

The logo features the letters 'DM' in a large, bold font. The 'D' is red, and the 'M' is black. A red microphone icon is positioned between the 'D' and 'M'. Below 'DM' are the letters 'RADIO' in a smaller, bold, black font. The 'O' in 'RADIO' is replaced by a stylized icon of a radio antenna with a red dot in the center. Below 'RADIO' are the words 'DEEP DIVE' in a very large, bold, black font.

DM
RADIO
DEEP DIVE

Planets Align – The Irresistible Forces Pulling Big Data to the Cloud



The Bloor Group

www.dmradio.biz



The Great Migration

Circa 2016, large enterprises finally realized that Cloud is not just a major force for the present and future of enterprise computing; but that in fact it's now the new center of gravity.

But, what of all that data and functionality still on-prem? And what of multi-cloud?





Picture by Pixabay

Timeline for Enterprise Cloud Adoption

1972
IBM first
sells VM
tech

2006
Rackspace
Cloud
released

2007
Almost
zero big
biz cloud

2008
Google
Cloud
Platform

2013
Docker is
first
launched

2016
Big biz
goes
cloud

1997
Yahoo!
Email
launched

2006
Amazon
Web
Services

2008
Project
Red Dog
Begun

2009
Google
Docs
released

2014
Google
Kubernetes
launched



Satya Nadella, Microsoft CEO: Why Smiling?

Ironically enough, we can thank Microsoft for saving us from the monopoly of Amazon Web Services!

By pivoting Redmond forefully into the Cloud with Azure, Nadella arguably saved his company, while turning heads and changing minds in large businesses everywhere.



Cloud Is 'Number One' – Resistance is Futile





Motorcraft

FURNITURE WAREHOUSE
TRUEX JR.

HINAS
SMITH

GORDON
HARLIN

STANHOUSE JR.
FASTENAL

FedEx Express
CARR

FUSION

WINZOLL

EDWARDS

RENO
MENARD

FAHNHARDT JR.
FURNITURE WAREHOUSE

BARRETT
STANHOUSE JR.

HARVICK
FURNITURE WAREHOUSE

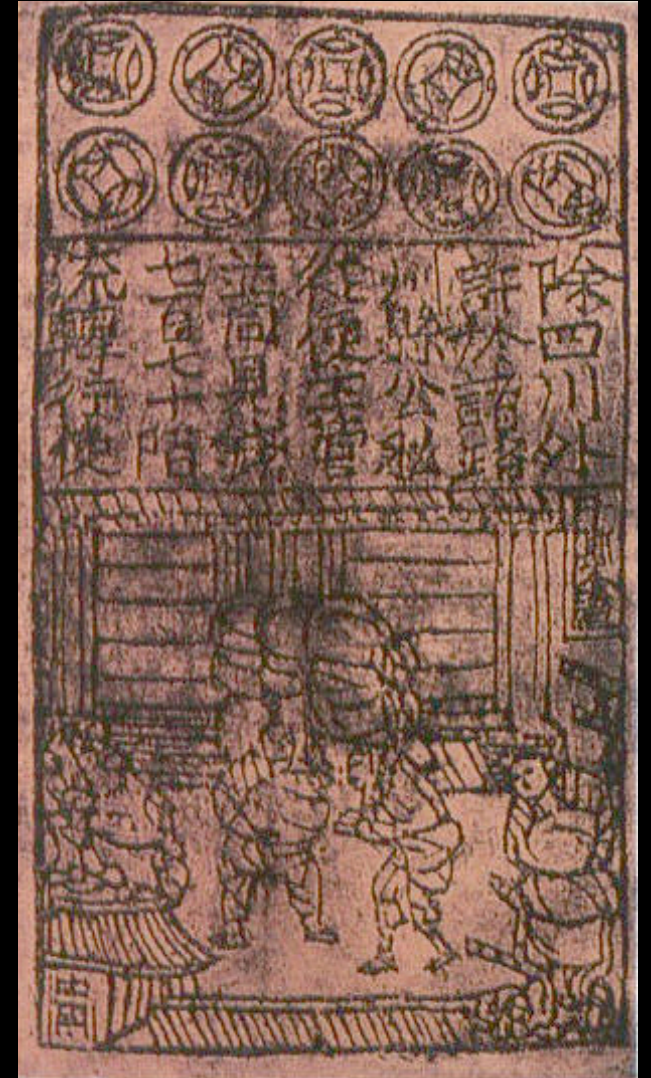
CapEx to OpEx: Money Matters

Gone are the days of massive Capital Expenditures for traditional, waterfall data warehousing.

Today's organizations must be very strategic about where to spend money.

Movement from on-prem to cloud may be one of the last major CapEx trends.

Now is the time for all good professionals to come to the aid of their enterprise: be strategic!



Song Dynasty *Jiaozi*,
the world's earliest paper money



Salesforce

Amazon

Oracle

Azure

SAP

IBM

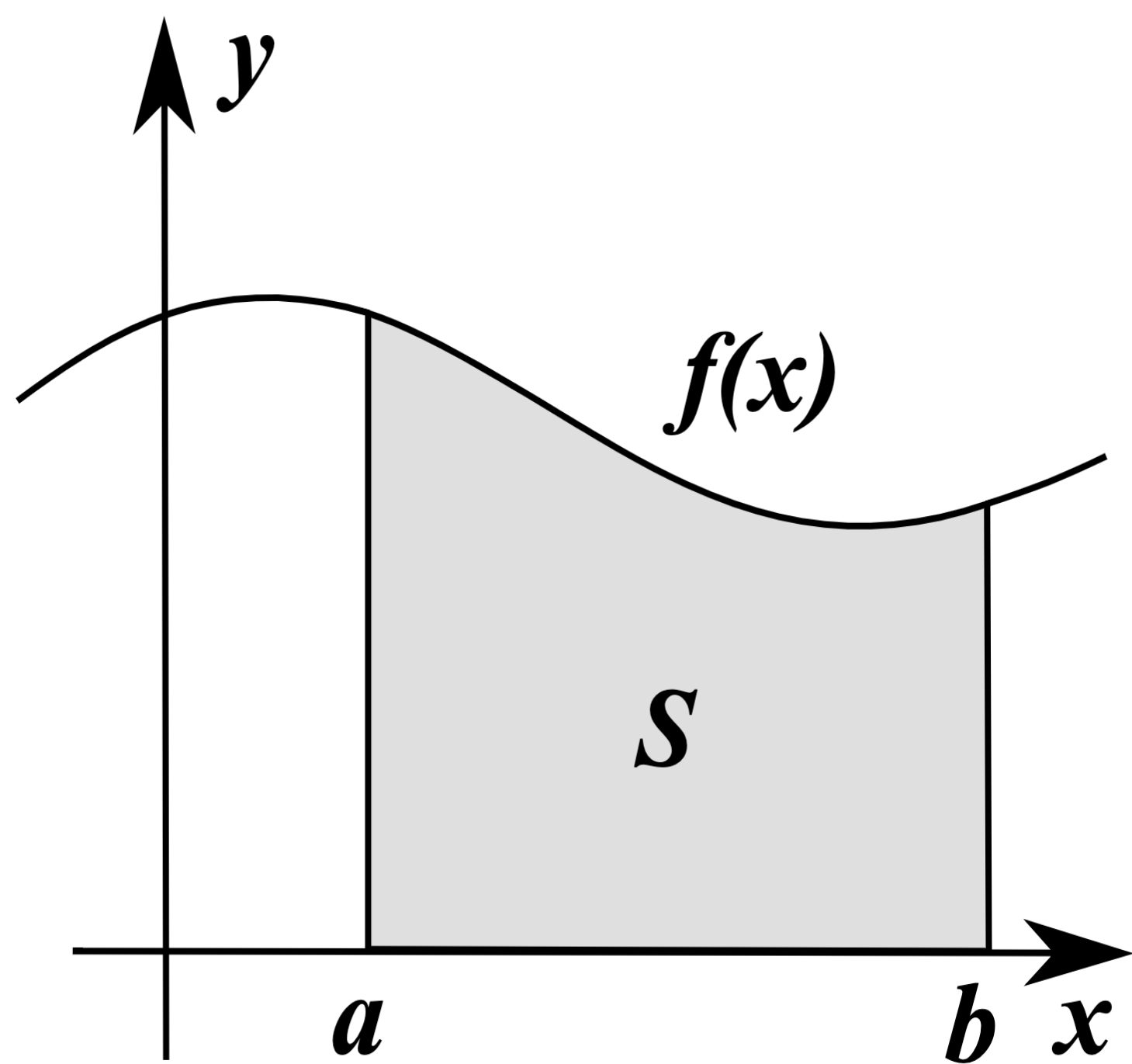
Google

Heroku

Rackspace

et al





*Systems Management is
a lot like Calculus: you
have to know the nature
of the problem before
you can solve for it.*

Until now?!



George Demarest
Product Marketing

A dark silhouette of an airplane in flight, positioned above the main text.

**OPTIMIZE
PERFORMANCE WITH
THE POWER OF AI**

Planets Align

The Irresistible
Forces Pulling
Big Data to the
Cloud



Planetary Alignment is Under Way

Forbes Billionaires Innovation Leadership Money Consumer Industry

5,940 views | Apr 7, 2017, 05:42pm

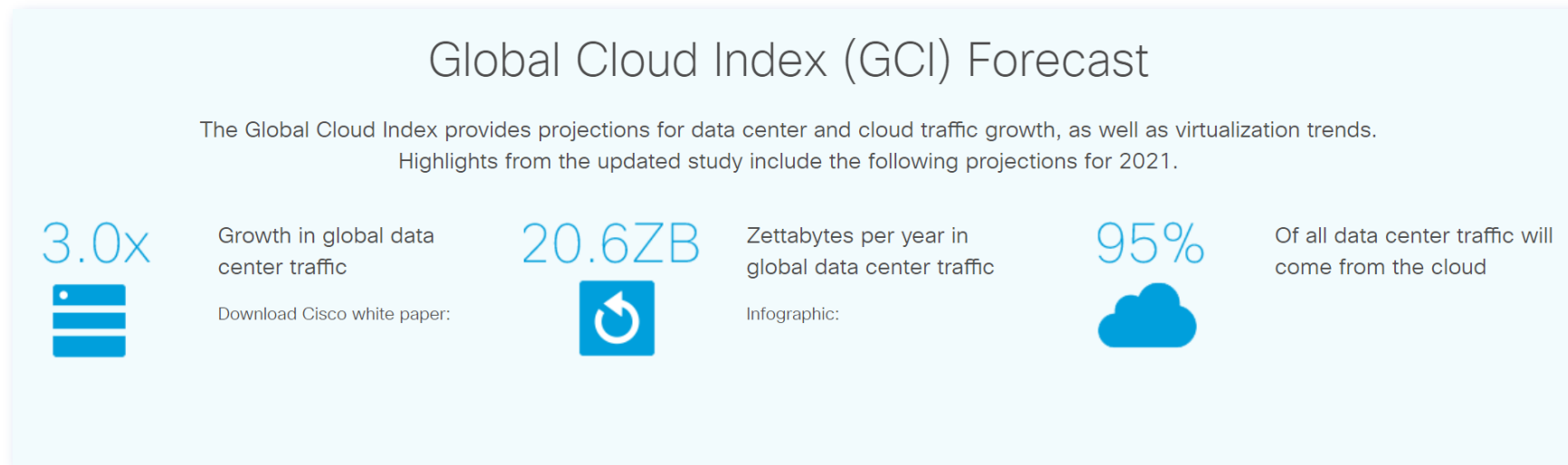
Cloud 2.0: Companies Move From Cloud-First To Cloud-Only

ZDNet VIDEOS 5G WINDOWS 10 CLOUD TV MWC 2019 INNOVATION SECURITY MORE NEWSLETTERS

MUST READ: 'Prism, Prism on the wall, who is the most trustworthy of them all?' Huawei hits back at US over 5G security

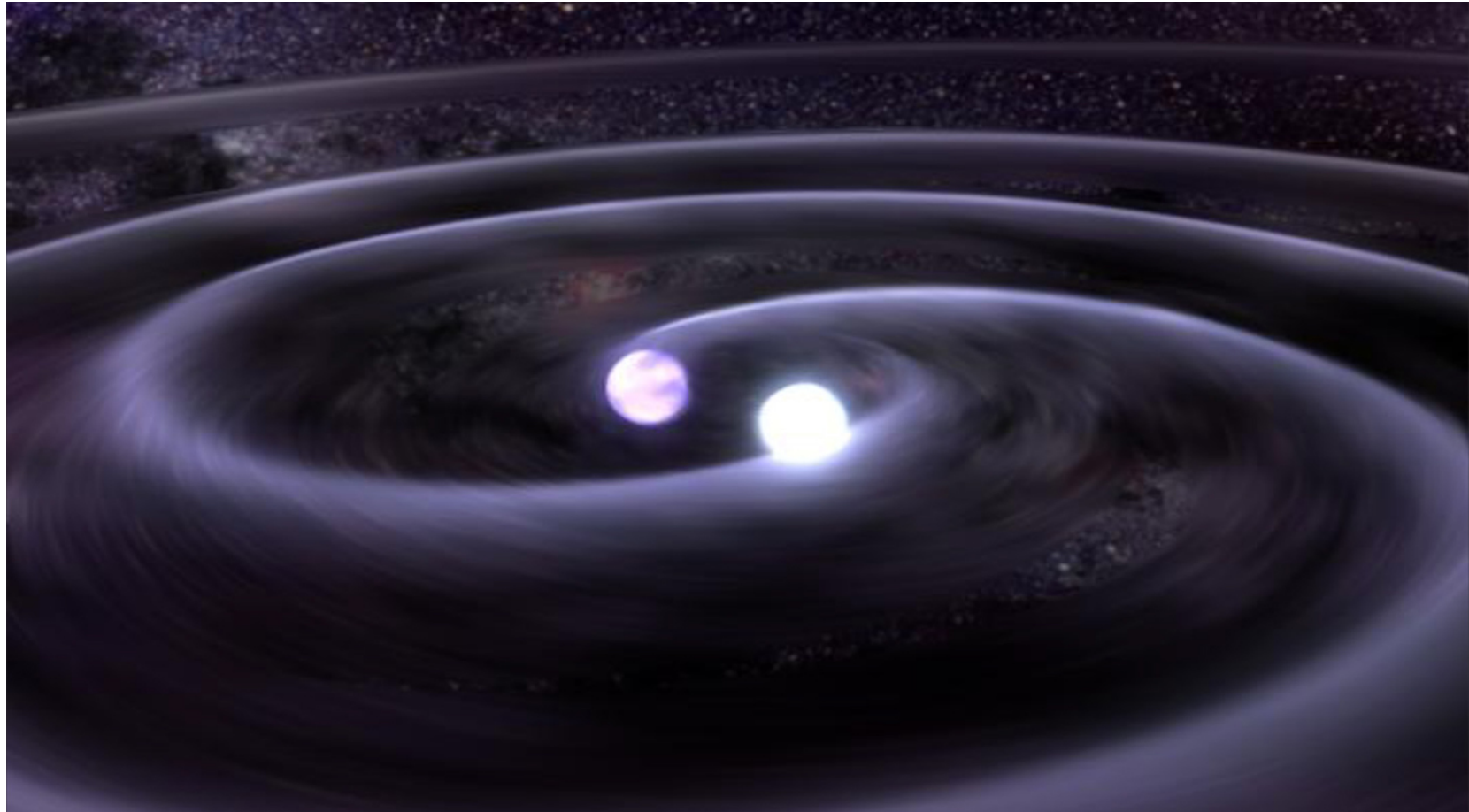
Cloud computing will virtually replace traditional data centers within three years

Cloud data center traffic will represent 95 percent of total data center traffic by 2021, says Cisco.



Gravity

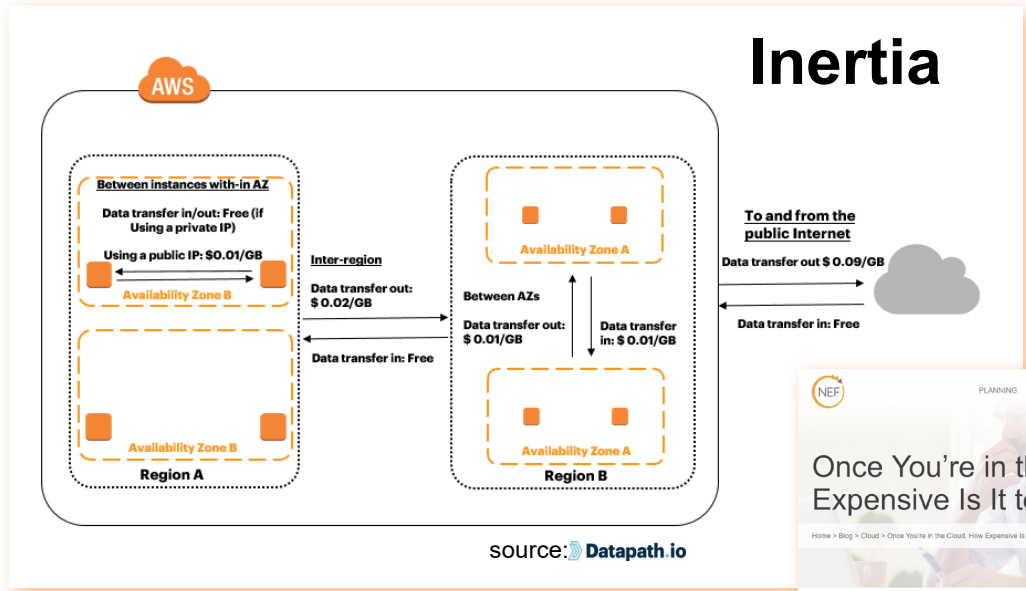
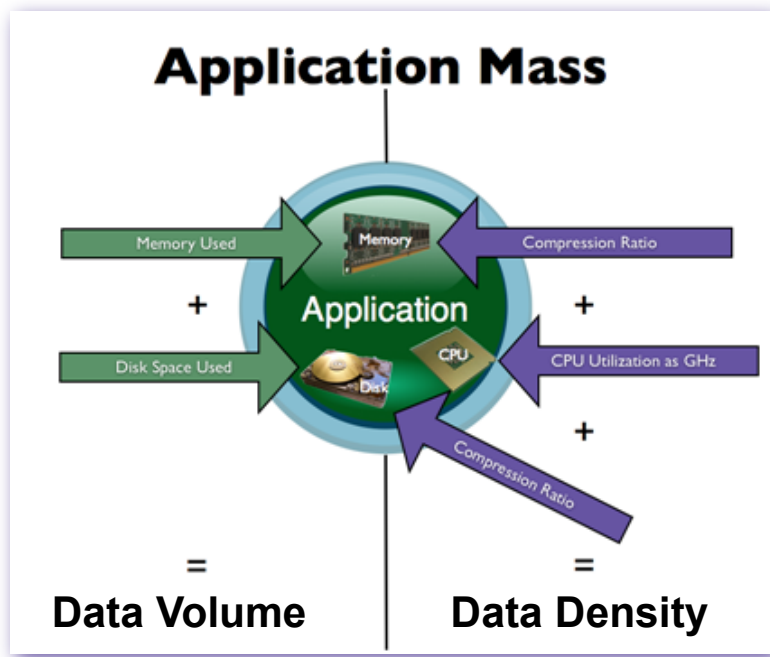
Data Has Mass,
Gravity, and Inertia



Mass, Gravity & Inertia

Data Gravity

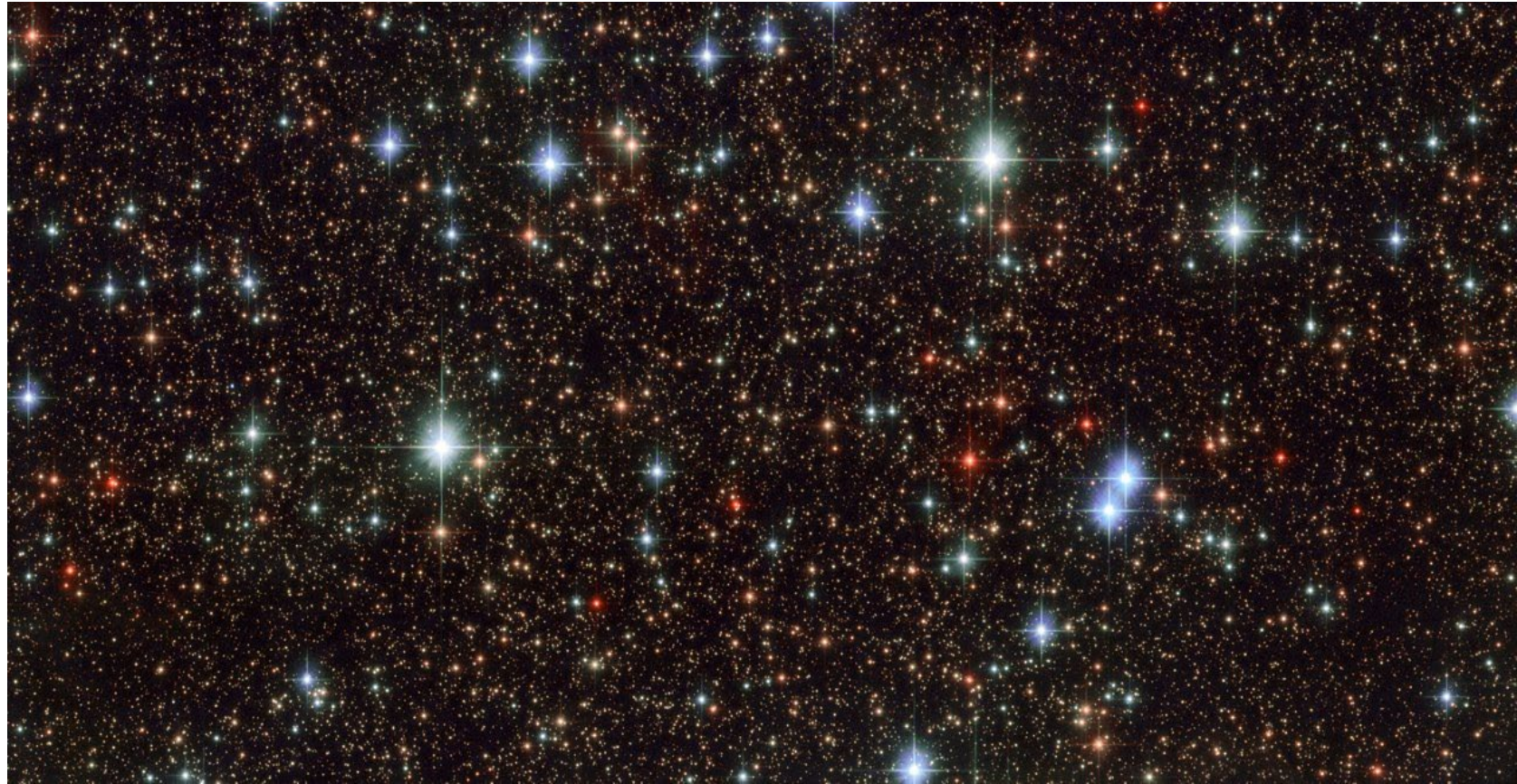
$$\frac{\left(\text{Data Mass} \times \text{Application Mass} \right) \times \text{Number of Requests per second}}{\left(\text{Latency in seconds} + \left(\frac{\text{Average Request Size in MBs}}{\text{Bandwidth in MBs per second}} \right) \right)^2}$$



Once You're in the Cloud, How Expensive Is It to Get Out?
 Home > Blog > Cloud > Once You're in the Cloud, How Expensive Is It to Get Out?
 One of the cloud's most oft-cited appeals is cost savings. Many enterprises are able to cut down their IT budget and gain flexibility by moving infrastructure, services and application development to the cloud. But there may come a time when things change. An enterprise could decide to change their IT infrastructure model or a cloud provider's offerings may no longer align with a client's needs. What's more, a cloud vendor's pricing or SLA may become an issue. In the event an enterprise wants to migrate away from its cloud platform, that client might find it much more costly to do so than originally thought.

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 Breaking Down Egress Charges

Order out of Chaos

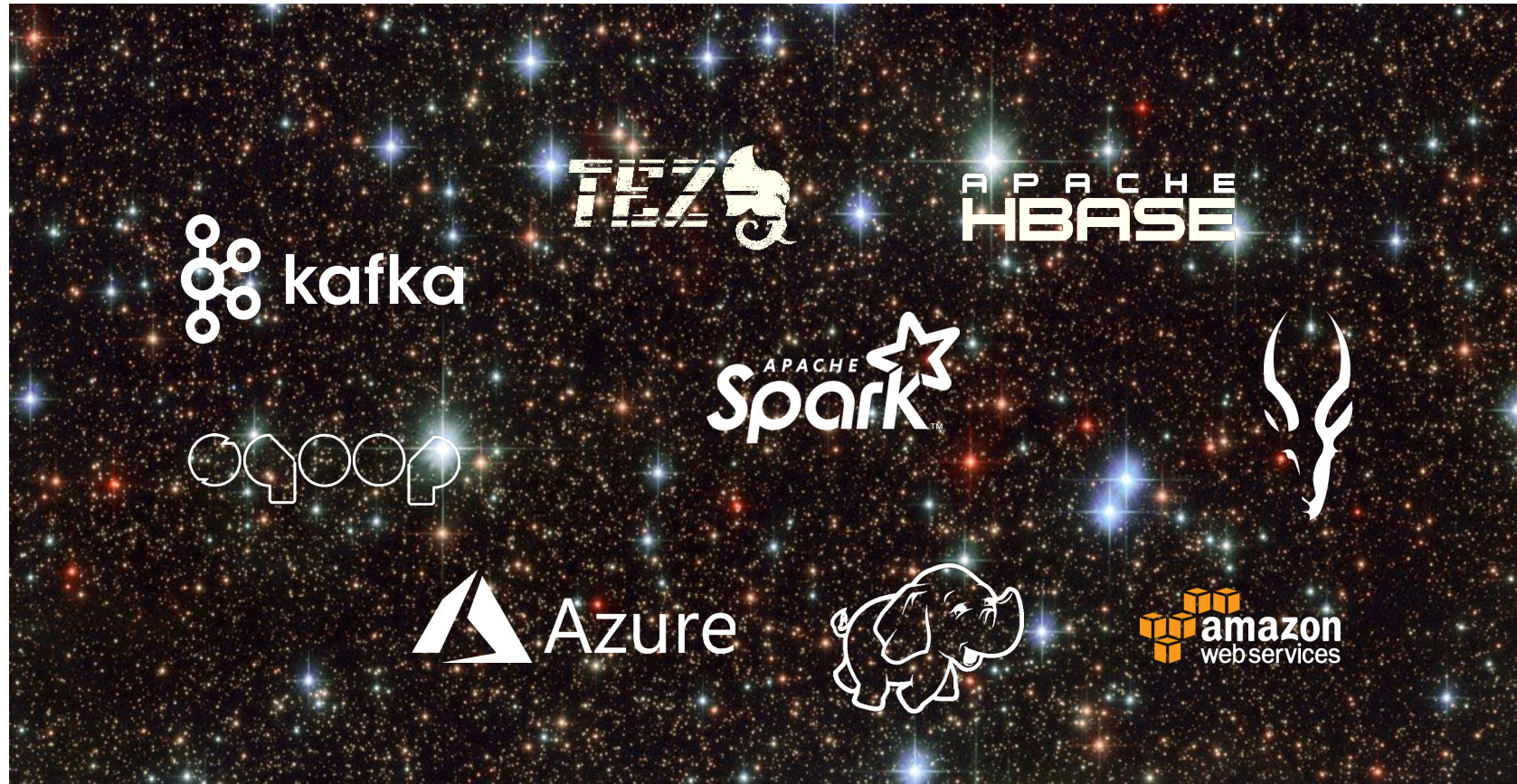


Order out of Chaos



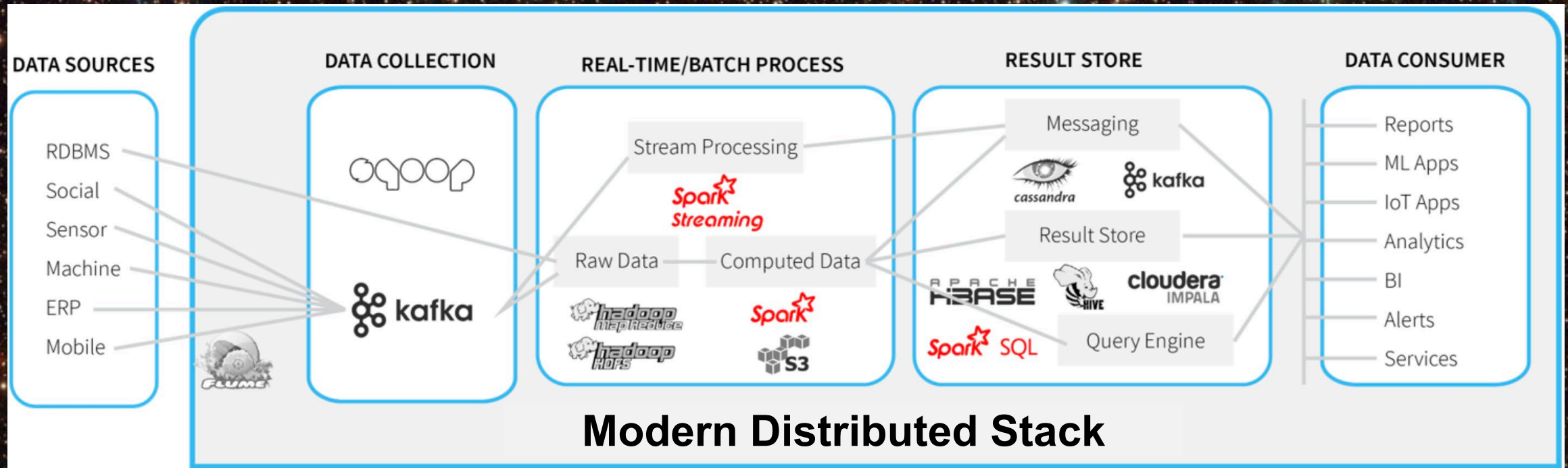
First level of abstraction: constellations

Order out of Chaos

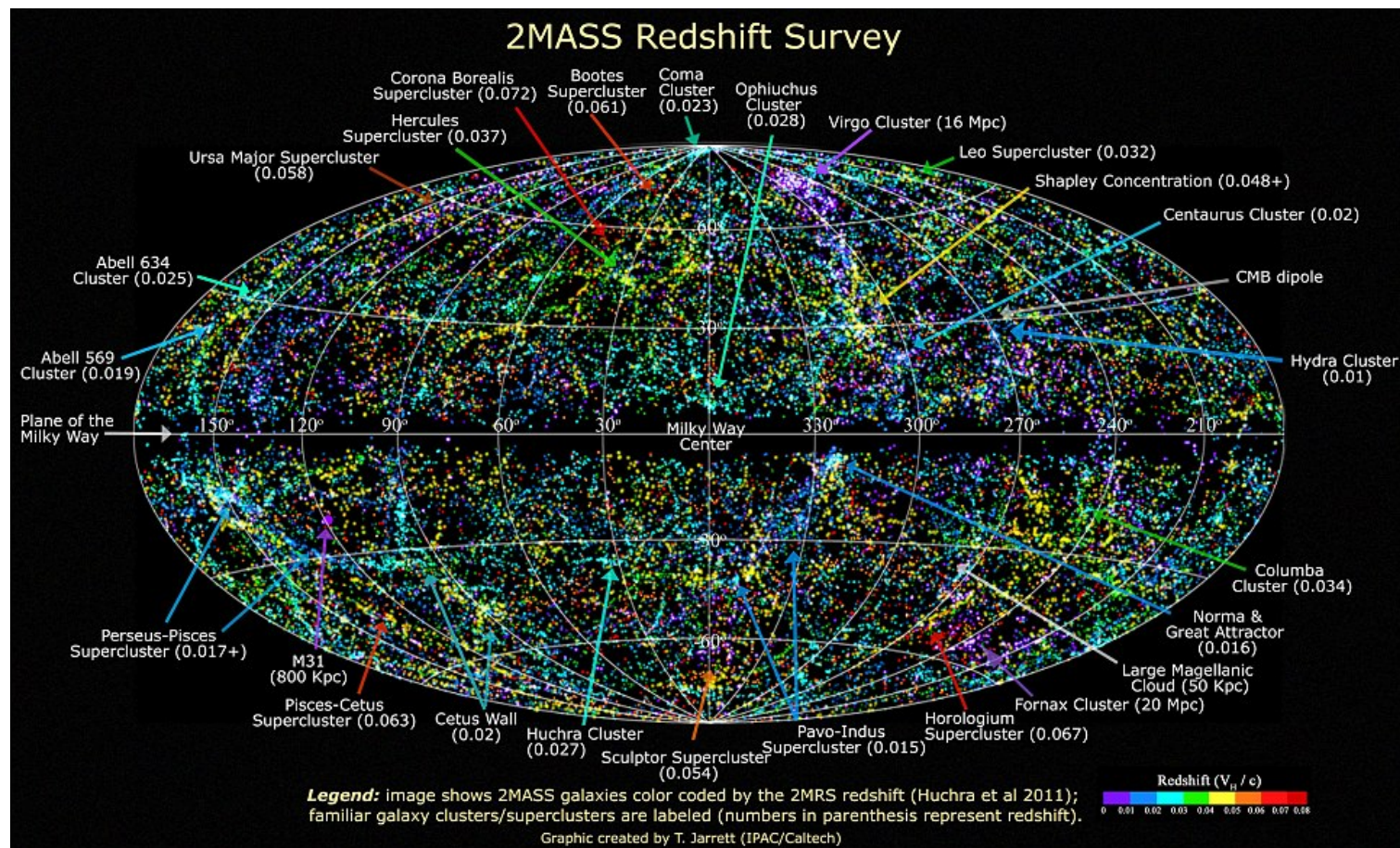


The Big Data Universe

Modern data applications are being built on a collection of distributed systems



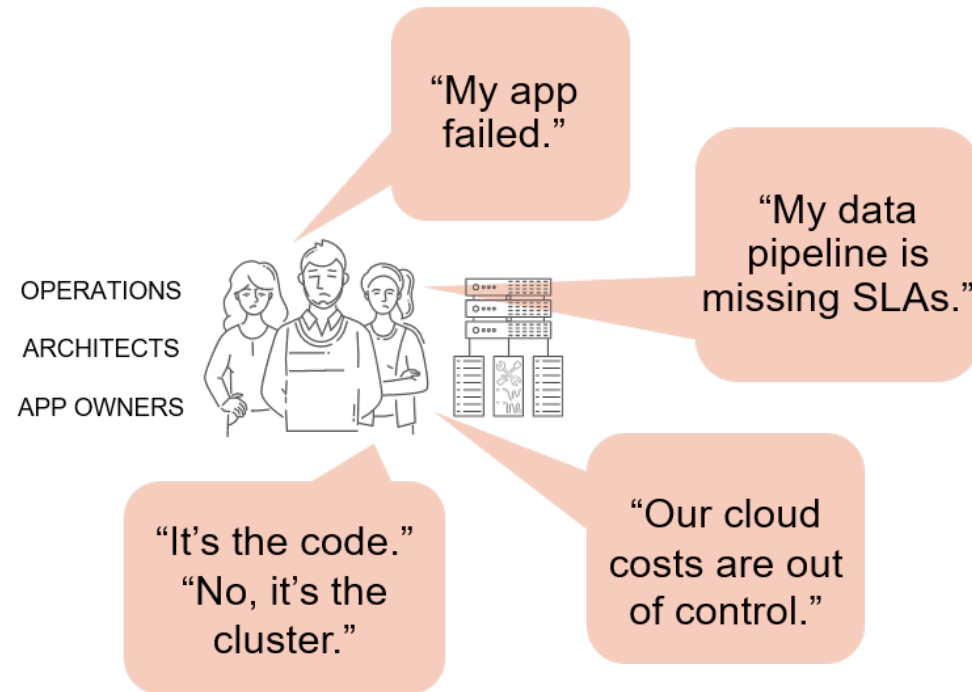
Order out of Chaos



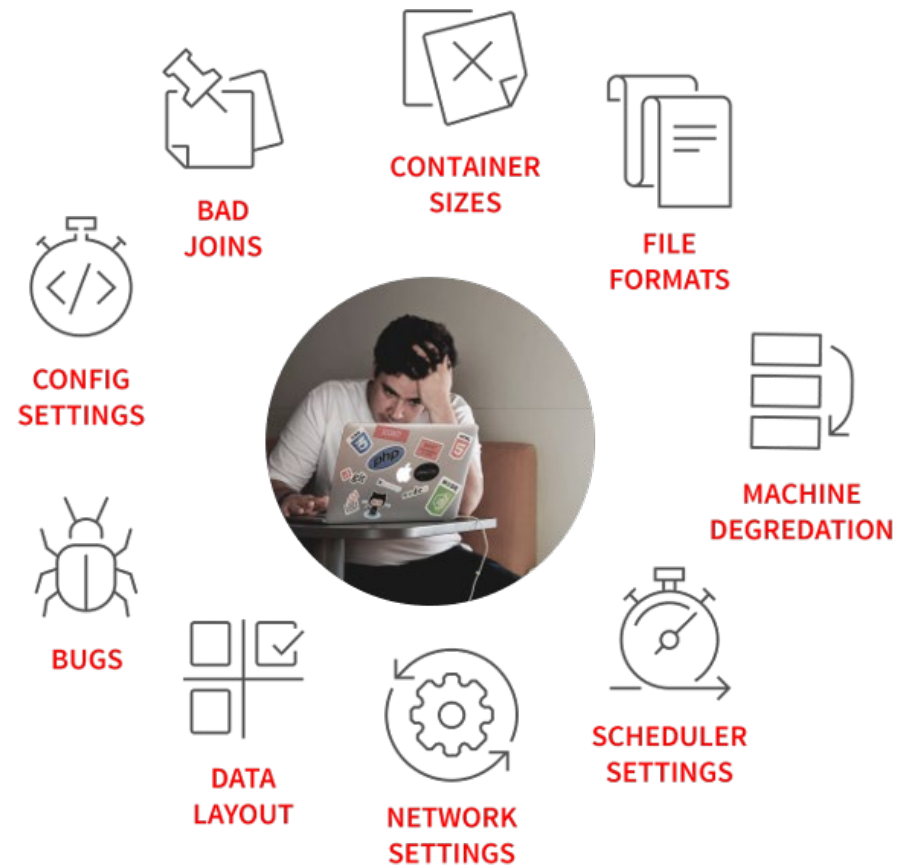
The Universe Needs a Data Model

Managing distributed apps and infrastructure is hard and expensive

Hard to identify root cause

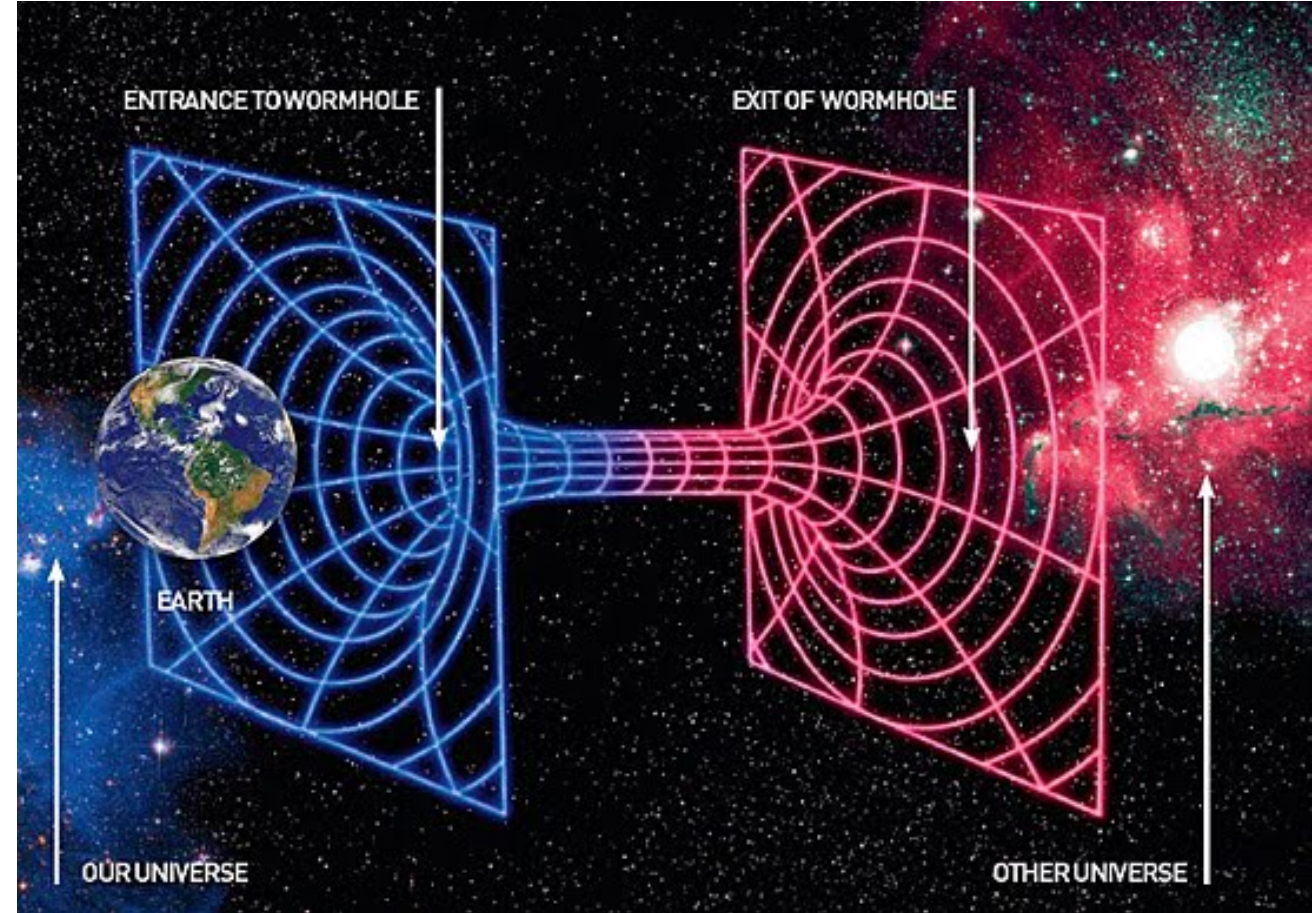


Many Contributing Factors



Hyper-Speed

Exceeding the
Speed of Light

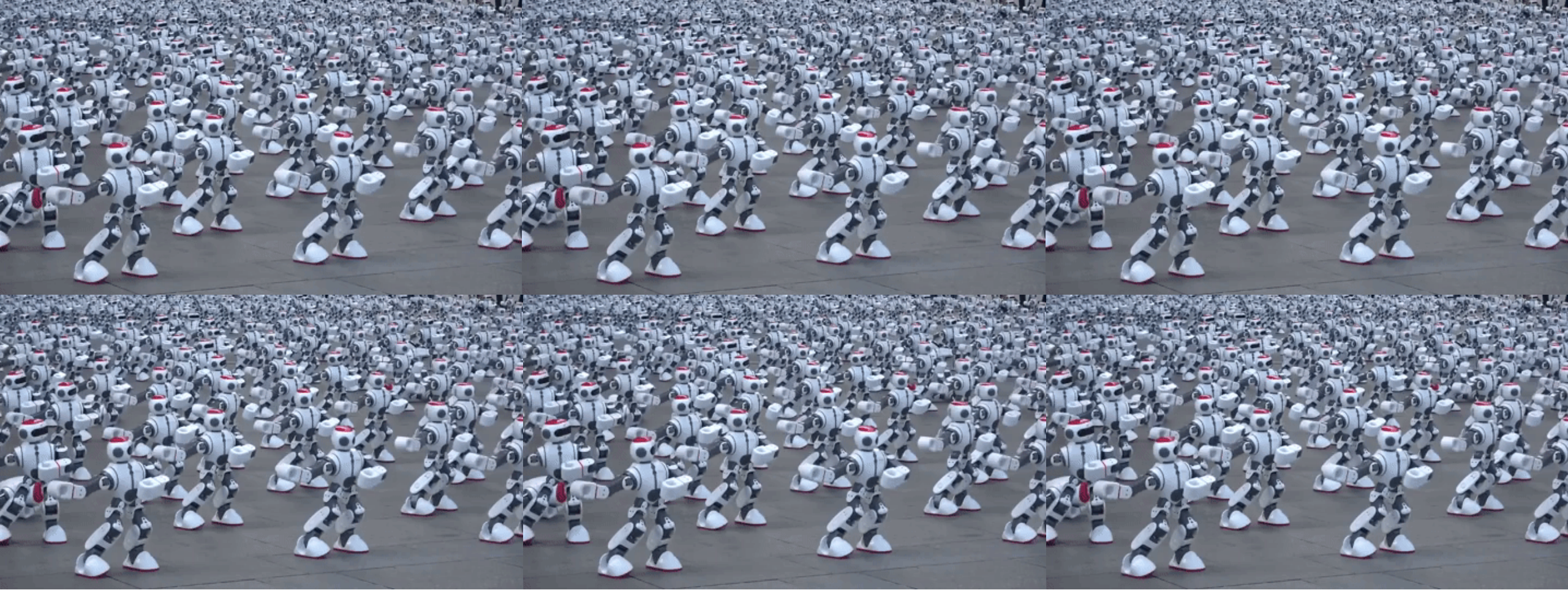


Hyper-Speed, Hyper-Scale

Distributed
Computing
Clusters



Cloud Vendors Offer a High Degree of Automation



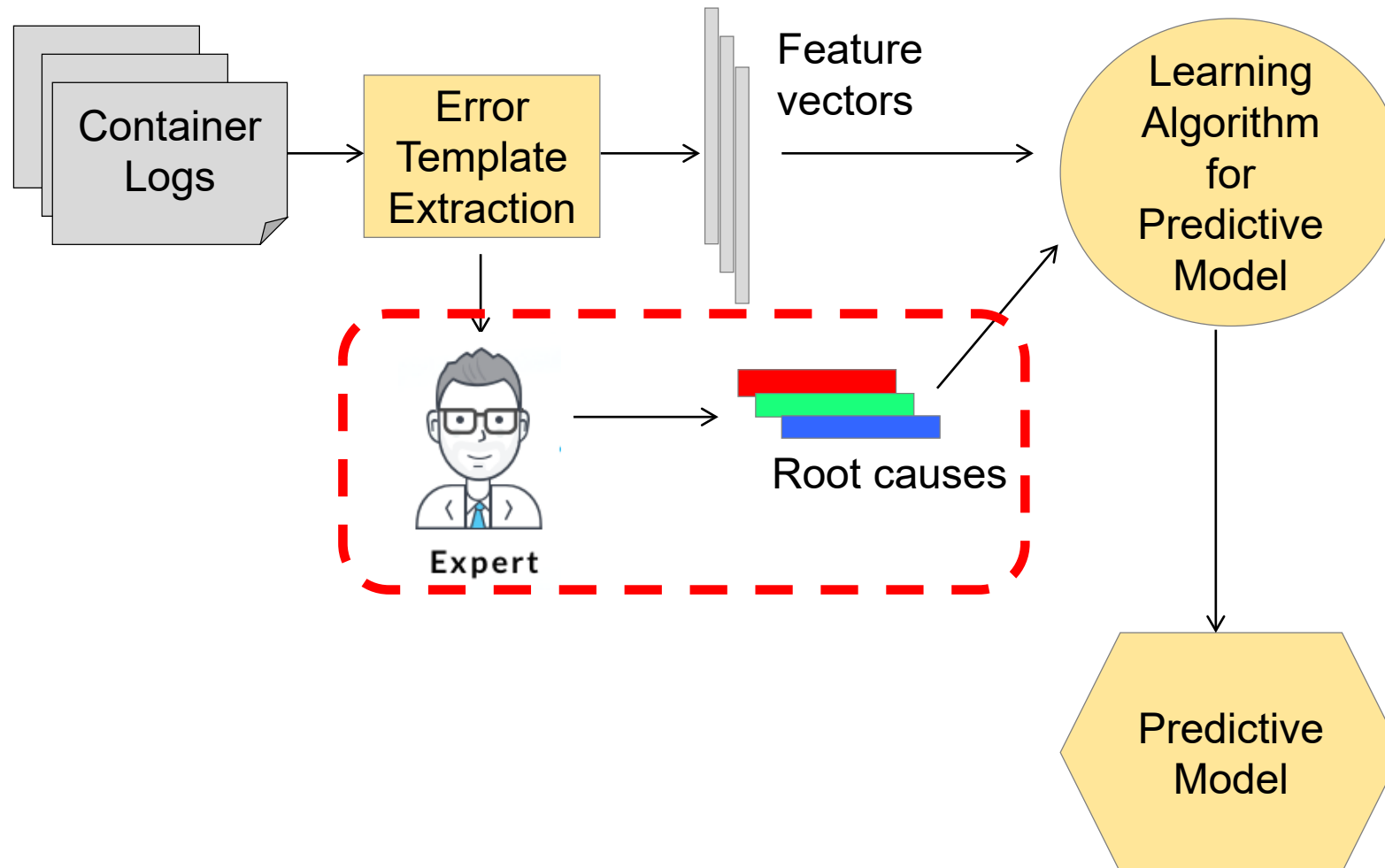
But that is not enough...

AI-powered automation is needed in key areas

- Application auto-tuning
- Root-causing failures of distributed applications
- SLA management for streaming data pipelines
- Holistic cluster optimization



Example: Automated Root Cause Analysis of Failures



About Unravel

EXPERIENCED TEAM

cloudera

Duke
UNIVERSITY

HORTONWORKS

APPDYNAMICS

STRONG MARKET VALIDATION

50M

Applications Analyzed

Deutsche Bank

KAISER
PERMANENTE

WELLS
FARGO

Morgan Stanley

TELUS

vodafone

CVS

neustar

15,000+

Nodes Supported

Microsoft

Humana

Adobe

TIER-1 INVESTORS

Microsoft Ventures

M
Menlo

GGVCAPITAL

DataElite

Our Solution



Performance
Management for
Modern Data Apps



Unified and
Full Stack



Resource and Cost
Optimization



AI-Powered



Cloud Migration
and Operations



Automated Tuning
and remediation

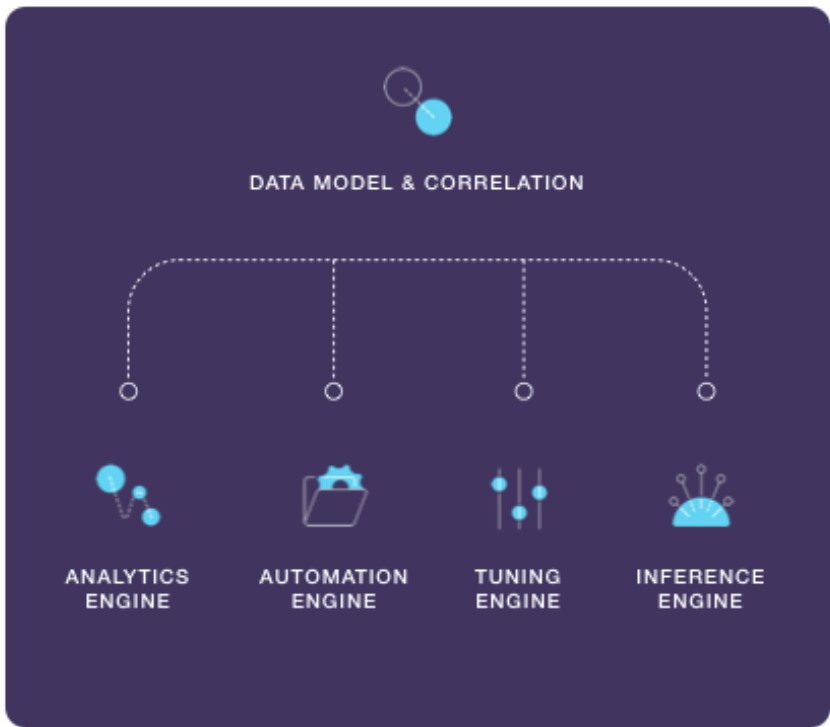
ARCHITECTURE



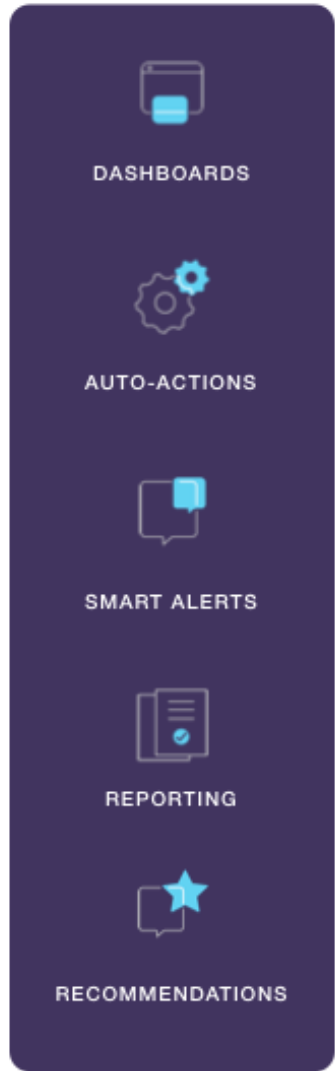
01
uncover



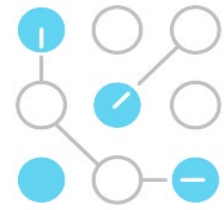
02
understand



03
unravel



Problems we solve



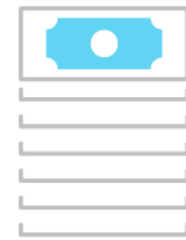
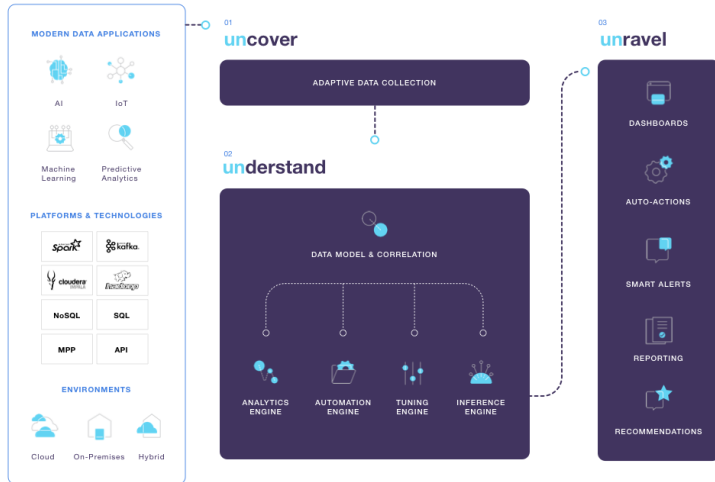
**APM
for Big Data**



**AI for
DataOps**



**Cloud
Migration**



**Resource and
Cost Optimization**



**Troubleshooting and
Root Cause Analysis**

Unravel Applies AI/ML at various levels

Application Management

Automated Tuning

Auto Tune Application

Session Info

SESSION NAME Allowed characters: A-Z, a-z, 0-9, space

APPLICATION TYPE

TUNING GOAL

APP IDS

+ Add another App ID

Tuning Recommendation

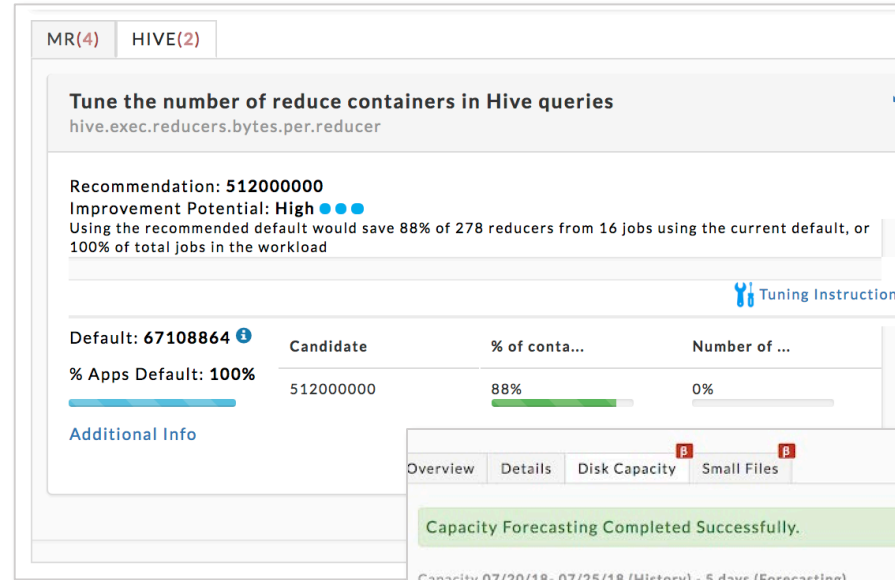
Parameter	Current Value	Recommended Value
mapreduce.input.fileinputformat.split.minsize	0	1048576
spark.executor.memory	8589934592	4595953964
spark.executor.instances	2	17
spark.default.parallelism	0	4006

KEYWORD	MESSAGE
internal.ThreadLocalRandom:	Failed to generate a seed from SecureRandom within 3 seconds. Not enough entropy?
util.JsonImpl:	Unable to perform clean shut down. Some messages might have been lost.

Error Views & Analysis

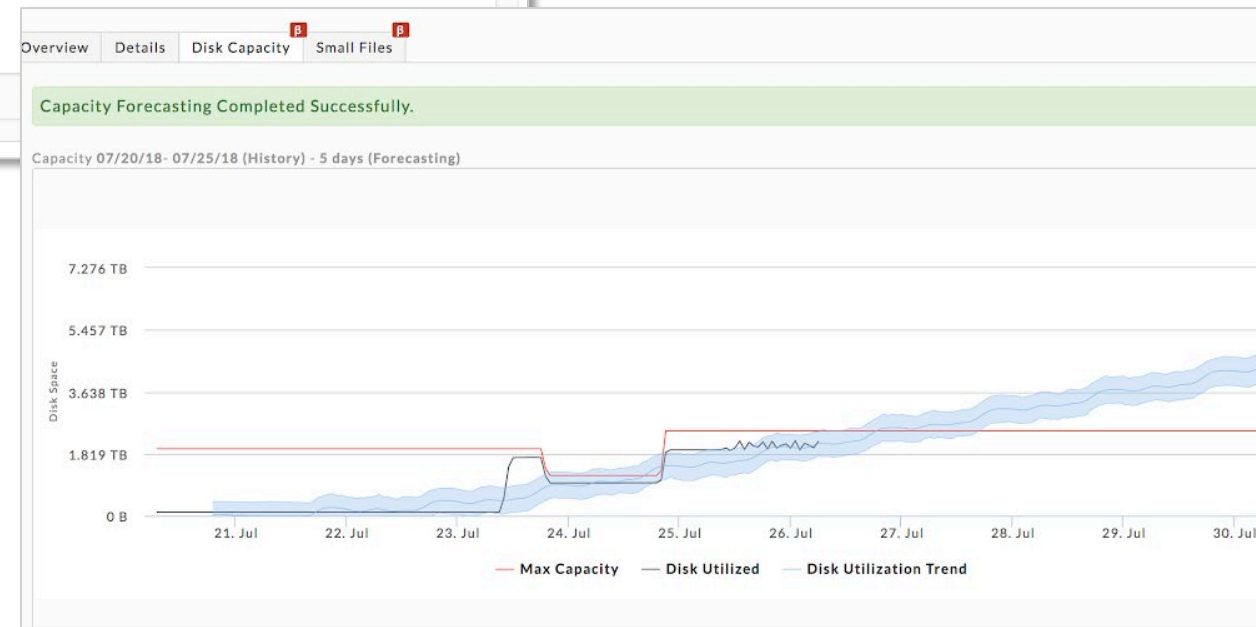
Unravel Applies AI/ML at various levels

Operations
Management



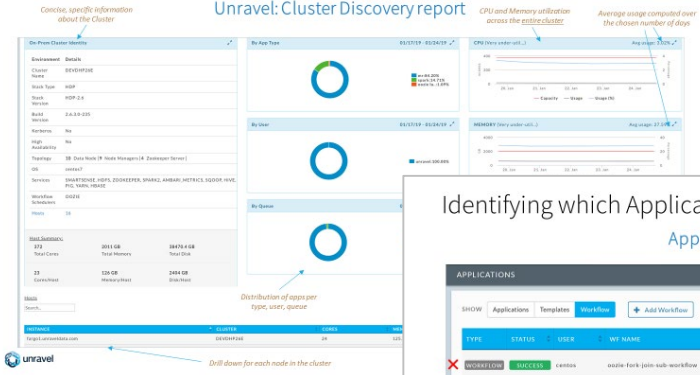
Cluster
Optimization

Capacity Planning &
Forecasting



Understand your Cluster and Application Workloads

Unravel: Cluster Discovery report



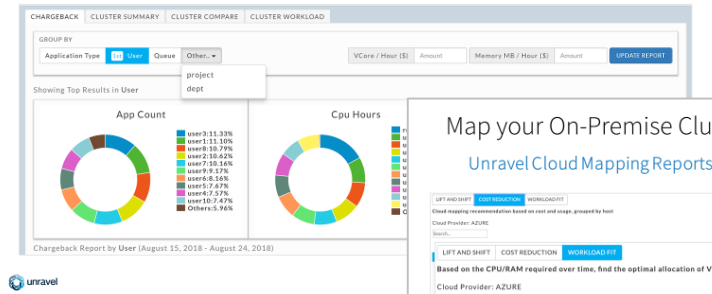
Identifying which Applications to move to the cloud

Apps that are bursty in nature

TYPE	STATUS	USER	WF NAME	START TIME	DURATION	READ	WRITE	WORKFLOW TURNS	CLUSTER ID
WORKFLOW	SUCCESS	jenkins	jenkins-fork-jobs-workflow	09/14/17 12:42:54	2m	2MB	81.6MB	1 run	default
WORKFLOW	SUCCESS	jenkins	jenkins-fork-jobs	09/14/17 12:39:38	5m 39s	3MB	81.5MB	12 runs	default
WORKFLOW	FAILURE	jenkins	jenkins-ev	09/14/17 12:29:17	3s				
WORKFLOW		user1	prod-ml-model	08/24/17 21:58:27	4s				
WORKFLOW		user1	uf-ml-ml-spark	08/24/17 15:43:09	4s				
WORKFLOW		user1	uf-ml-ml-spark	08/24/17 11:54:32	6s				

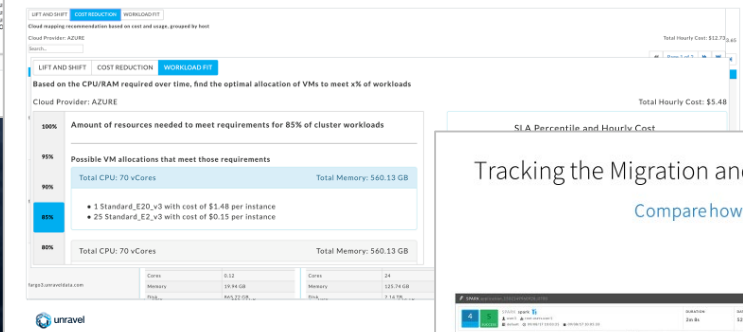
Identifying which Applications to move to the cloud

Apps belonging to specific tenants



Map your On-Premise Cluster to a Deployment in Cloud

Unravel Cloud Mapping Reports: Multiple strategies - Lift & Shift, Cost Reduction, Workload Fit



Tracking the Migration and its success

Compare how app is doing in new environment



This app is 8 times slower on cloud. Unravel provides automatic fixes to get app back to meeting SLA

Unravel makes data work

Unravel removes the blind spots in your data ecosystem, providing AI-powered recommendations to drive more reliable performance in your modern data applications.



Greater
Productivity

98% reduction in
troubleshooting time



Guaranteed
Reliability

100% of apps
delivered on time



Lower
Costs

60% reduction
in cost

Planets Align

The Irresistible
Forces Pulling
Big Data to the
Cloud



unravel

Thank You