

Big Data and AI on AWS

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Figure 1. Magic Quadrant for Cloud Infrastructure as a Service, Worldwide



AWS Recognized as a Cloud Leader for the 9th Consecutive Year

Gartner, Magic Quadrant for Cloud Infrastructure as a Service, Worldwide, Raj Bala, Bob Gill, Dennis Smith, David Wright, July 2019. ID G00365830. Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose. The Gartner logo is a trademark and service mark of Gartner, Inc., and/or its affiliates, and is used herein with permission. All rights reserved.

AWS Global Infrastructure

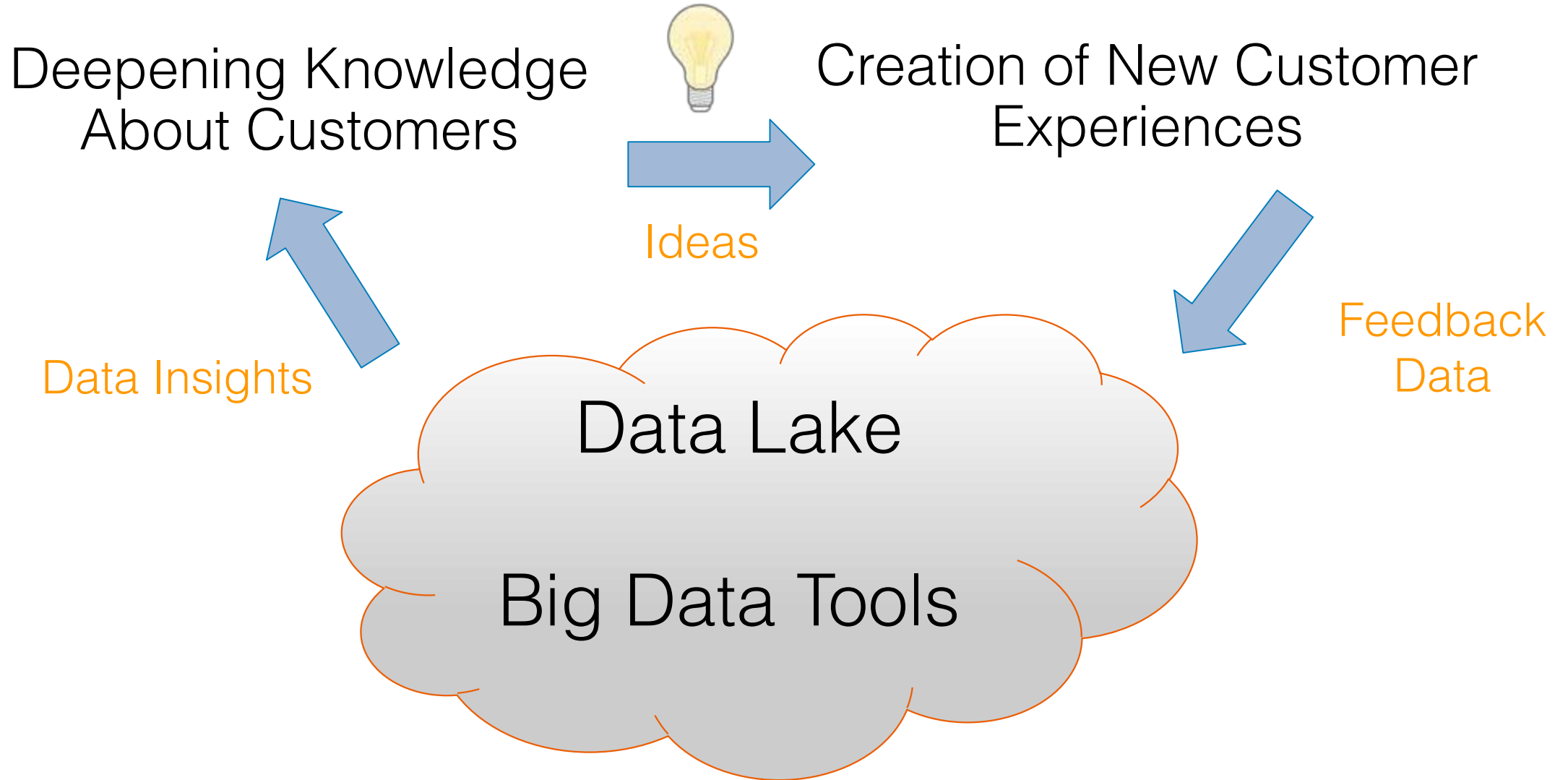


What does
“Digital”
really mean?

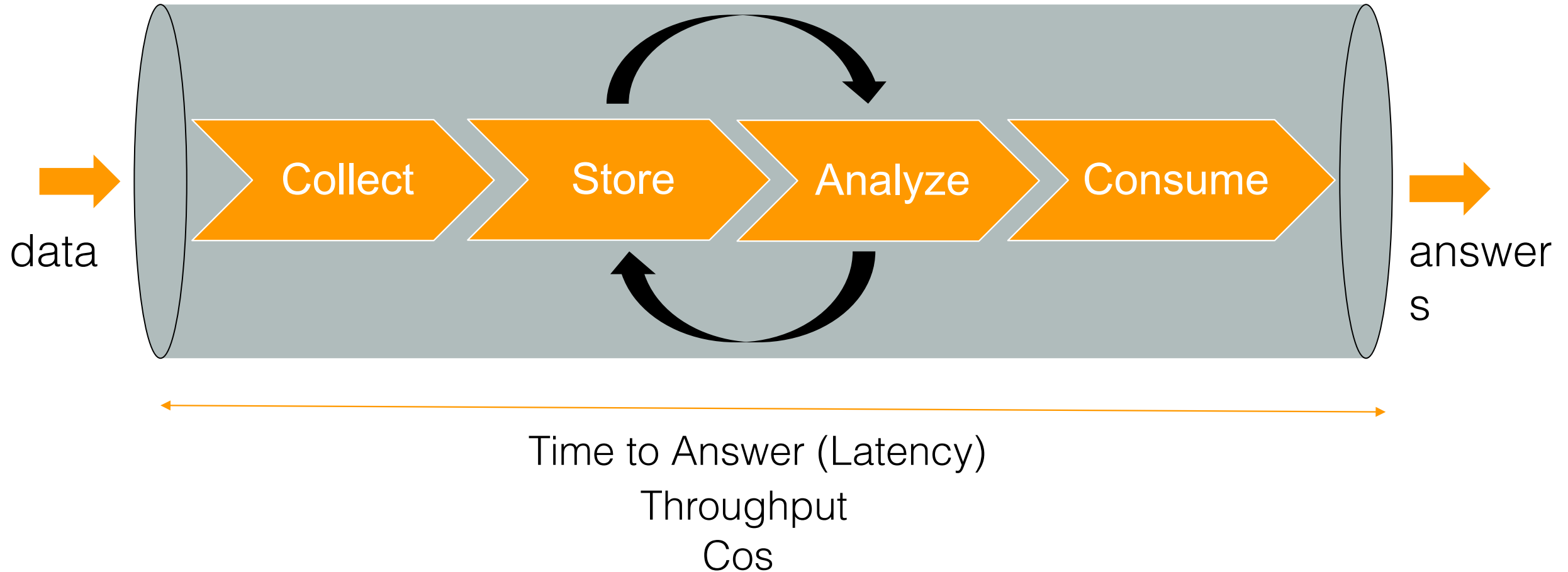
Turning
Data
into
Business Value

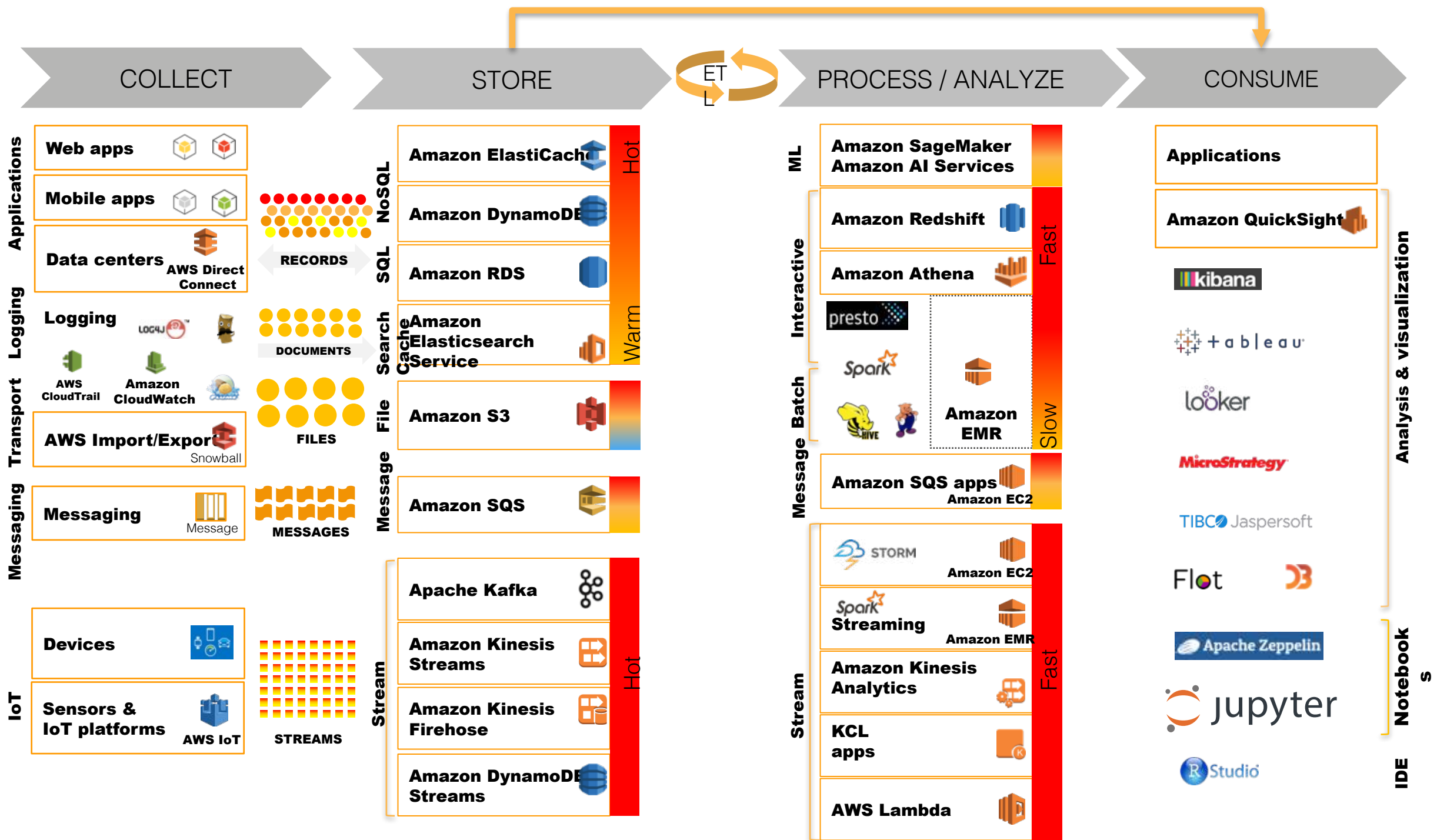
...through
Software

Innovation Cycle Based On Big Data



Big Data Pipeline







71

million orders
in 100+ countries
every day

6,000

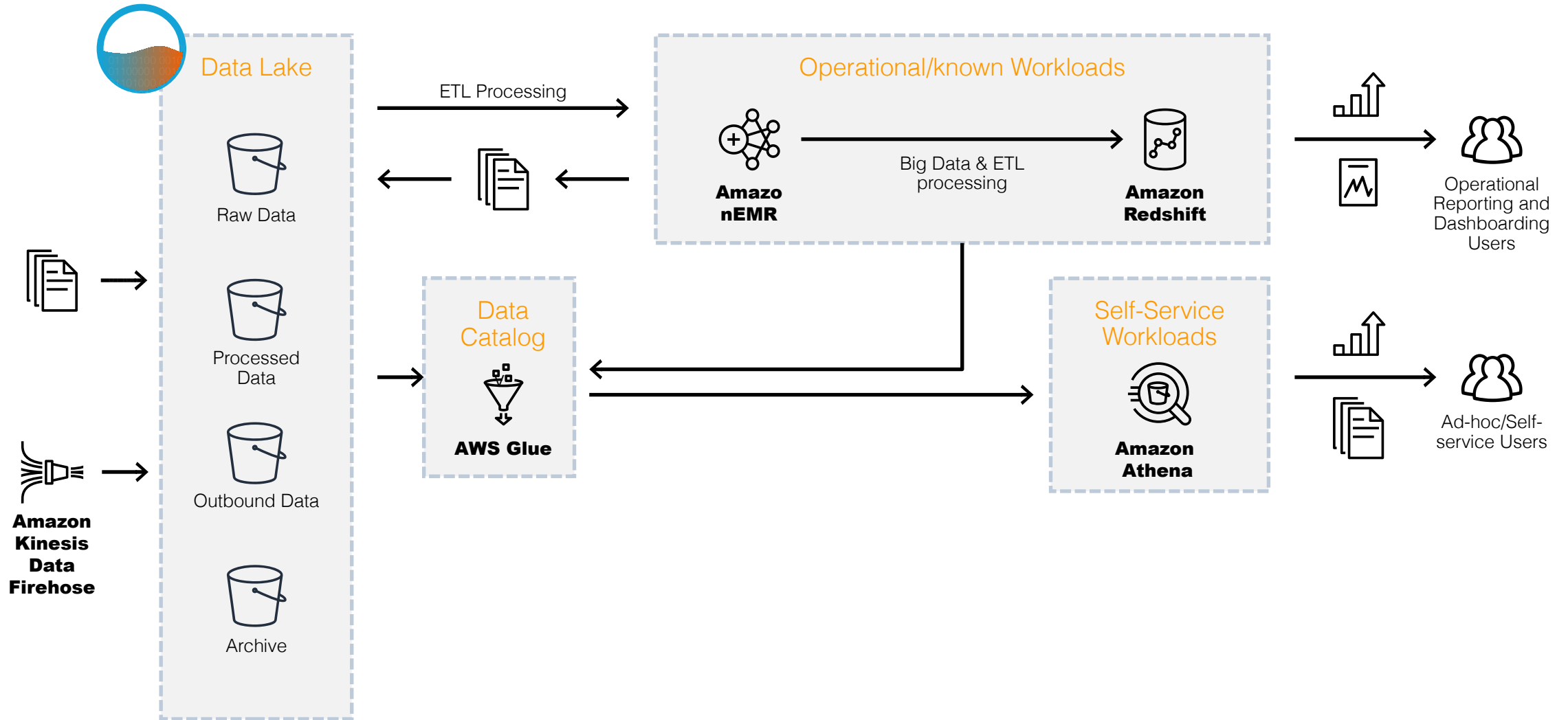
different menu items
and infinite variations

We feed

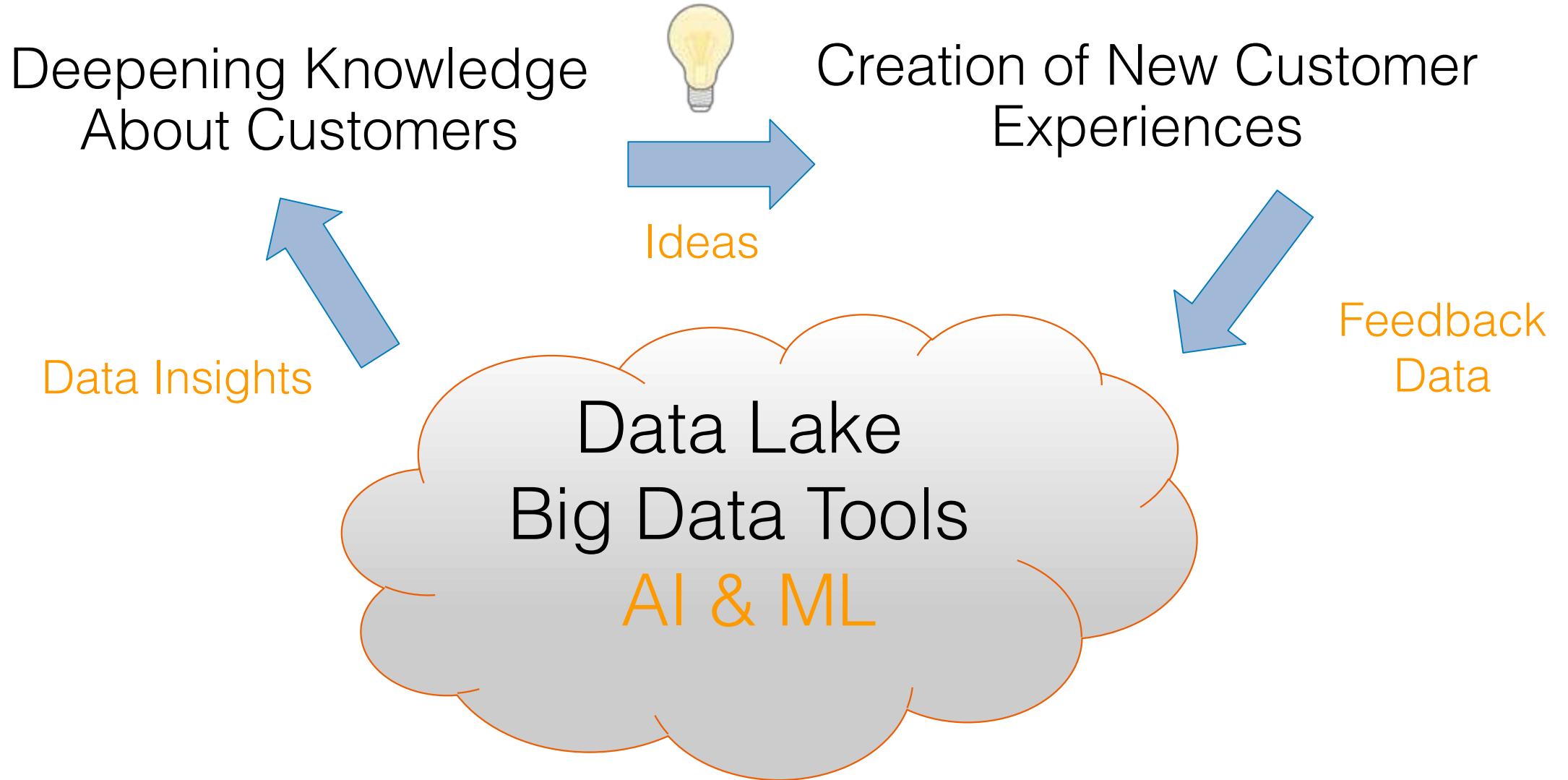
1%

of the total
global population
every day

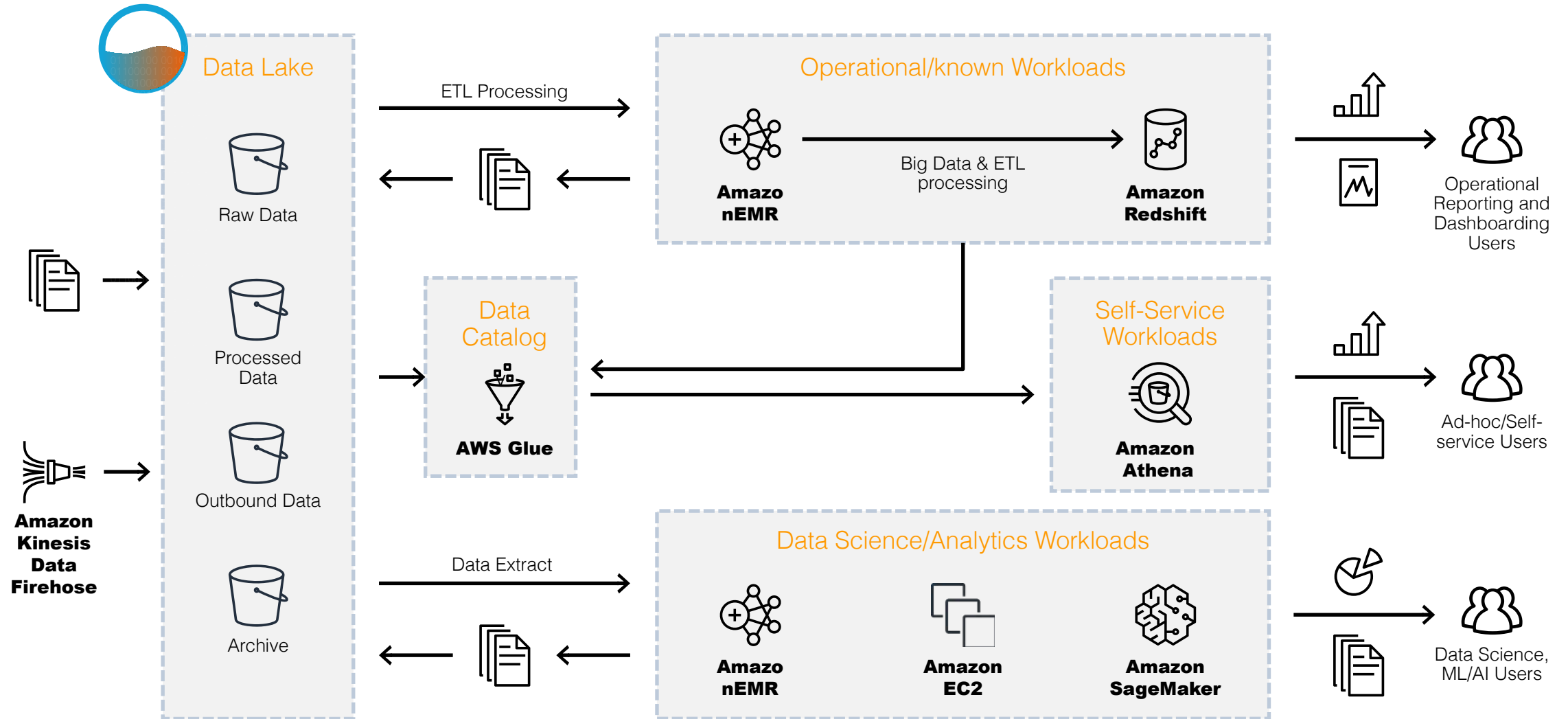
McDonald's Global Data & Analytics Platform



Adding AI And Machine Learning



McDonald's Global Data & Analytics Platform



The AWS ML Stack

Broadest and deepest set of capabilities




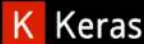









AI Services

VISION			SPEECH		LANGUAGE		CHATBOTS	FORECASTING	RECOMMENDATIONS
									
AMAZON REKOGNITION IMAGE	AMAZON REKOGNITION VIDEO	AMAZON TEXTTRACT	AMAZON POLLY	AMAZON TRANSCRIBE	AMAZON TRANSLATE	AMAZON COMPREHEND & AMAZON COMPREHEND MEDICAL	AMAZON LEX	AMAZON FORECAST	AMAZON PERSONALIZE

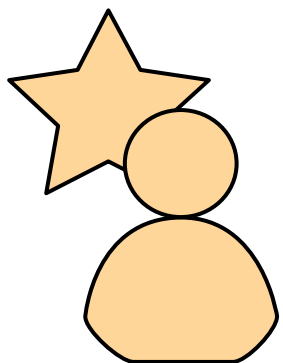
ML Services

 Amazon SageMaker	Ground Truth	Notebooks	Algorithms + Marketplace	Reinforcement Learning	Training	Optimization	Deployment	Hosting
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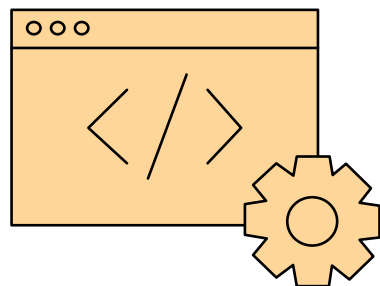
ML Frameworks + Infrastructure

FRAMEWORKS	INTERFACES	INFRASTRUCTURE								
 TensorFlow  PYTORCH	 									
		EC2 P3 & P3DN	EC2 G4 EC2 C5	FPGAs	AWS DL CONTAINERS & AMIs	AMAZON ELASTIC CONTAINER SERVICE	AMAZON ELASTIC KUBERNETES SERVICE	AWS IoT GREENGRASS	AMAZON ELASTIC INFERENCE	AWS INFERENCE

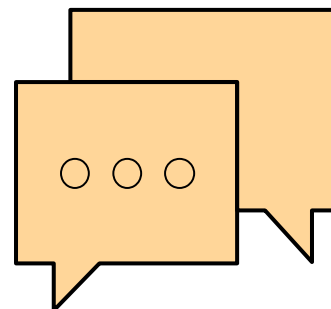
Users expect every
interaction to be
personalized



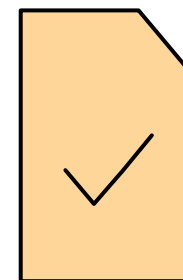
Product
Recommendation



Search
Personalization



Personalized
Notifications

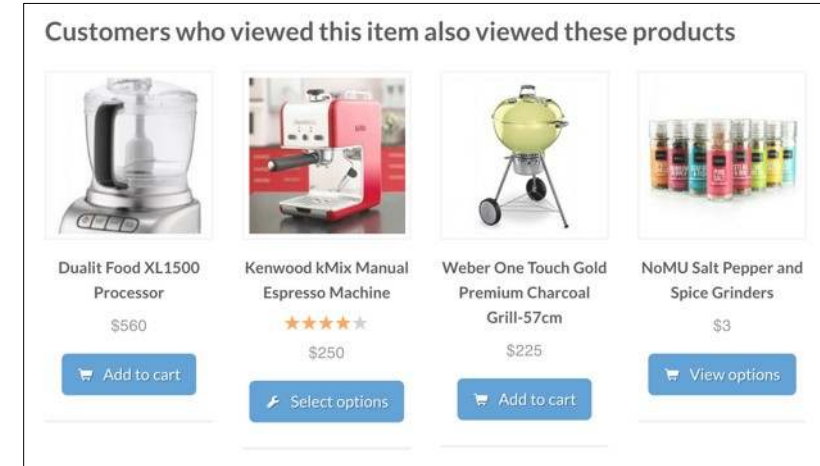


Emails

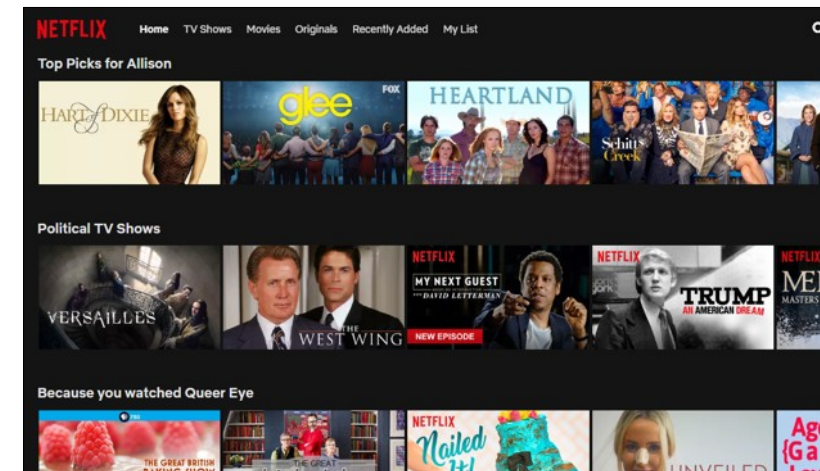
Personalization
offers material
business results

More views

30% of page views on Amazon



80% of views on Netflix



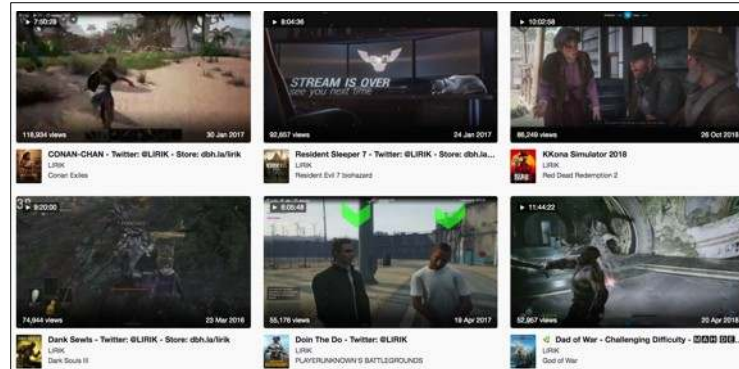
More engagement



Rule-based card ranker

Bayesian network model*

+29%
Click Through



Popularity

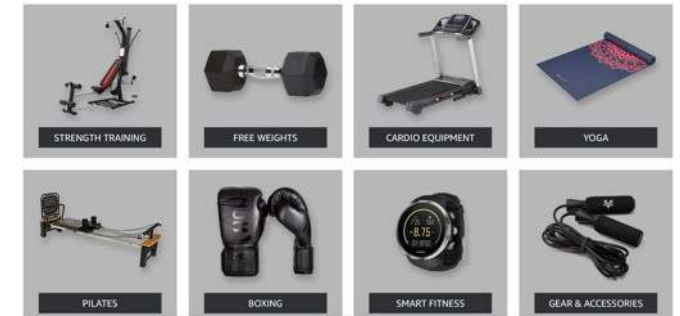
Matrix factorization

+15.4%
Engagement

Neural network*

+7.4%
Engagement

Shop by Category
EXERCISE & FITNESS



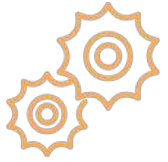
Similarity

Recurrent
neural network
+ Bandit*

+20%
Click Through

* : Deep Learning algorithm

Effective personalization involves hard problems



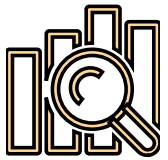
Custom models

Personalization models must accurately reflect business context and user behavior



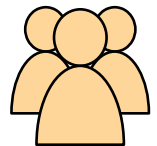
Real-Time

Personalization must be responsive to the changing user intent



Cold Starts

New users should get relevant recommendations, new items should show in recommendations



Popularity Trap

Naïve models give recommendations similar to popular items



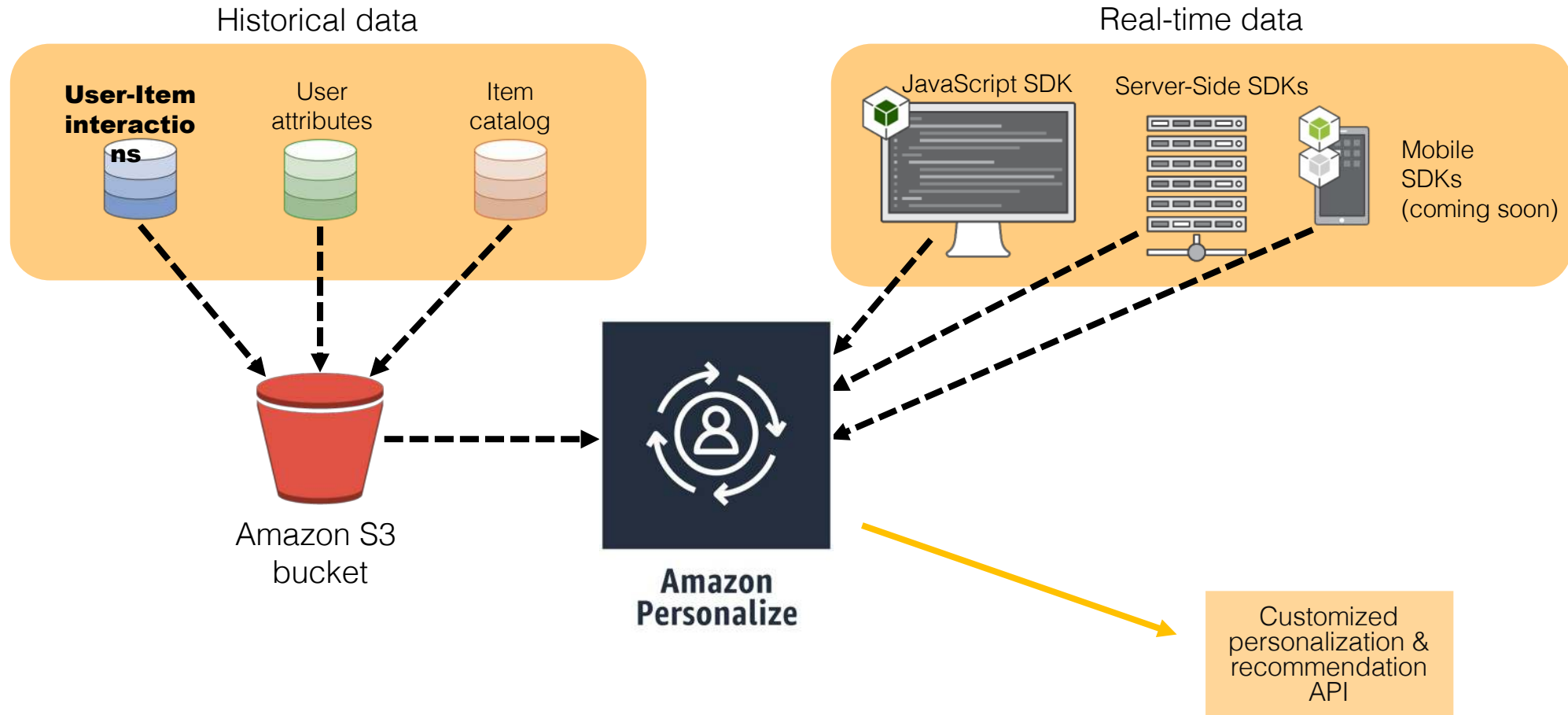
Scale

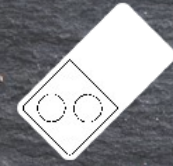
Recommendations should scale across millions of users and items

Data preparation
Algorithm selection
Model tuning
Infrastructure

...

From data set to prediction API





Domino's

Personalizing customer experiences

Domino's uses Amazon Personalize to customize and scale relevant marketing communications to customers based on time, context, and content, thereby improving and enhancing their experience with the Domino's brand.

Getting started



<https://amzn.to/2mp1Lf5>

<https://aws.amazon.com/free>

<https://aws.amazon.com/big-data/datalakes-and-analytics/>

<https://aws.amazon.com/advertising-marketing/>

<https://ml.aws>

Thank you!

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