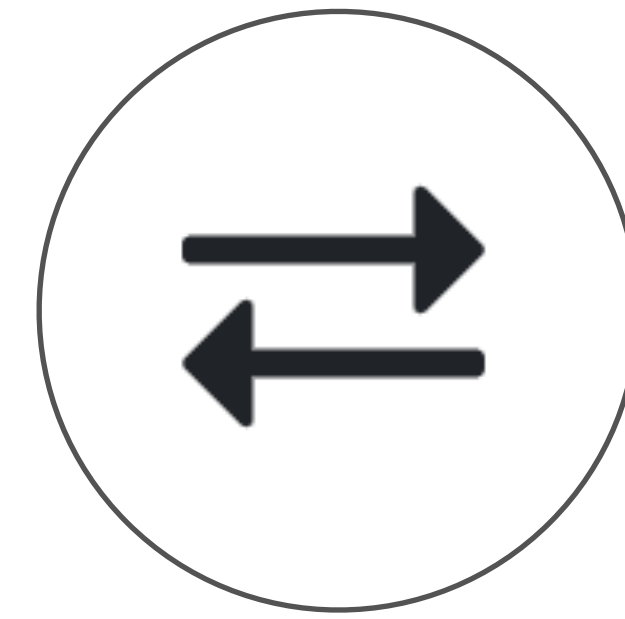
Batch Jobs



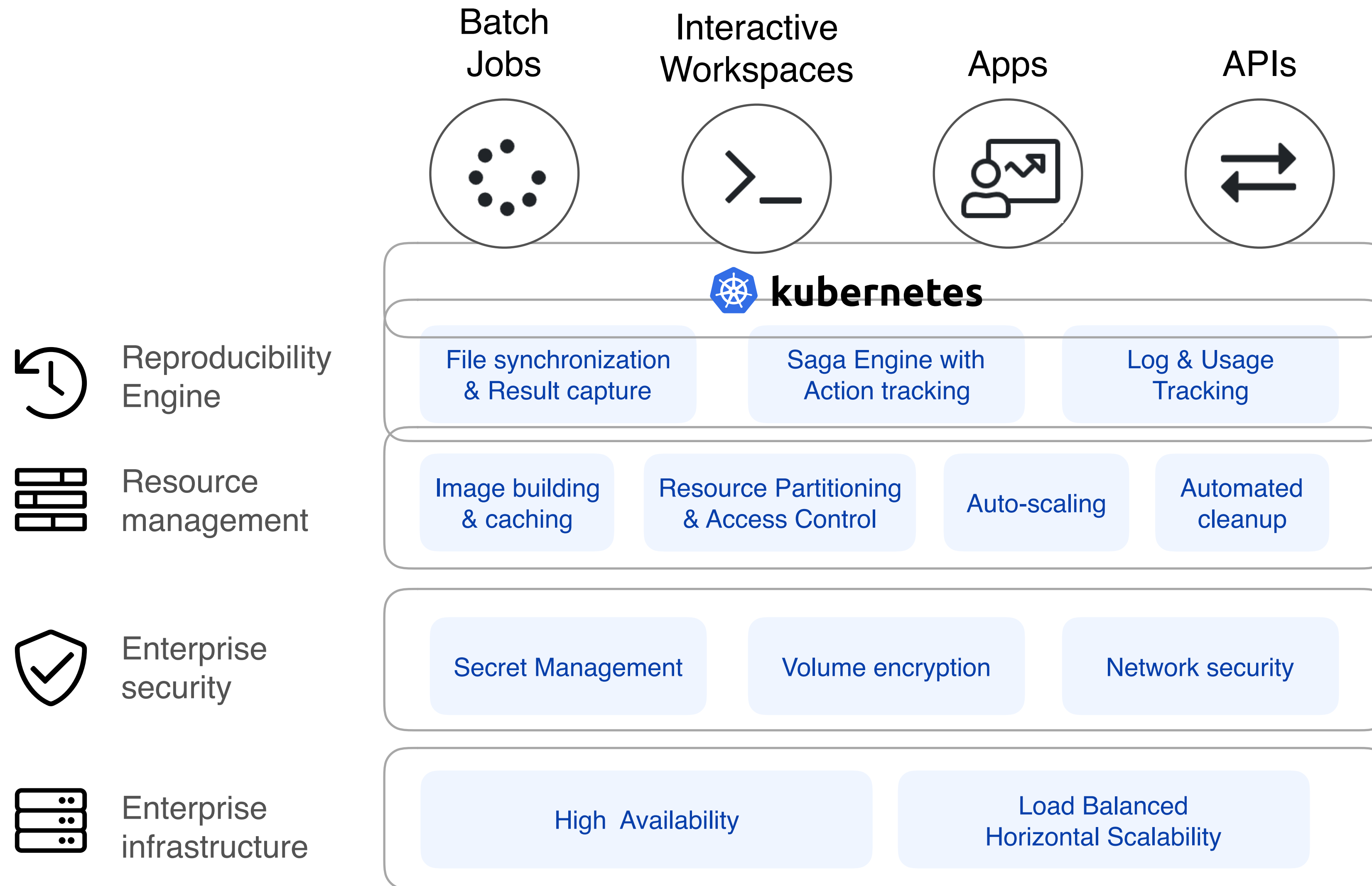
Interactive
Workspaces



Apps



APIs



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