

# AWS Sketchbook

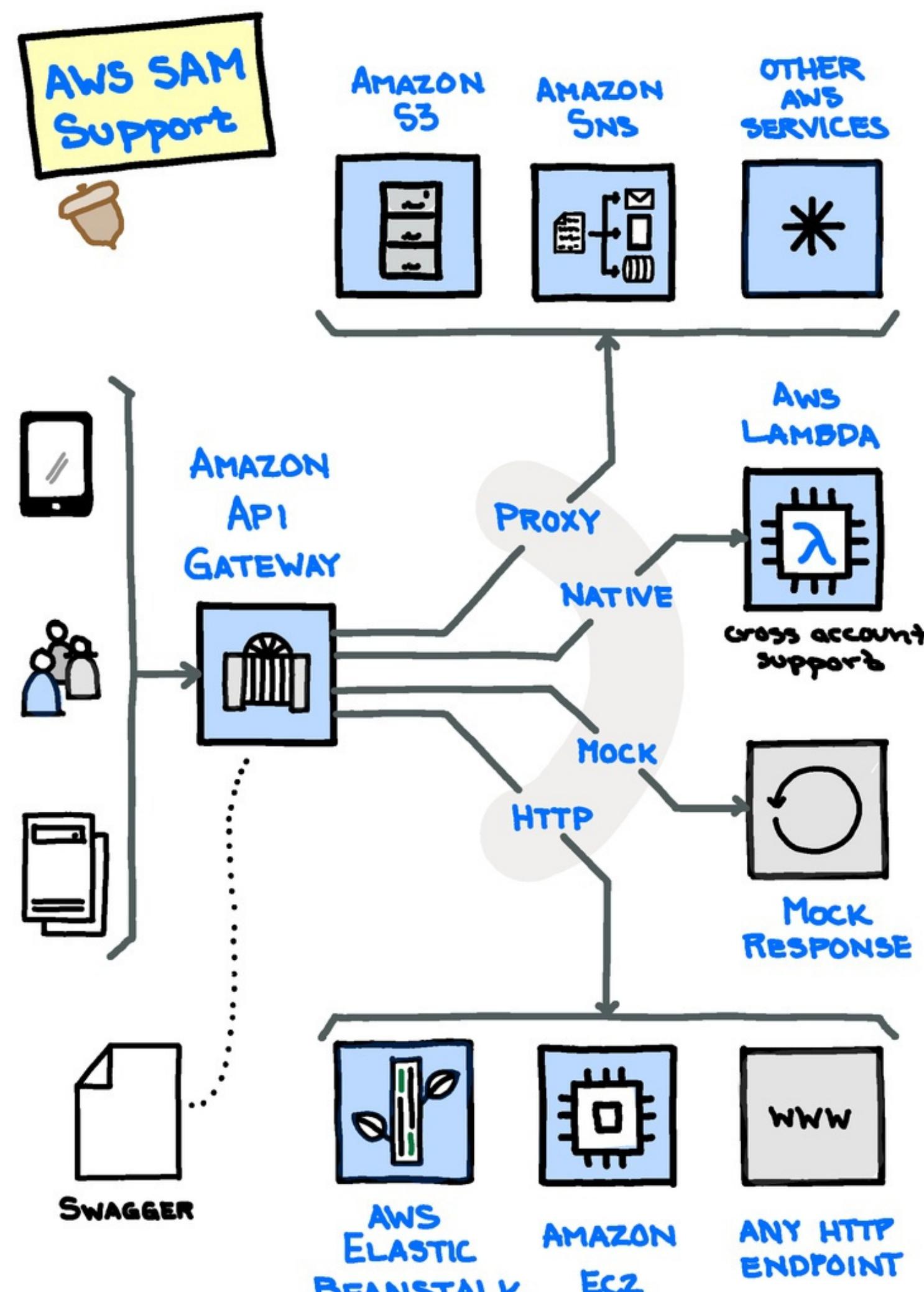


See for more: <https://github.com/cmakkaya>

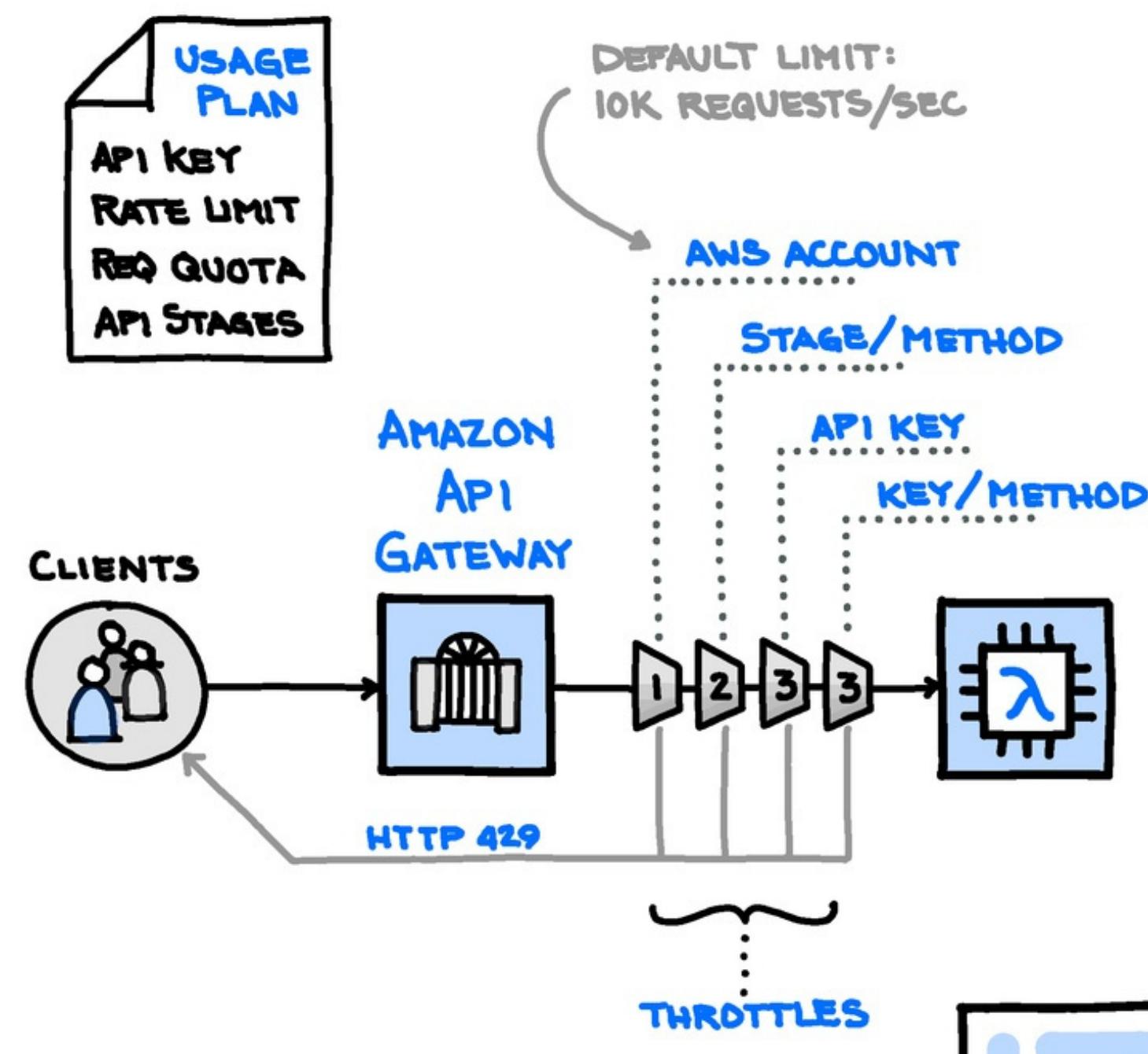
Content: awsgeek.com

Curated By: him431

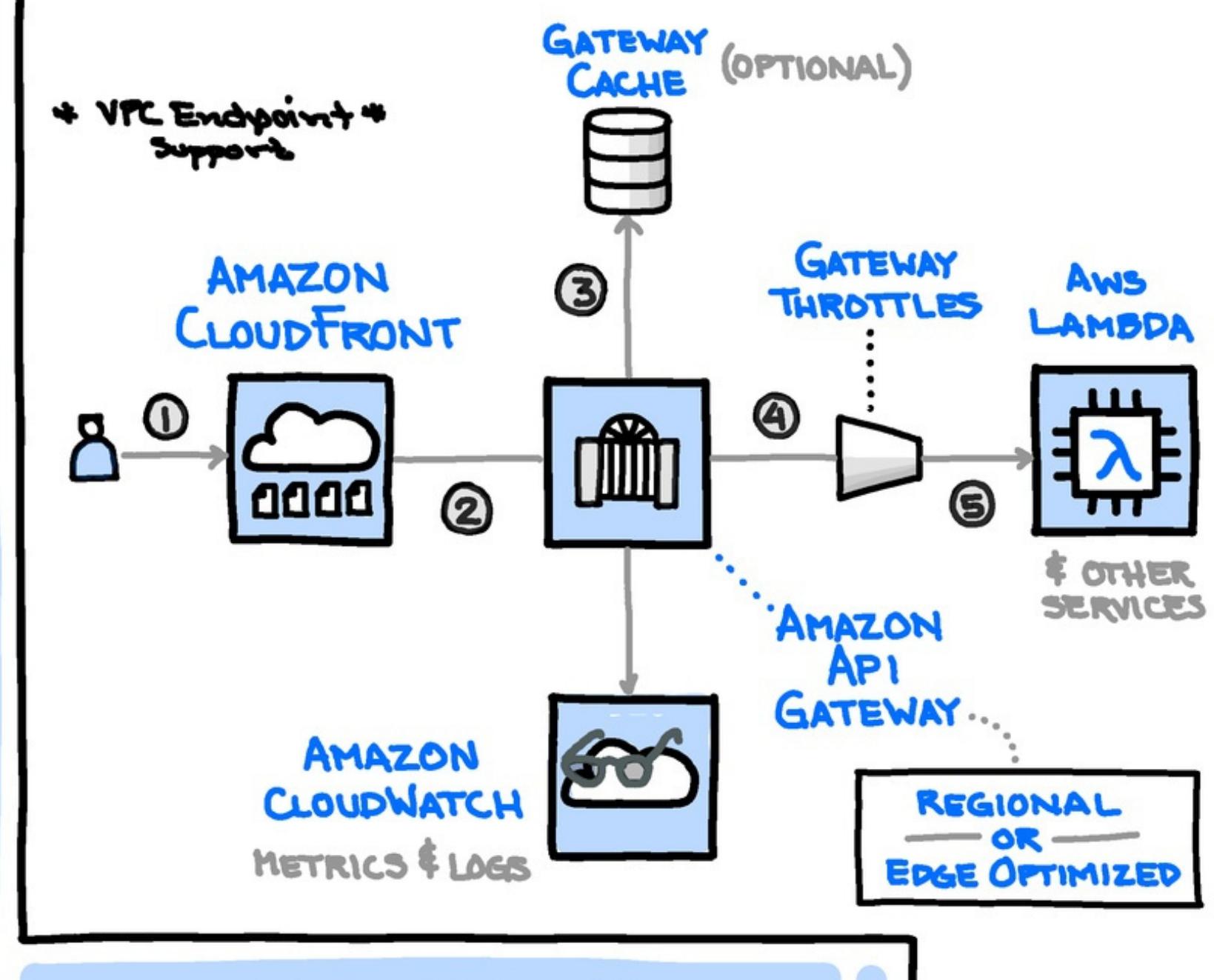
## THE INTEGRATIONS



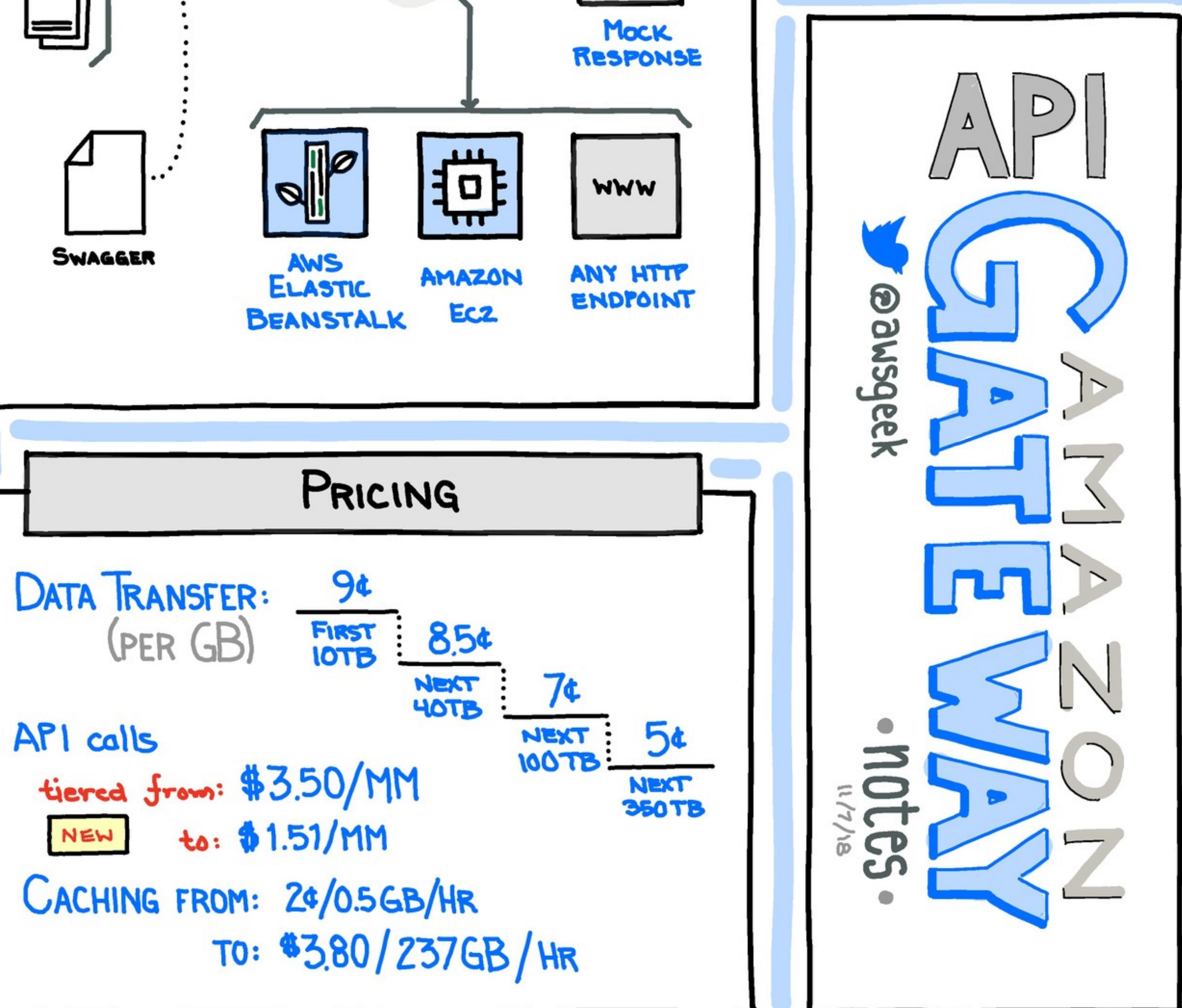
## THROTTLING

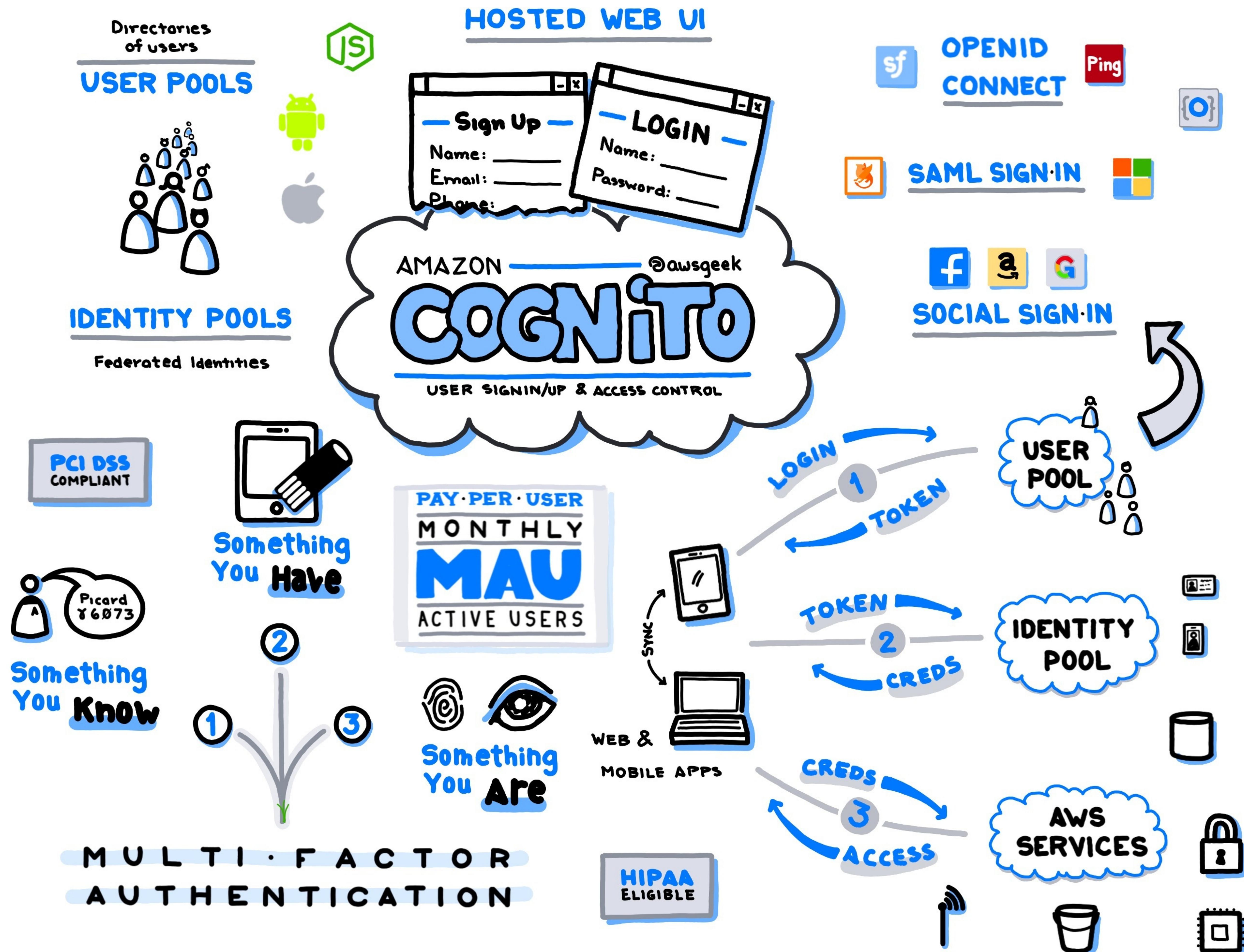


## UNDER THE HOOD



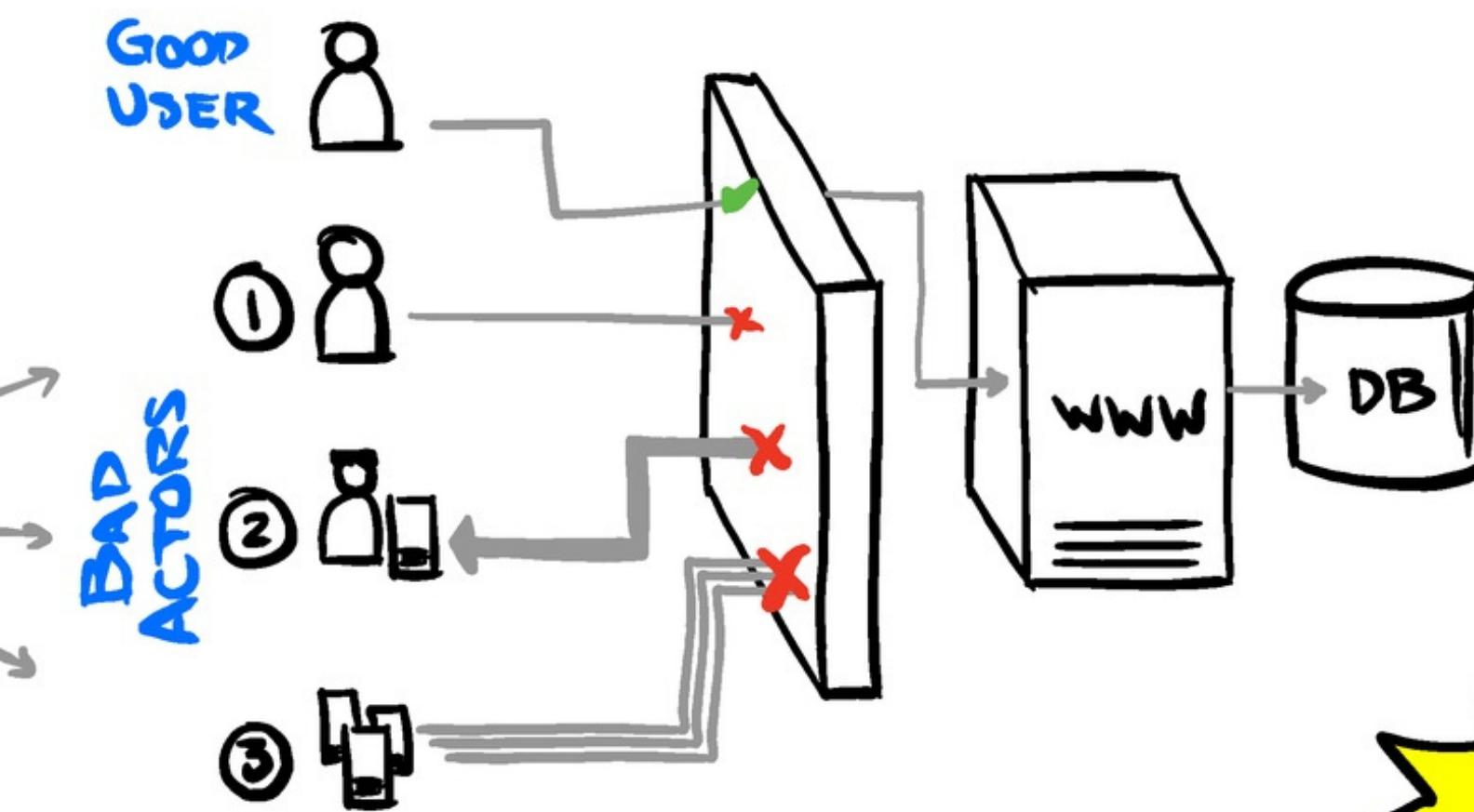
## EVOLUTION OF AN API



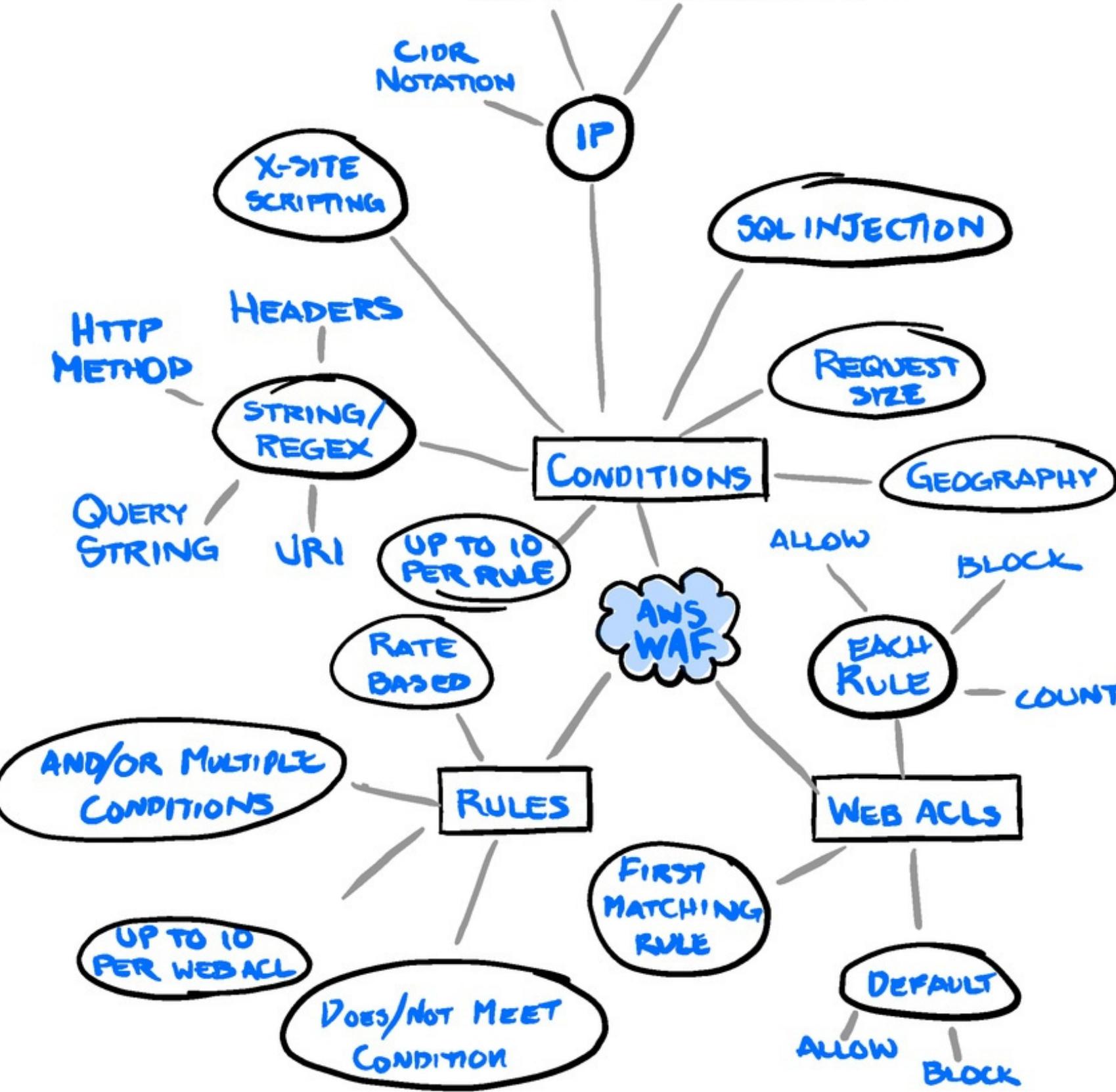


## COMMON WAF USE CASES

- PREVENT
  - ① MALICIOUS USERS
  - ② CONTENT ABUSE
  - ③ DDOS ATTACKS

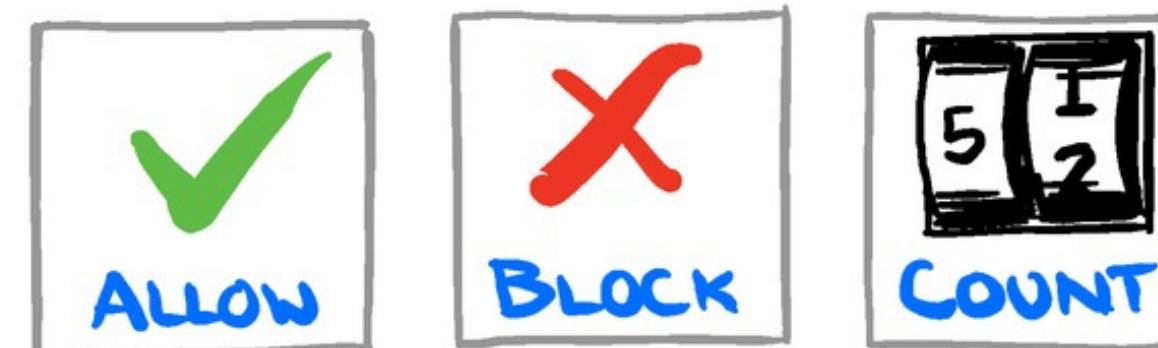


18,16,24,32 ONLY UPTO 10K PER CONDITION



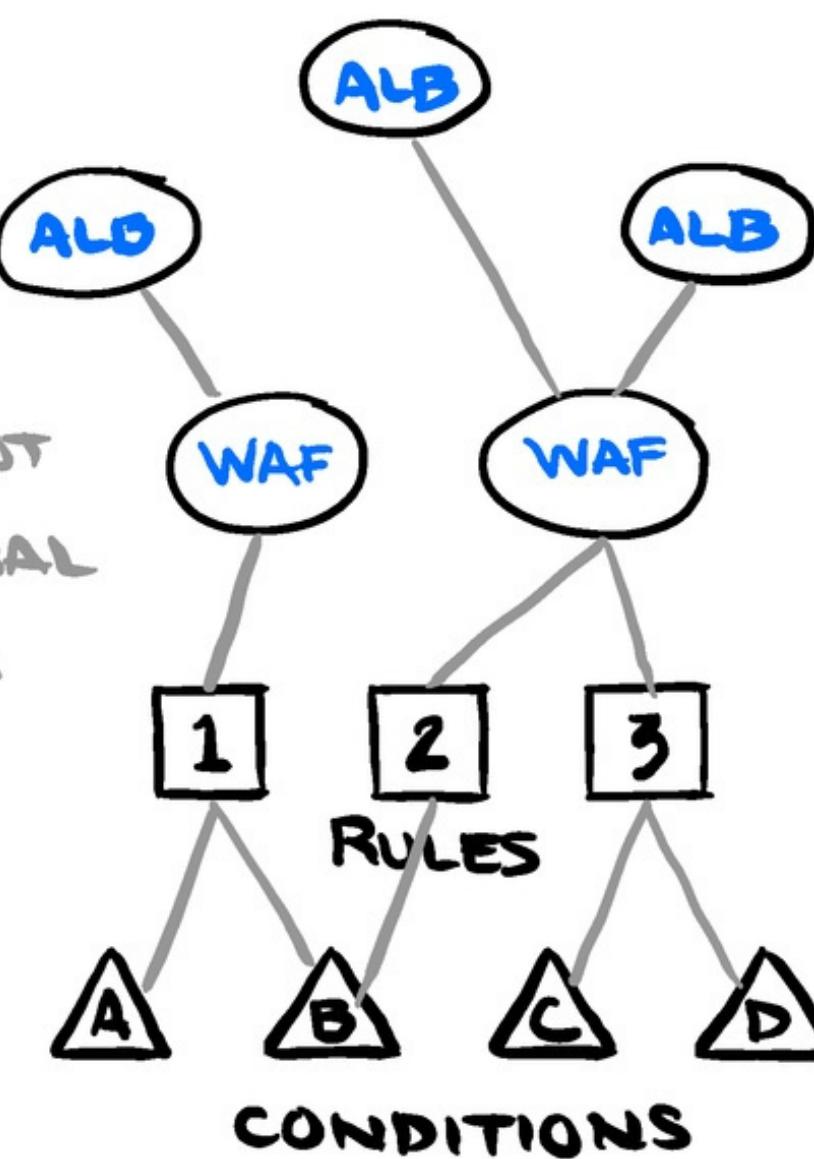
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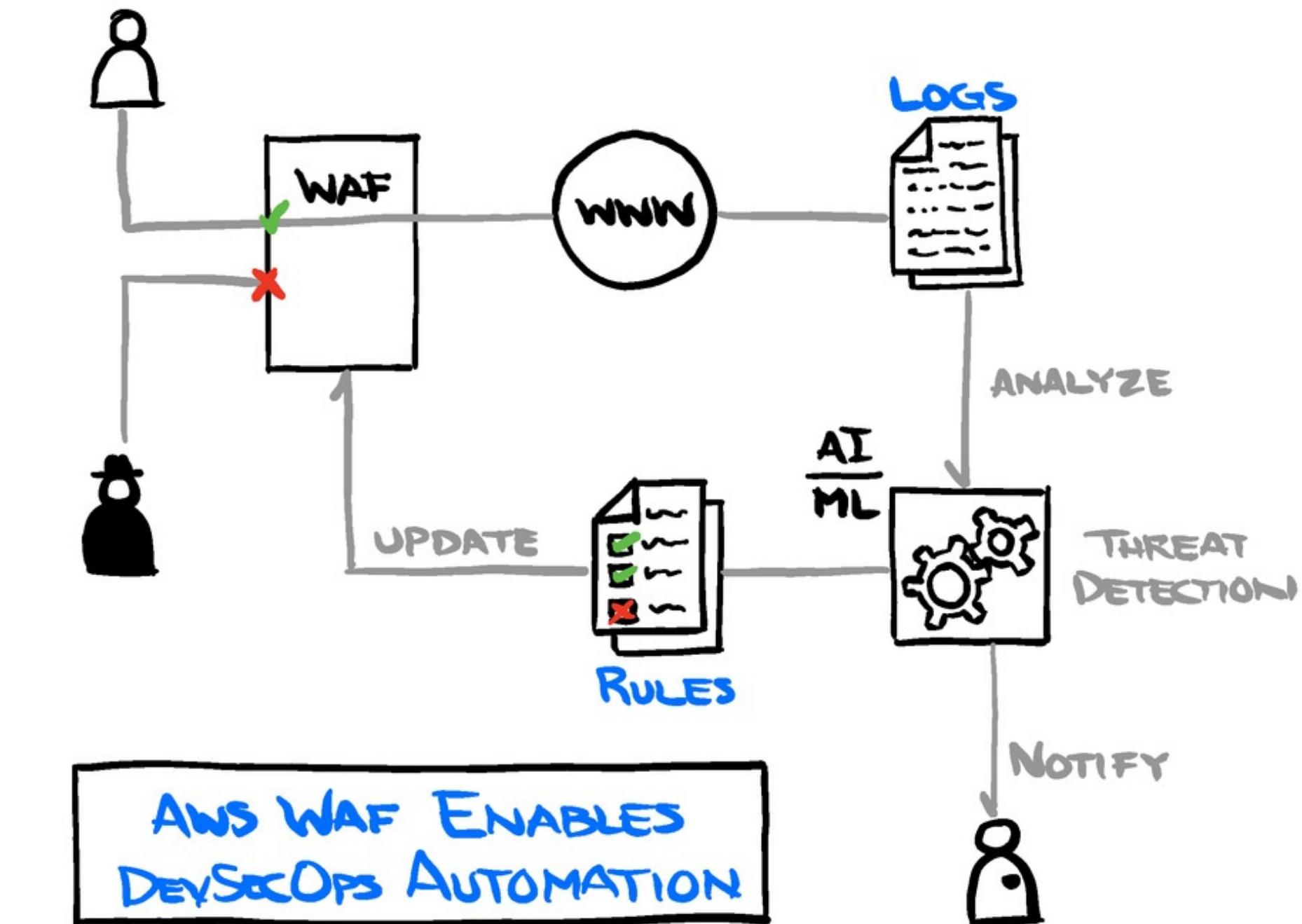
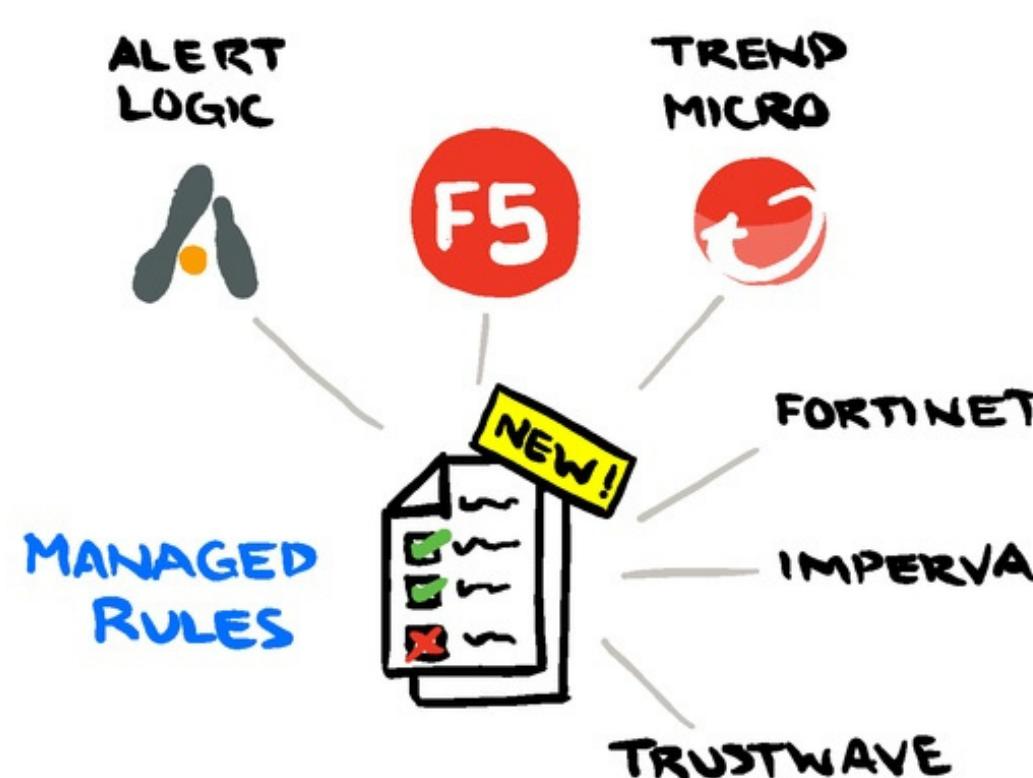
\* ACL, RULE, CONDITION ARE EITHER GLOBAL OR REGION SPECIFIC

\* REGIONAL MAY NOT BE USED BY GLOBAL AND VISA-VERSA

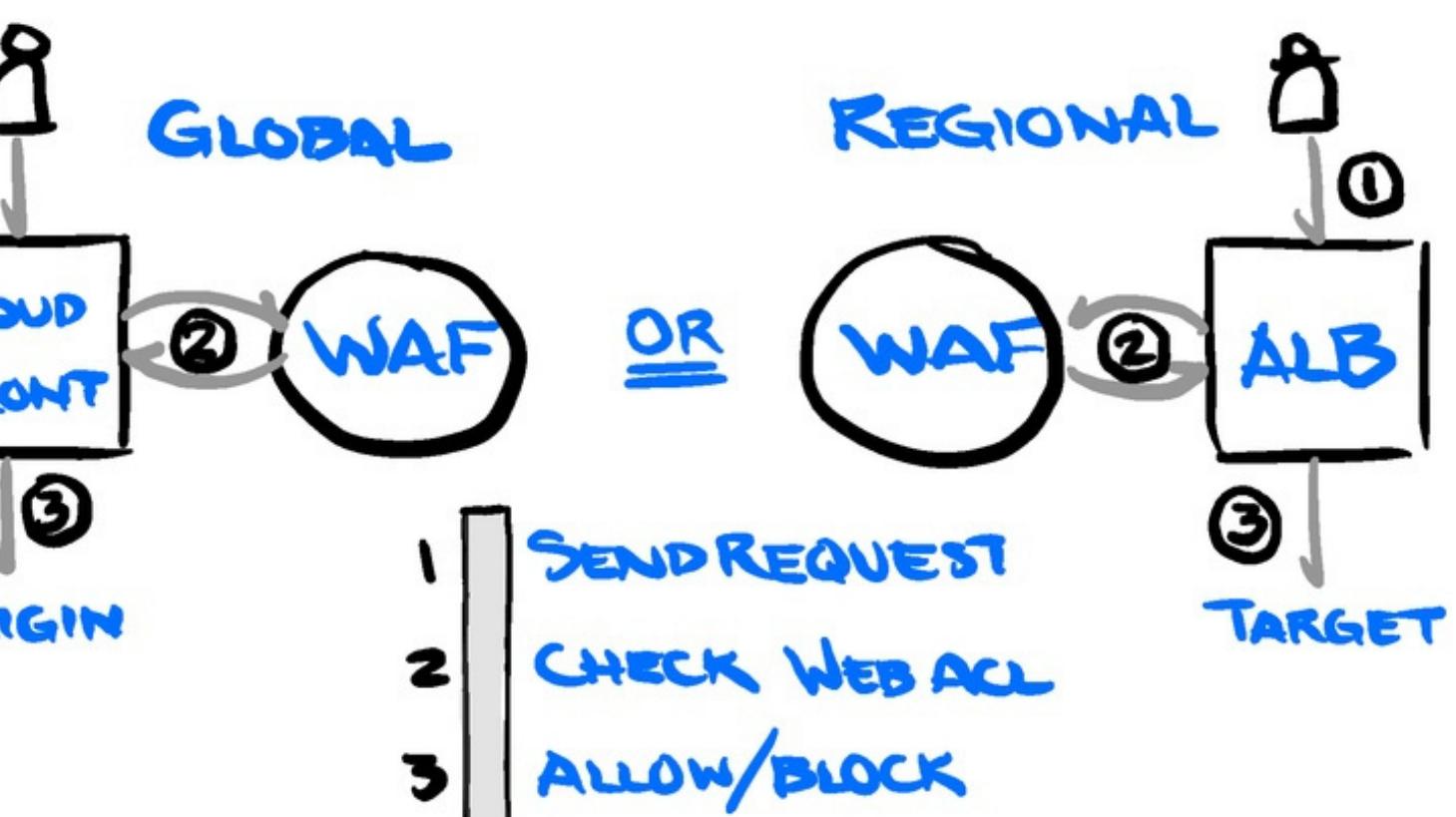


\$5/WEB ACL/Mo  
\$1/RULE/WEBACL/Mo  
60¢/MM REQUESTS

FOLLOW:  
Aws SECURITY BLOG

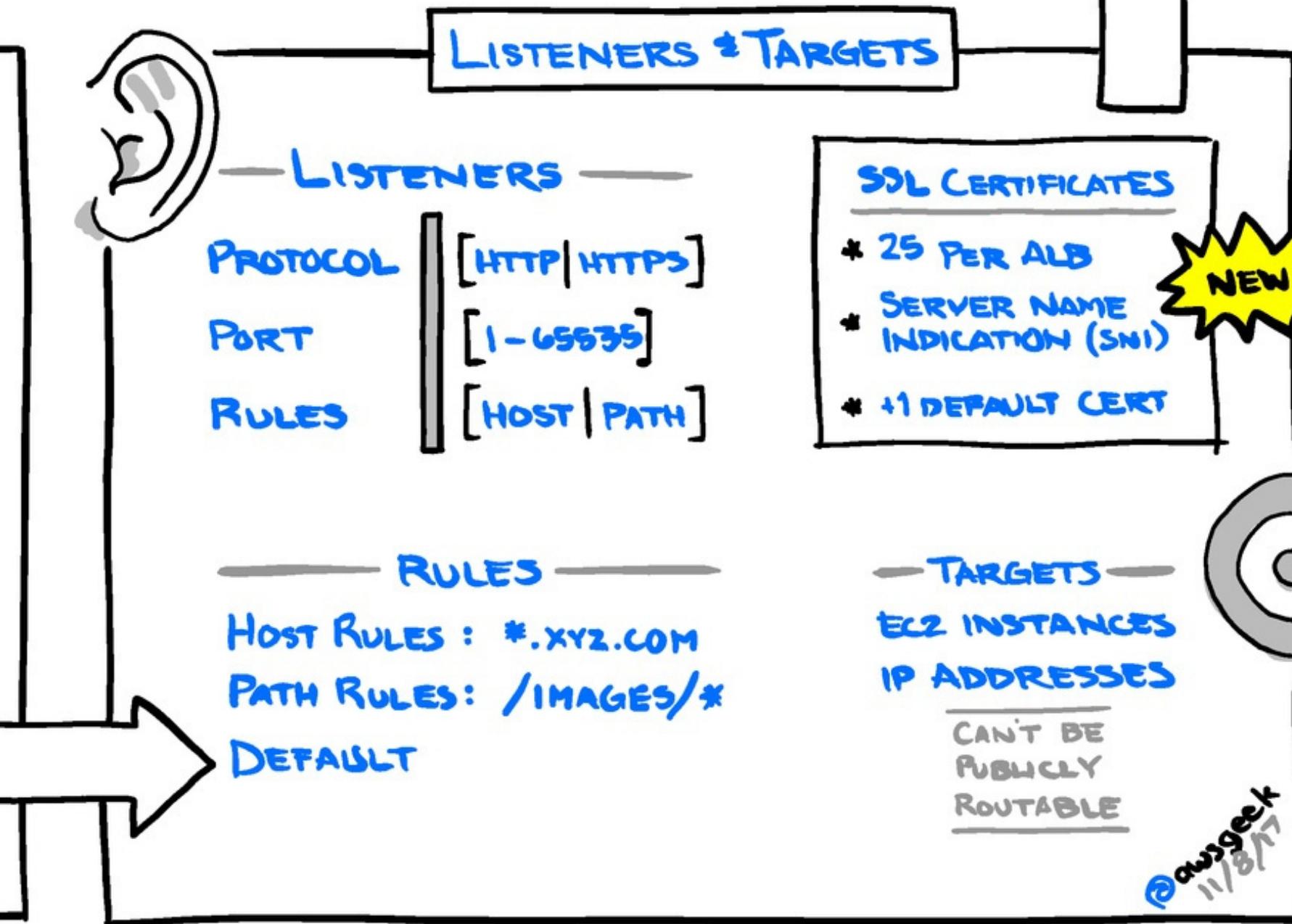
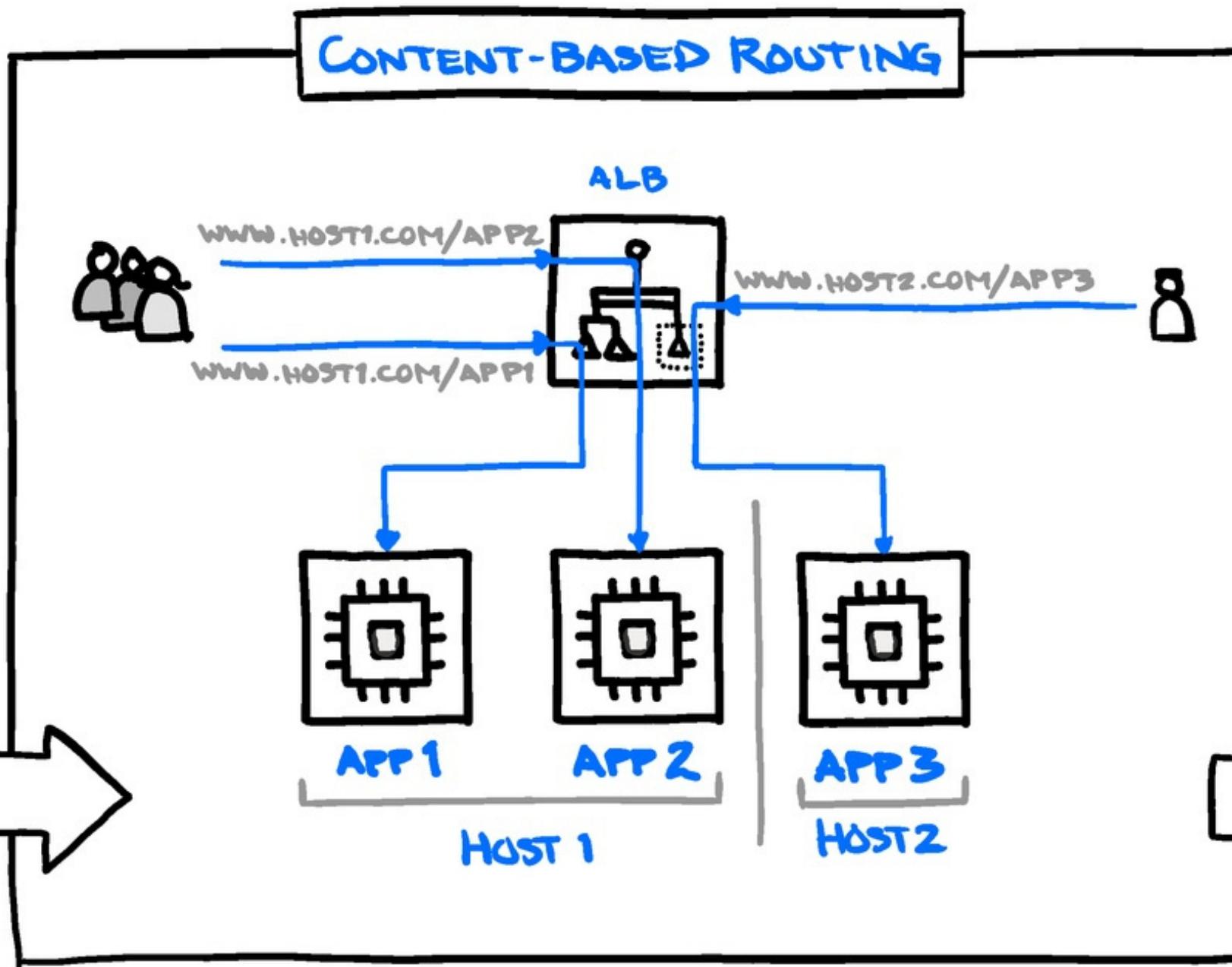
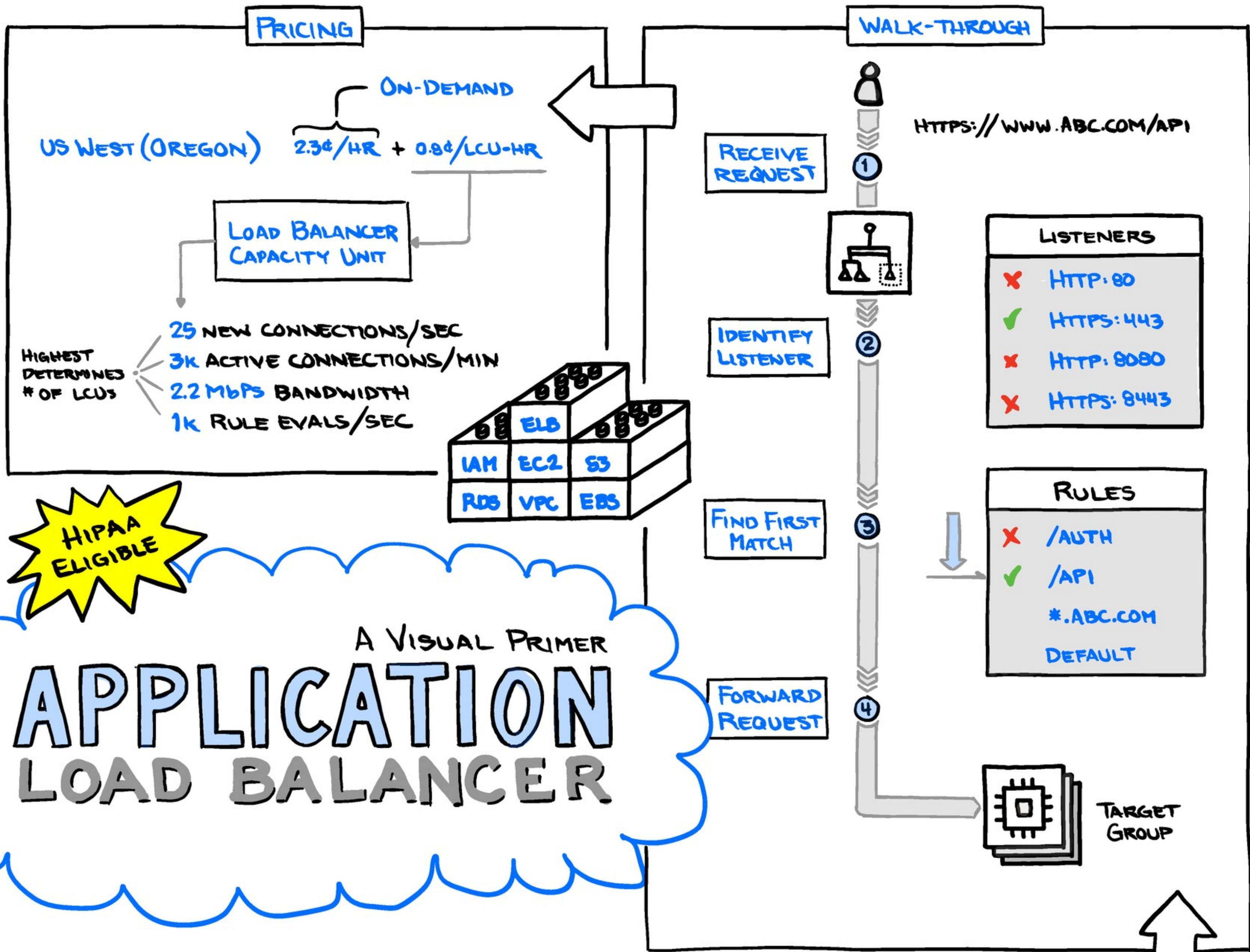
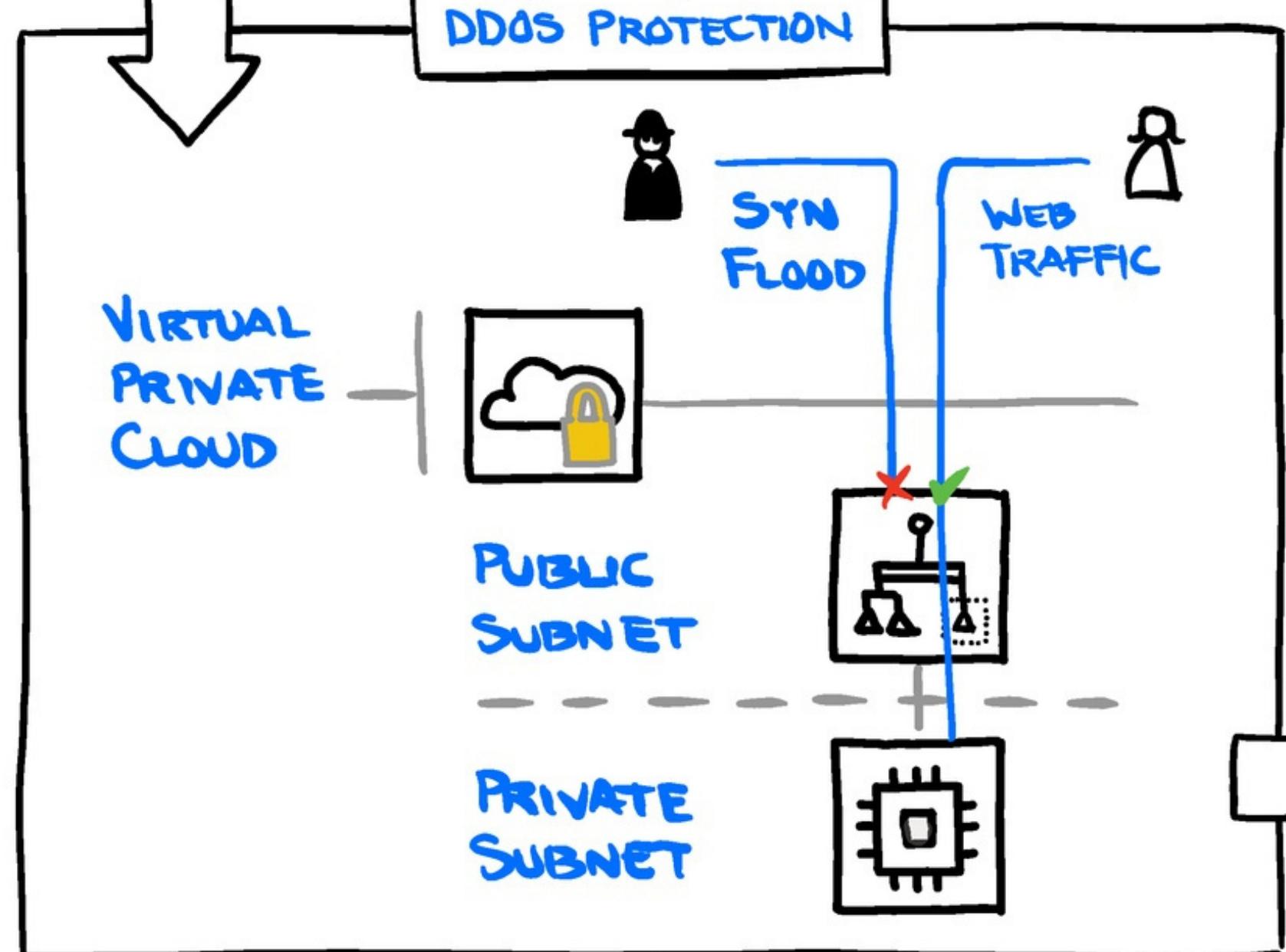
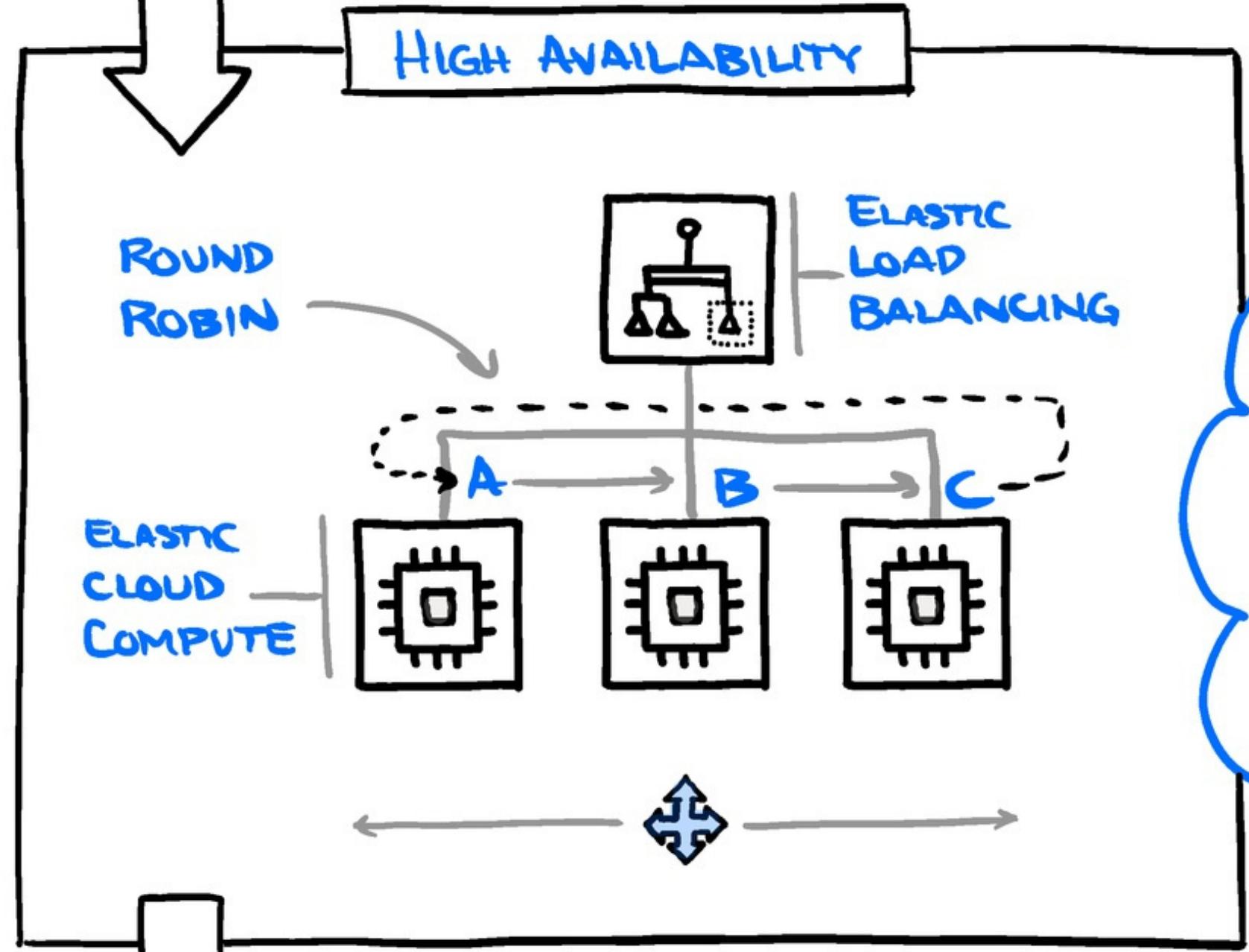
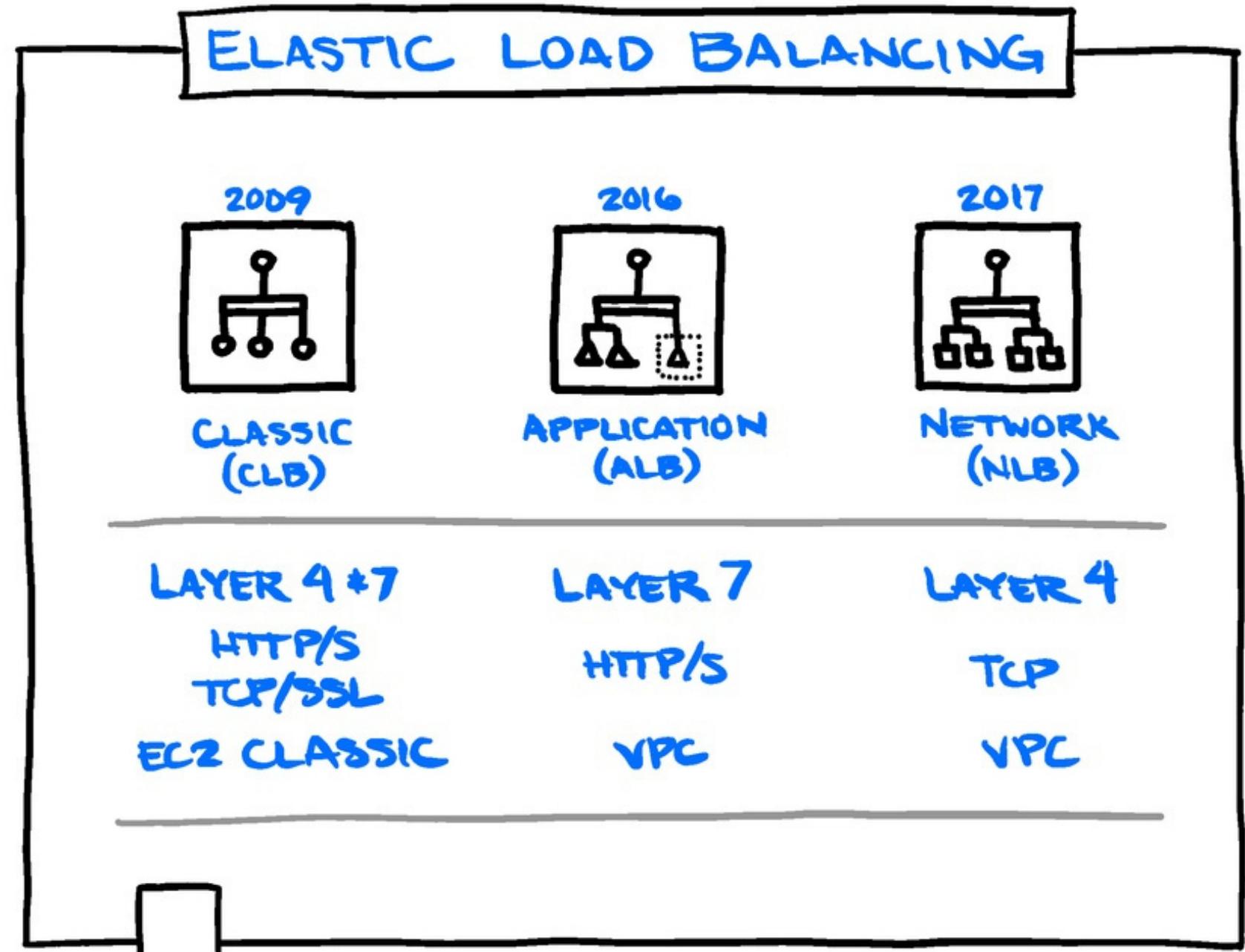


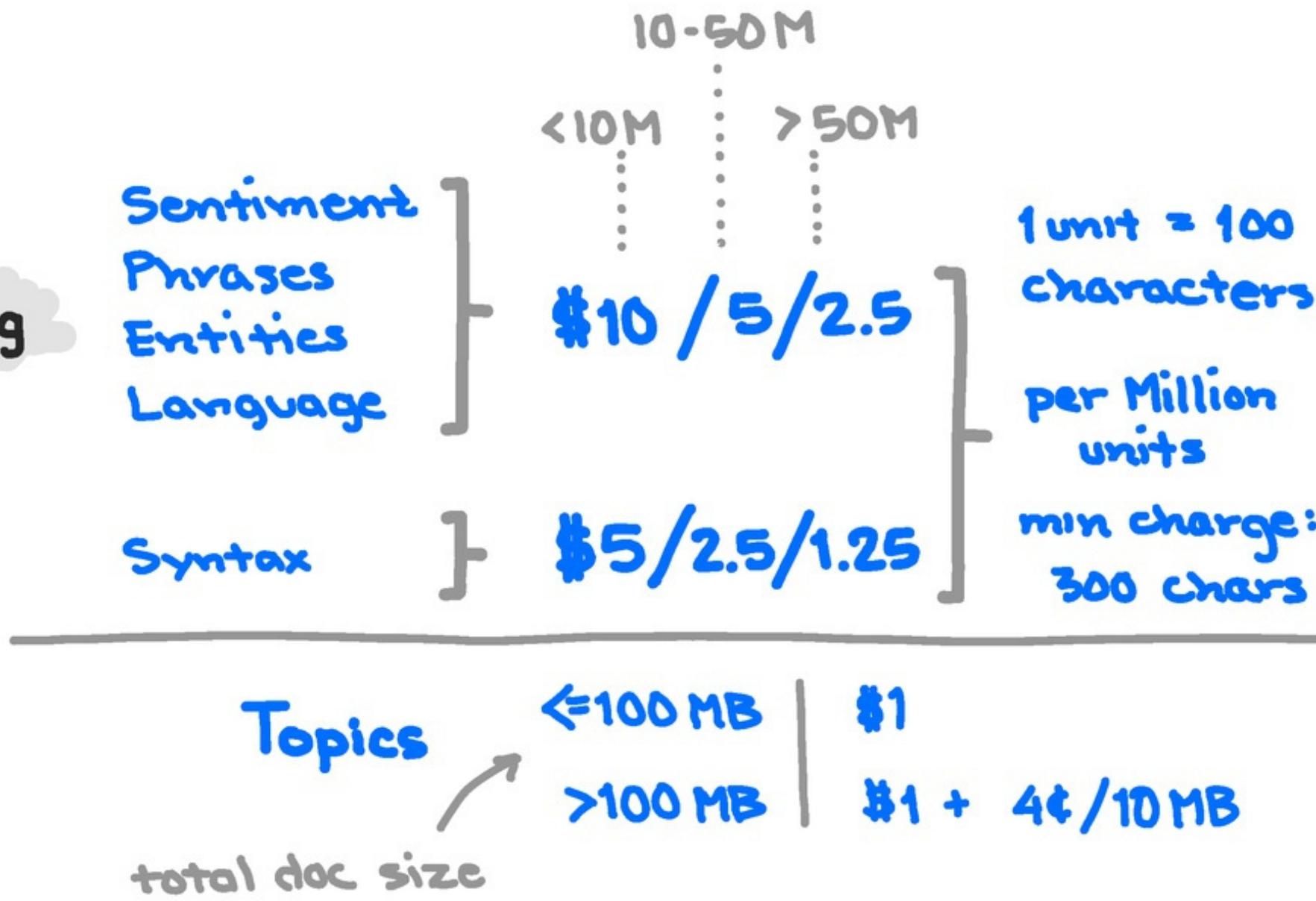
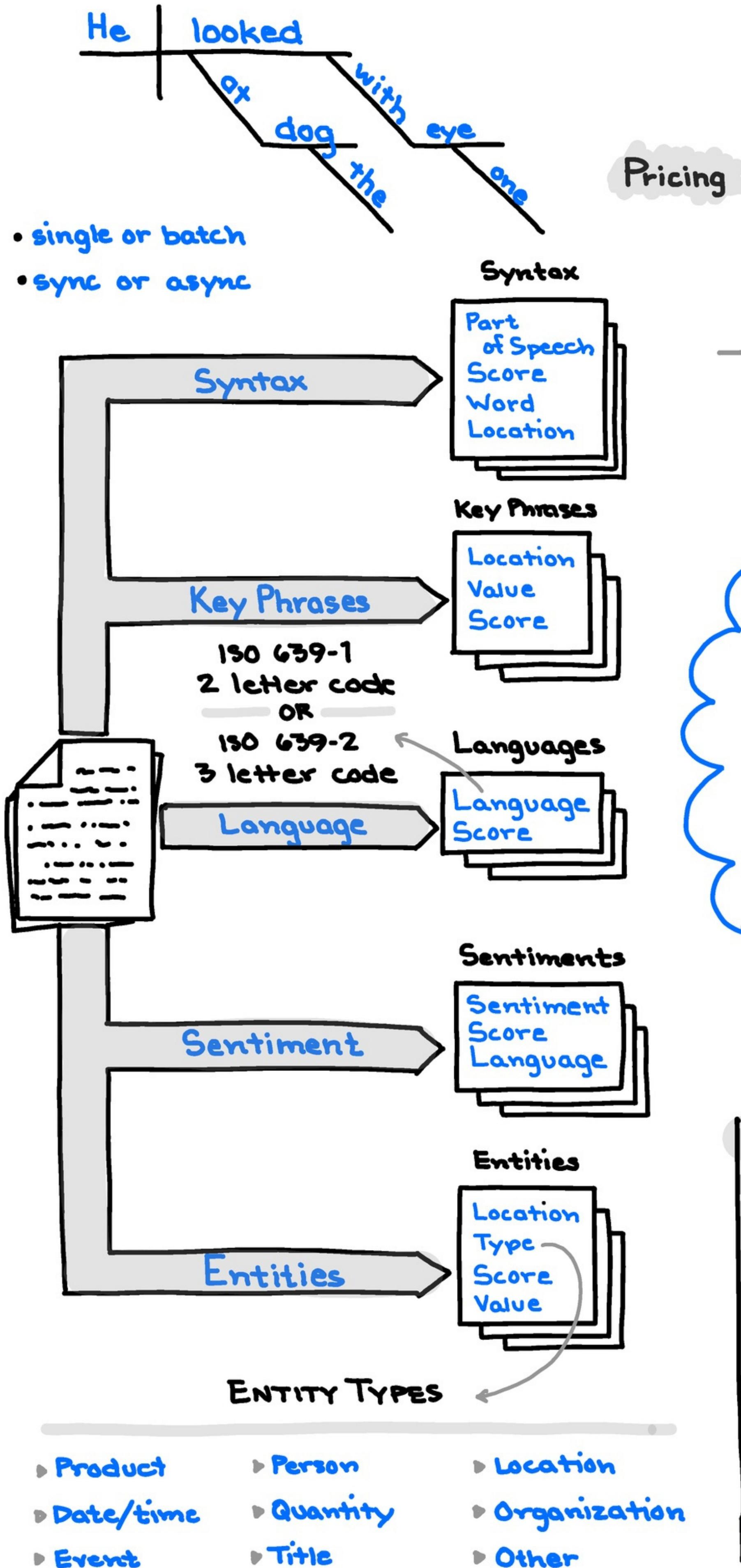
AWS WAF ENABLES DEVSECOPS AUTOMATION



PRECONFIGURED PROTECTIONS

★	BAD BOT/SCRAPER
★	SQL INJECTION
★	CROSS-SITE SCRIPTING
★	HTTP FLOOD, SCANNER, PROBE
★	IP WHITE/BLACK LIST
★	KNOWN ATTACKER
	VIA CLOUDFORMATION NEW OR EXISTING WAF



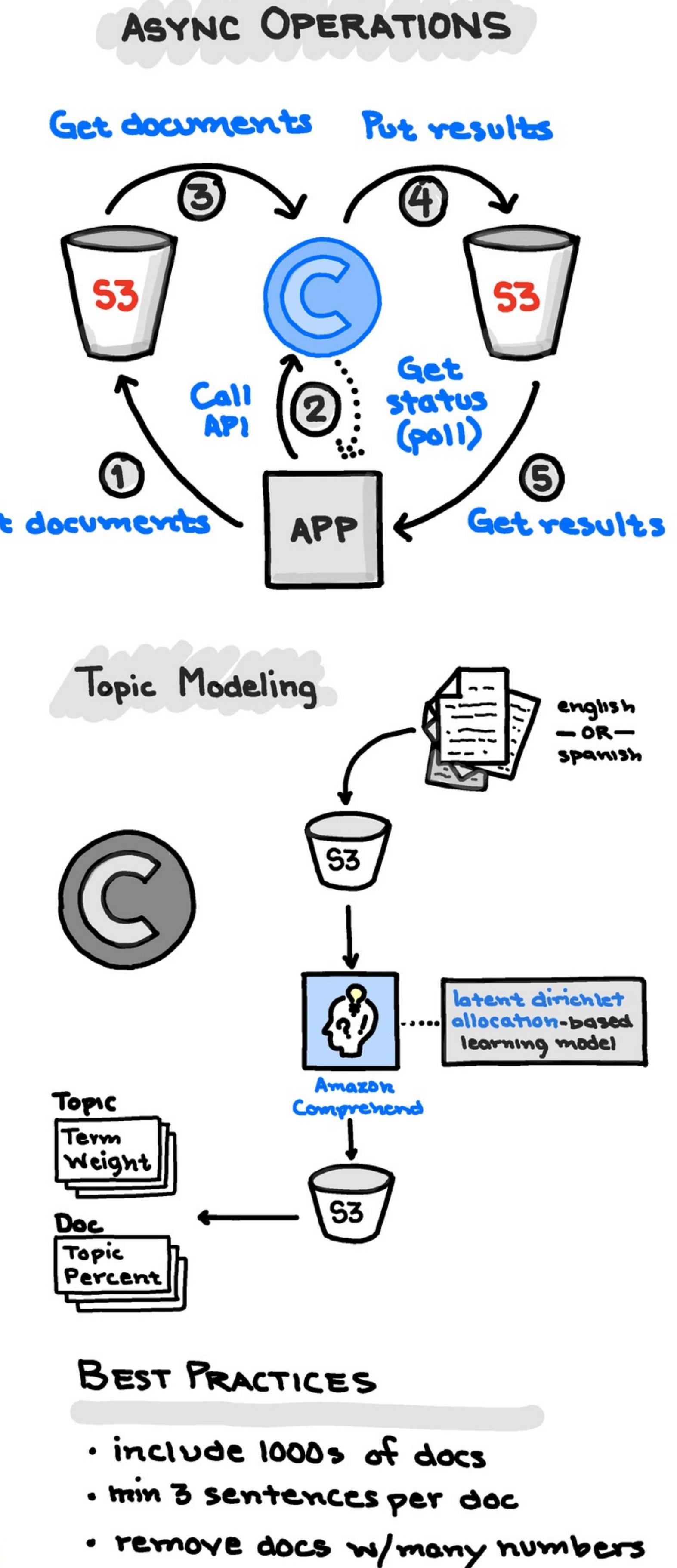


## DATA PRIVACY

### Your Comprehend data:

- may be used by Amazon for training
- may be accessed by Amazon employees
- may be moved to other regions

**you must opt out to stop**



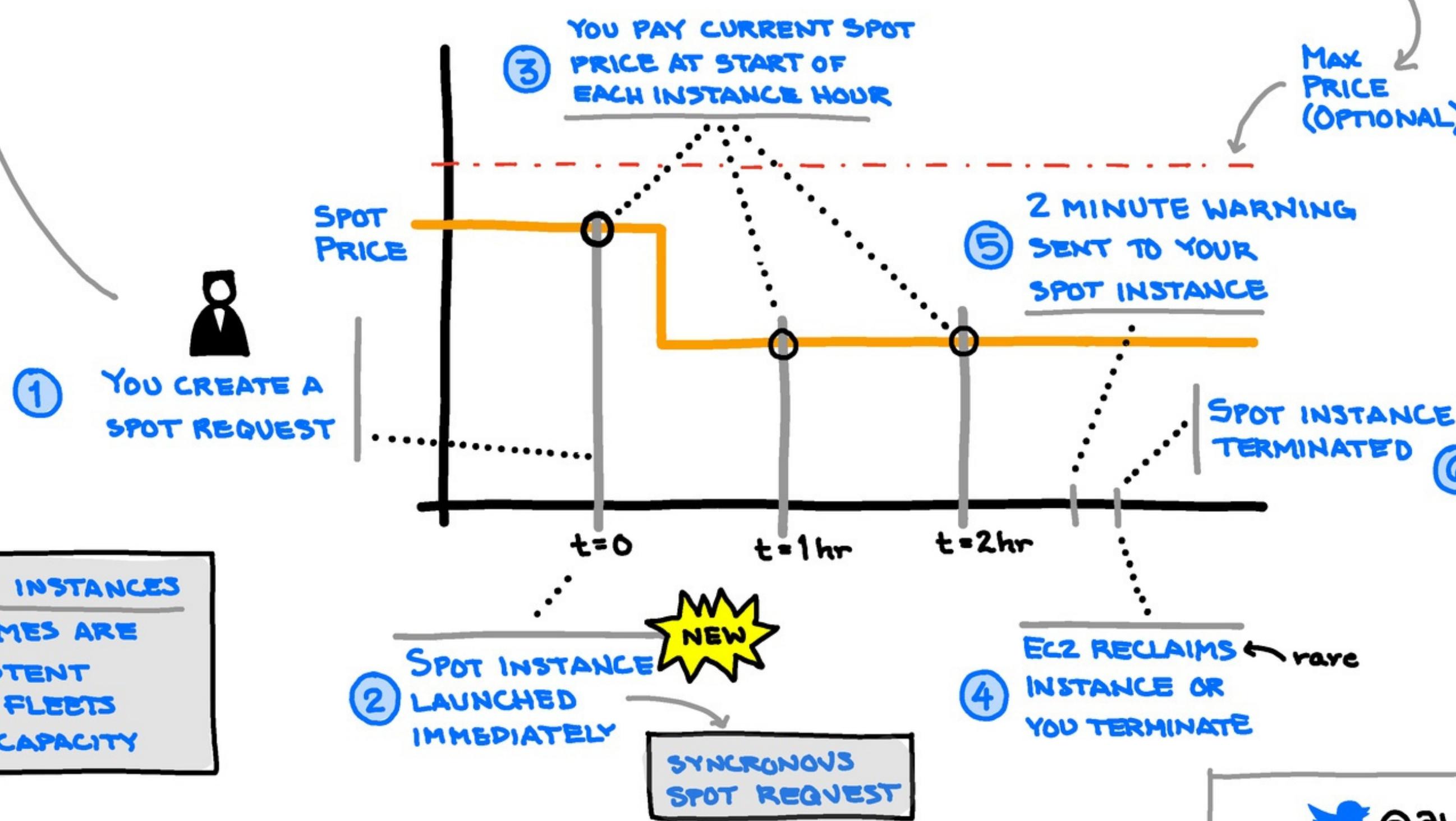
**SPOT REQUEST**

- INSTANCE TYPE
- INSTANCES COUNT
- MAXIMUM PRICE
- AVAILABILITY ZONE

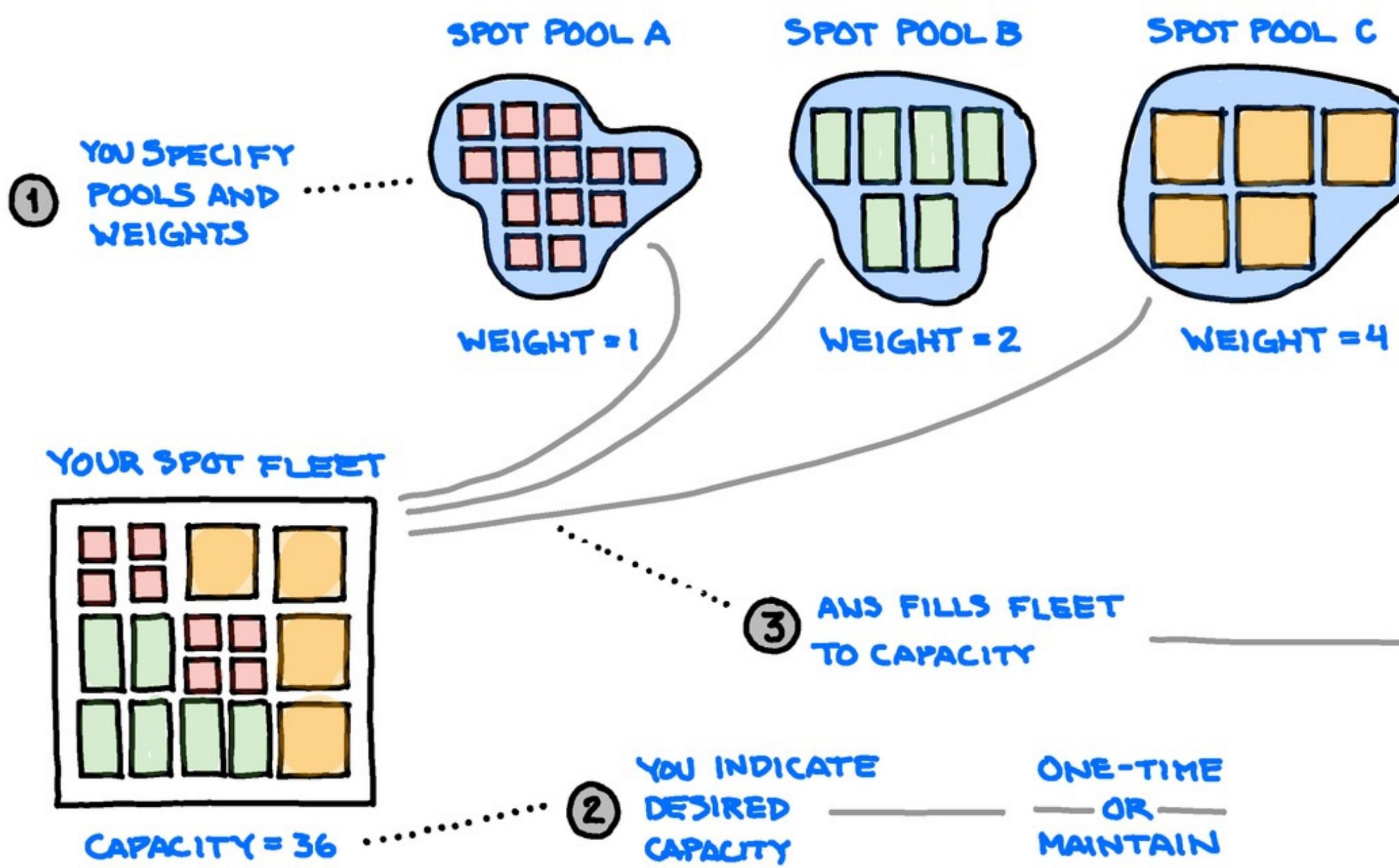
**SPOT POOL**

SAME INSTANCE TYPE  
SAME AVAILABILITY ZONE  
SAME OPERATING SYSTEM

BEHAVES LIKE  
OLD 'BID PRICE'

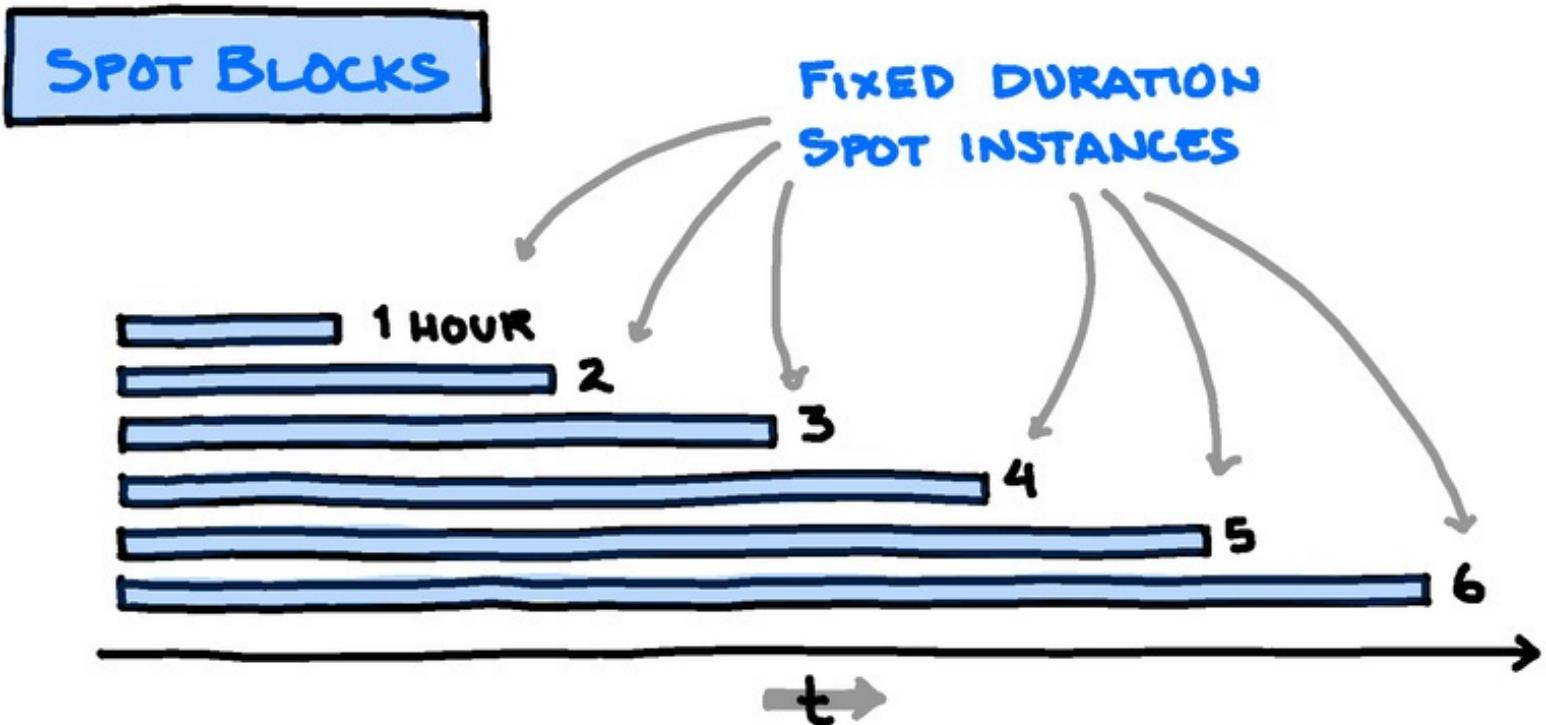
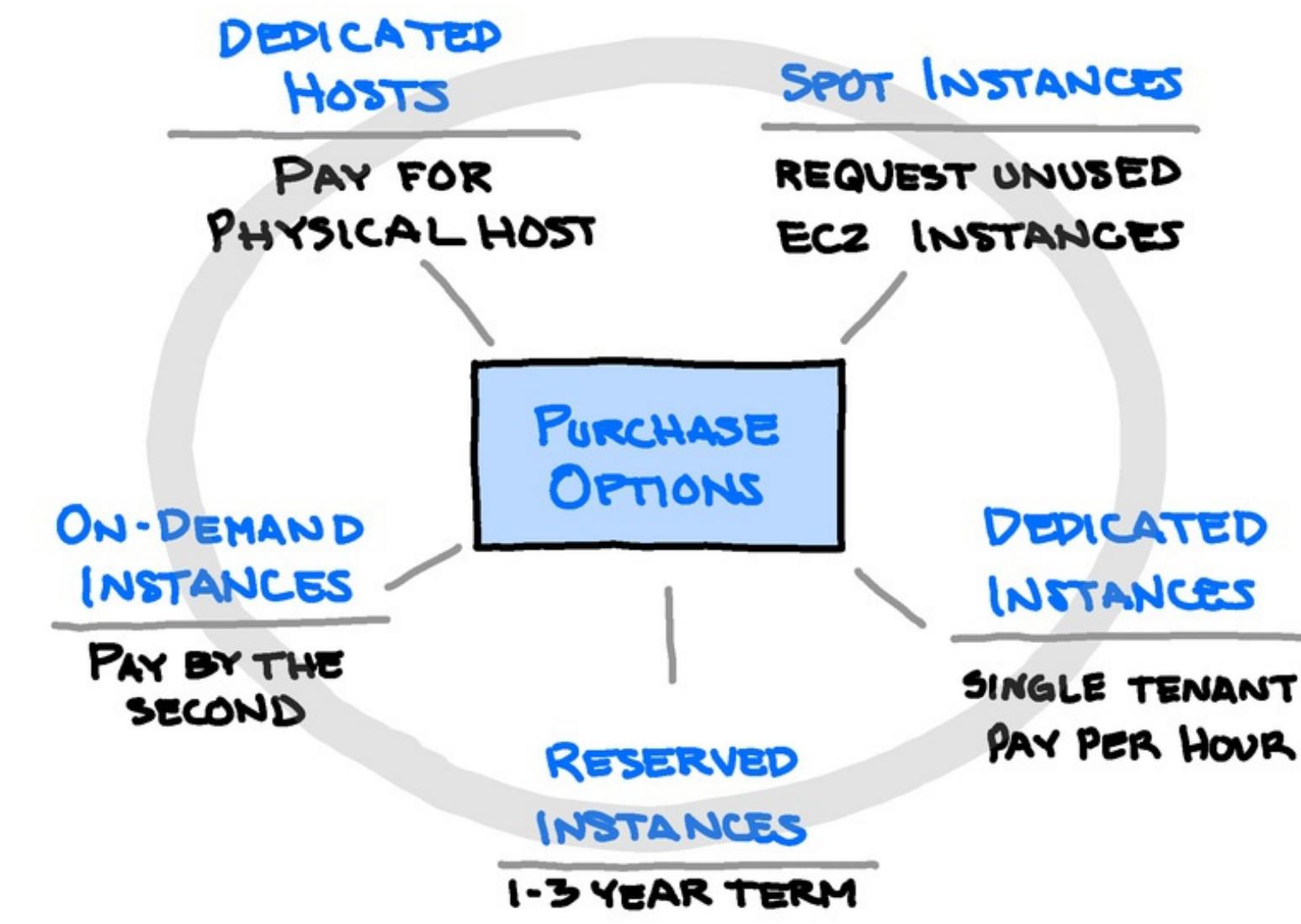


**NEW**  
HIBERNATE SPOT INSTANCES  
RAM & EBS VOLUMES ARE  
SAVED FOR PERSISTENT  
REQUESTS & SPOT FLEETS  
SET TO MAINTAIN CAPACITY

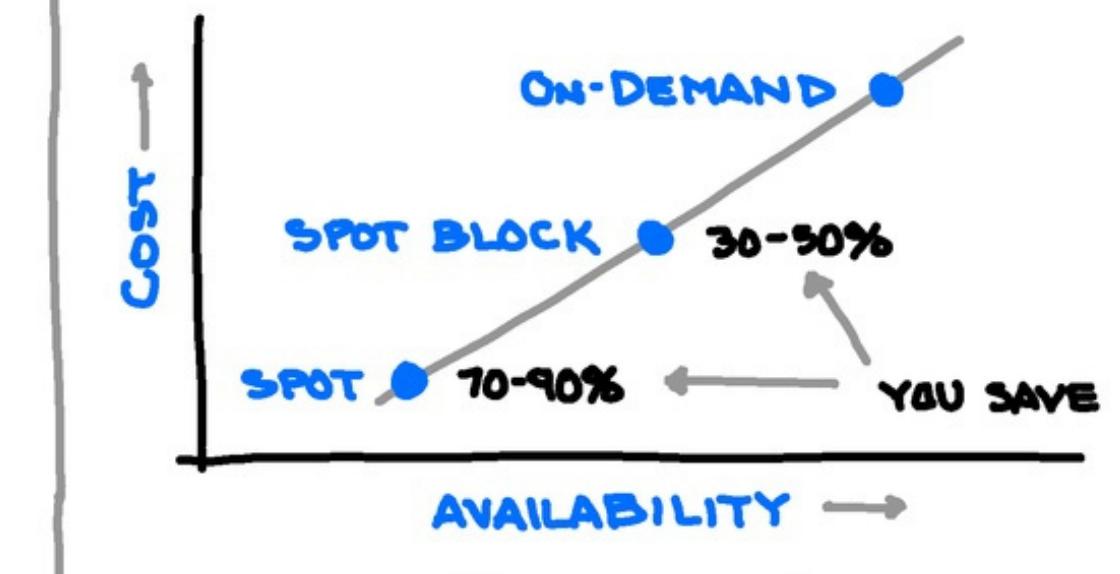


**ALLOCATION STRATEGY**

USE CHEAPEST POOL — OR — EQUALLY DISTRIBUTE



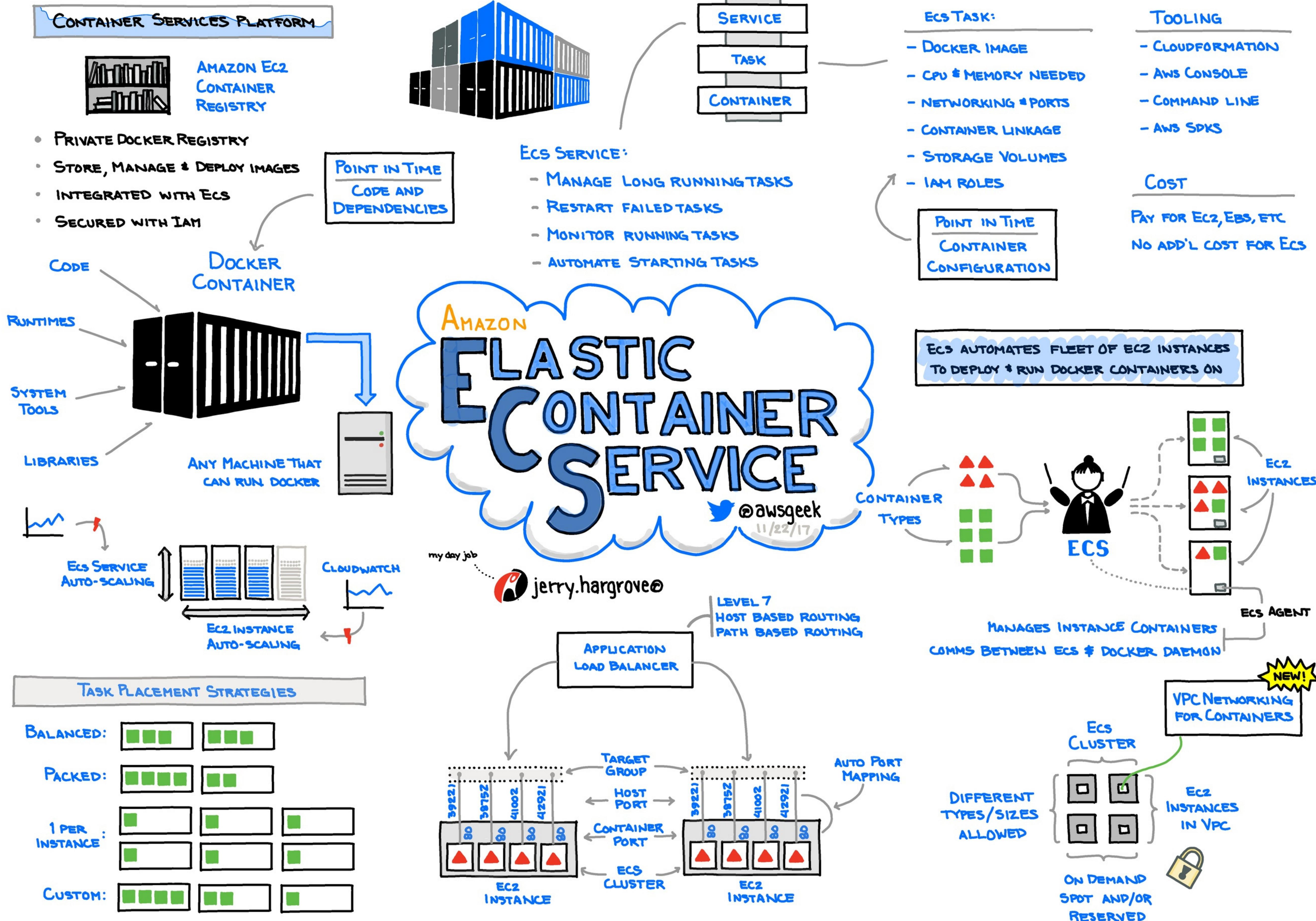
IDEAL FOR JOBS WITH FINITE COMPUTE REQUIREMENTS

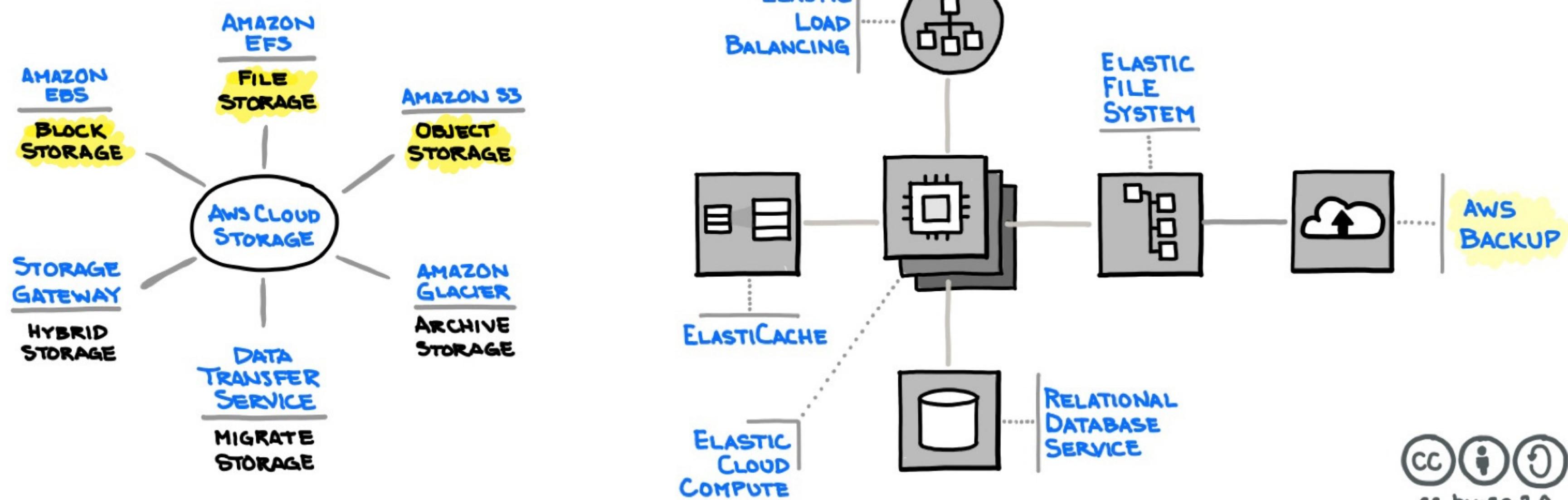
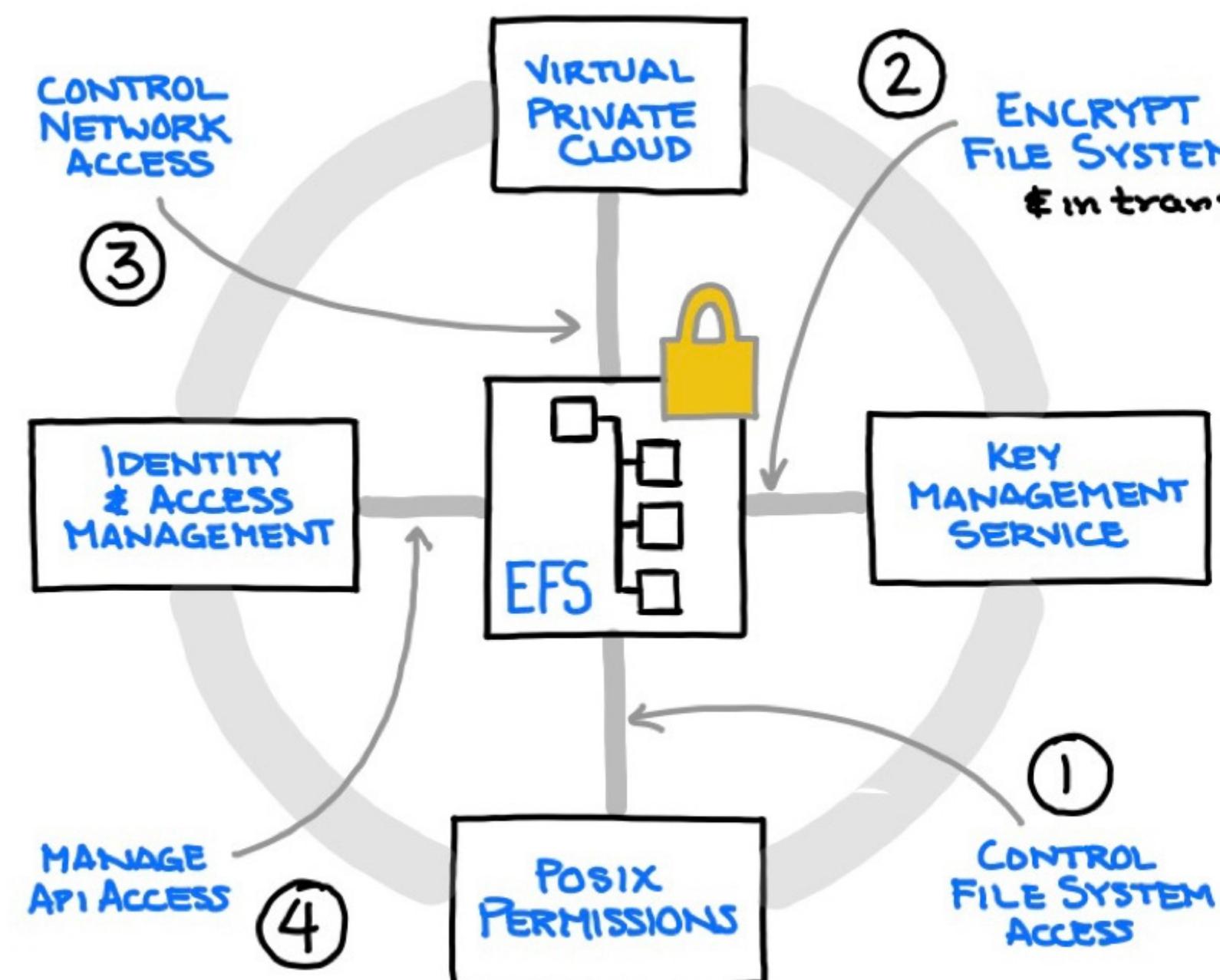
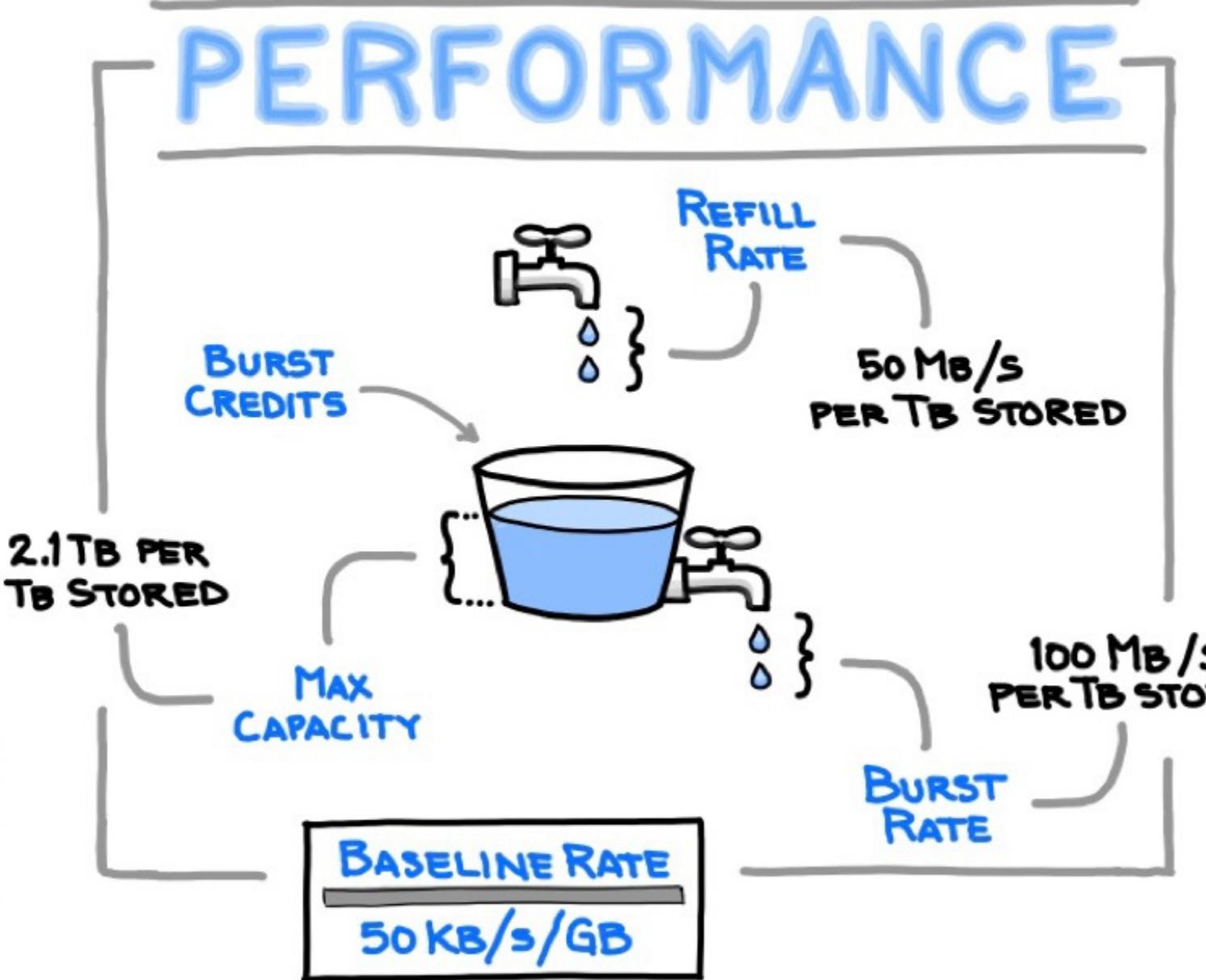
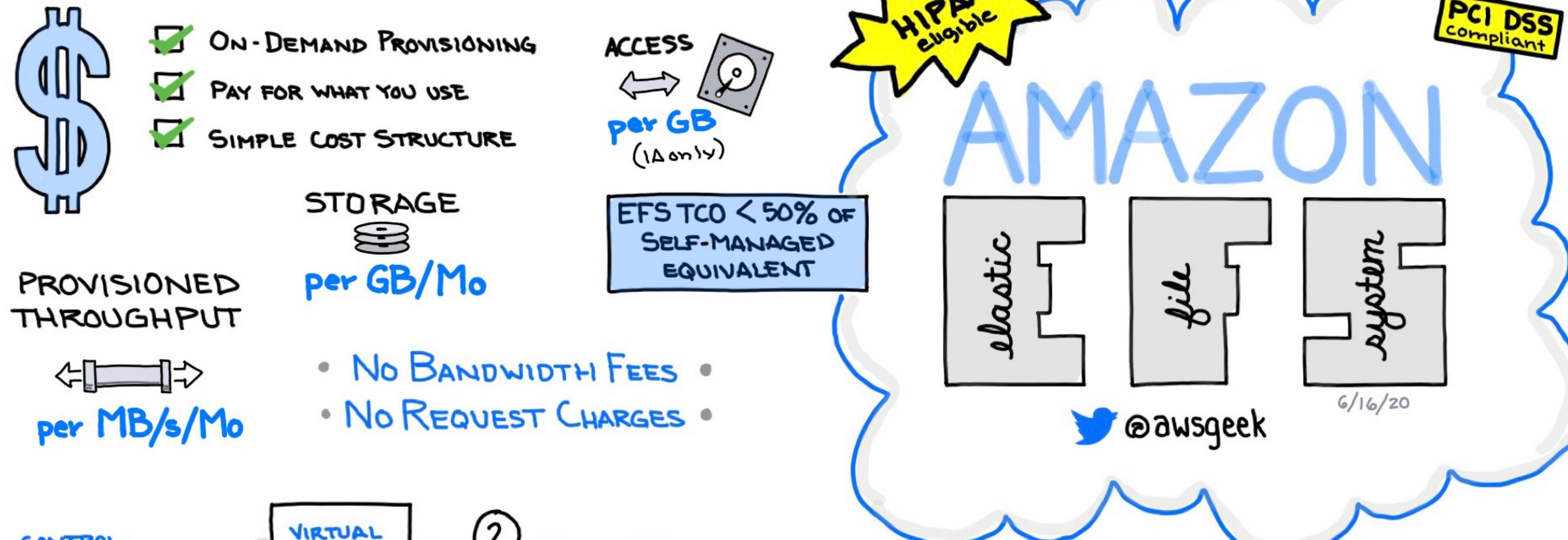
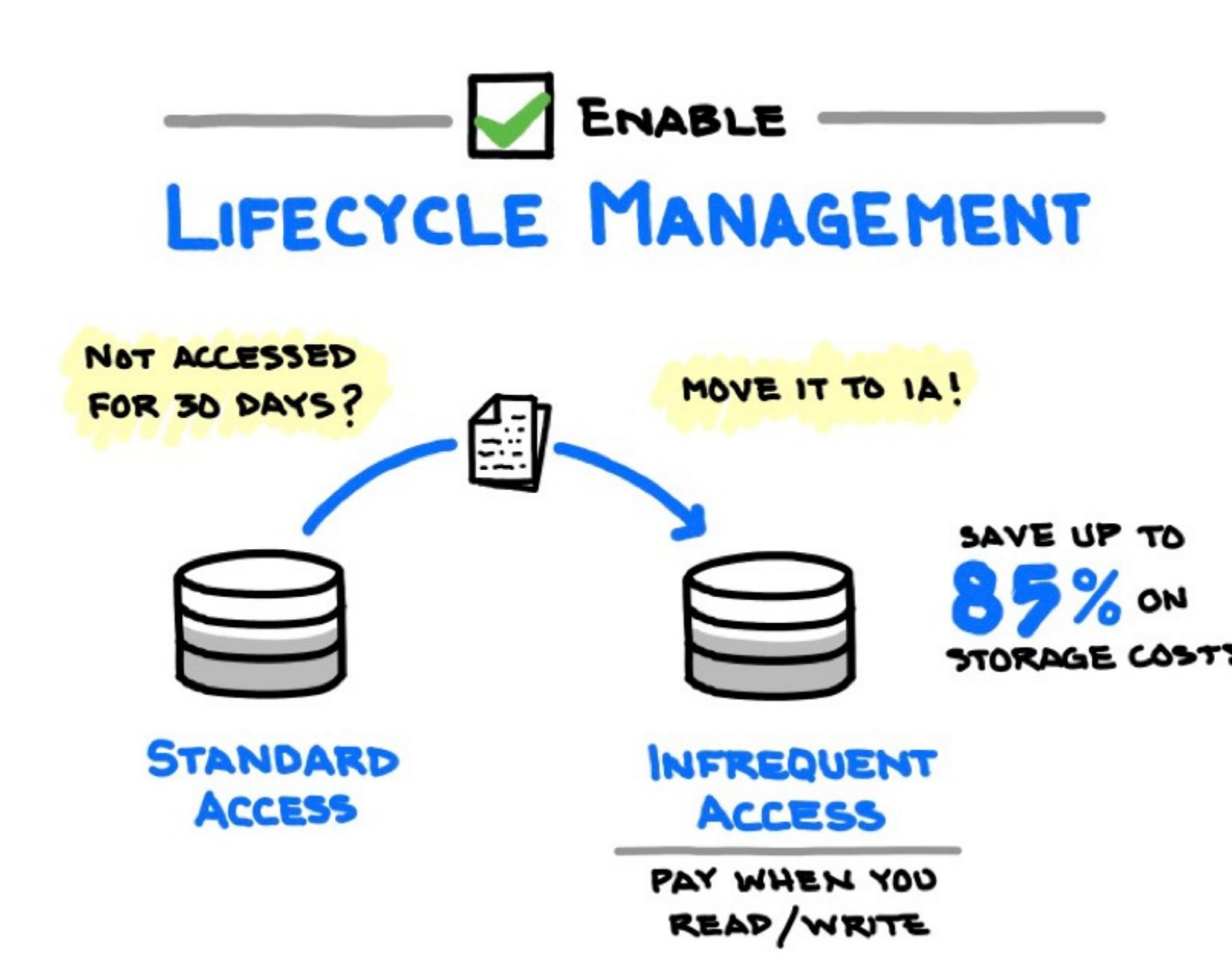
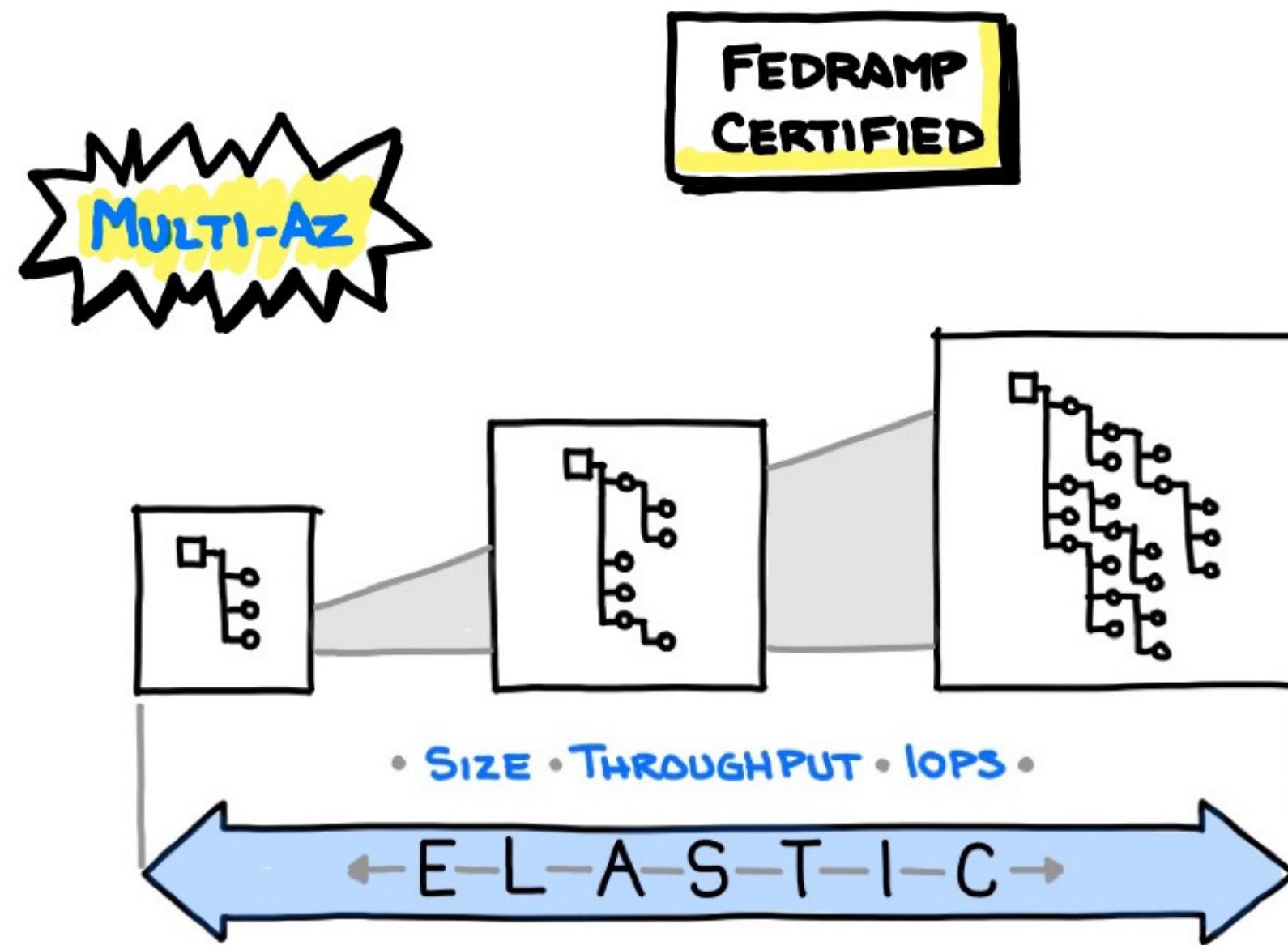
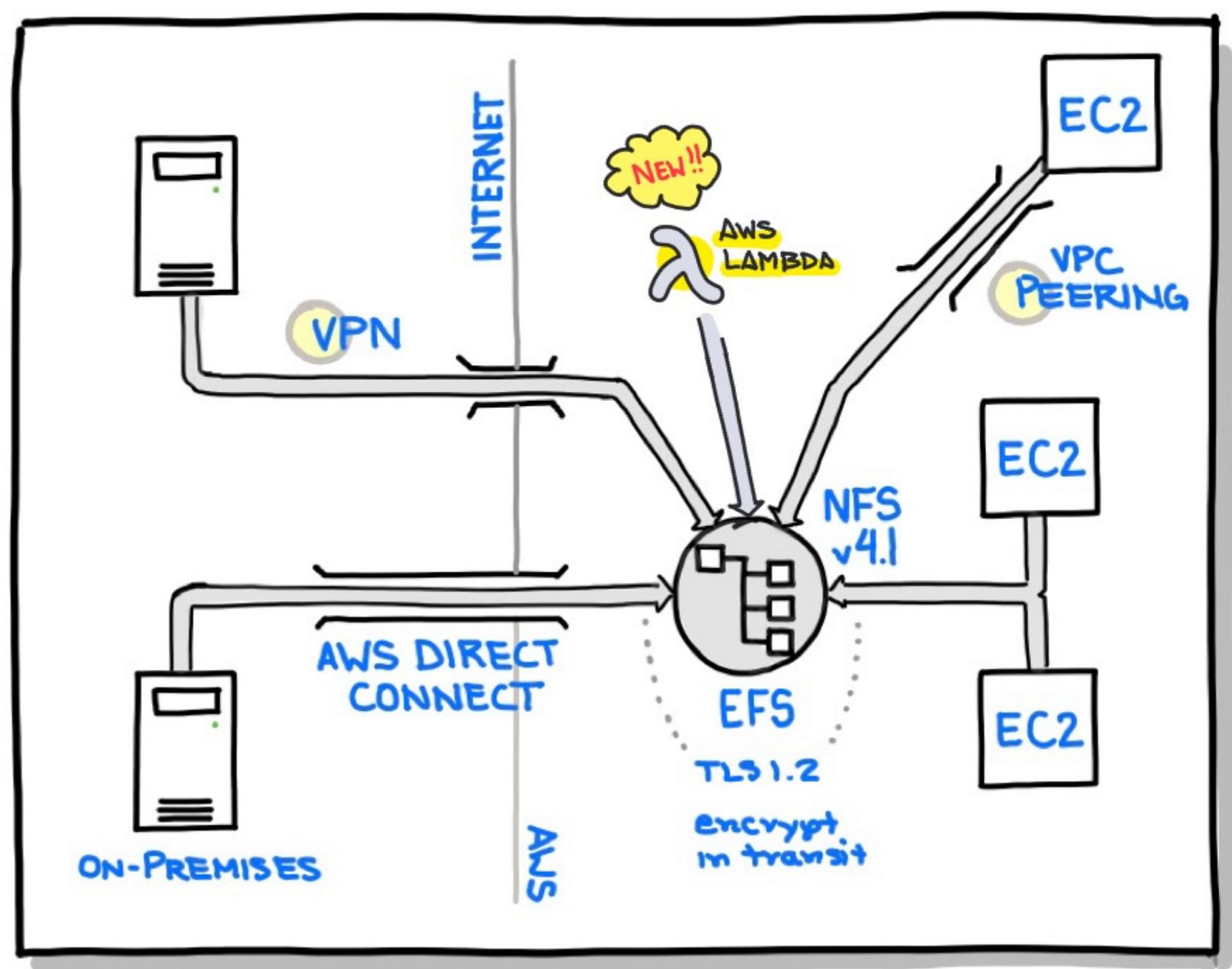


# AMAZON EC2 SPOT INSTANCES

11/29/17

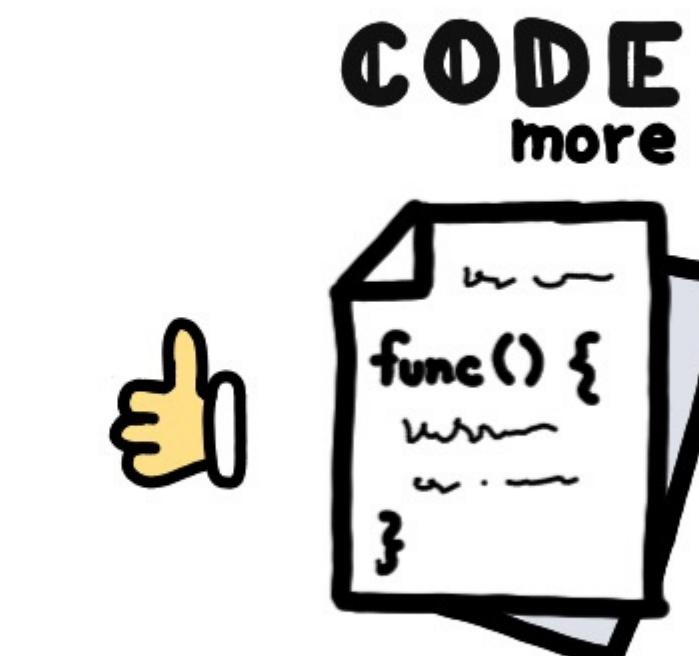
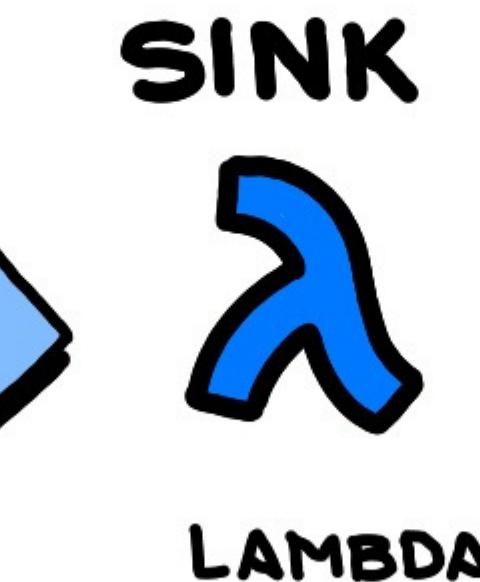
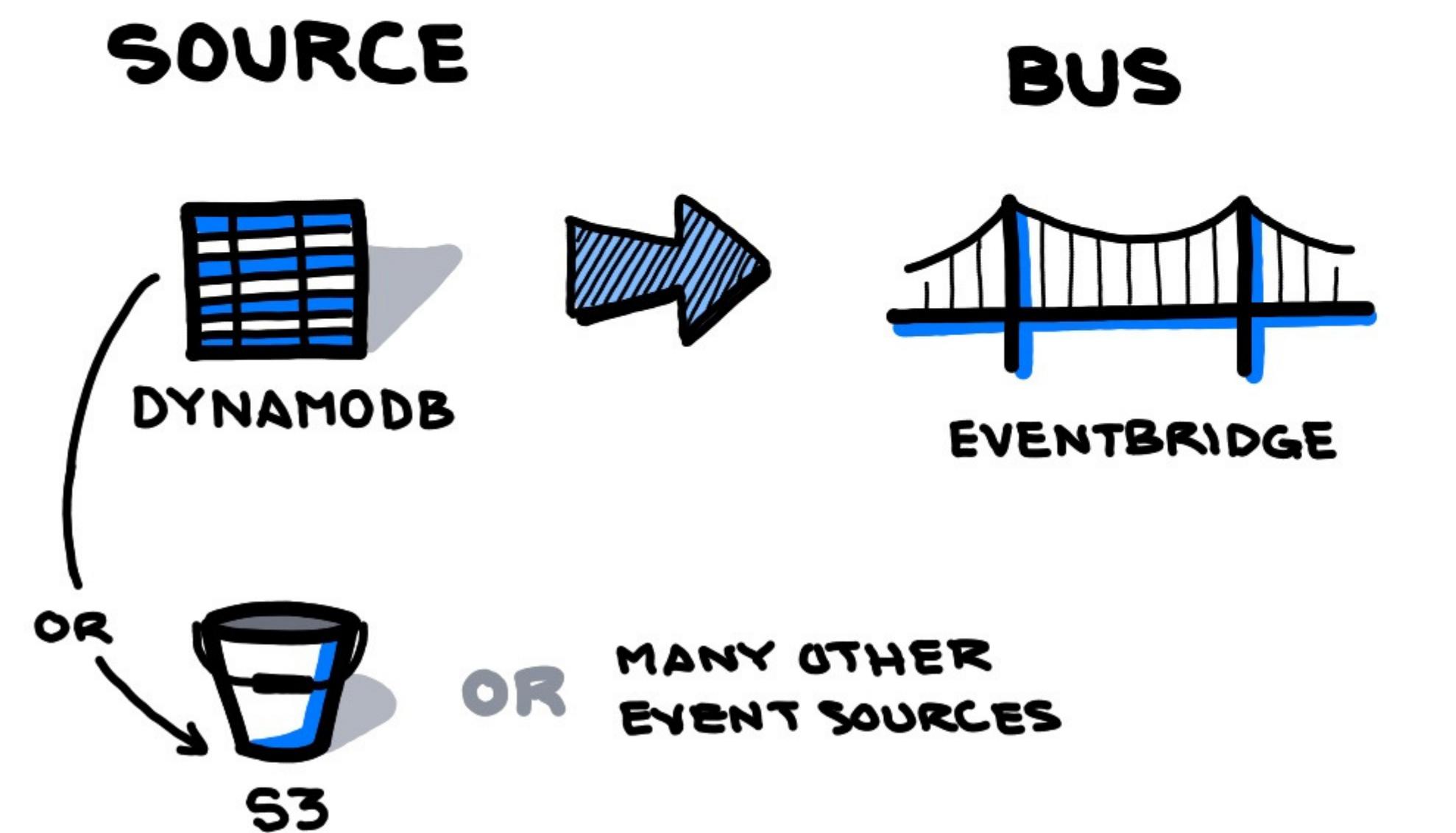
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# Event Driven Apps

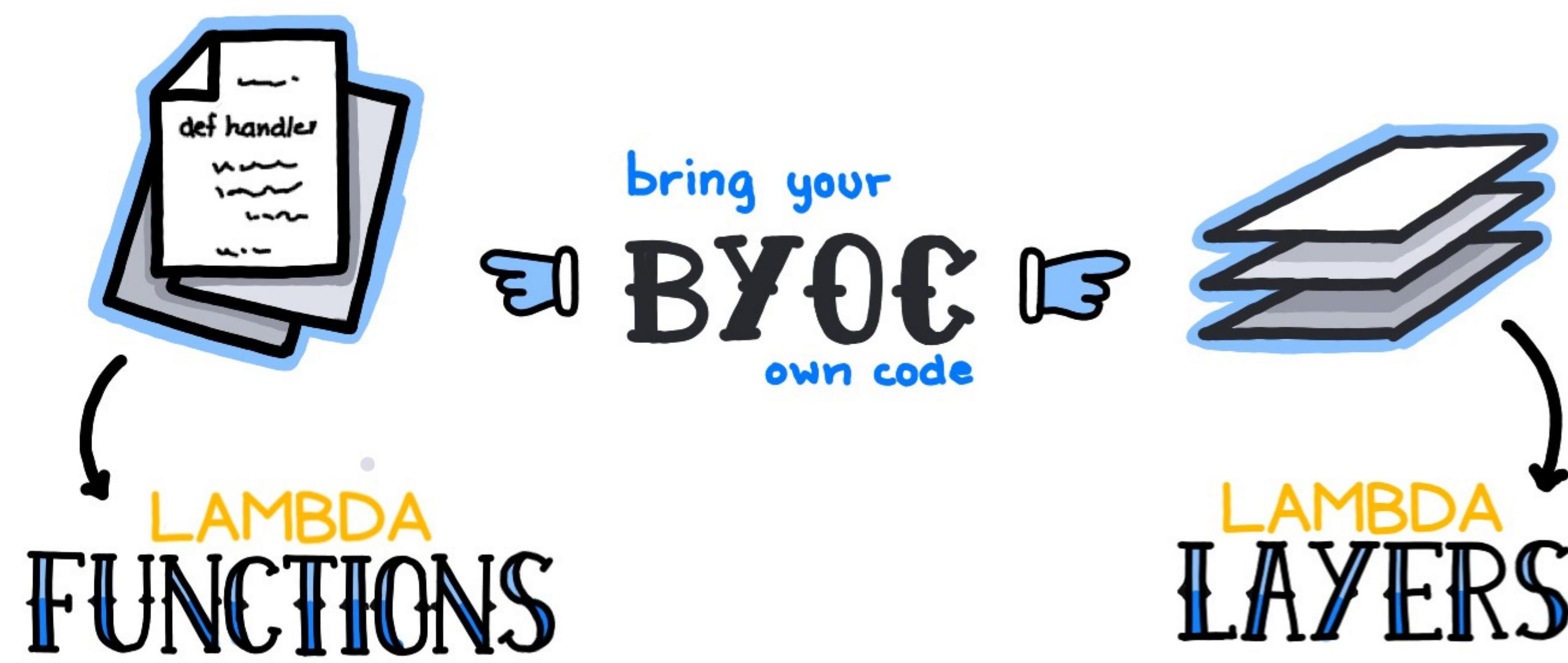
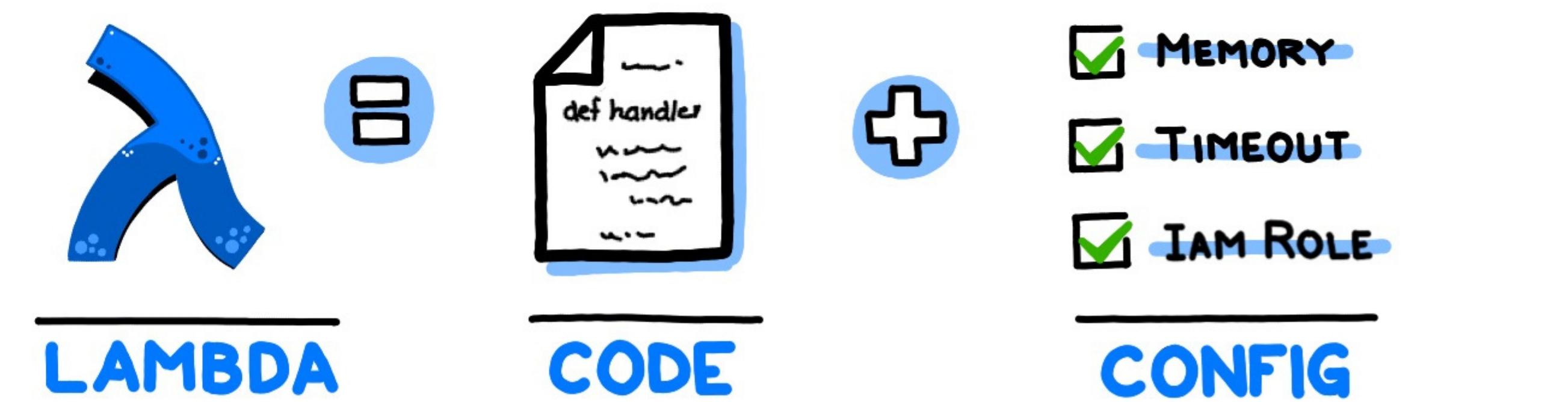
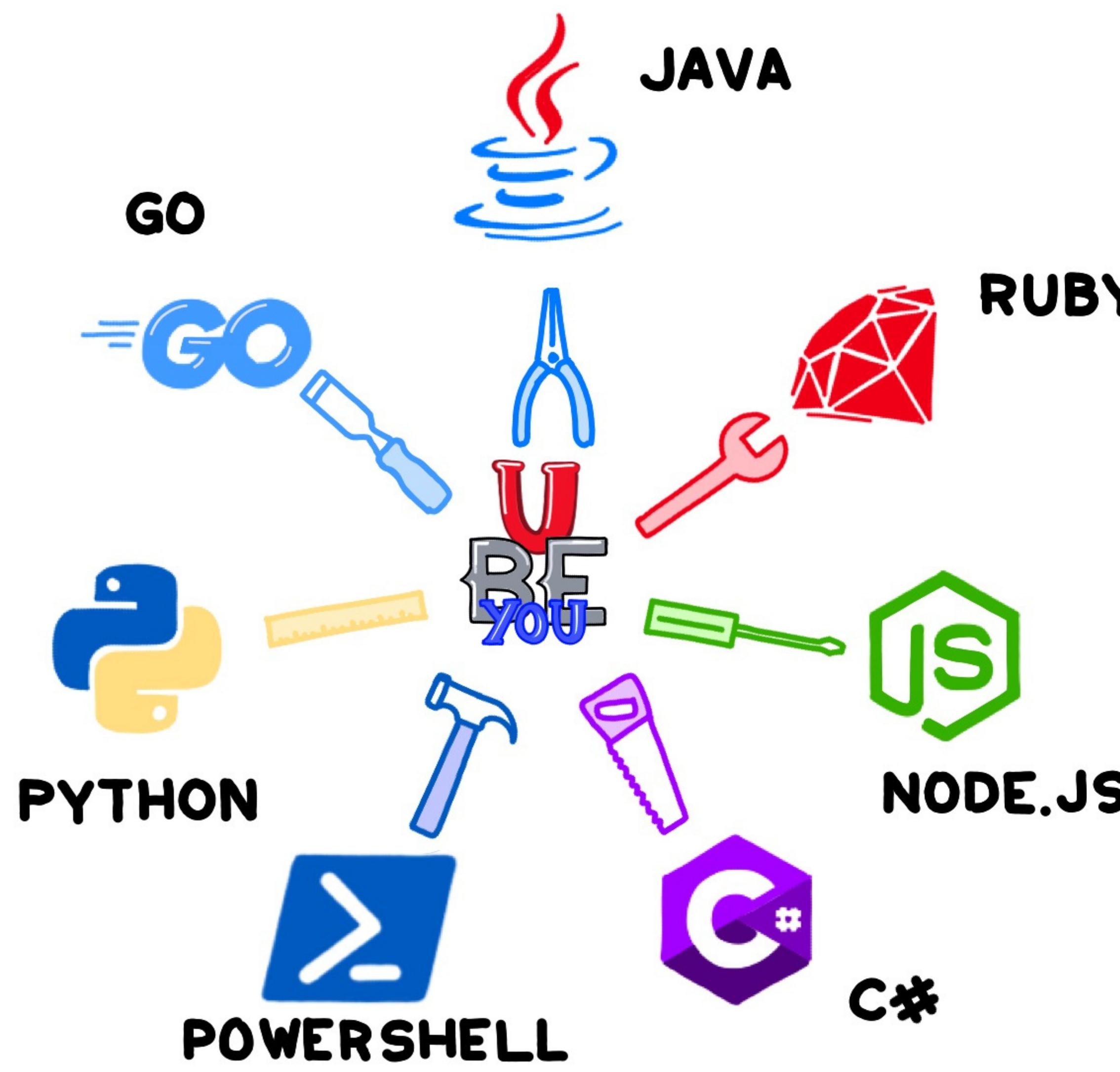
\*serverlessfor everyone



## AWS LAMBDA

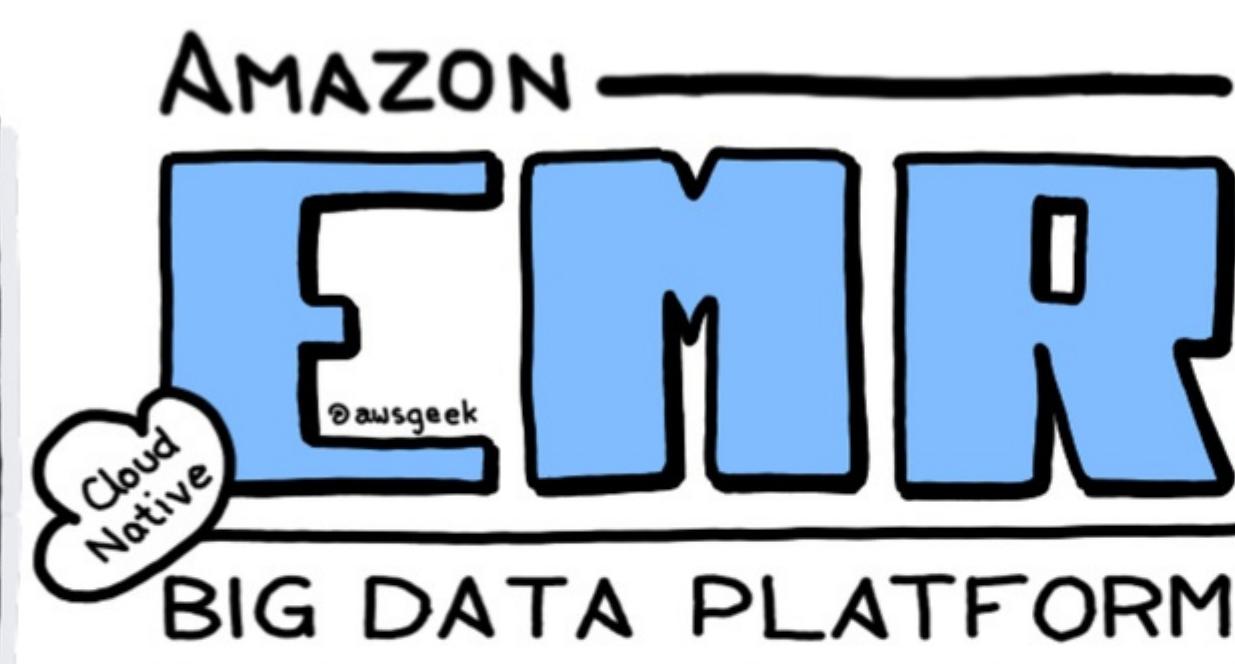
4/6/2020

@awsgeek



# TIMELINE

- 2009: BETA LAUNCH  
PIG & HIVE
- 10: CC1/GPU INSTANCES  
BOOTSTRAP ACTIONS
- 11: SPOT INSTANCES
- CC2 INSTANCES
- 12: HBASE
- DATA PIPELINE
- 13: S3 SSE
- IMPALA
- 14: IAM ROLES
- HUNK
- 15: APACHE SPARK
- PRIVATE SUBNETS
- CLOUDFORMATION
- FLINK
- 16: AUTO-SCALING
- MXNET
- NOTEBOOKS
- TENSORFLOW
- 2019: 99.9% SLA



- MACHINE LEARNING
- REALTIME STREAMING
- CLICKSTREAM ANALYSIS
- GENOMICS
- ETL

HOSTED HADOOP PLATFORM

ELASTIC CLUSTERS

CONSOLE, CLI & SDK ACCESS

STORAGE OPTIONS

- S3, EBS, RDS
- DYNAMODB
- REDSHIFT
- GLACIER

# LAYERS

MLLIB, SPARK SQL, ...  
HIVE, PIG, STREAMINGLIB

PROGRAMS

HADOOP MAPREDUCE | APACHE SPARK

FRAMEWORK

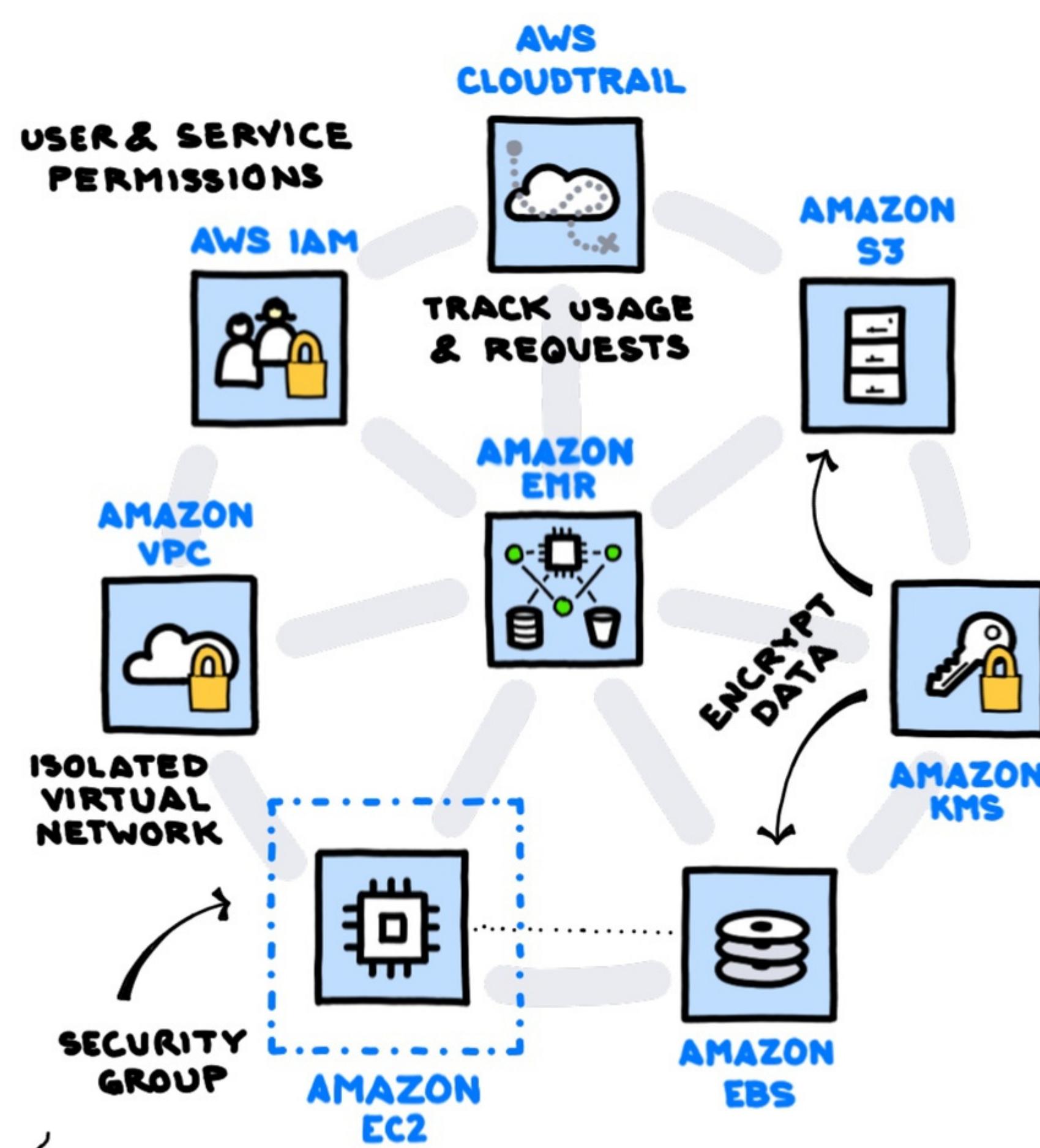
YARN "yet another resource negotiator"

MANAGEMENT

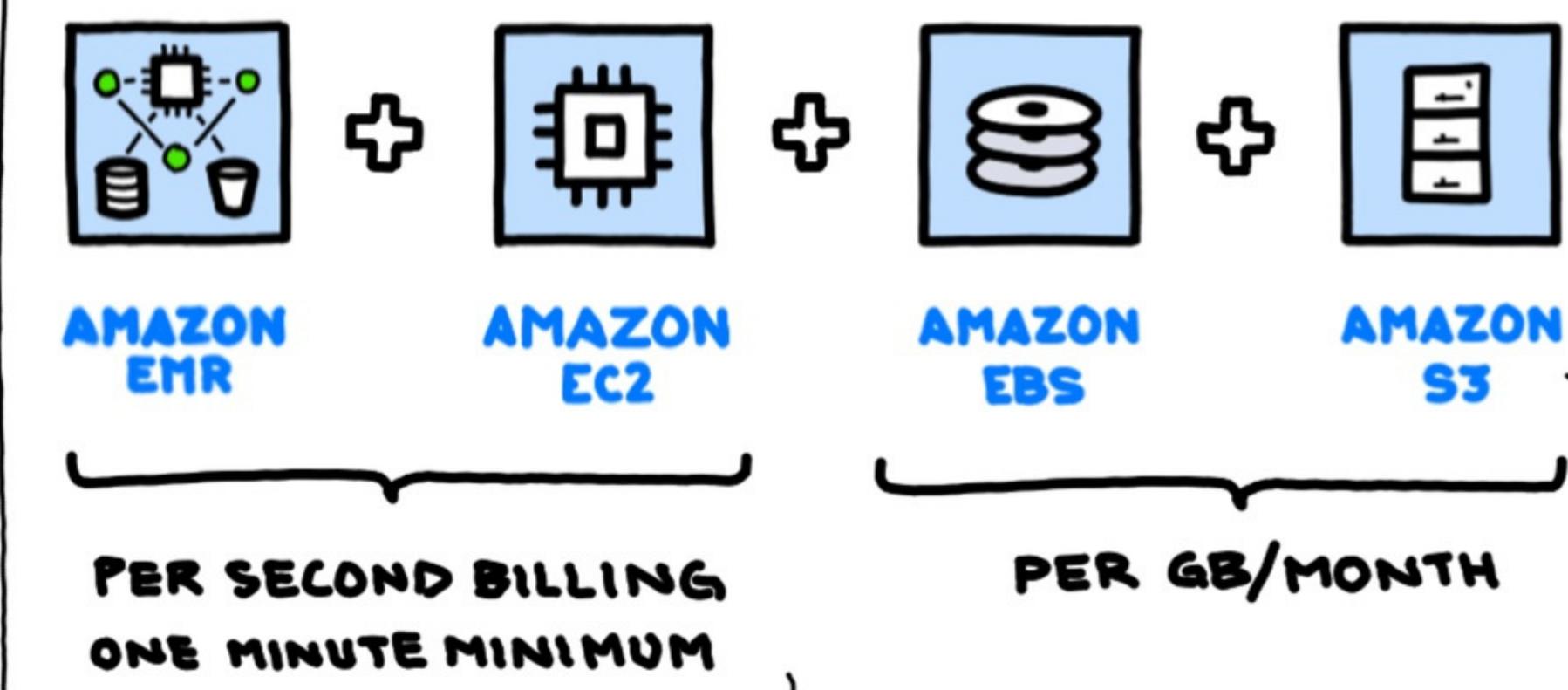
HDFS | EMRFS (S3) | Local Disk (ephemeral)

STORAGE

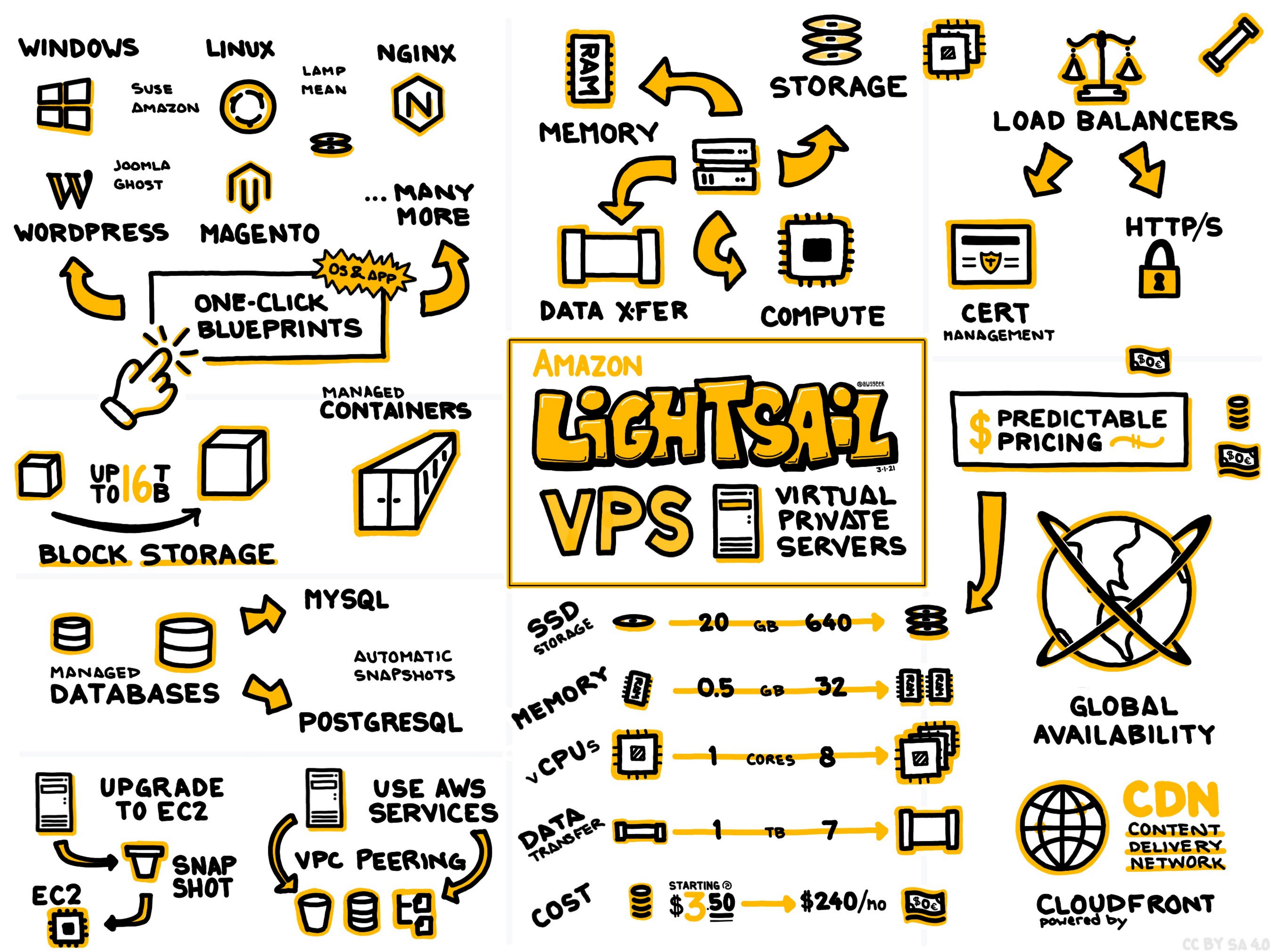
# SECURITY

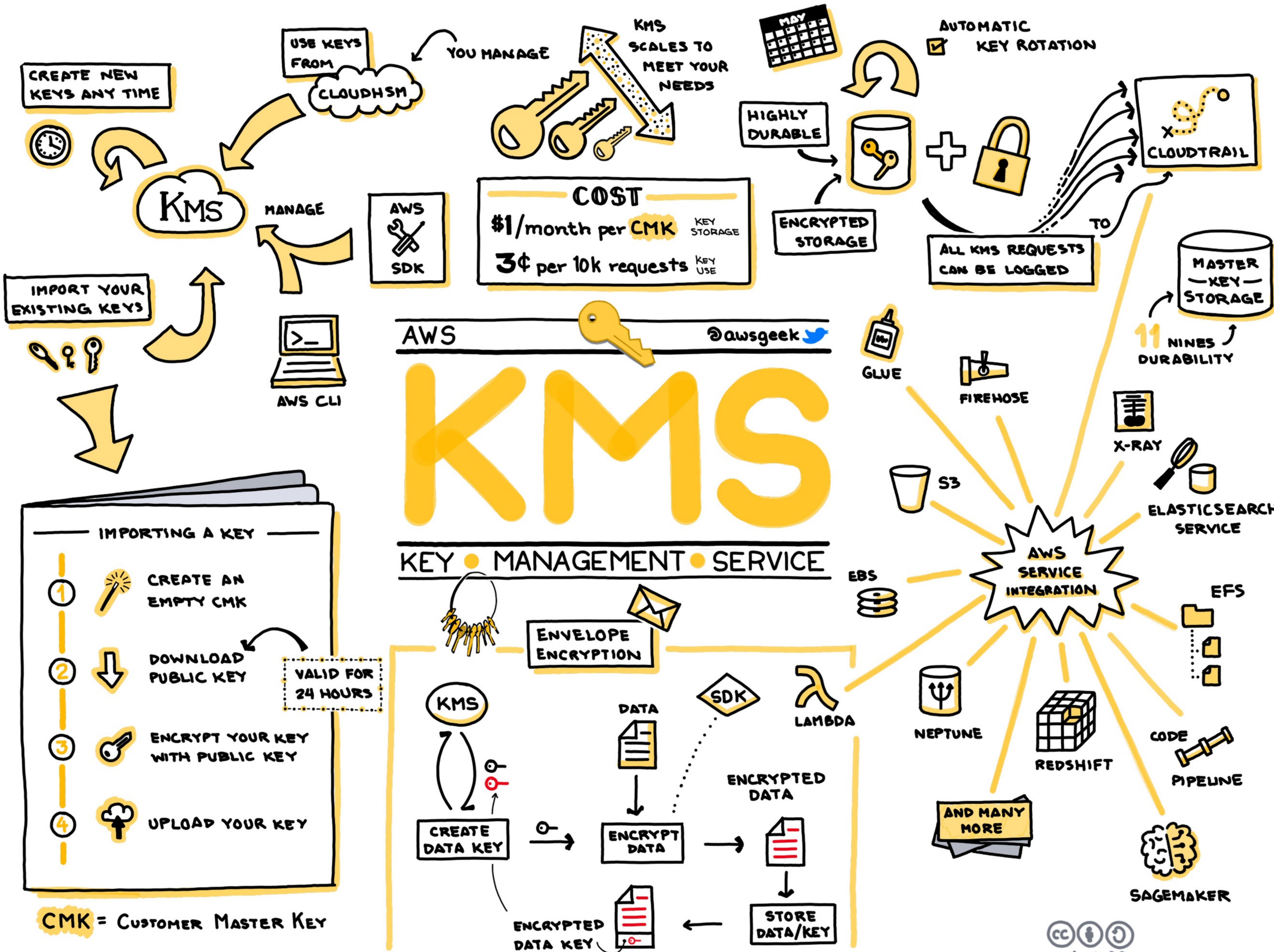


PAY-AS-YOU-GO  
PRICING



**EC2 SPOT** for HADOOP TASK NODES up to 90% SAVINGS





# Compliance

PCI



ISO



HIPAA

Soc  
1,2,3

# AWS · ELASTIC

@awsgeek

5/30/20

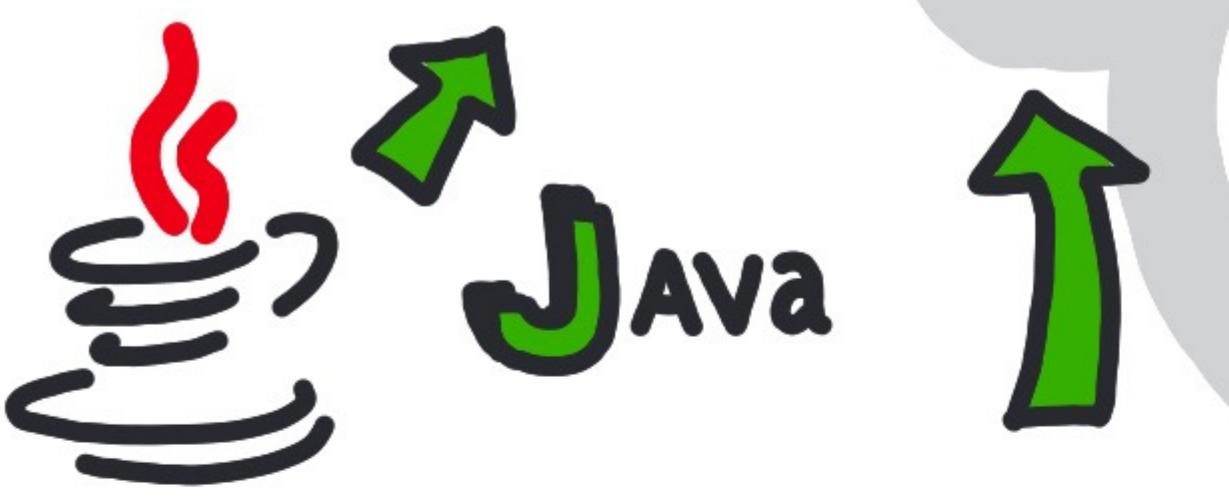
# BEANSTALK

C#

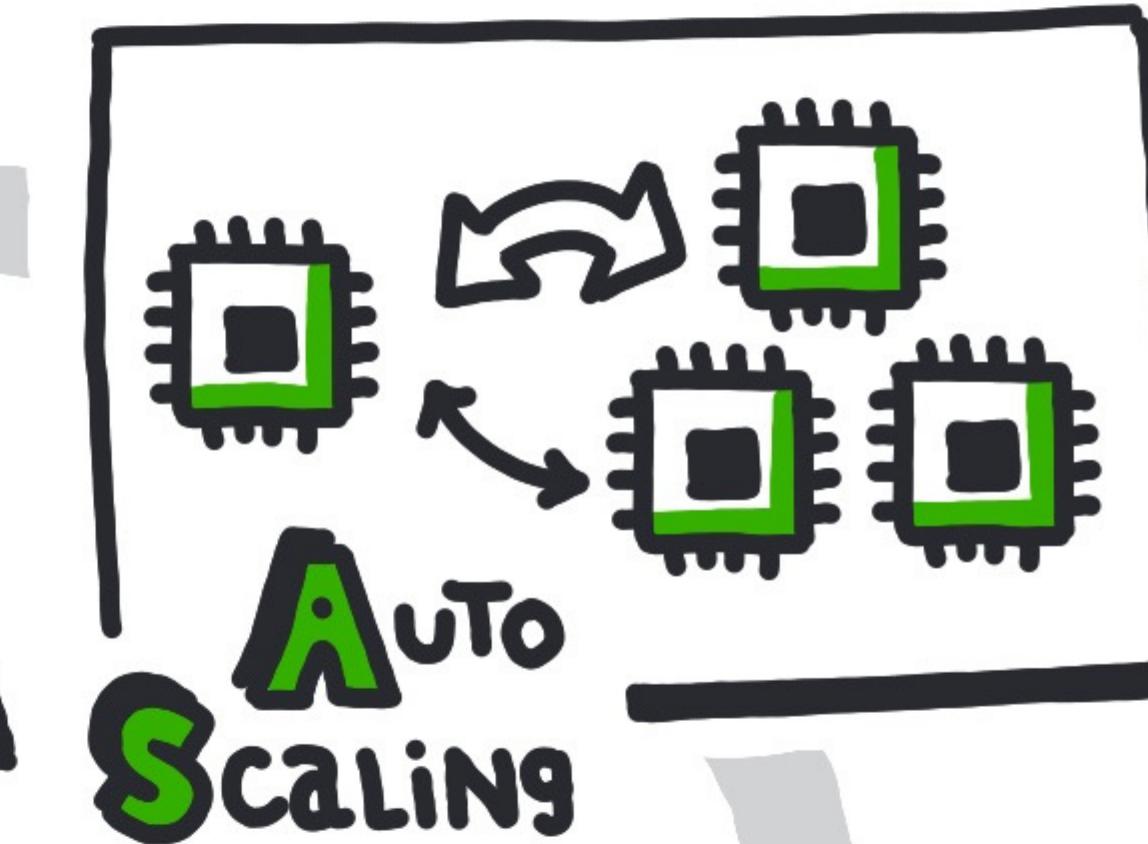
JS

ELASTIC  
BEANSTALK

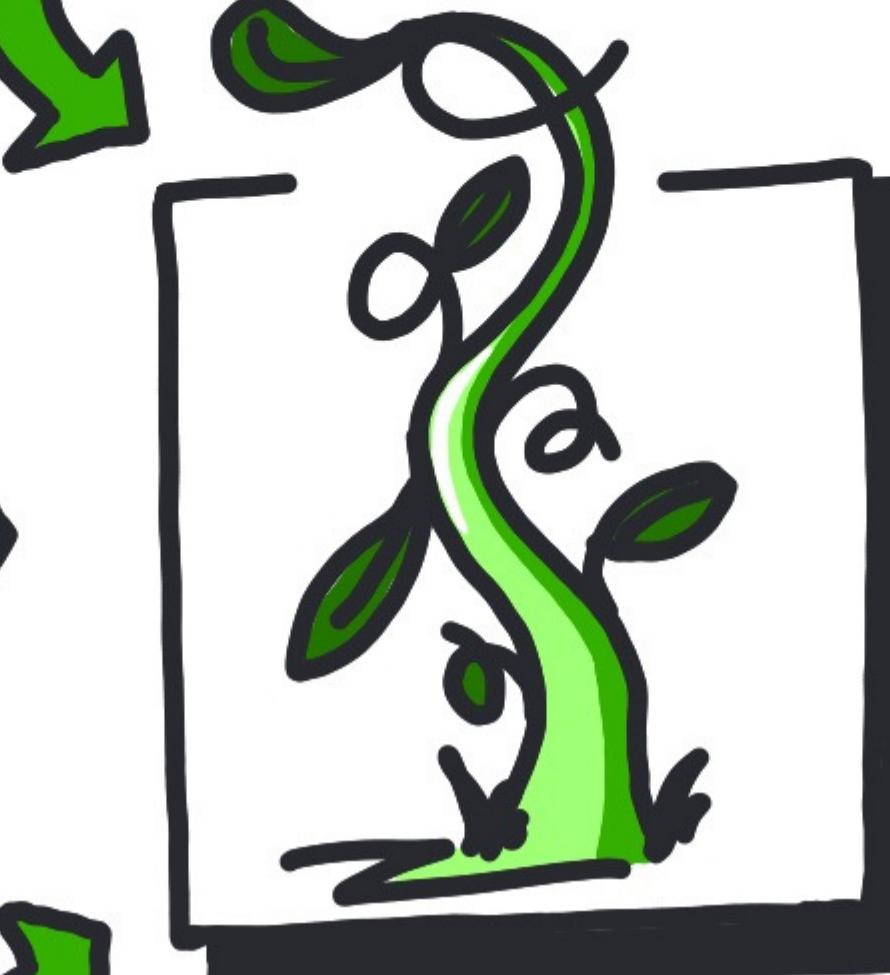
dotNET



DOCKER CONTAINERS



△ ELBs  
△ MULTI-AZ



CONSOLE  
SDK  
CLI

ADMIN



CLOUDWATCH  
ALERTS  
NOTIFICATIONS

## DOMAIN



REPOSITORIES  
PACKAGE STORAGE

## REPOSITORY



PACKAGE VERSIONS  
ENDPOINTS

## PACKAGE

1. Name
2. Namespace
3. Versions
4. Metadata

## ASSET



FILE

aws

# CodeArtifact

• SOFTWARE • ARTIFACT • REPOSITORY •

SECURE, SCALABLE, & COST EFFECTIVE ARTIFACT MANAGEMENT FOR SOFTWARE DEVELOPMENT

Maven

Central

NuGet.org

npm



PyPI



AWS  
Code  
Artifact

- AWS Managed -  
Centralized  
Repository

Maven

Gradle

NuGet

npm

twine

Pip



Public Repos



AWS KMS  
ENCRYPTION



AWS IAM | RESOURCE PROTECTION

Development  
Teams

CI/CD  
Systems

## PAY-PER-USE



\$

BYTES STORED

## DATA TRANSFER

out of Region



\$

API CALLS

005

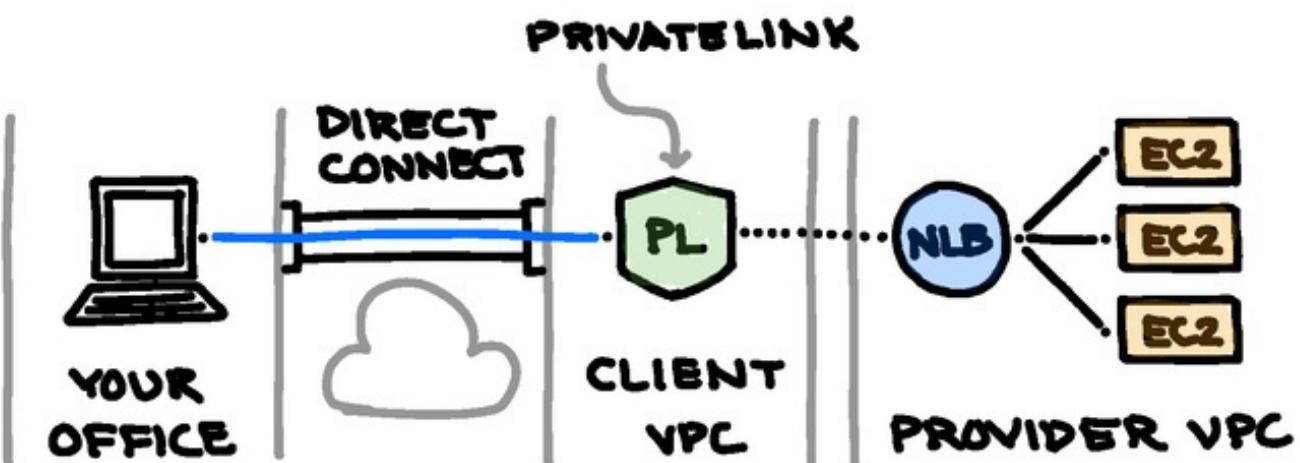
0



PRIVATE  
LINK



PRIVATELINK ADDRESSES ARE PRIVATE  
NO PUBLIC IP ADDRESSES!!



EXPOSED AS ENI IN CLIENT VPC  
CAN APPLY SECURITY GROUPS TO ENI

NO CROSS-REGION SUPPORT

BOTH REGIONAL & ZONAL DNS NAMES

USE FOR BETTER AVAILABILITY, LATENCY  
(REMEMBER, ZONES DIFFER BY ACCOUNT)

MY 'A' MAY NOT BE YOUR 'A'

### FOR CUSTOMERS & PARTNERS

EXPOSE YOUR SERVICE IN OTHER VPCS  
LIFECYCLE EVENTS VIA SNS

NOW CALLED  
"GATEWAY ENDPOINTS"

### FOR AWS SERVICES

BUILDS ON ENPOINTS: S3, DYNAMO DB

CLOUDWATCH, SNS, SAGEMAKER

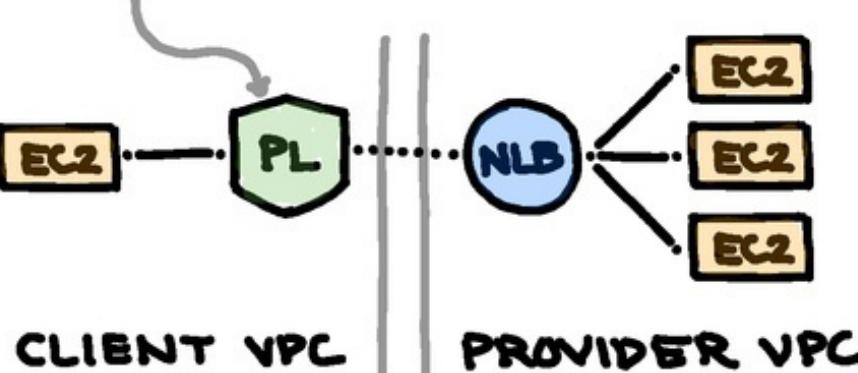
KINESIS, CODEBUILD, CONFIG

EC2, API GATEWAY, AWS SERVICE CATALOG

ELB, CLOUDFORMATION

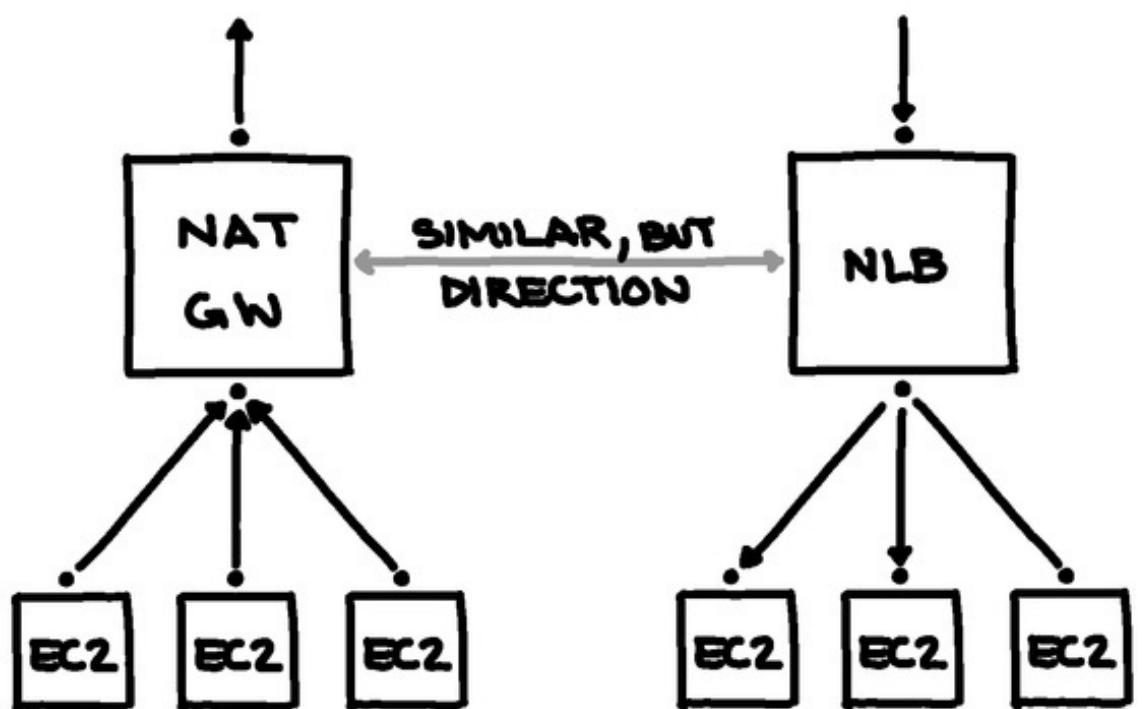
EC2 SYSTEMS MANAGER

### PRIVATELINK



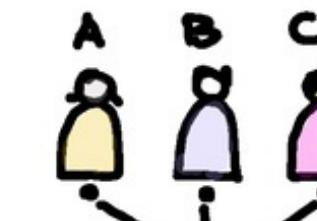
## HYPERPLANE NODES

- BASED ON S3 LOAD BALANCER ARCHITECTURE
- HYPERPLANE NODES ARE REALLY EC2 INSTANCES
- USED BY AWS TO MANAGE STATE & ROUTE PACKETS

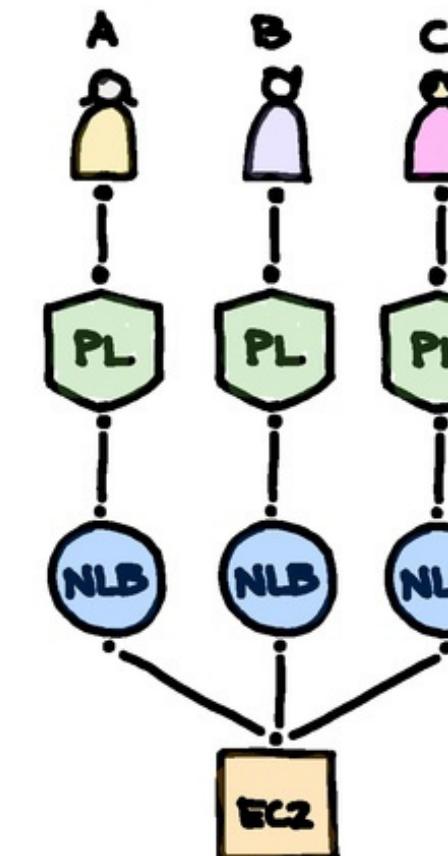


**PRICING: (OREGON)**  
1¢/ENDPOINT/AZ/HR  
1¢/GB DATA

### CUSTOMER



### CUSTOMER



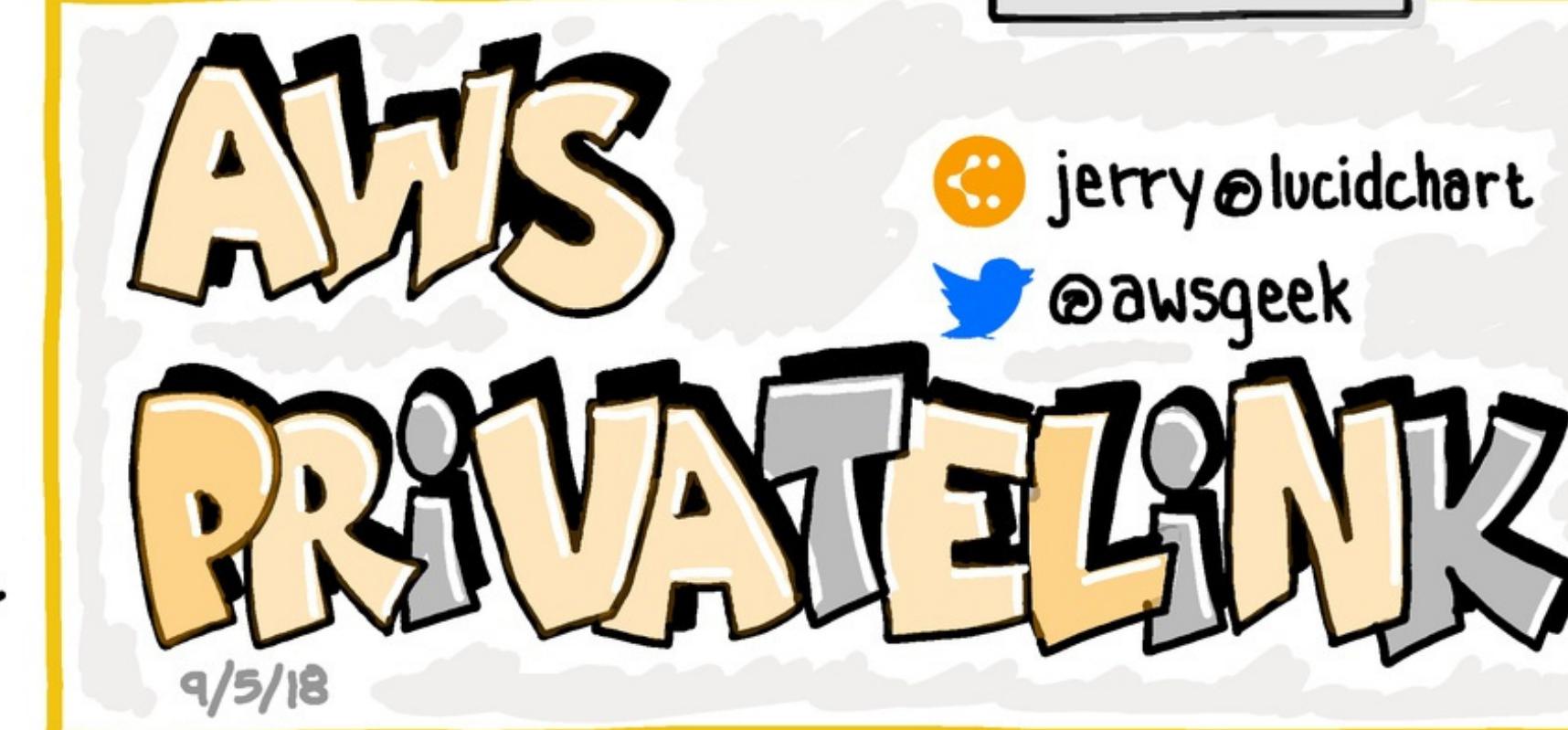
### HOW TO DIFFERENTIATE TRAFFIC?

- 1 USE ACCOUNTS/PASSWORDS/TOKENS
- 2 USE DIFF LISTENER PORTS ON TARGETS
- 3 USE PROXY PROTOCOL V2 PREAMBLE

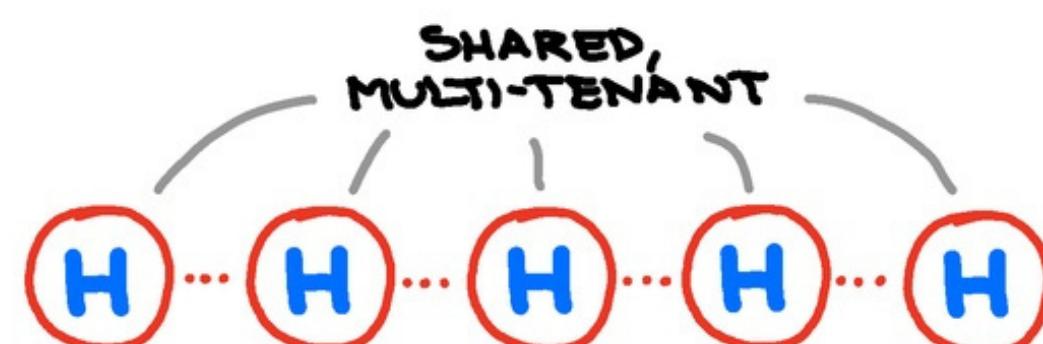
PREFERRED, BUT REQ'S CODE PATCH

### UNDER THE HOOD: AWS HYPERPLANE

NOT A PROXY!  
DOESN'T TERM CONNECTIONS  
S3 LOAD BALANCER EVOLVED  
USED BY EFS, NAT GW, & NLB  
RUNS ON EC2 IN EC2  
DISTRIBUTED & TRANSACTIONAL



SHARED,  
MULTI-TENANT



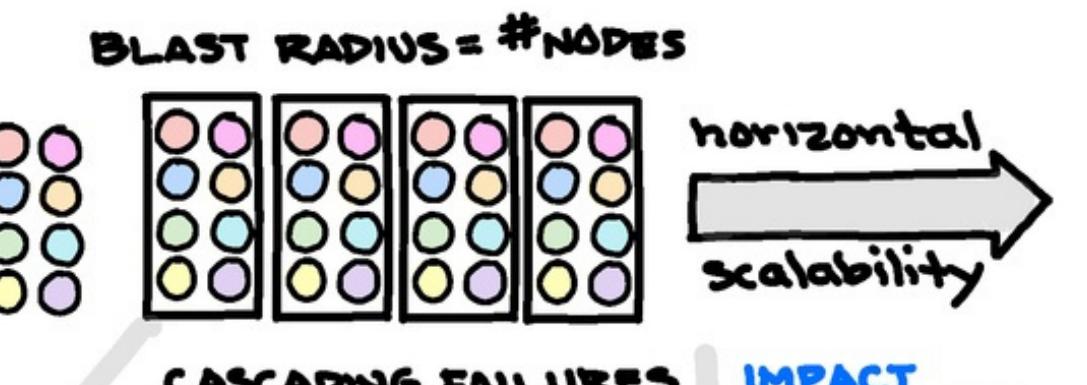
DEFAULT 5GB/S CAPACITY  
SCALABLE TO TB/S IN 5GB/S INCR

REAL TIME, DISTRIBUTED  
CONSENSUS PROBLEM

NAT GW MUST ENSURE ALL CONNECTIONS TO DEST  
IP/PORT COME FROM UNIQUE SOURCE PORT

NLB'S MUST SELECT & ROUTE CONNECTIONS  
TO SAME TARGET

### GOOD



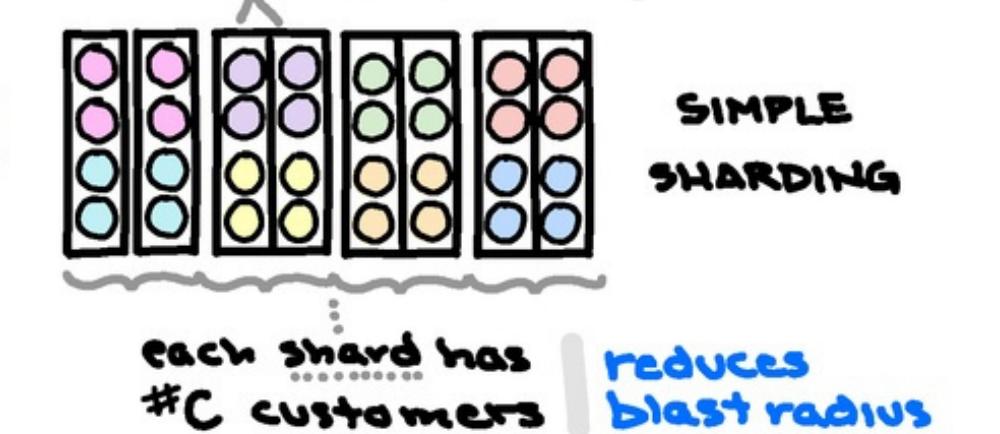
CASCADING FAILURES  
OR NOISY NEIGHBORS

IMPACT  
EVERYONE

each shard has  
#N nodes

for redundancy

### BETTER



each shard has  
#C customers

reduces  
blast radius

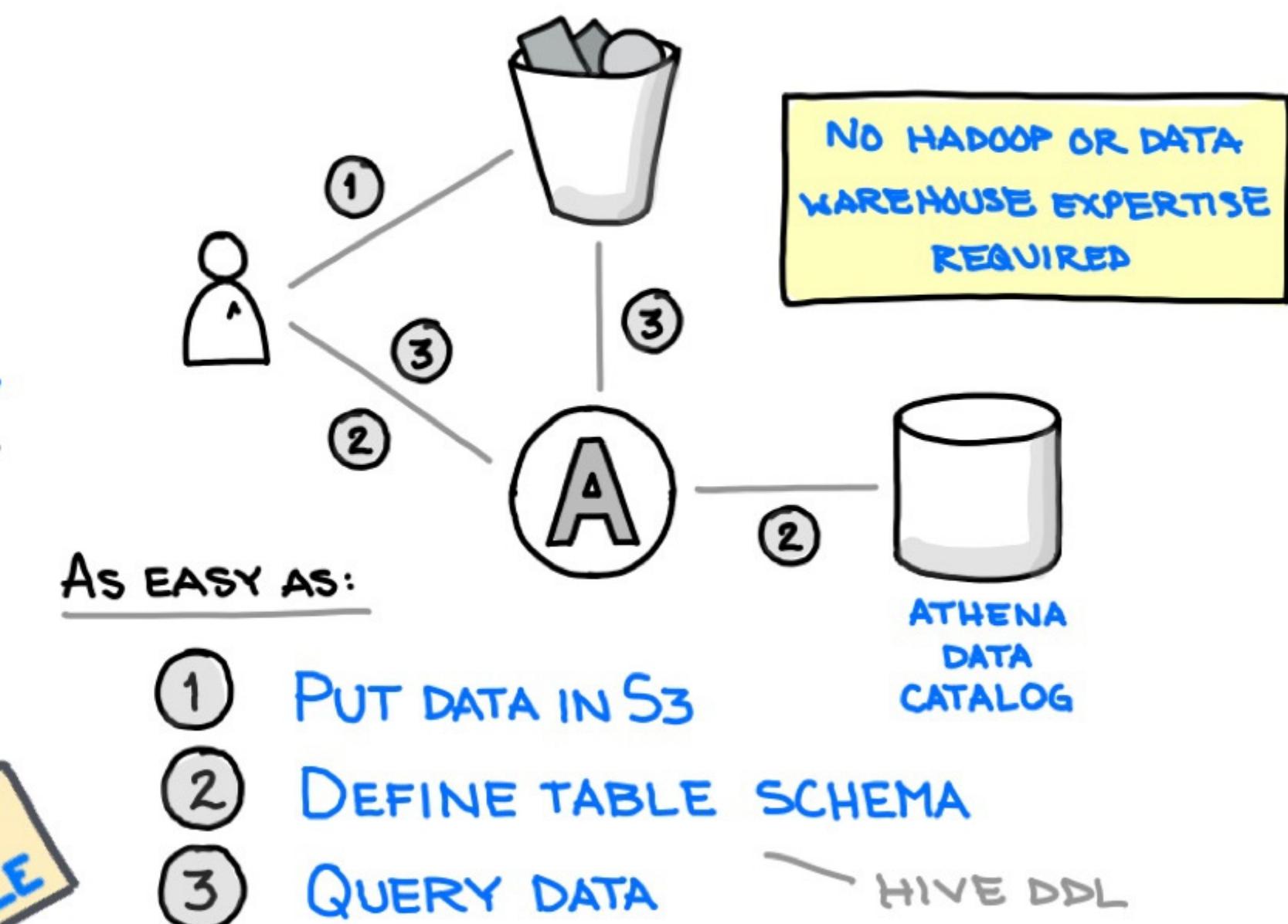
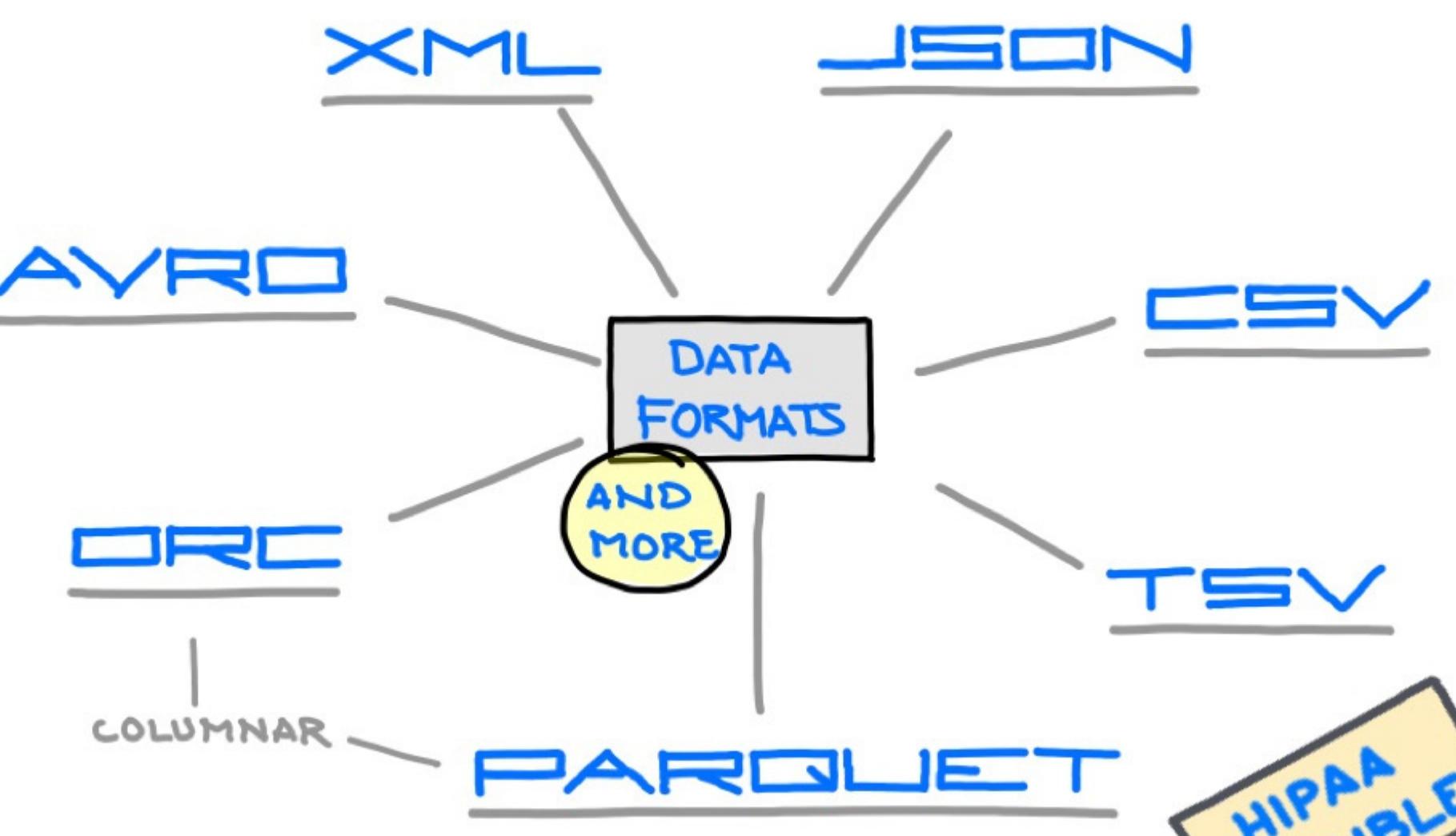
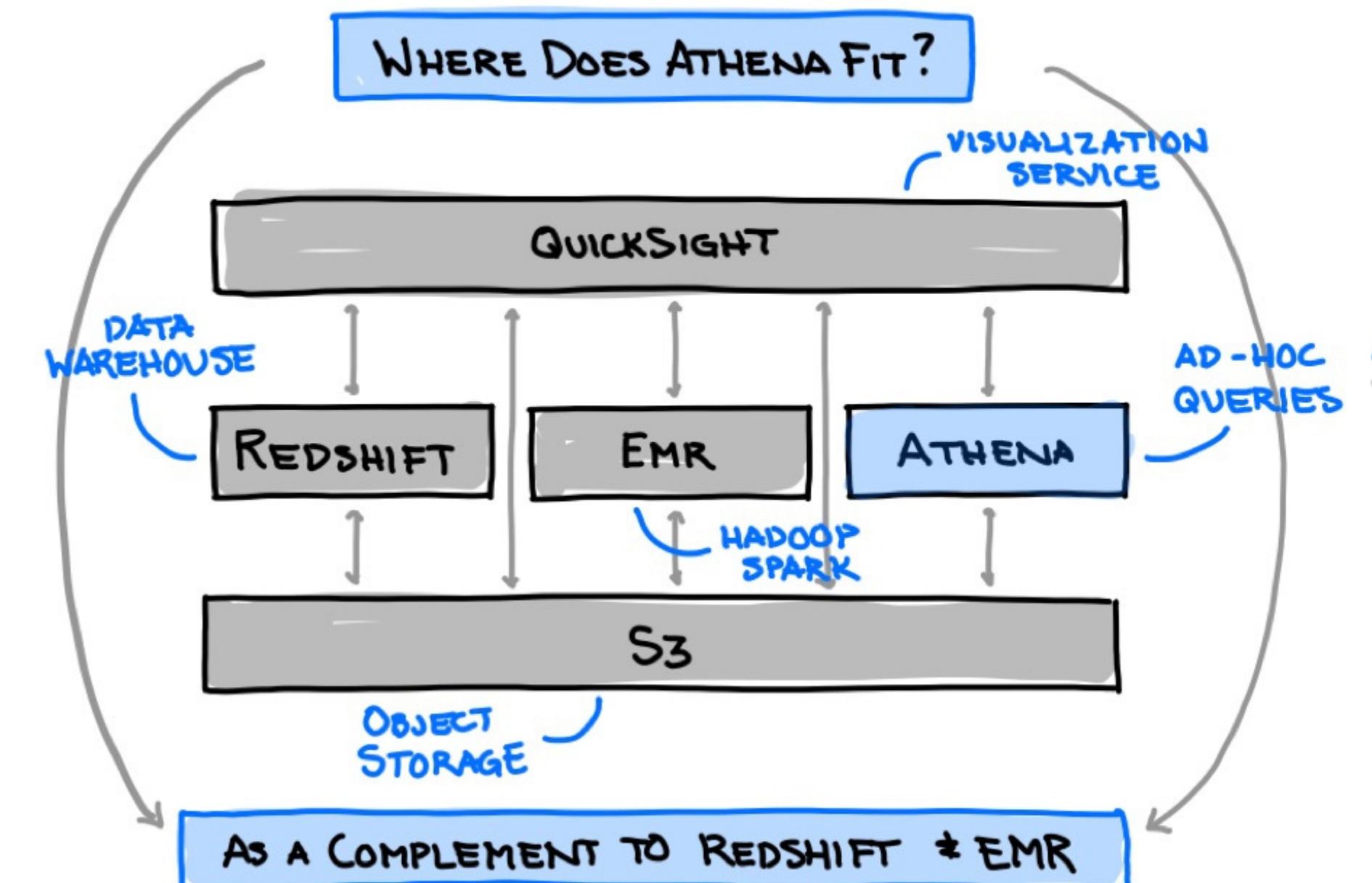
### RANDOM PLACEMENT



requires fault  
tolerant client

### DEALING WITH NOISY NEIGHBORS? SHUFFLE SHARDING

- GIVE EACH CUSTOMER N RANDOM NODES AMONG MANY
- ONLY A SMALL PERCENTAGE WILL OVERLAP
- ISOLATE REALLY NOISY NEIGHBORS

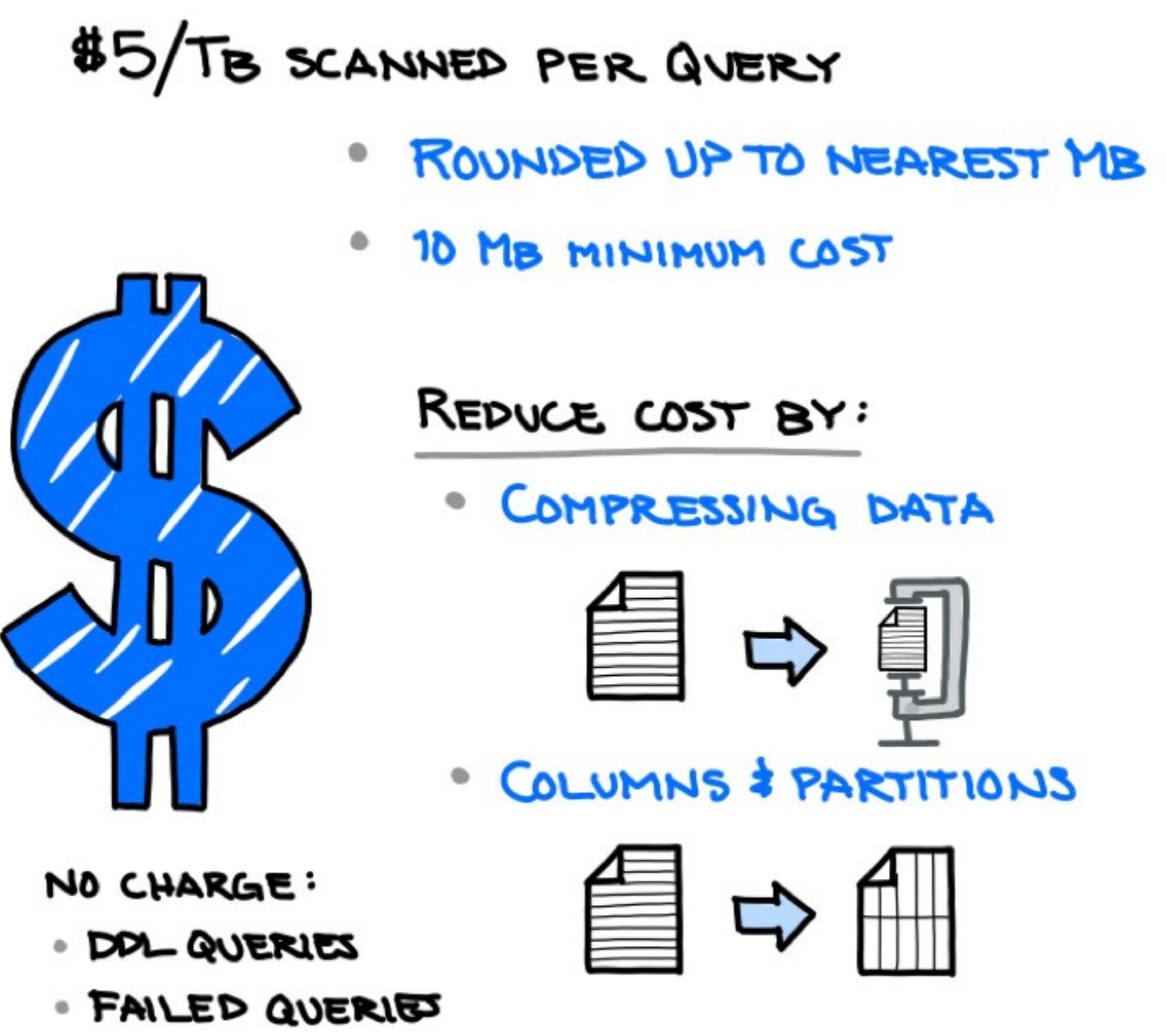
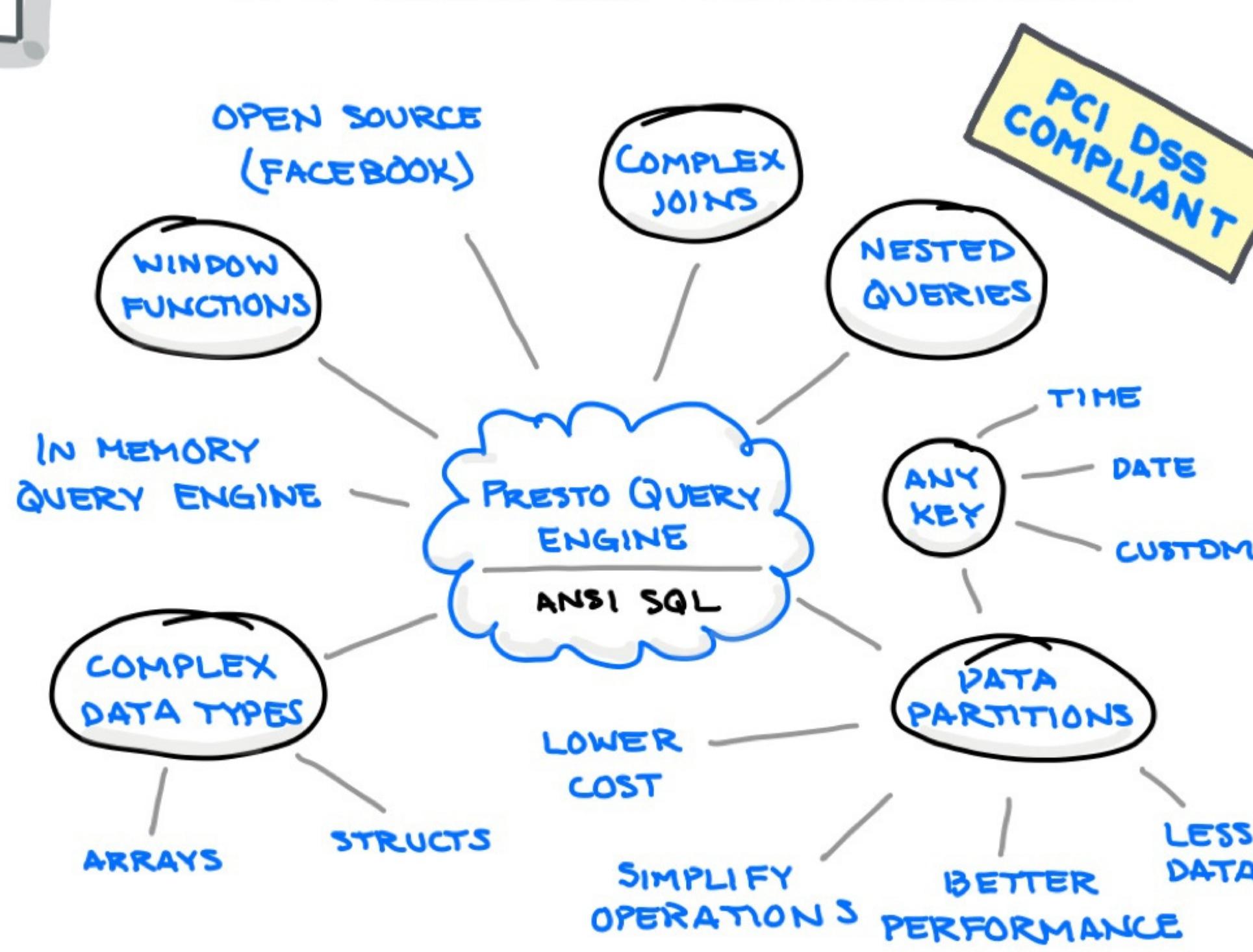
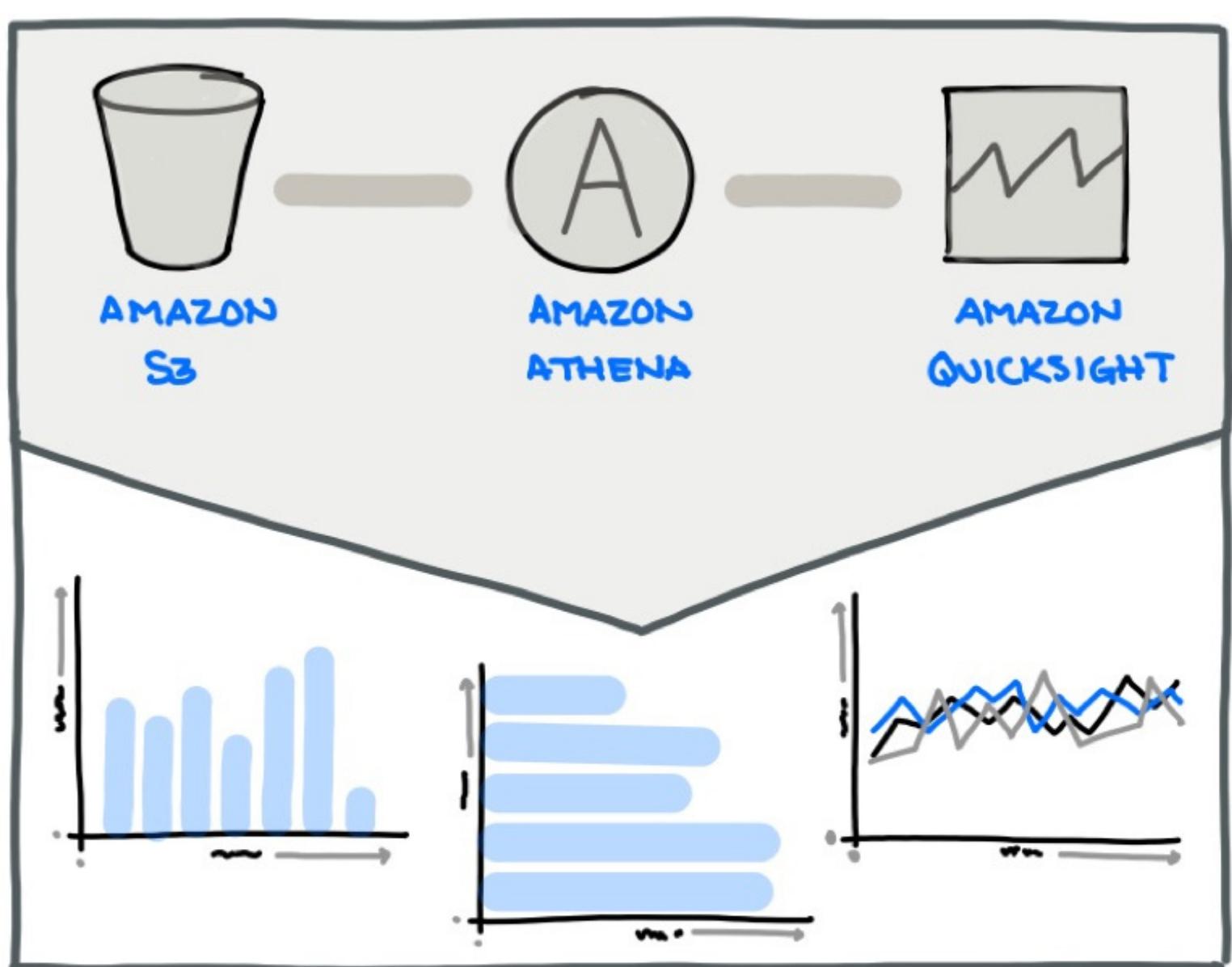
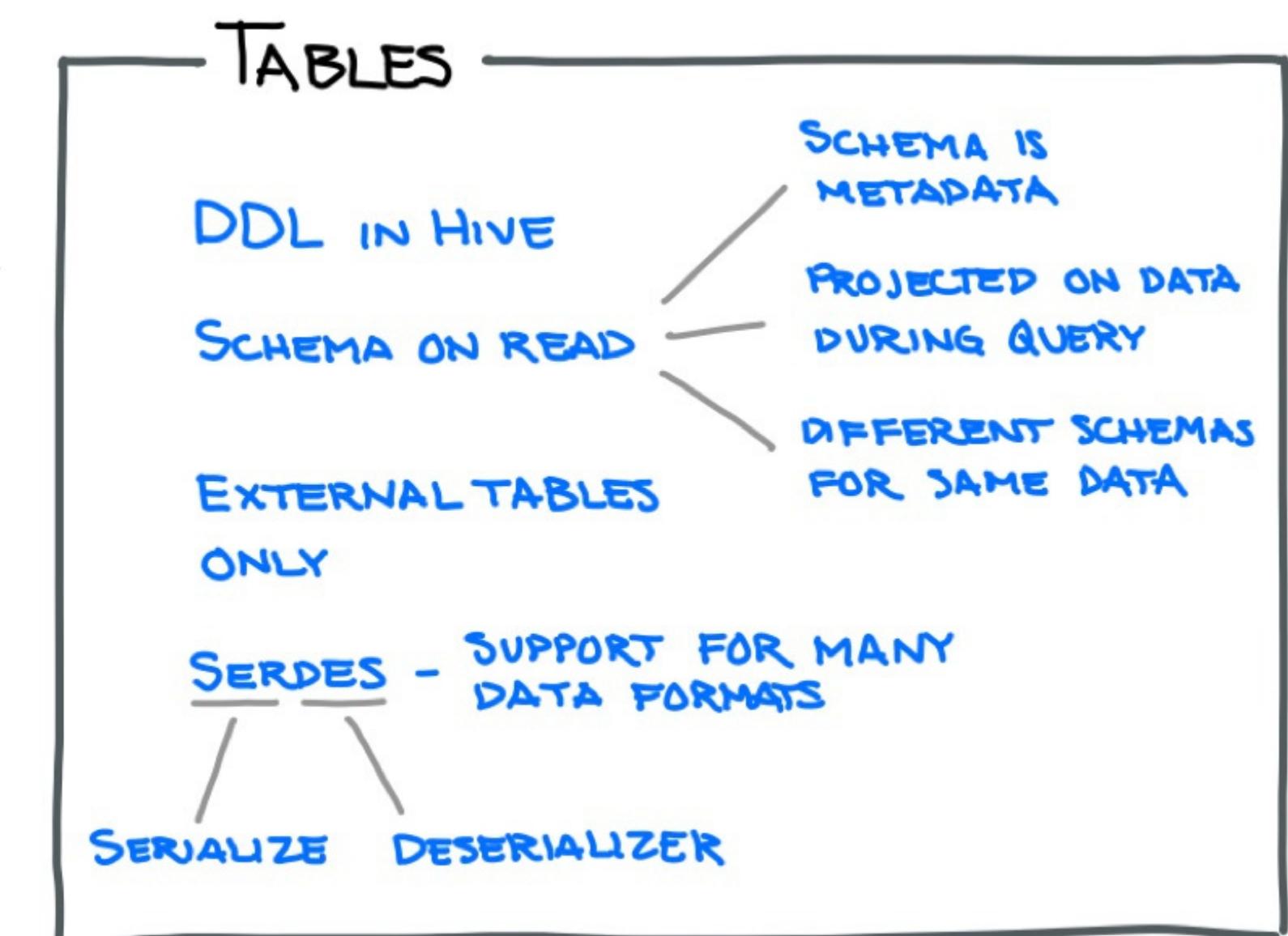


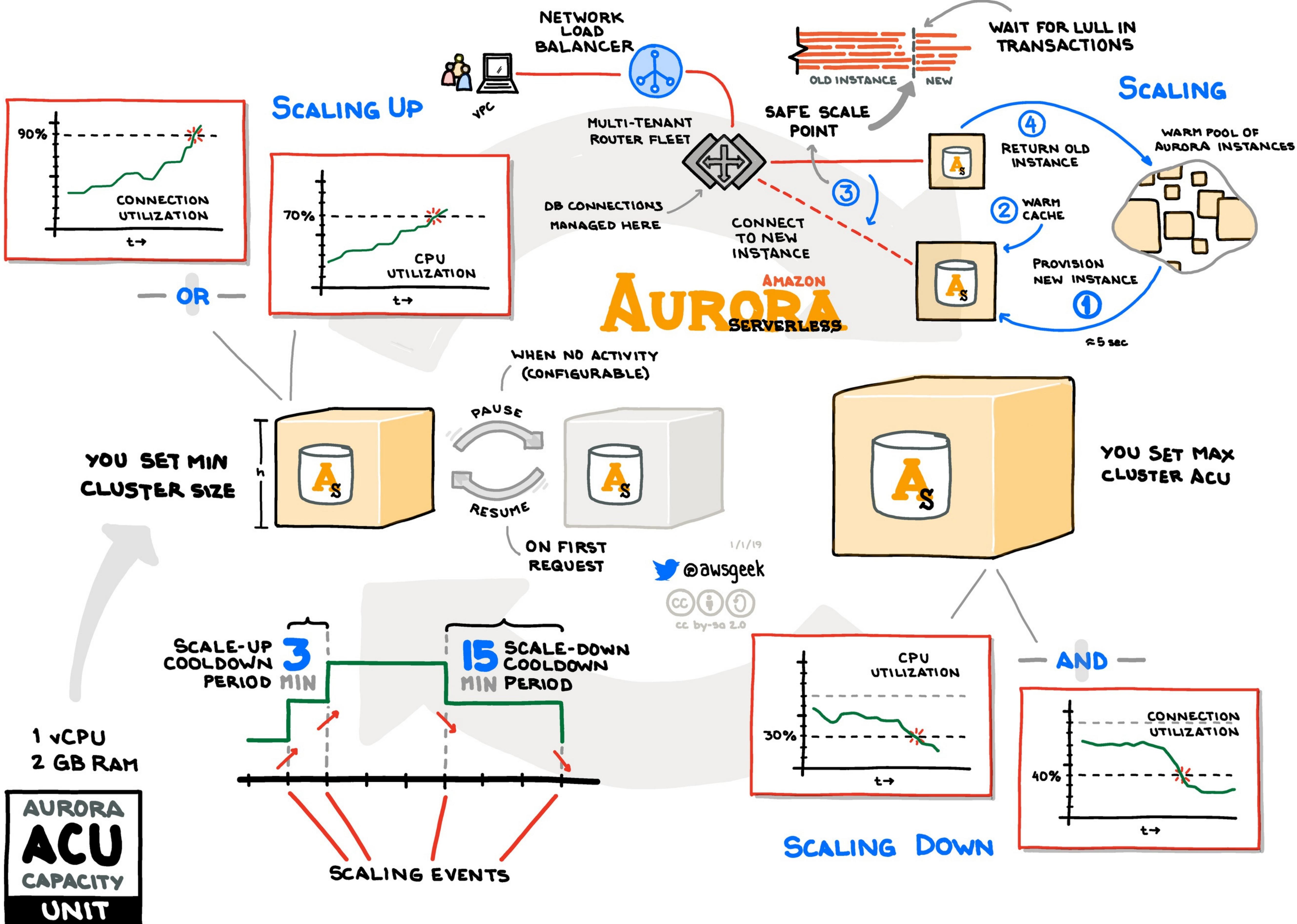
SERVERLESS	HIGHLY AVAILABLE
NO INFRA OR ADMIN	WARM COMPUTE POOLS
NO SPIN UP TIME	DATA IN S3
NO MAINTENANCE	MULTIPLE AZ
CONVENIENT	PERFORMANT
NO DATA LOADING	AUTO PARALLELIZATION
NATIVE DATA FORMATS	STREAMING RESULTS
NO ETL INVOLVED	COMPRESS / COLUMNAR

3/6/20 @awsgeek

# AMAZON athena

GOAL: MAKE IT EASY TO ANALYZE DATA IN S3

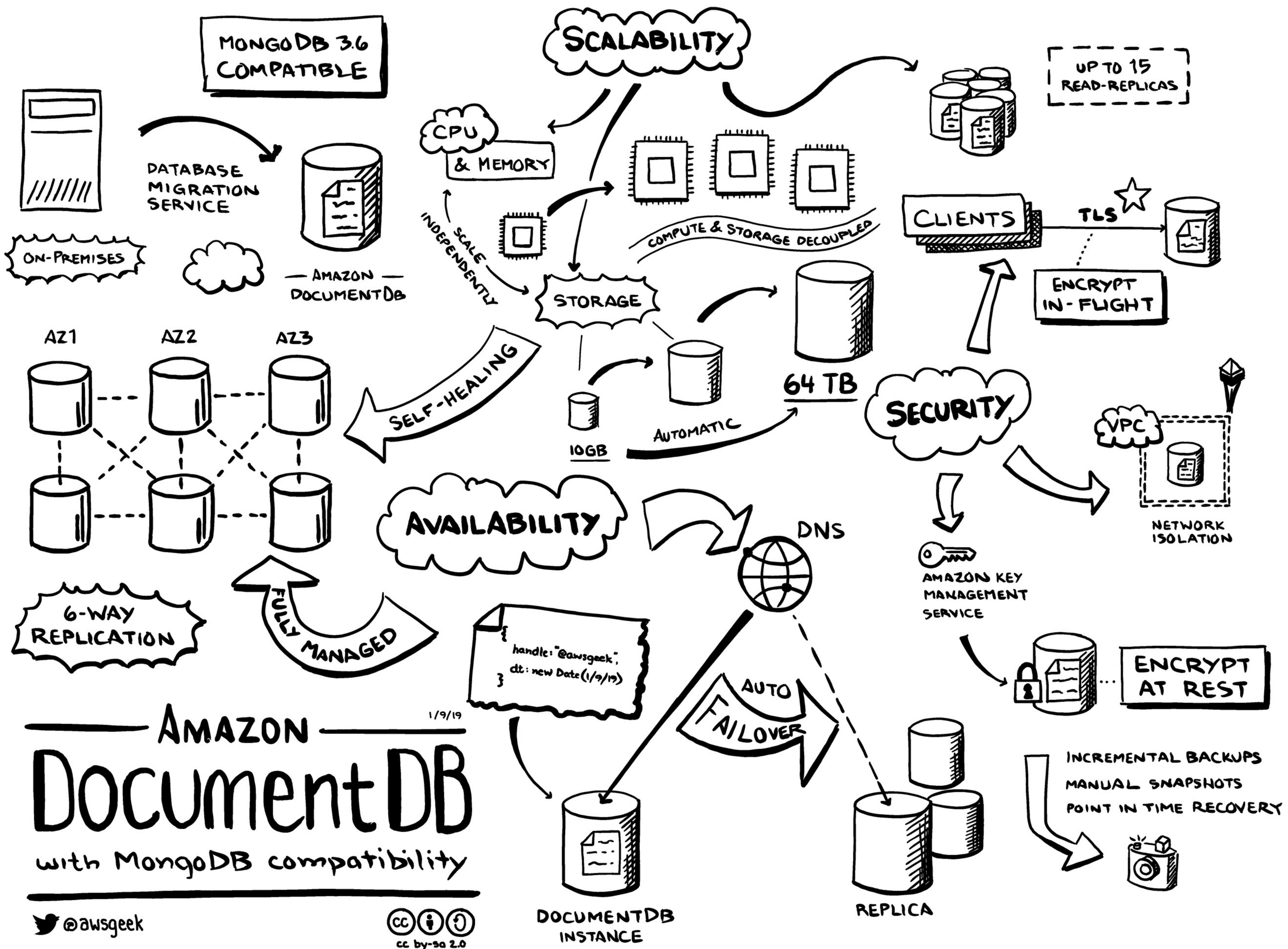




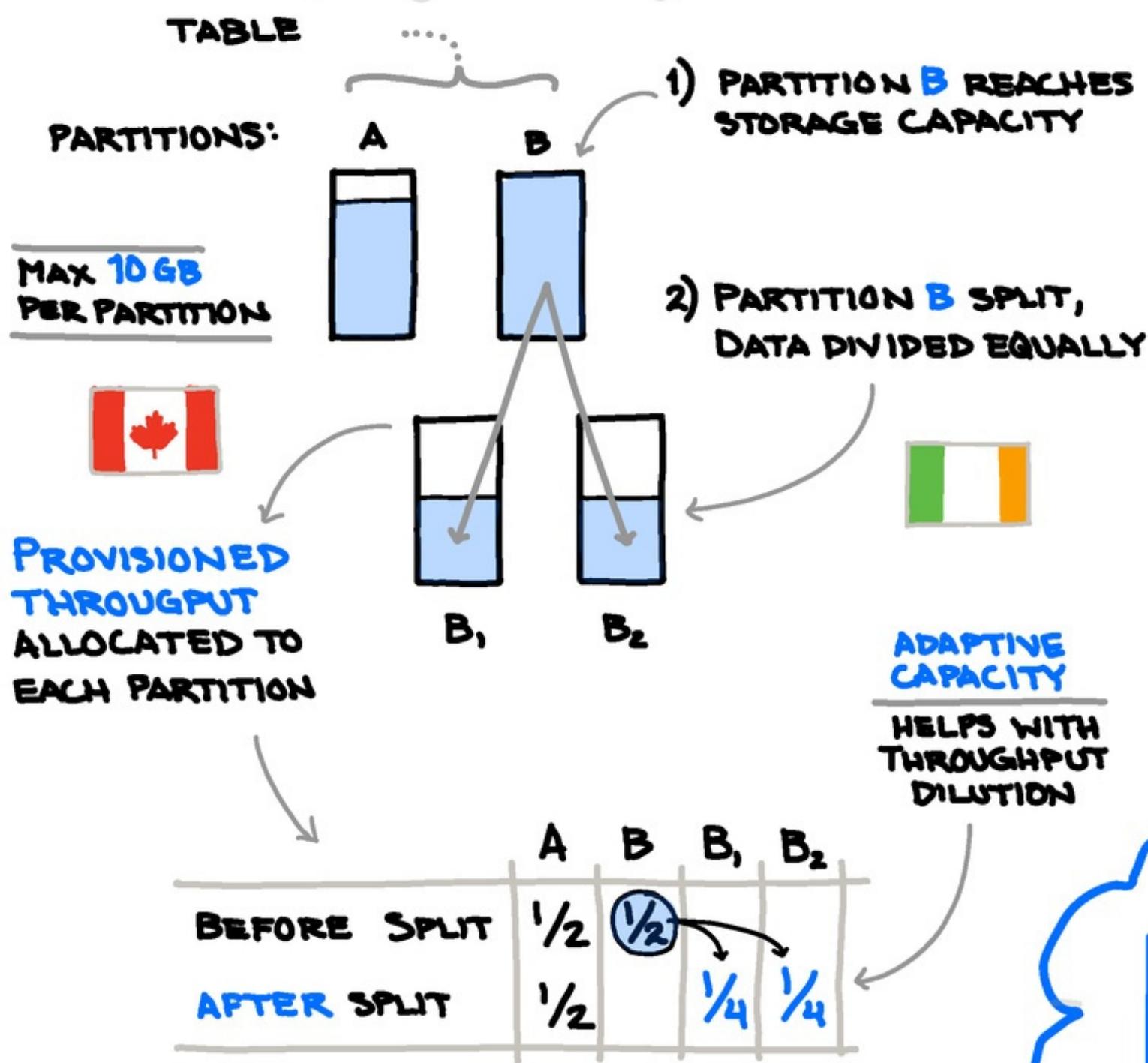
# — AMAZON —

# DocumentDB

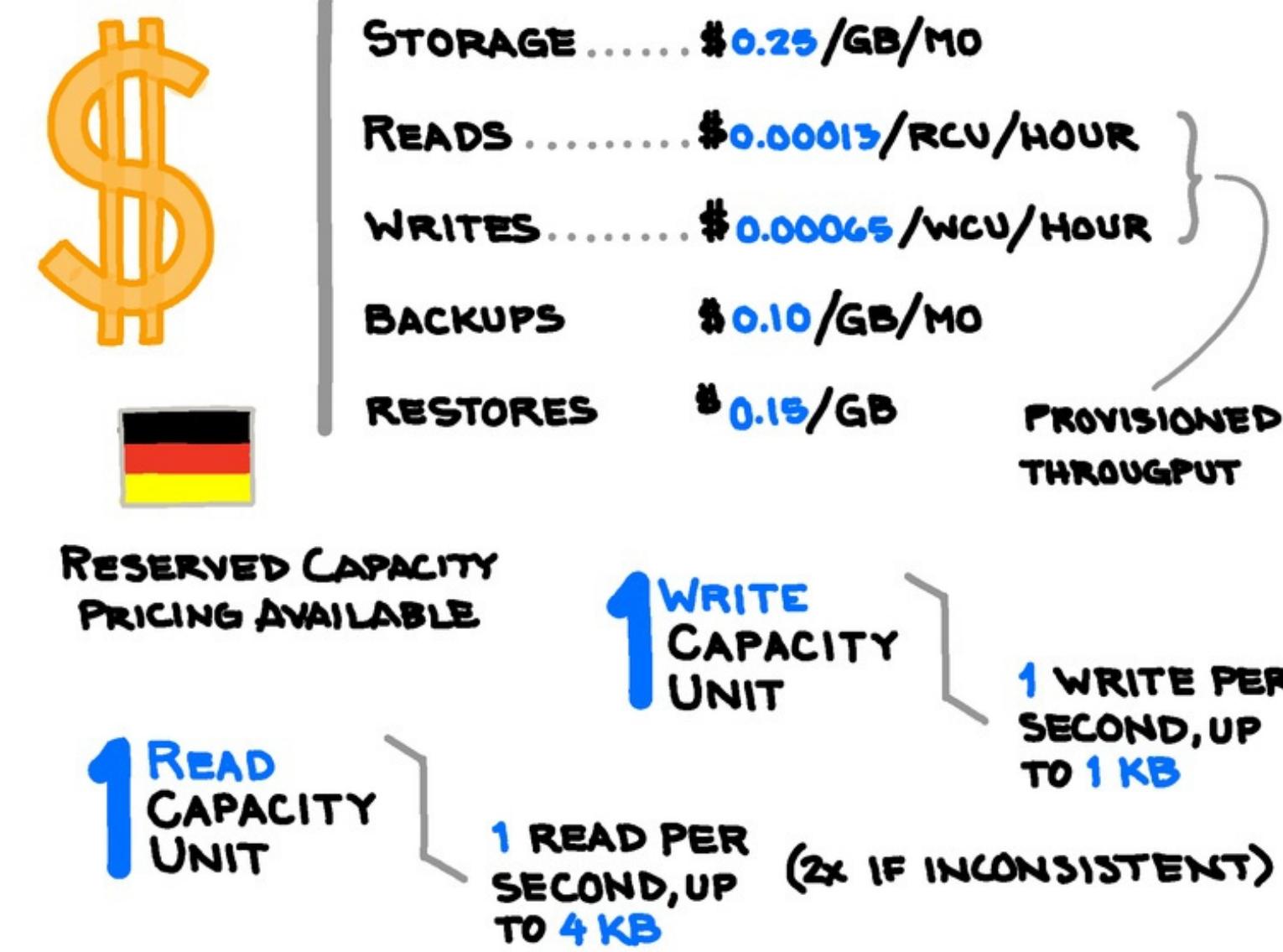
with MongoDB compatibility



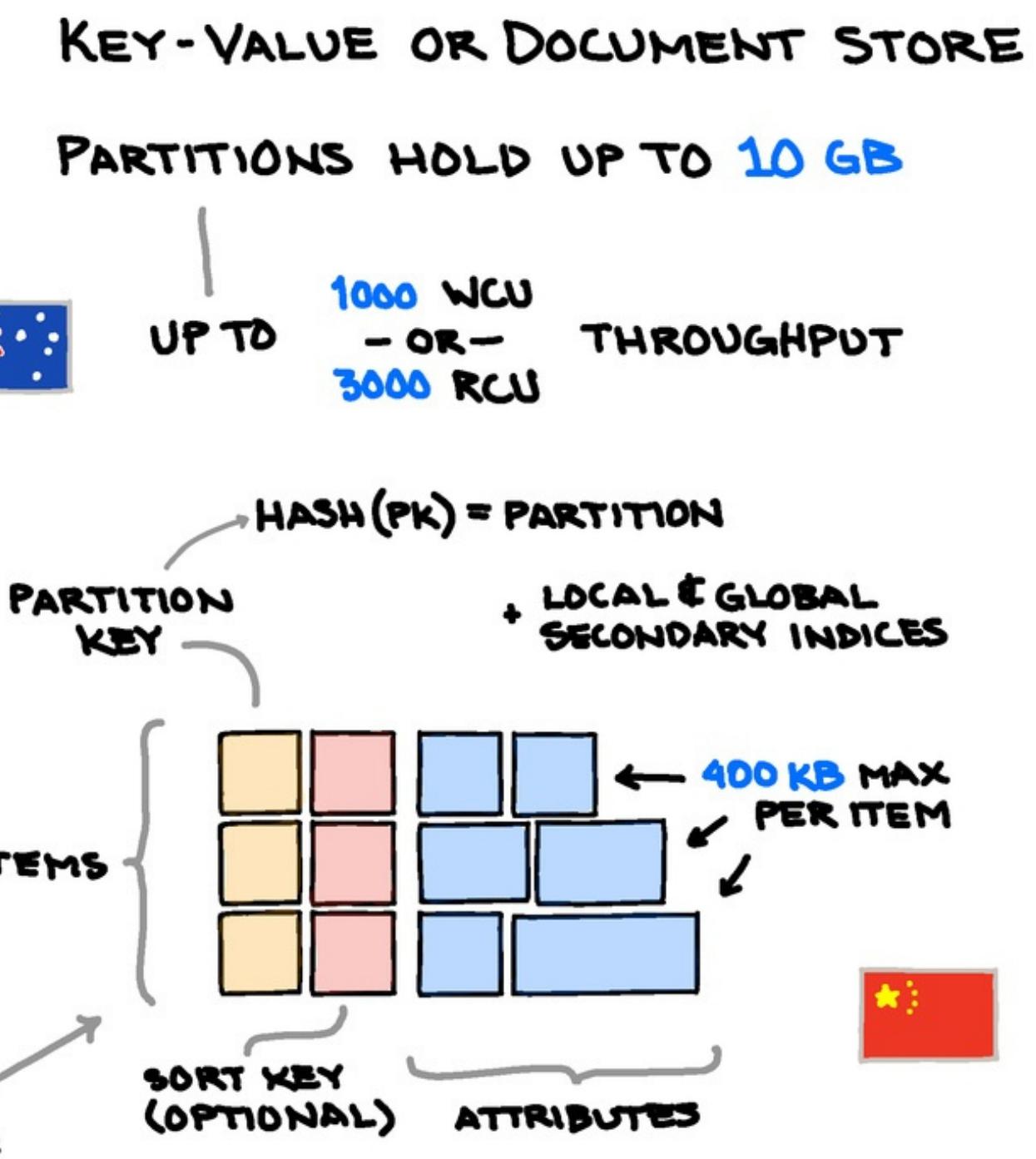
# SCALABILITY



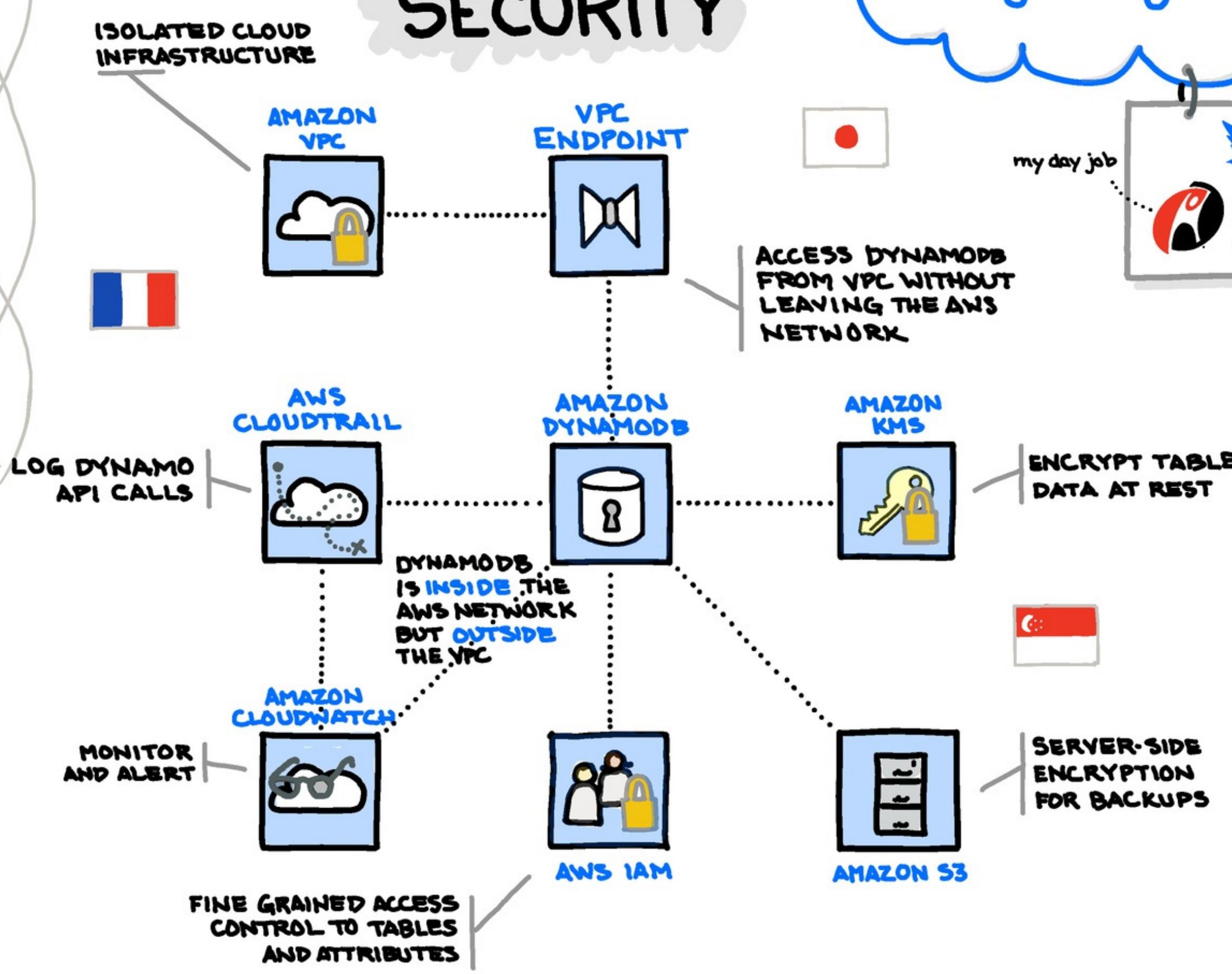
# PRICING



# ESSENTIALS



# SECURITY

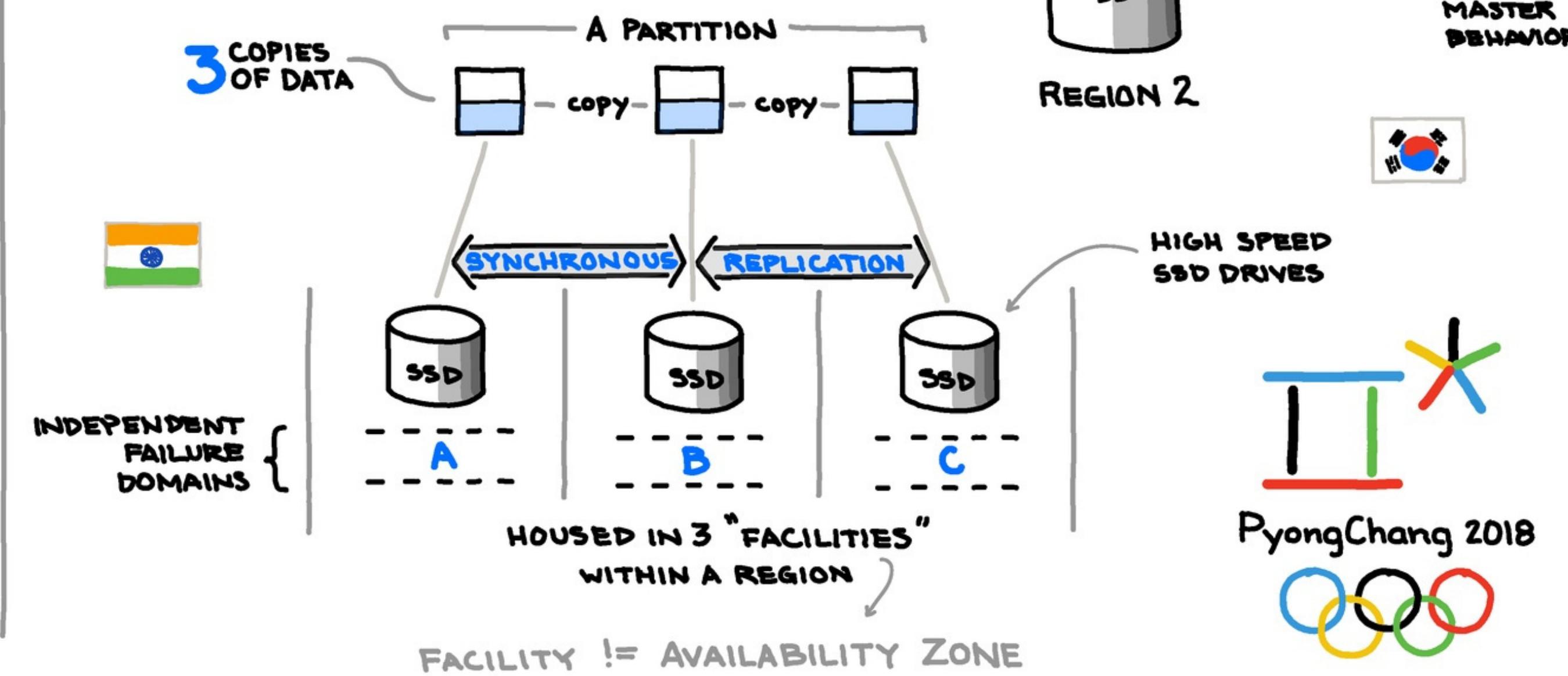


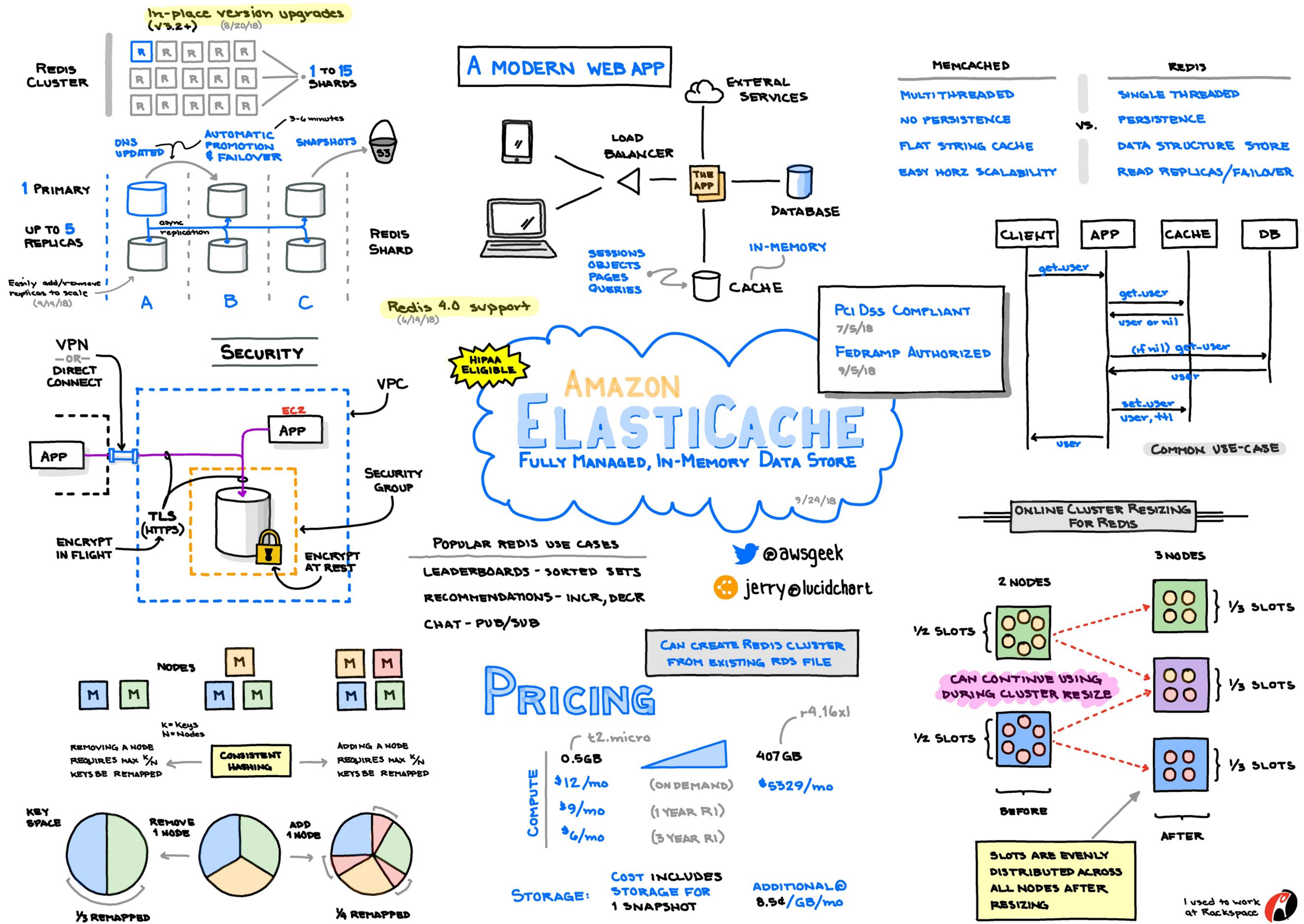
# amazon DYNAMO DB

a fast, flexible no-sql database

2/10/18

# AVAILABILITY





# SOCIAL NETWORKING

GROUP FRIENDS WHO LIKE OR DISLIKE SIMILAR THINGS

**RECOMENDATION ENGINE**  
MAKE PURCHASE SUGGESTIONS BASED ON OTHER USERS  
WITH SIMILAR INTERESTS

**FRAUD DETECTION**  
DETECT CONNECTIONS TO KNOWN FRAUD SCENARIOS

# KNOWLEDGE GRAPHS

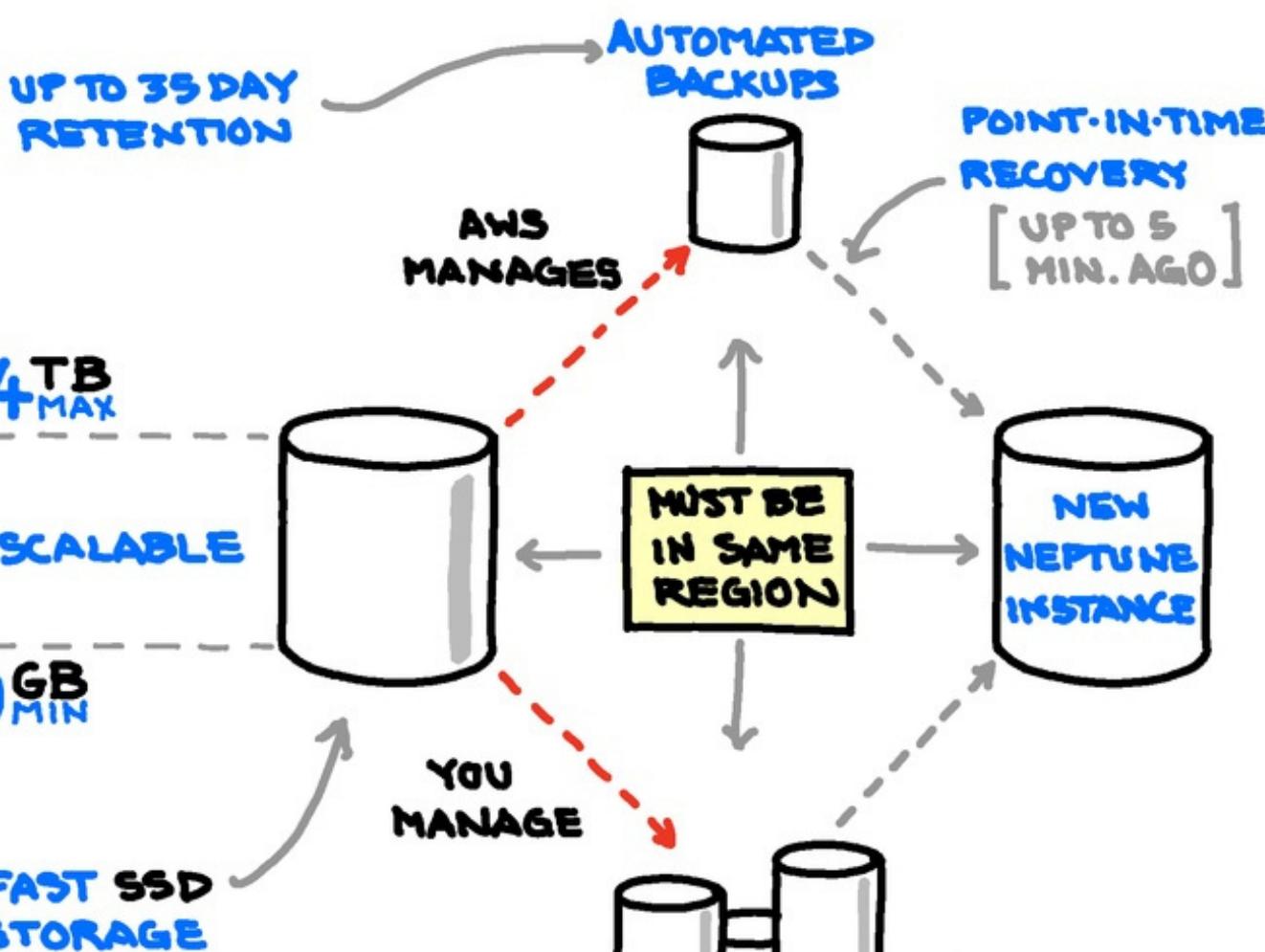
STORE AND QUERY INFO & RELATIONSHIPS BETWEEN USERS

# LIFE SCIENCES

## SECURELY STORE AND PROCESS PATIENT & HEALTHCARE DATA

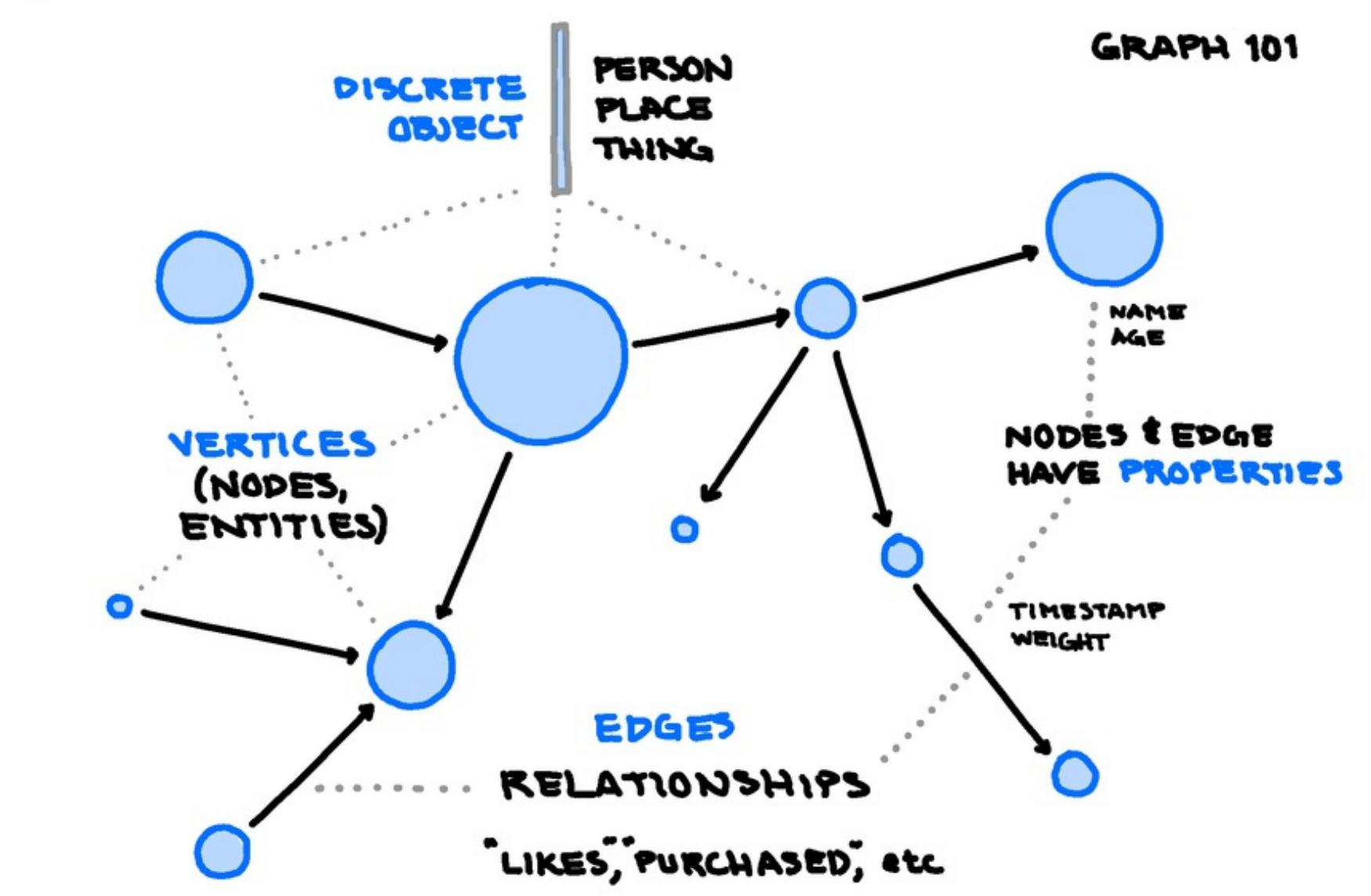
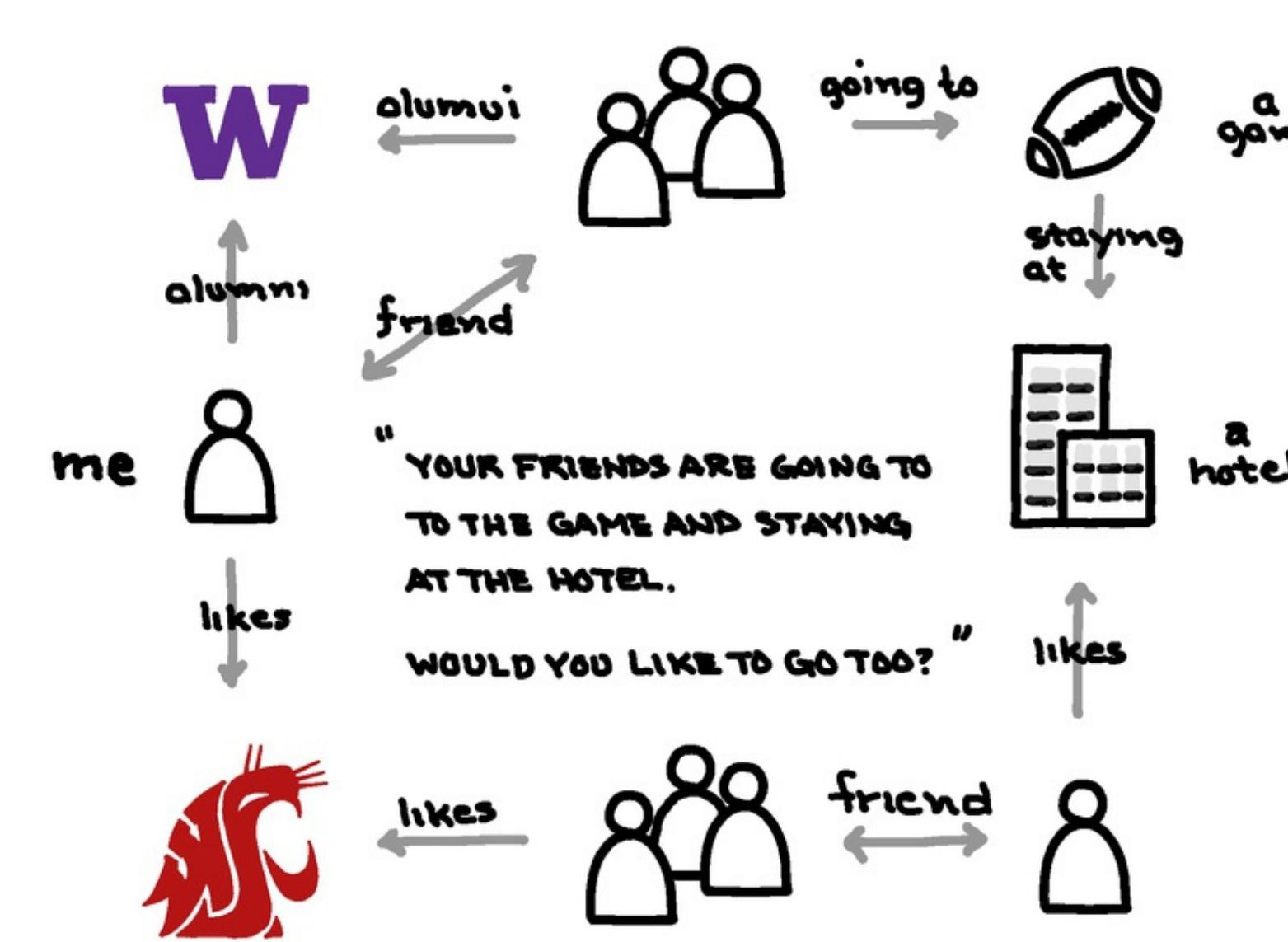
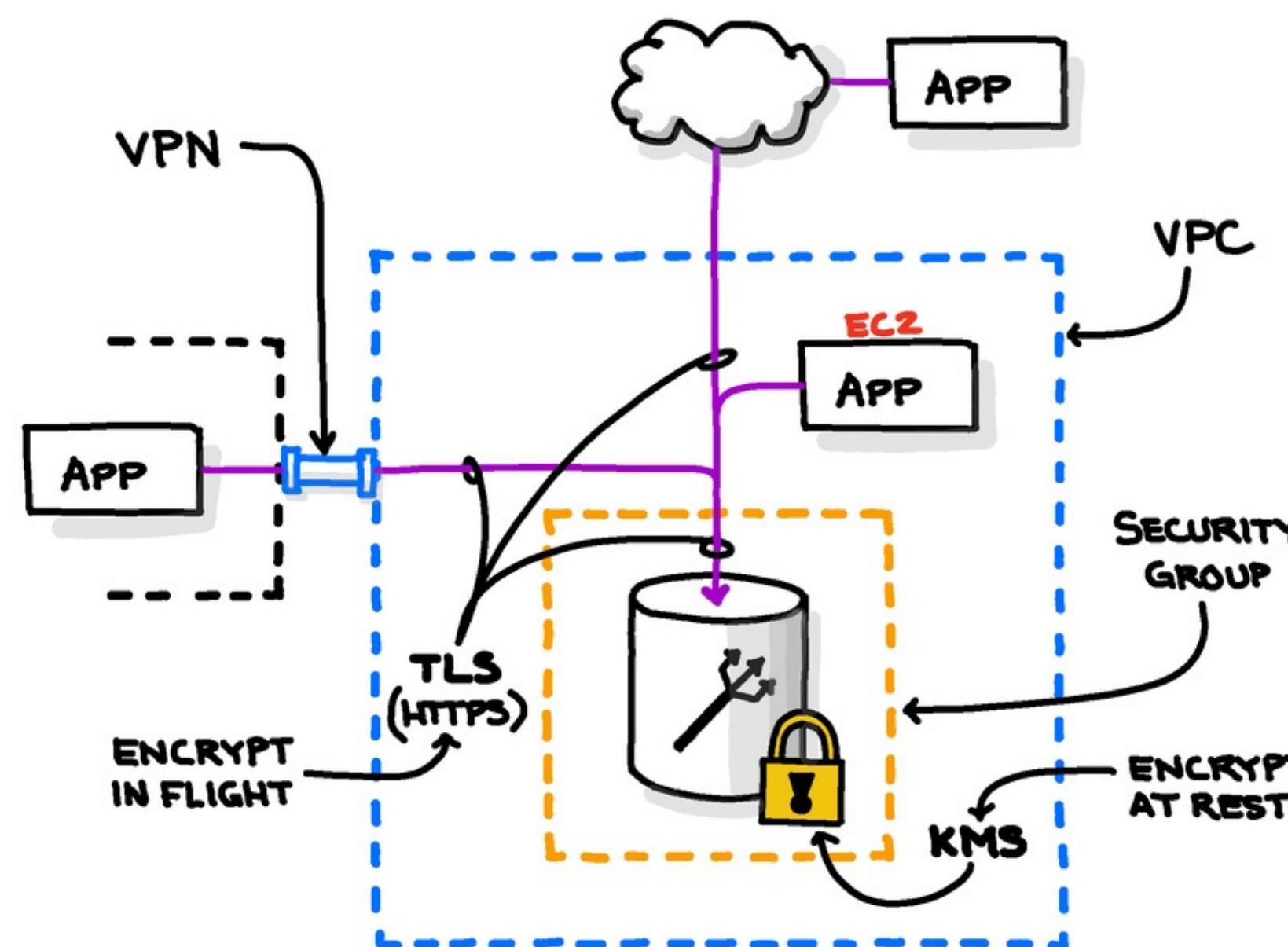
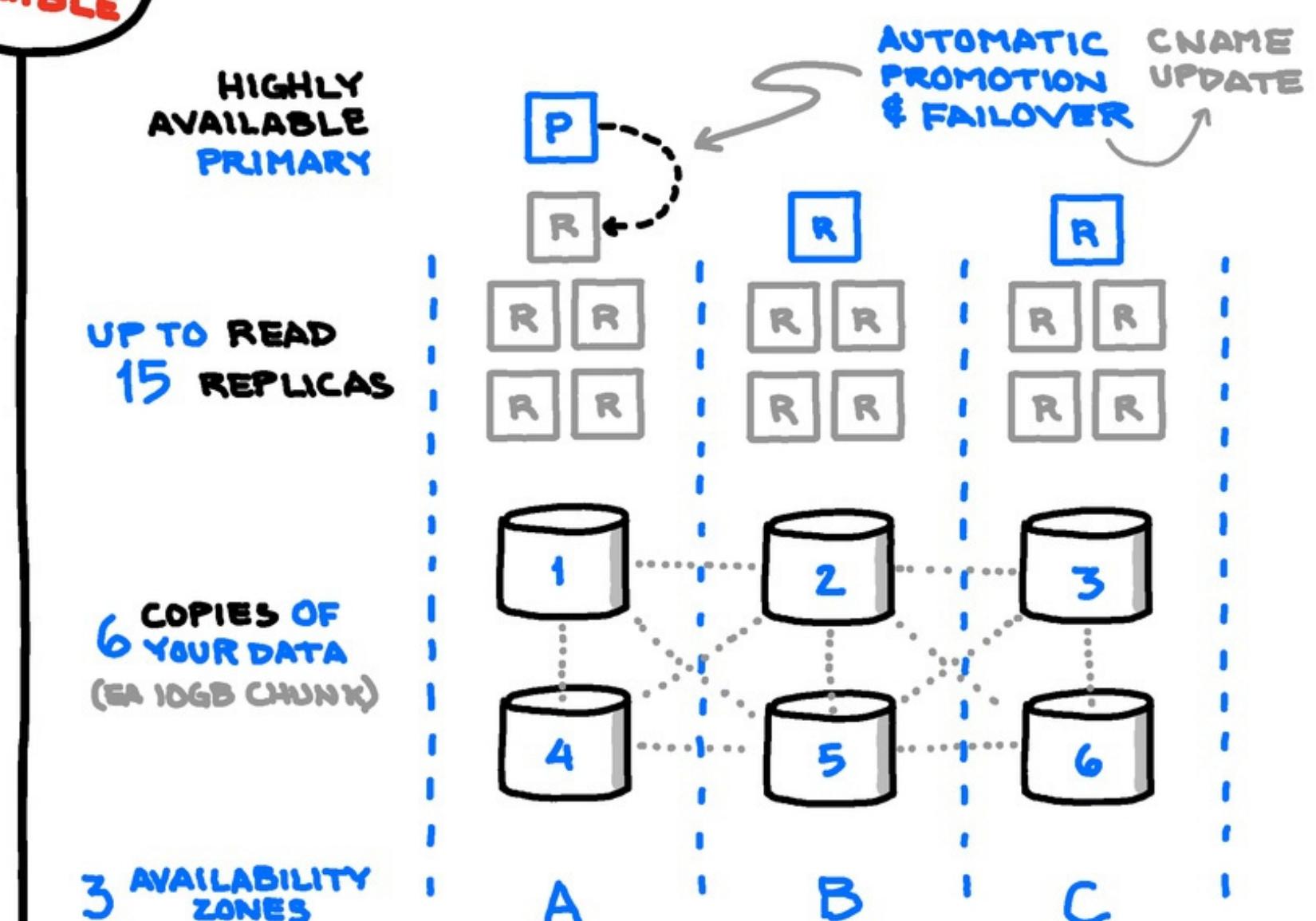
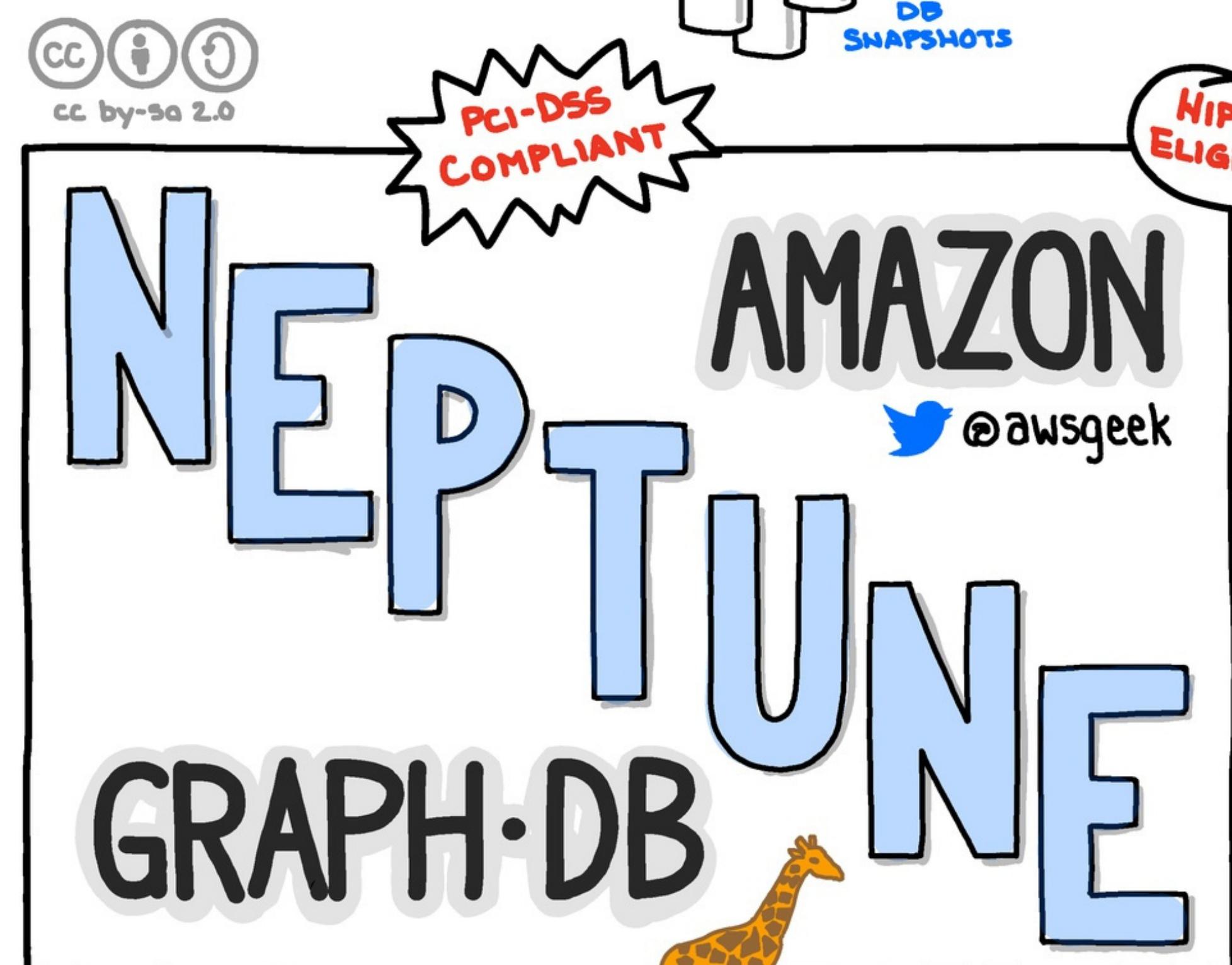
# NETWORK/IT OPS

STORE NETWORK TOPOLOGY & DISCOVER RELATIONSHIPS  
BETWEEN HOSTS

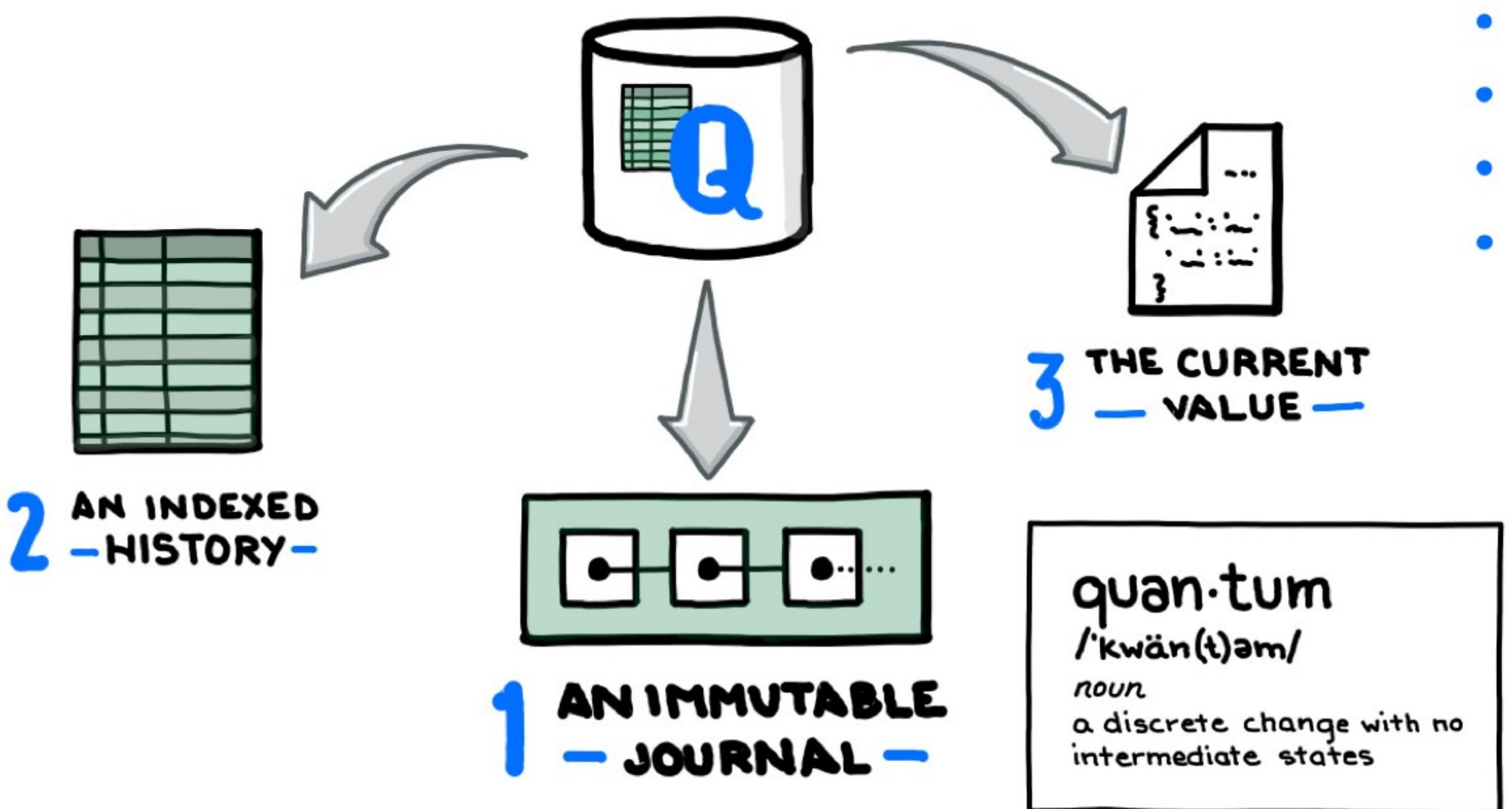


# PRICING

ON-DEMAND	PRIMARY - PER HOUR REPLICAS - SAME	STARTING AT 35¢/HR FOR R4.LG
STORAGE	10¢/GB/MO	
I/O	20¢/MILLION REQUESTS	per 16 KB read 4 KB write
BACKUPS	UP TO DB SIZE, FREE S3 RATES AFTER	
DATA TRANSFER	IN .. FREE OUT .. 2¢/GB TO OTHER REGION .. 9¢/GB TO INTERNET	



# WHAT IS A QUANTUM LEDGER DB?



## DATABASE

- FULLY TRANSACTIONAL
- ACID FUNCTIONALITY
- DOCUMENT DATA MODEL
- UN/STRUCTURED DATA

## STREAMING

- NEAR REAL TIME
- KINESIS DATA STREAMS

## SERVERLESS

- NO NODE PROVISIONING
- NO IO PROVISIONING

# How Much Does QLDB Cost?

**im·mu·ta·ble**  
*/i(m)'myooðab(ə)b/*  
 adjective  
 unchanging over time or unable to be changed

5¢ TO 9¢ PER GB

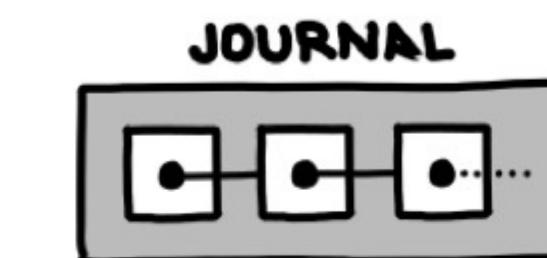
US EAST (VIRGINIA)

70¢ WRITE / MILLION REQUESTS

13.6¢ READ / MILLION REQUESTS

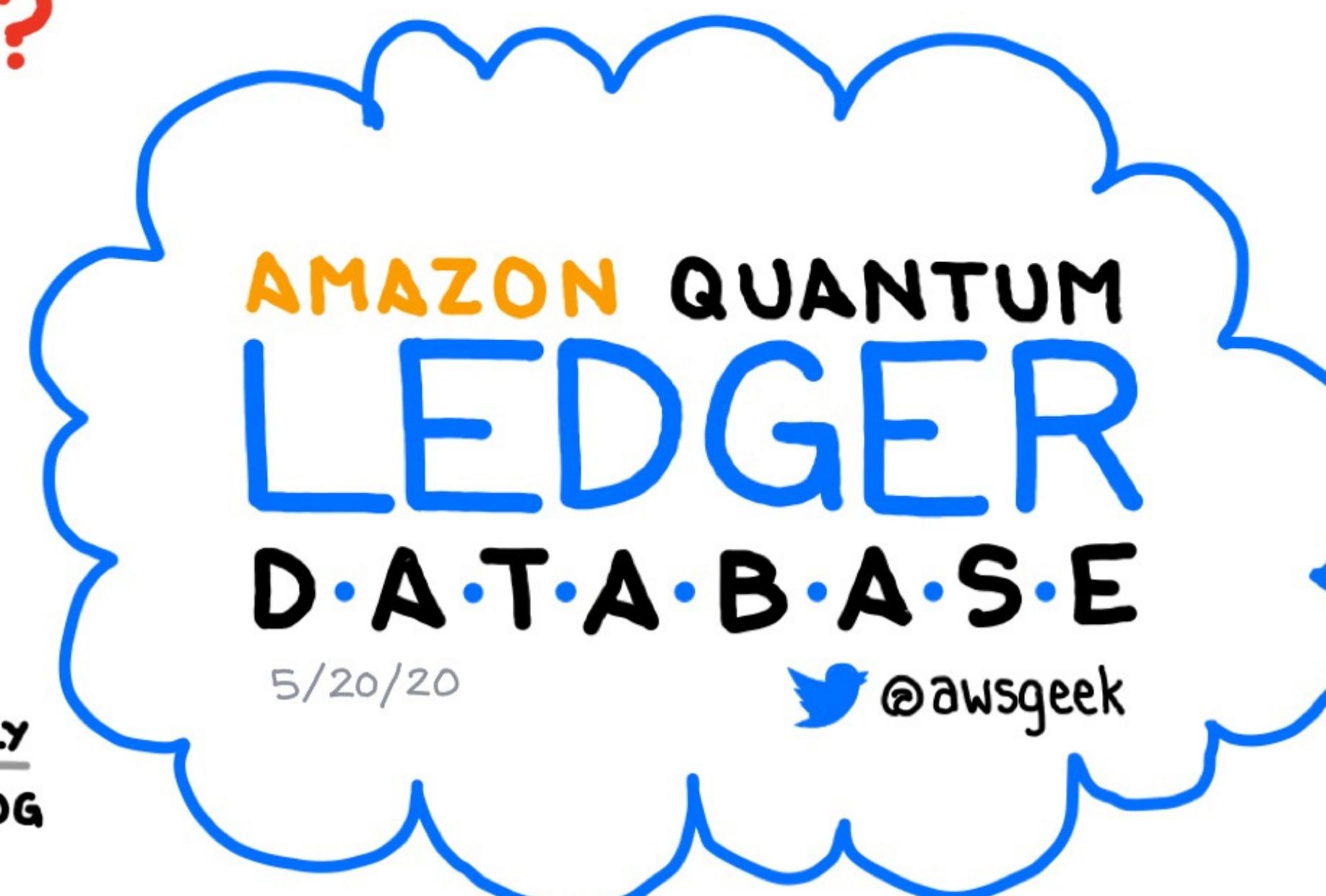
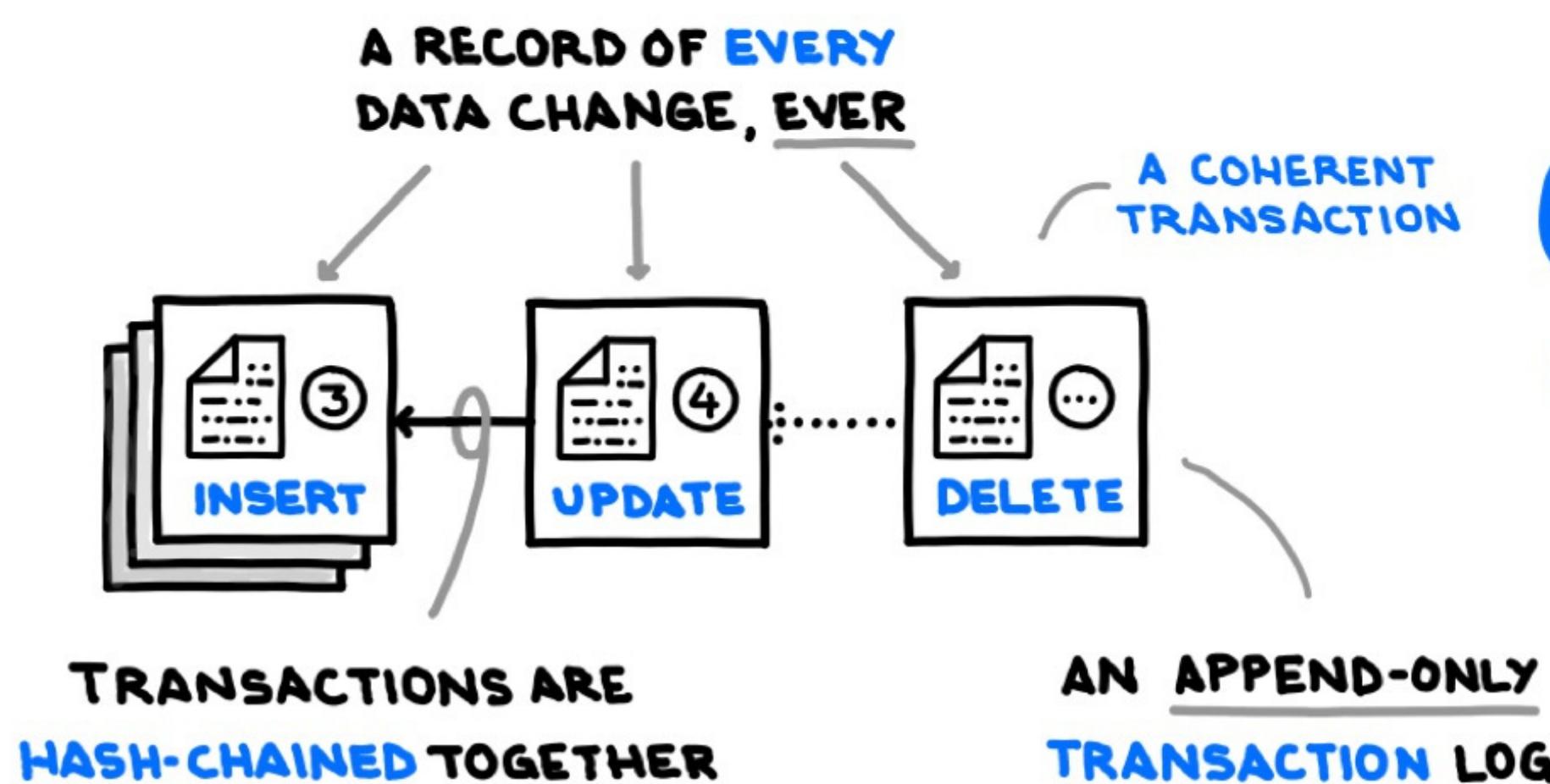


25¢ PER GB/MO

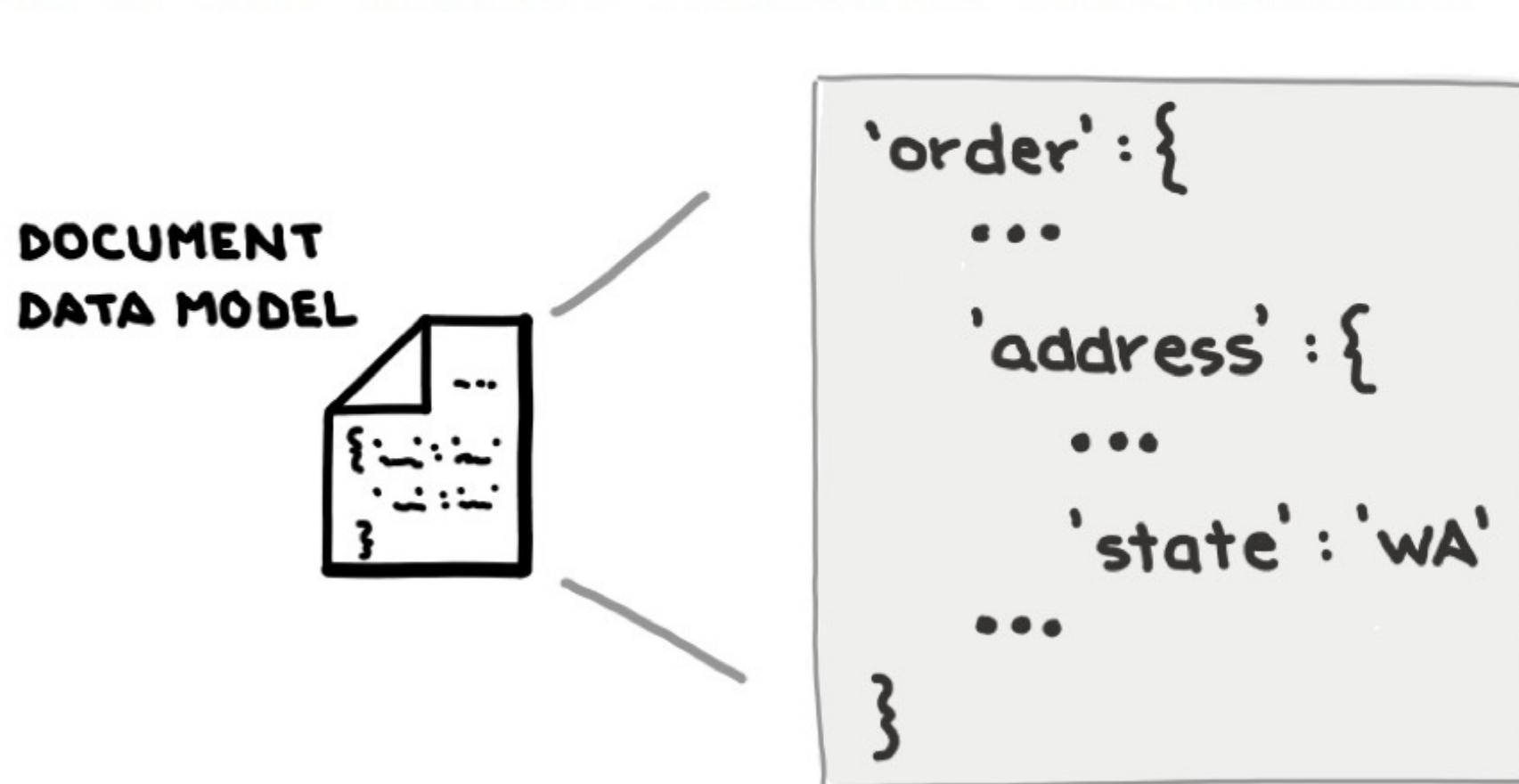


3¢ PER GB/MO

# WHAT IS AN IMMUTABLE JOURNAL?



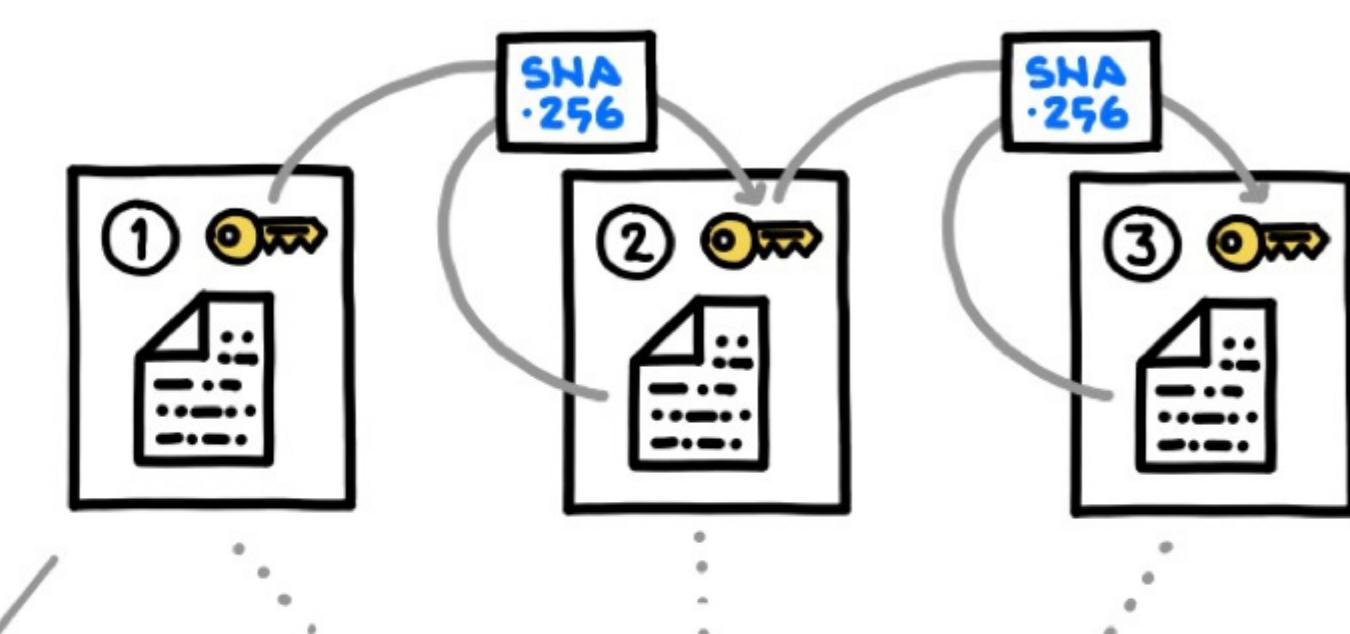
# How is Data Stored/Queried?



## FOR SYSTEM OF RECORD APPS

- MANUFACTURING • HR
- INSURANCE • FINANCE
- SUPPLY CHAIN • PAYROLL

CHANGES IMMEDIATELY DETECTABLE



TRANSACTIONS RECORDS ARE CRYPTOGRAPHICALLY VERIFIABLE

## ENGINES

- ▶ ORACLE
  - ▶ SQL SERVER
  - ▶ MYSQL
  - ▶ MARIADB
  - ▶ POSTGRESQL
  - ▶ AURORA
    - MySQL
    - PostgreSQL
- based on
- commercial
  - open source
  - cloud native by Amazon

## PRICING

COSTS: (Oregon)

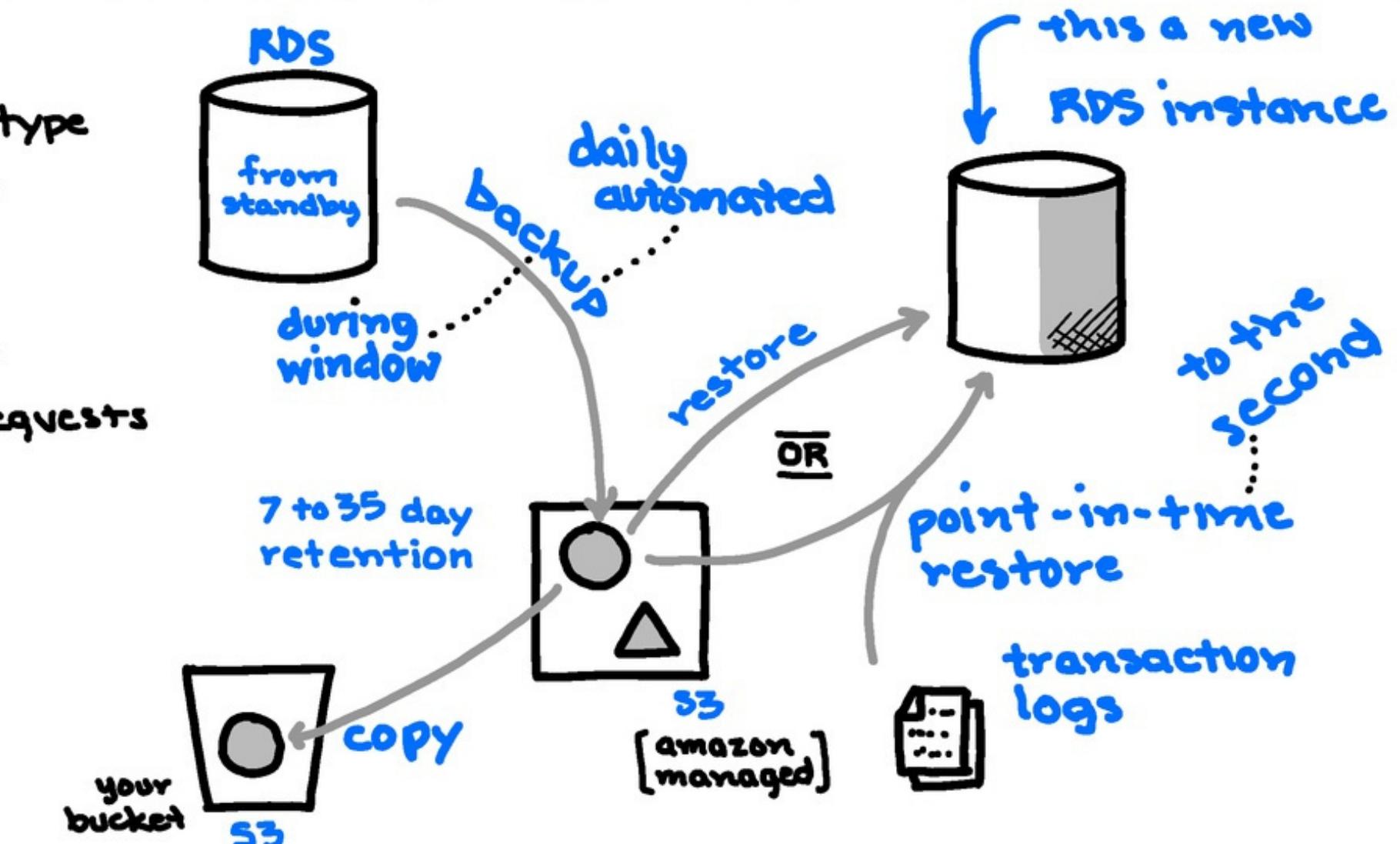
DB INSTANCE HOURS per engine/instance type  
billed hourly, round up

STORAGE GP2 ... 11.5¢/GB/Mo  
101 ... 12.5¢/GB/Mo + 10¢/10/Mo  
Mag ... 10¢/GB/Mo + 10¢/MM Requests

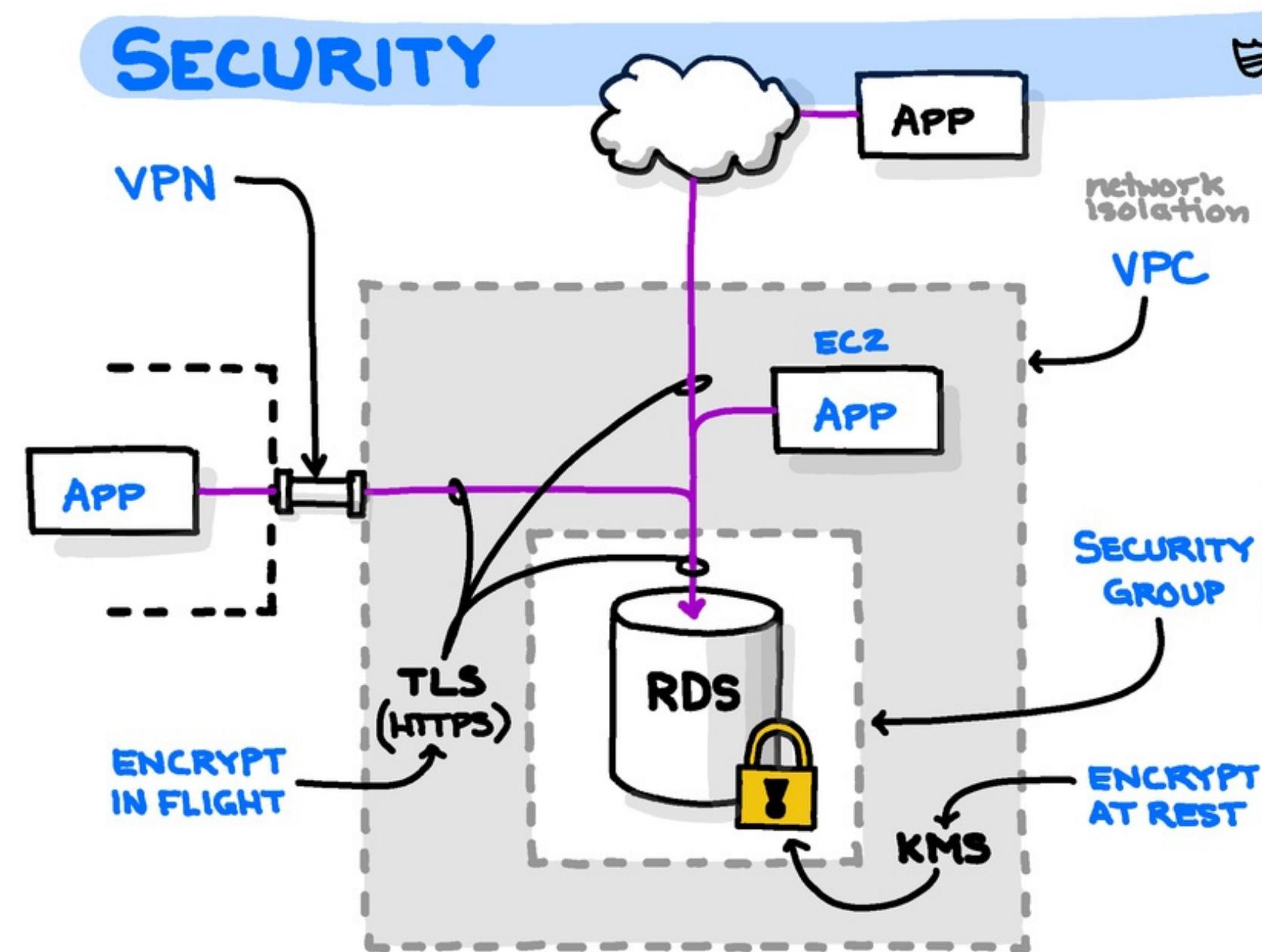
BACKUP STORAGE 100% of DB size free  
9.5¢/GB/Mo after

DATA TRANSFER varies by destination

## BACKUPS

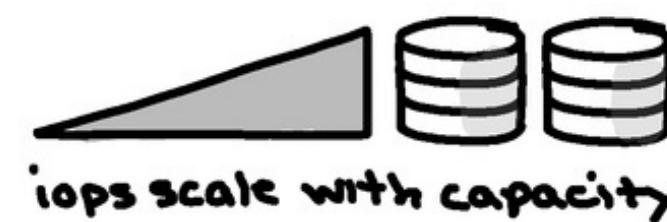


## SECURITY

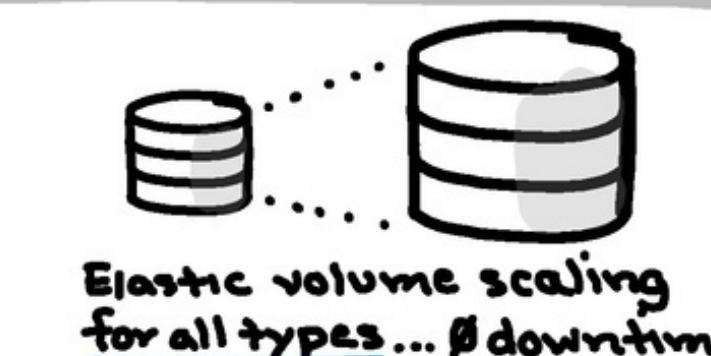


## STORAGE

**GP2** General Purpose  
SSD 16TB Max

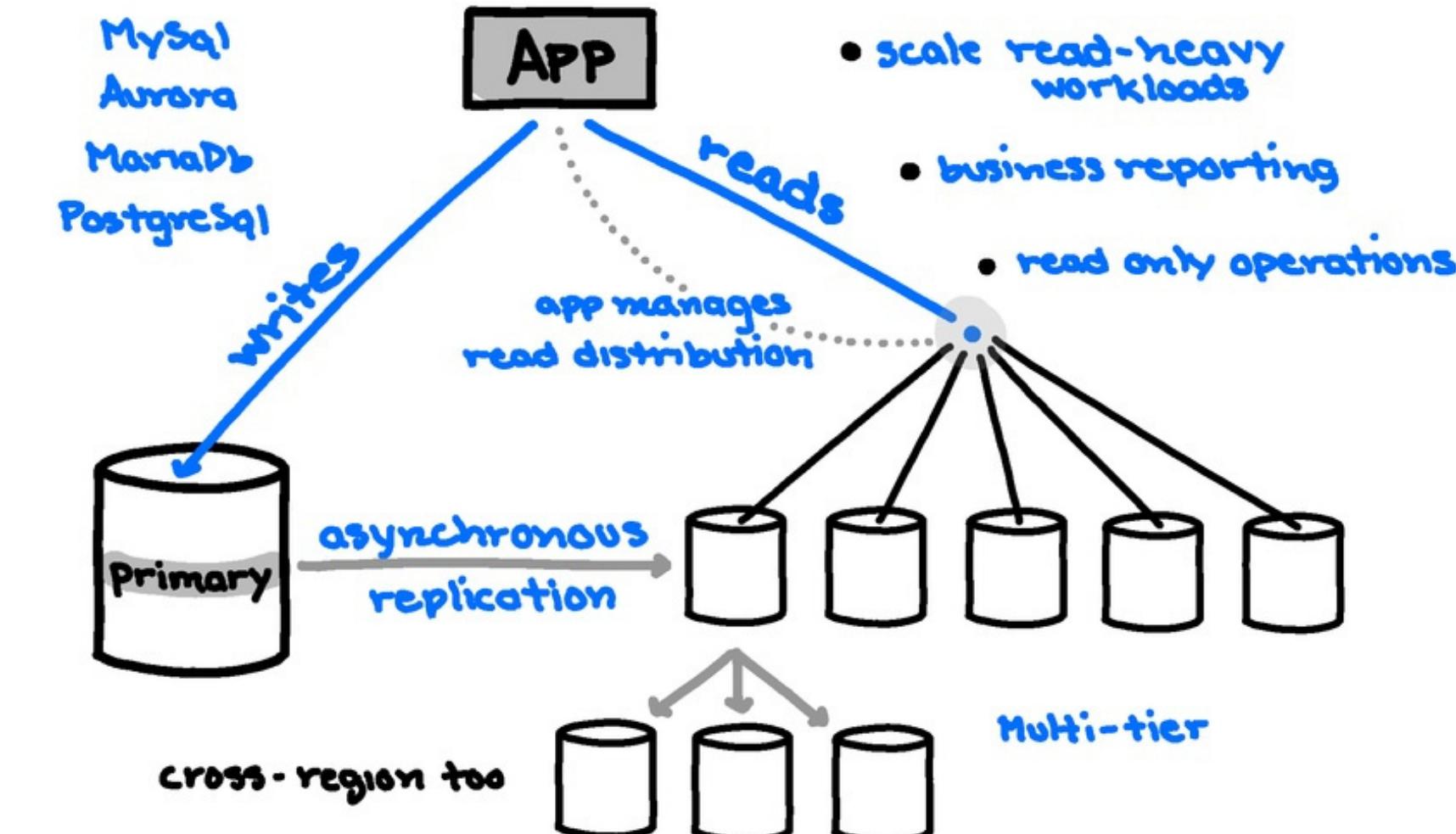


**IOP1** Provisioned IOPS  
SSD 16TB Max  
30K IOPS



**Magnetic** Legacy 1TB Max

## READ REPLICAS



## INSTANCES

### SMALL WORKLOADS

**T2**  
burst

1 vCPU  
1 GB RAM  
8 vCPU  
32 GB RAM

### CPU INTENSIVE WORKLOADS

**M3/M4**  
general purpose

2 vCPU  
8 GB RAM  
64 vCPU  
256 GB RAM

### QUERY INTENSIVE WORKLOADS

**R3/R4/X1(e)**  
mem optimized

2 vCPU  
16 GB RAM  
128 vCPU  
3904 GB RAM

## STORAGE CLASSES

**STANDARD**  
— and —  
**INFREQUENT ACCESS**

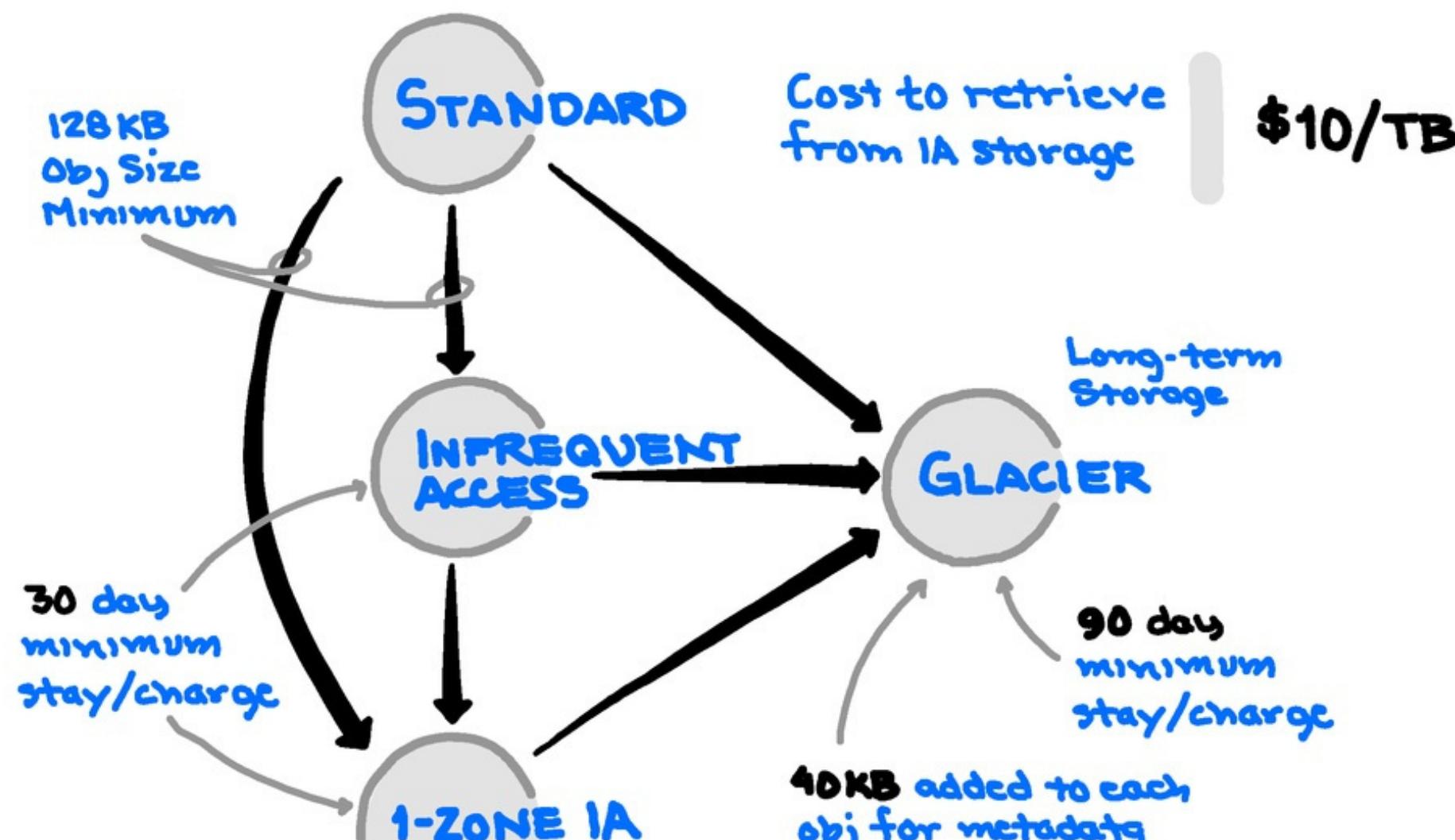
**11 NINES DURABILITY**

**1-ZONE INFREQUENT ACCESS**

**11 NINES DURABILITY**

**99.5% / YR AVAILABILITY**

## STORAGE CLASS TRANSITIONS



## SERVER SIDE ENCRYPTION

AES - 256  
master key rotation  
**AWS managed KEYS**

audit trail  
**KMS managed KEYS**  
more security controls

**SELF managed KEYS**  
you own it!



[all pricing from US West (Oregon)]

REQUESTS (\$USD per 1,000,000 requests)



	GET	POST	PUT	DELETE	SELECT	Other
Standard	0.4	5.0	5.0	5.0	5.0	0.4
Infrequent Access	1.0	10.0	10.0	10.0	1.0	1.0
1-Zone IA	1.0	10.0	10.0	10.0	1.0	1.0

Storage class transitions : 1¢ per 1,000 objects  
Transition to Glacier : 5¢ per 1,000 objects

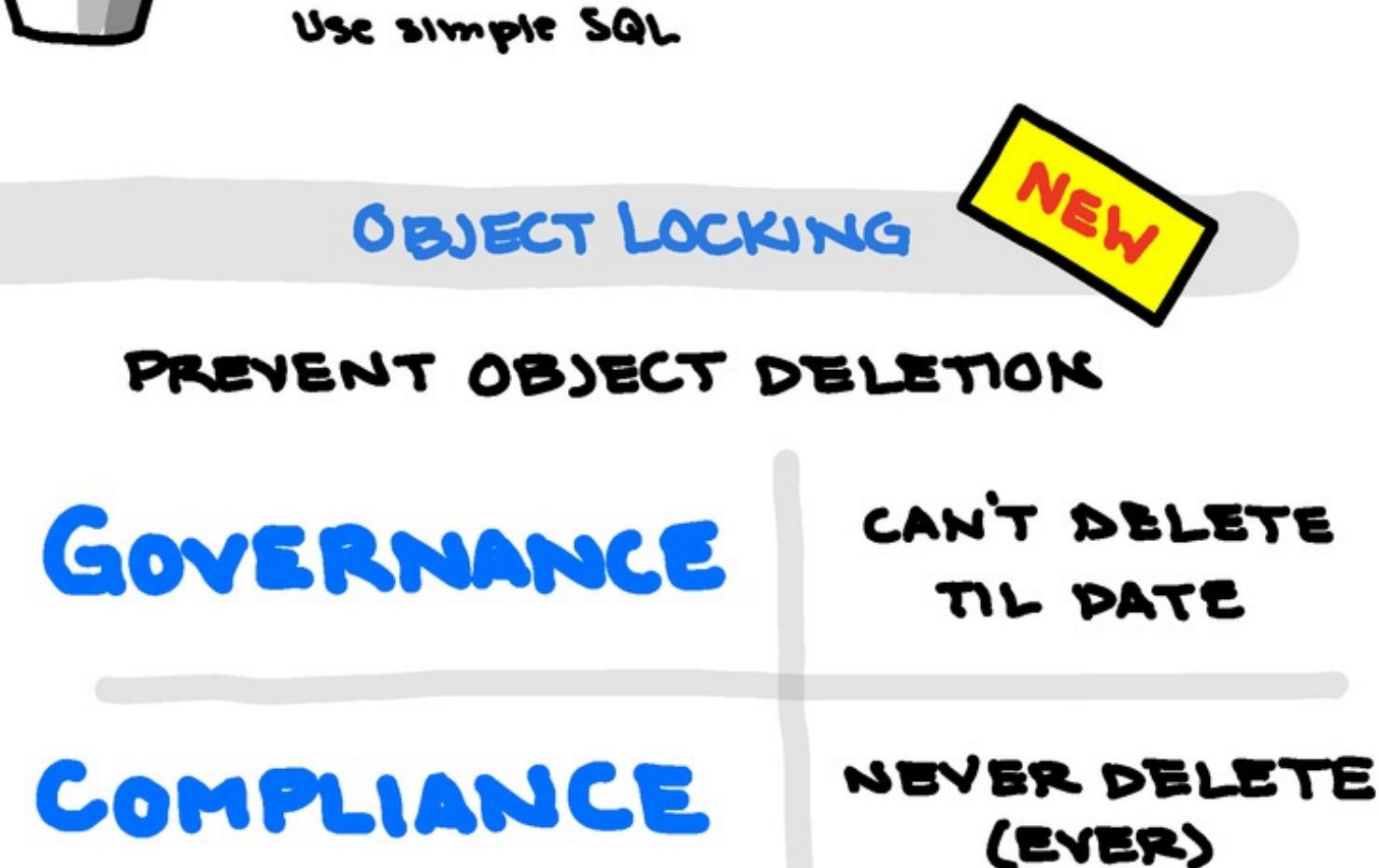
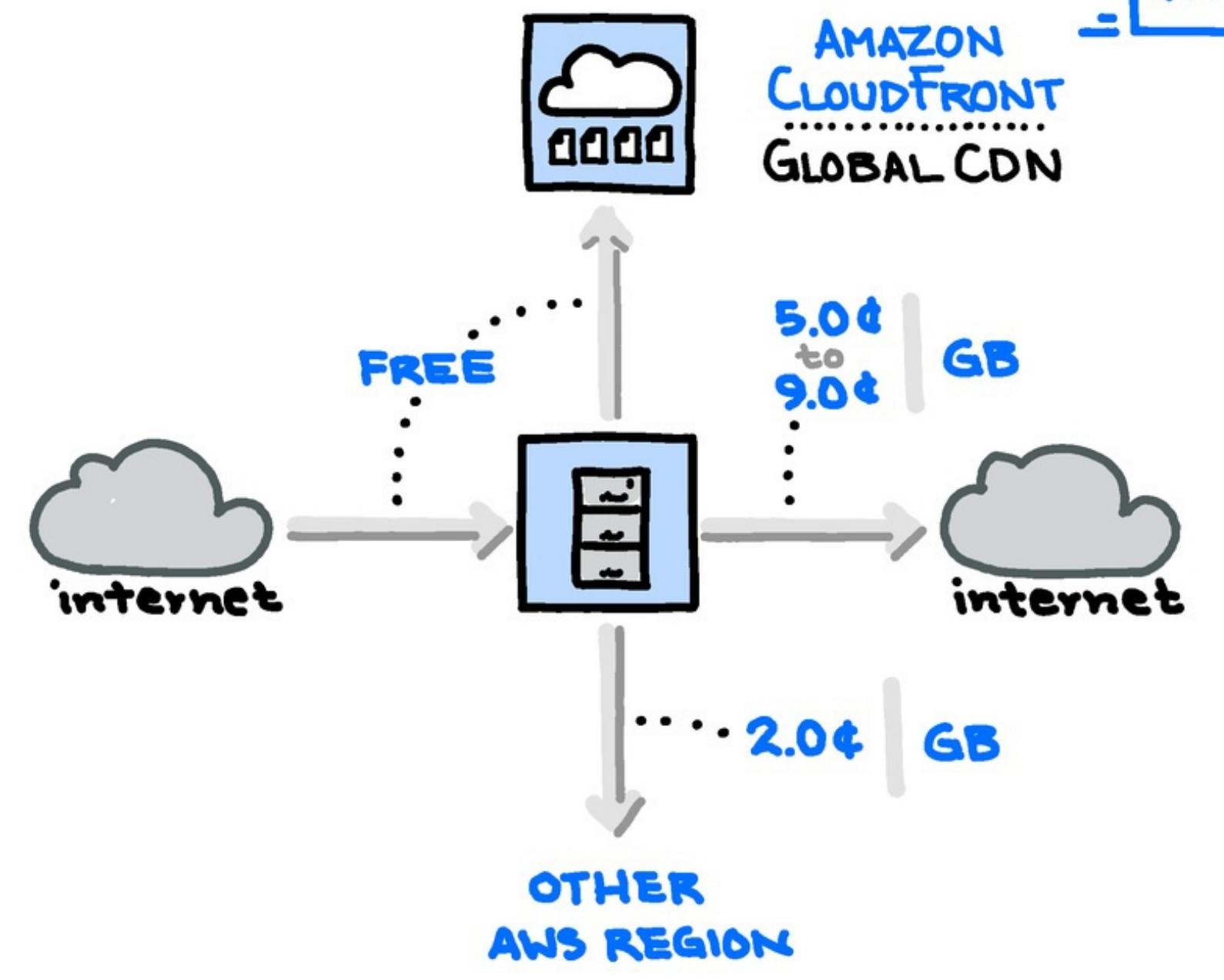
## STORAGE

TB	\$
[0, 50]	2.3¢
[51, 500]	2.2¢
[501, ∞)	2.1¢

per GB/Mo

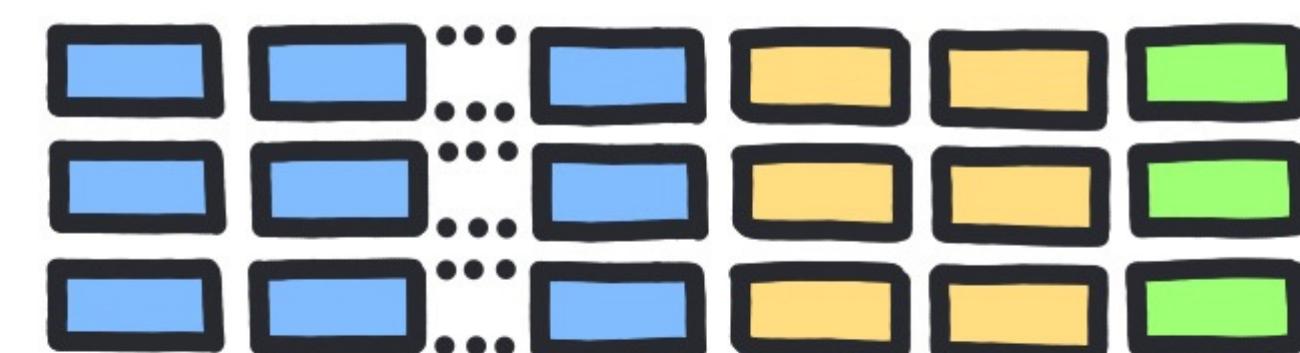
INFREQUENT ACCESS  
STD 1-ZONE  
GLACIER

## DATA TRANSFER



# TABLE

DIMENSIONS  
up to 128/table

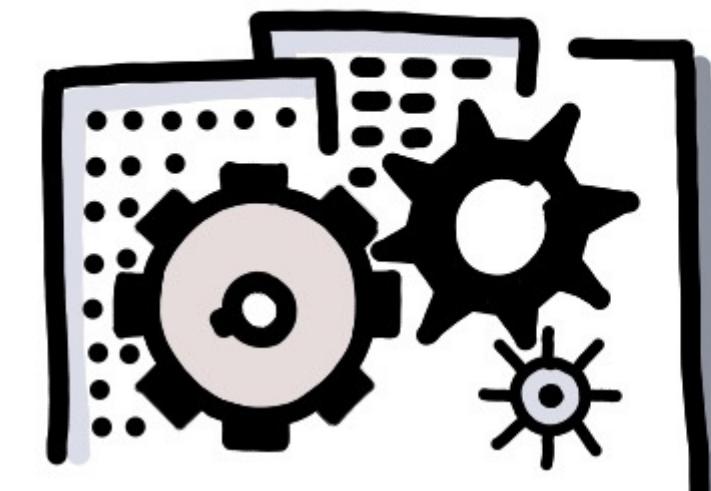


TIMESTAMP

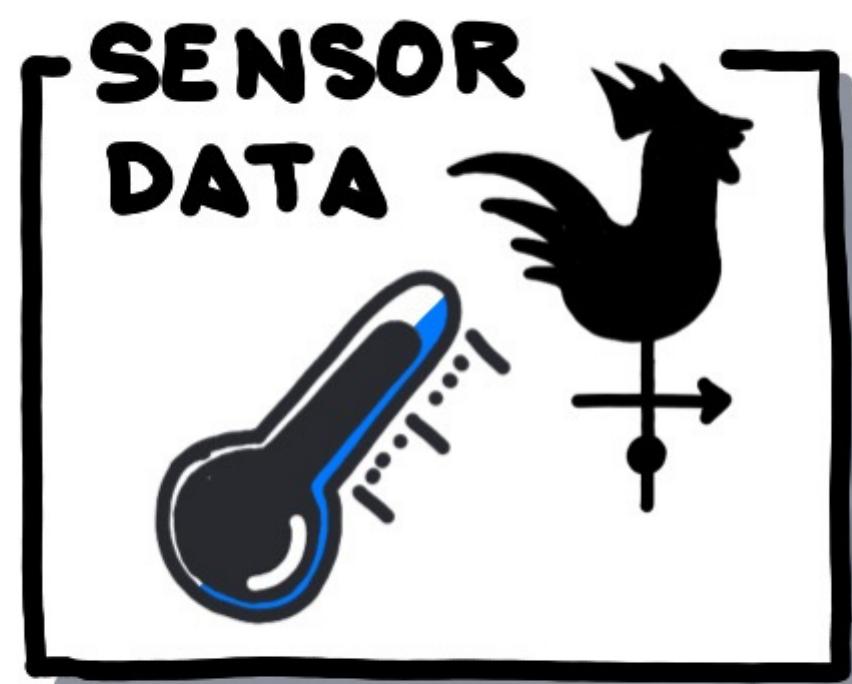
str, bool,  
big int, double

MEASURE NAME & VALUE:TYPE

TIME SERIES  
DATA



INDUSTRIAL  
TELEMETRY



SENSOR  
DATA



WEATHER

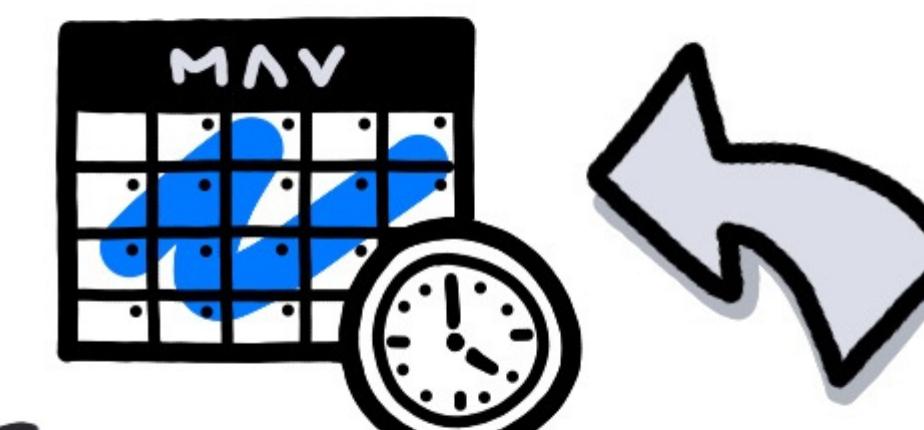


WWW

CLICKSTREAM



DATA IS  
ALWAYS  
ENCRYPTED



→ timestamped  
→ deduplicated



TIME  
STREAM  
DB



SERVER  
STATS



MEMORY  
STORE

Monitoring  
Analytics



FAST  
QUERIES

1 hr → 1 yr  
RETENTION



SSD  
STORE

AI/ML  
Biz Intel



USES  
a subset  
of SQL



MAGNETIC  
STORE

1 day → 20 yr  
RETENTION



HISTORICAL  
QUERIES

TIME-BASED  
RETENTION  
POLICY

# TIMESTIREAM

9/30/2020

TIME • SERIES • DATABASE

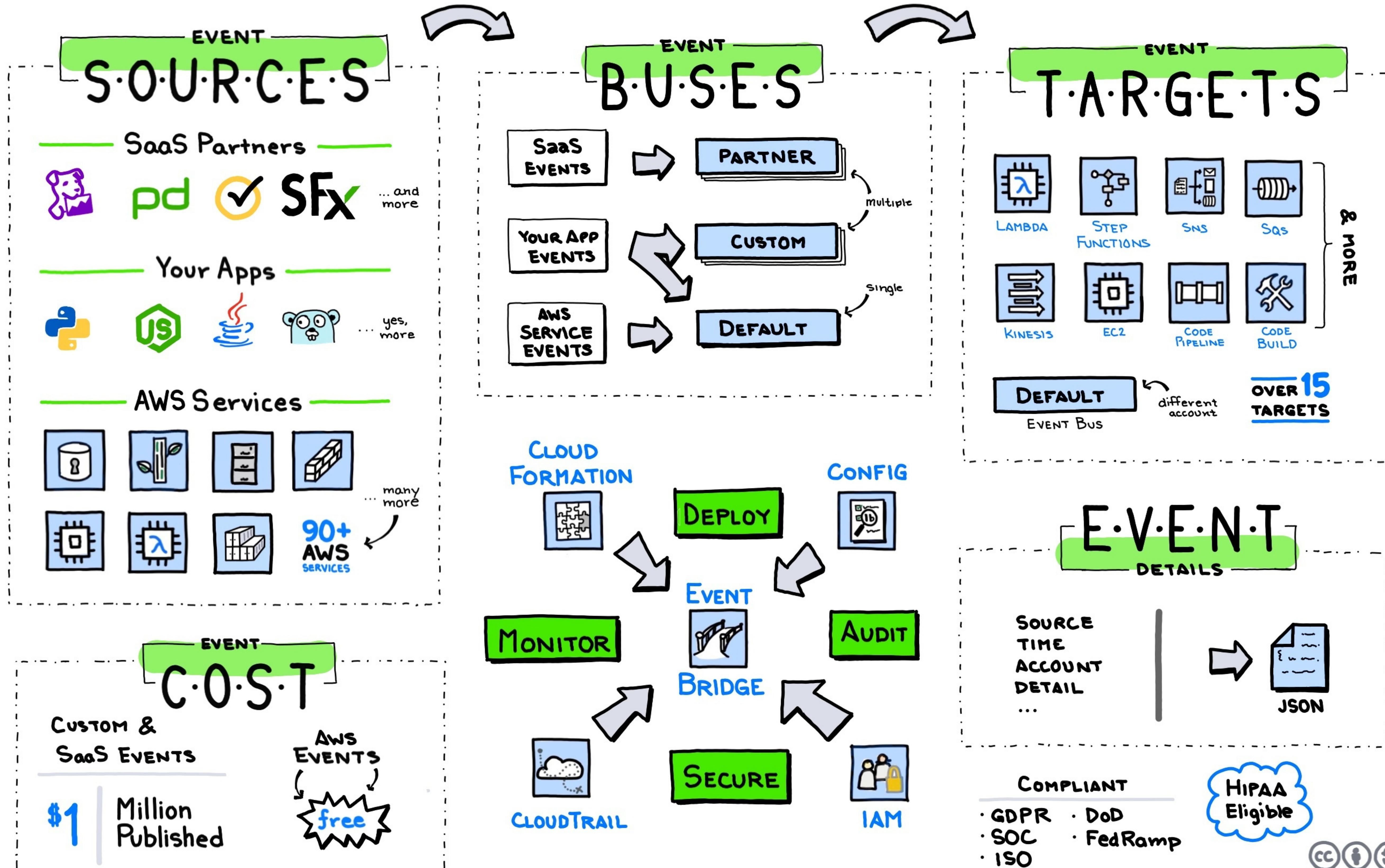
@awsgeek

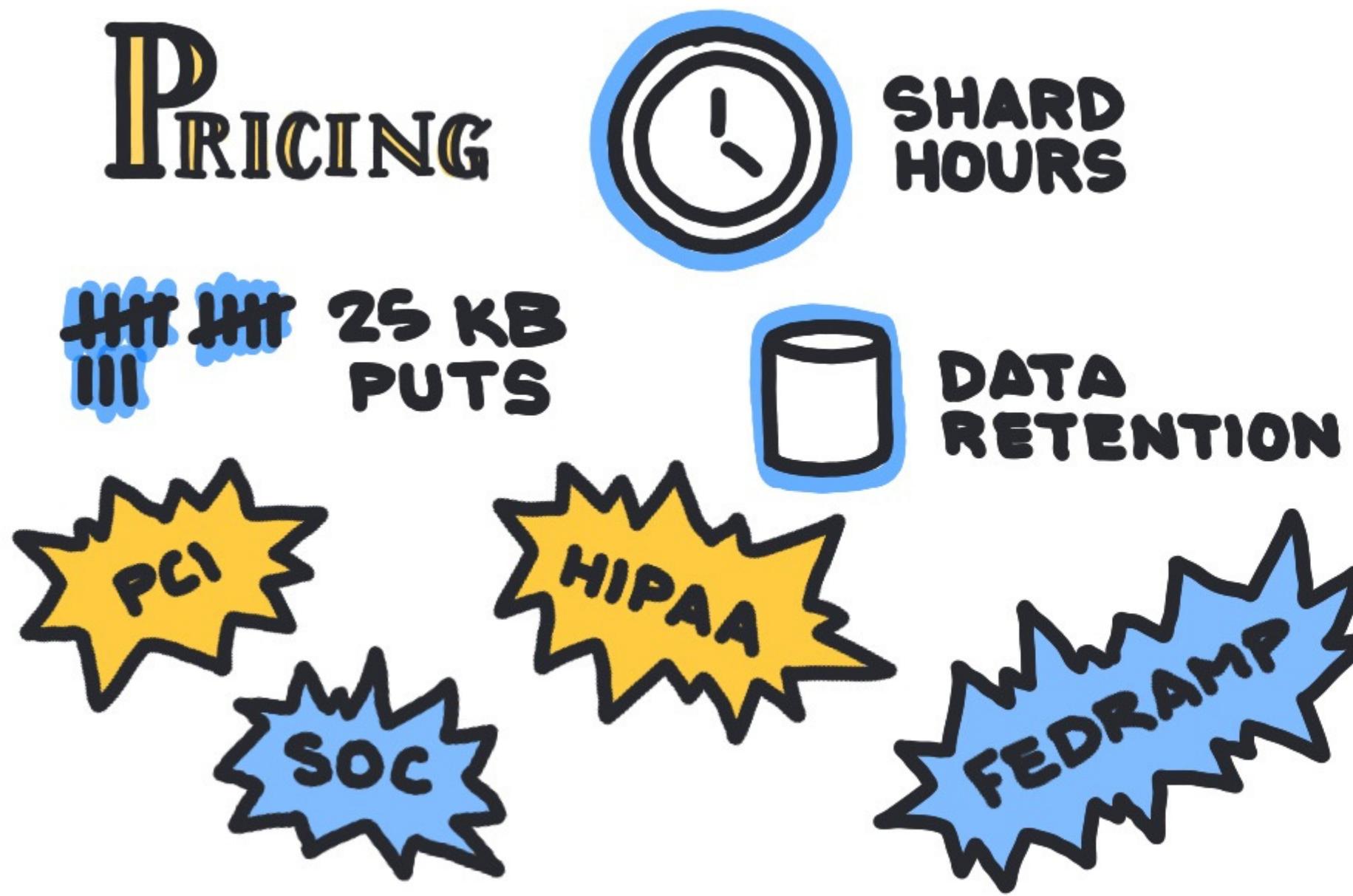
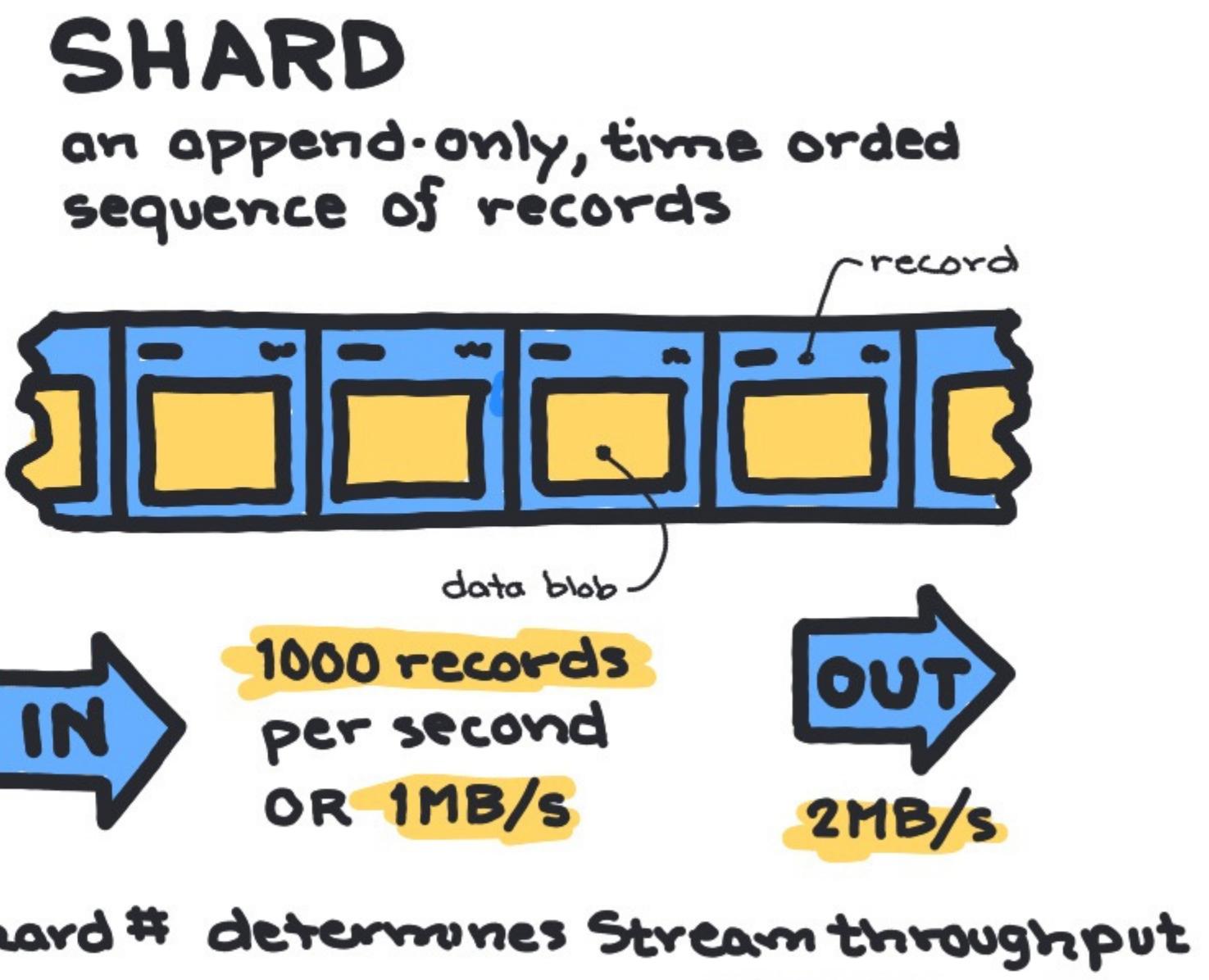
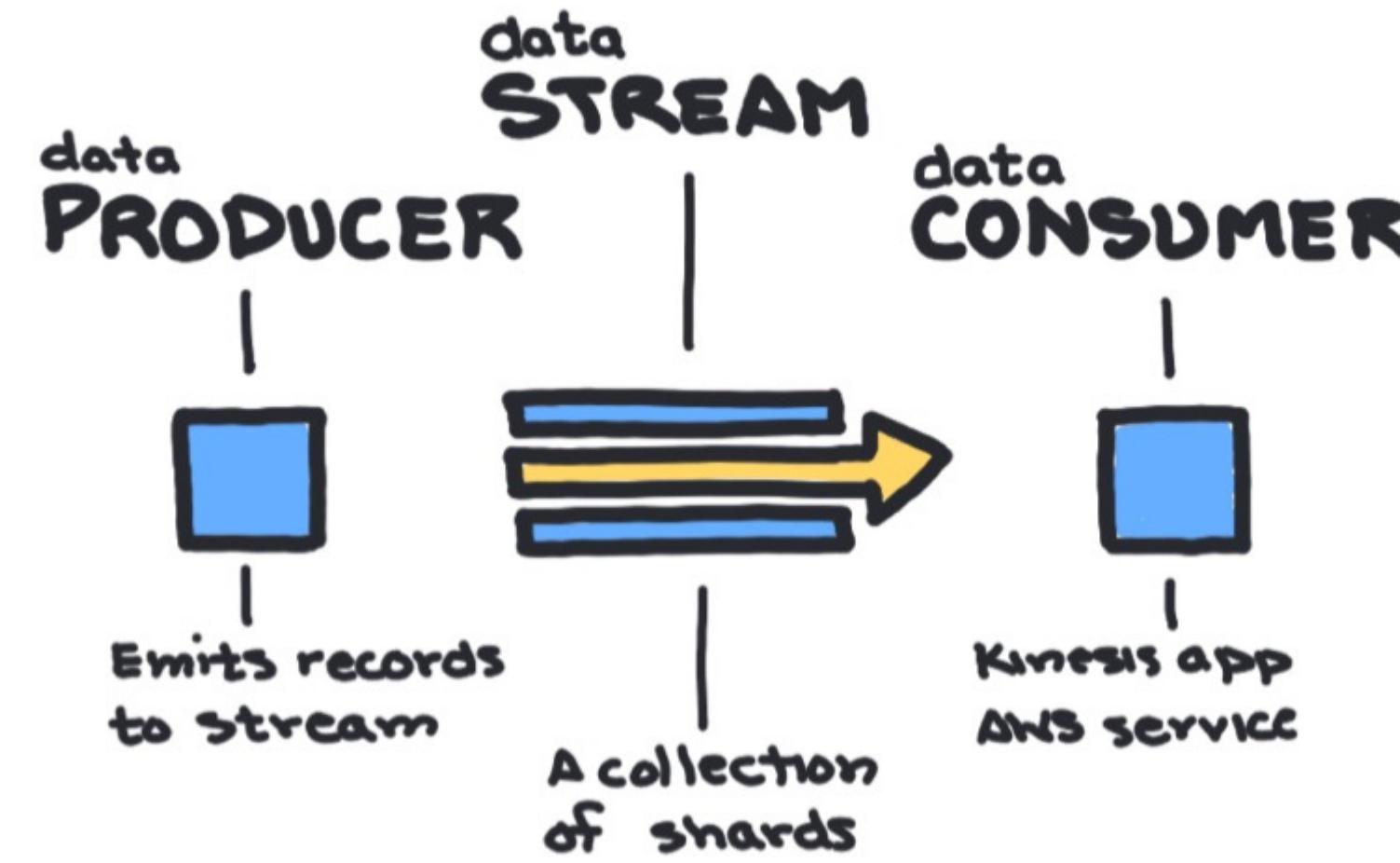
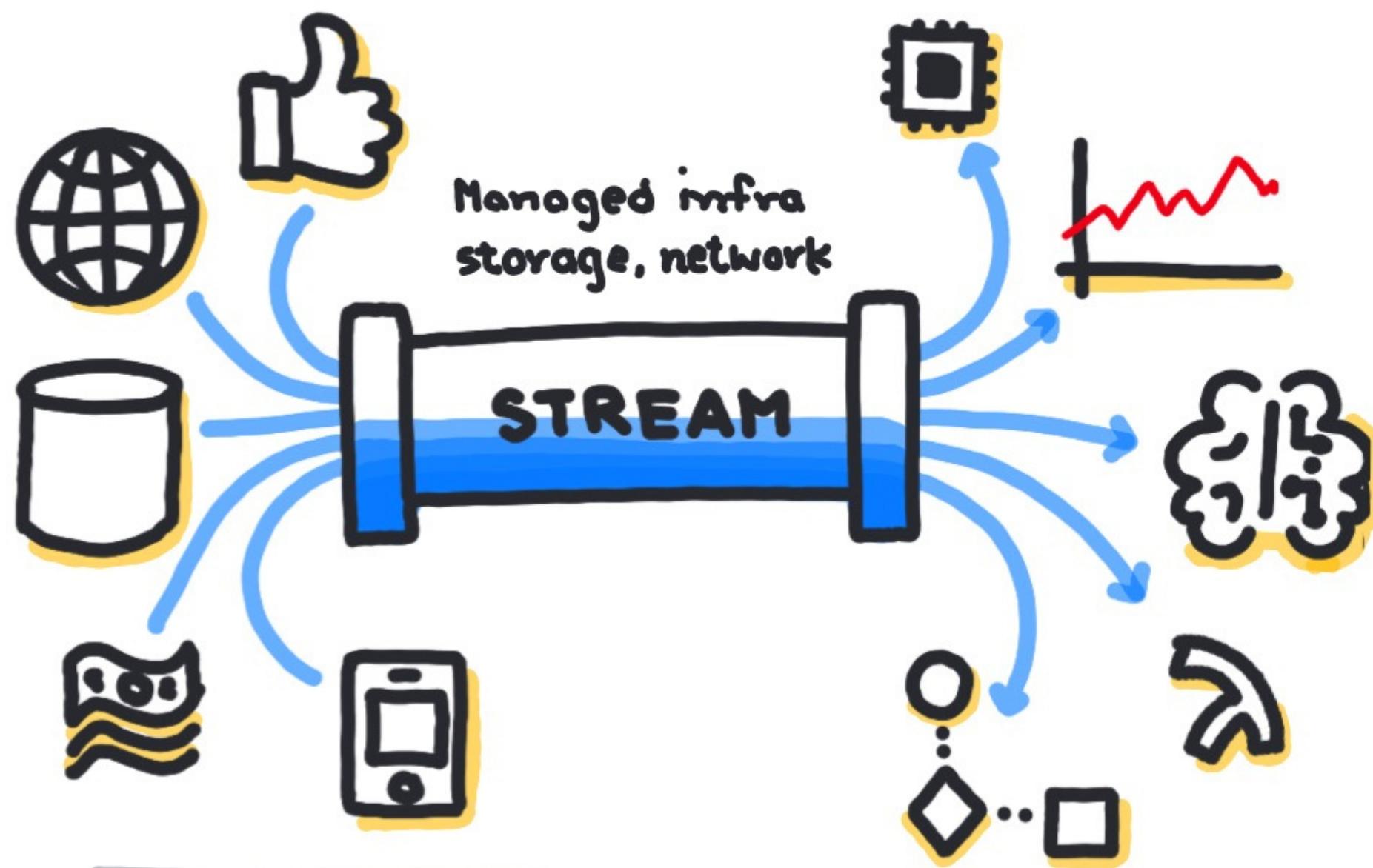
CC BY SA 4.0



# EVENTBRIDGE

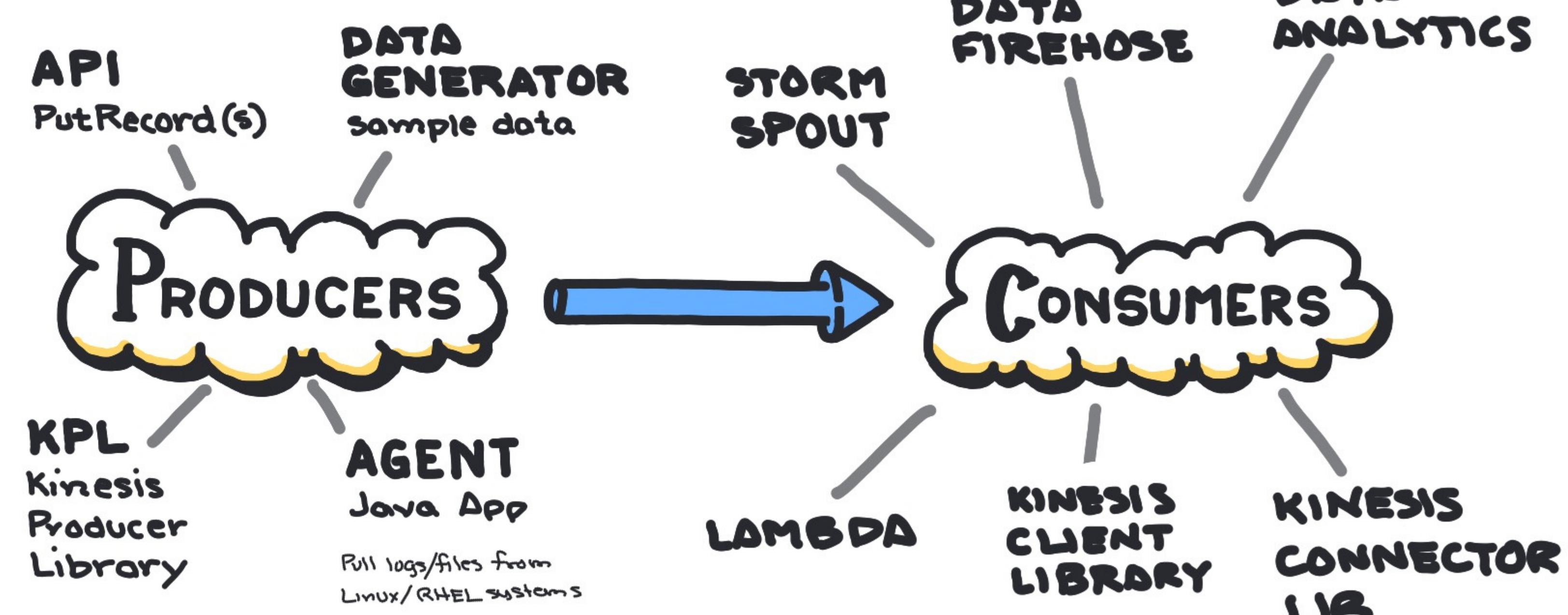
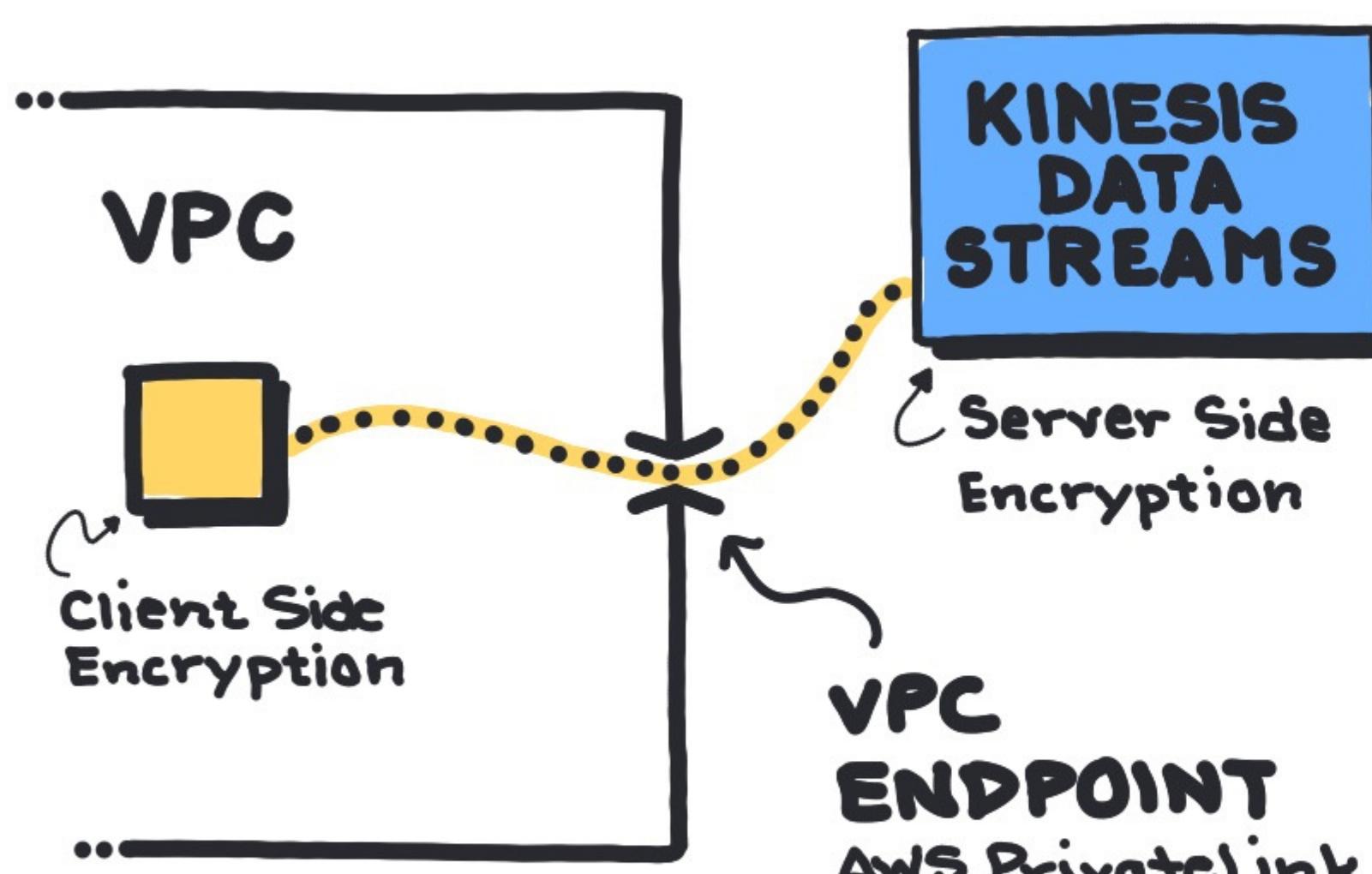
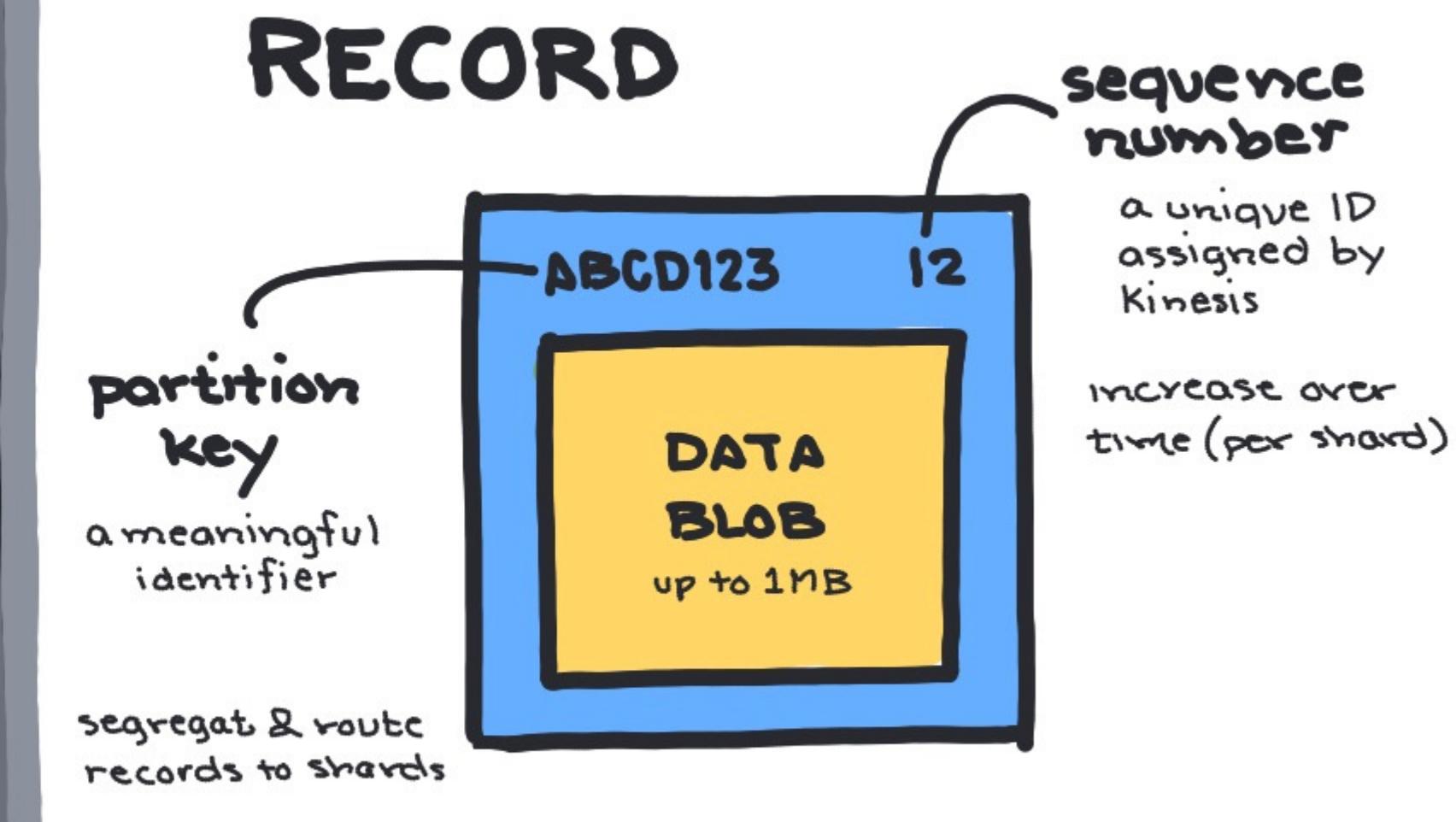
SERVERLESS EVENT BUS



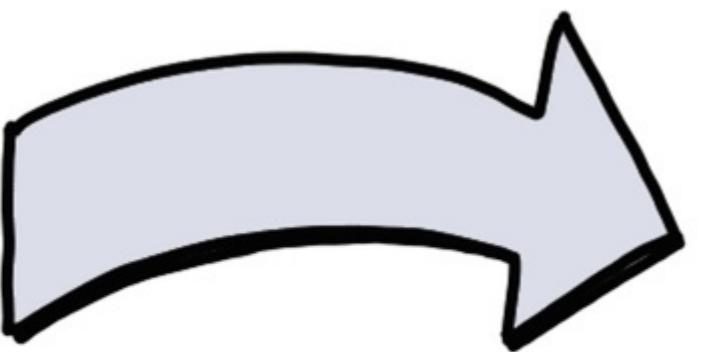


# DATA KINESIS STREAMS

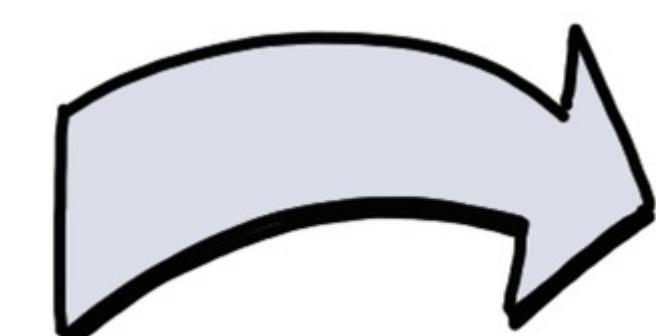
STREAM • DATA • AT • SCALE



# CREATE



# SUBSCRIBE

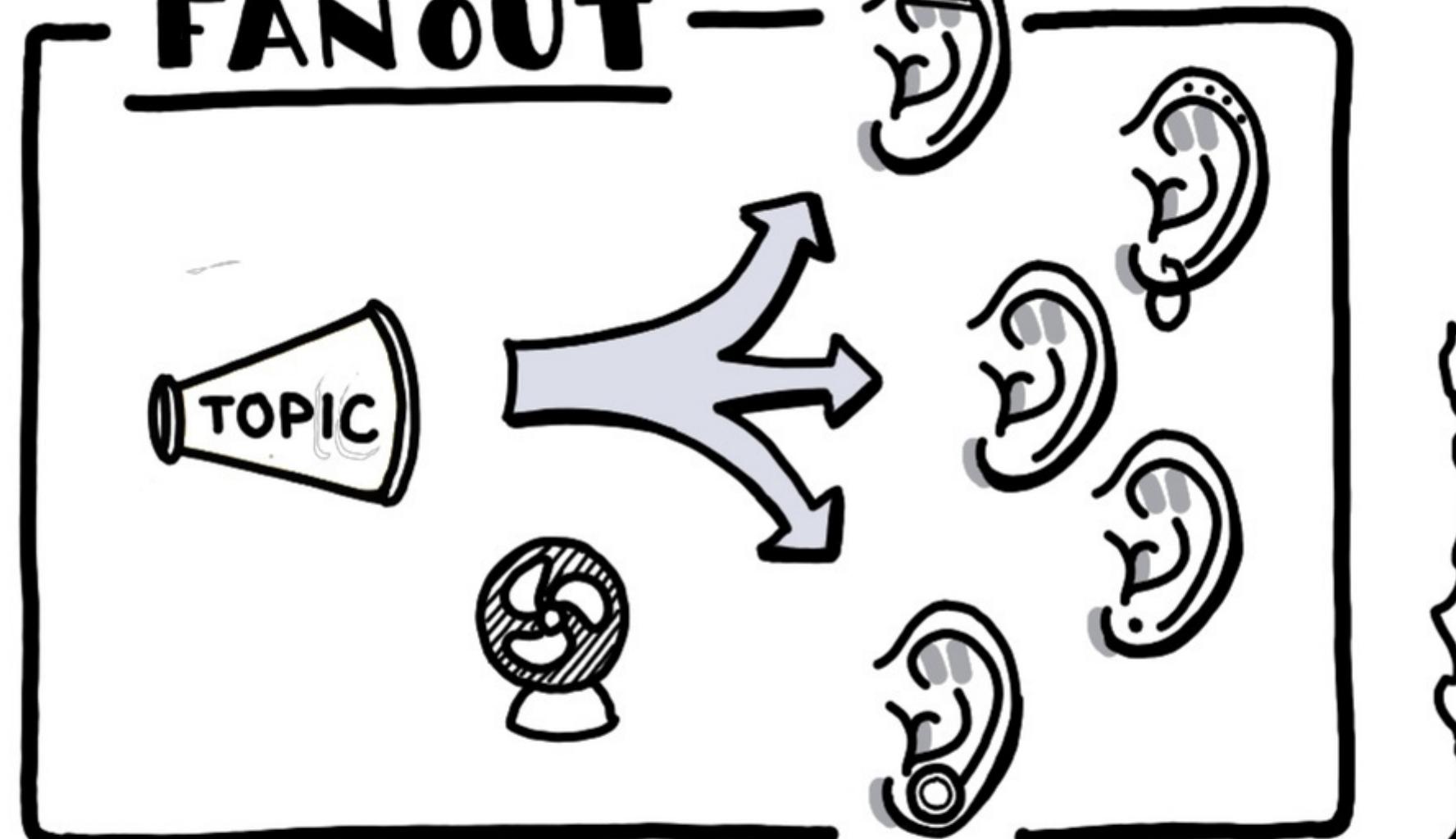


# PUBLISH



## A TOPIC

## FAN OUT



HIPAA  
ELIGIBLE

Service  
(https)



Mobile  
Device



Phone  
(Sms)

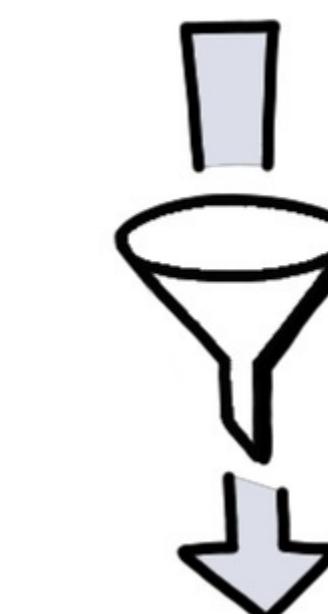
worldwide



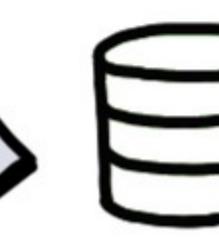
Phone  
(Sms)



A  
Message



Filter



Queue  
(sqS)



Lambda



Subscriber



PUBLISHERS

SUBSCRIBERS



AMAZON — @awsgeek  
**SNS**  
— PUB/SUB —  
NOTIFICATIONS

Storage  
Compute  
Networking  
Databases  
Dev Tools

PCI  
COMPLIANT



Language  
SDKs



Command Line  
Interface



Web  
Console

AT LEAST ONCE  
DELIVERY



PUBLISHED

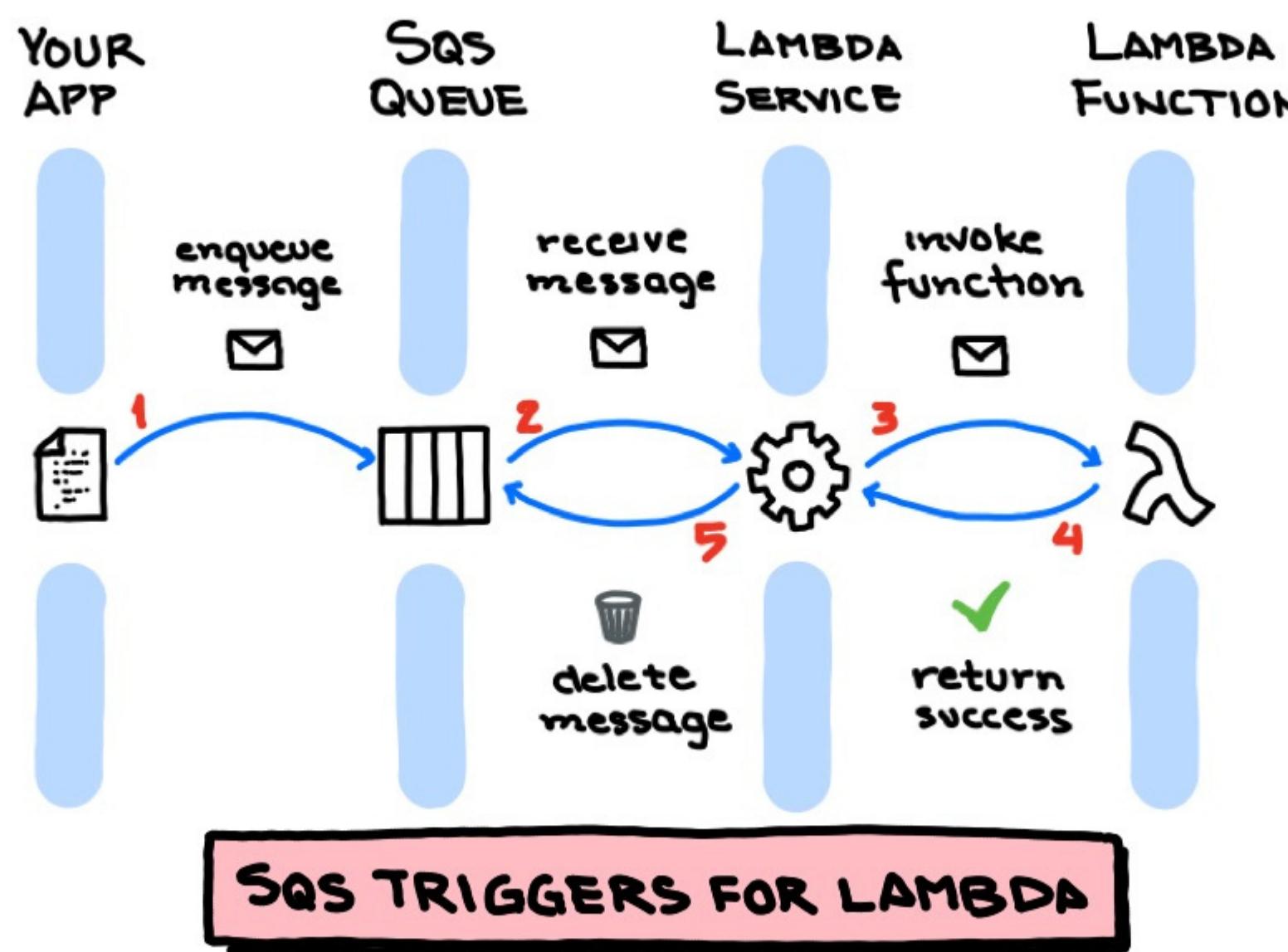
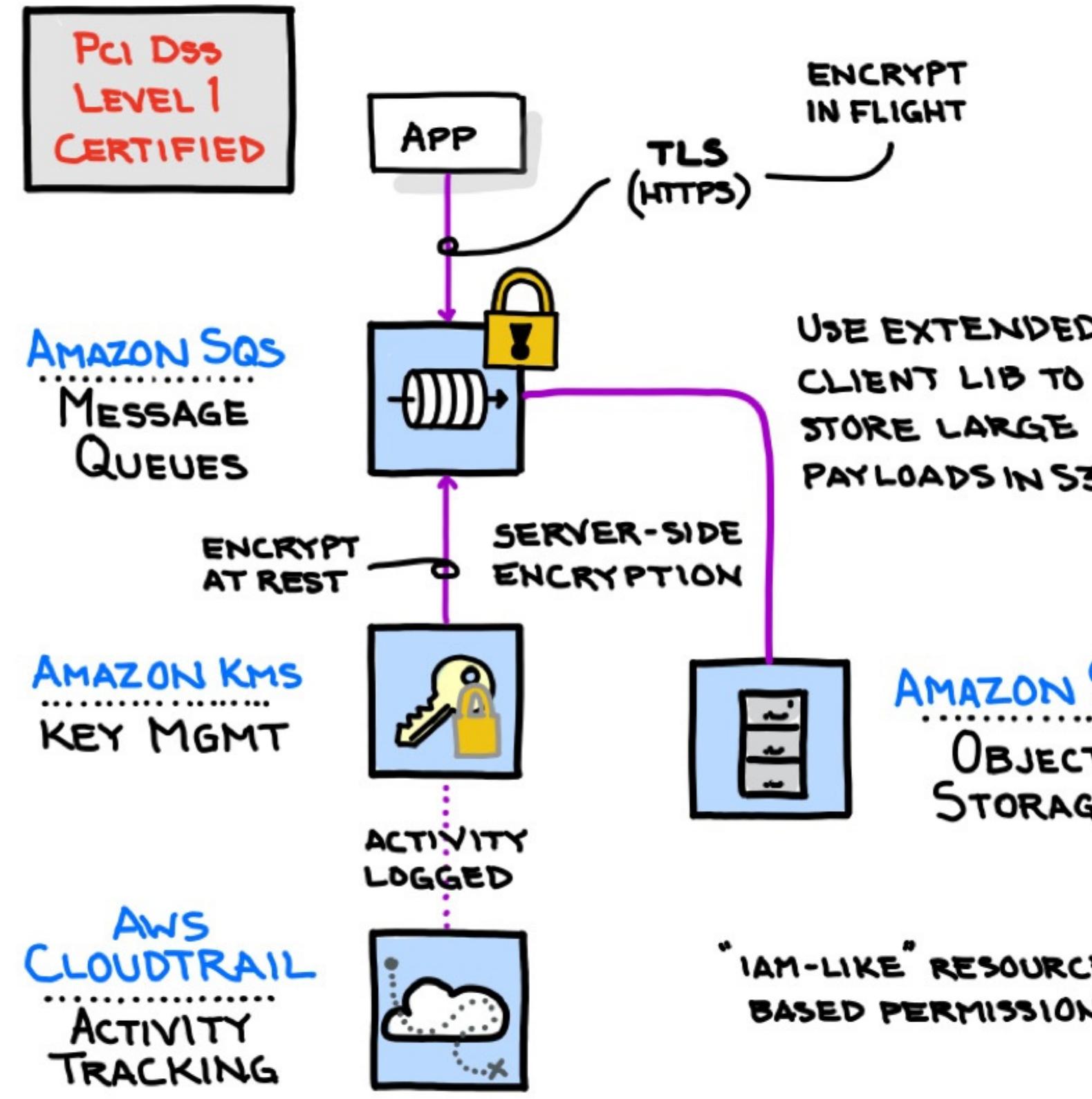


BEST EFFORT  
ORDERING



cc-by-sa

# Security



# Pricing

each 64K chunk of payload counts as 1 request

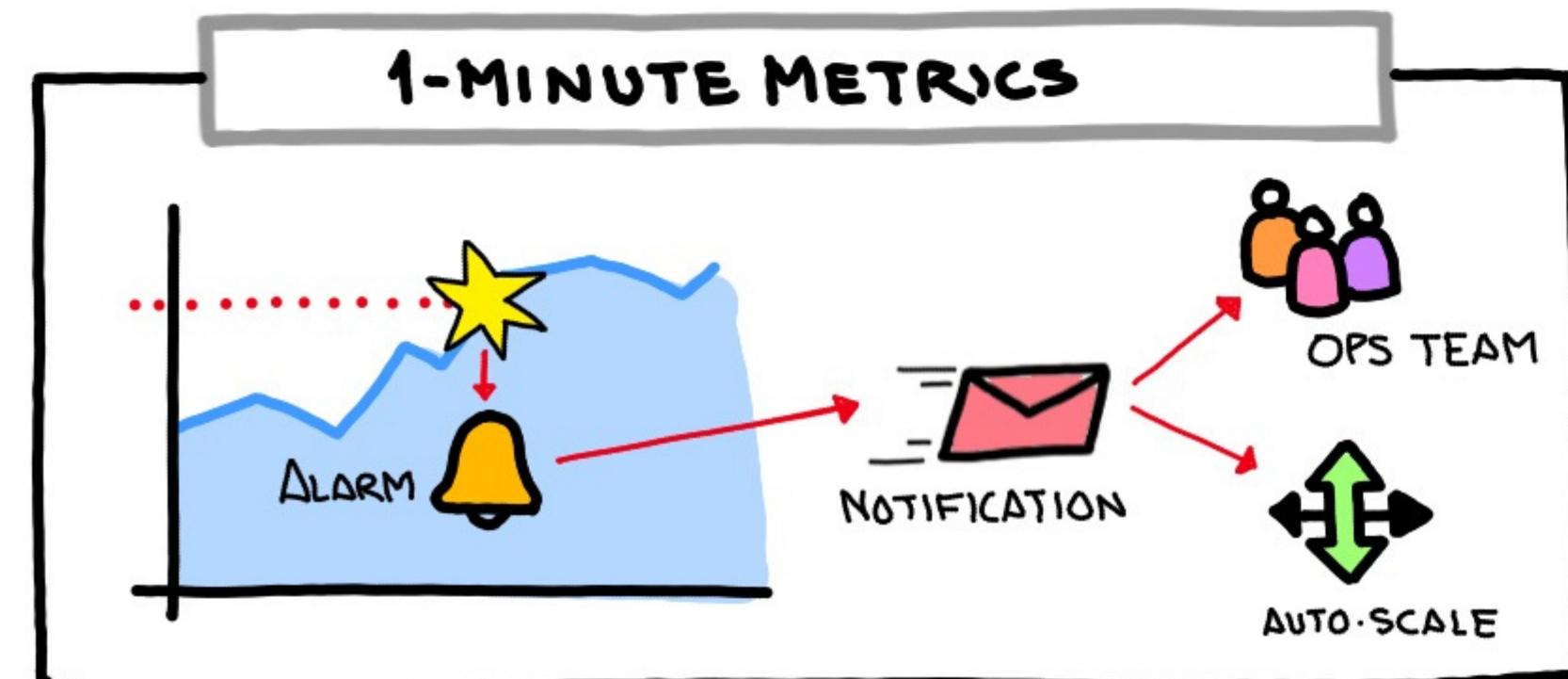
additional costs for S3 + KMS

**Standard** ... 40¢ per MM requests

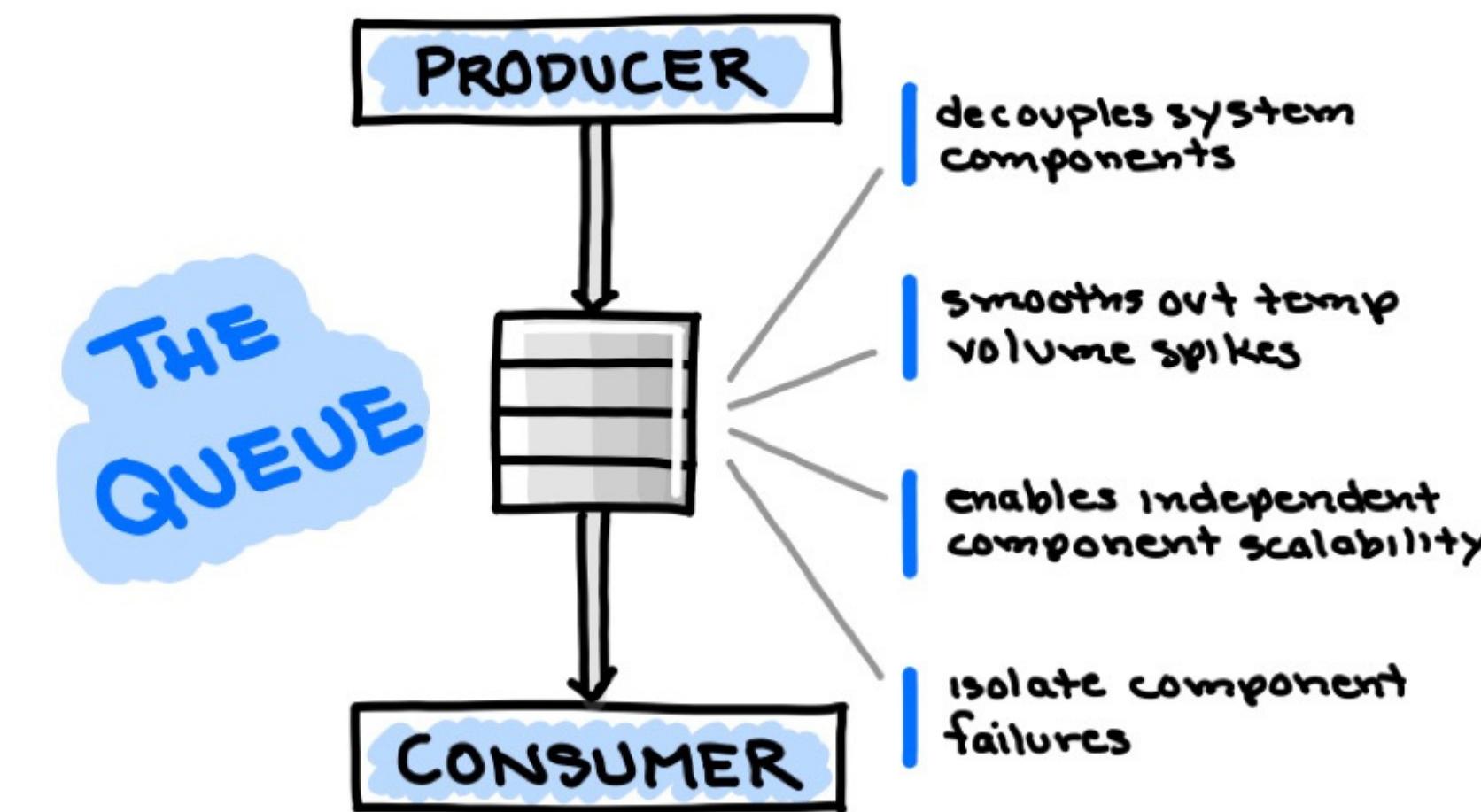
**FIFO** ..... 50¢

Send, receive, delete, visibility APIs at FIFO rates, others at standard rate

data transfer starts at 90¢/GB



## APP INTEGRATION FAMILY



# Limits

MESSAGE RETENTION PERIOD

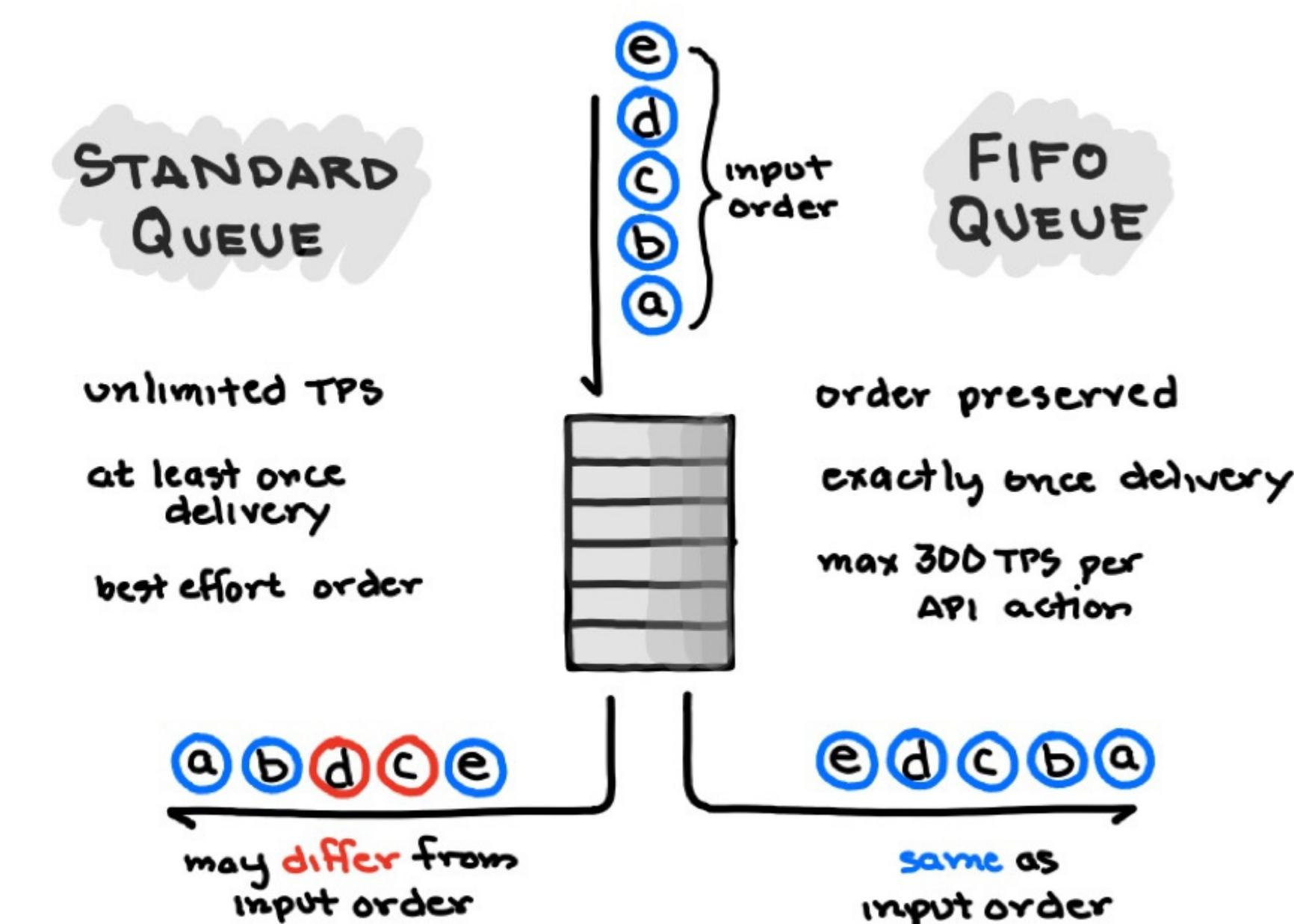
MIN: 1 MIN MAX: 14 DAYS

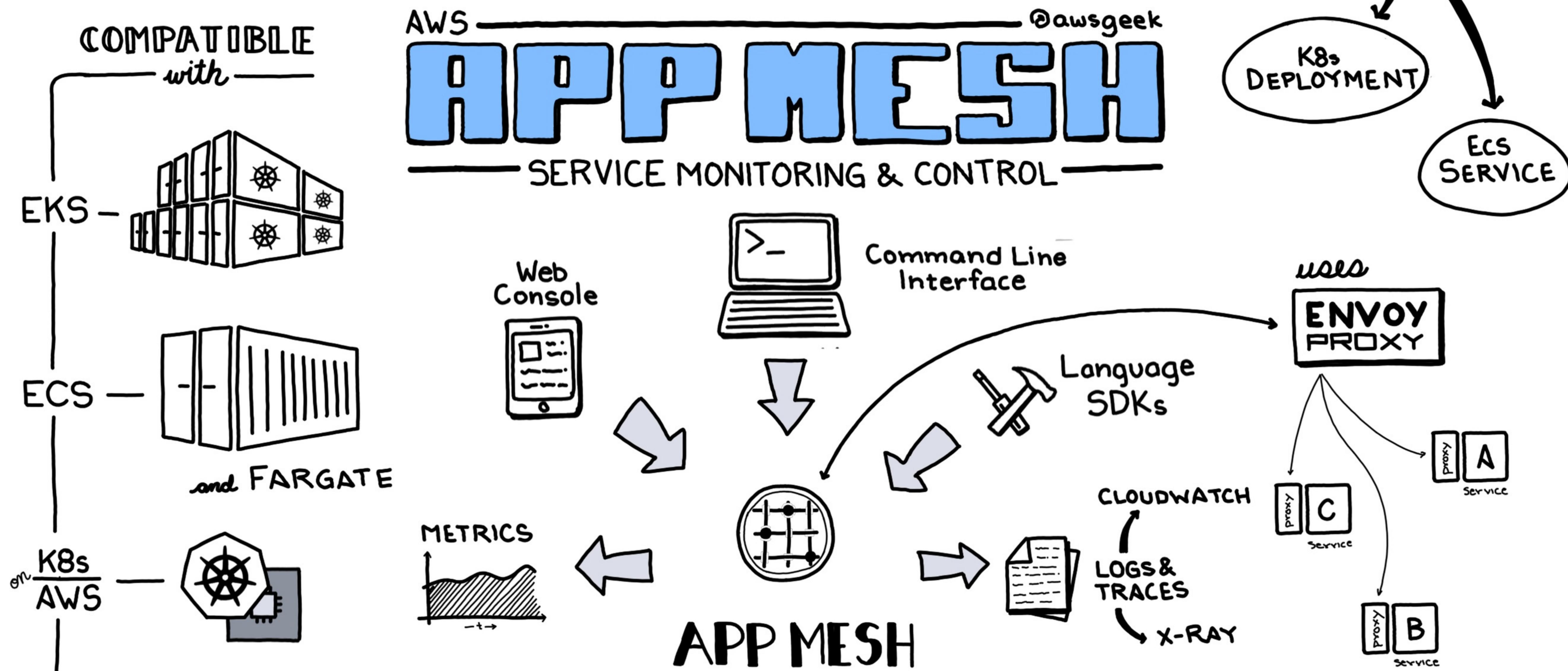
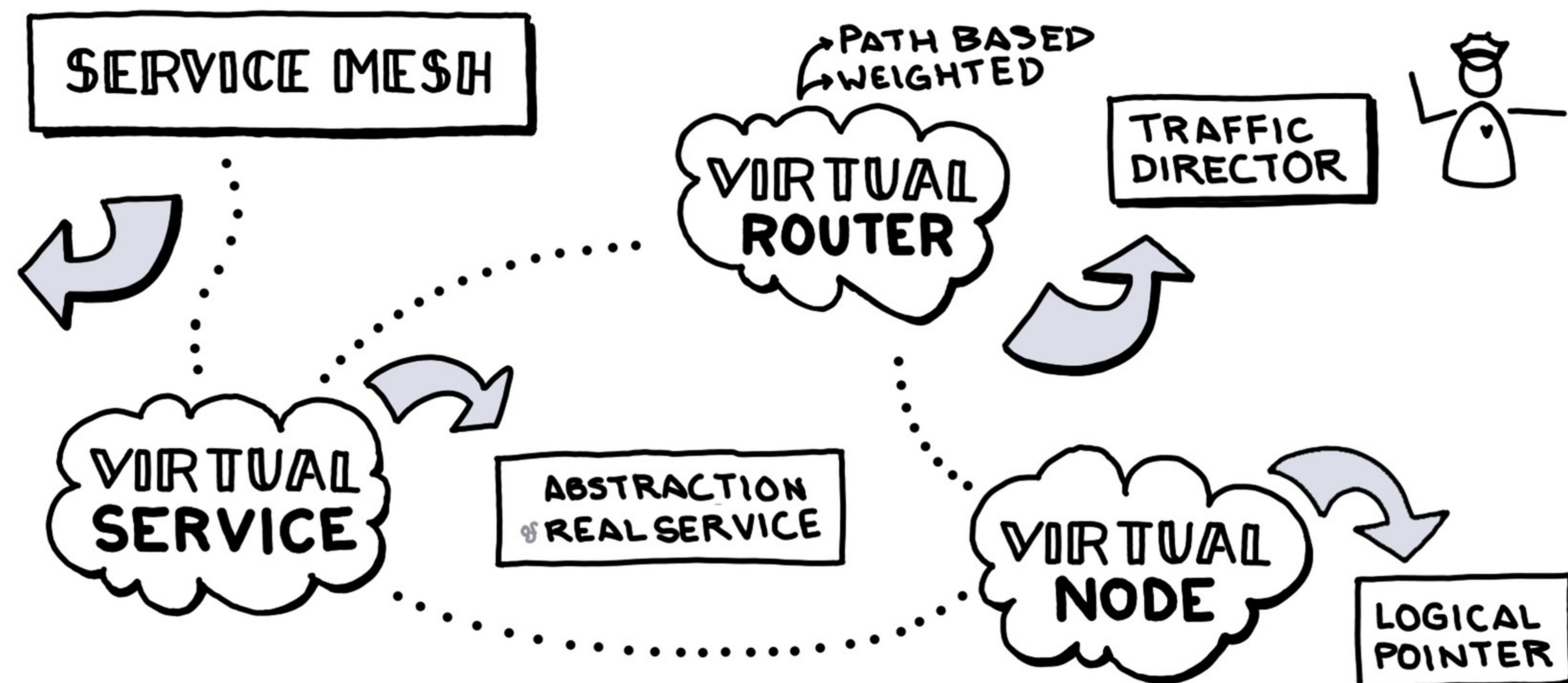
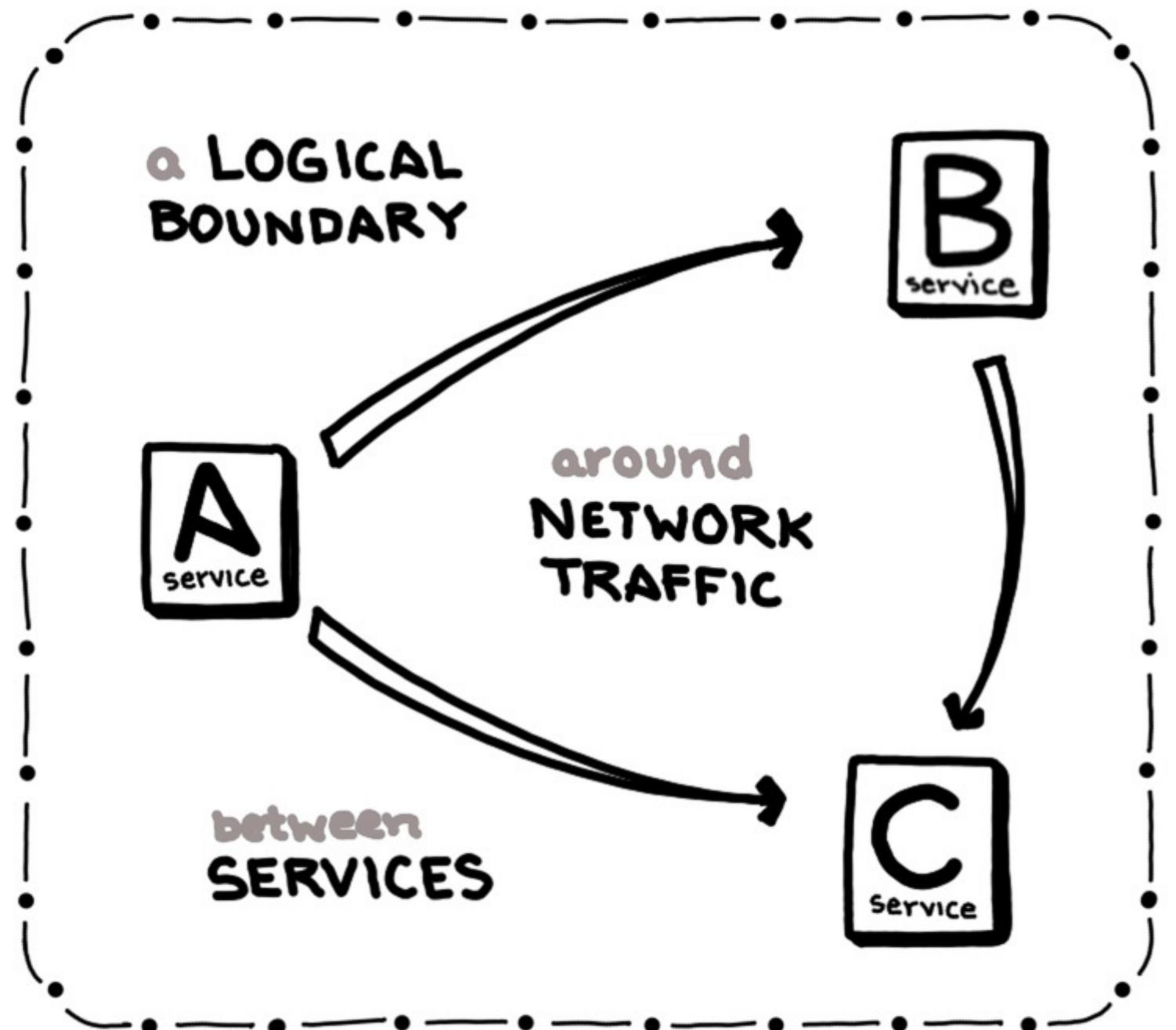
MAXIMUM MESSAGE SIZE

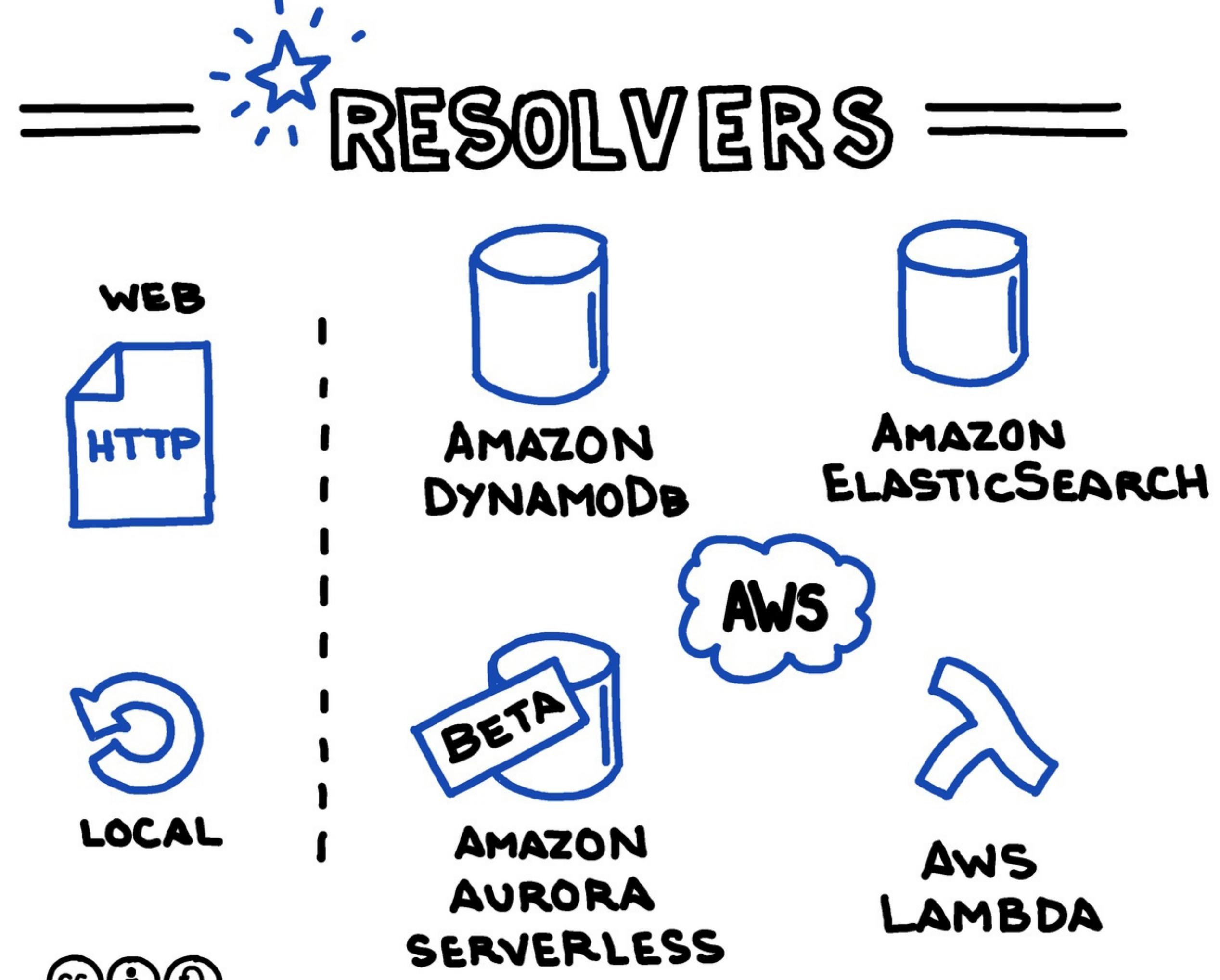
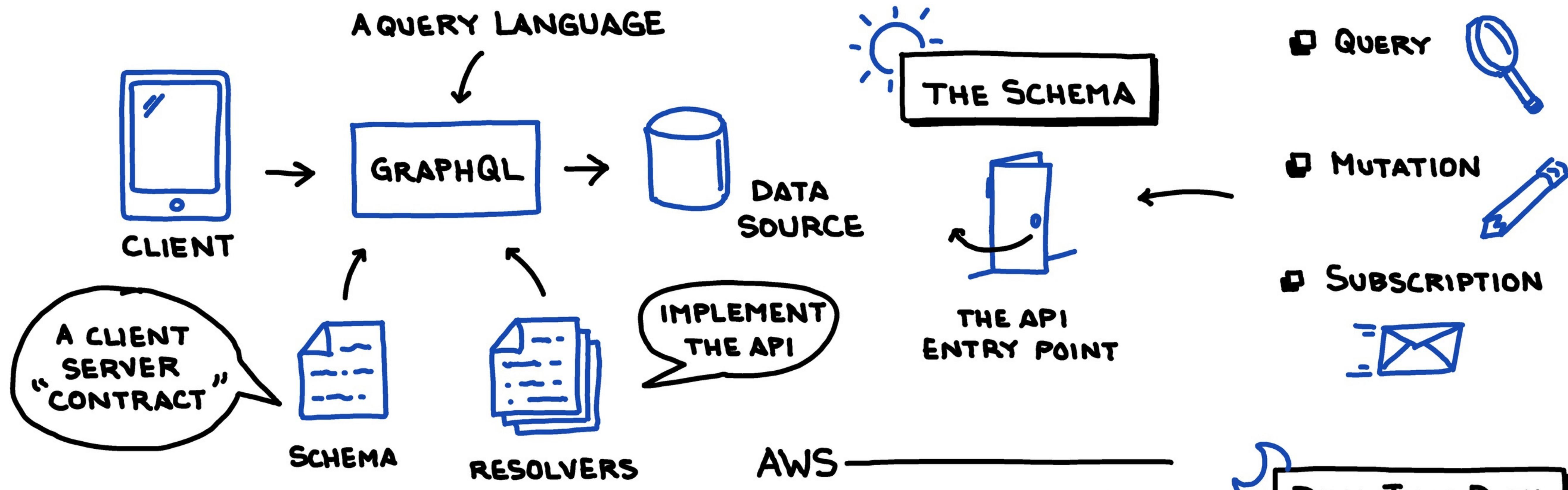
MIN: 1 KB MAX: 256 KB

MAXIMUM INFLIGHT MESSAGES

STD: 120K FIFO: 20K







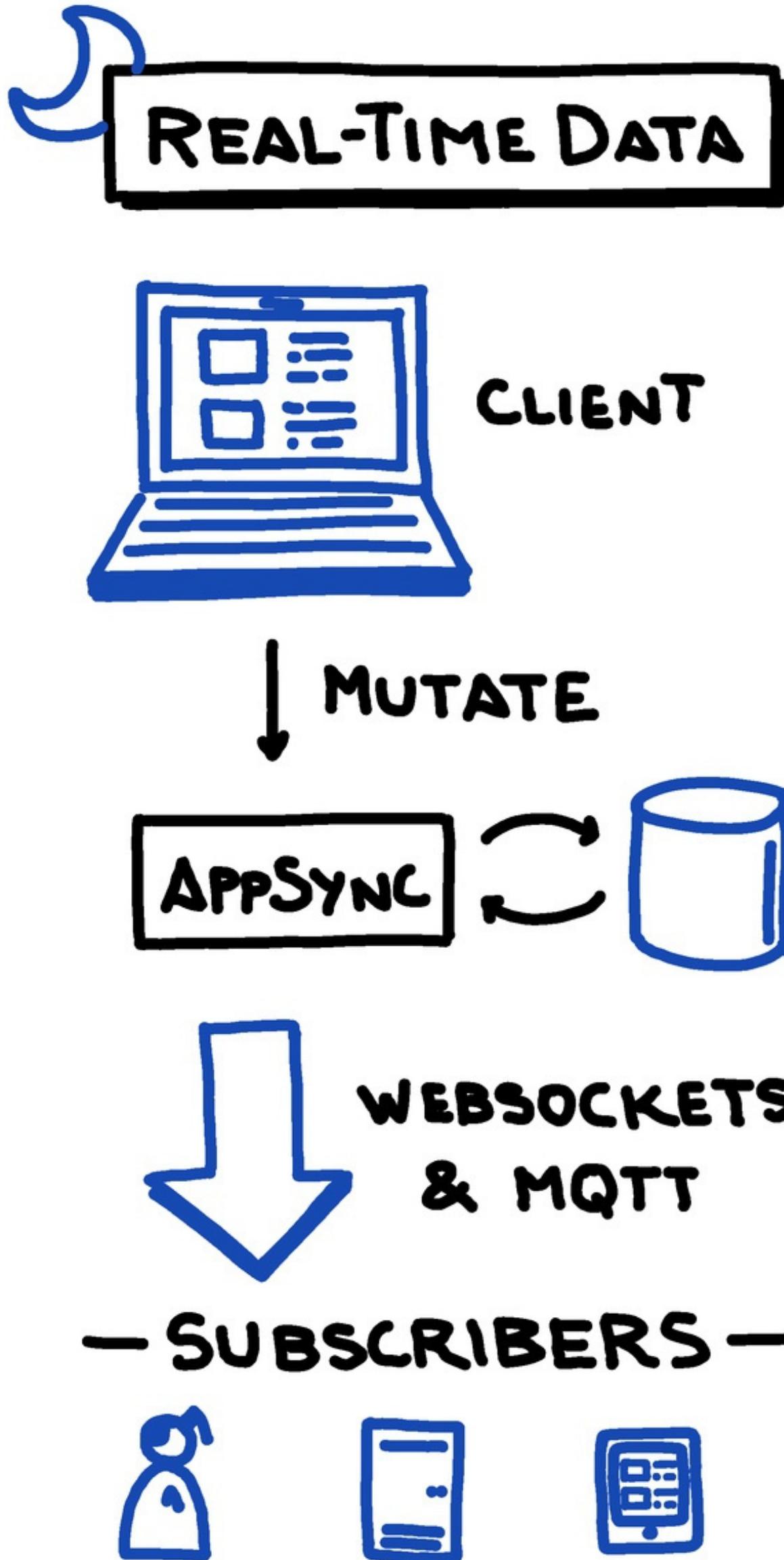
AWS — **APPSYNC**  
MANAGED • GRAPHQL

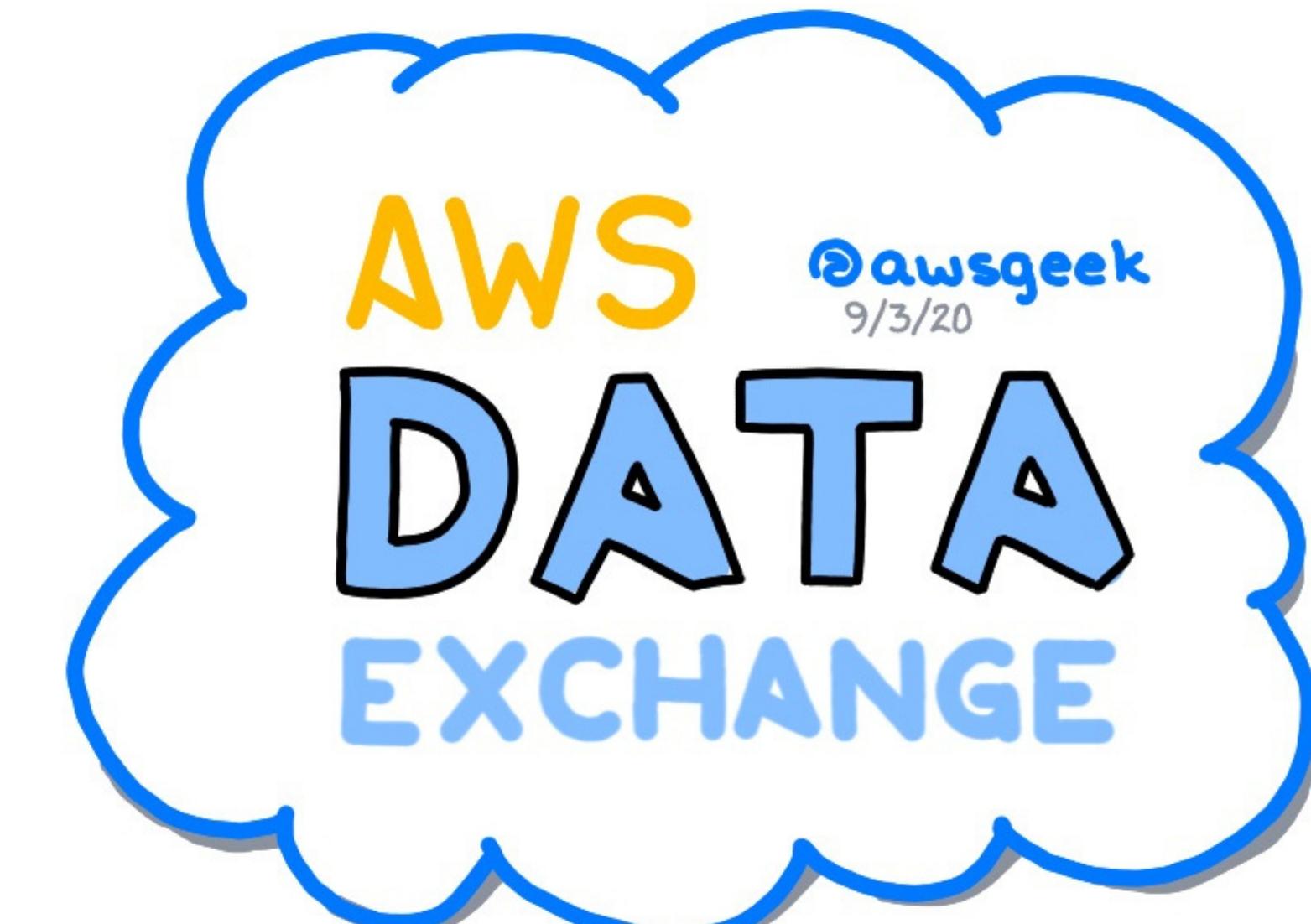
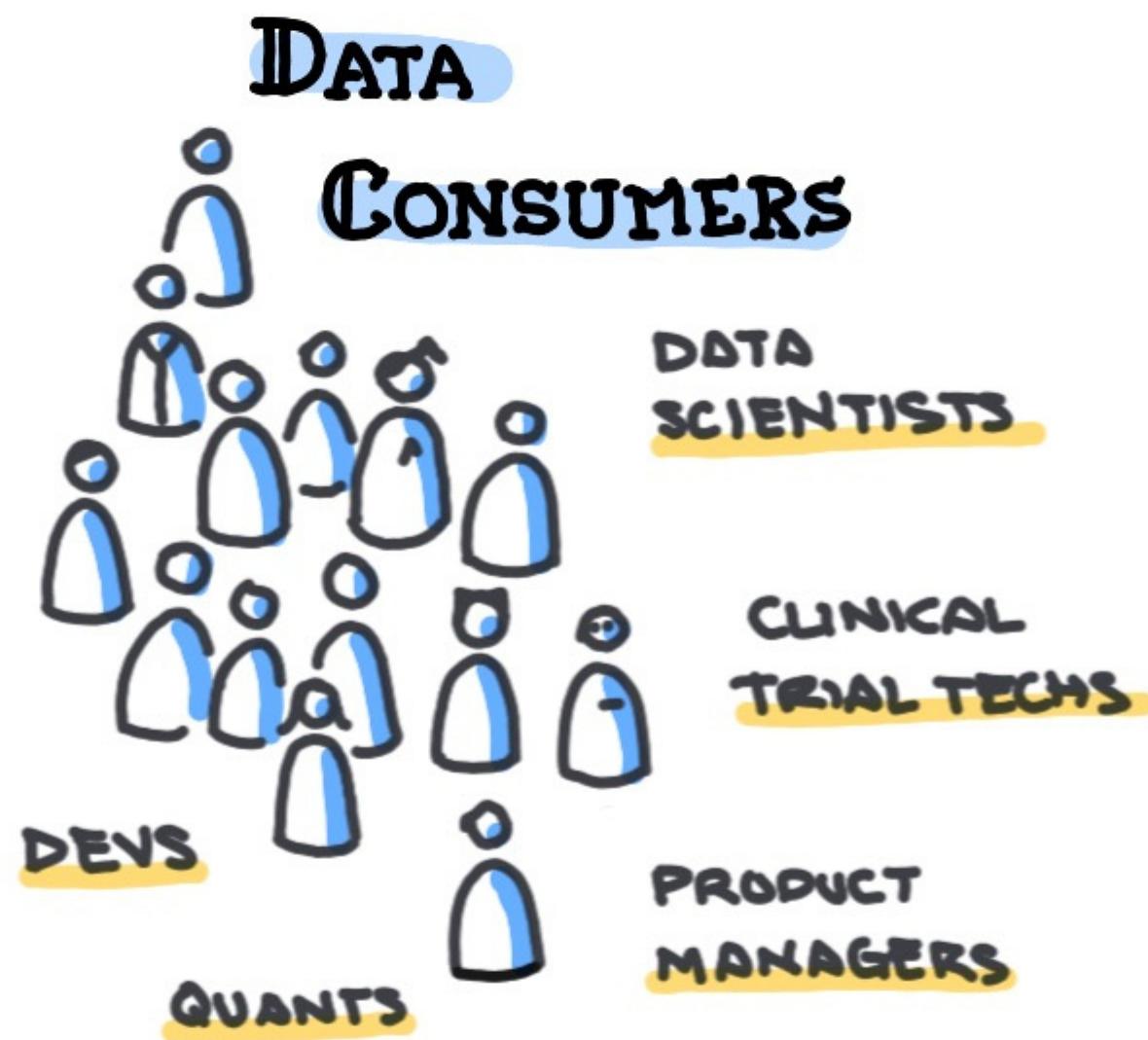
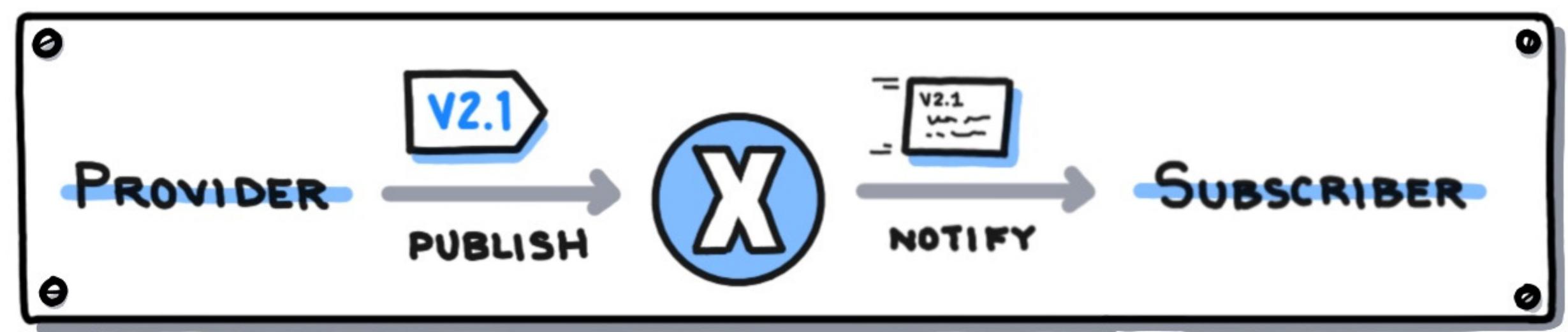
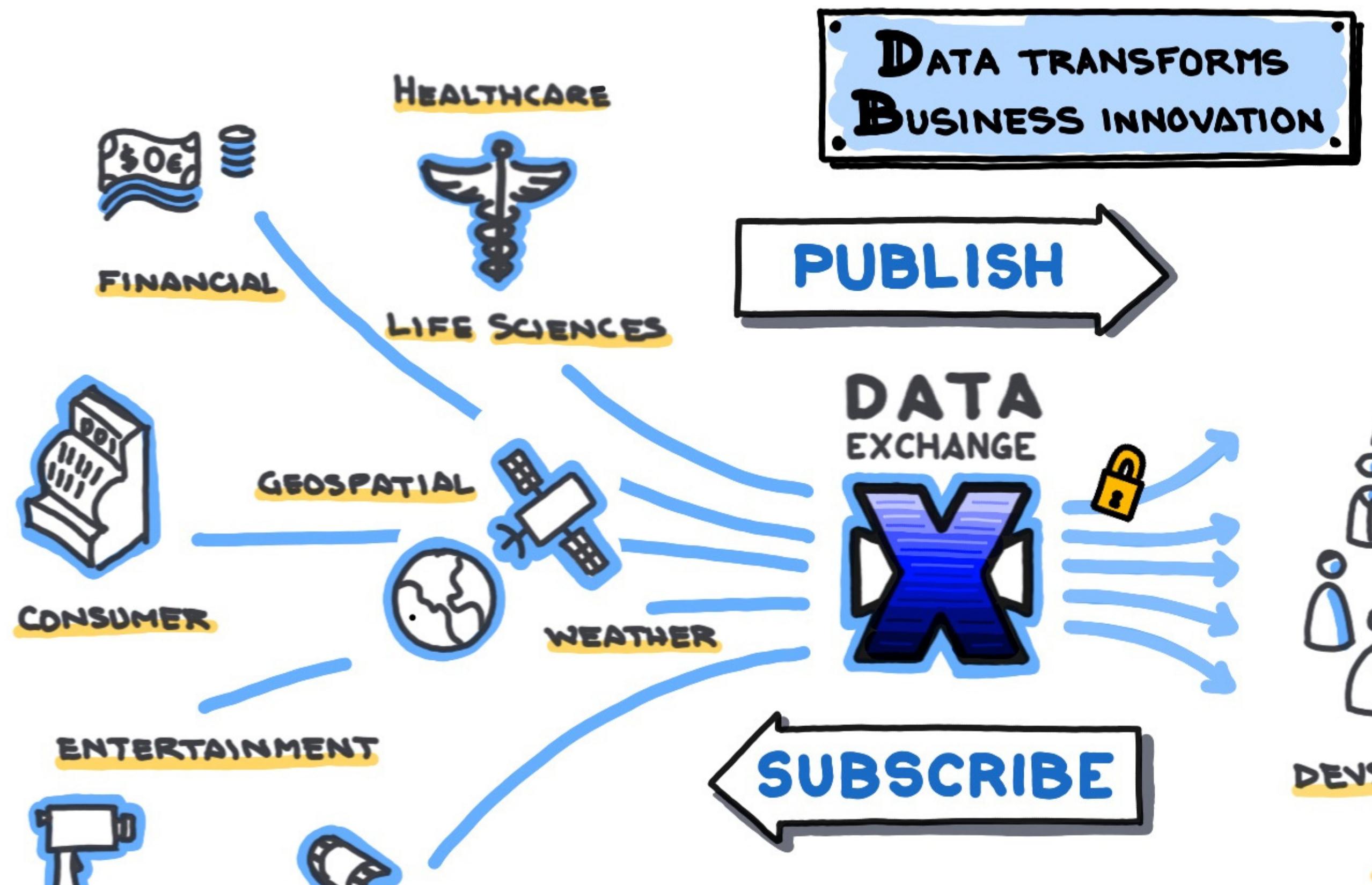
1/23/19

@awsgeek

### OFFLINE DATA ACCESS

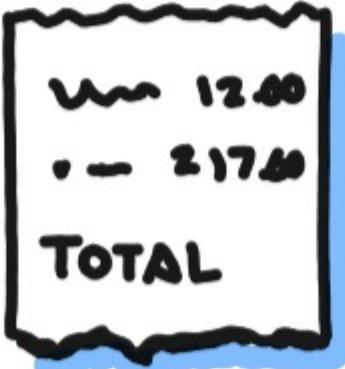
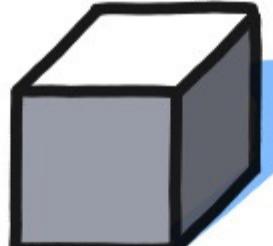
- ① MUTATE OFFLINE
  - ② UPLOAD CHANGES
  - ③ RESOLVE CONFLICTS
- APP SYNC

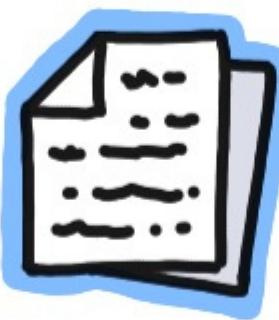




**2400+**  
**PRODUCTS**

## - PRODUCT -

1. **PRICING**  

  2. **DATA SETS**  

  3. **SUBSCRIPTION AGREEMENT**  

  4. **METADATA**  


Hancock

# CATALOG



 cc by-sa 4.0

# SUBSCRIPTION

1 ~~10~~ 36 MONTHS

A circular icon with a black arrow pointing clockwise, positioned above the word "AUTO-RENEW".

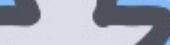
**UP TO 10GB  
EACH**

## logical grouping of data



# DATA SET

A SERIES OF **REVISIONS**

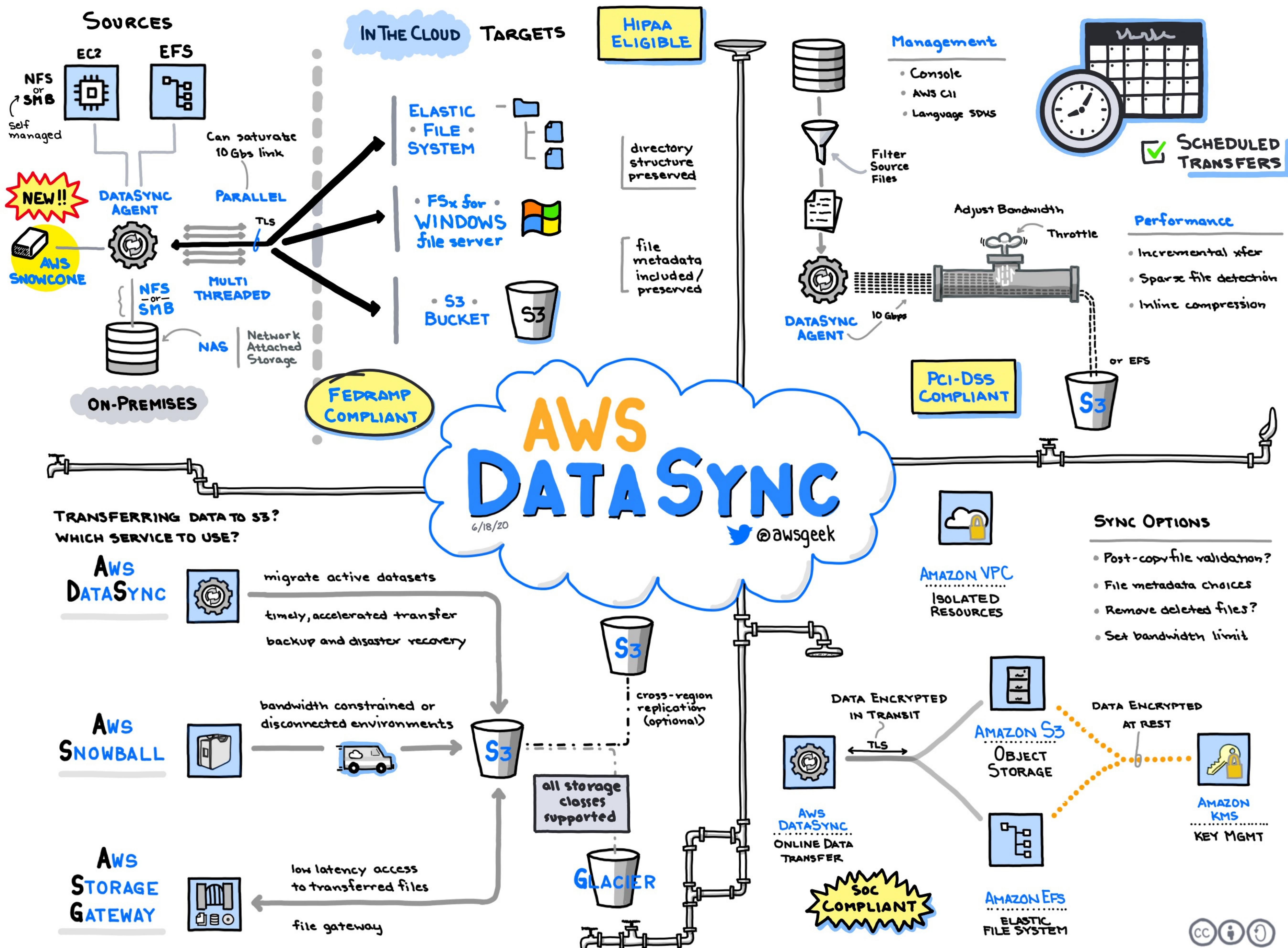


# point in time view **REVISION**

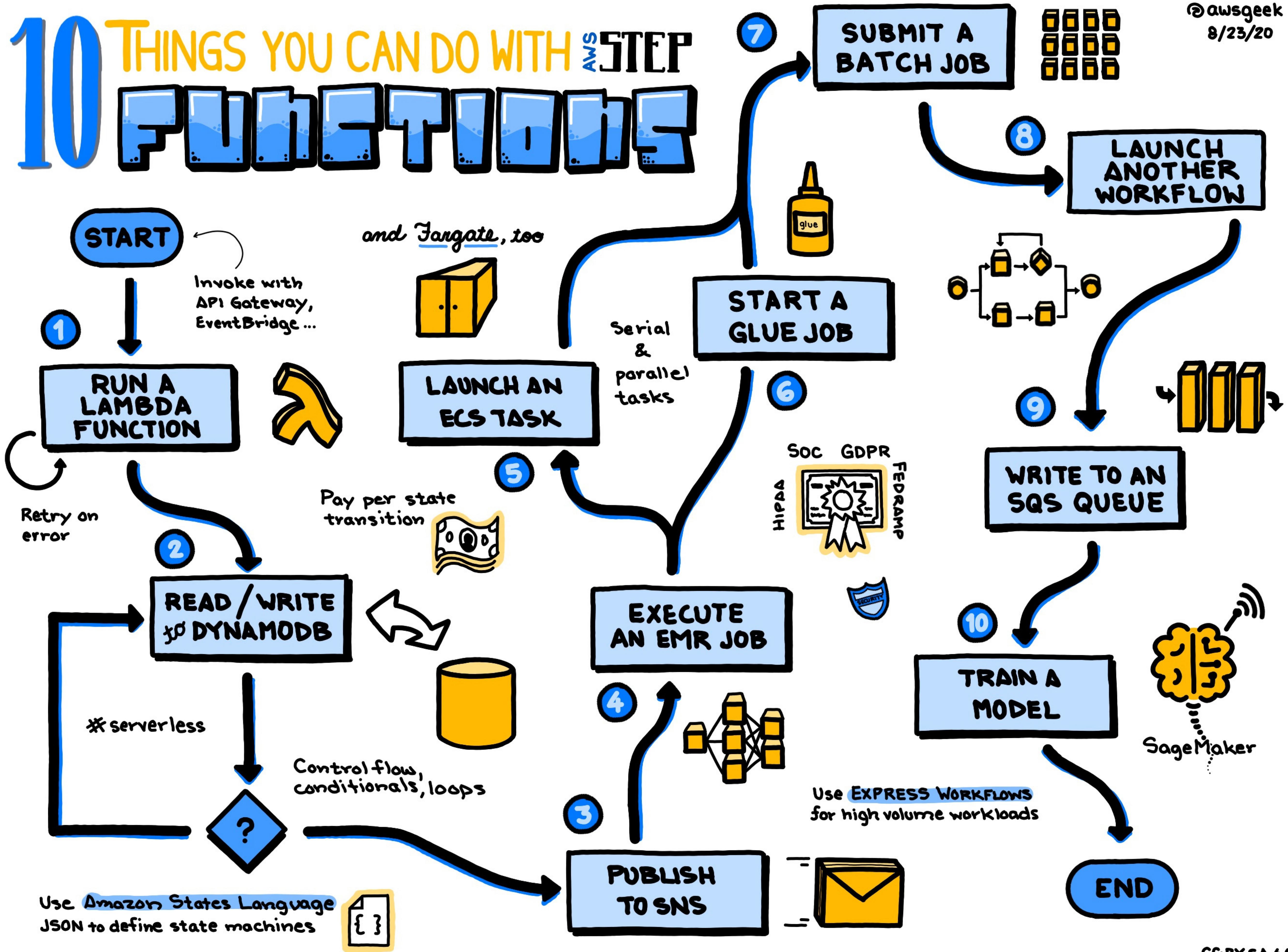
**ASSET** —  
any *file* that can  
be stored on a <sup>3</sup>3

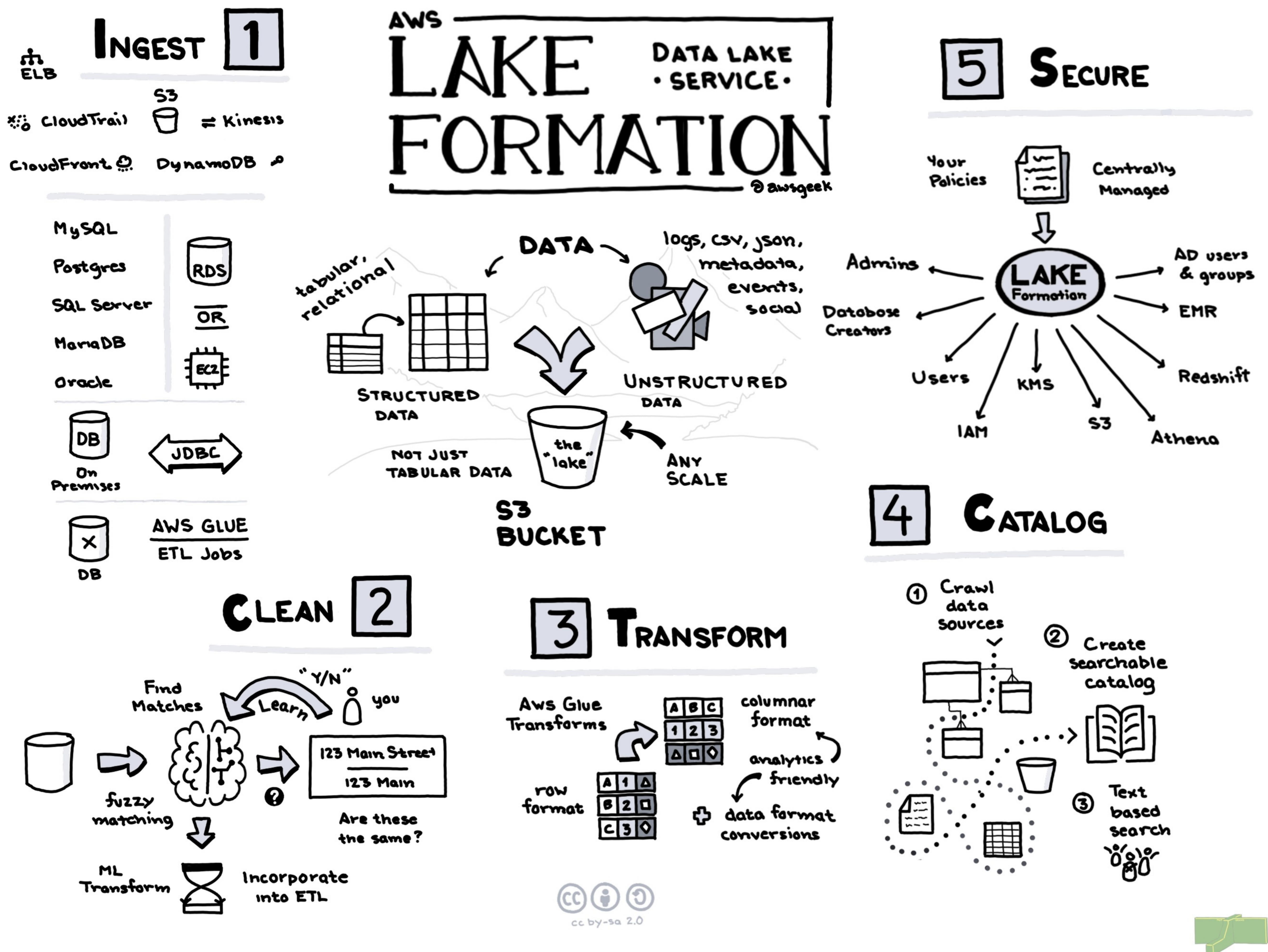
 S3

**COMPLETE**  
**OR**  
**INCREMENTAL**



# 10 THINGS YOU CAN DO WITH AWS STEP FUNCTIONS





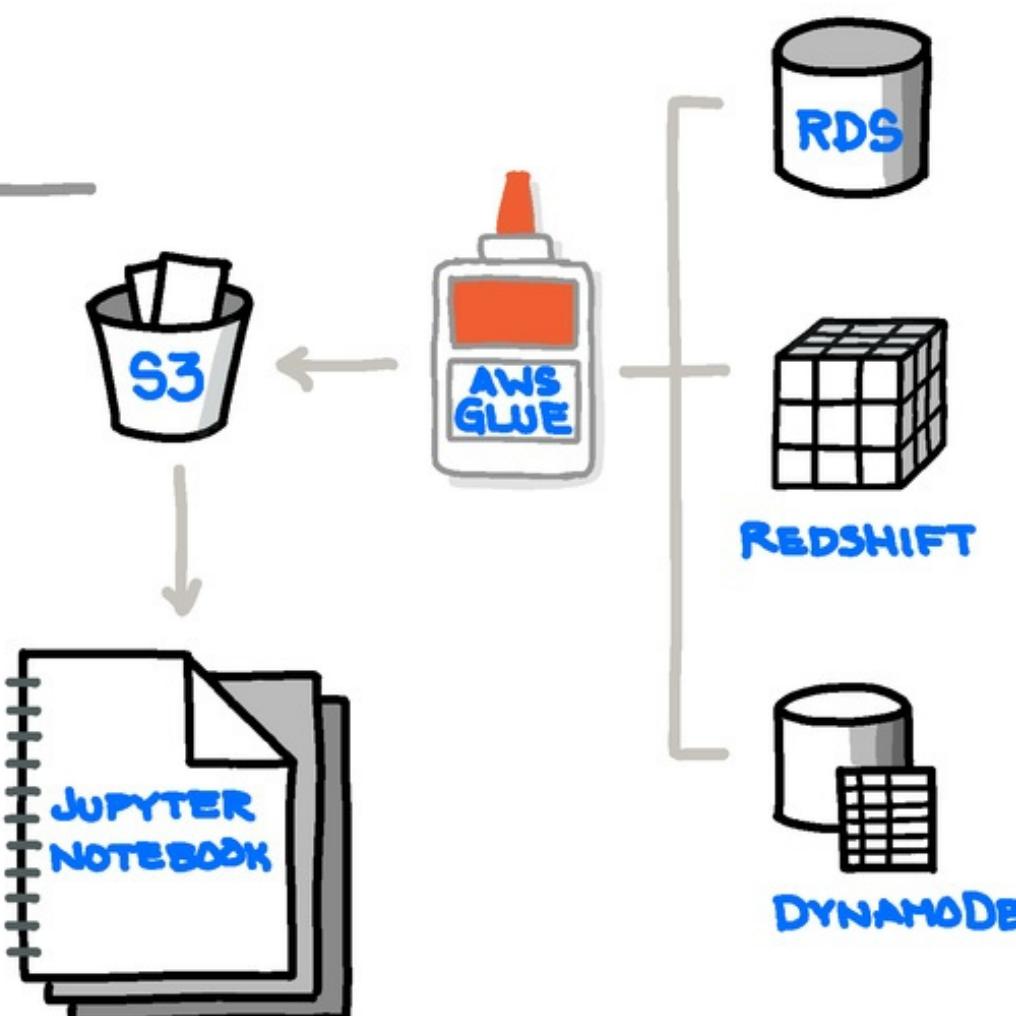
## BUILD

### COMMON TEMPLATES

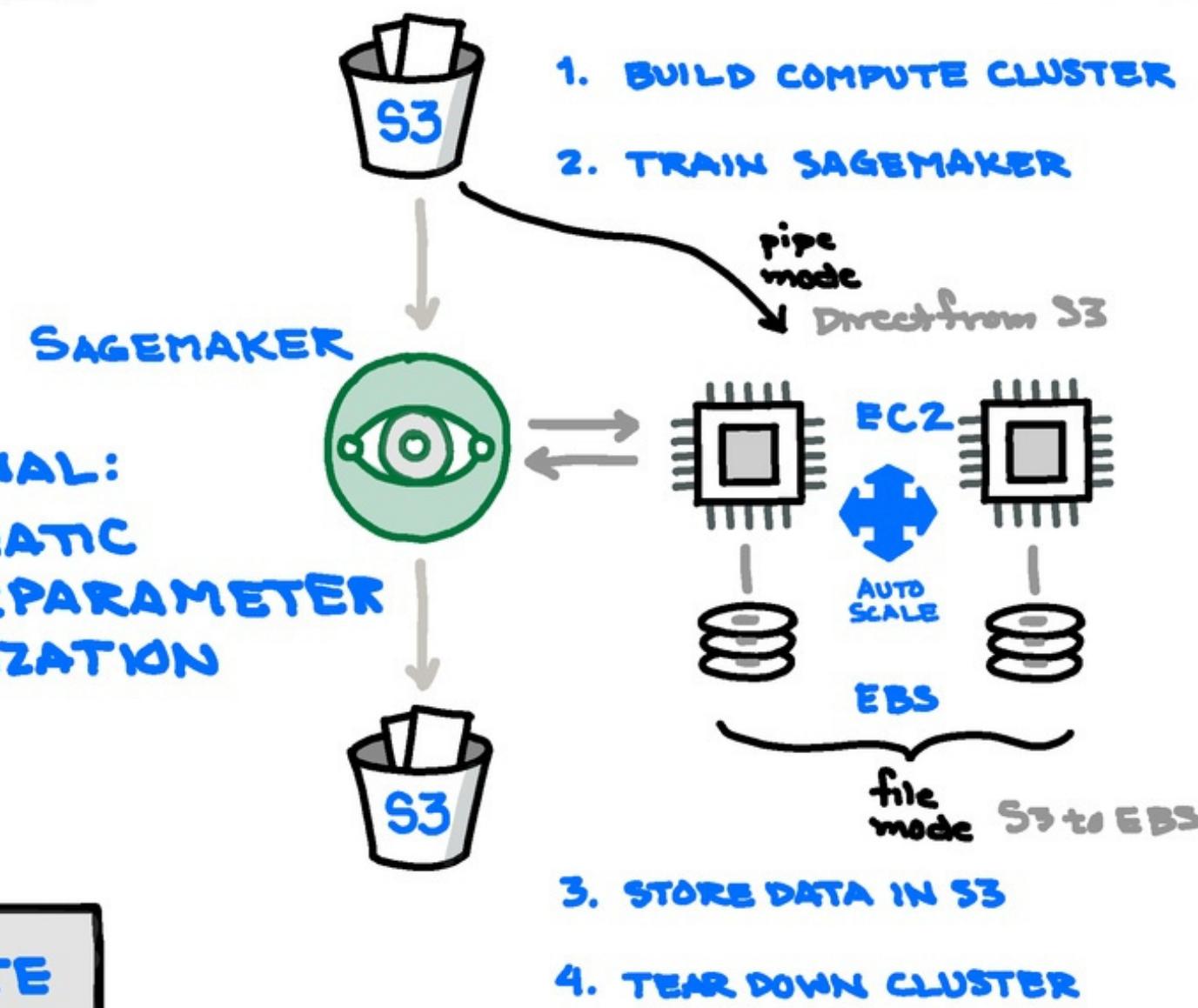
- TIME SERIES FORECAST
- DIRECT MARKETING TARGETS
- PREDICT CUSTOMER CHURN

### ADV. TEMPLATES

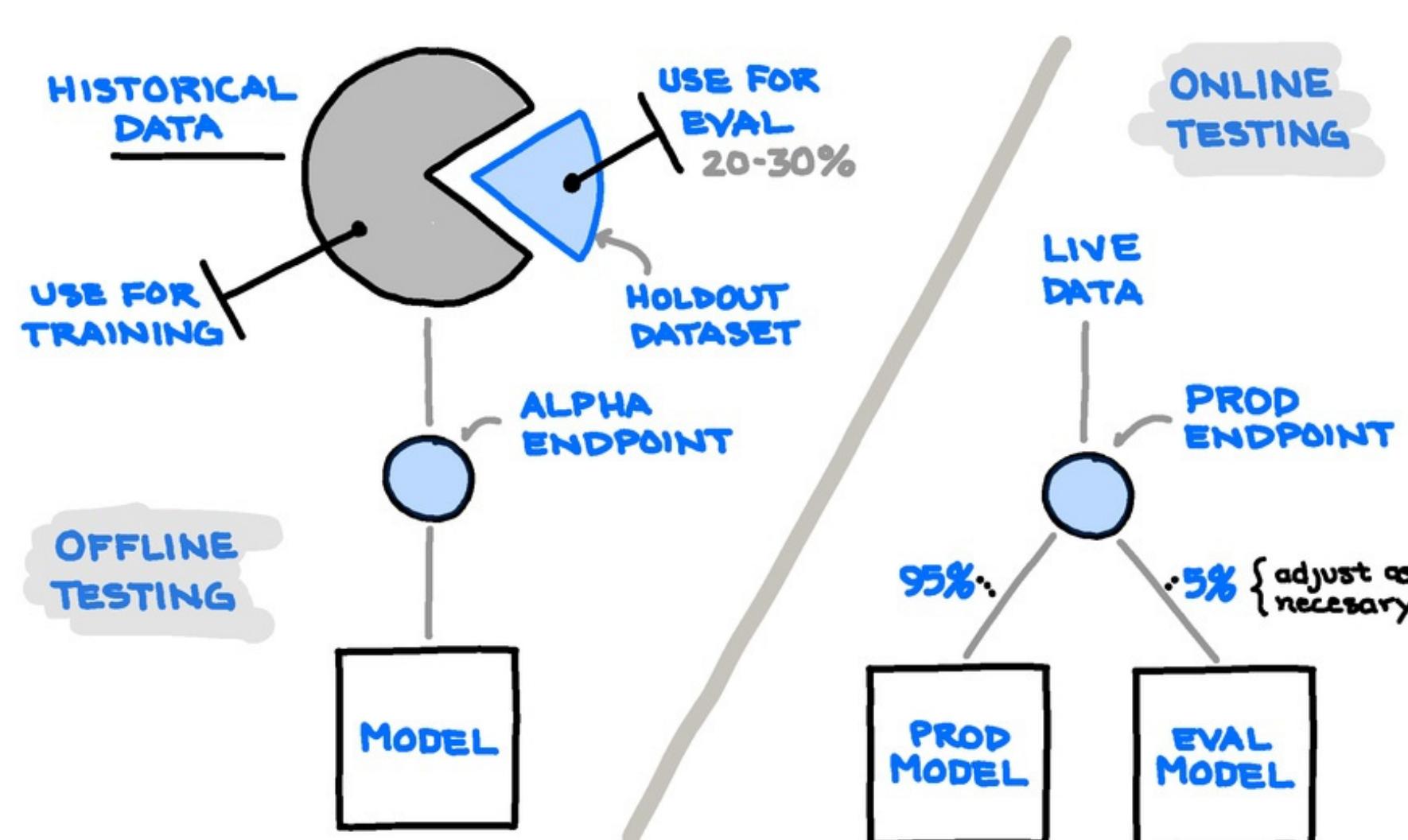
- BYO TENSORFLOW & MXNET CONTAINERS
- BYO SCIKIT OR R.ALGO



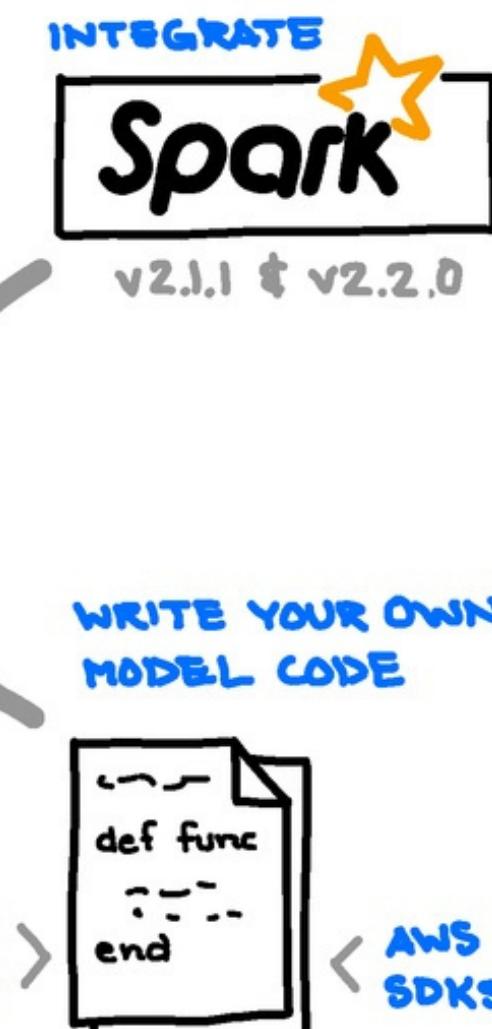
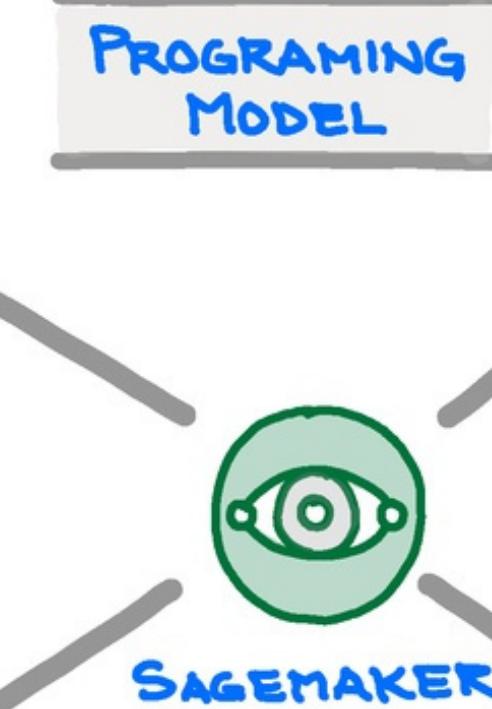
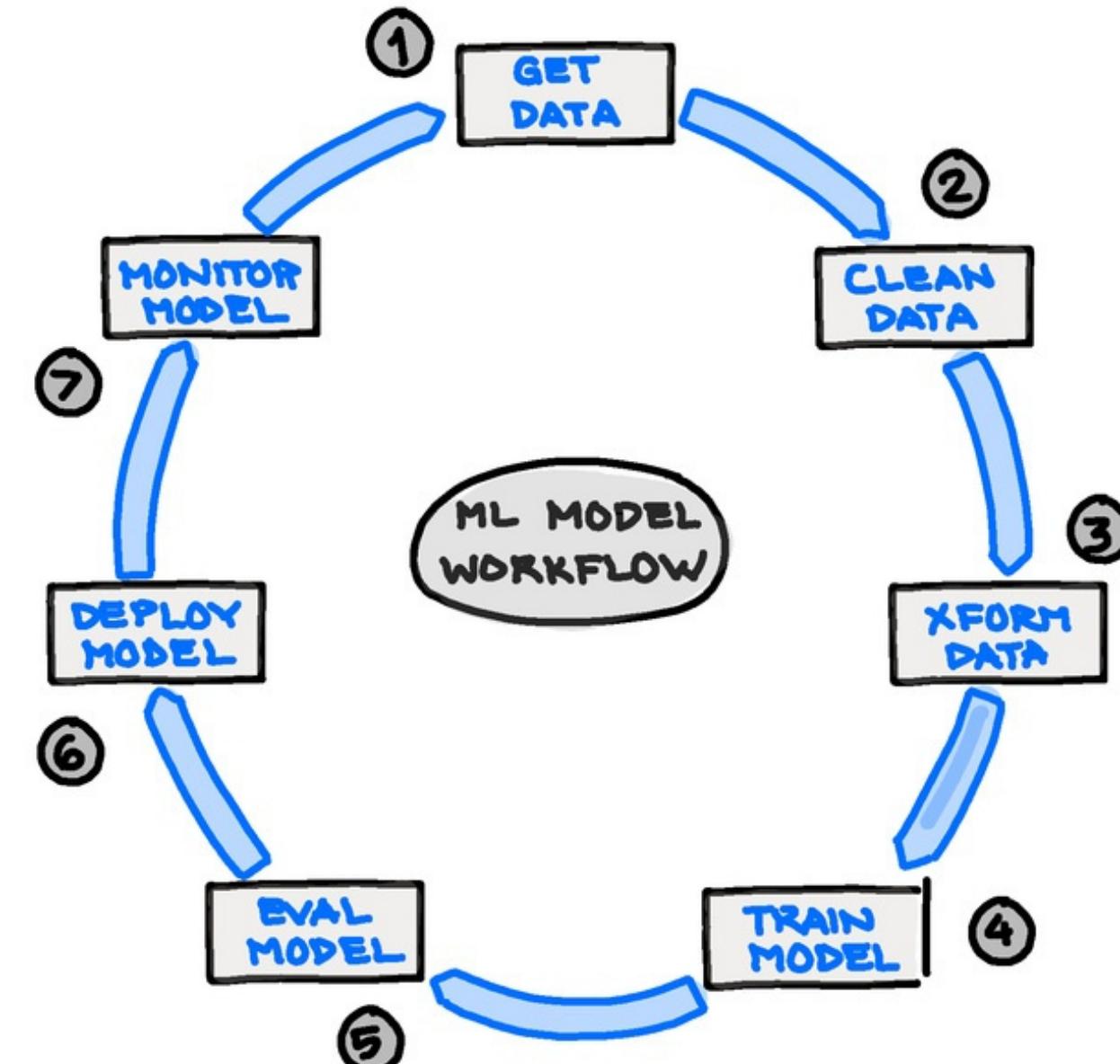
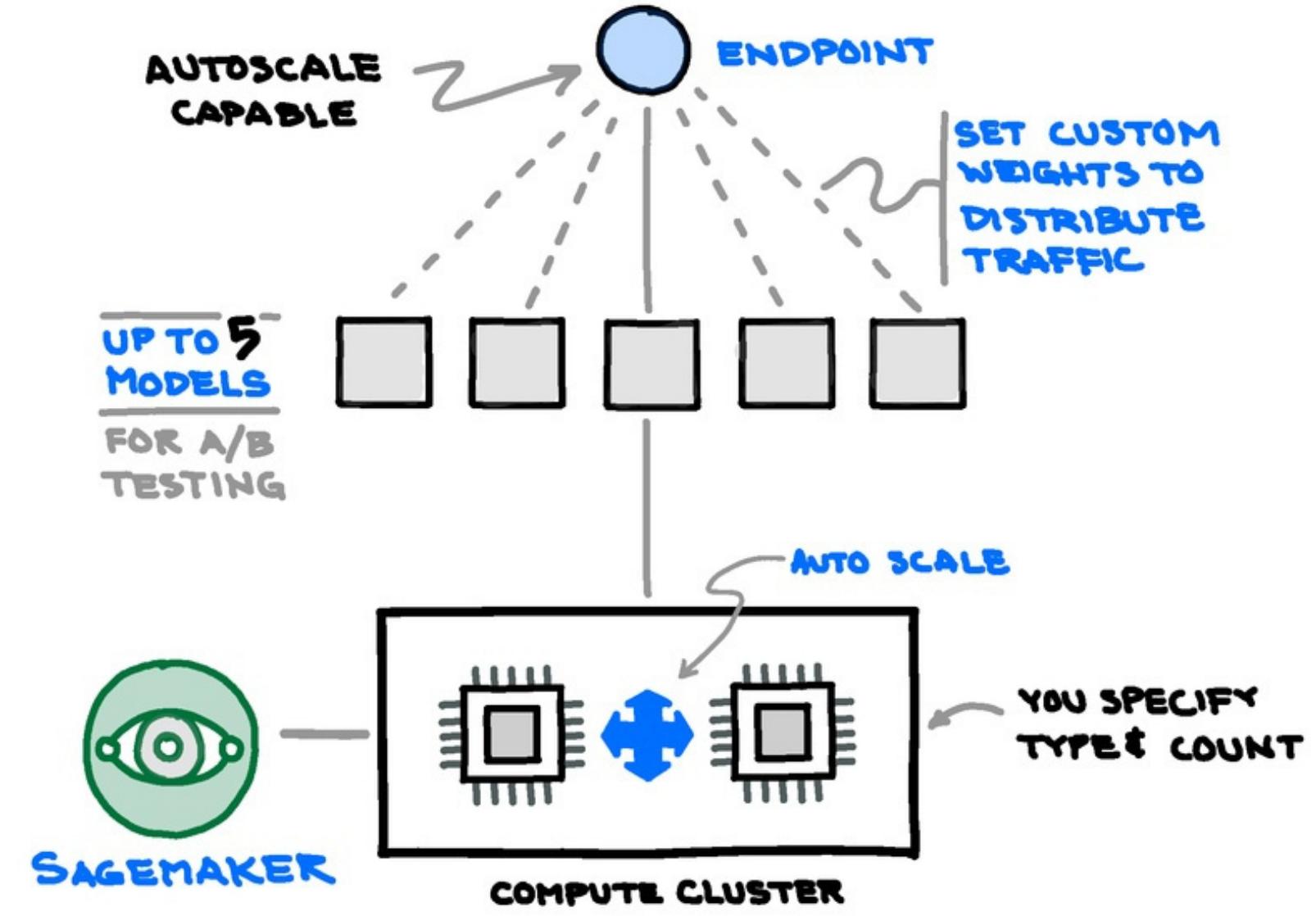
## TRAIN



## EVALUATE



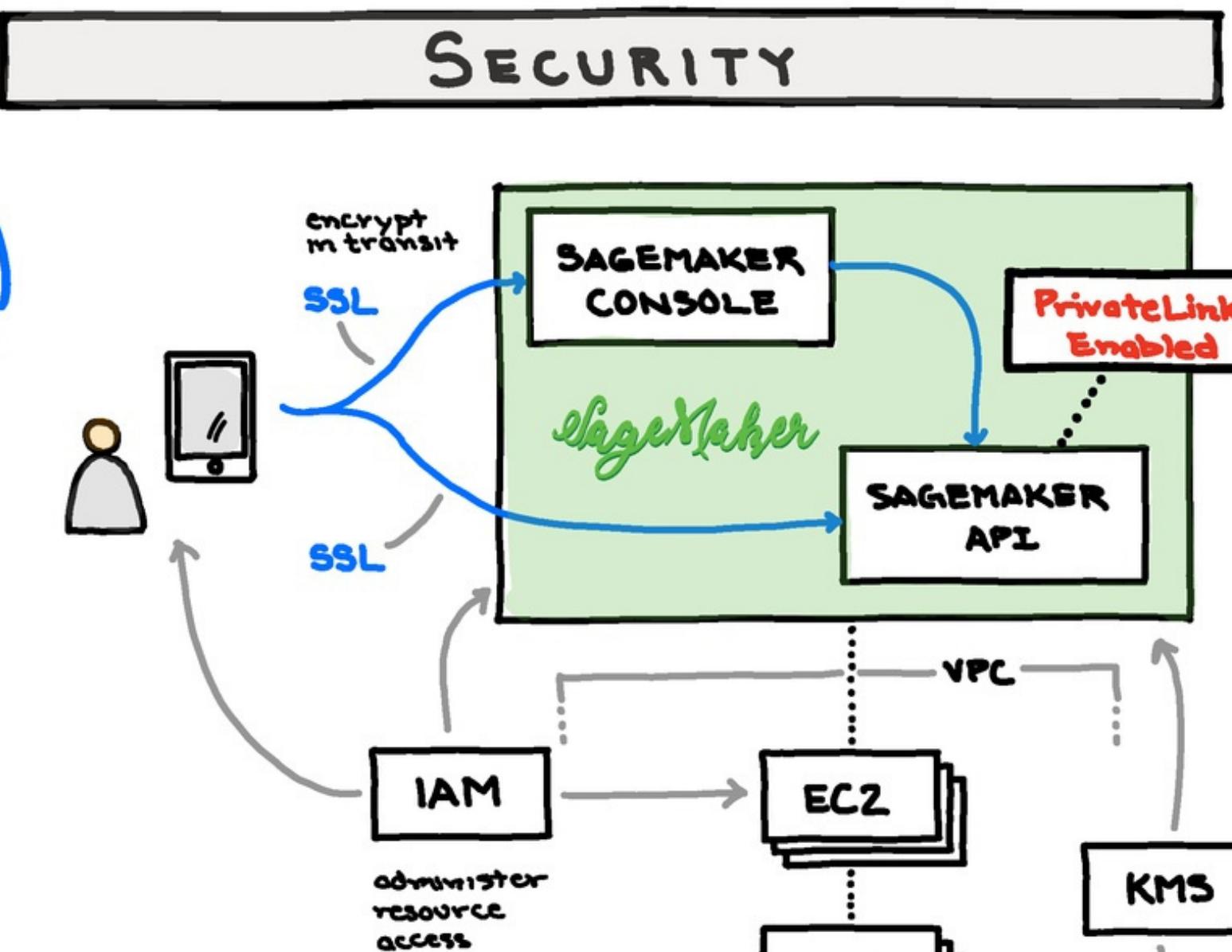
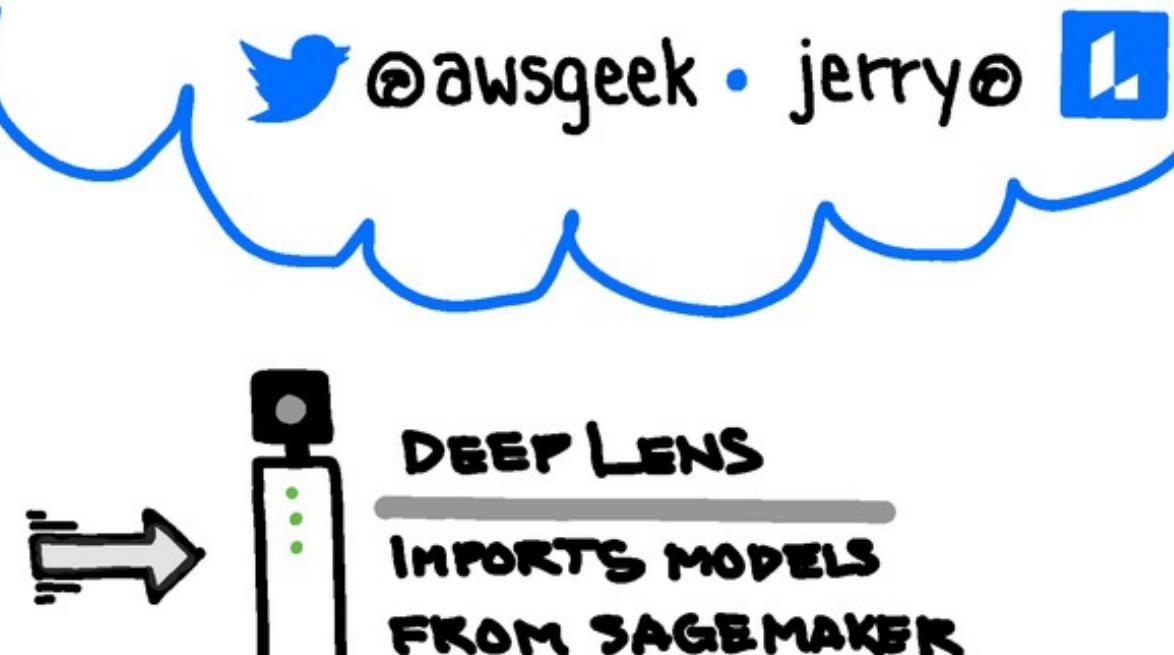
## DEPLOY



# AMAZON SageMaker

11/6/18

PCI DSS COMPLIANT

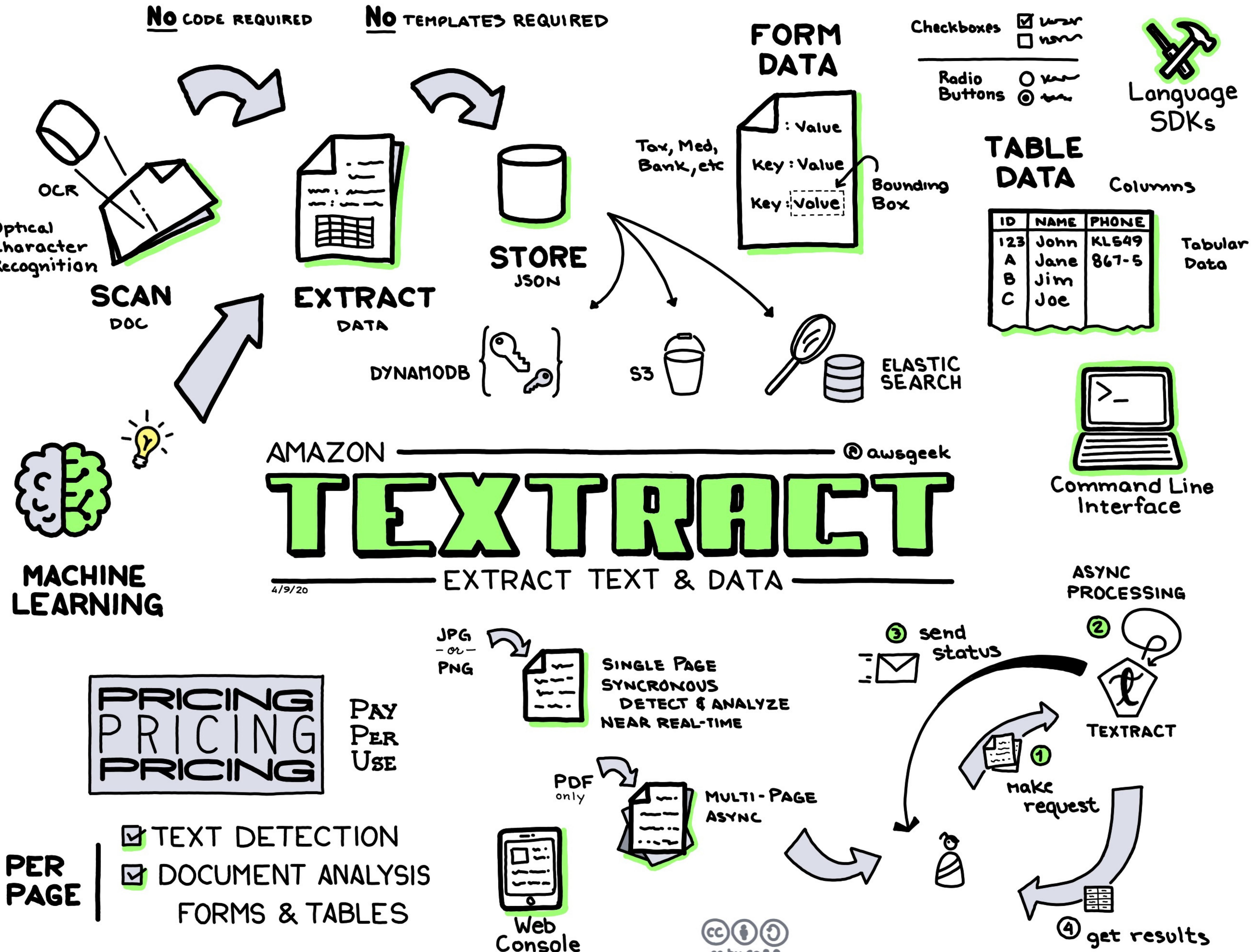


## PRICING

INSTANCE FEES: ON DEMAND, HOURLY RATE, 1 MINUTE MINIMUM, PER SECOND

STORAGE FEES: 14¢ / GB / MO (UP TO 6TB FOR TRAINING)

PROCESSING FEES: 1.6¢ / GB (IN/OUT)



## AUTOMATIC SPEECH RECOGNITION

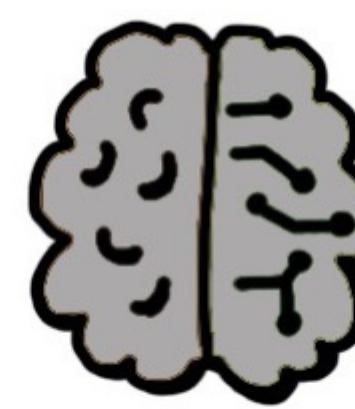


SPEECH →  
← TO TEXT

VOCABULARY  
FILTERING

REAL TIME

CLOSE CAPTIONING



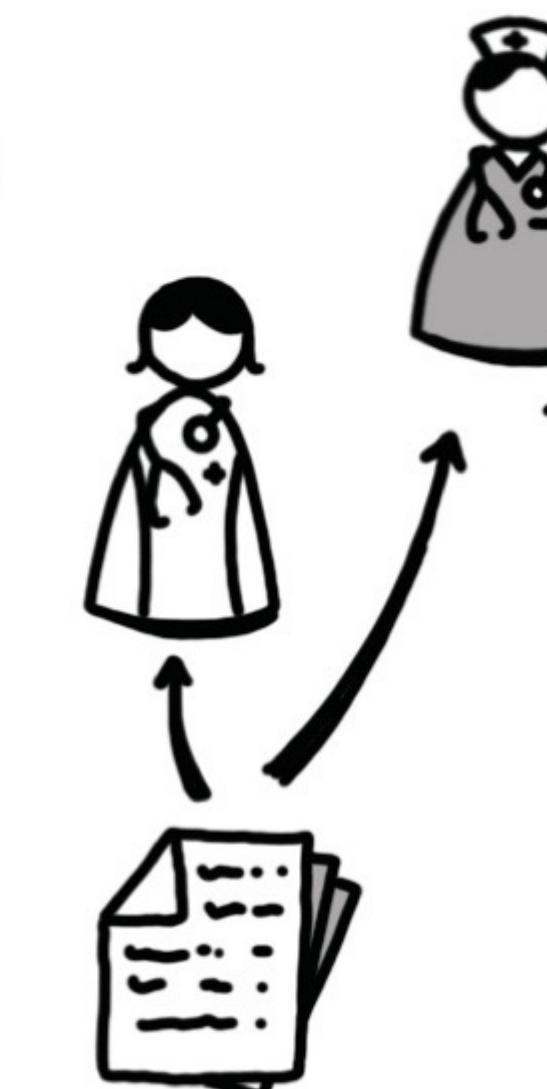
## DEEP LEARNING PUNCTUATION AND FORMATTING



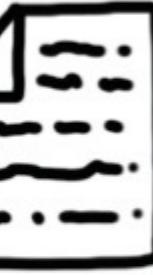
CLI



WEB



BRING YOUR OWN  
**BYOV**  
VOCABULARY



# AMAZON **TRANSCRIBE**

5/21/20

@awsgeek

CUSTOM  
VOCABULARIES

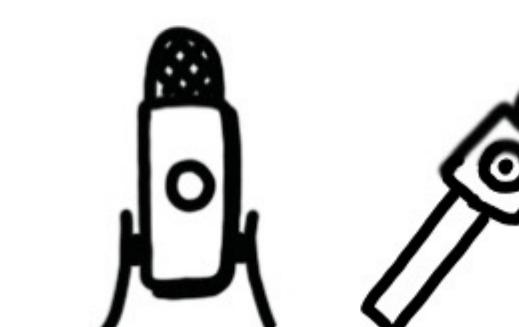
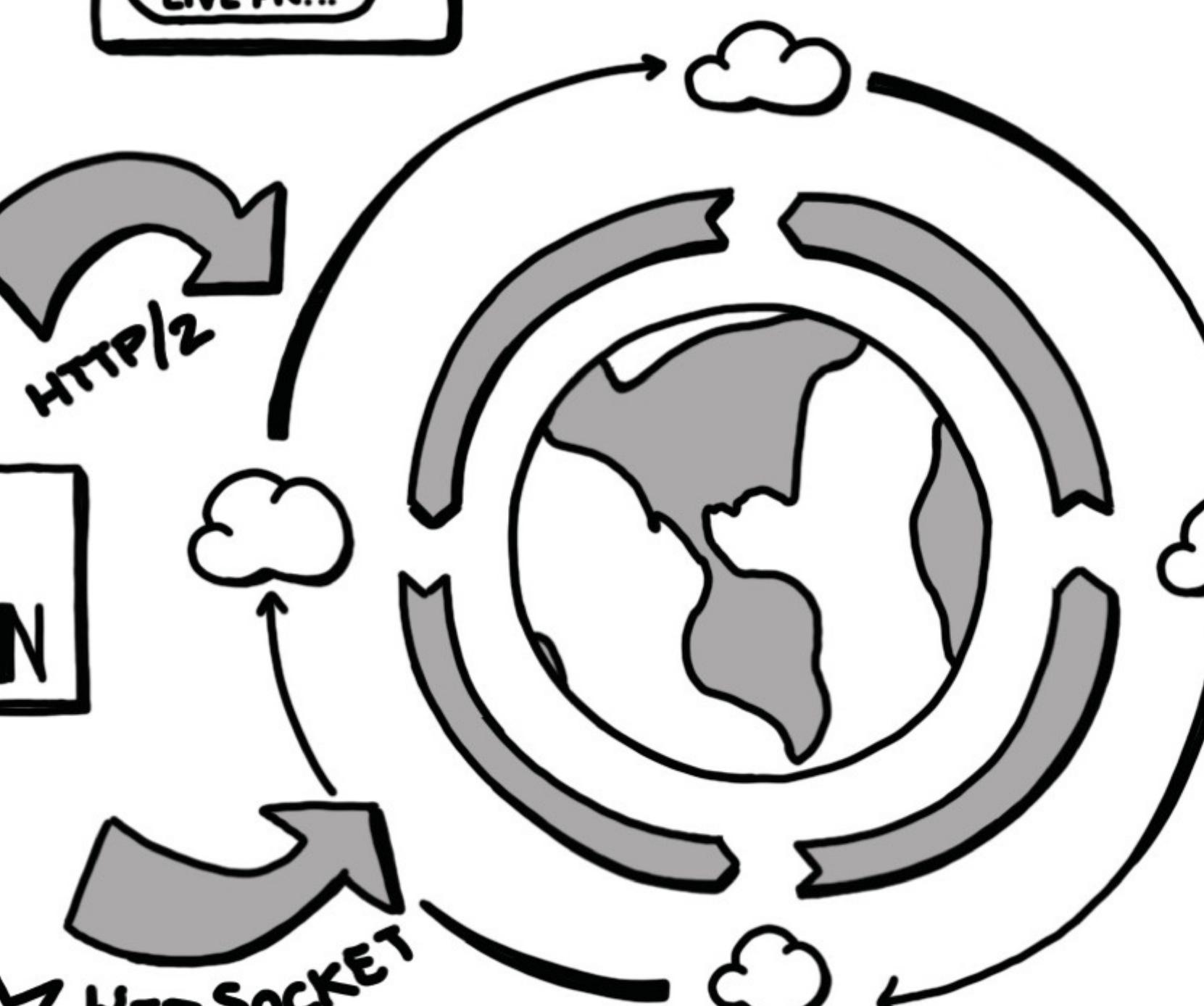
MULTIPLE SPEAKER  
• IDENTIFICATION •

"DIARIZATION"

## STREAMING TRANSCRIPTION

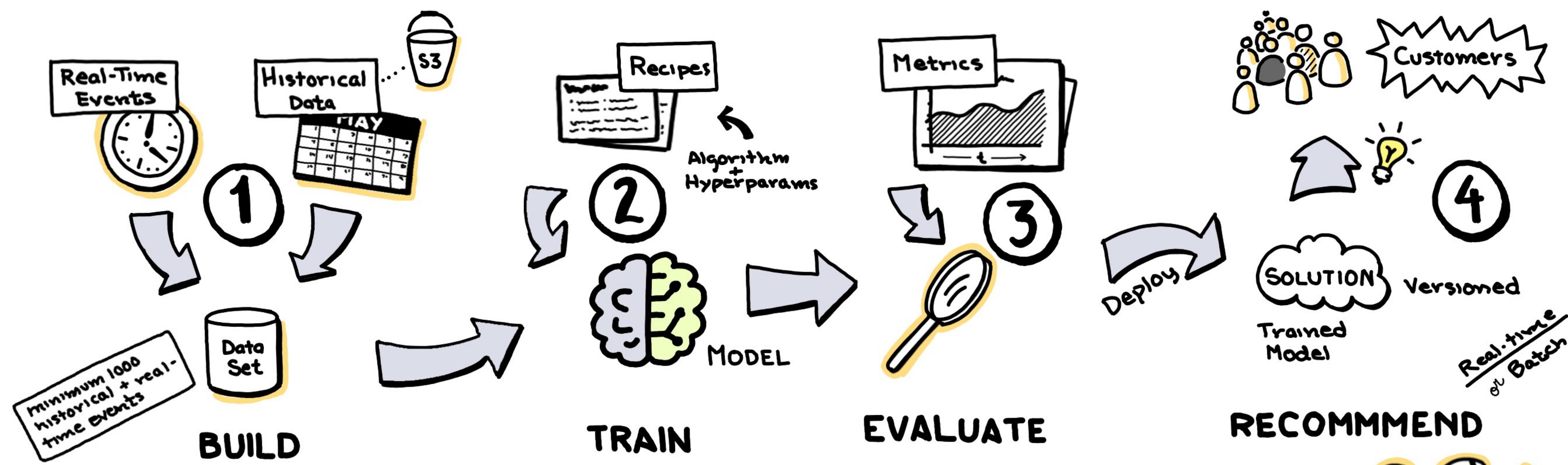


★ WEB SOCKET



CHANNEL  
ID

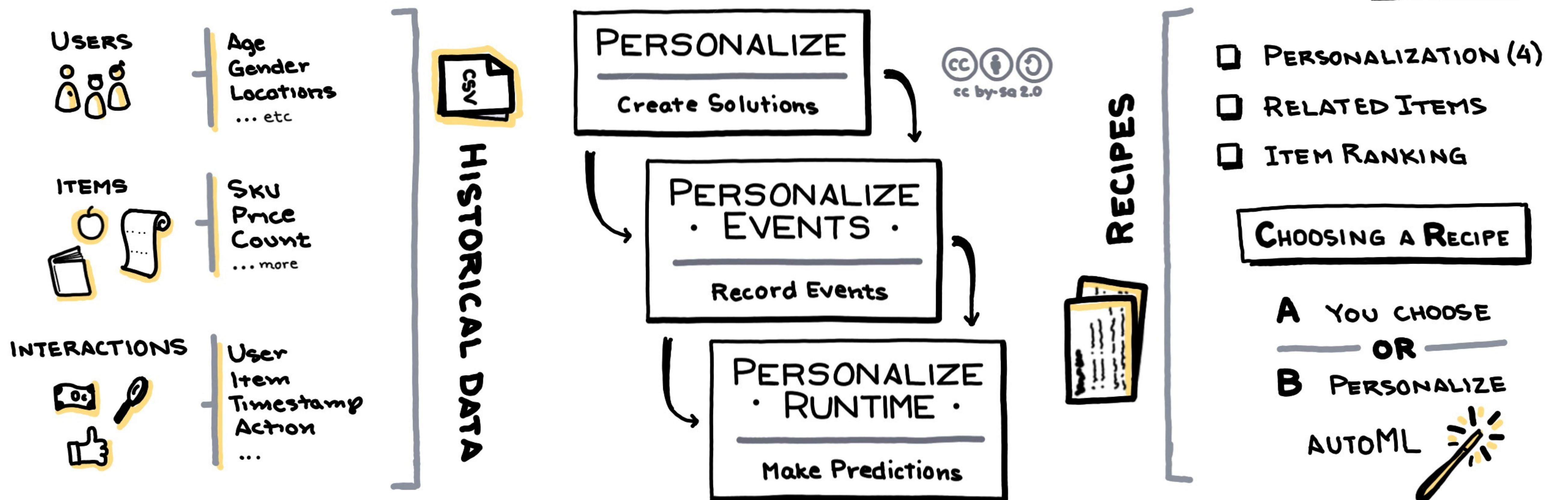
CC BY-SA 4.0

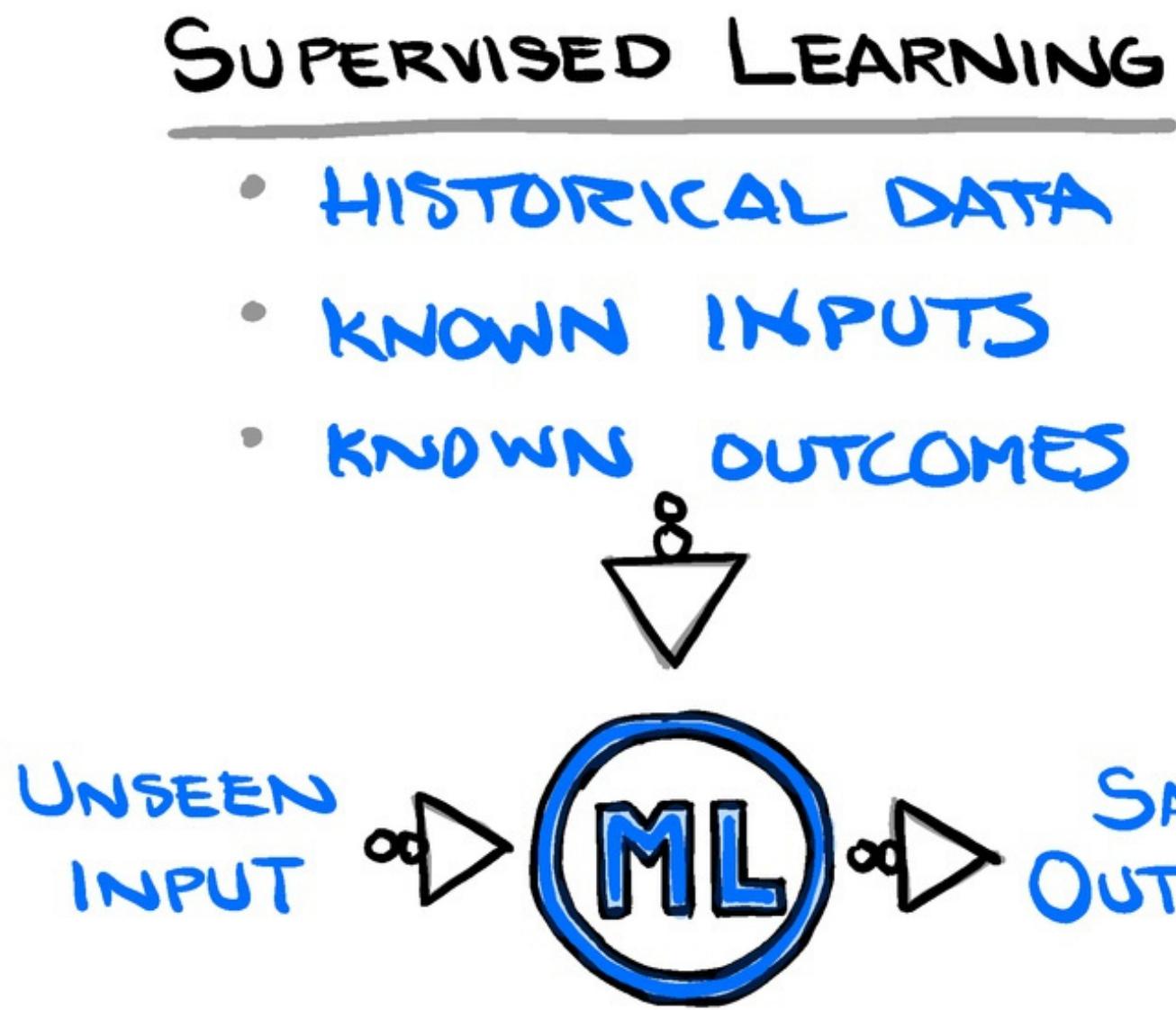
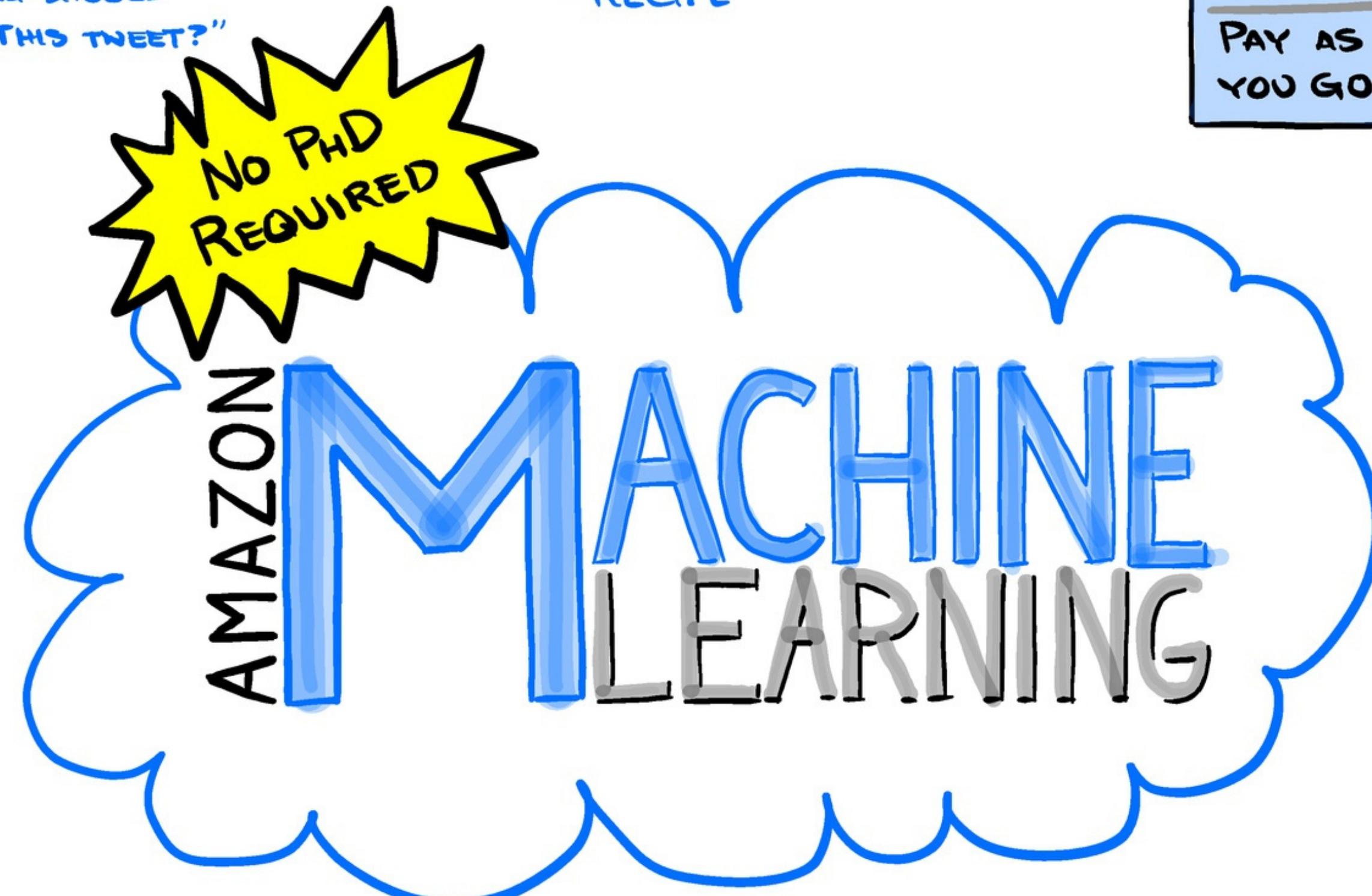
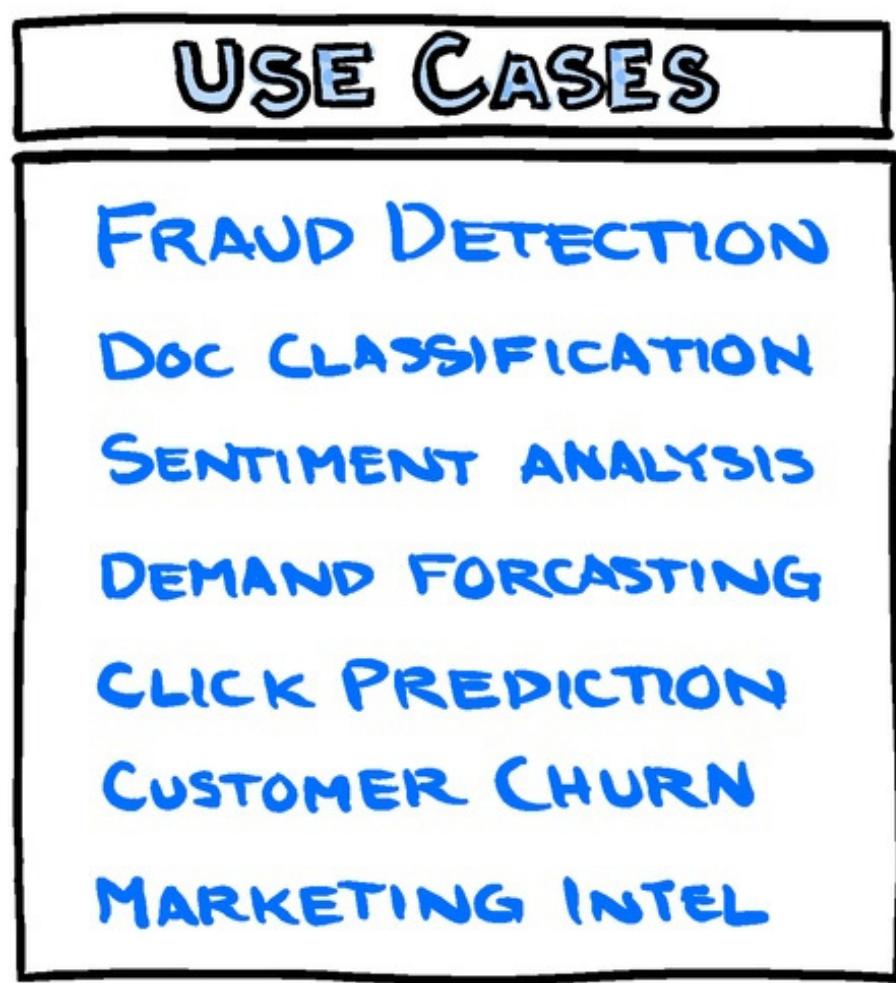
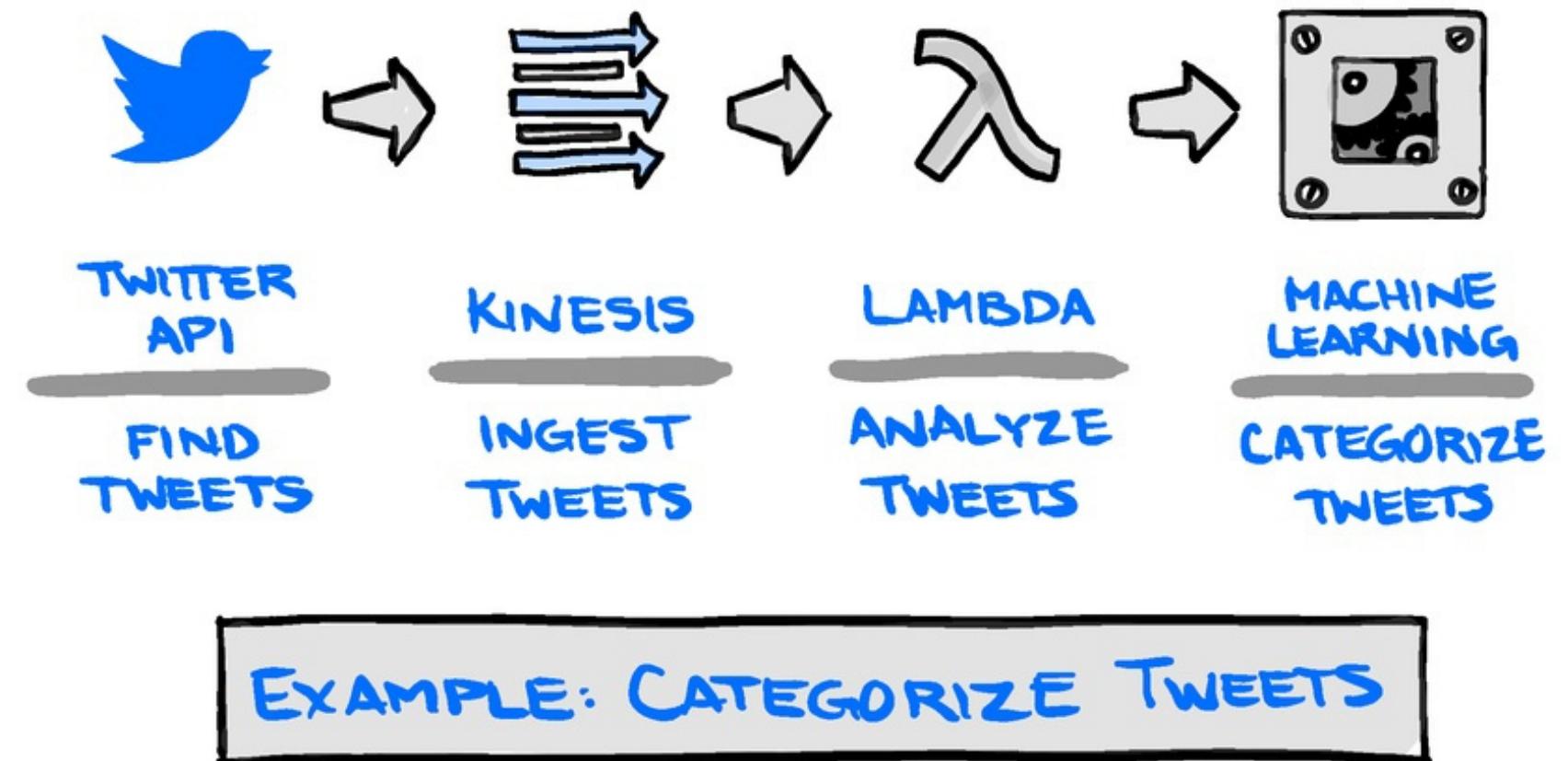
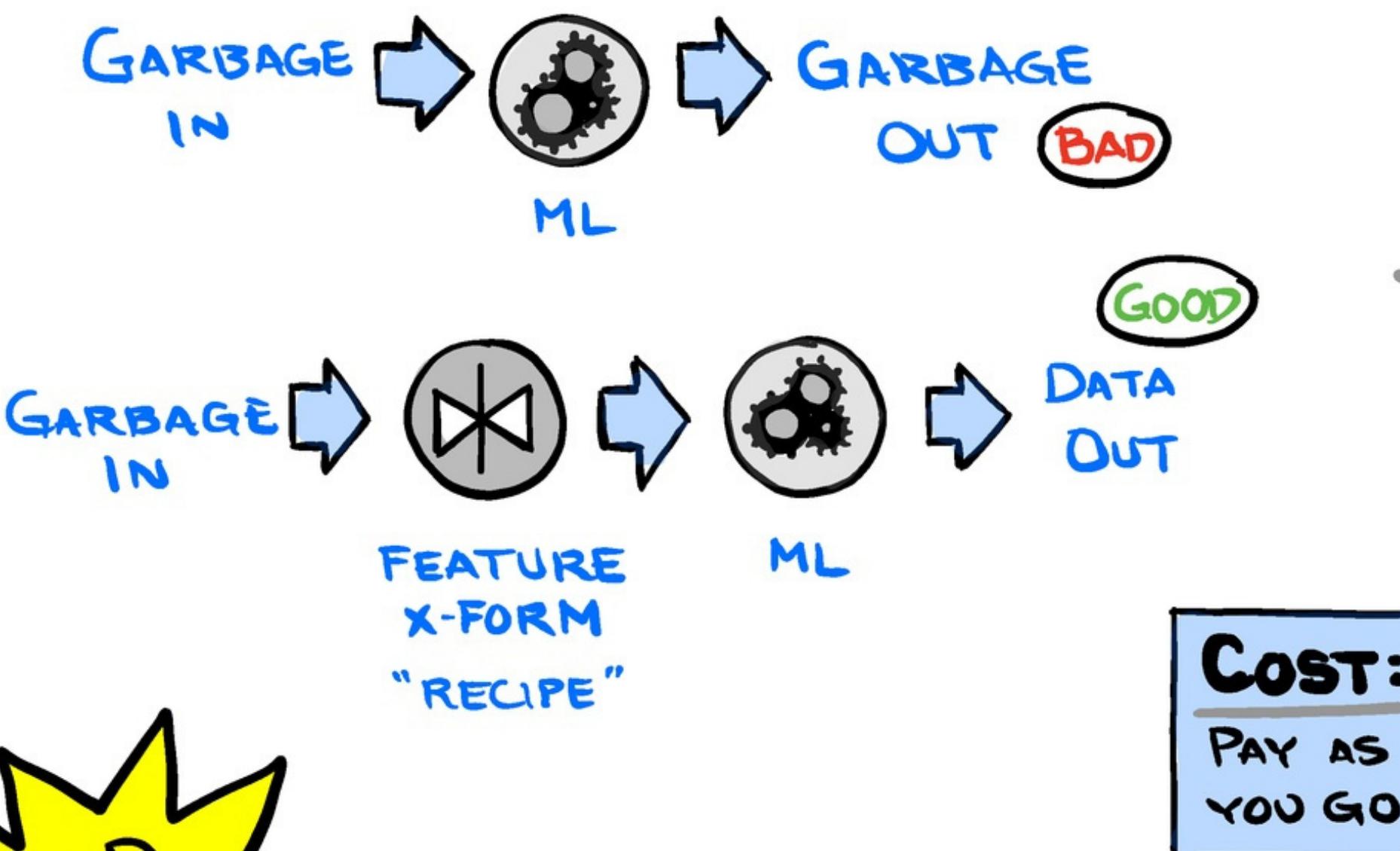
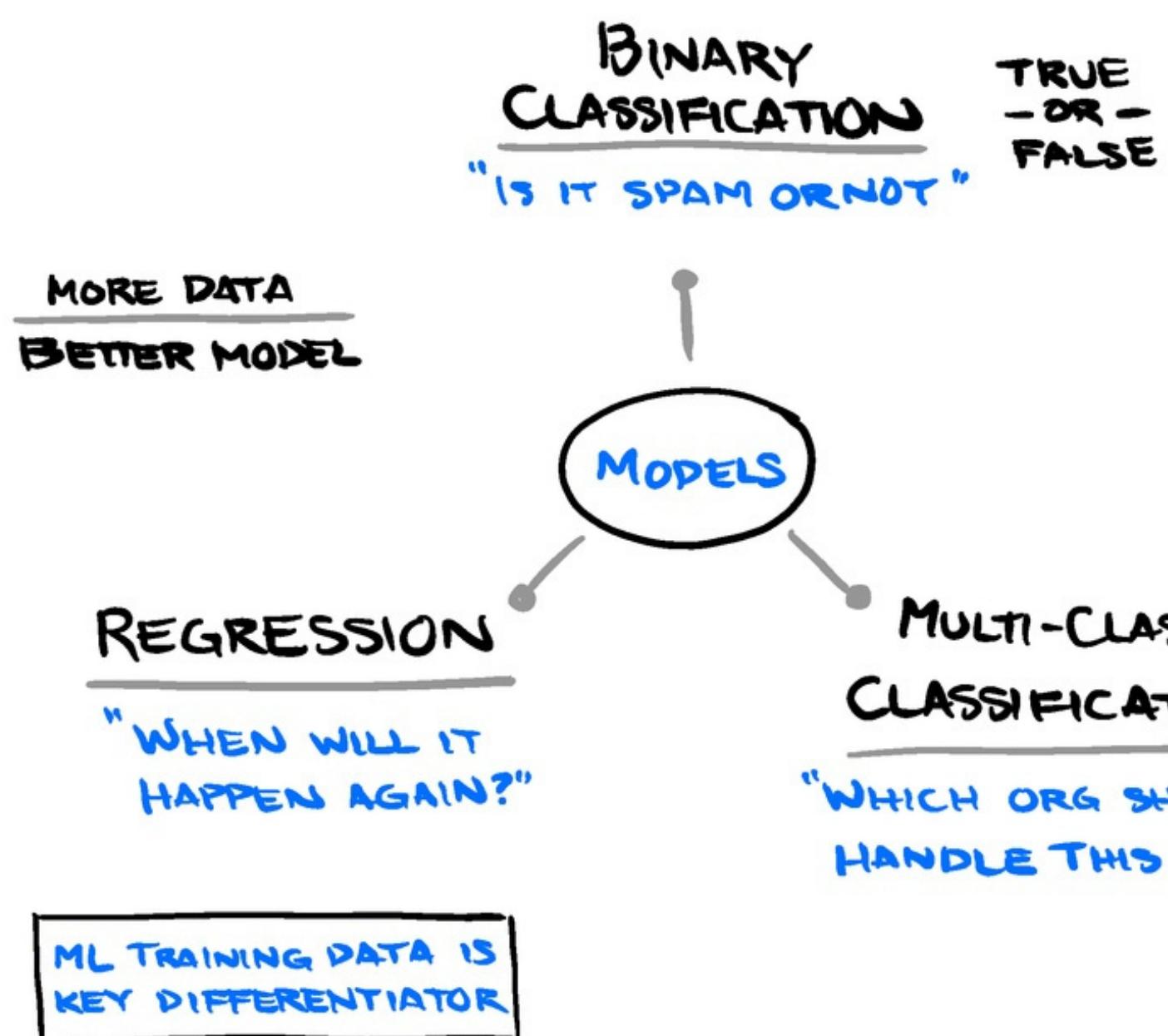


# AMAZON PERSONALIZE

REAL-TIME RECOMMENDATIONS

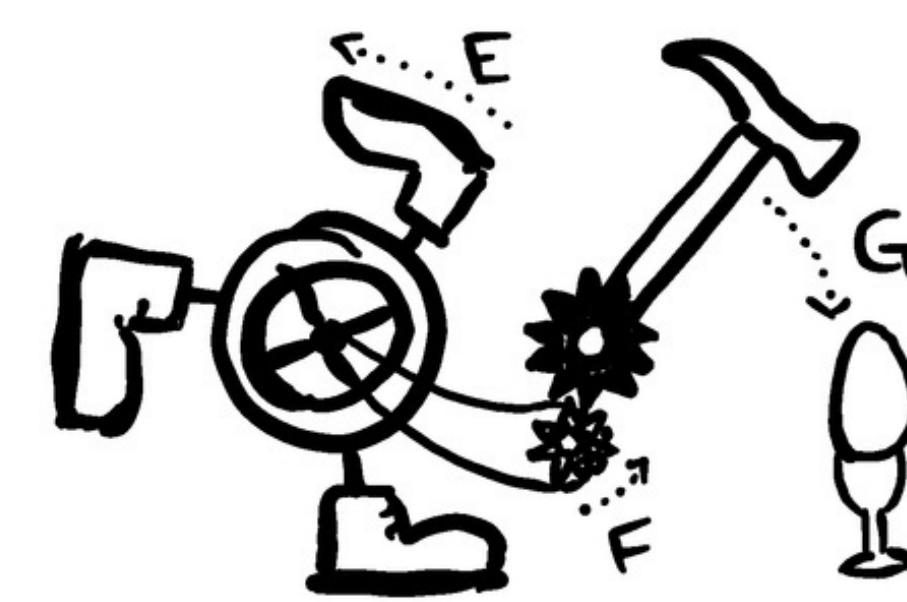
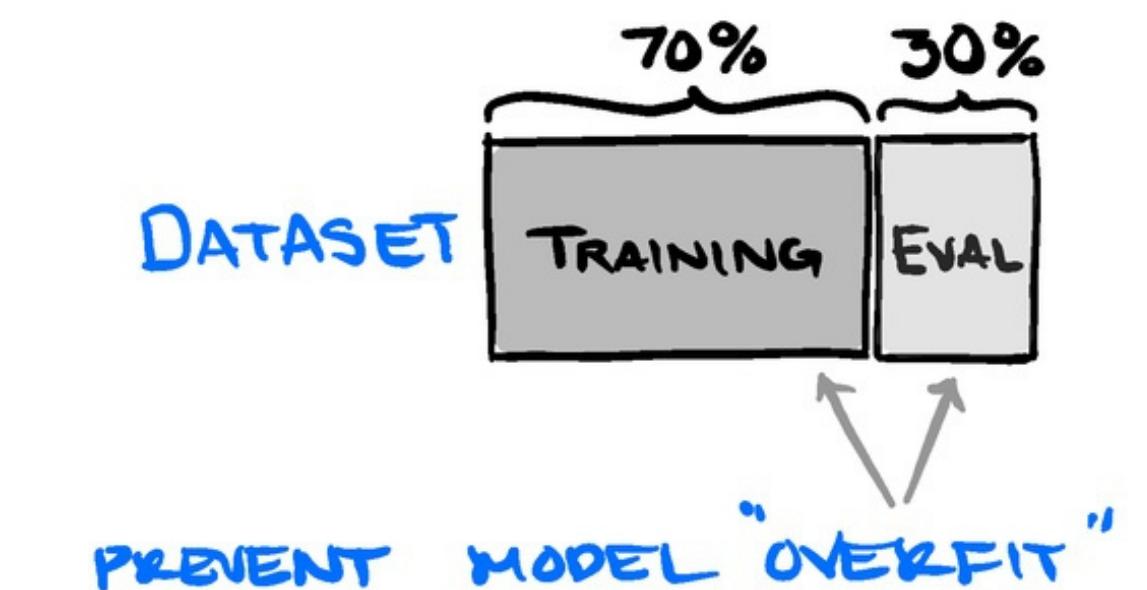
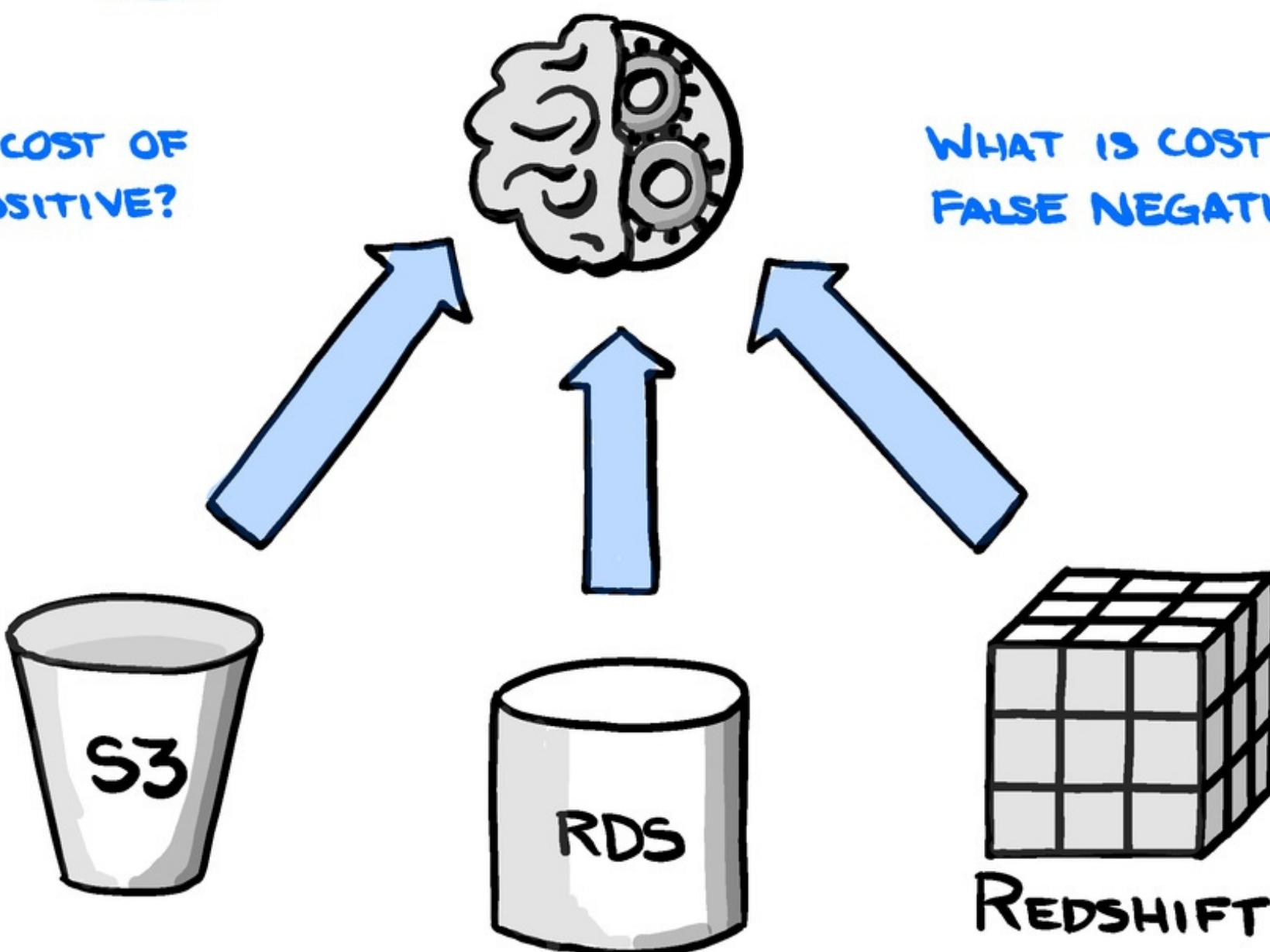
3/30/20 @awsgeek



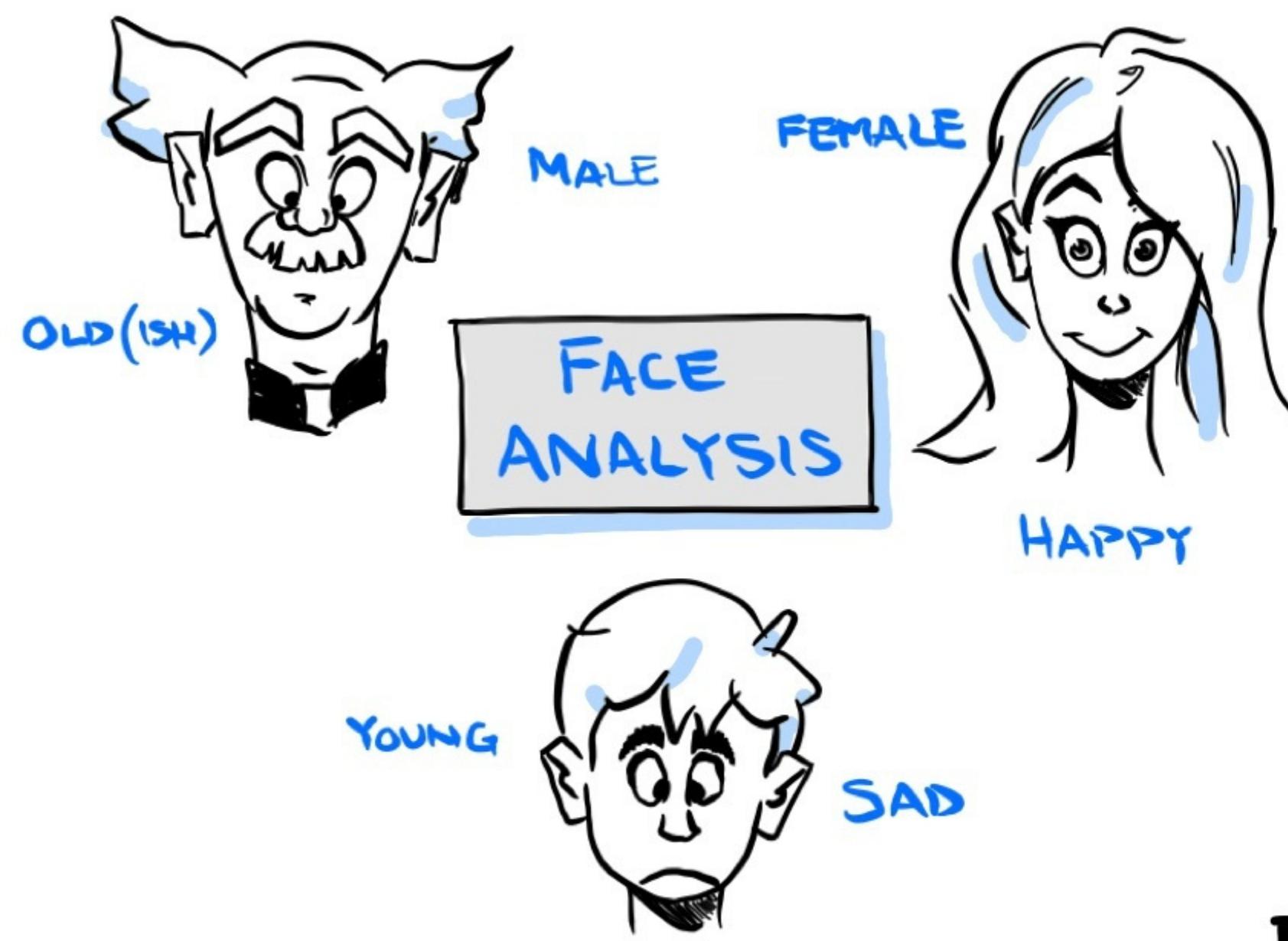
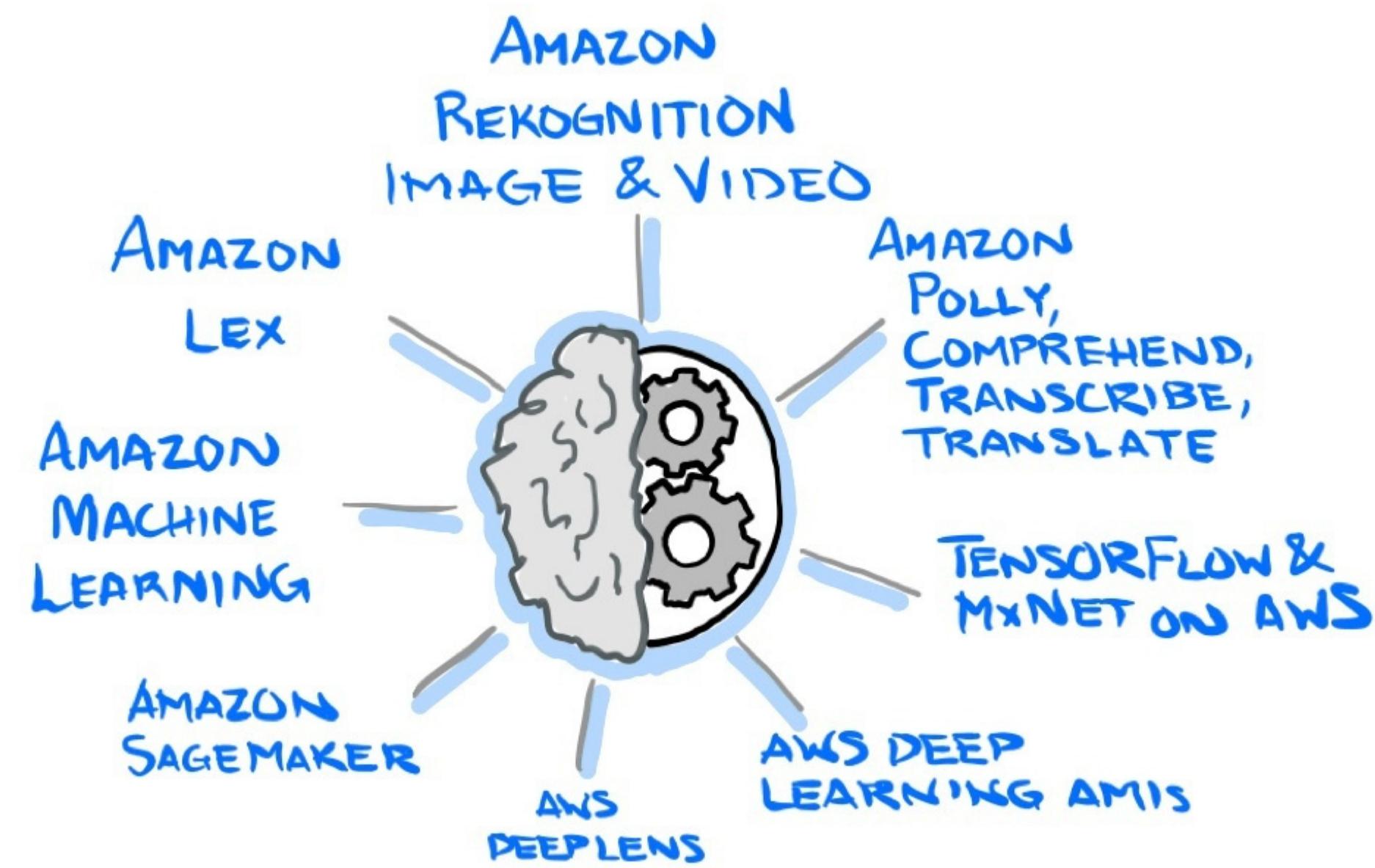
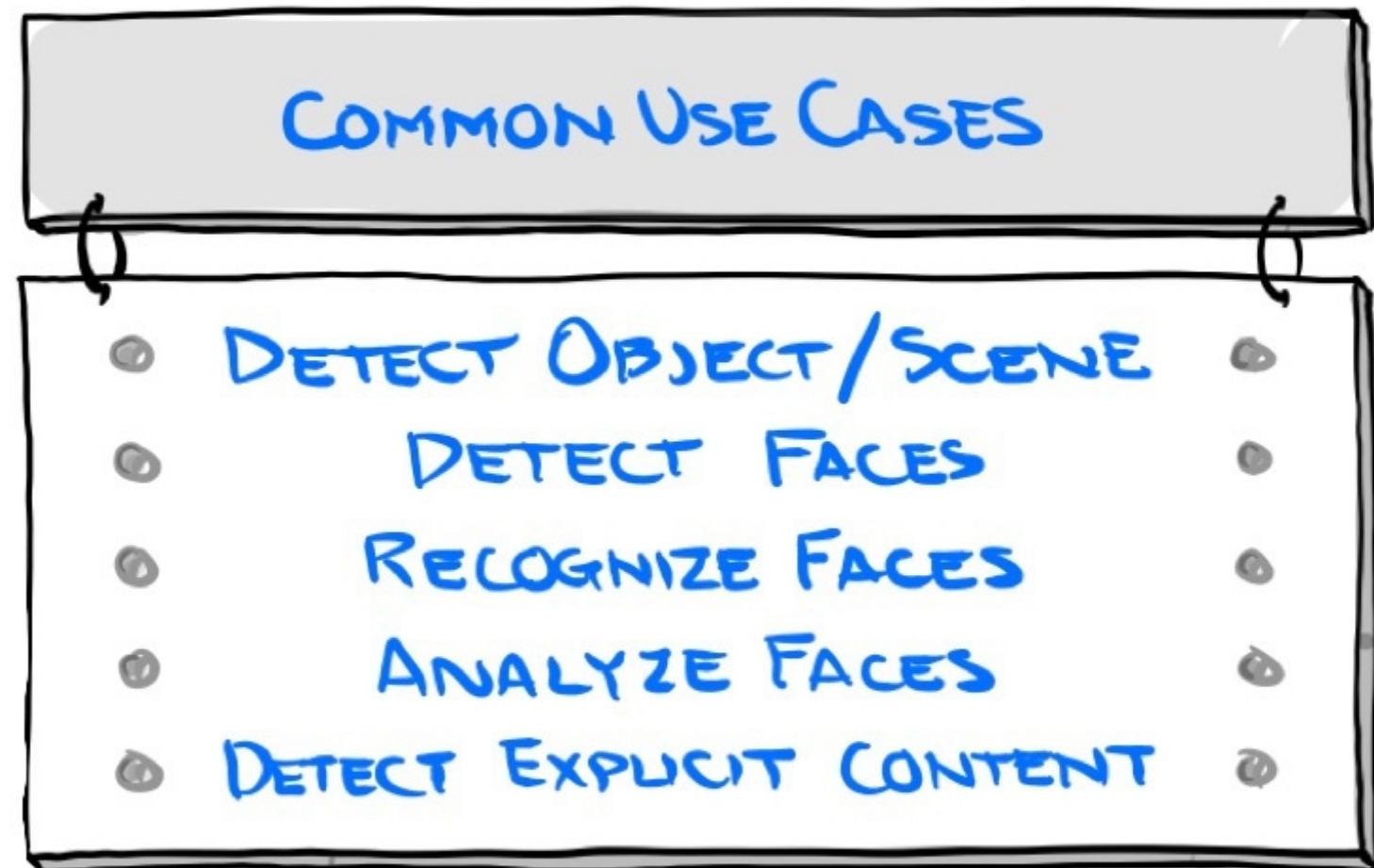


WHAT IS COST OF FALSE POSITIVE?

WHAT IS COST OF FALSE NEGATIVE?



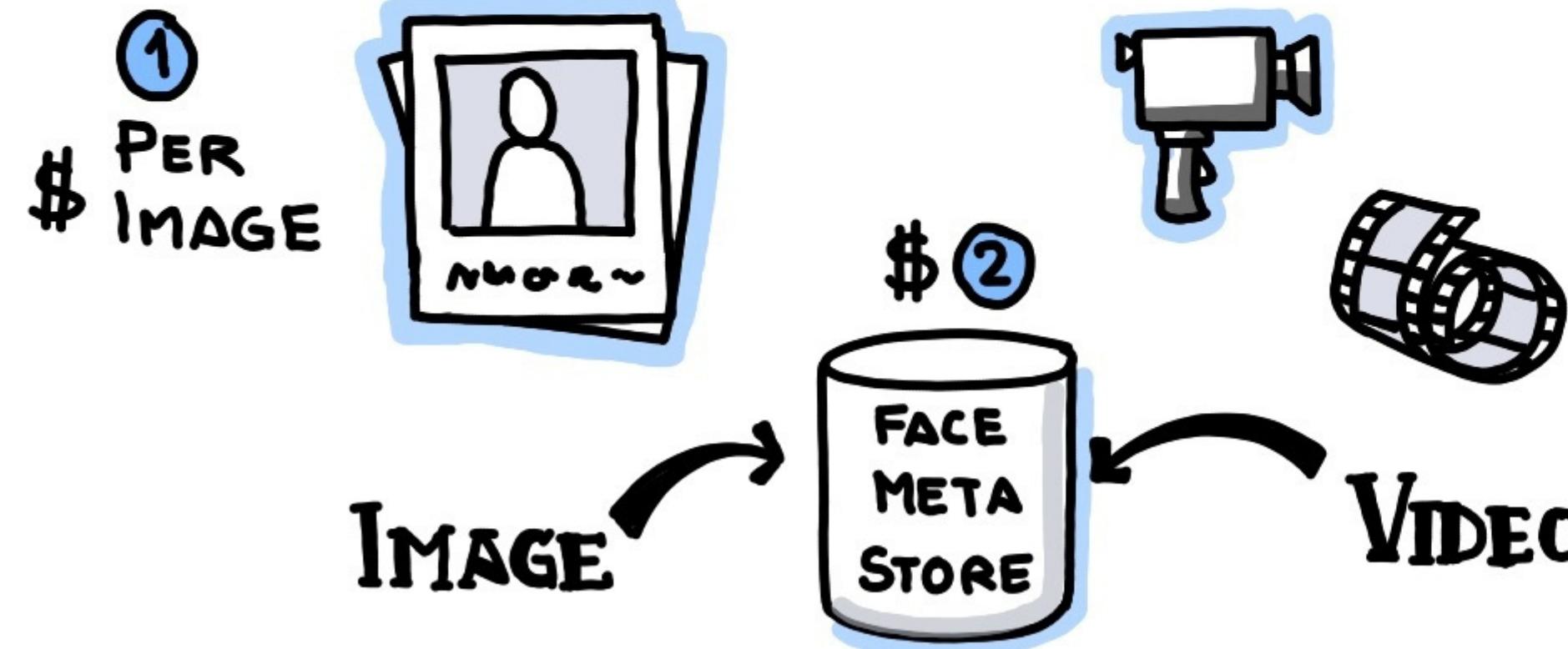
@awsgeek  
9/22/17



## AMAZON AI FAMILY



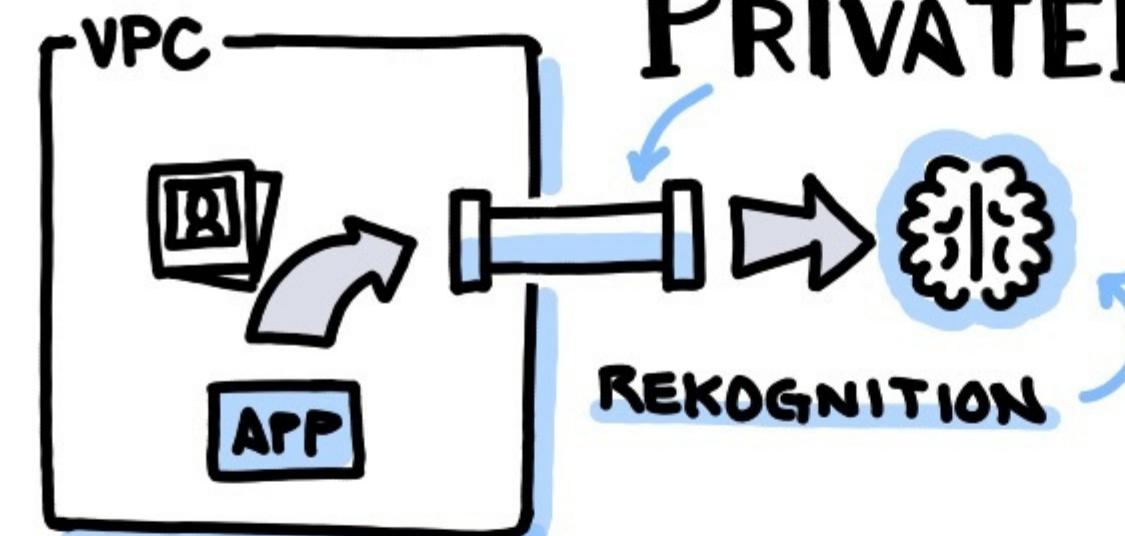
## PRICING



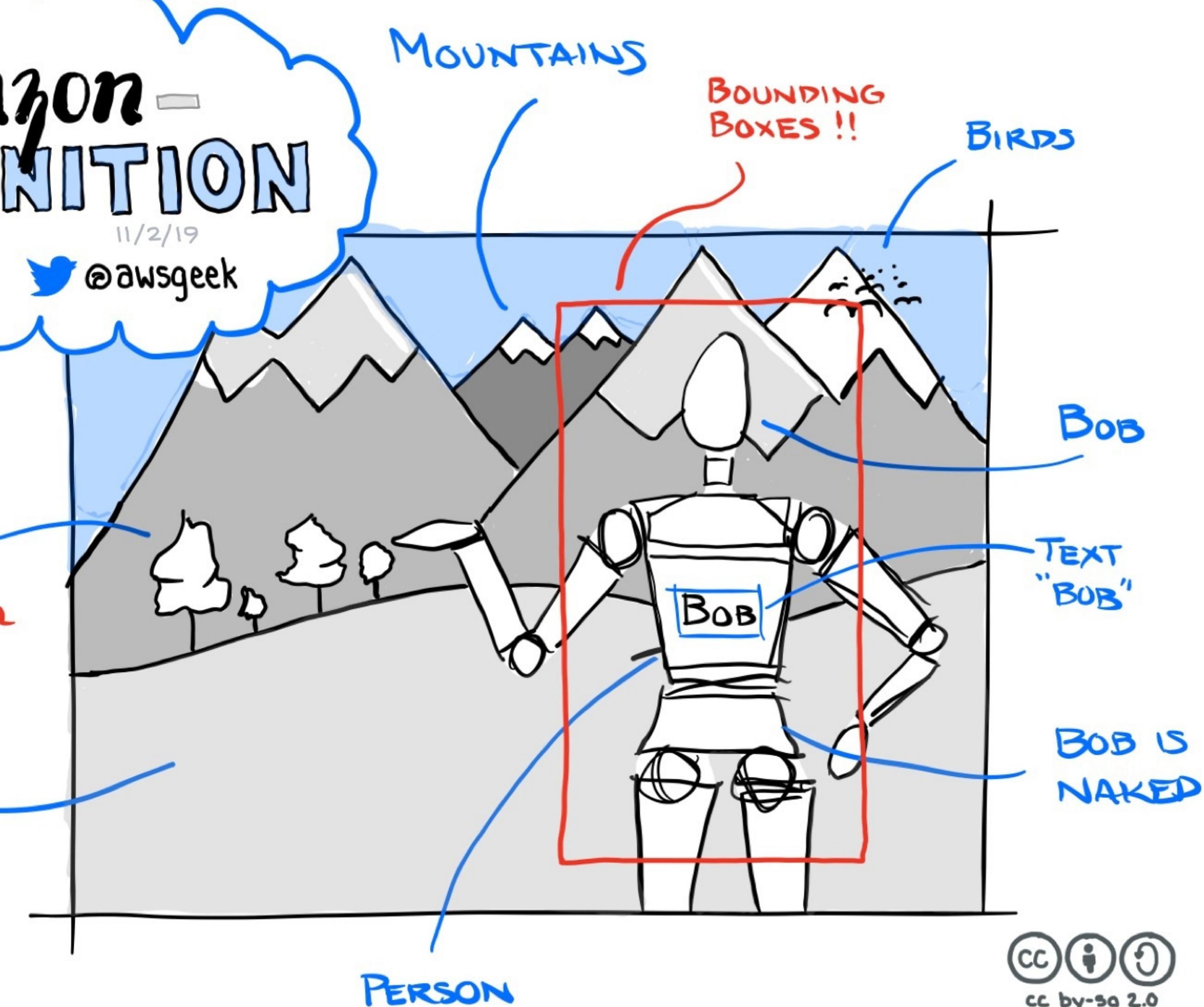
## amazon REKOGNITION

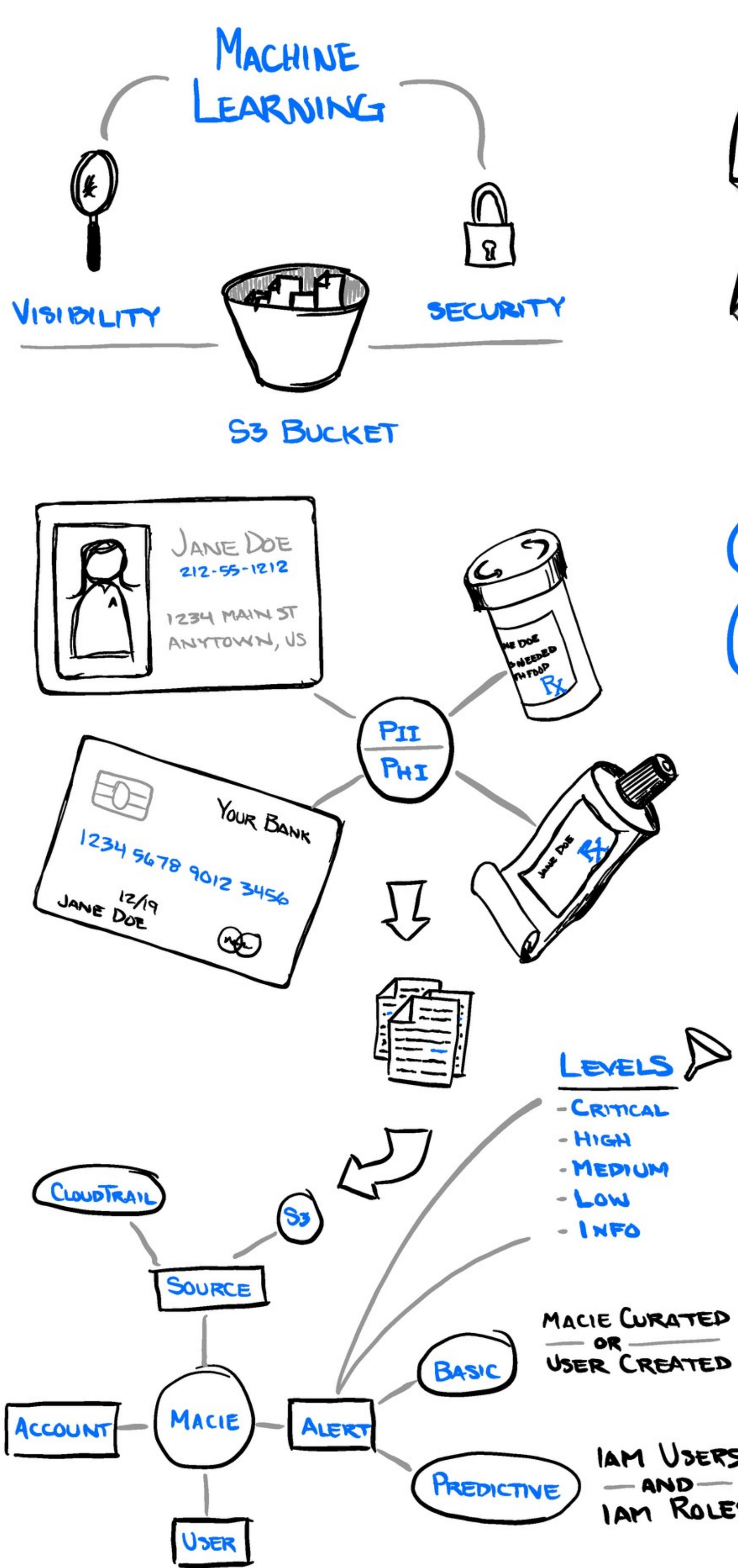
11/2/19  
@awsgeek

## PRIVATELINK



TREES /  
HIERACHICAL  
METADATA /  
OUTDOORS





AS EASY AS:

- 1 ENABLE MACIE
- 2 SELECT S3 BUCKETS
- 3 REVIEW ALERTS

ENCRYPTED S3 OBJECTS

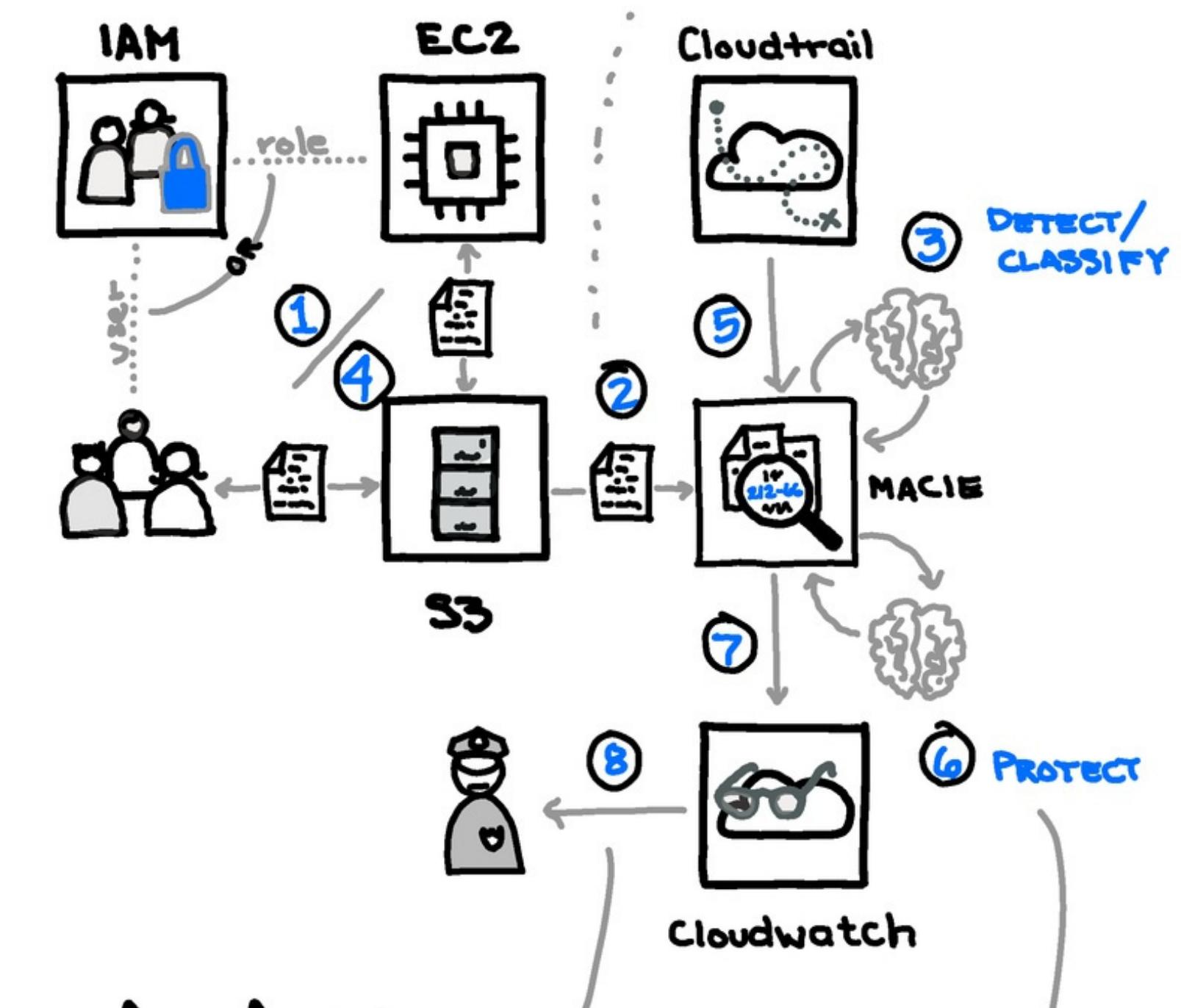
SERVER SIDE ENCRYPTION



KMS KEYS

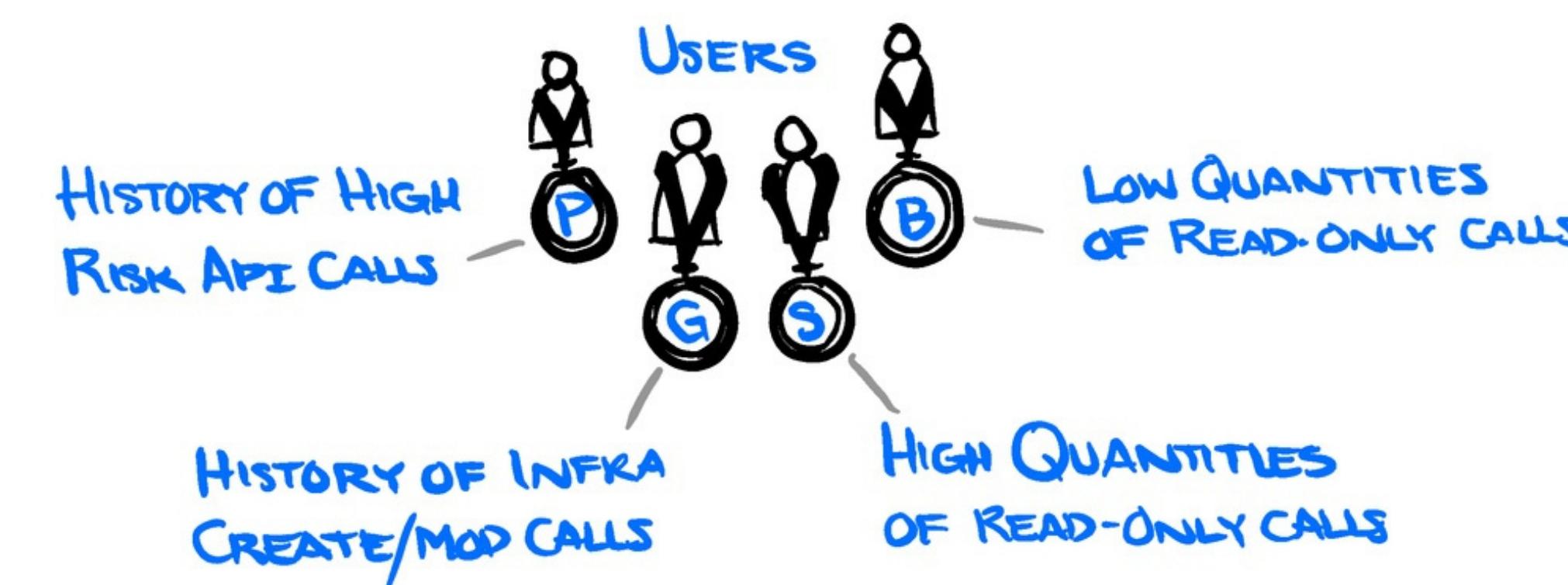


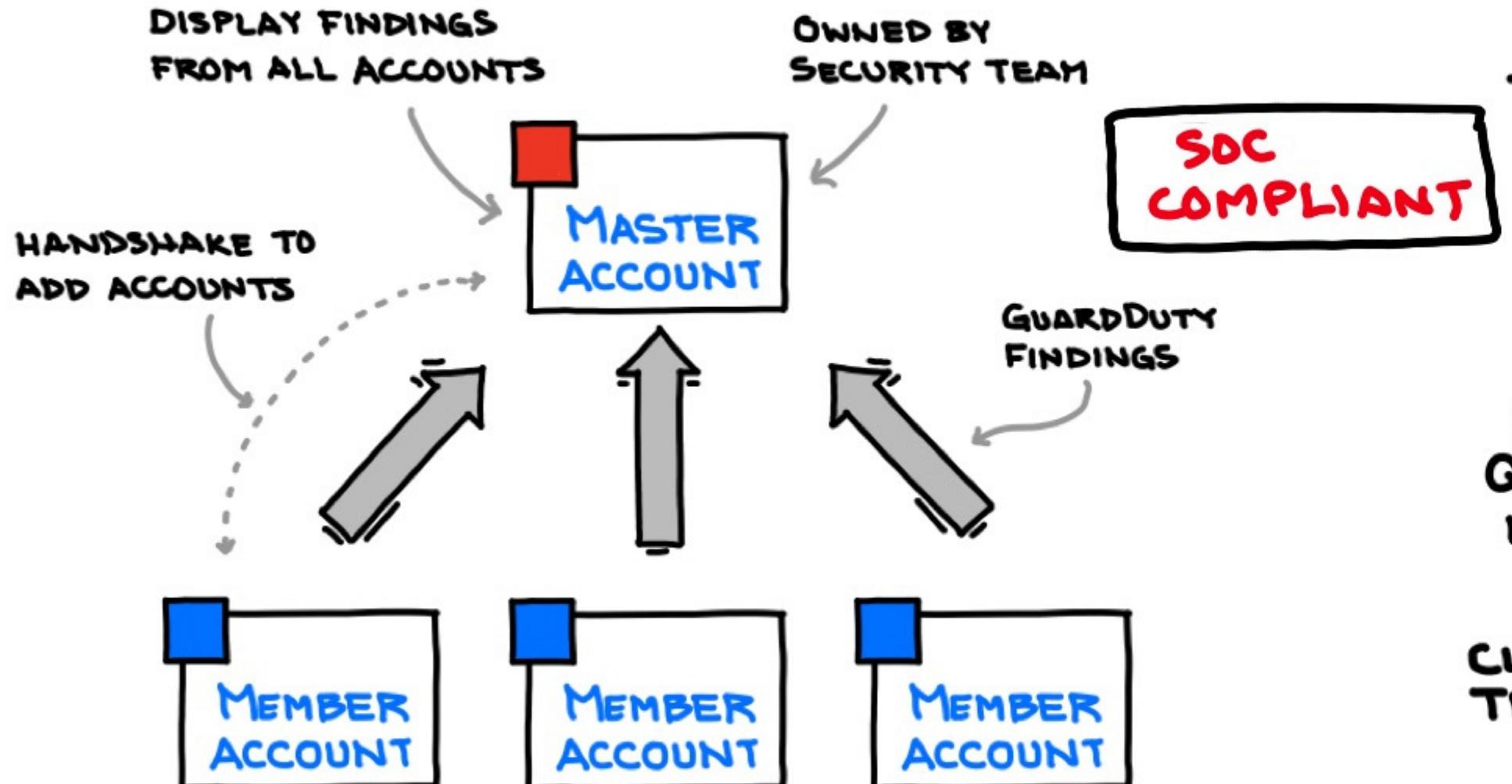
CLIENT ENCRYPTED



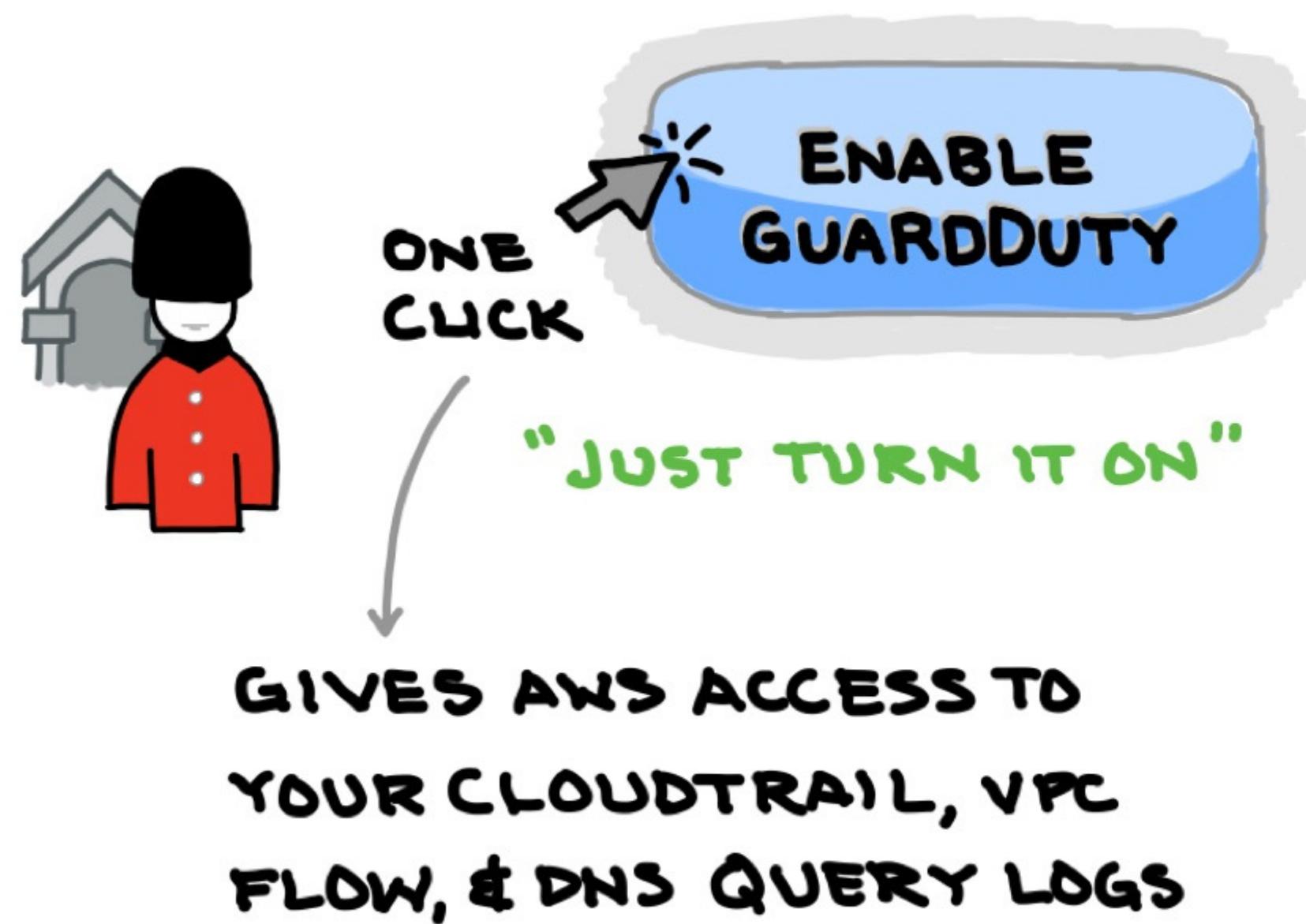
AN ALERT:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• SEVERITY</li> <li>• TIMESTAMP</li> <li>• CATEGORY</li> <li>• S3 BUCKET/ OBJECT</li> </ul> | <ul style="list-style-type: none"> <li>• COMMENTS</li> <li>• # VIEWS</li> <li>• AWS REGION</li> <li>• # RESULTS</li> </ul> |
|--|--|





## CENTRALIZED THREAT DETECTION

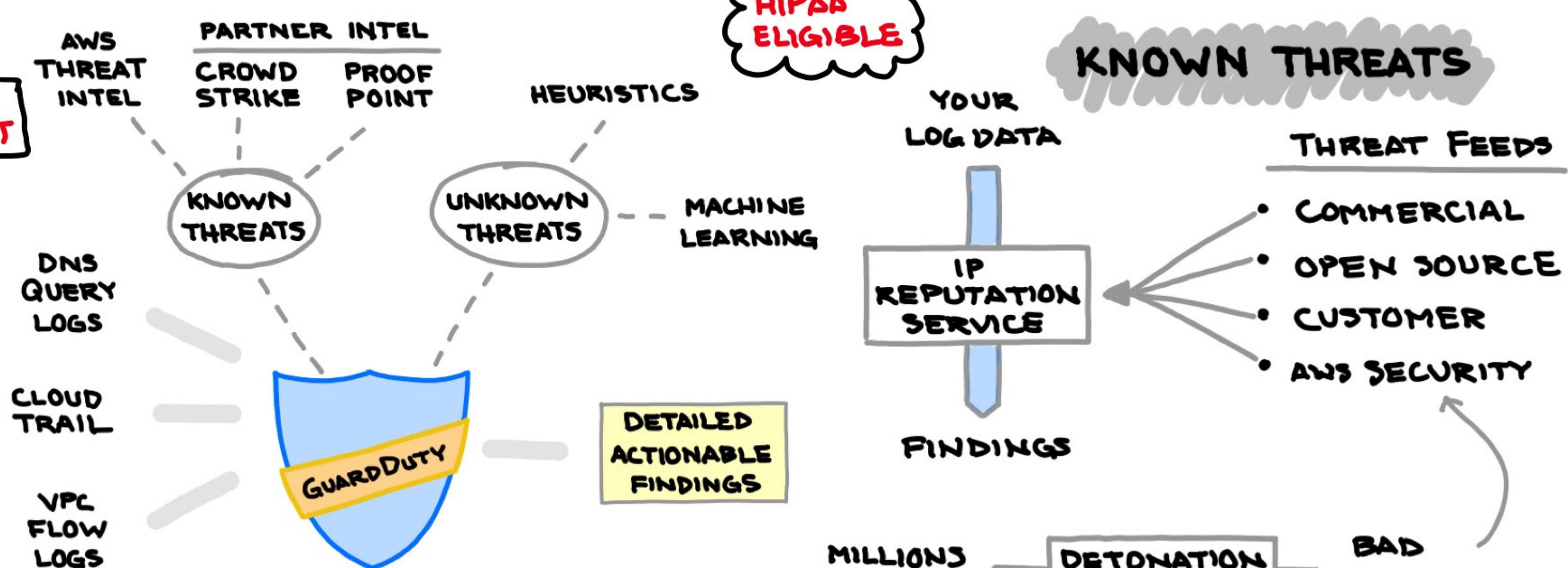


## PRICING (US WEST - OREGON)

CLOUDTRAIL LOGS \$4/MO/MM

### VPC FLOW LOGS & DNS QUERY LOGS

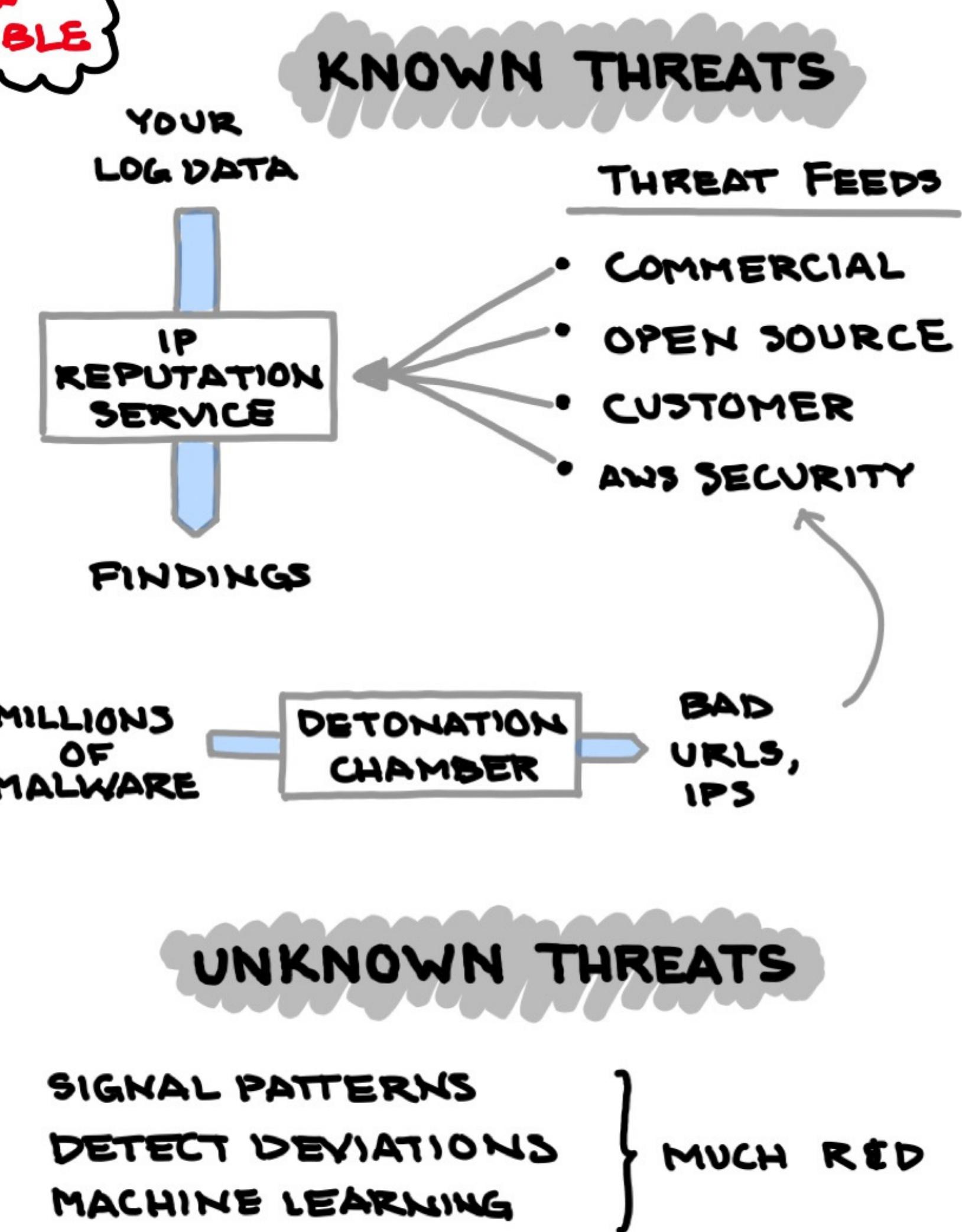
\$1/GB/MO	FIRST 500 GB
50¢/GB/MO	NEXT 2000 GB
25¢/GB/MO	NEXT 7500 GB
15¢/GB/MO	OVER 10K GB



GUARDDUTY IS A REGIONAL SERVICE  
YOU MUST ENABLE IN ALL REGIONS



## AUTOMATION FRAMEWORK



## DETECTION TIMES

EC2 - C5 FAST, 30 SEC - 2 MIN  
T2 SLOW, 5 - 10 MIN

CLOUDTRAIL - 5-15 MIN

DNS - BEHIND CLOUDTRAIL

## DETECTION CATEGORIES

- RECON
- BACKDOOR
- TROJAN
- UNAUTH ACCESS
- STEALTH
- CRYPTOCURRENCY
- PEN TESTING\*

PAY • AS • YOU • GO

# PRICING

OPTIONAL:

- phone # verification
- dedicated short codes

EMAIL      \$1 per 10K

MOBILE PUSH      \$1 per 1M over 1M

SMS      per message varies by destination

**+** \$1.20 per 1k endpoints (over 5k)

EVENTS: \$1 per 1M collected via mobile SDK

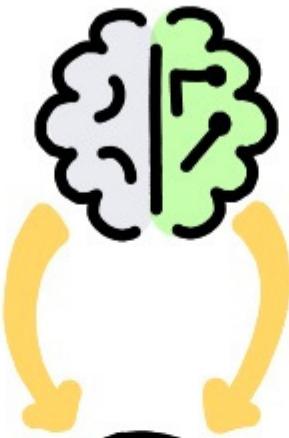


CUSTOMER ENGAGEMENT

1. CUSTOMER ANALYTICS
2. CUSTOMER SEGMENTATION
3. MULTI-CHANNEL MESSAGING



AMAZON PERSONALIZE



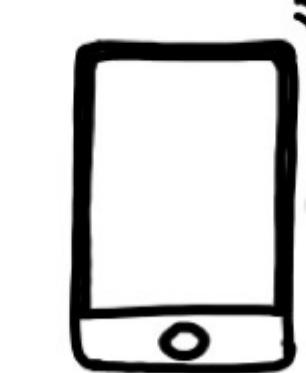
HIPAA ELIGIBLE

AMAZON

PINPOINT



PERSONALIZED TEMPLATES



MOBILE SDK

EVENTS

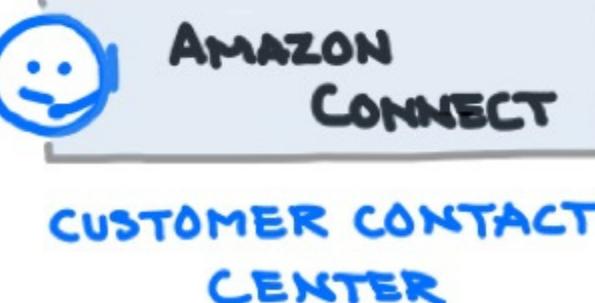
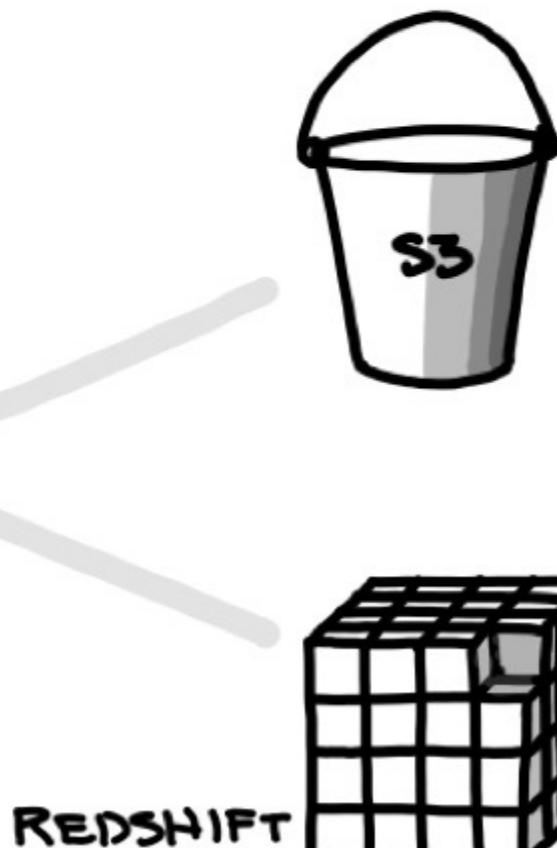


EVENT STREAMS



KINESIS DATA FIREHOSE

DELIVERY STREAM



AMAZON PINPOINT

CAMPAIN MANAGEMENT

CUSTOMER ENGAGEMENT FAMILY of SERVICES



SCALABLE EMAIL PLATFORM

## 1 CUSTOMER ANALYTICS

- DEMOGRAPHIC DATA
- INTEREST DATA
- ENGAGEMENT DATA

METRICS

ACTIVATION  
RETENTION  
CONVERSION

DAILY USERS  
CHURN RATE  
RETENTION RATE  
AVG REVENUE  
LIFETIME VALUE  
...

## 2 CUSTOMER SEGMENTATION

- DEMOGRAPHICS... age, gender, location...
- INTERESTS..... sports, hobbies, likes...
- ENGAGEMENT.... sessions, purchases...



## 3 MULTI-CHANNEL MESSAGING

- MOBILE PUSH
  - APPLE PUSH NOTIFICATION
  - FIREBASE CLOUD MESSAGING
  - GOOGLE CLOUD MESSAGING
- EMAIL
  - HTML OR PLAIN TEXT
- SMS

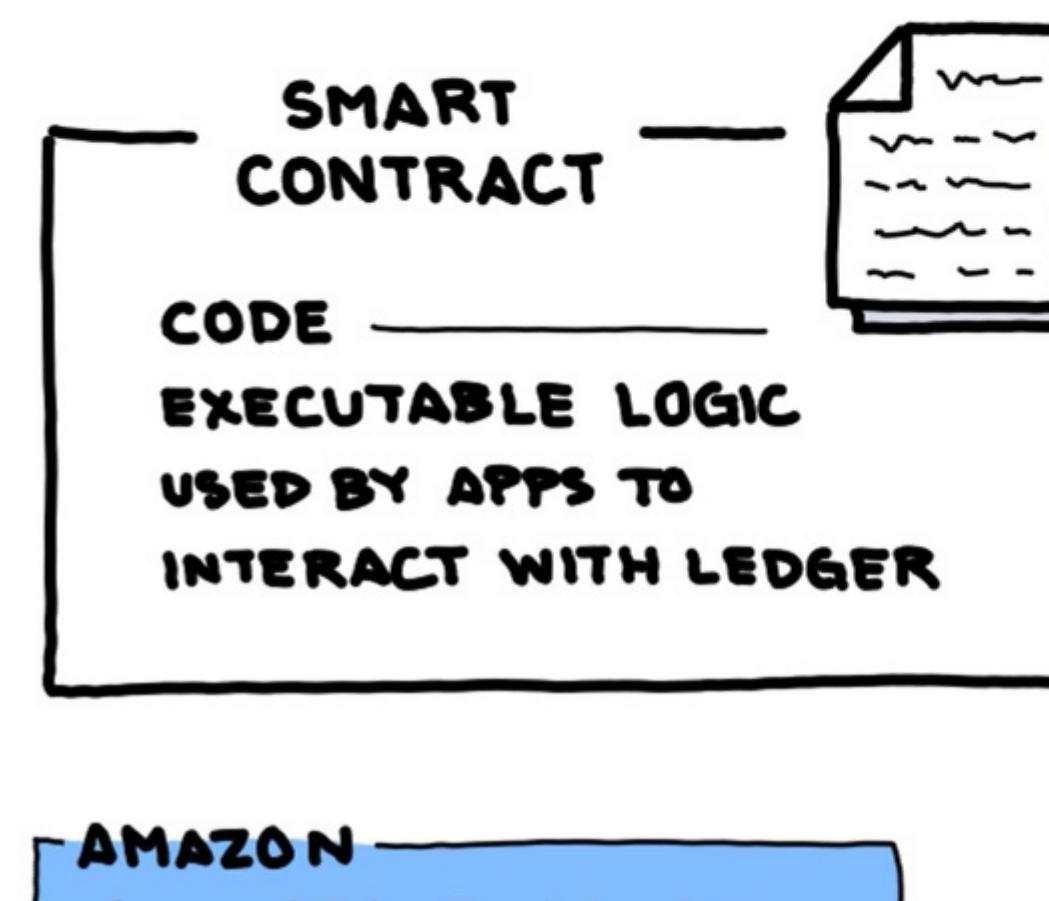
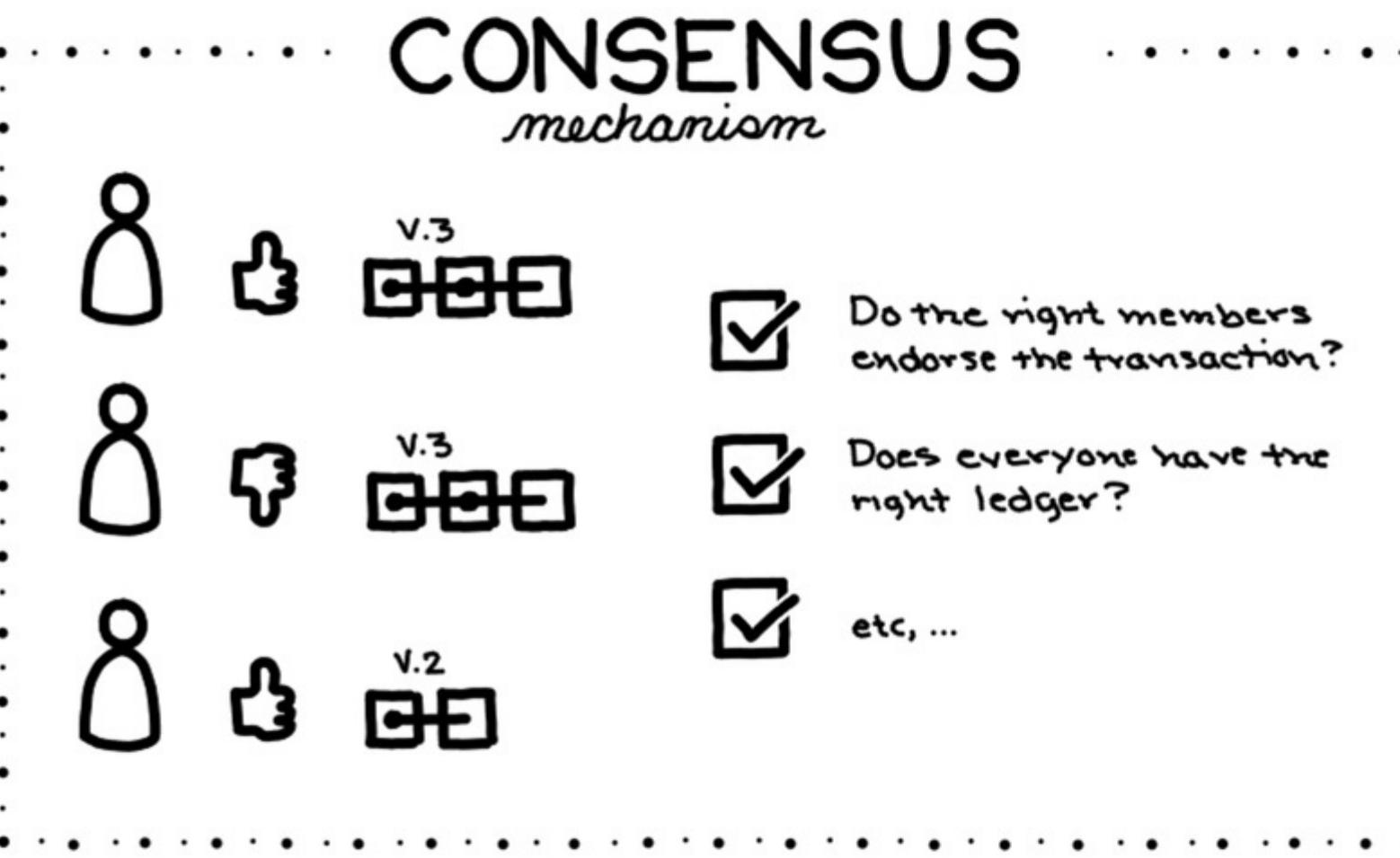
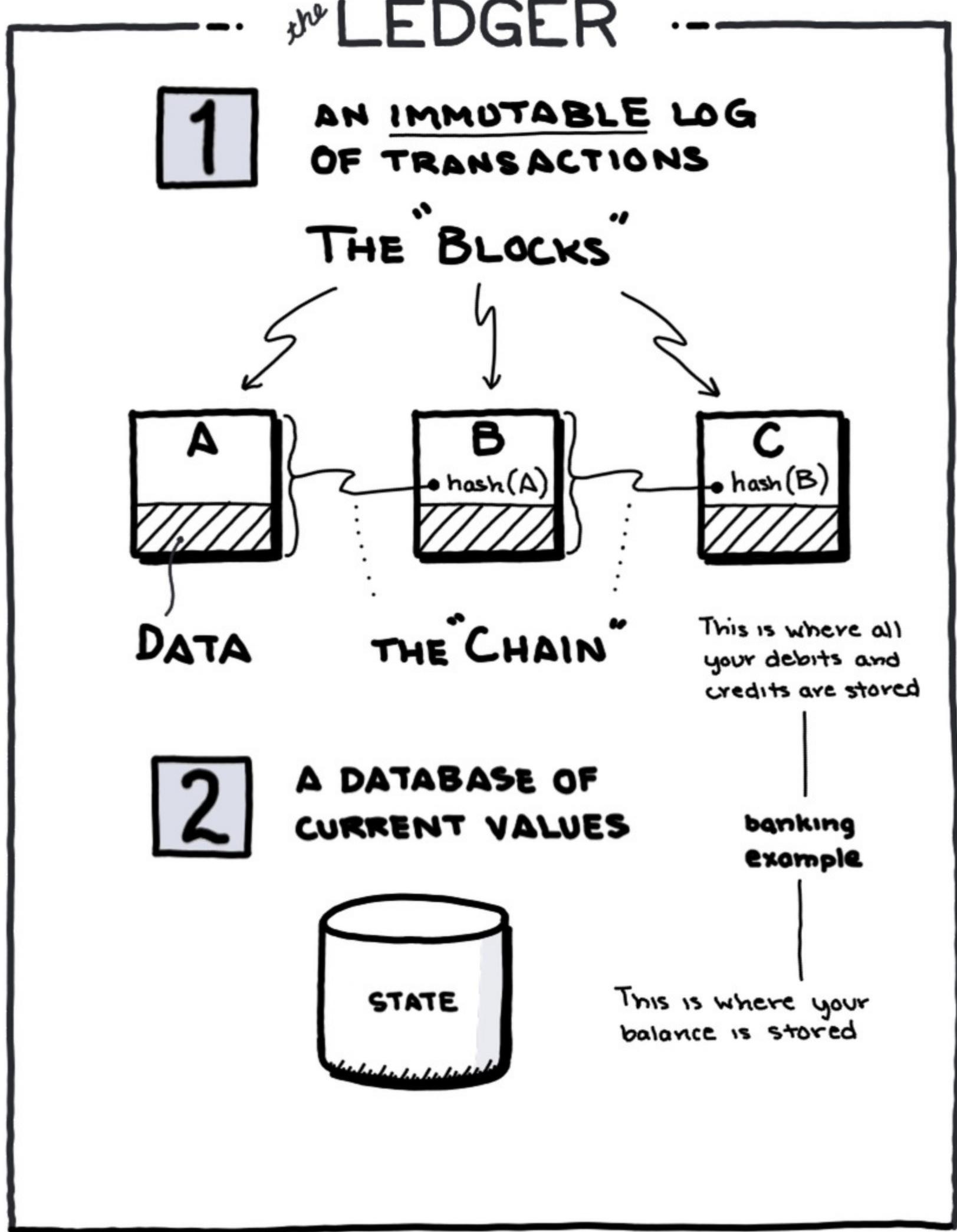
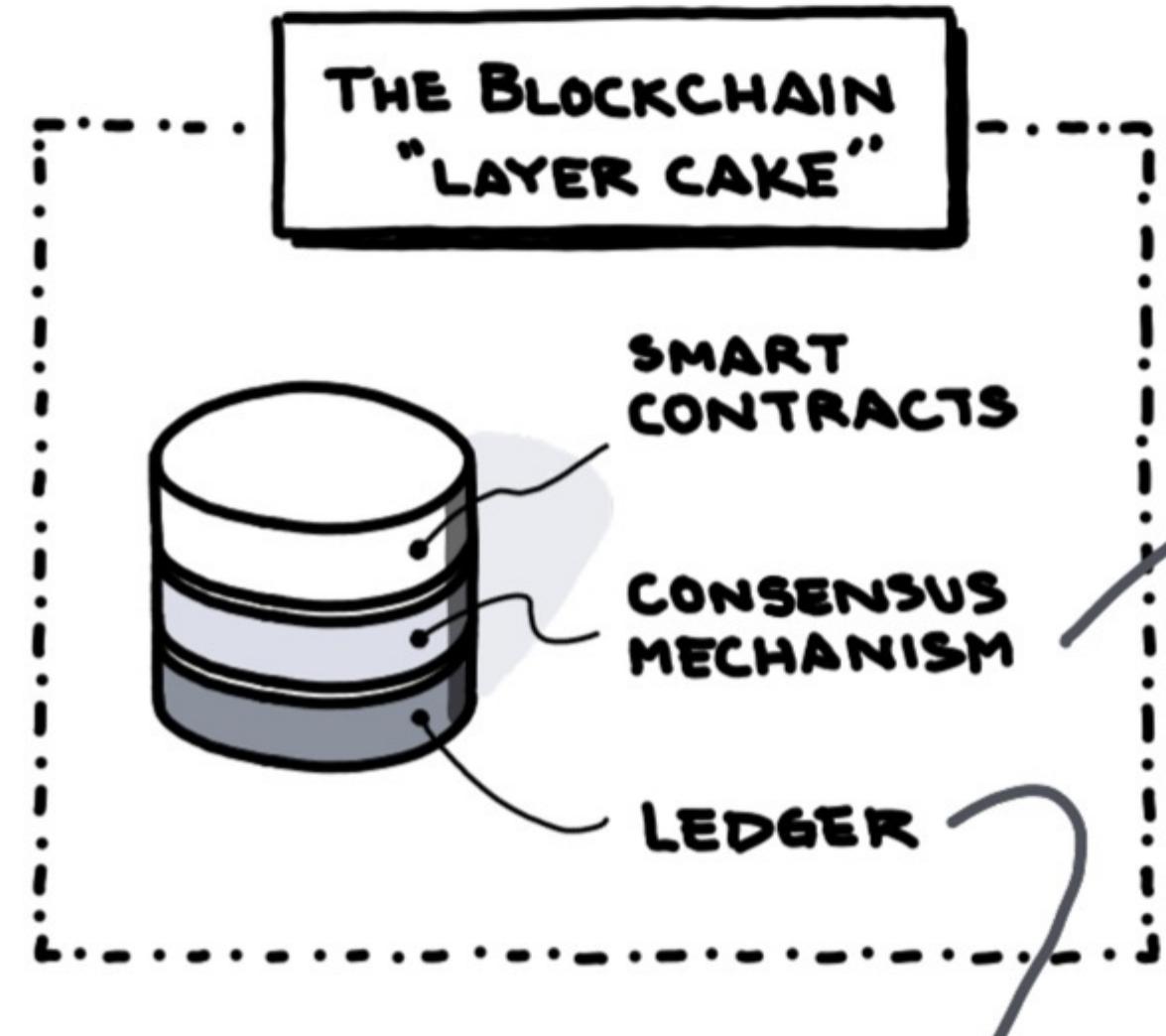
AMAZON MANAGED

# BLOCKCHAIN

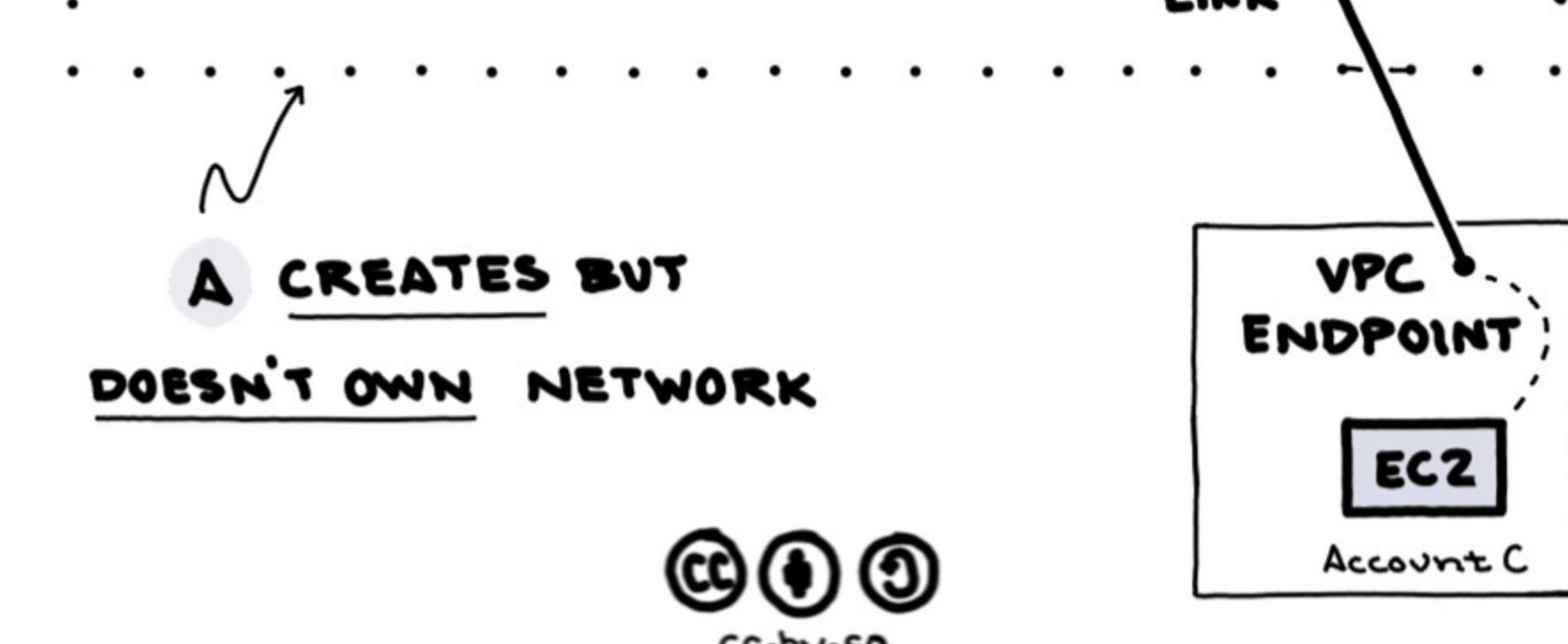
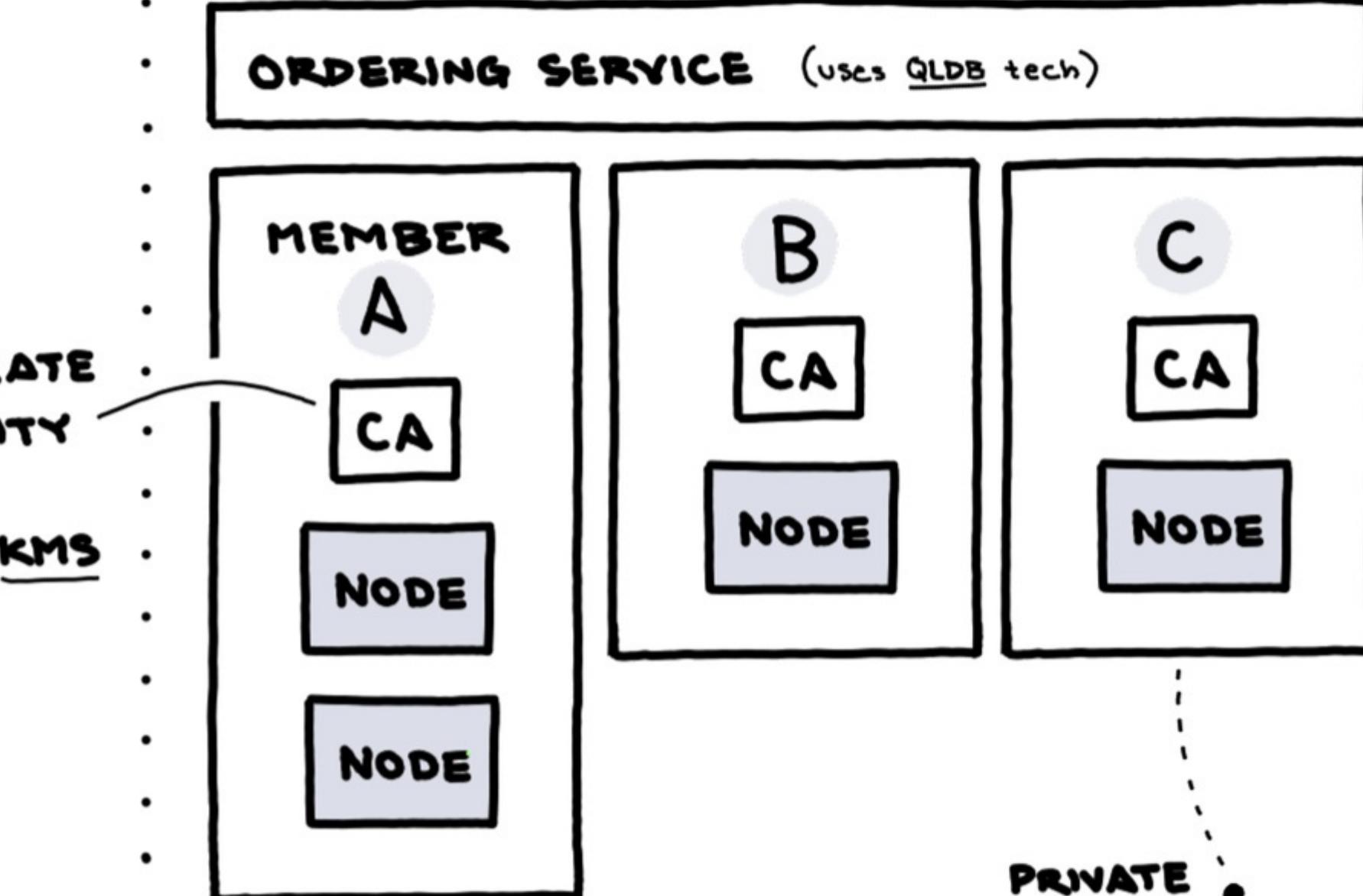
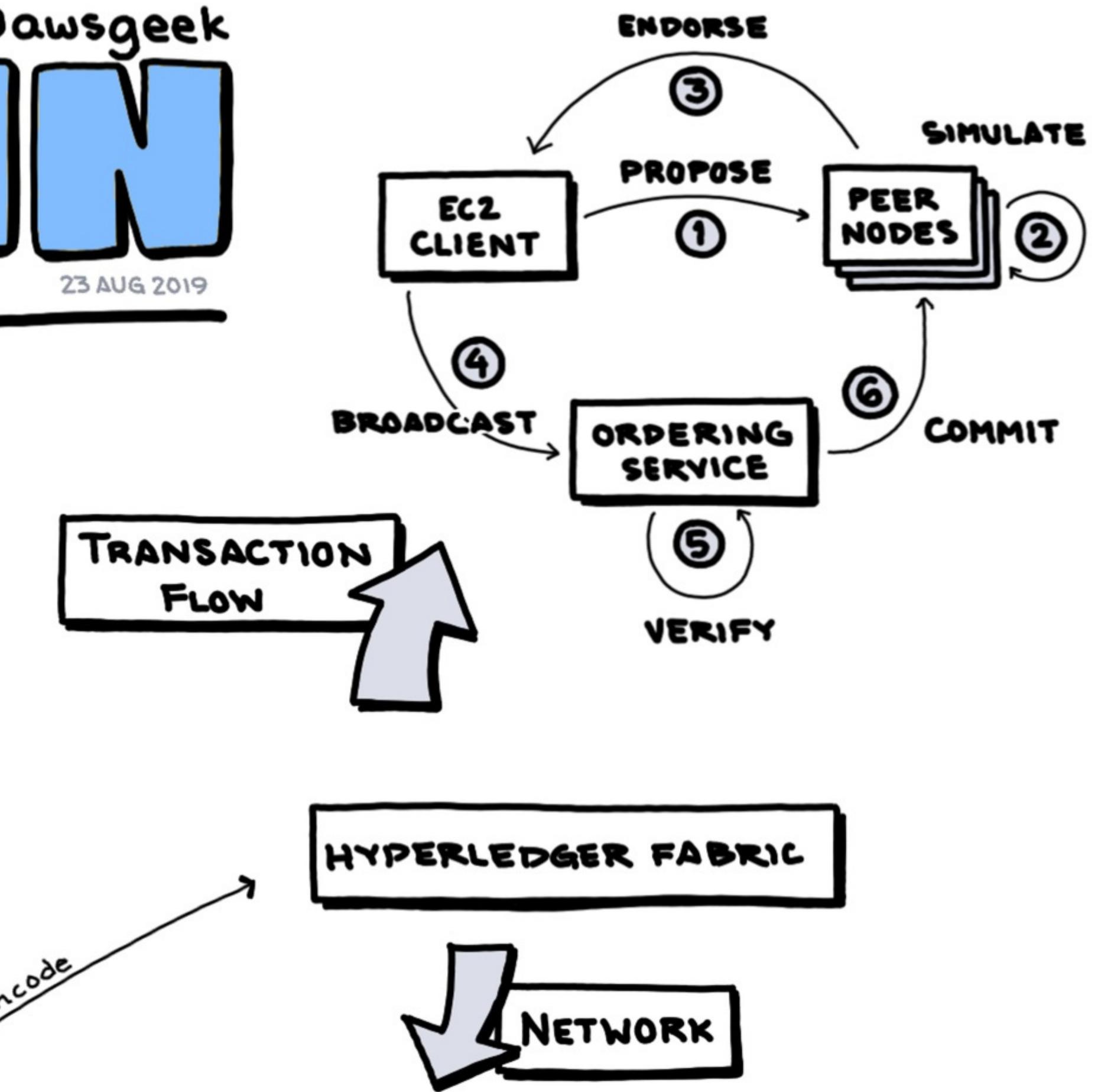
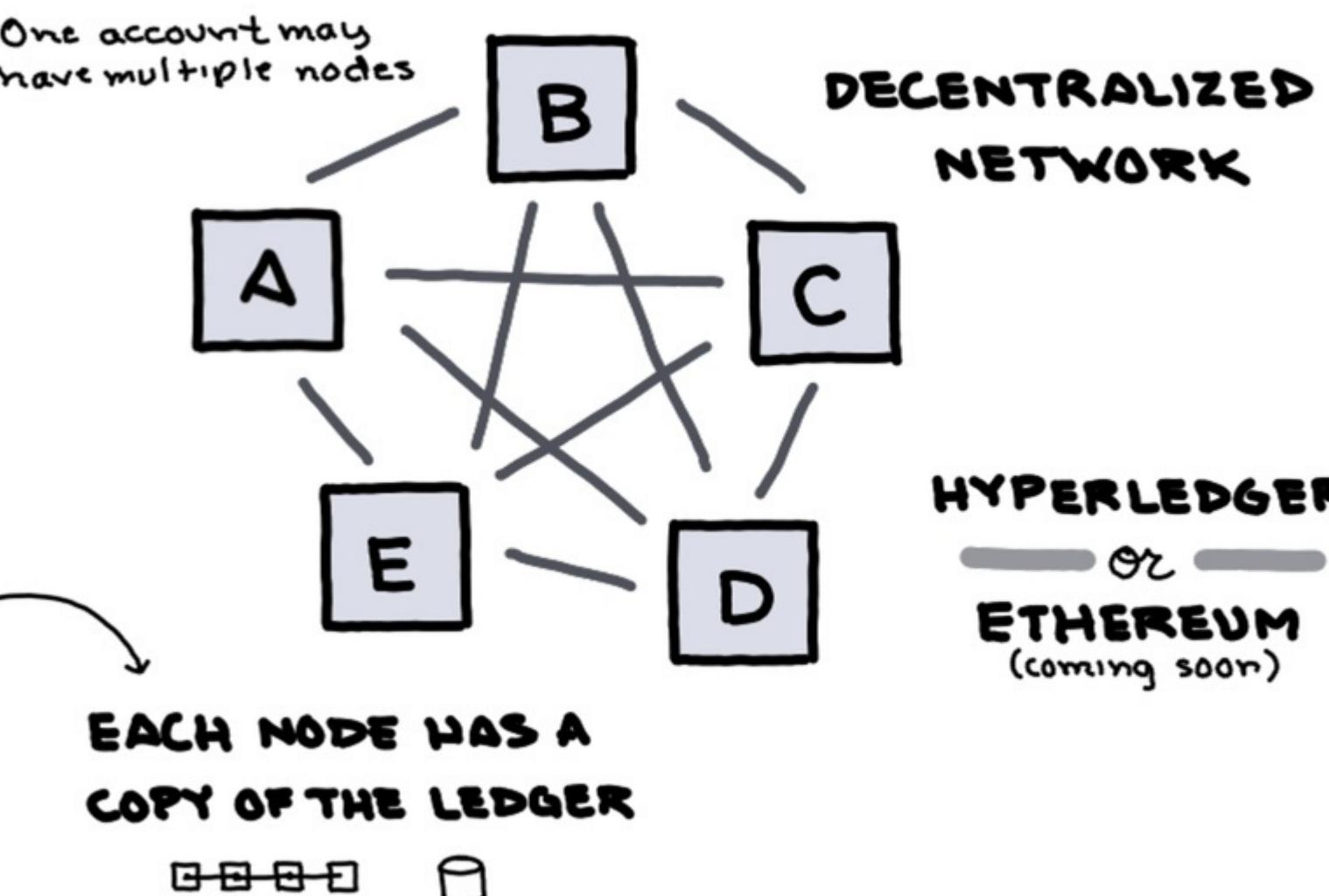
@awsgeek

23 AUG 2019

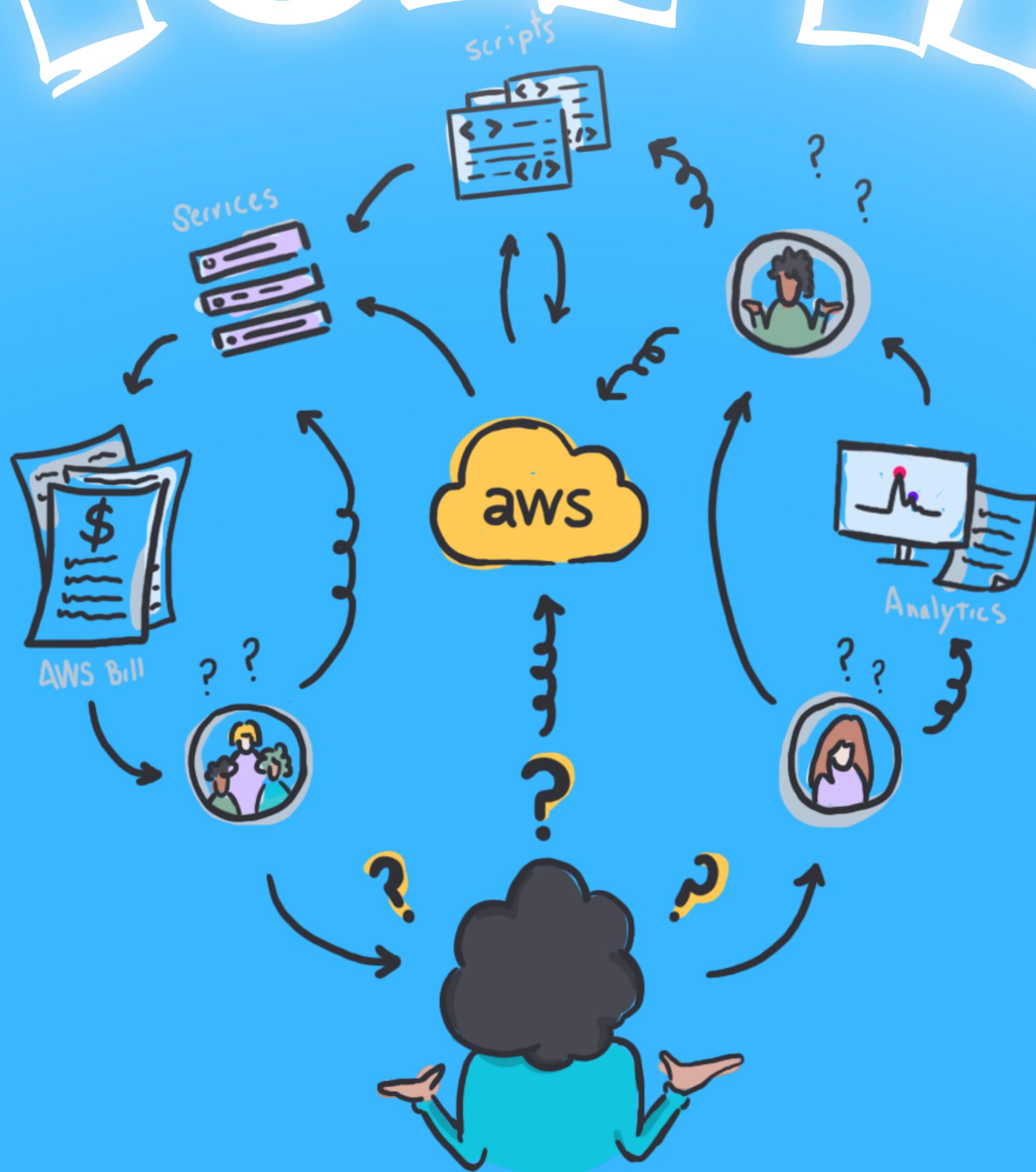
SCALABLE BLOCKCHAIN NETWORKS



AMAZON MANAGED BLOCKCHAIN



# Thanks



Content: [awsgeek.com](http://awsgeek.com)

Curated By: [him431](#)