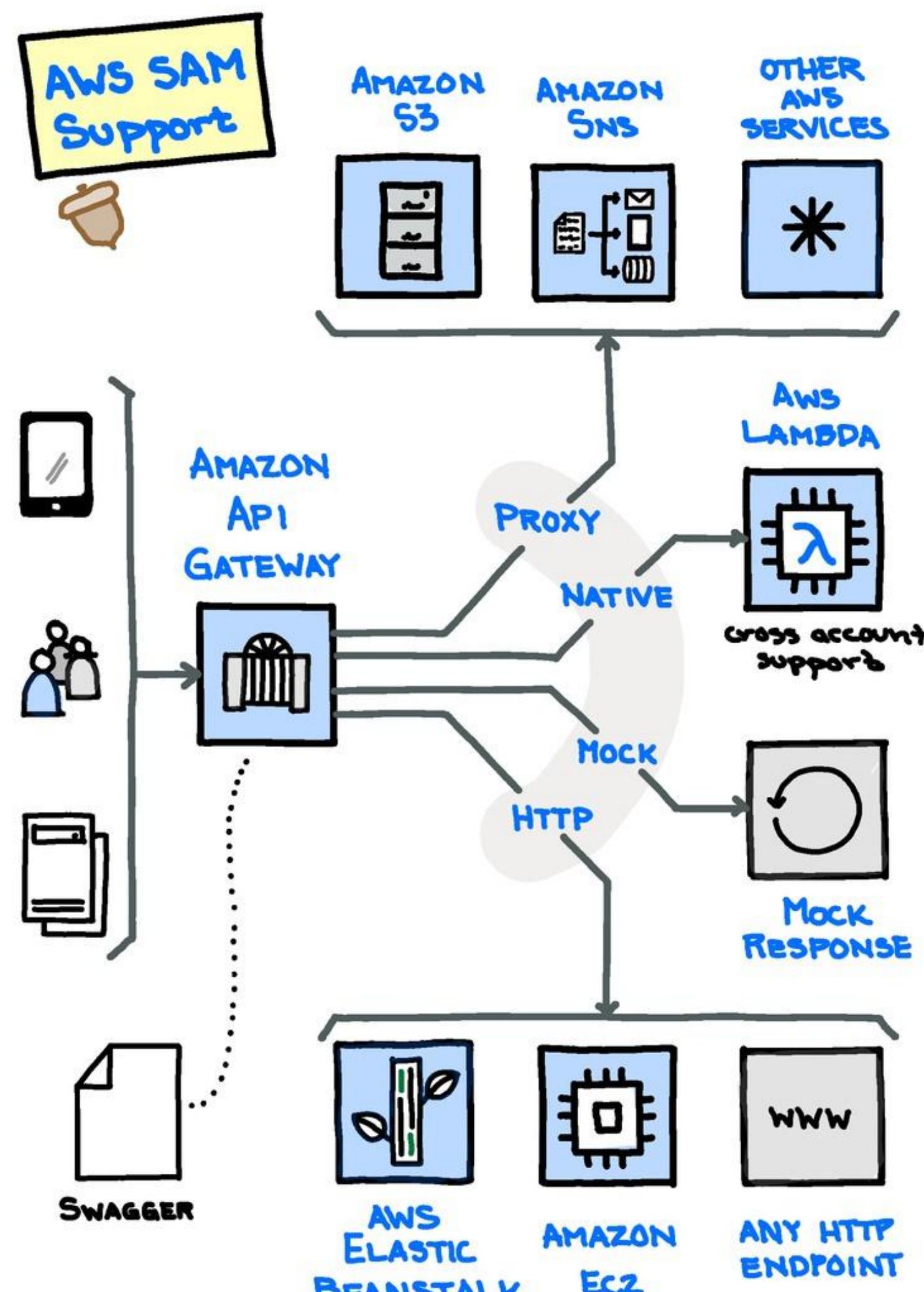


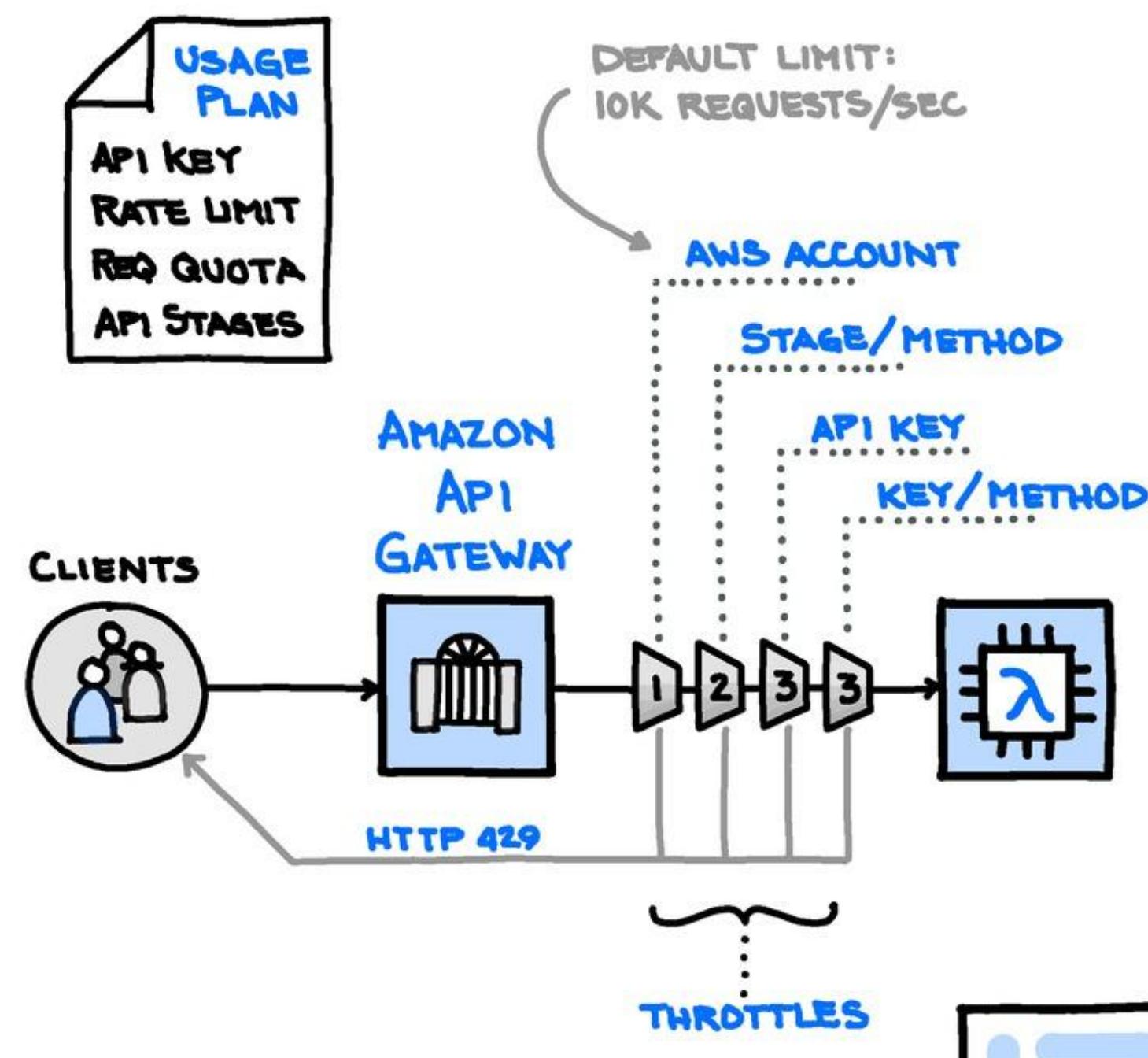
# AWS Sketchbook



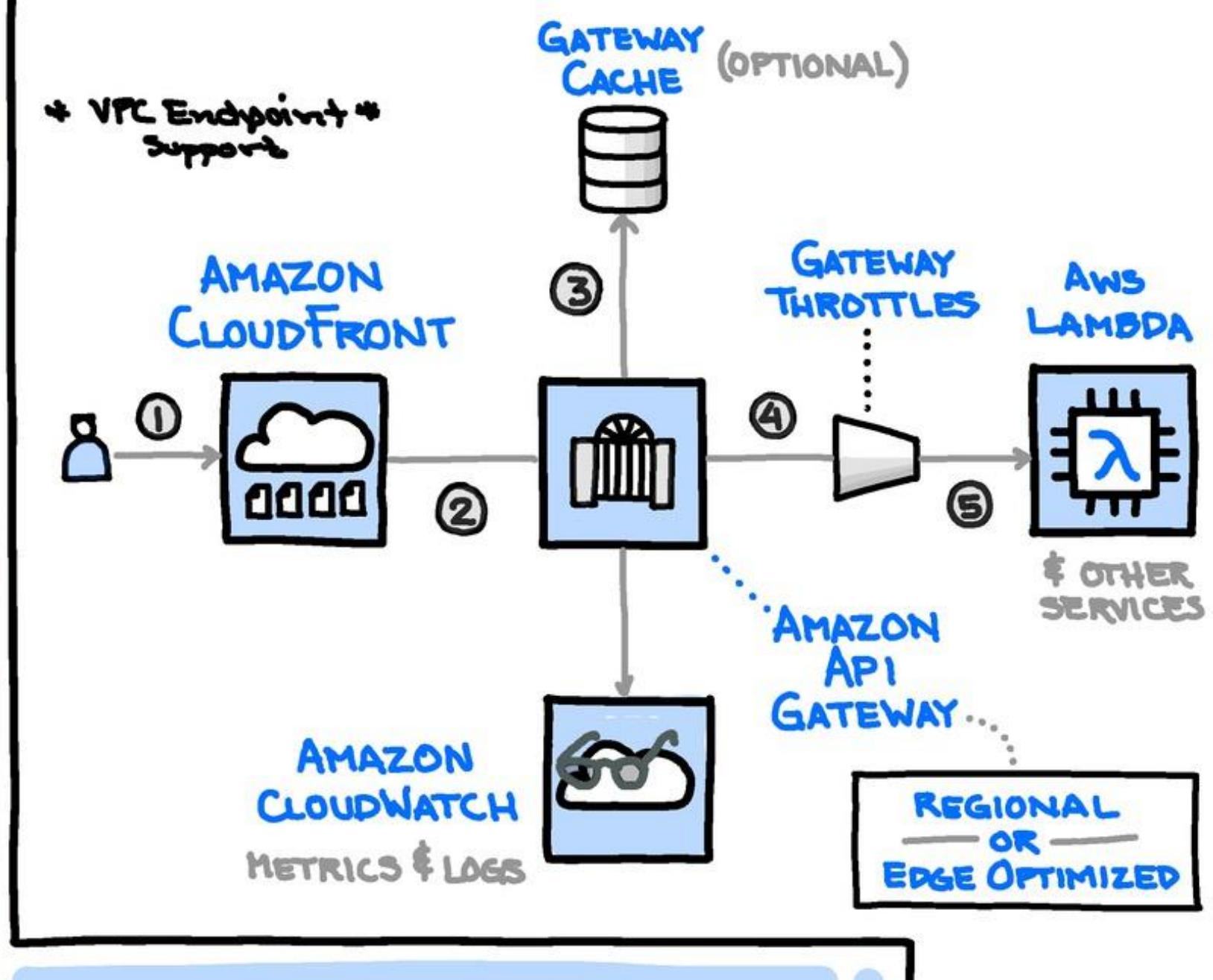
## THE INTEGRATIONS



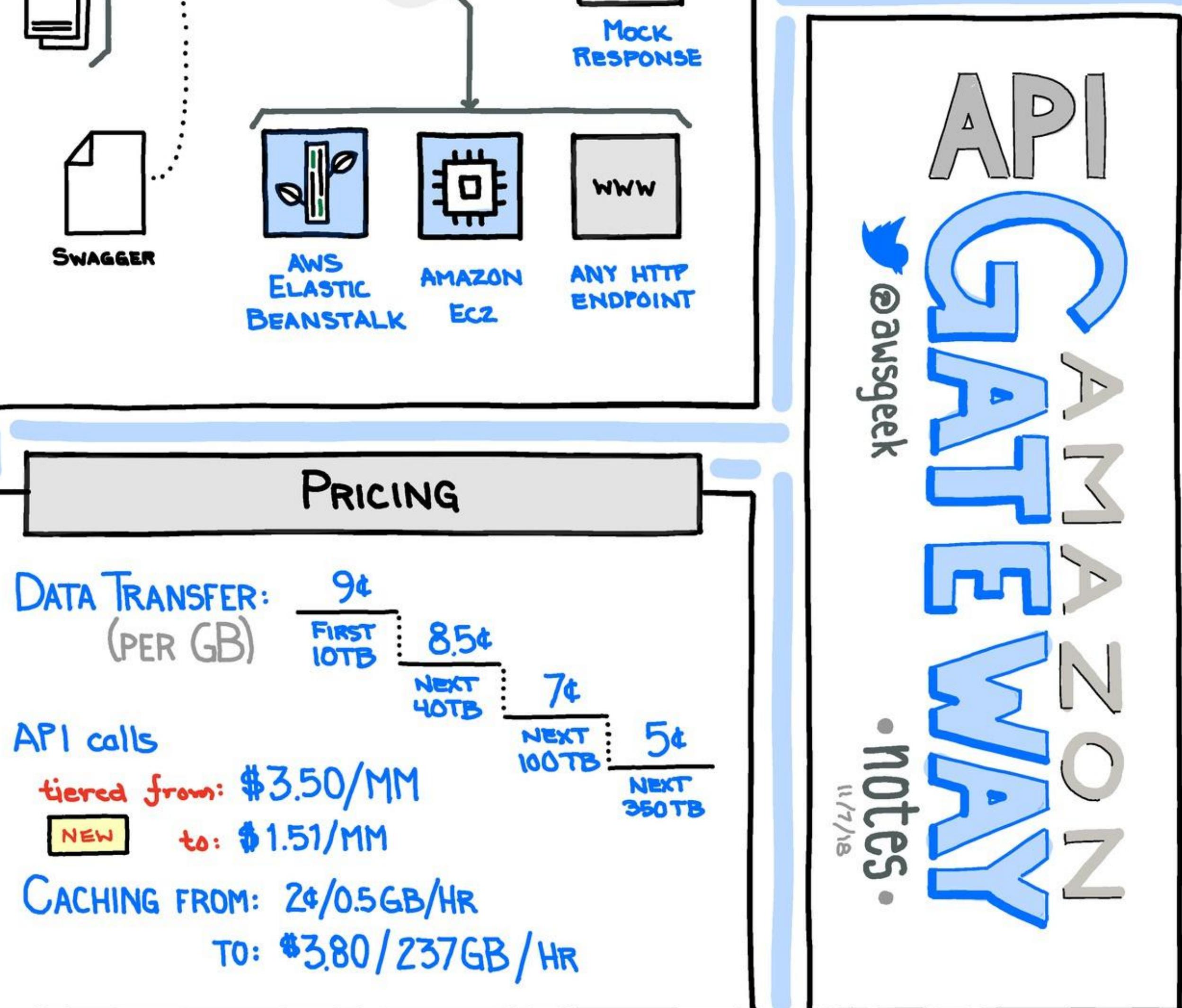
## THROTTLING



## UNDER THE HOOD



## EVOLUTION OF AN API



Directories  
of users

## USER POOLS



## IDENTITY POOLS

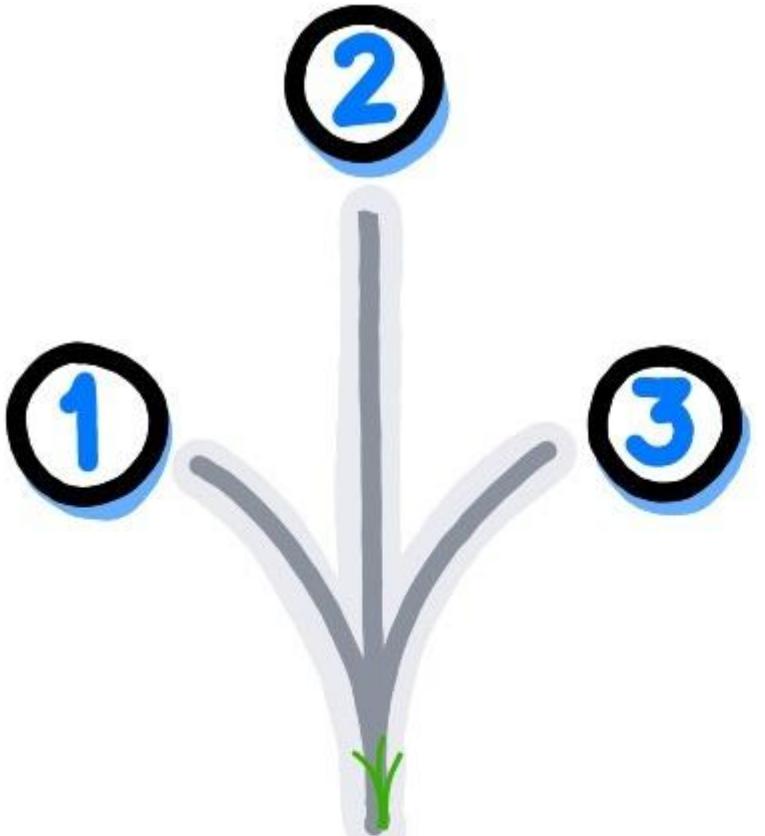
Federated Identities



Something  
You Have

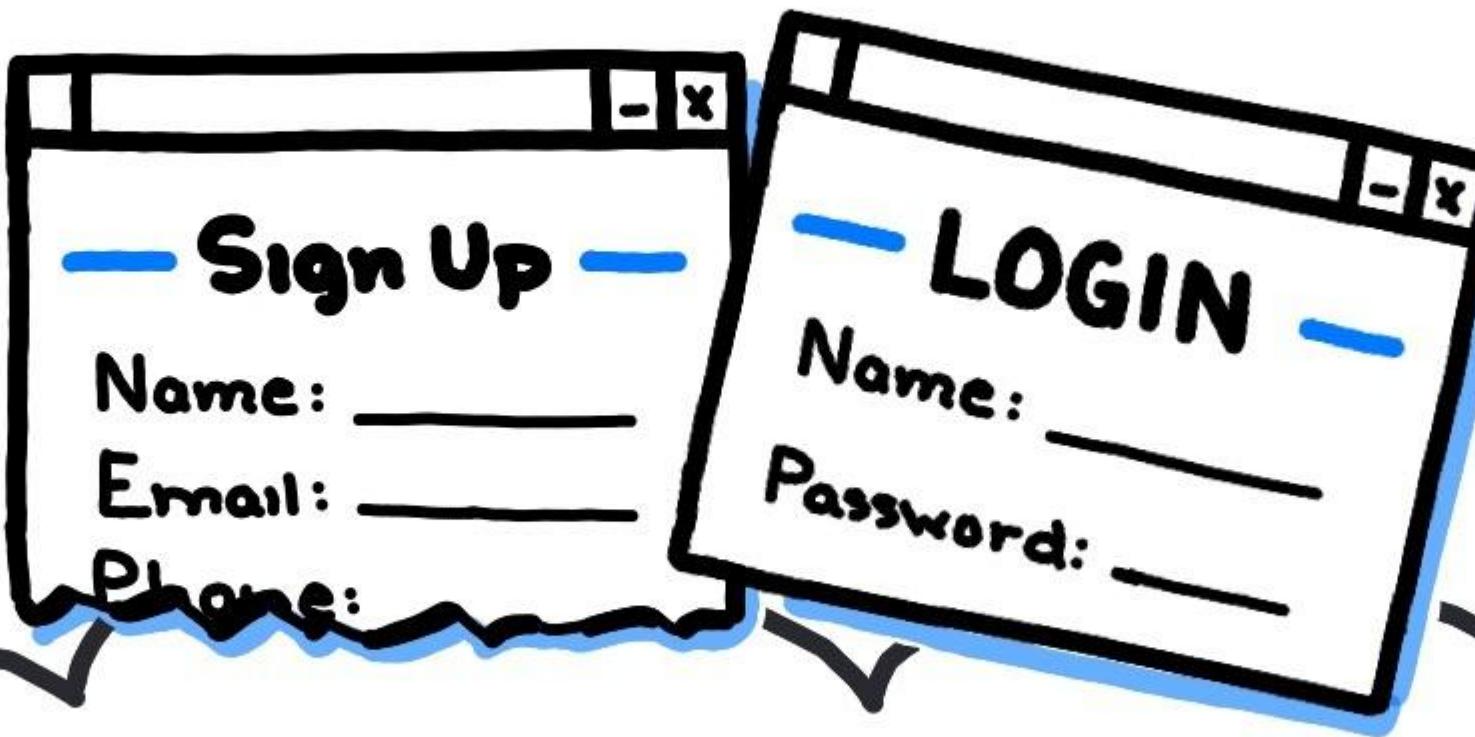


Something  
You Know



## MULTI-FACTOR AUTHENTICATION

## HOSTED WEB UI



AMAZON  
**COGNITO**  
USER SIGNIN/UP & ACCESS CONTROL

## OPENID CONNECT



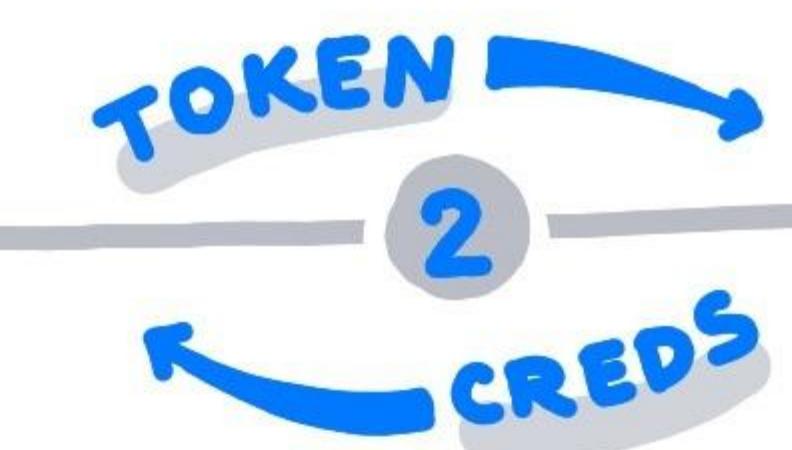
## SAML SIGN-IN



## SOCIAL SIGN-IN



USER  
POOL



IDENTITY  
POOL

WEB &  
MOBILE APPS

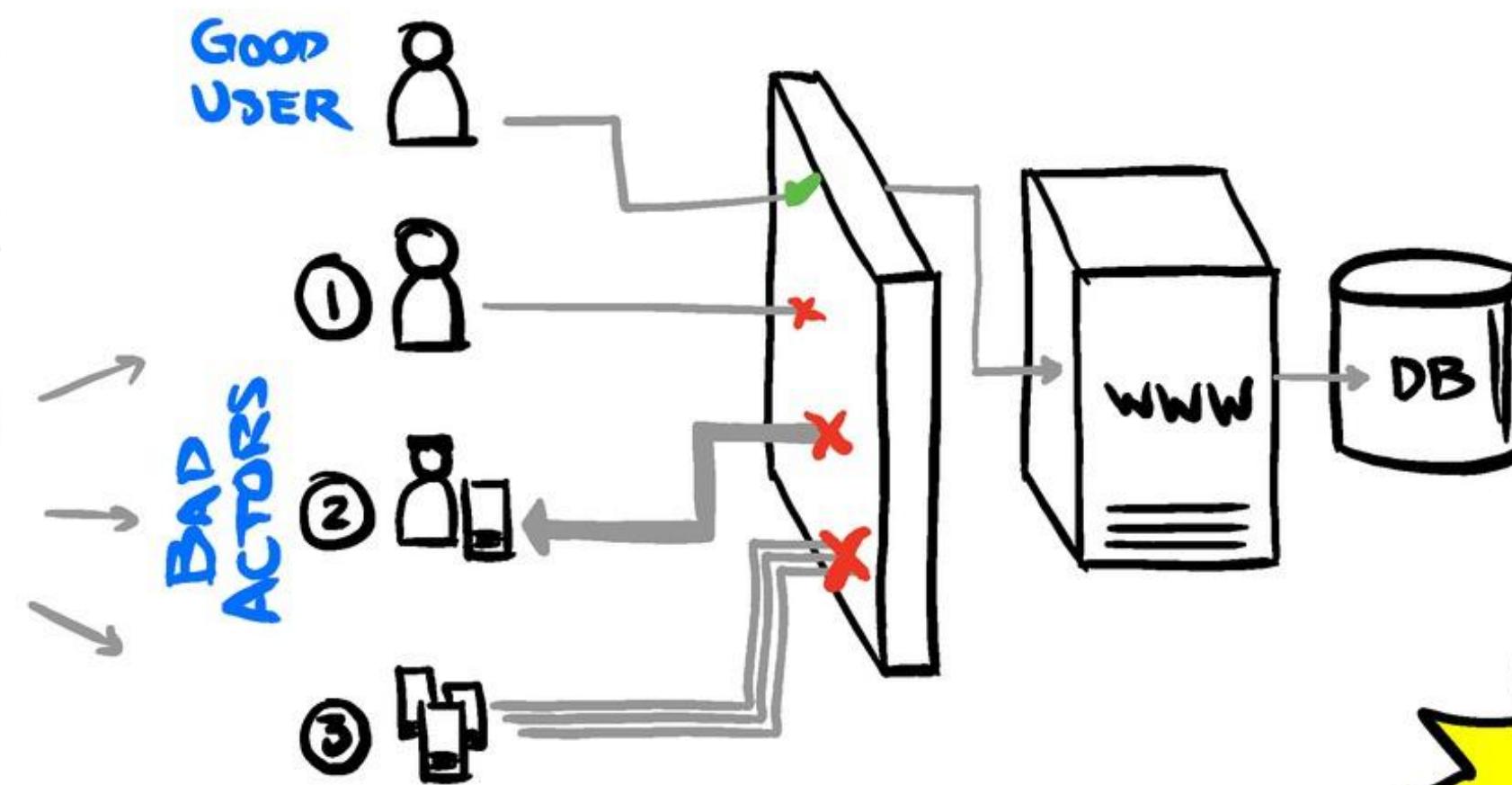


AWS  
SERVICES

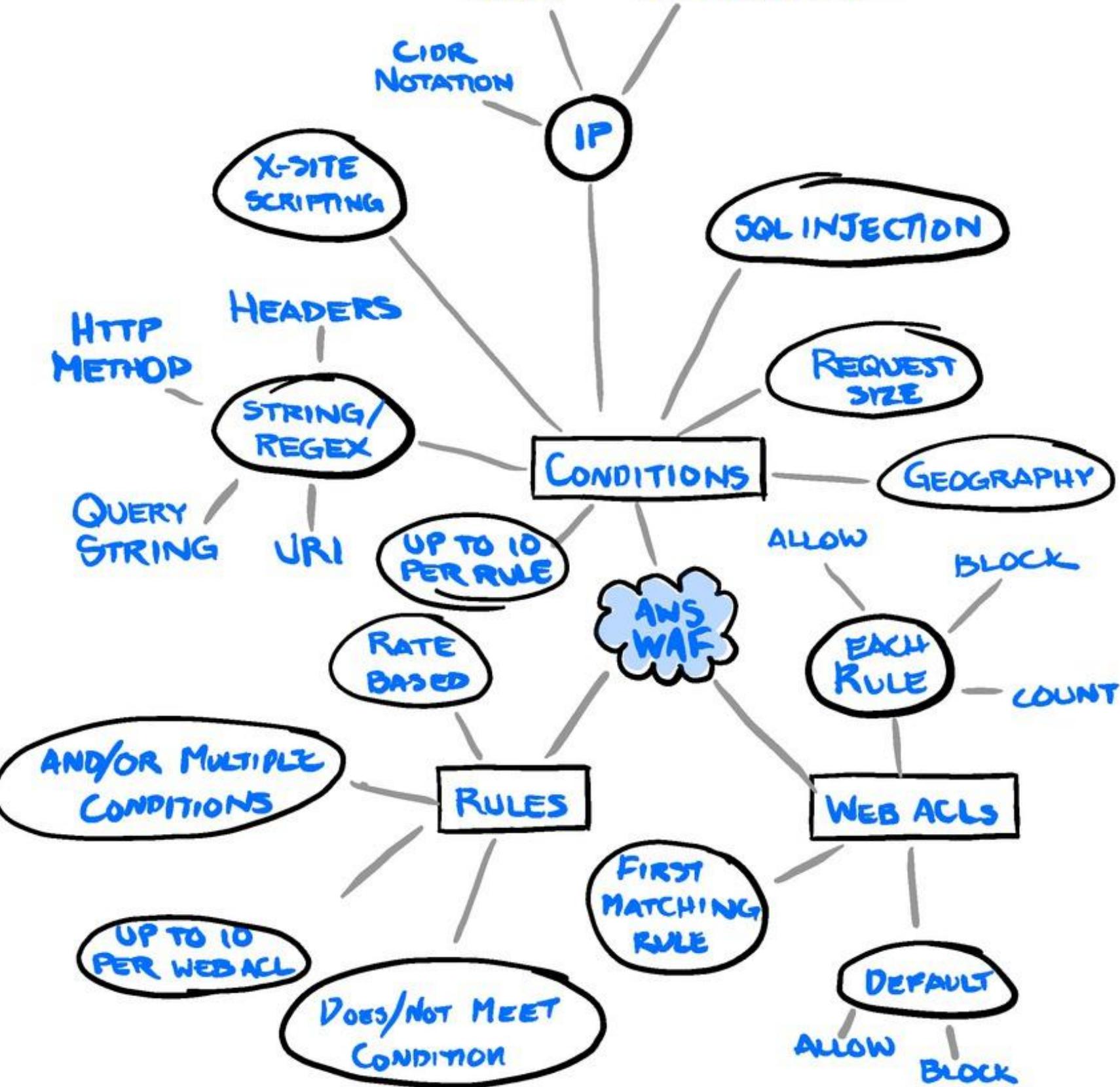


## COMMON WAF USE CASES

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

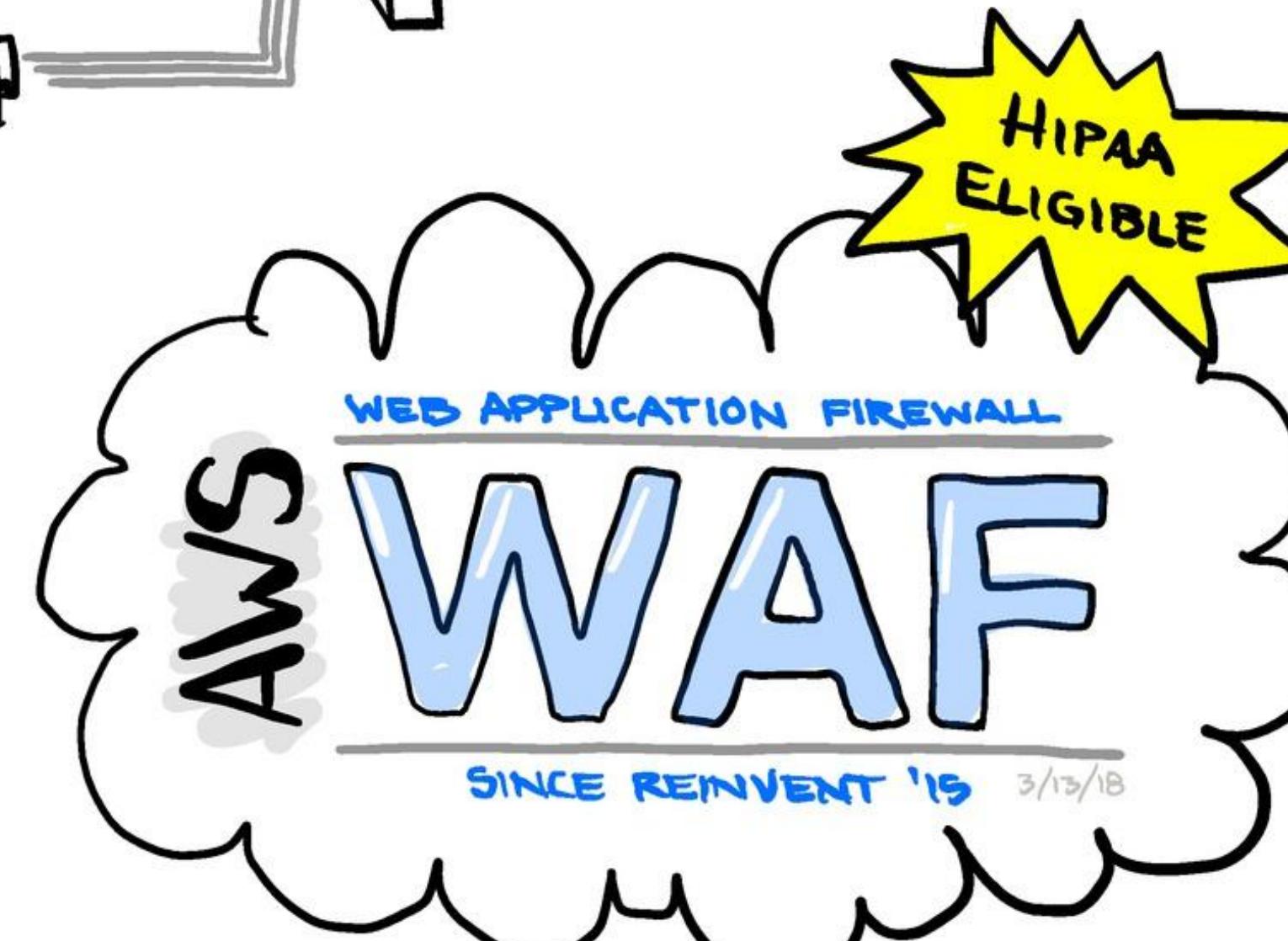
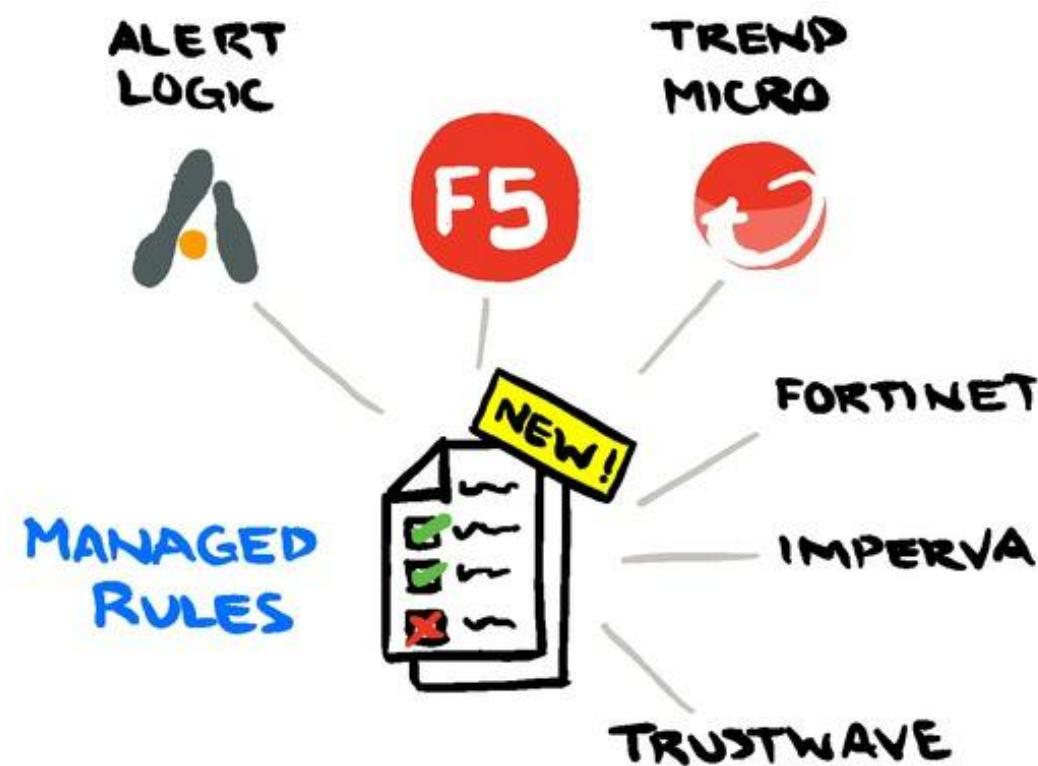


18,16,24,32 ONLY UPTO 10K PER CONDITION



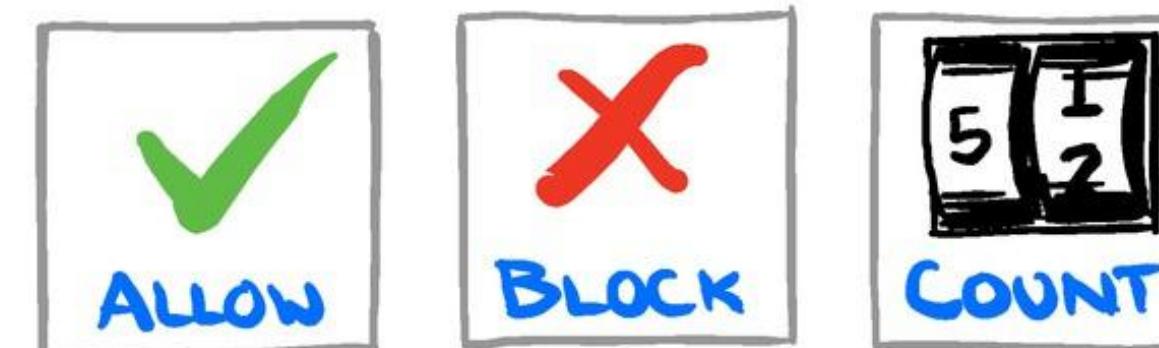
\$5/WEB ACL/Mo  
\$1/RULE/WEBACL/Mo  
60¢/MM REQUESTS

FOLLOW:  
Aws SECURITY BLOG



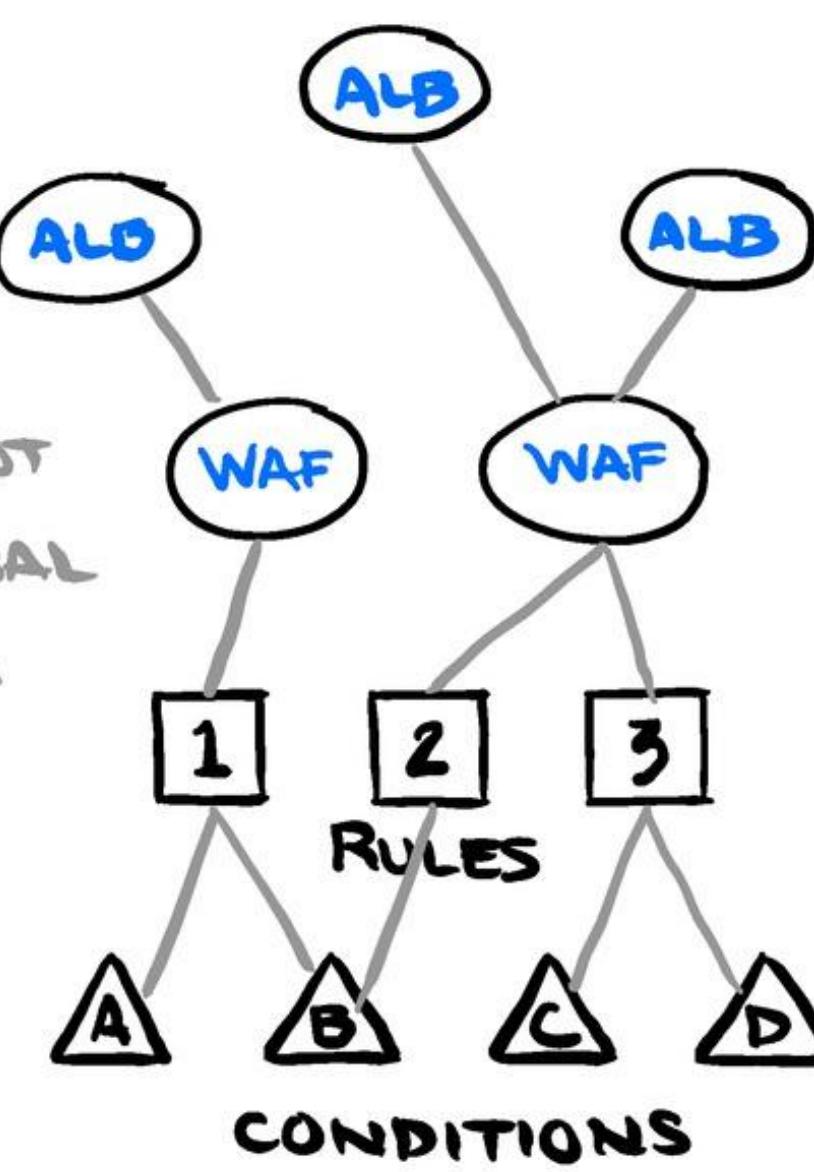
@awsgeek

jerry.hargrove@



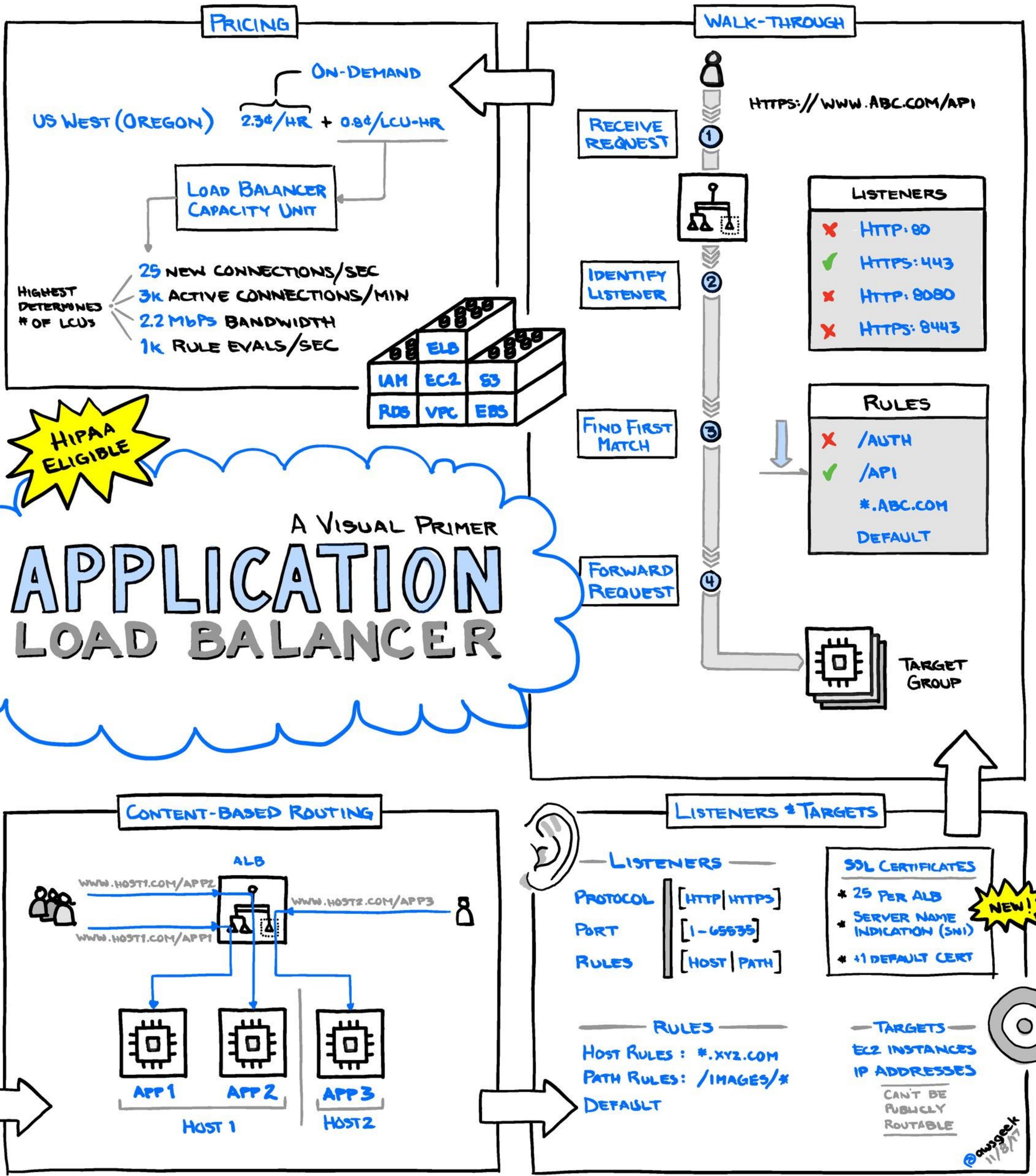
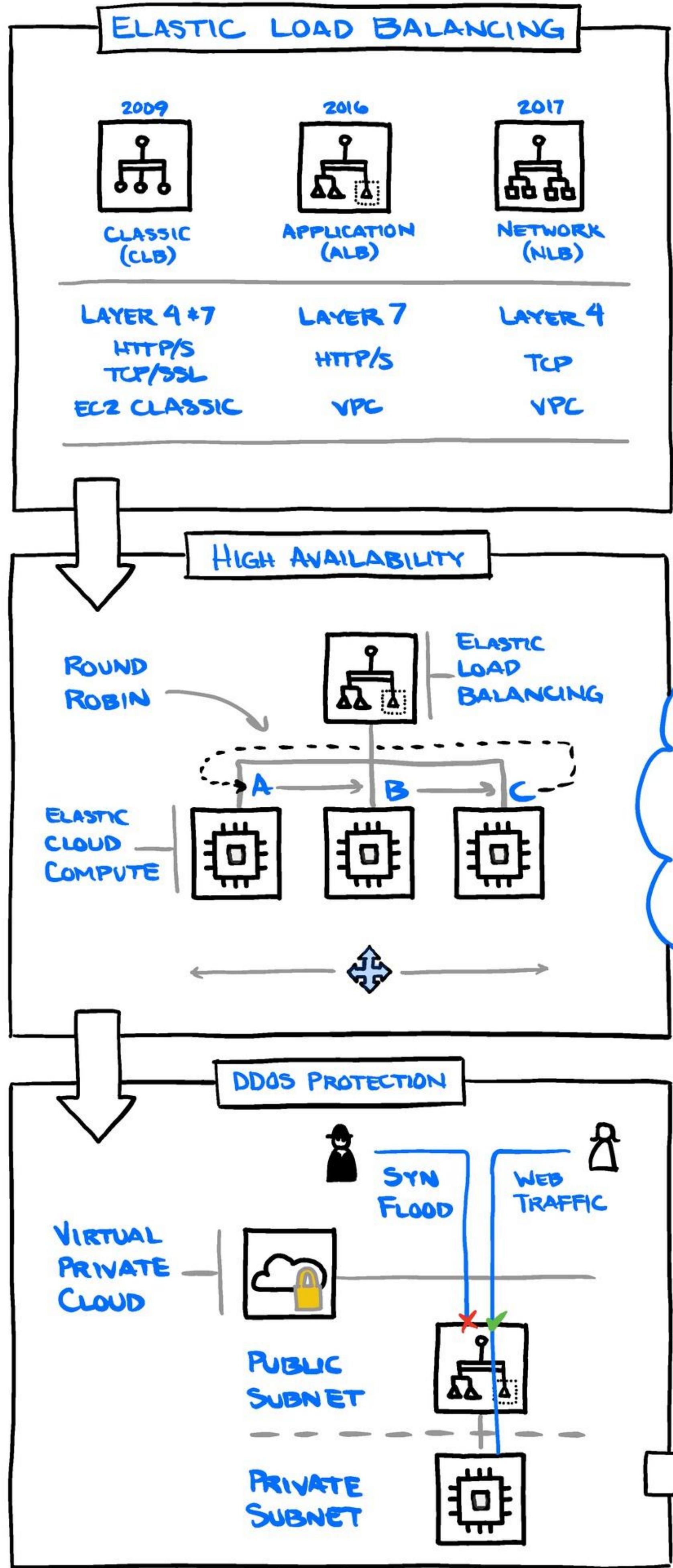
\* ACL, RULE, CONDITION ARE EITHER GLOBAL OR REGION SPECIFIC

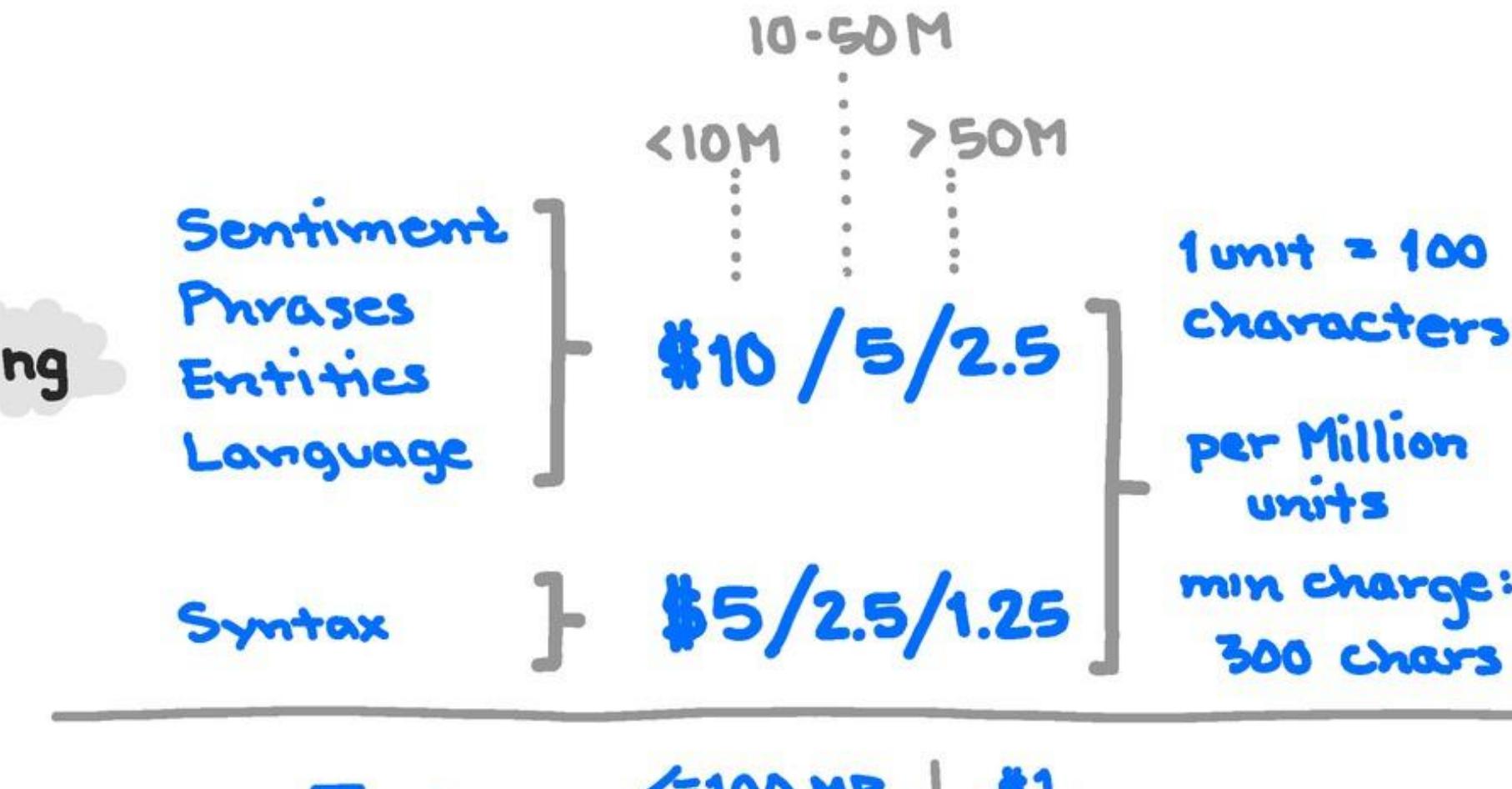
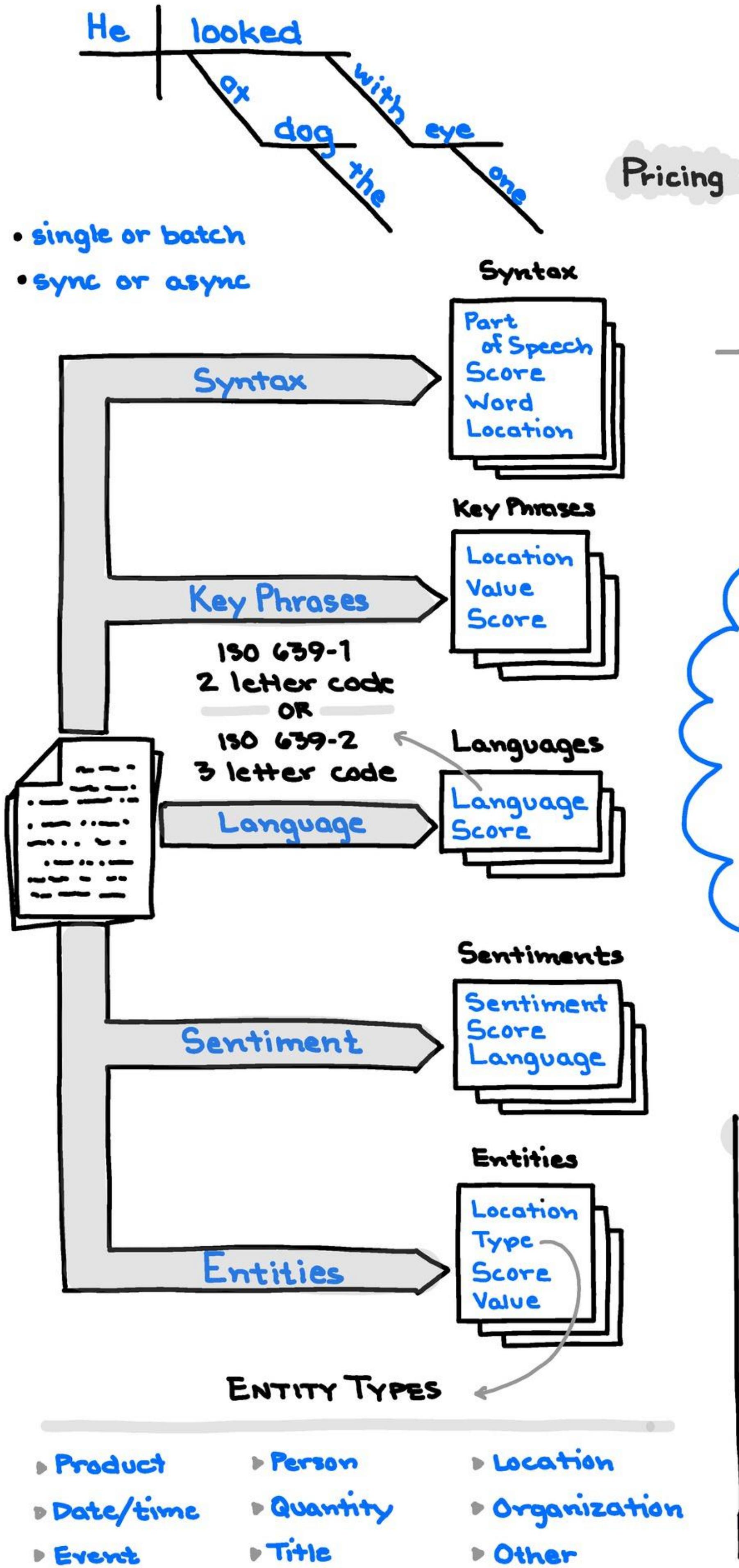
\* REGIONAL MAY NOT BE USED BY GLOBAL AND VISA-VERSA



## 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



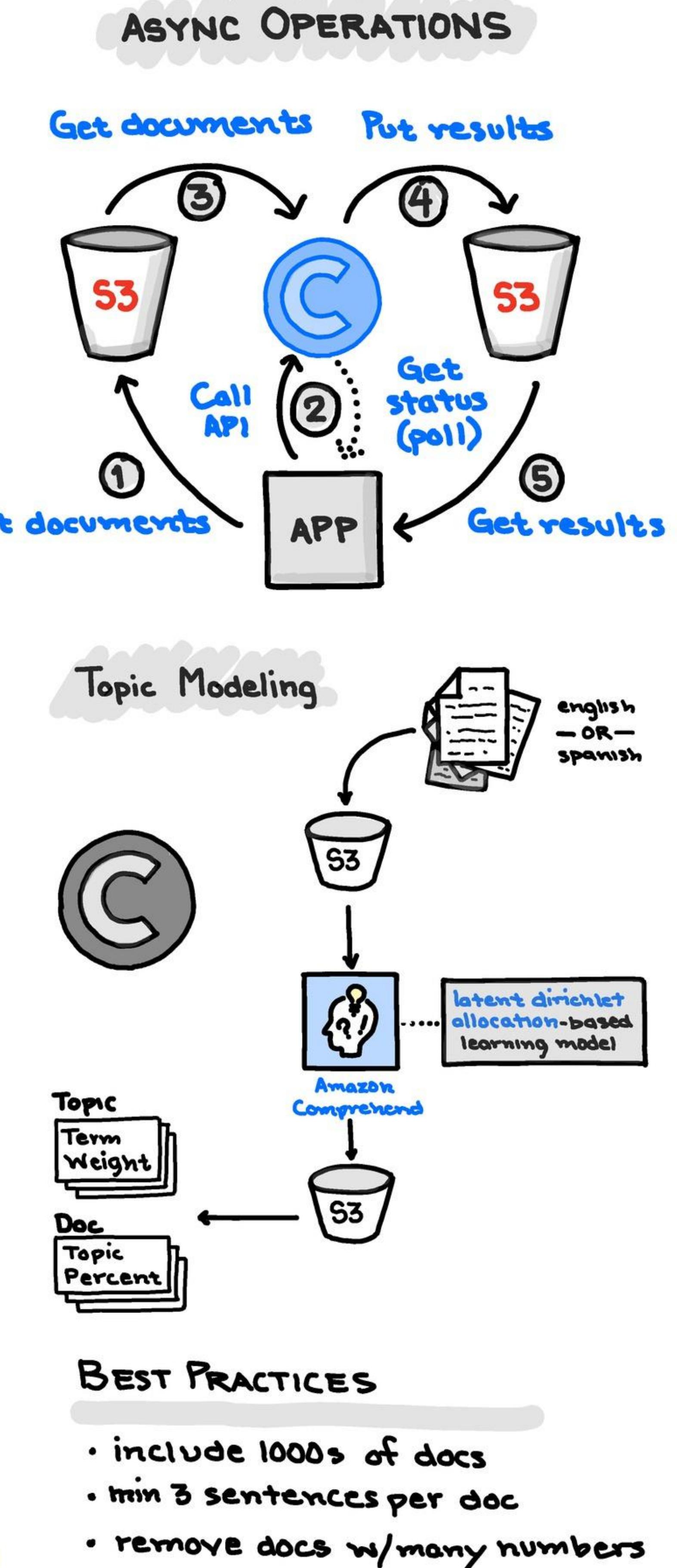


## DATA PRIVACY

### 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**



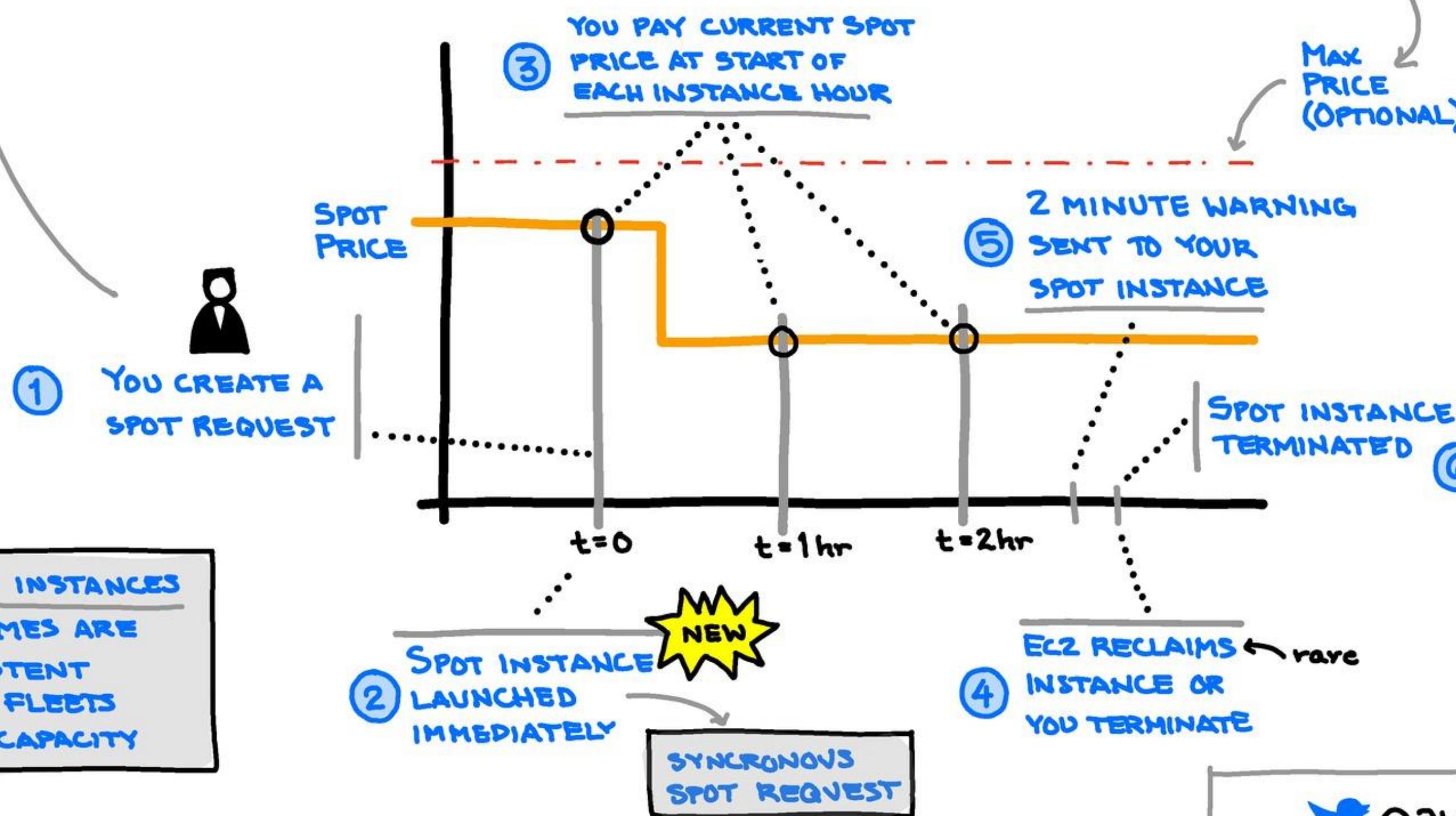
**SPOT REQUEST**

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

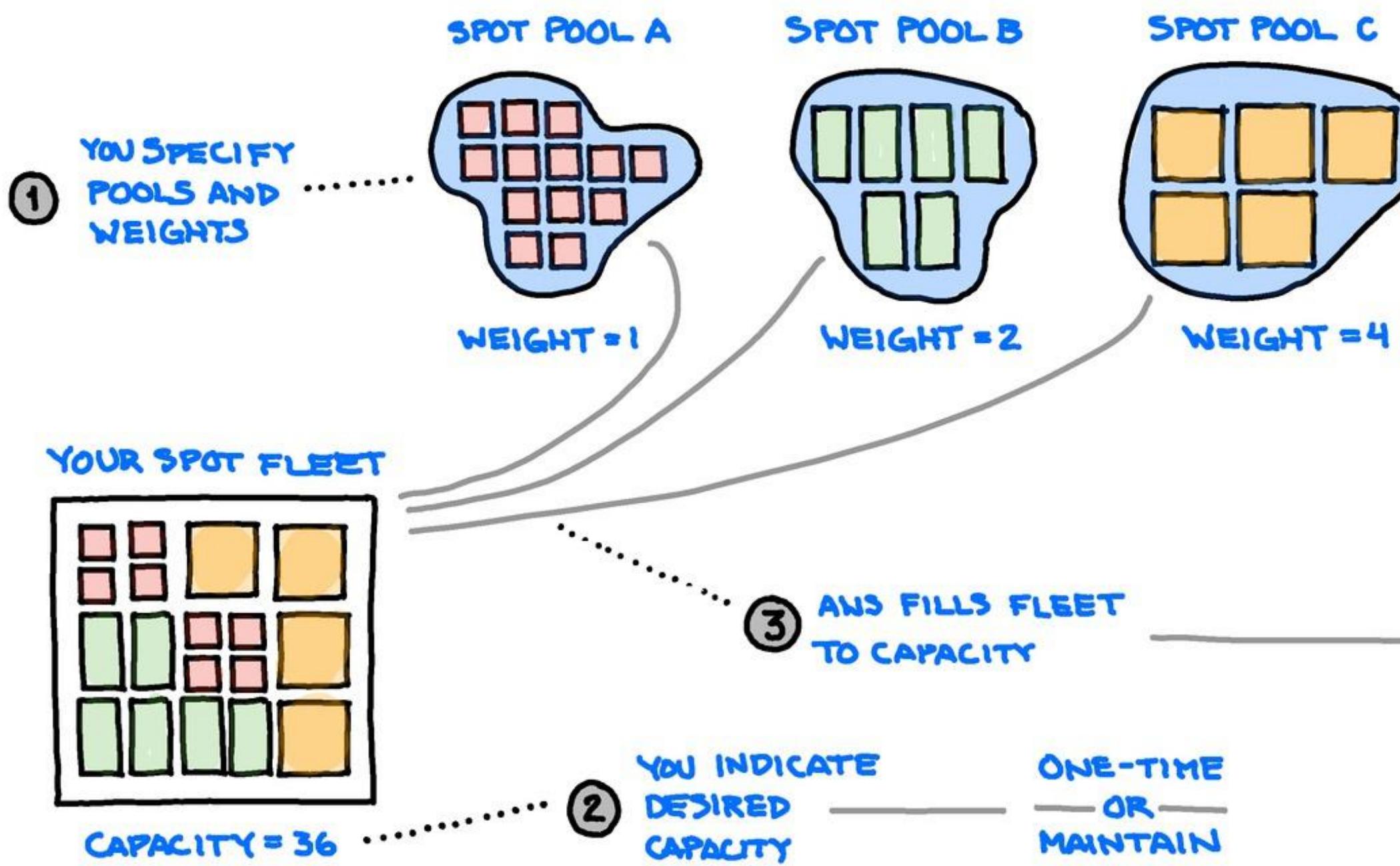
**SPOT POOL**

SAME INSTANCE TYPE  
SAME AVAILABILITY ZONE  
SAME OPERATING SYSTEM

BEHAVES LIKE  
OLD 'BID PRICE'

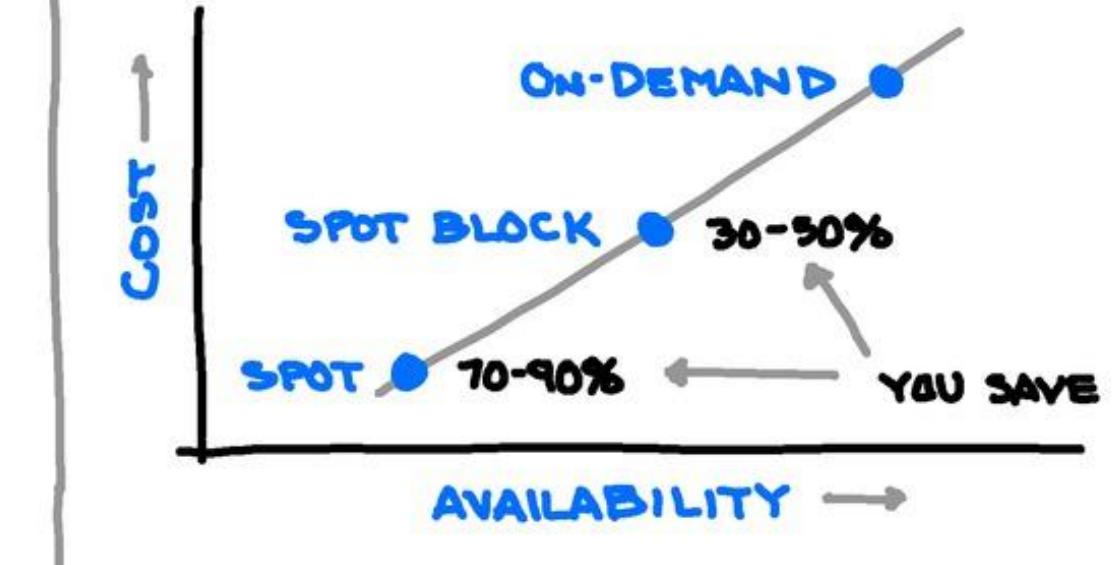
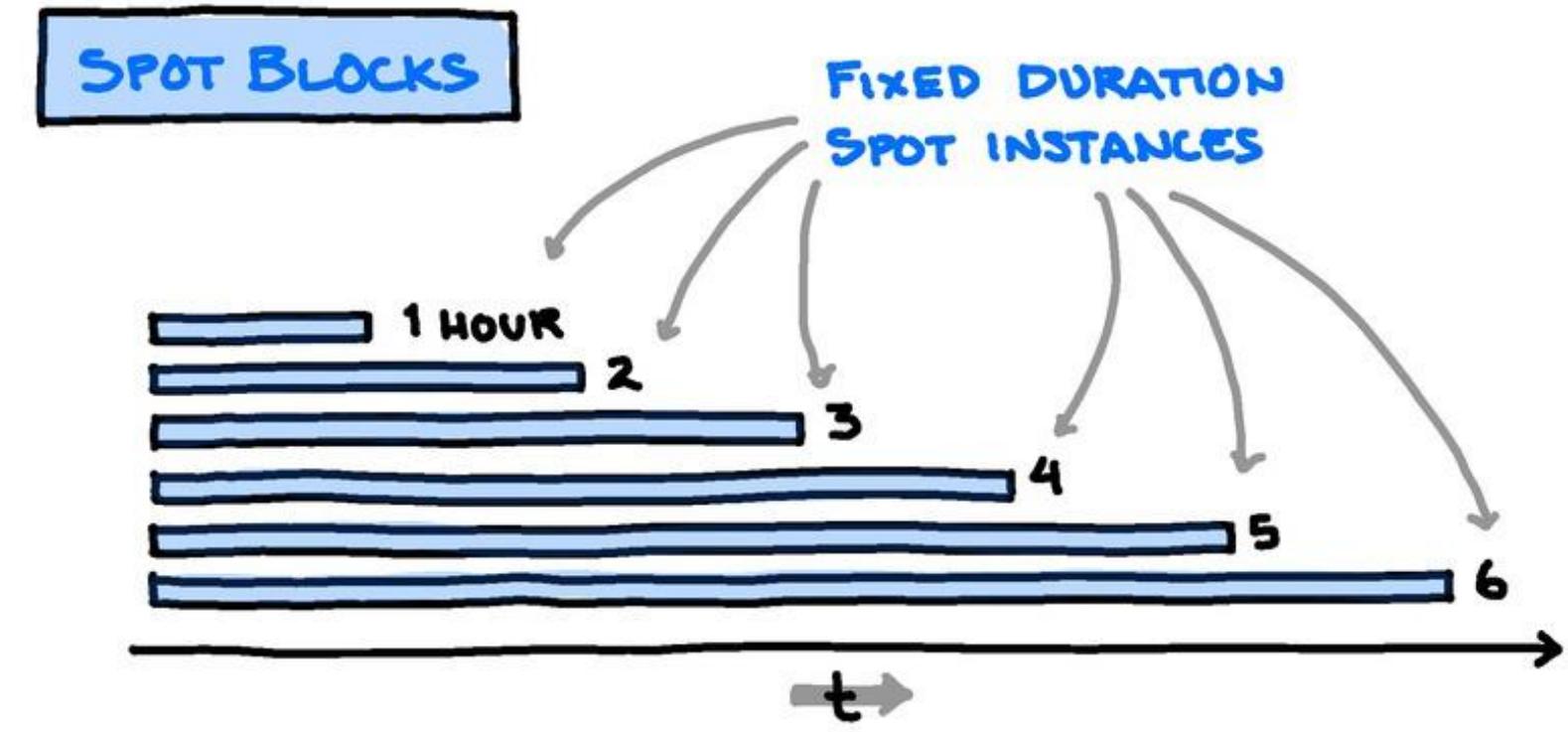
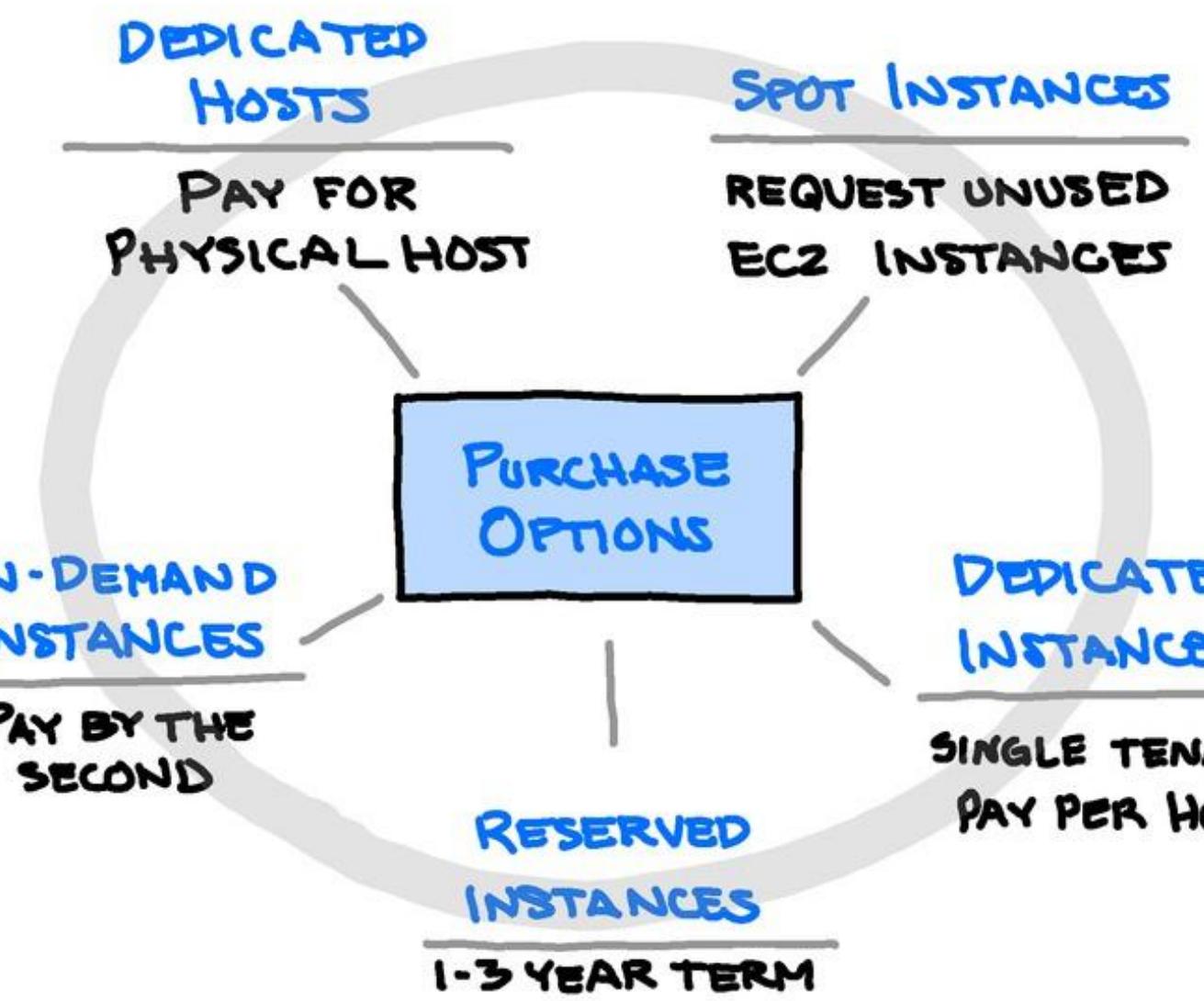


**NEW**  
HIBERNATE SPOT INSTANCES  
RAM & EBS VOLUMES ARE  
SAVED FOR PERSISTENT  
REQUESTS & SPOT FLEETS  
SET TO MAINTAIN CAPACITY



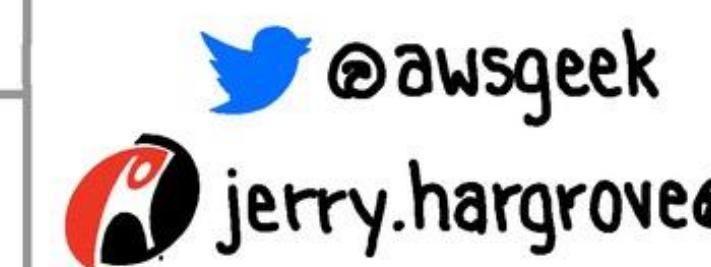
**ALLOCATION STRATEGY**

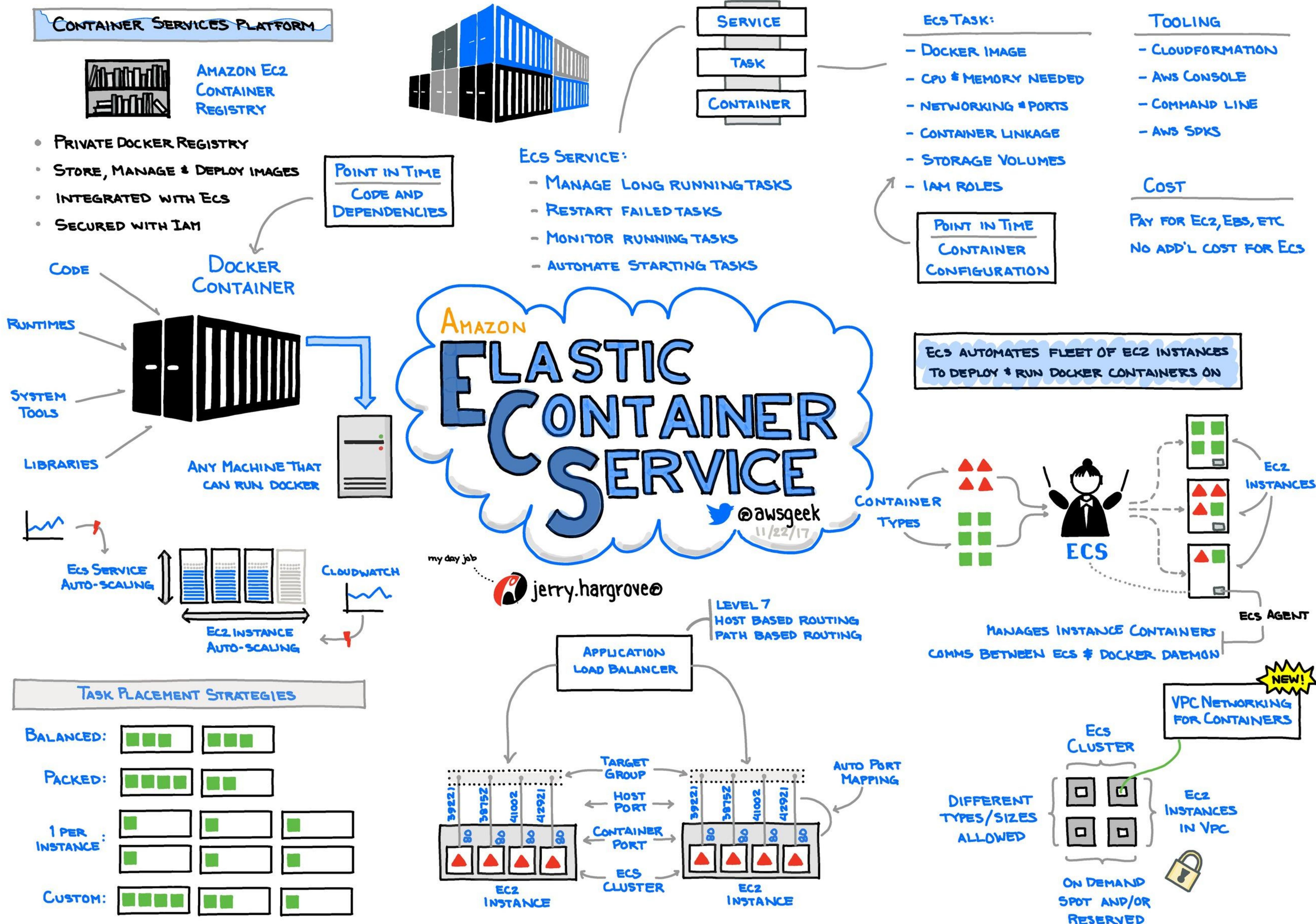
USE CHEAPEST POOL  
— OR —  
EQUALLY DISTRIBUTE

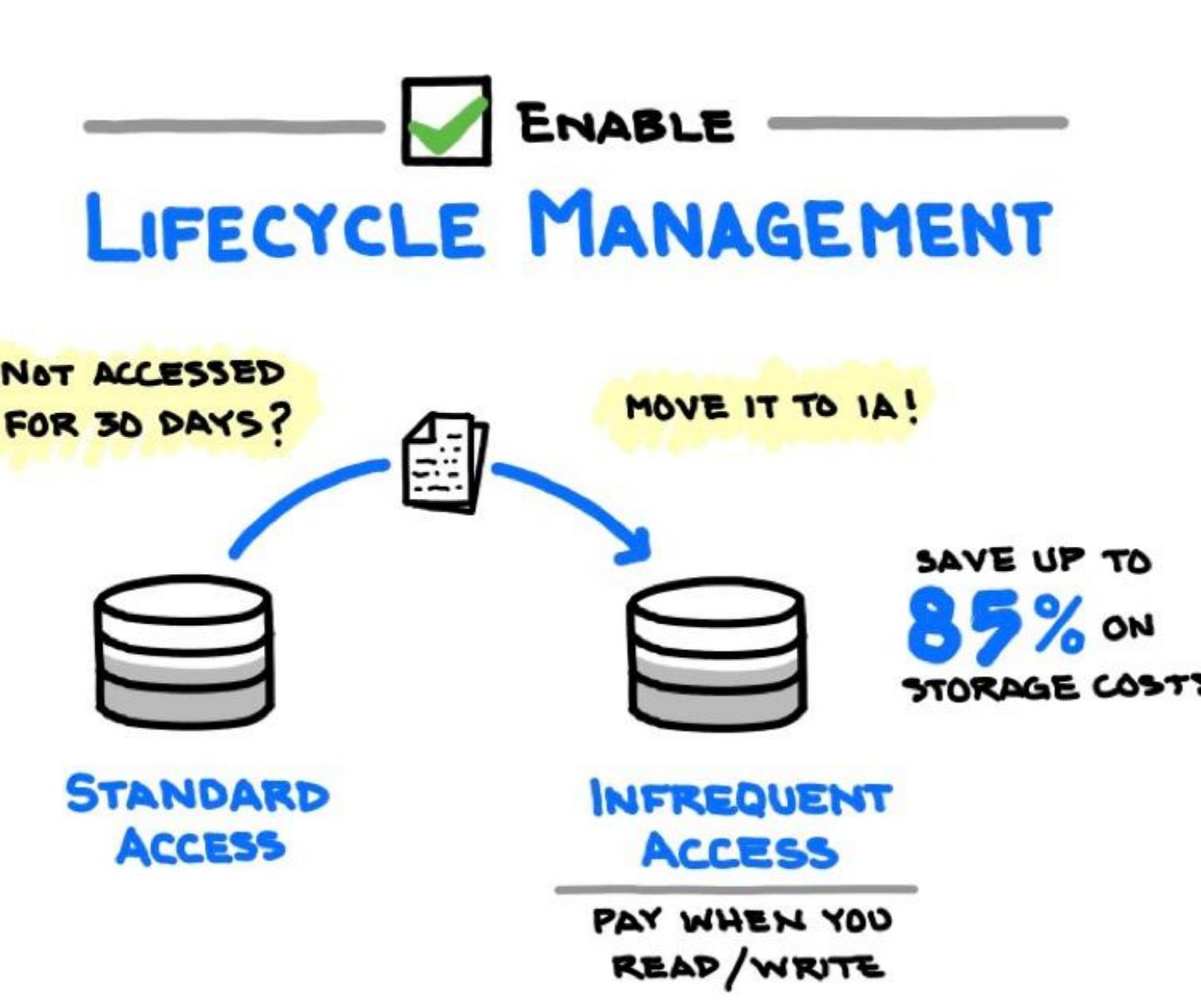
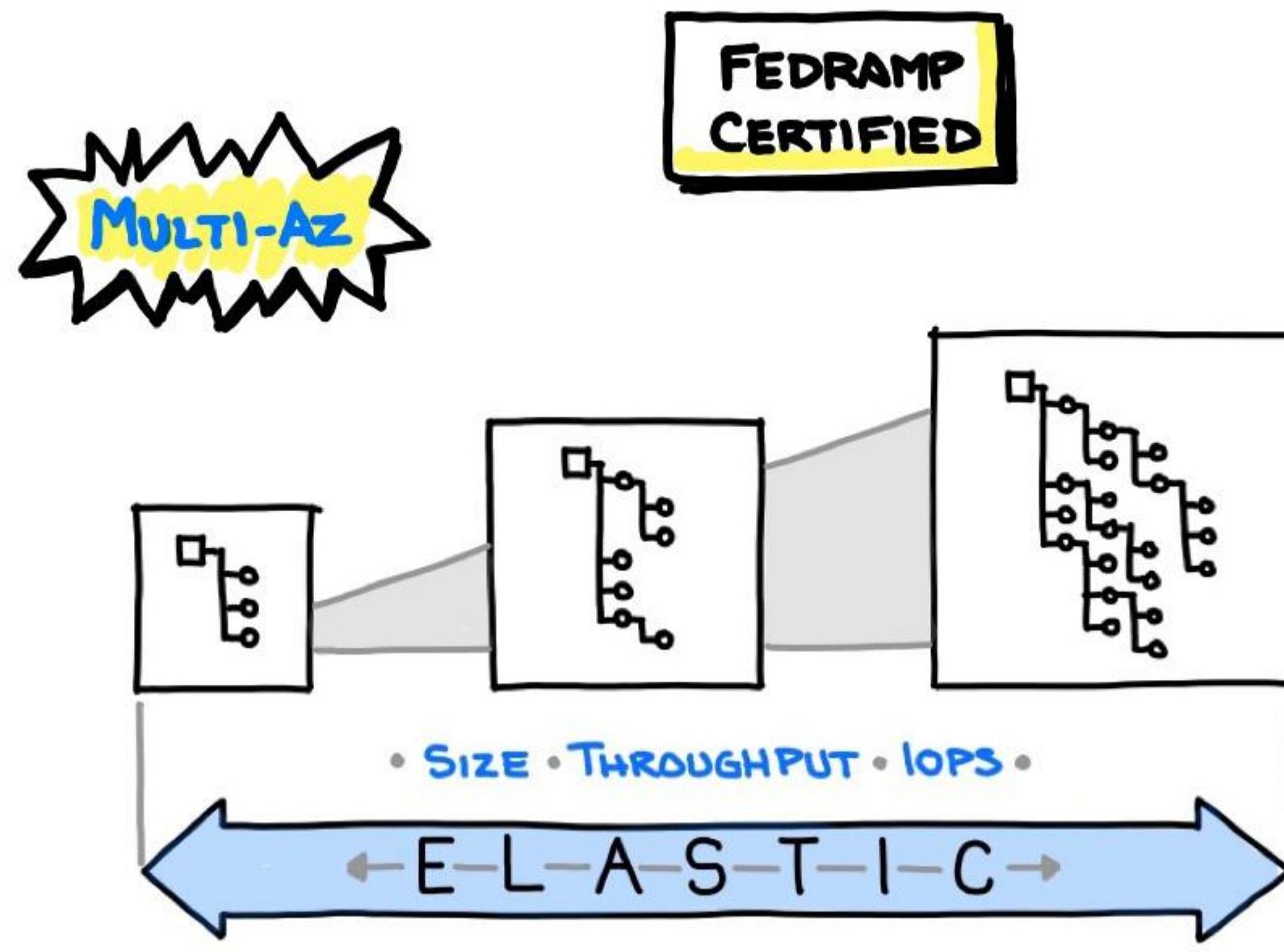
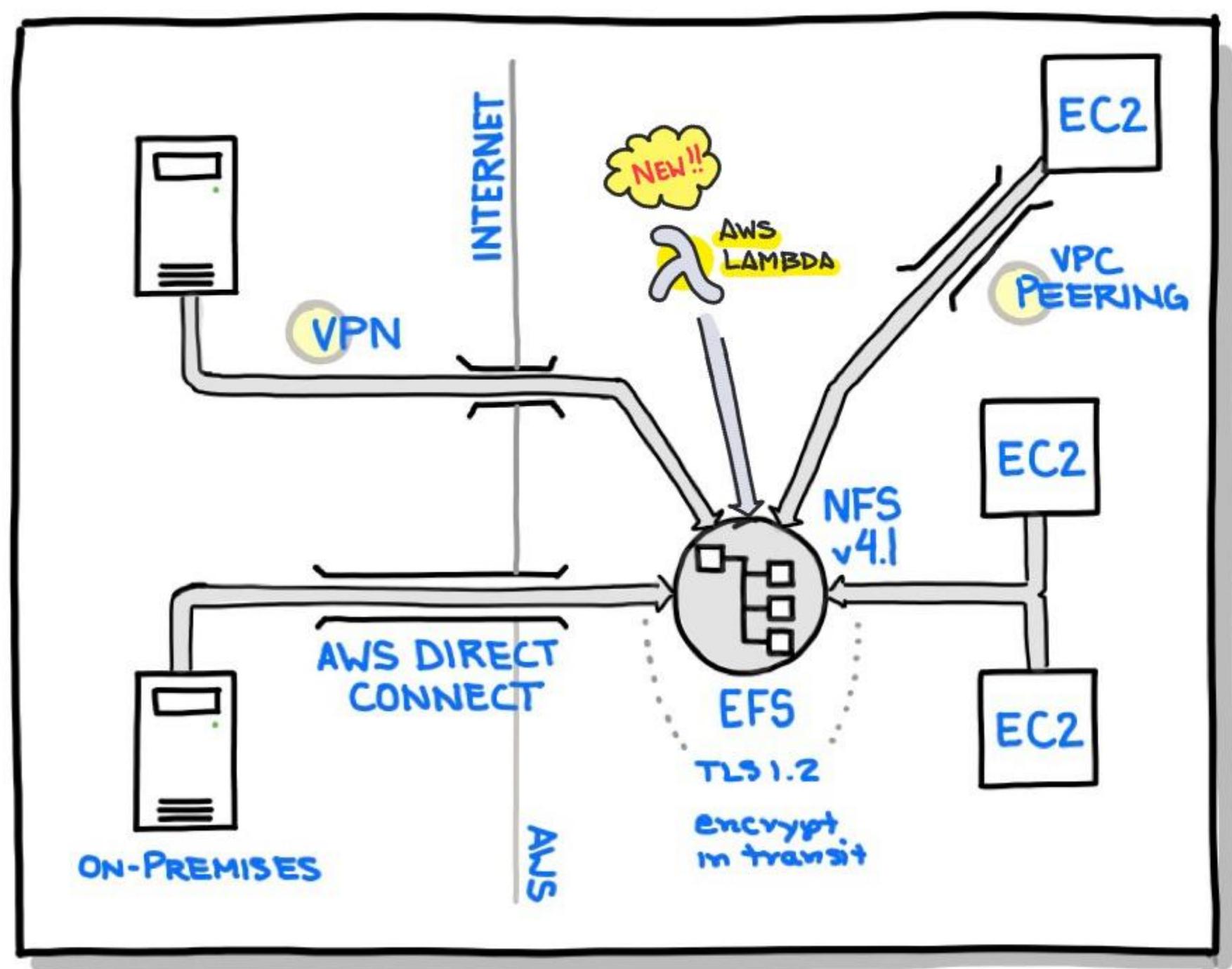


# AMAZON **Ec2** **SPOT** **INSTANCES**

11/29/17







- ON-DEMAND PROVISIONING
- PAY FOR WHAT YOU USE
- SIMPLE COST STRUCTURE

STORAGE  
per GB/Mo

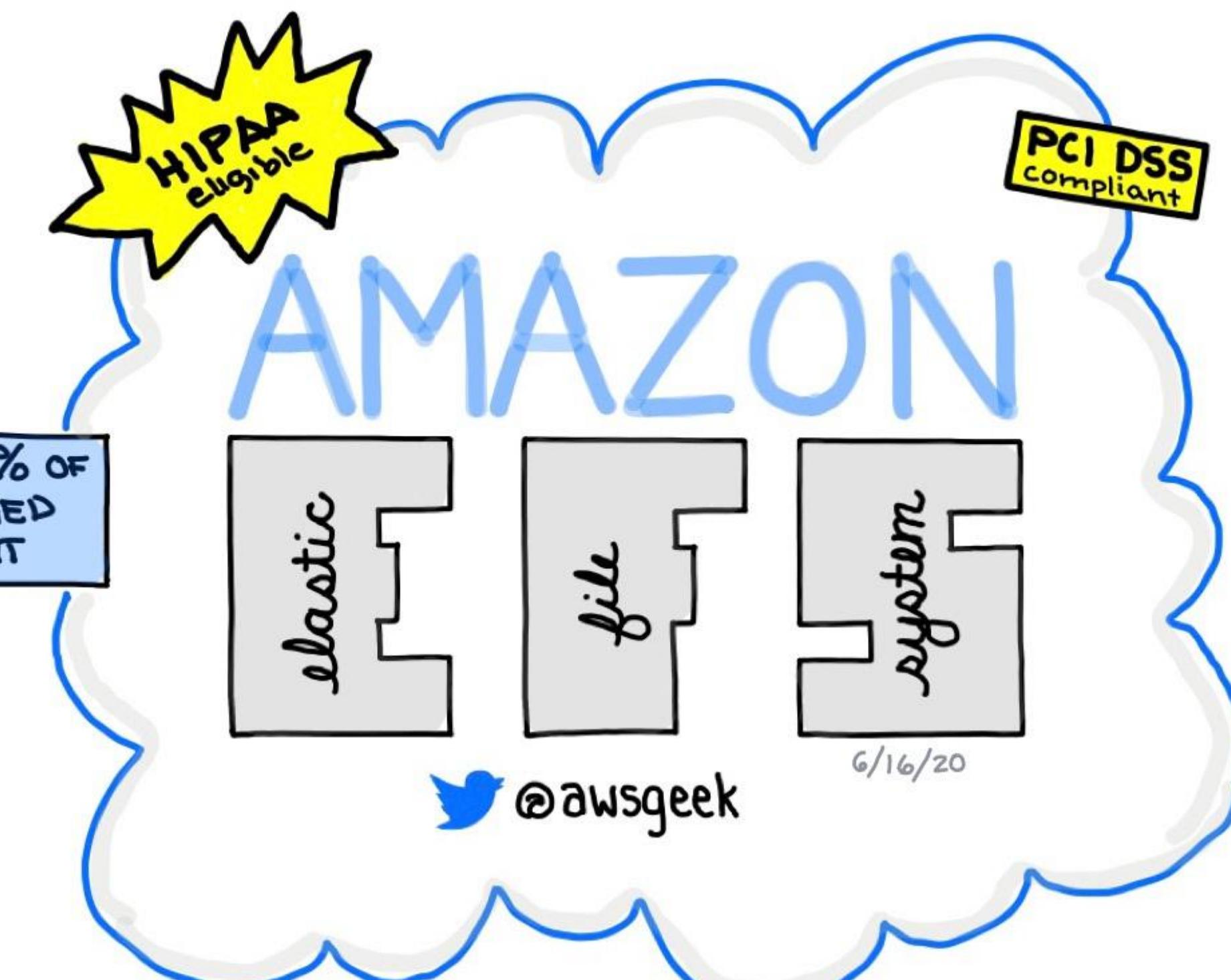
ACCESS  
per GB  
(IA only)

EFS TCO < 50% OF  
SELF-MANAGED  
EQUIVALENT

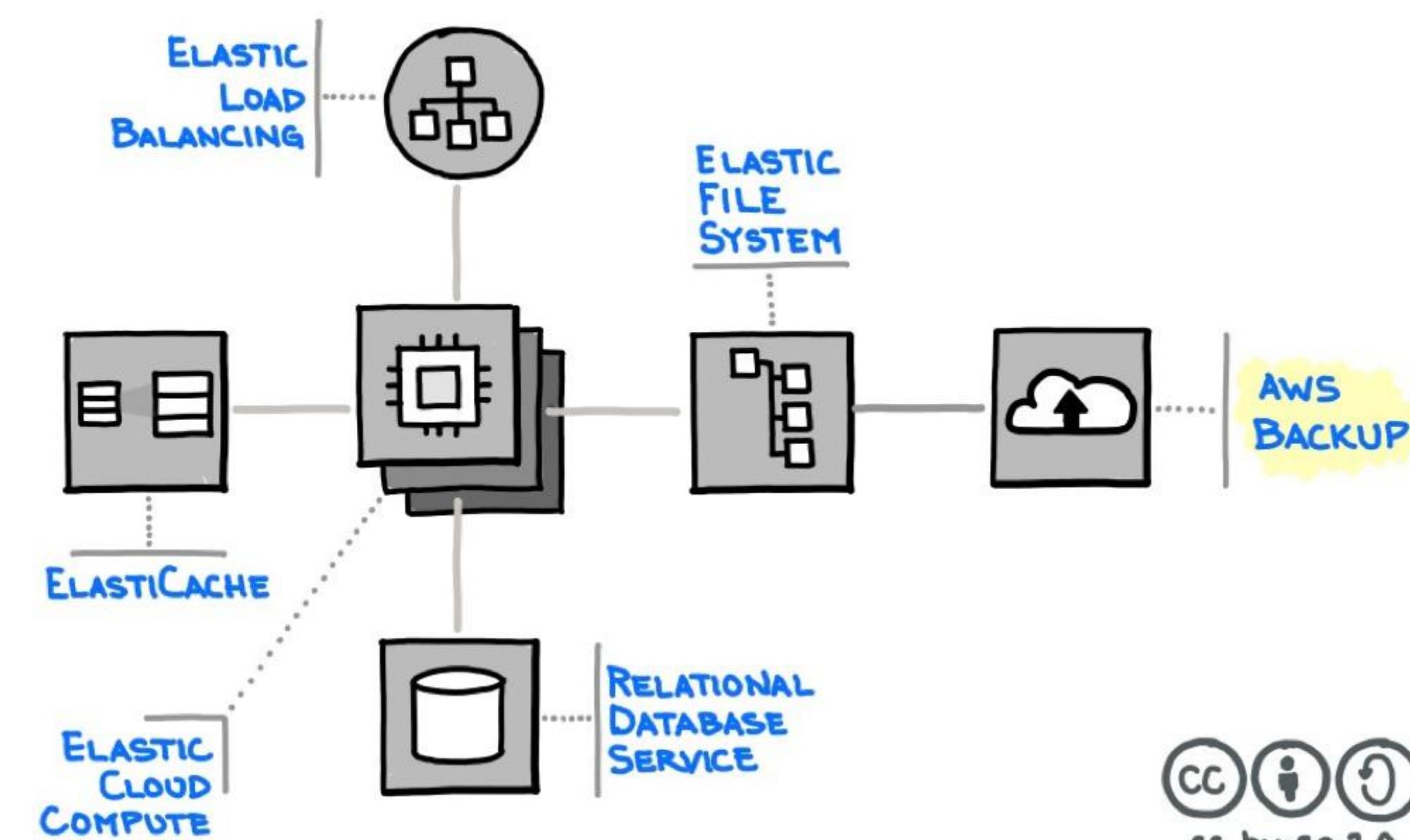
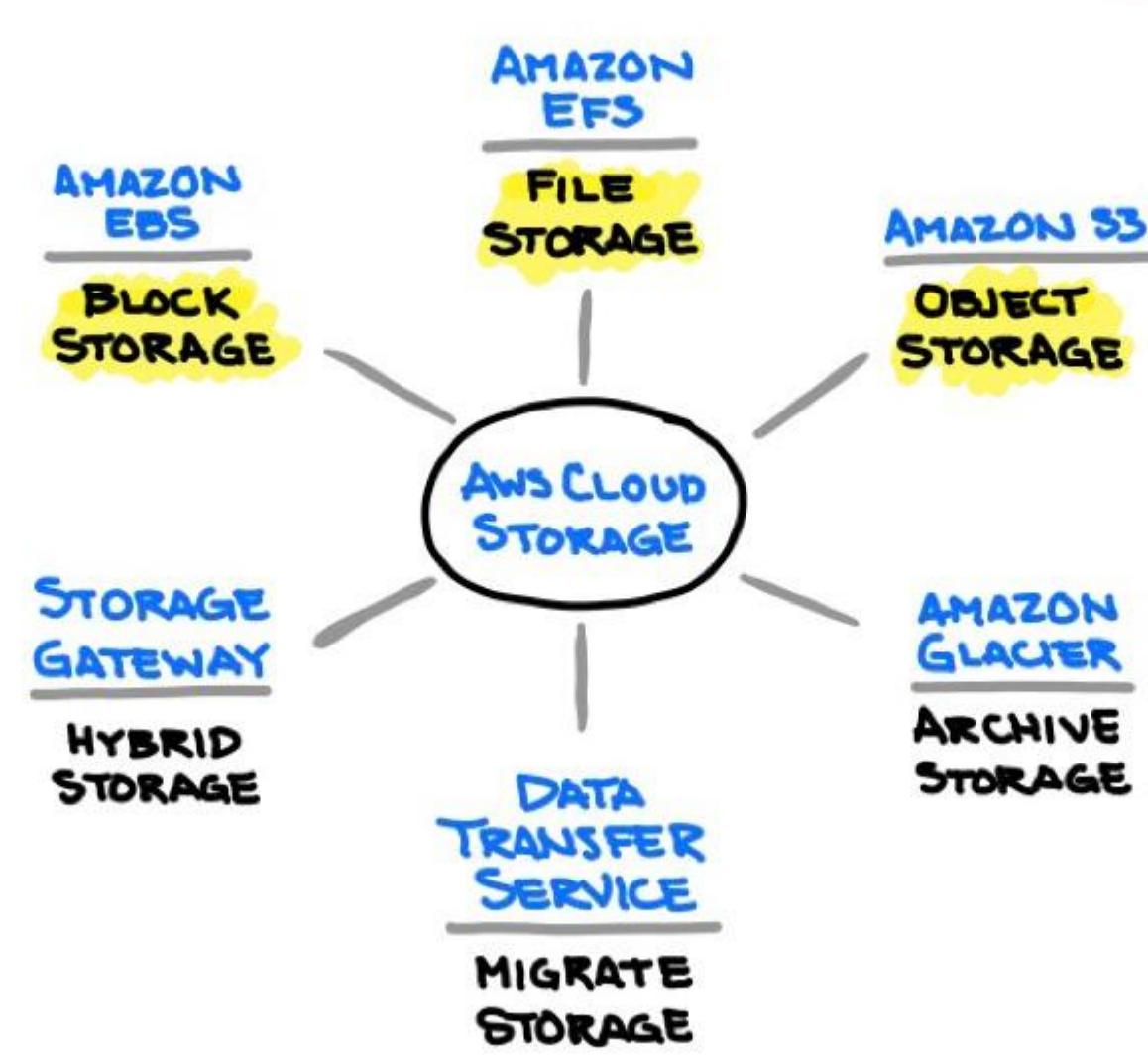
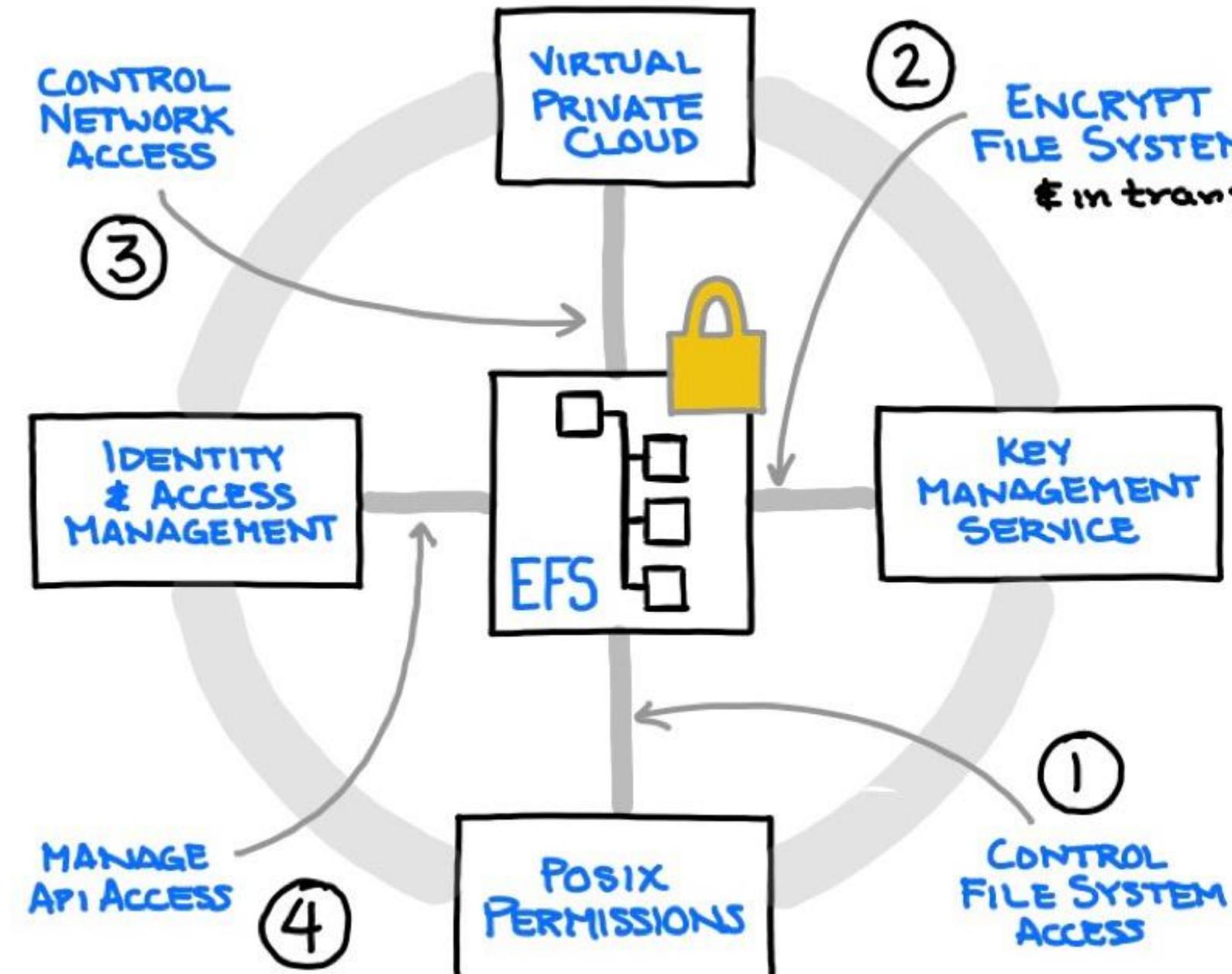
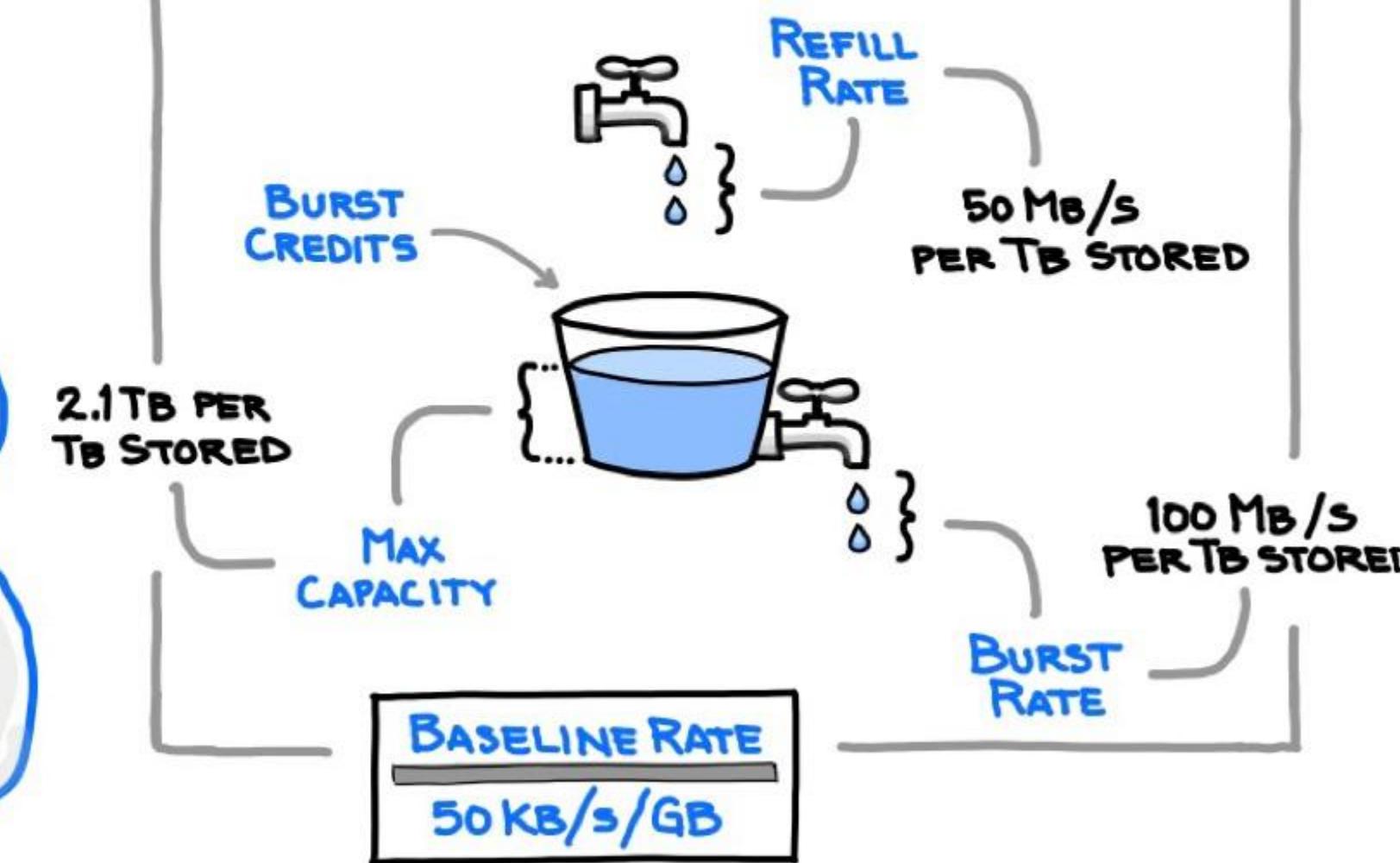
PROVISIONED  
THROUGHPUT

per MB/s/Mo

- No BANDWIDTH FEES
- No REQUEST CHARGES
- 

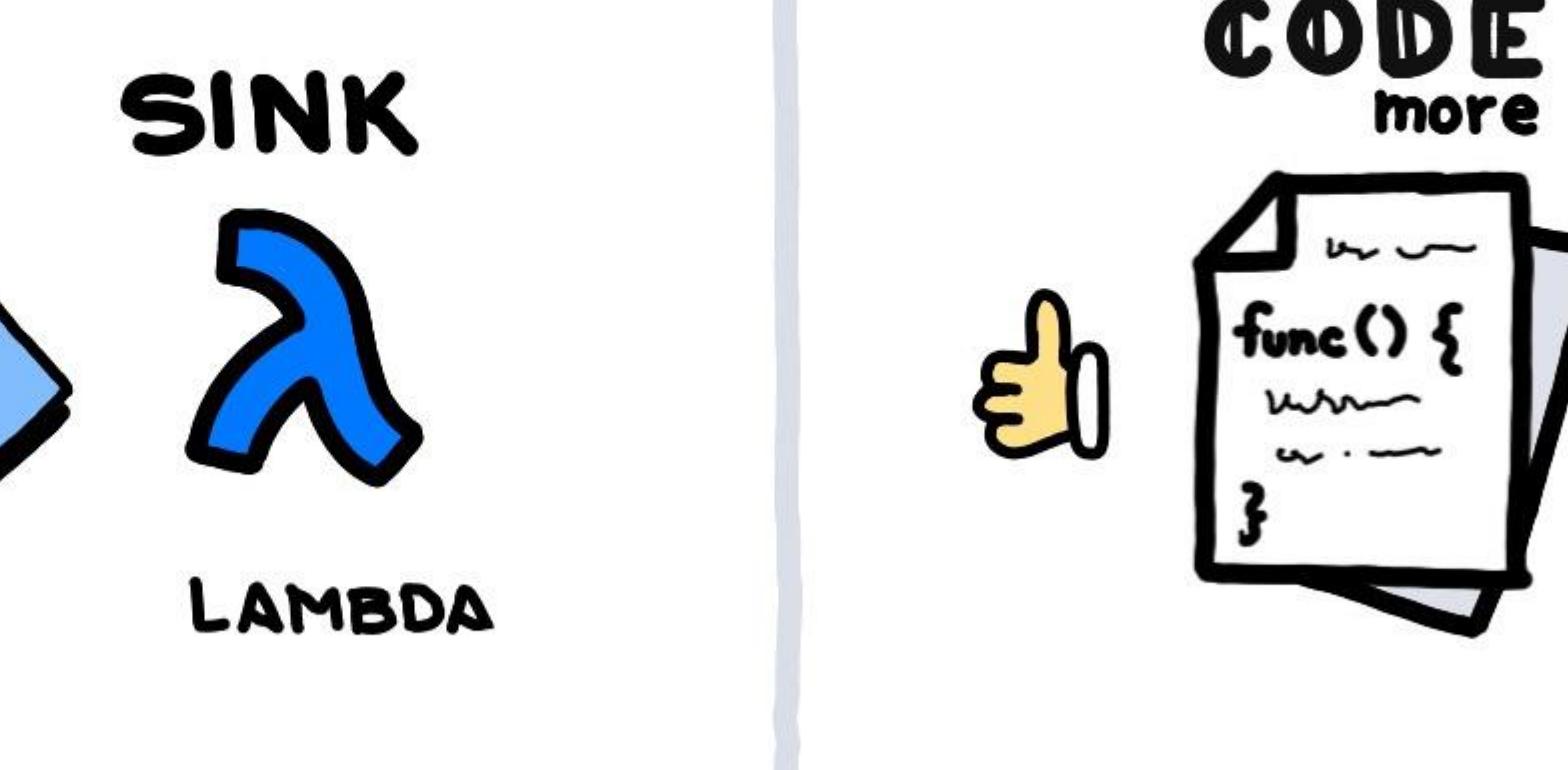
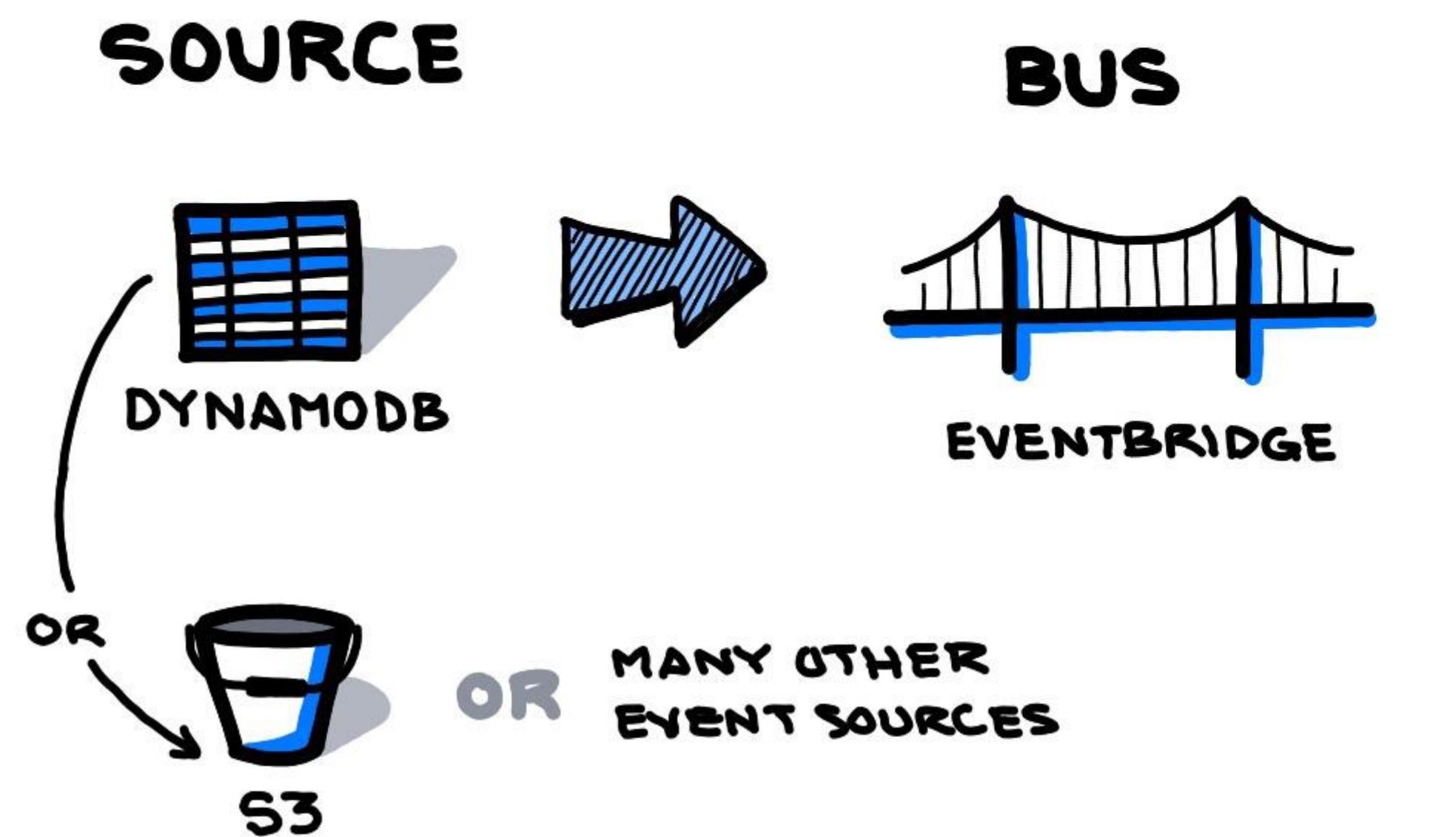


## PERFORMANCE



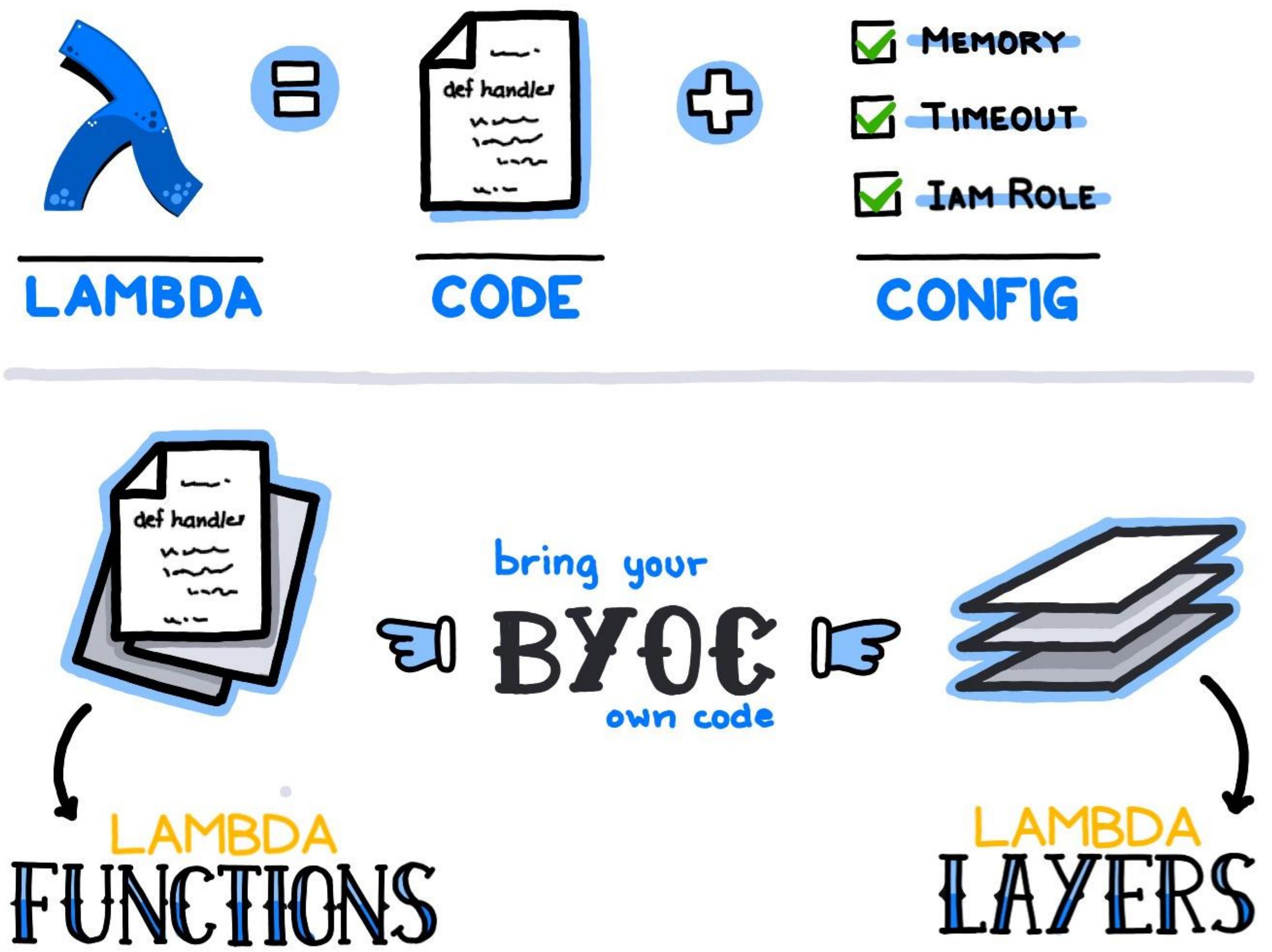
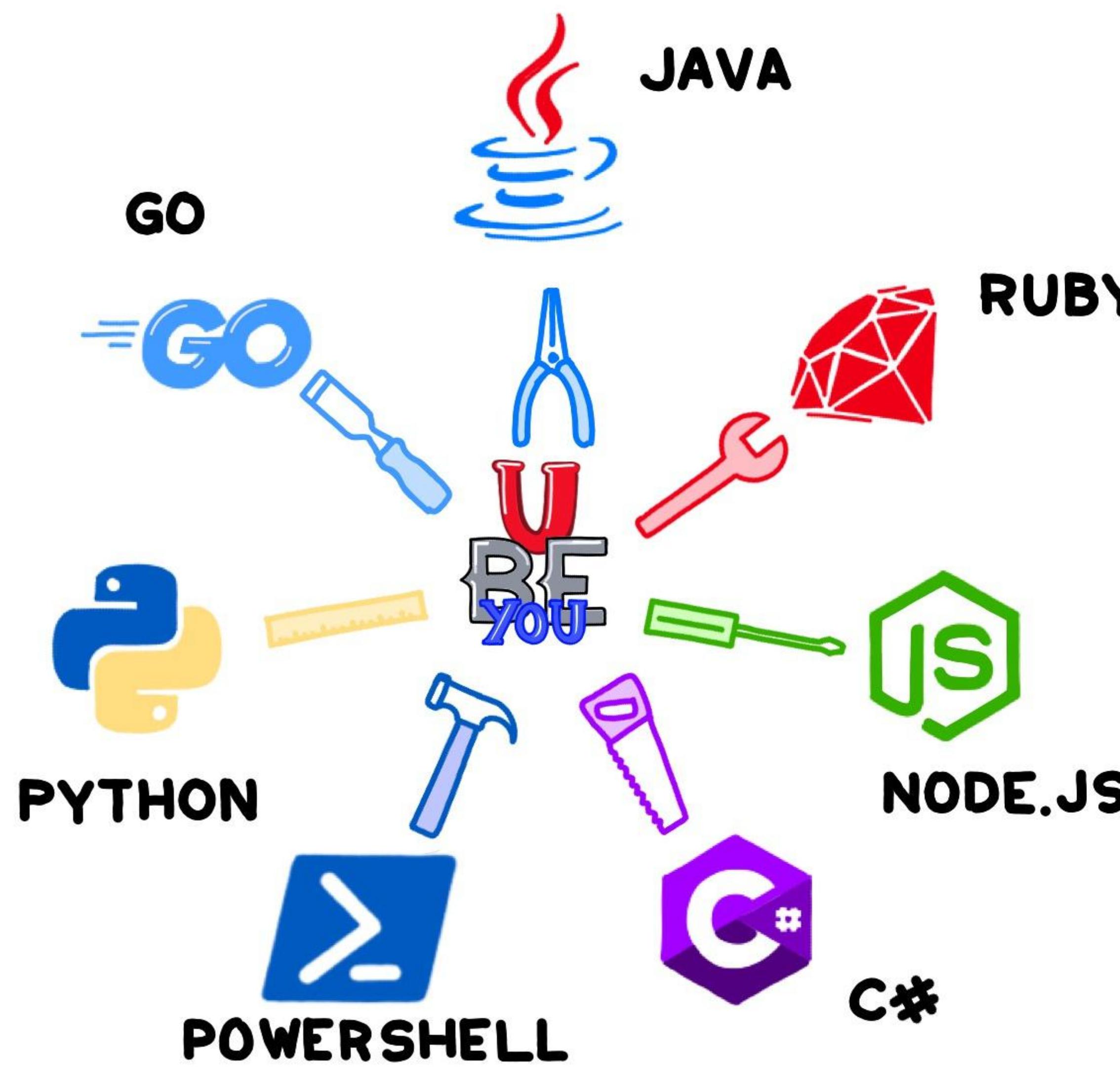
# Event Driven Apps

#serverlessforeveryone



## AWS LAMBDA

4/6/2020



# 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
- 17: 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

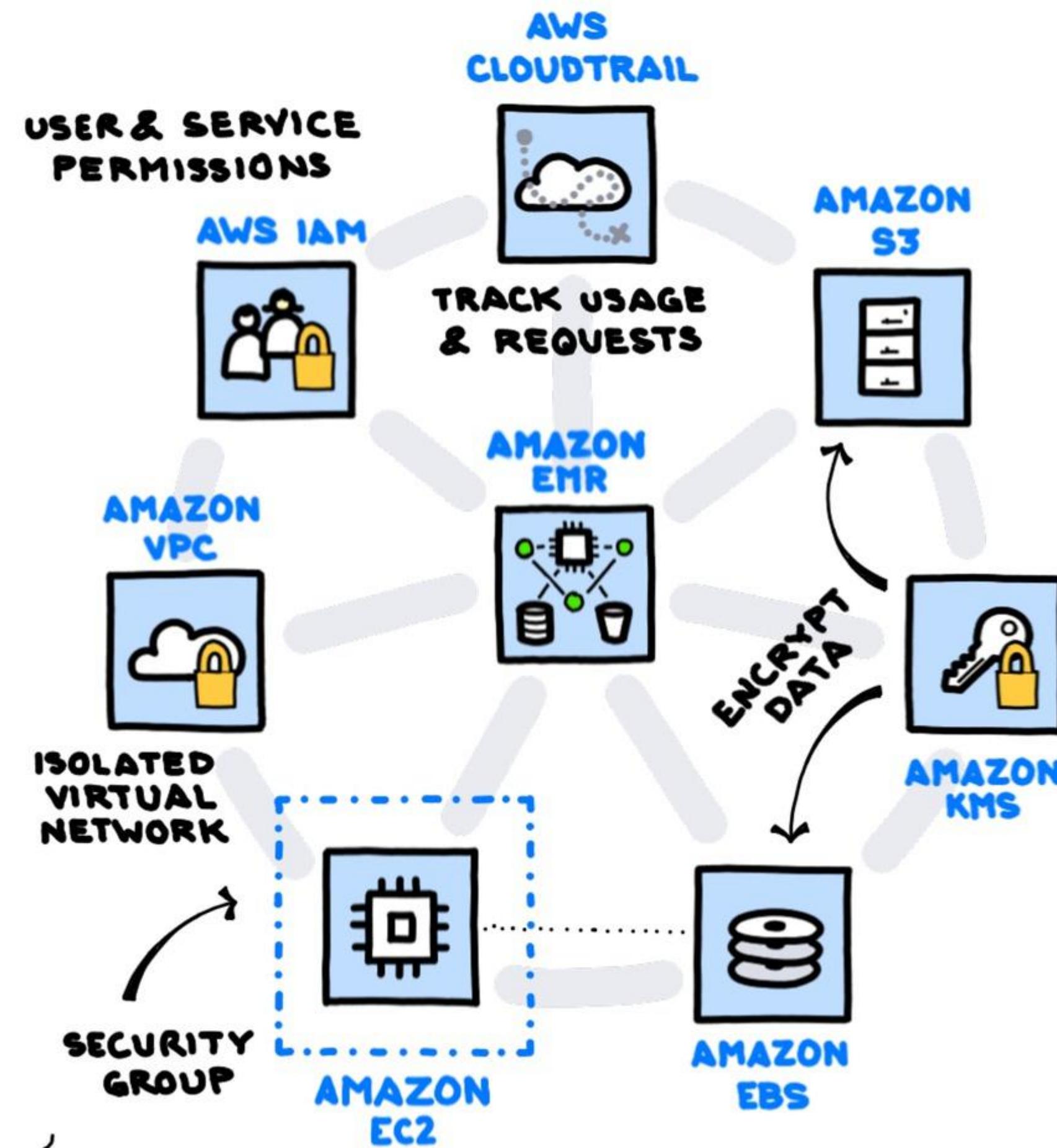
YARN "yet another resource negotiator"

MANAGEMENT

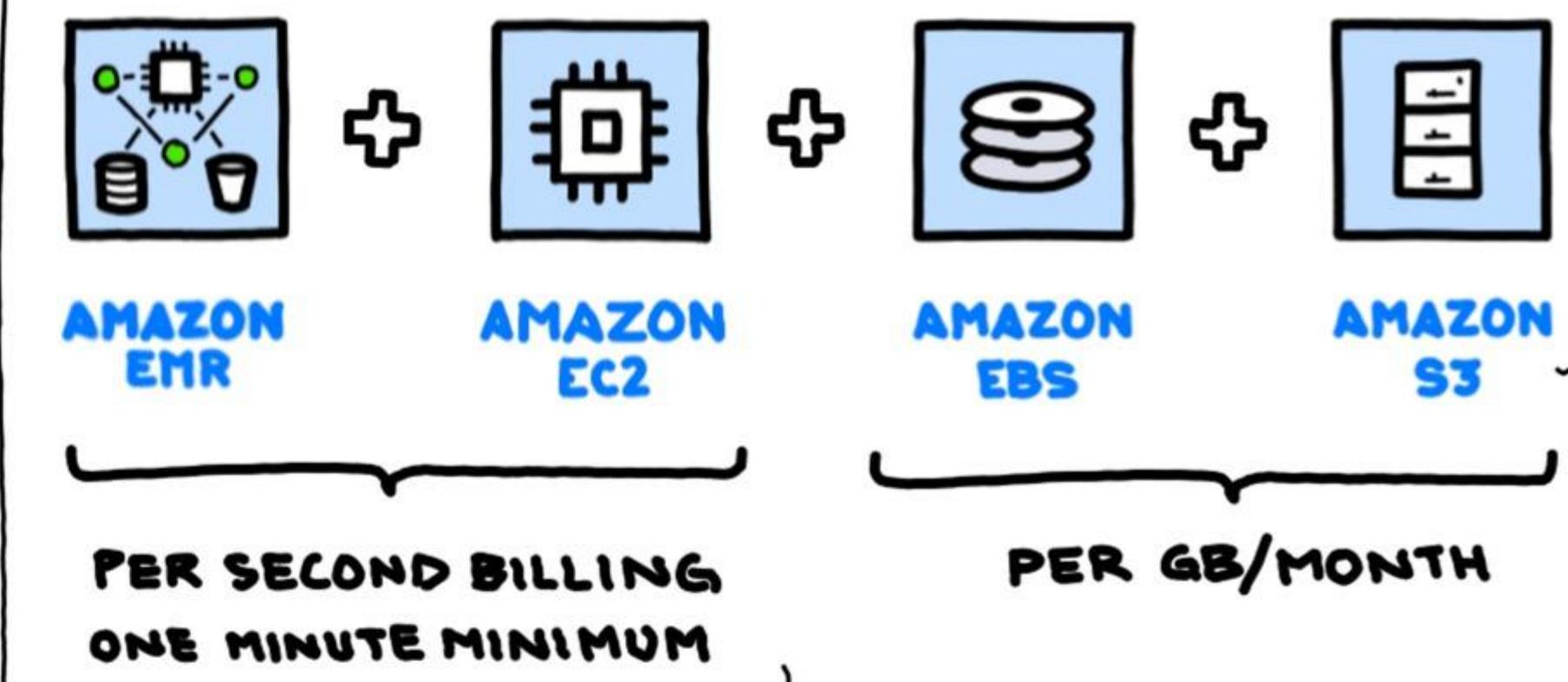
HDFS | EMRFS (S3) | Local Disk (ephemeral)

STORAGE

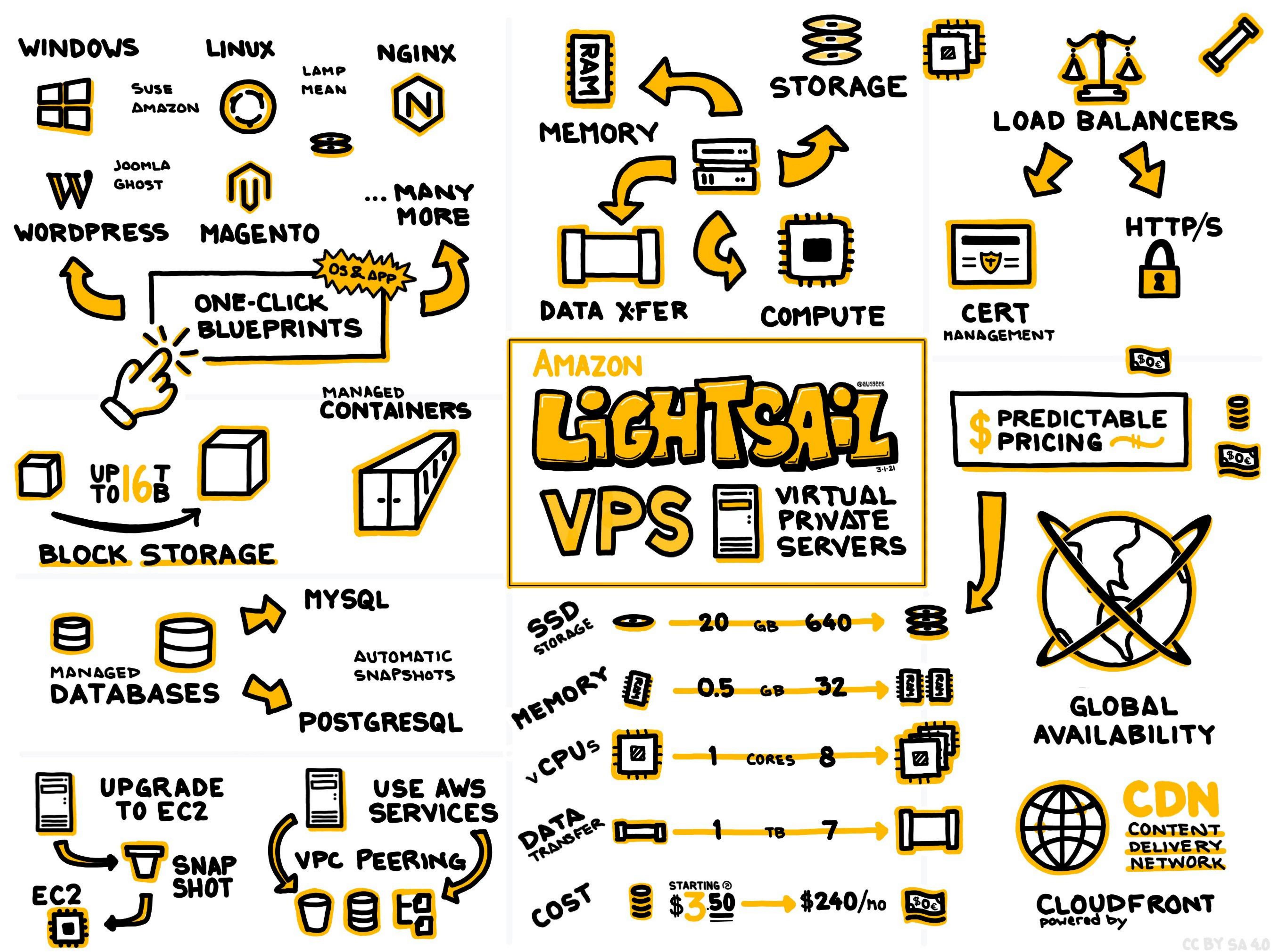
# SECURITY

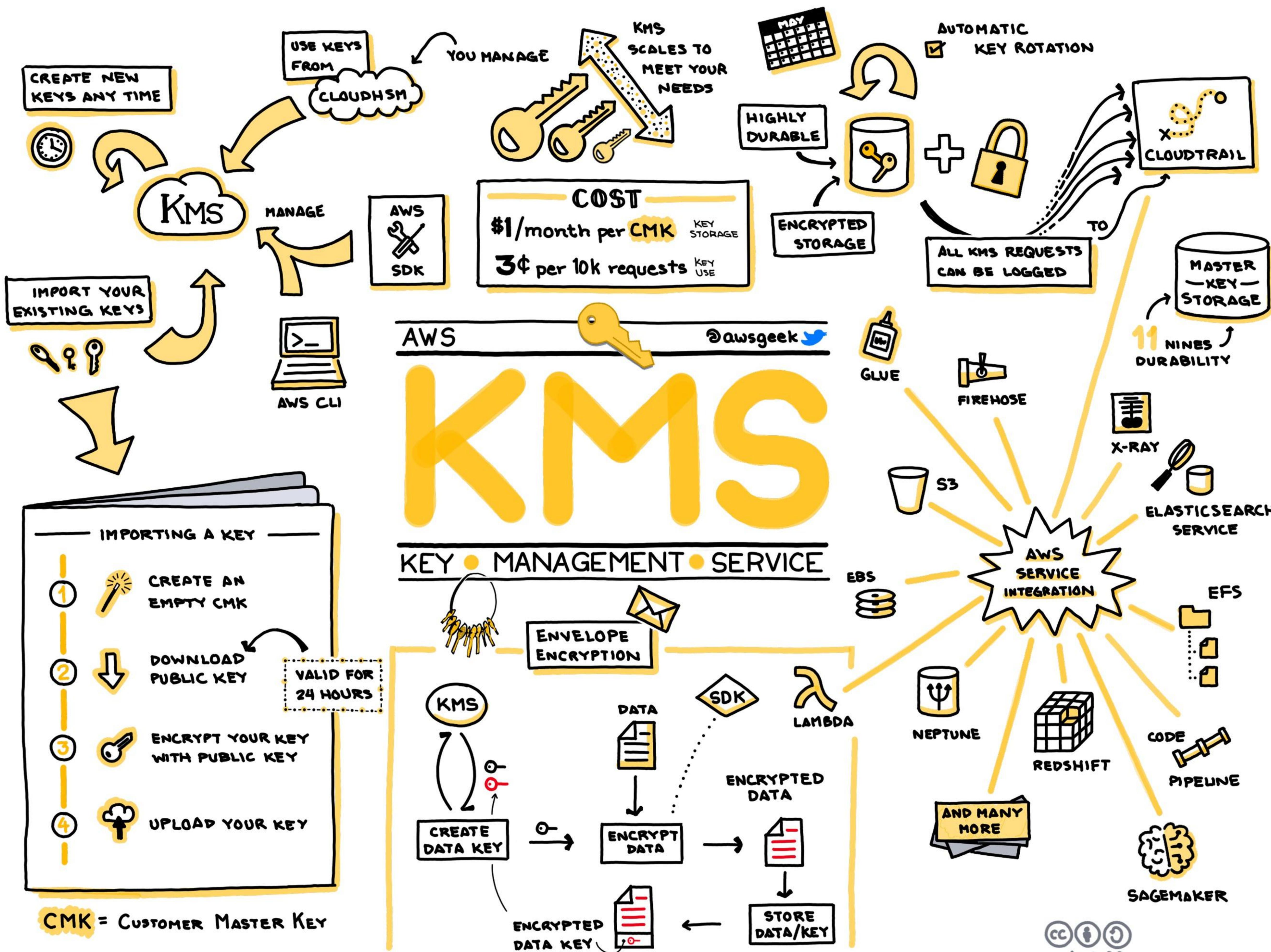


PAY • AS • YOU • GO  
... PRICING ...



use  
**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#

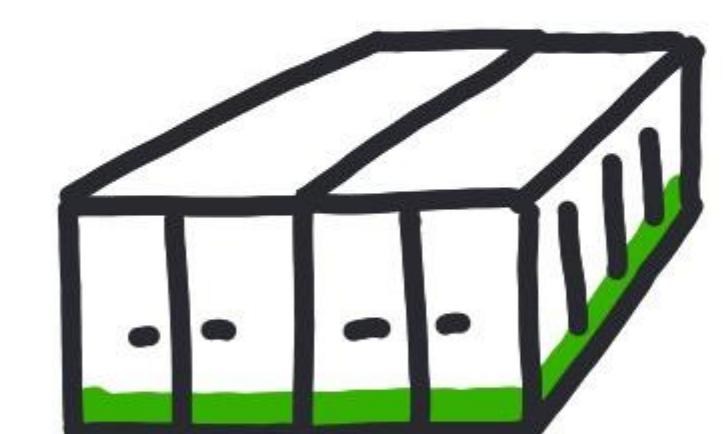


ELASTIC  
BEANSTALK

dotNET



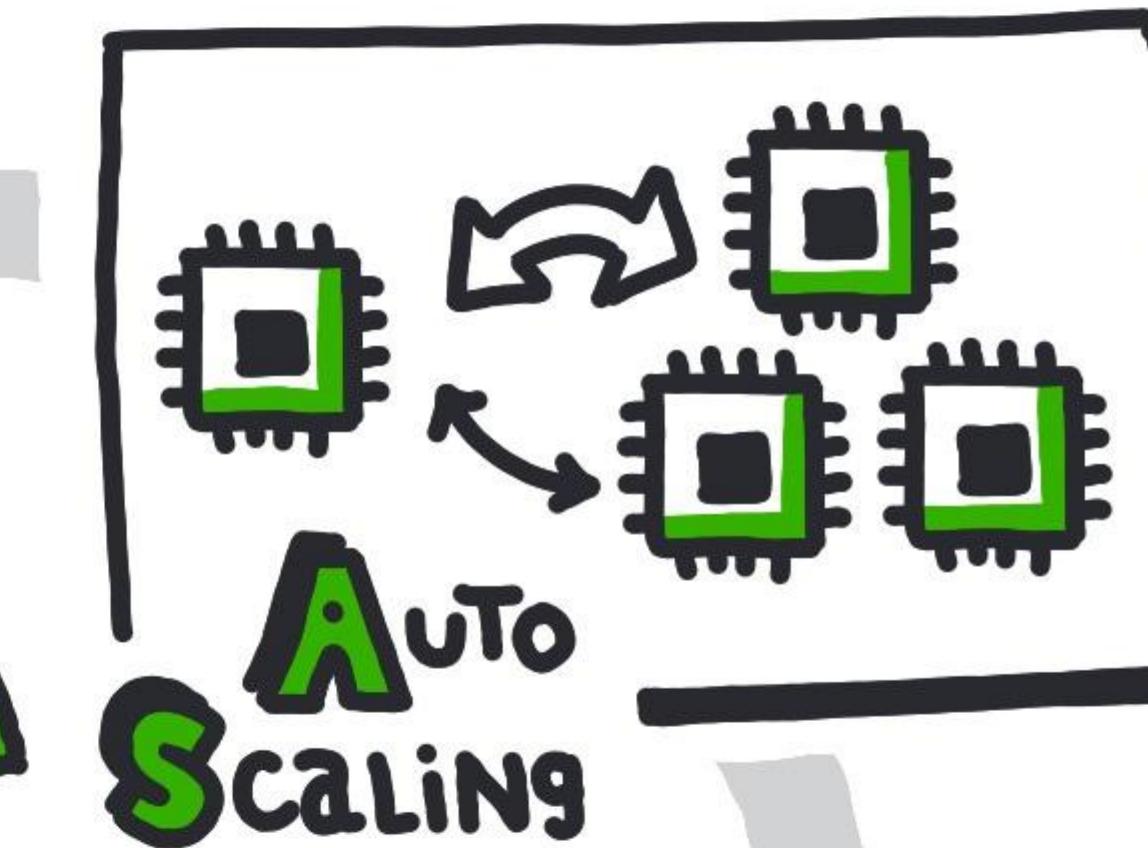
PHP



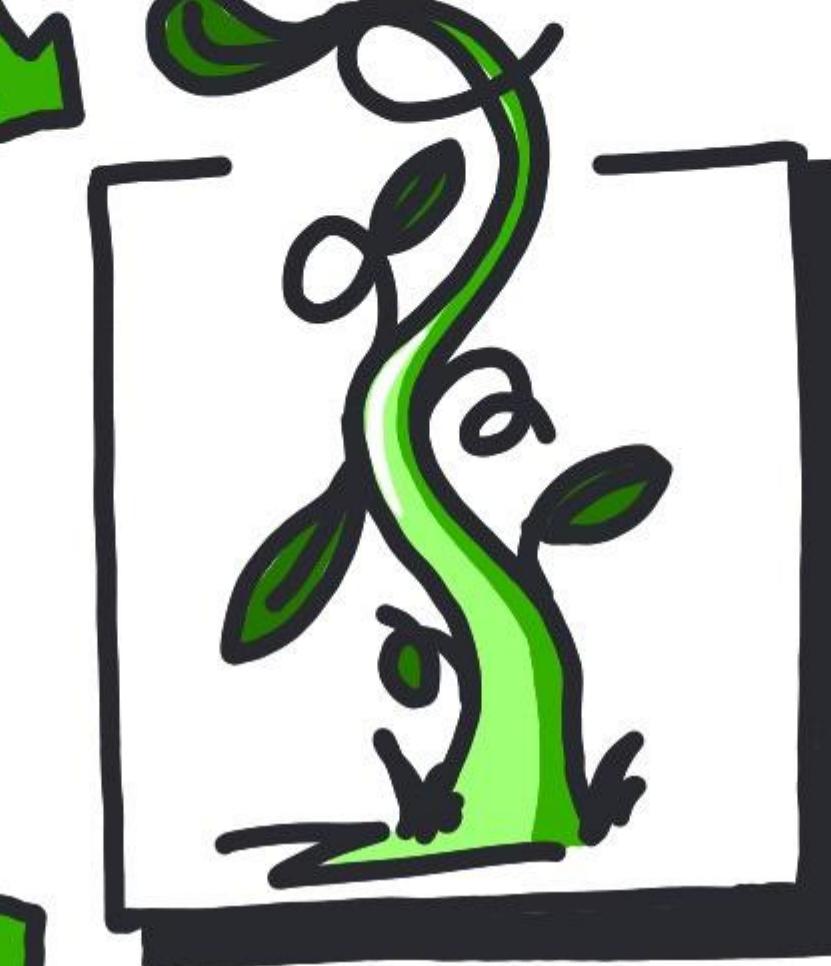
JAVA  
Python

CONSOLE  
SDK  
CLI

ADMIN



△ ELBs  
△ MULTI-AZ



MONITORING



CLOUDWATCH  
ALERTS  
NOTIFICATIONS

## DOMAIN



PACKAGE  
STORAGE

## REPOSITORY



PACKAGE  
VERSIONS

## PACKAGE

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

## ASSET



FILE

aws

# CodeArtifact

• SOFTWARE • ARTIFACT • REPOSITORY •

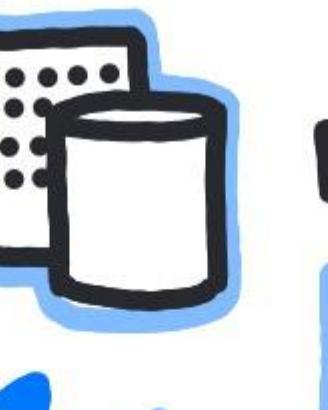
SECURE, SCALABLE, & COST EFFECTIVE ARTIFACT MANAGEMENT FOR SOFTWARE DEVELOPMENT

Maven

Central

NuGet.org

npm



PyPI



Public Repos



AWS KMS  
ENCRYPTION

AWS  
Code  
Artifact

- AWS Managed -  
Centralized  
Repository

Maven

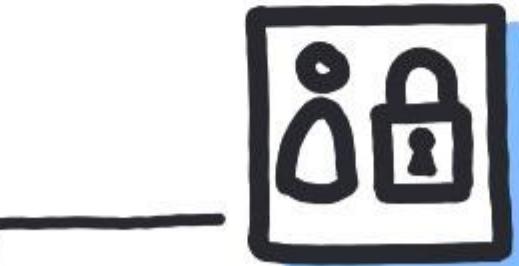
Gradle

NuGet

npm

twine

pip



AWS  
IAM  
RESOURCE  
PROTECTION



Development  
Teams

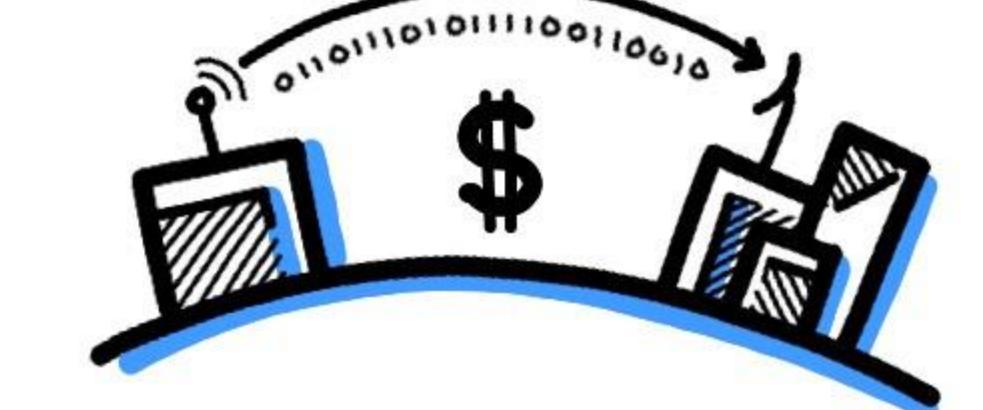
CI/CD  
Systems

## PAY-PER-USE



\$  
BYTES  
STORED

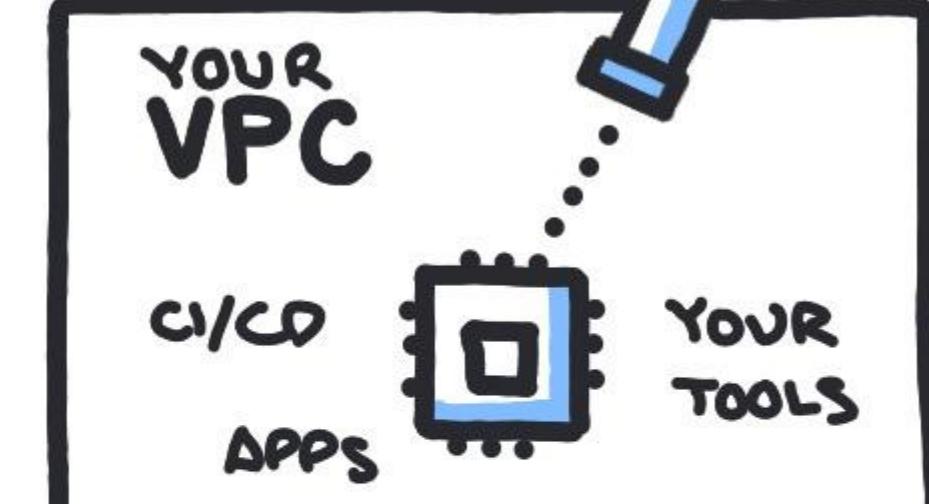
DATA TRANSFER  
out of Region



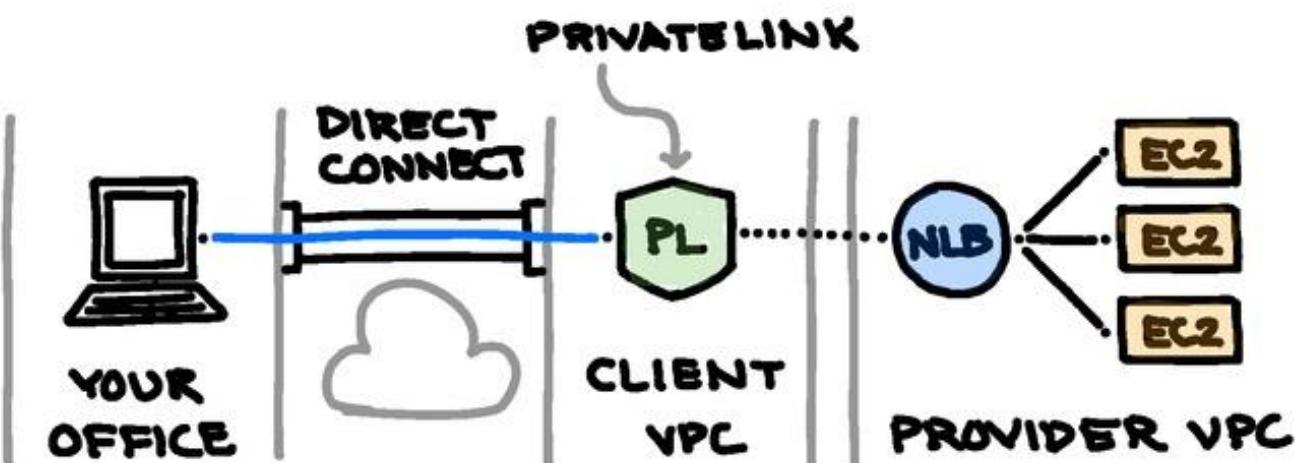
\$  
API  
CALLS  
007



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

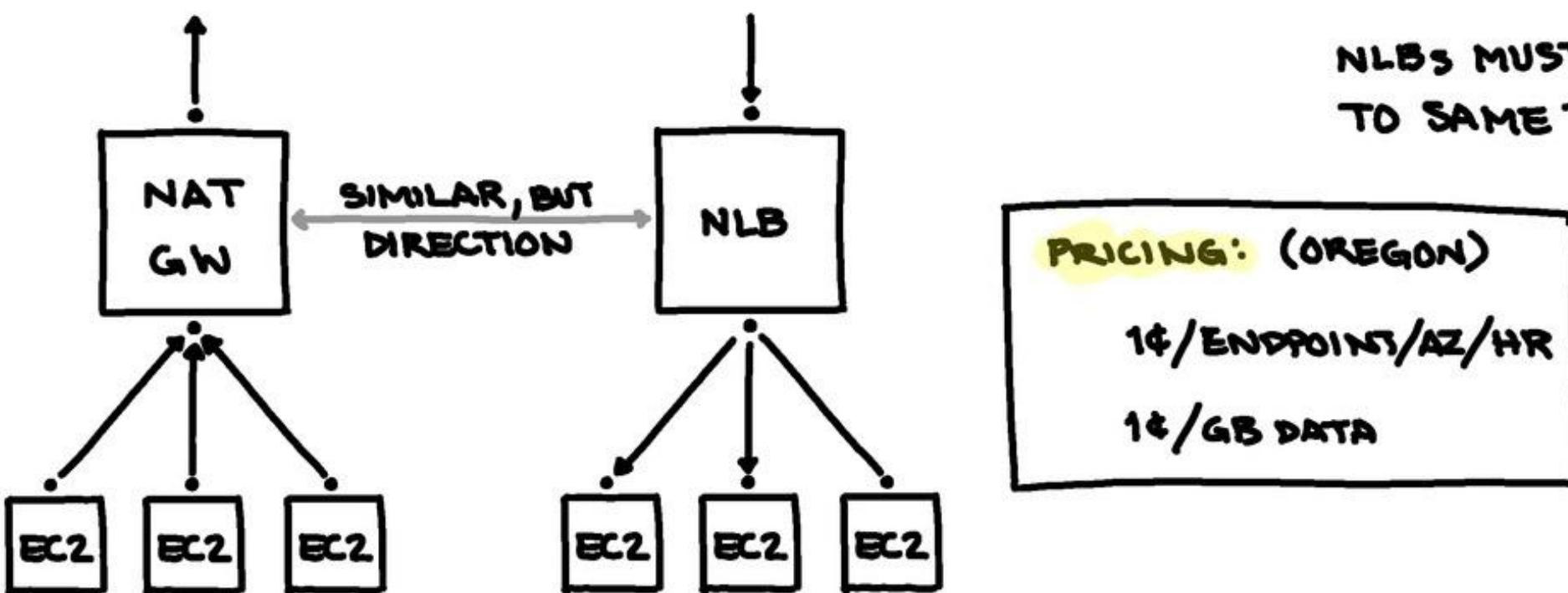
BOTH REGIONAL & ZONAL DNS NAMES

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

MY 'A' MAY NOT BE YOUR 'A'

## HYPERPLANE NODES

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



### 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

SINGLE-TENANT MODE

MULTI-TENANT MODE

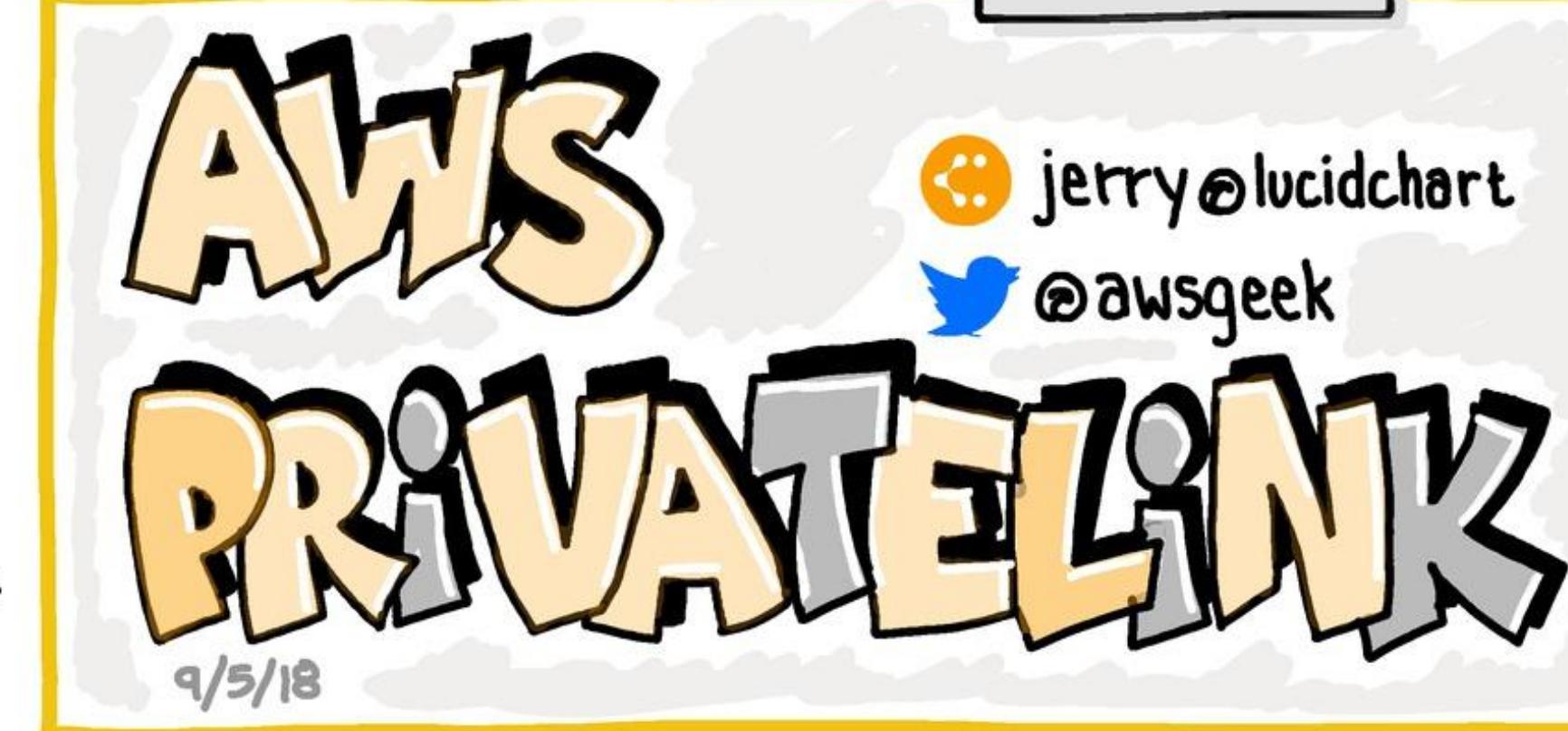
### HOW TO DIFFERENTIATE TRAFFIC?

- 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

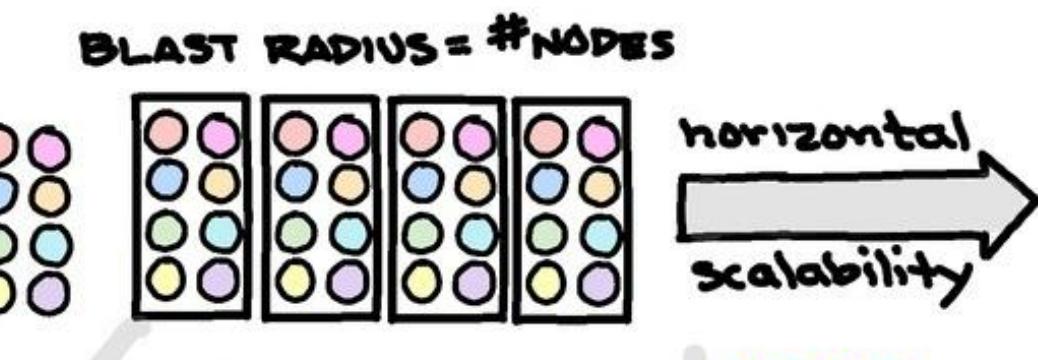


SHARED,  
MULTI-TENANT

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

CUSTOMER

GOOD



CASCADING FAILURES  
OR NOISY NEIGHBORS

IMPACT  
EVERYONE

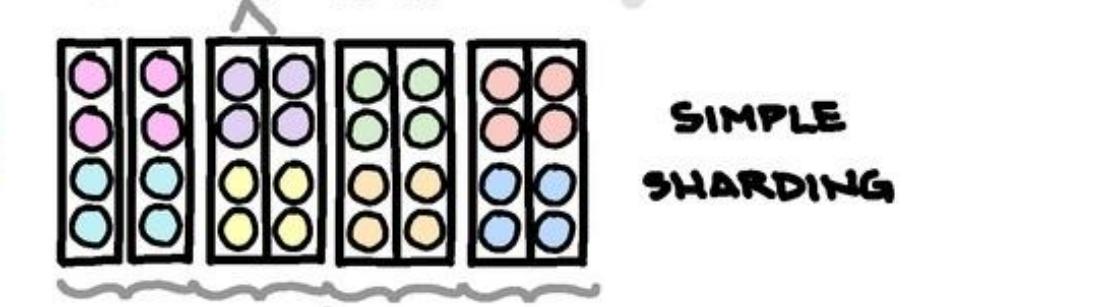


NAT GW MUST ENSURE ALL CONNECTIONS TO DEST  
IP/PORT COME FROM UNIQUE SOURCE PORT

NLB'S MUST SELECT & ROUTE CONNECTIONS  
TO SAME TARGET

REAL TIME, DISTRIBUTED  
CONSENSUS PROBLEM

BETTER



each shard has  
#C customers  
reduces blast radius

minimize  
blast radius

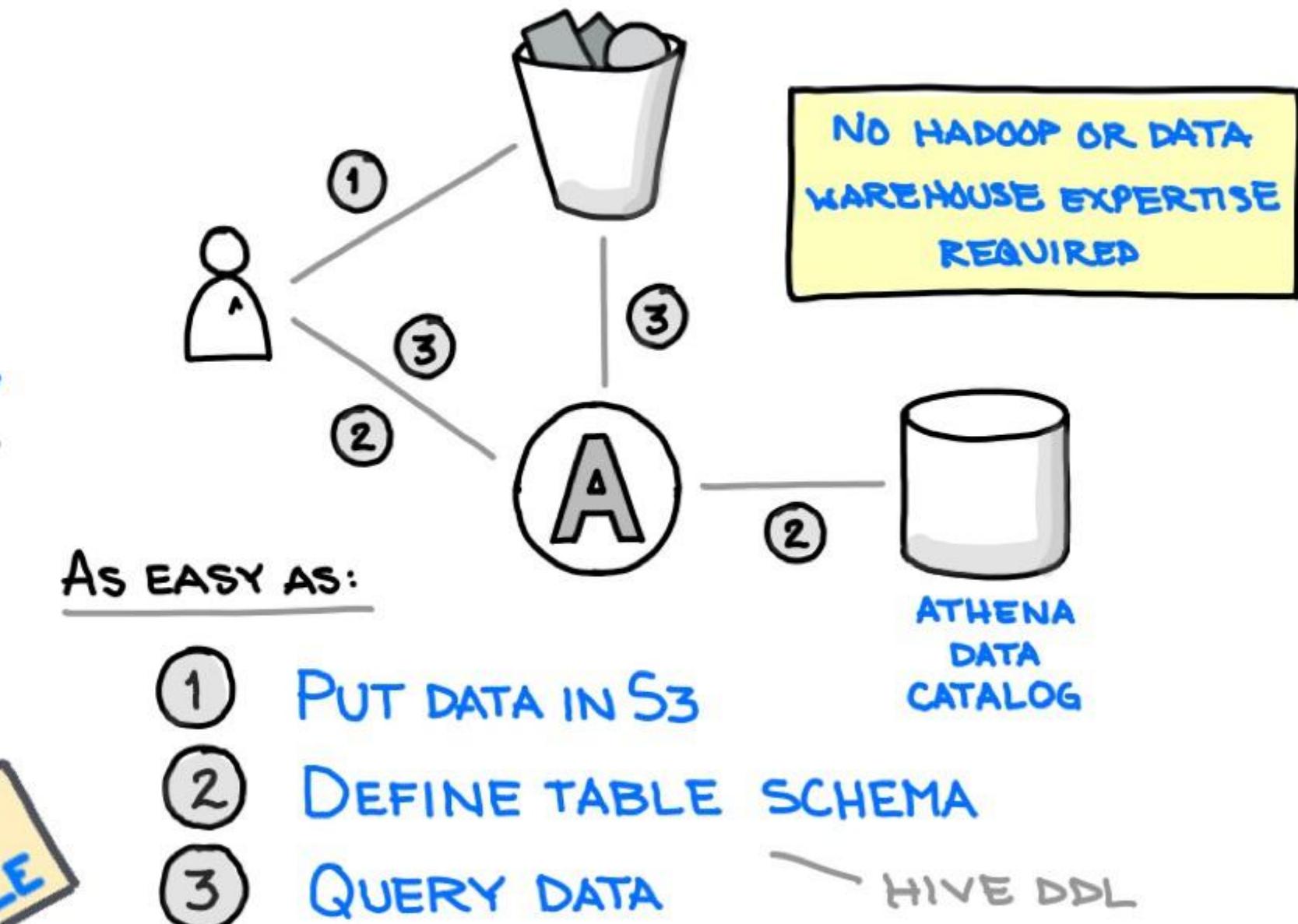
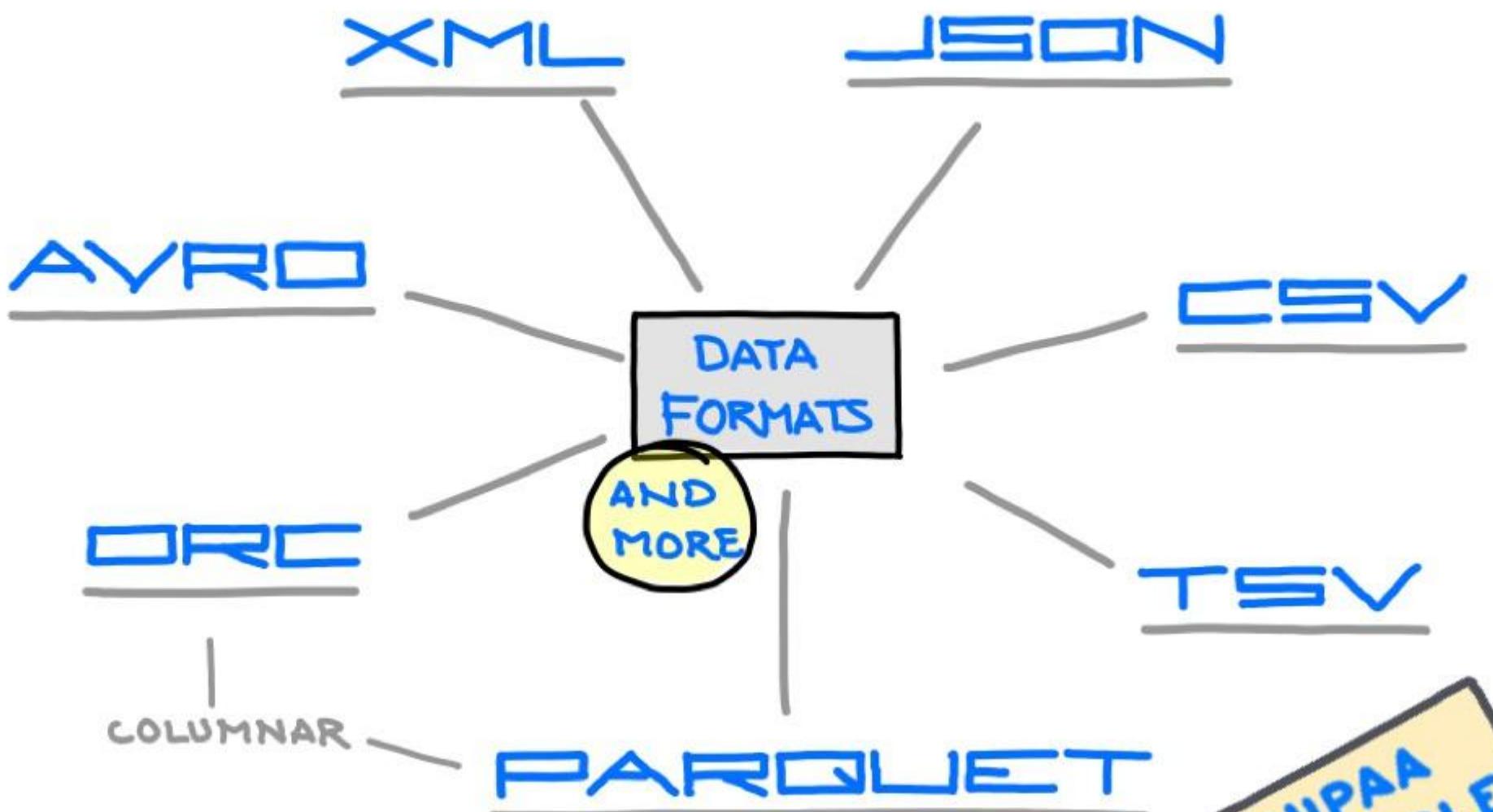
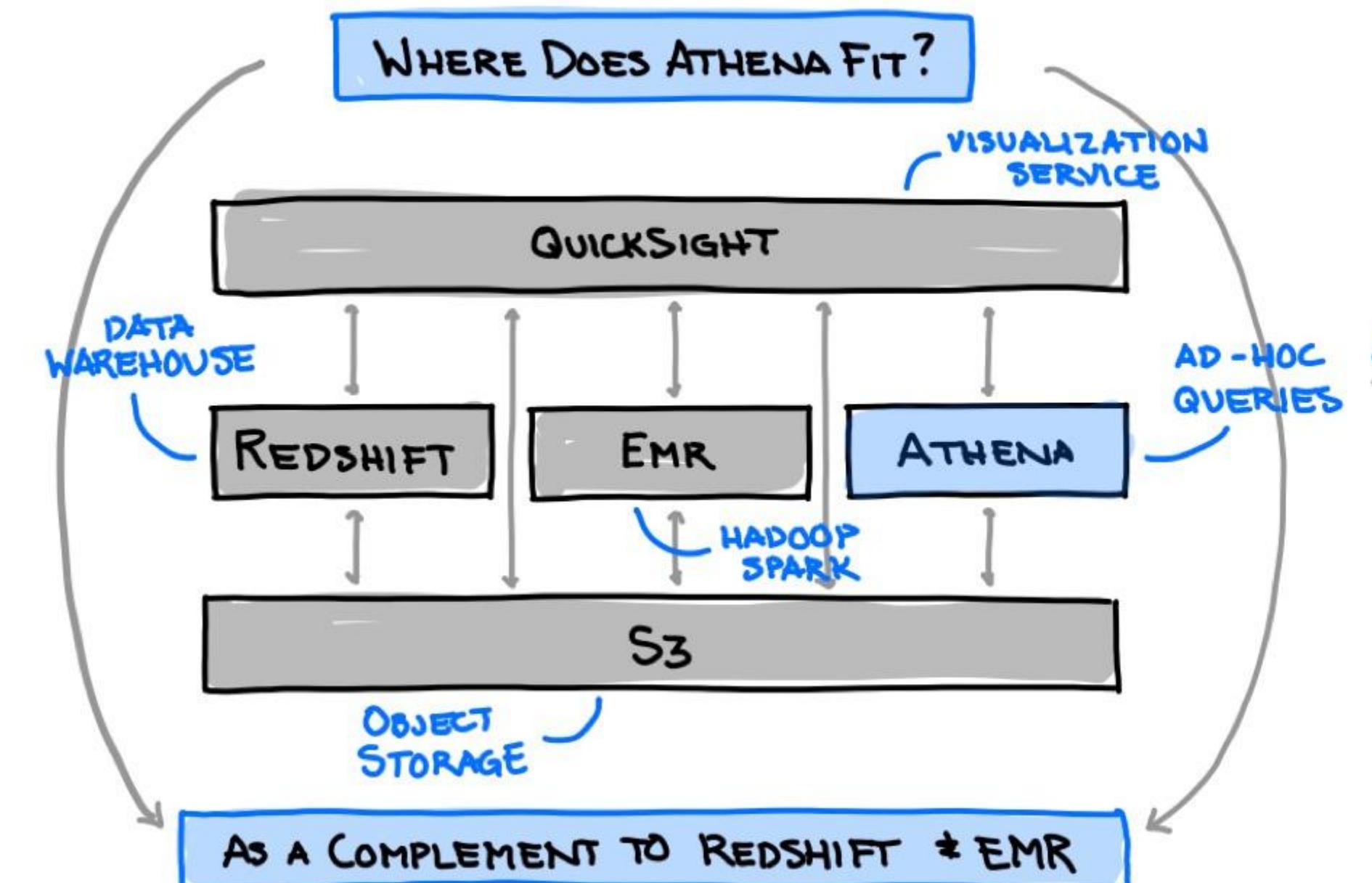
SHUFFLE  
SHARDING

### DEALING WITH NOISY NEIGHBORS? SHUFFLE SHARDING

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

requires fault  
tolerant client



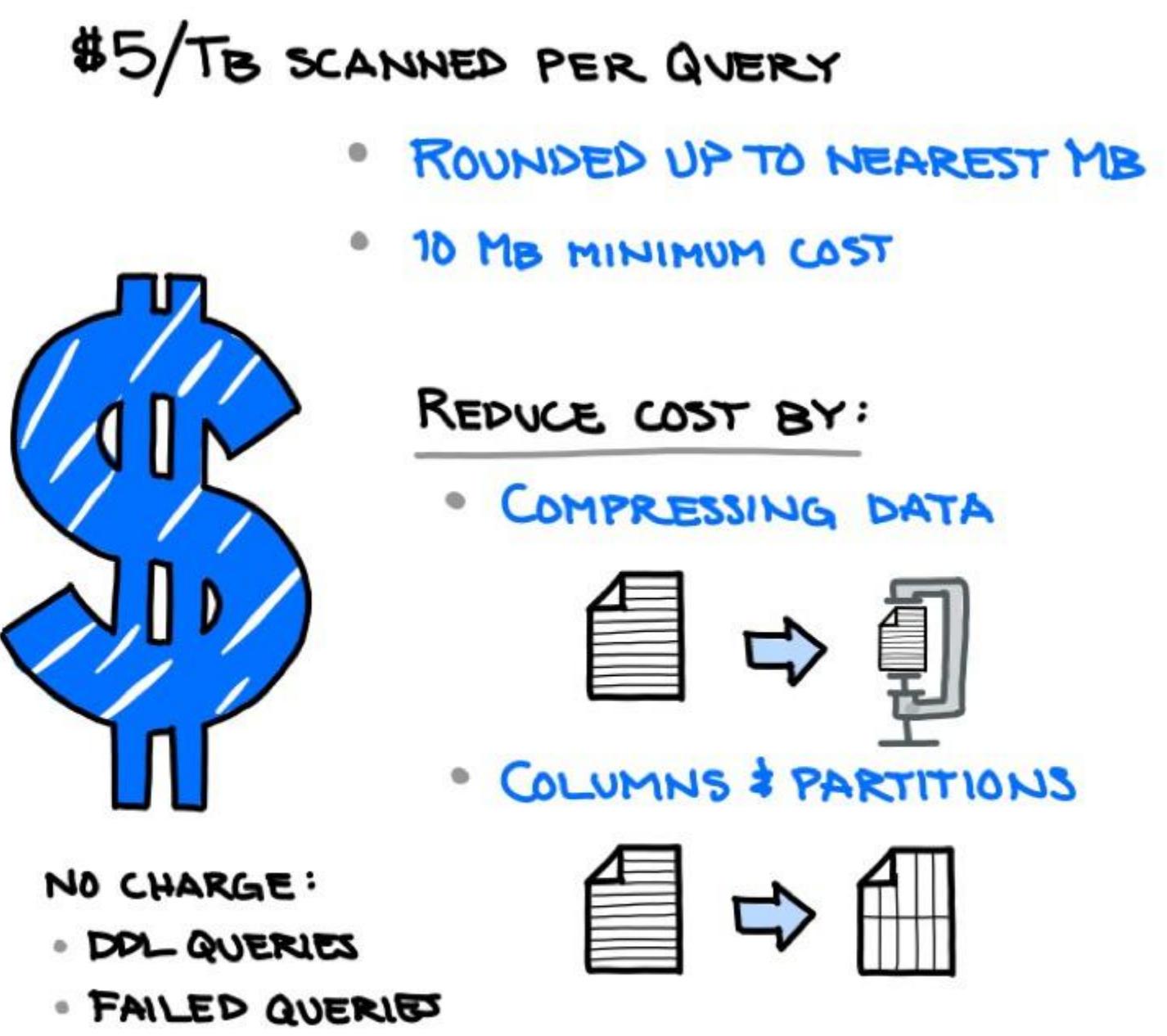
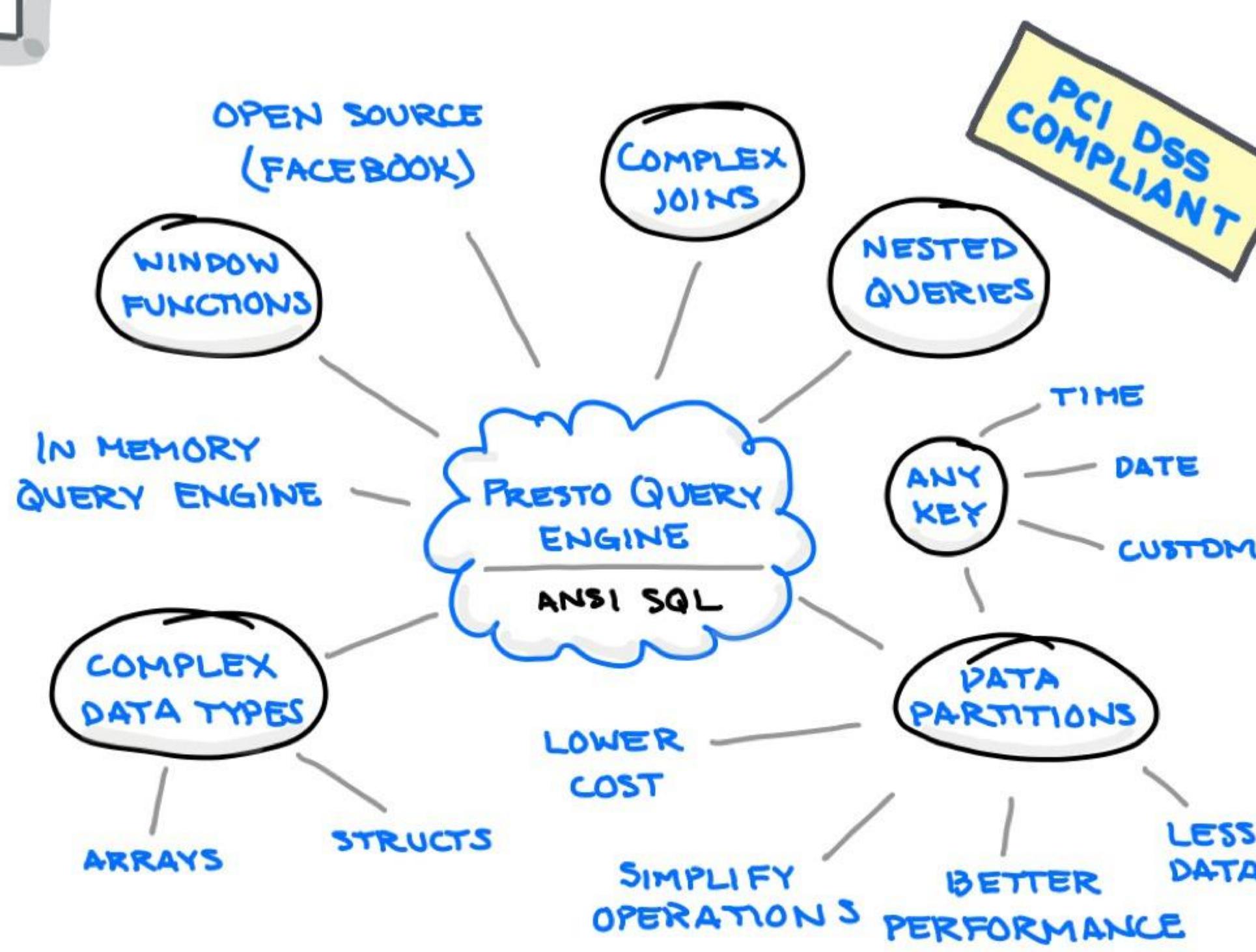
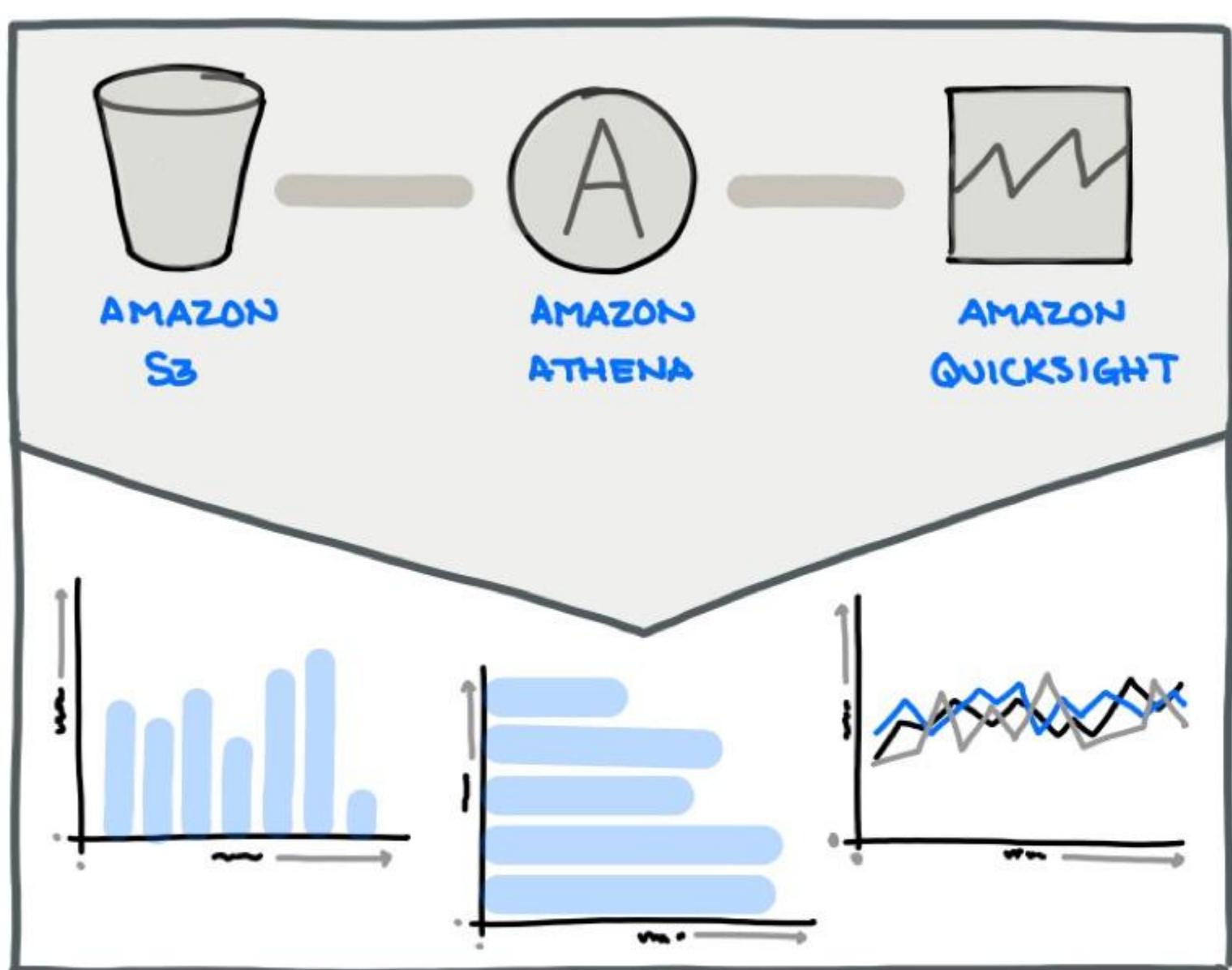
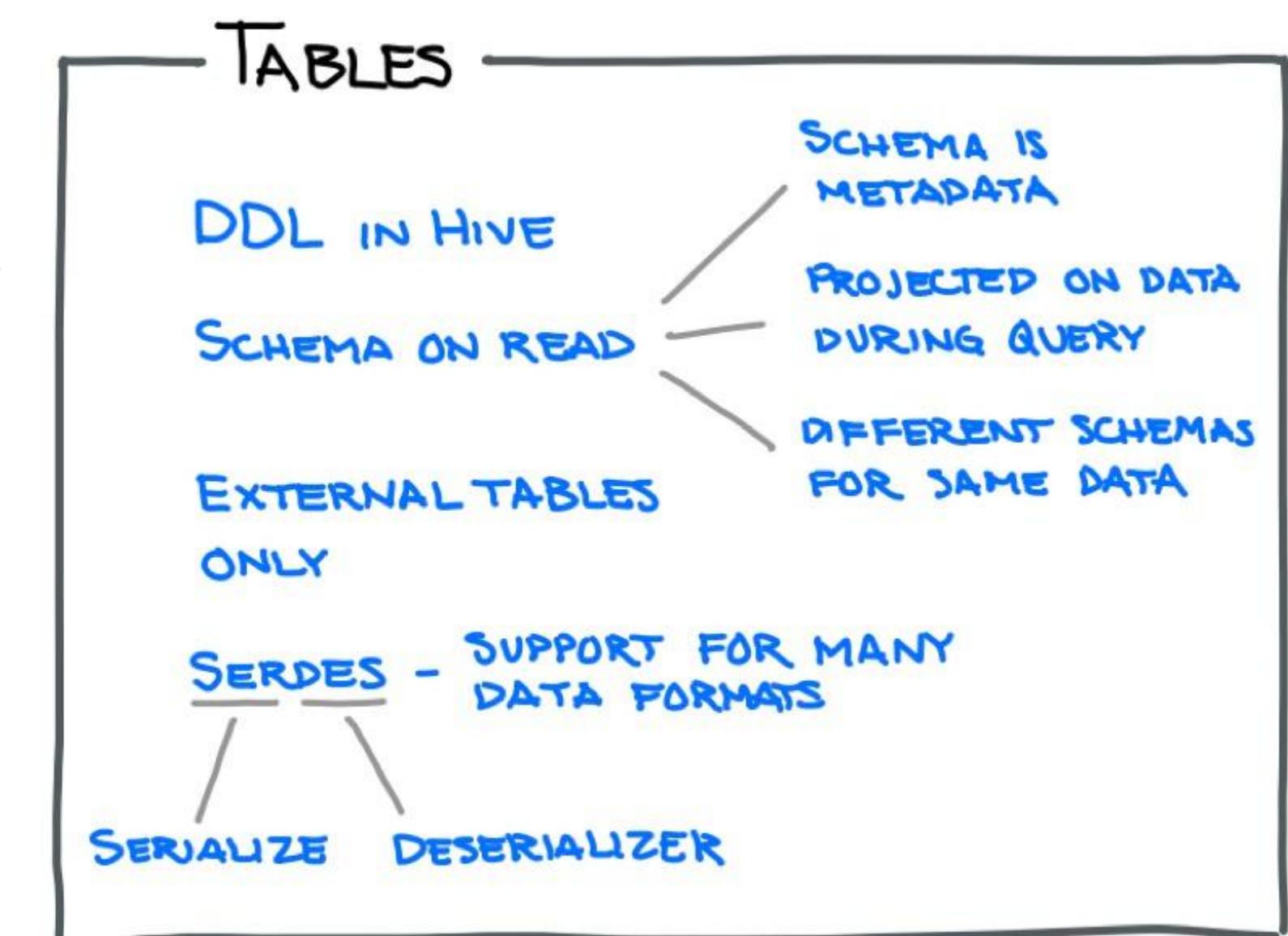


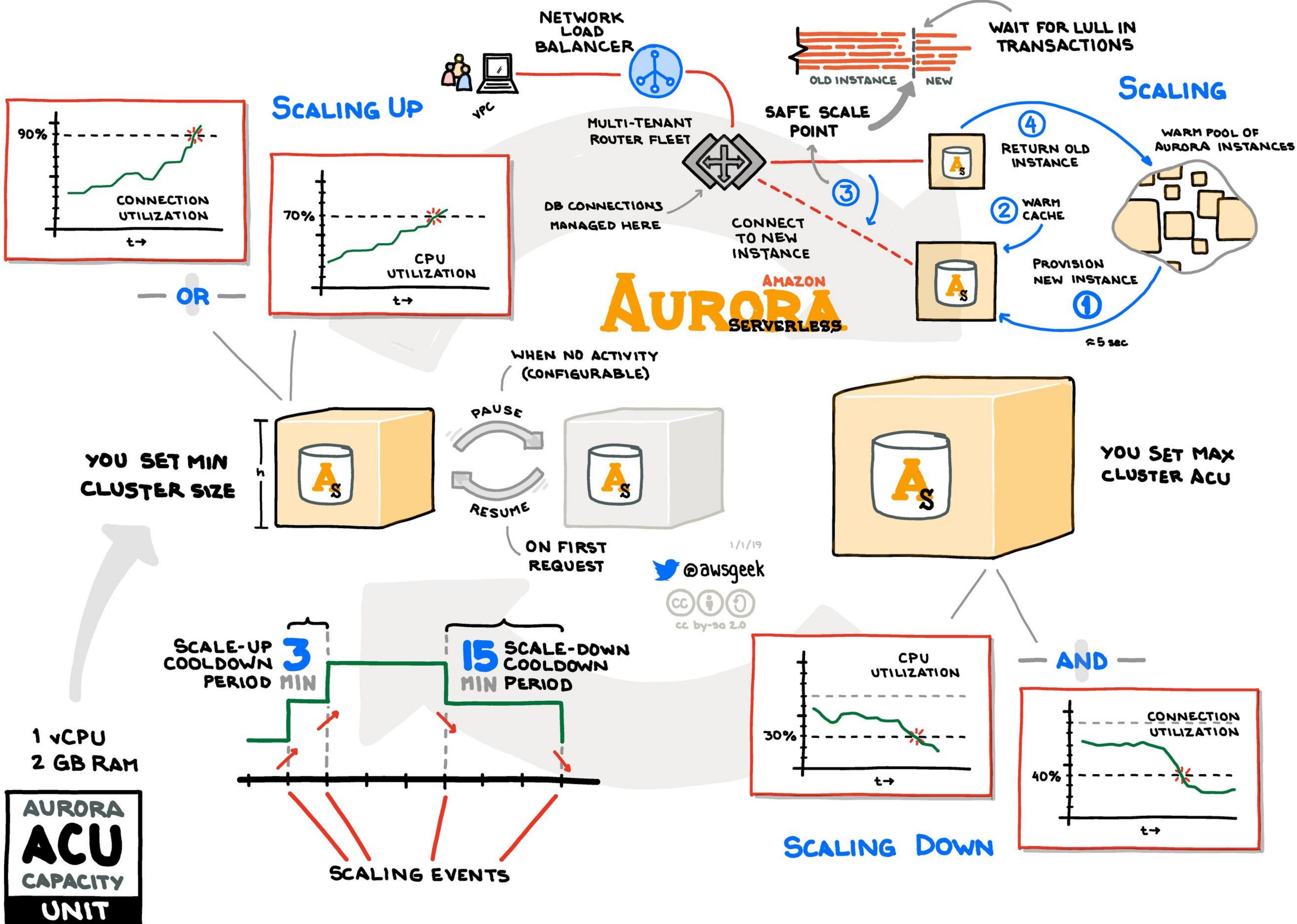
<b>SERVERLESS</b>	<b>HIGHLY AVAILABLE</b>
NO INFRA OR ADMIN	WARM COMPUTE POOLS
NO SPIN UP TIME	DATA IN S3
NO MAINTENANCE	MULTIPLE AZ
<b>CONVENIENT</b>	<b>PERFORMANT</b>
NO DATA LOADING	AUTO PARALLELIZATION
NATIVE DATA FORMATS	STREAMING RESULTS
NO ETL INVOLVED	COMPRESS / COLUMNAR

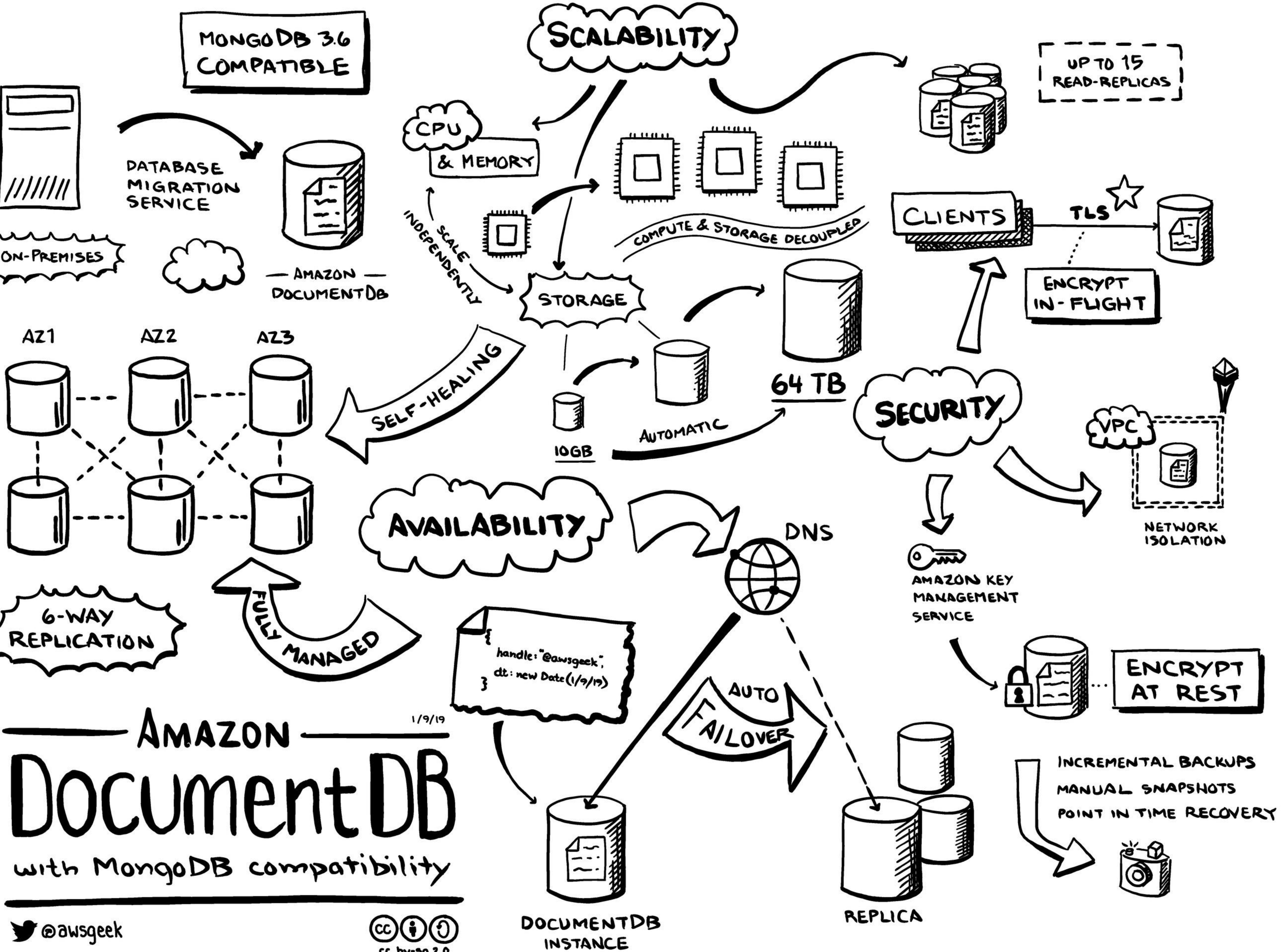
3/6/20 @awsgeek

# AMAZON athena

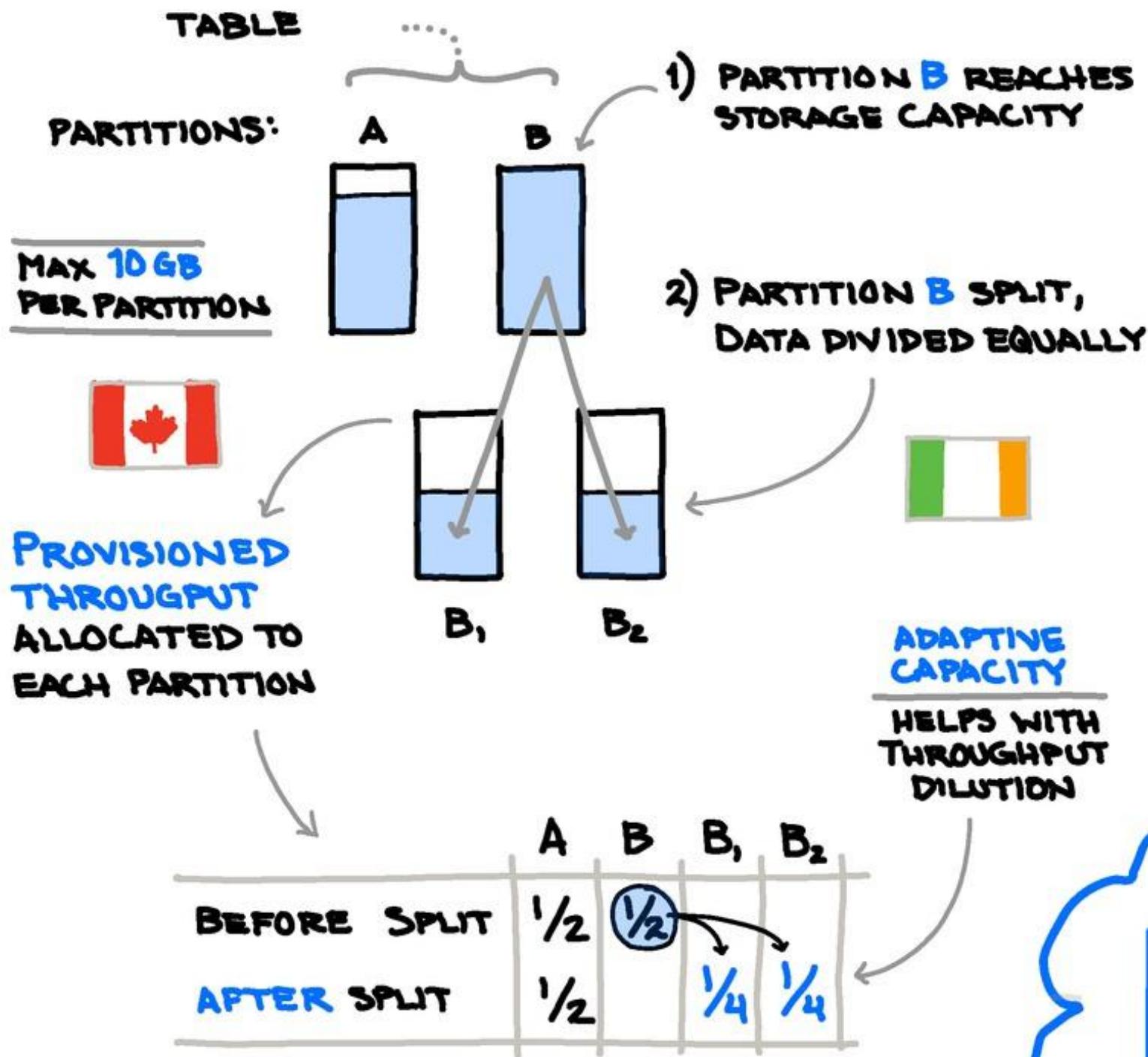
GOAL: MAKE IT EASY TO ANALYZE DATA IN S3



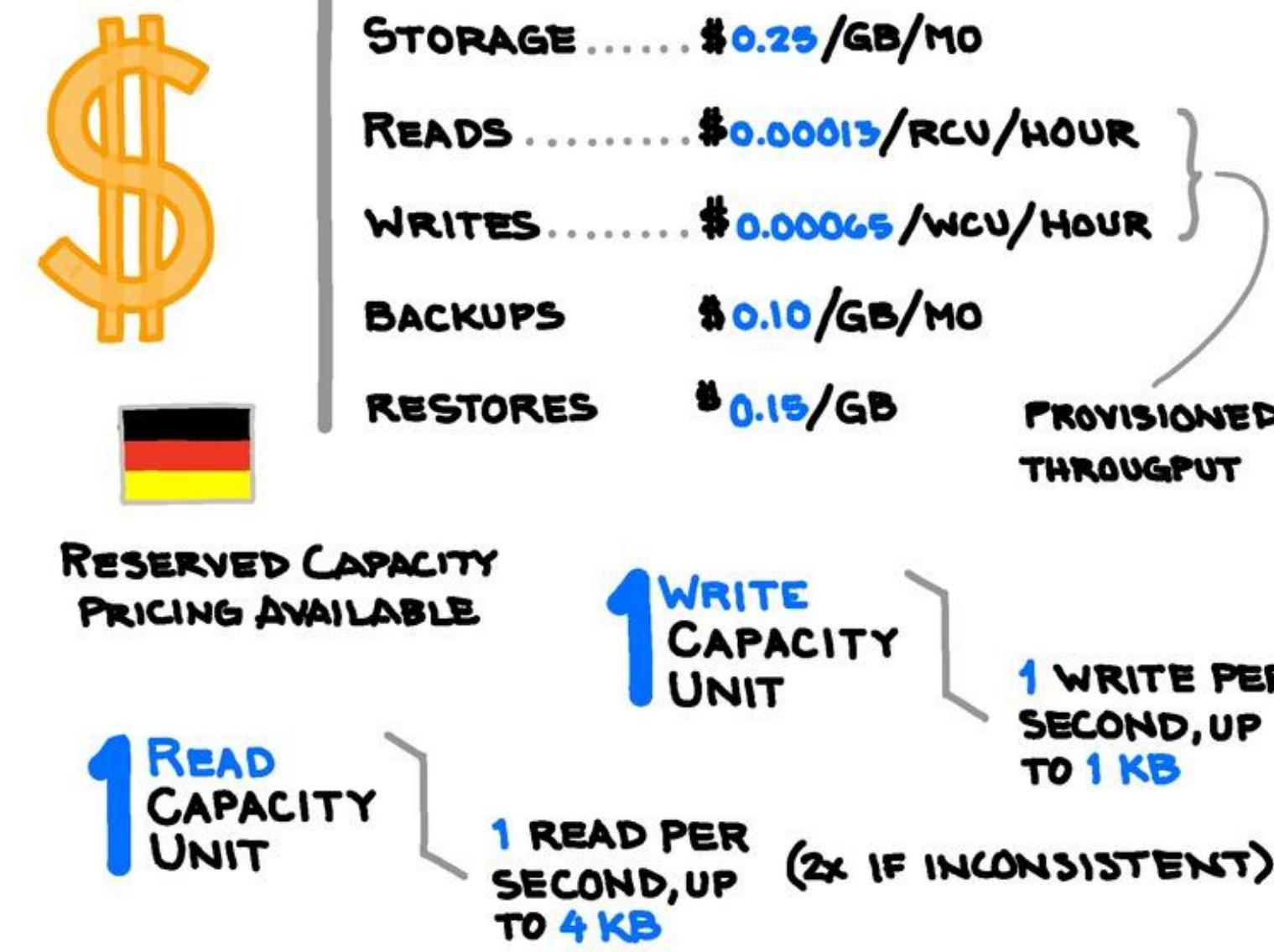




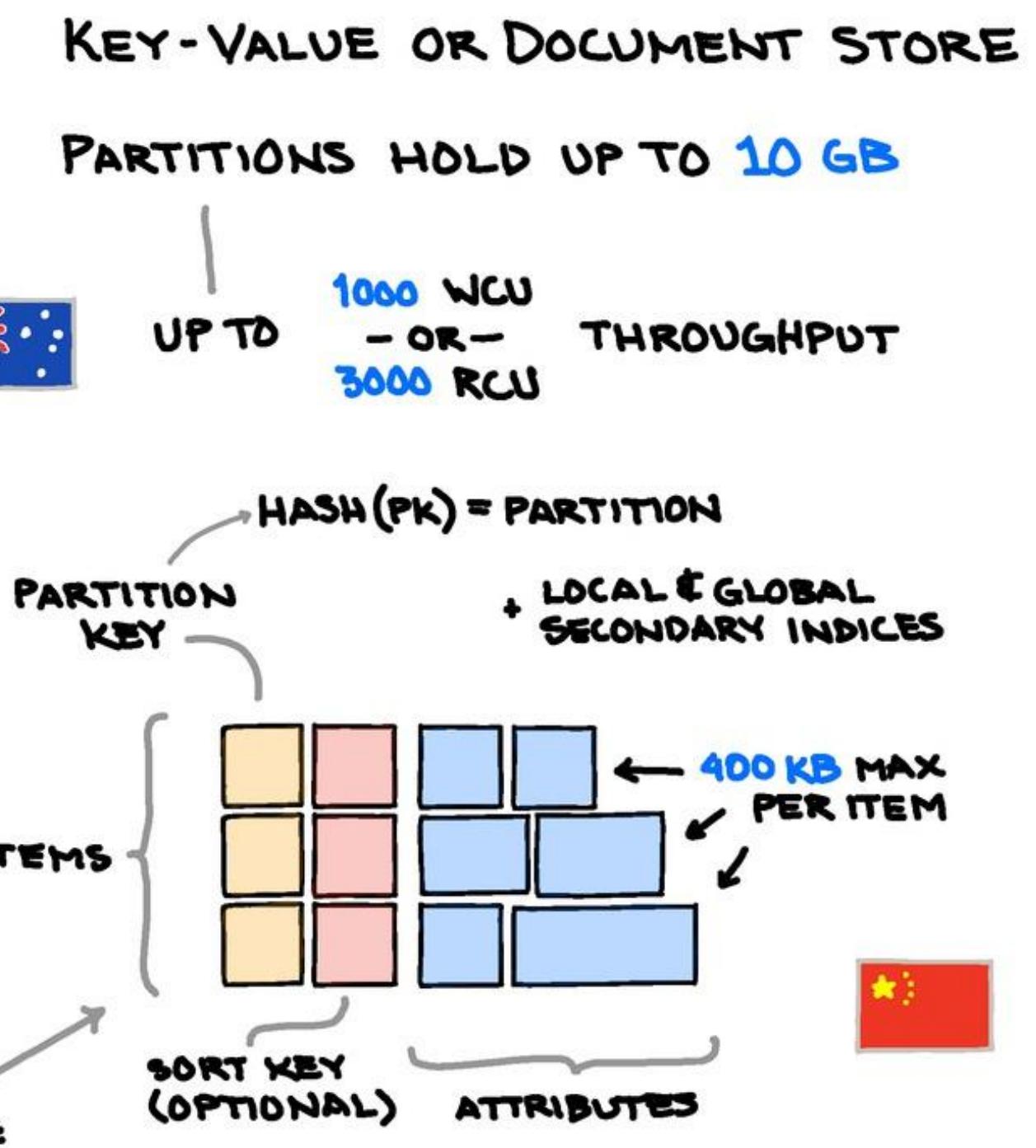
# SCALABILITY



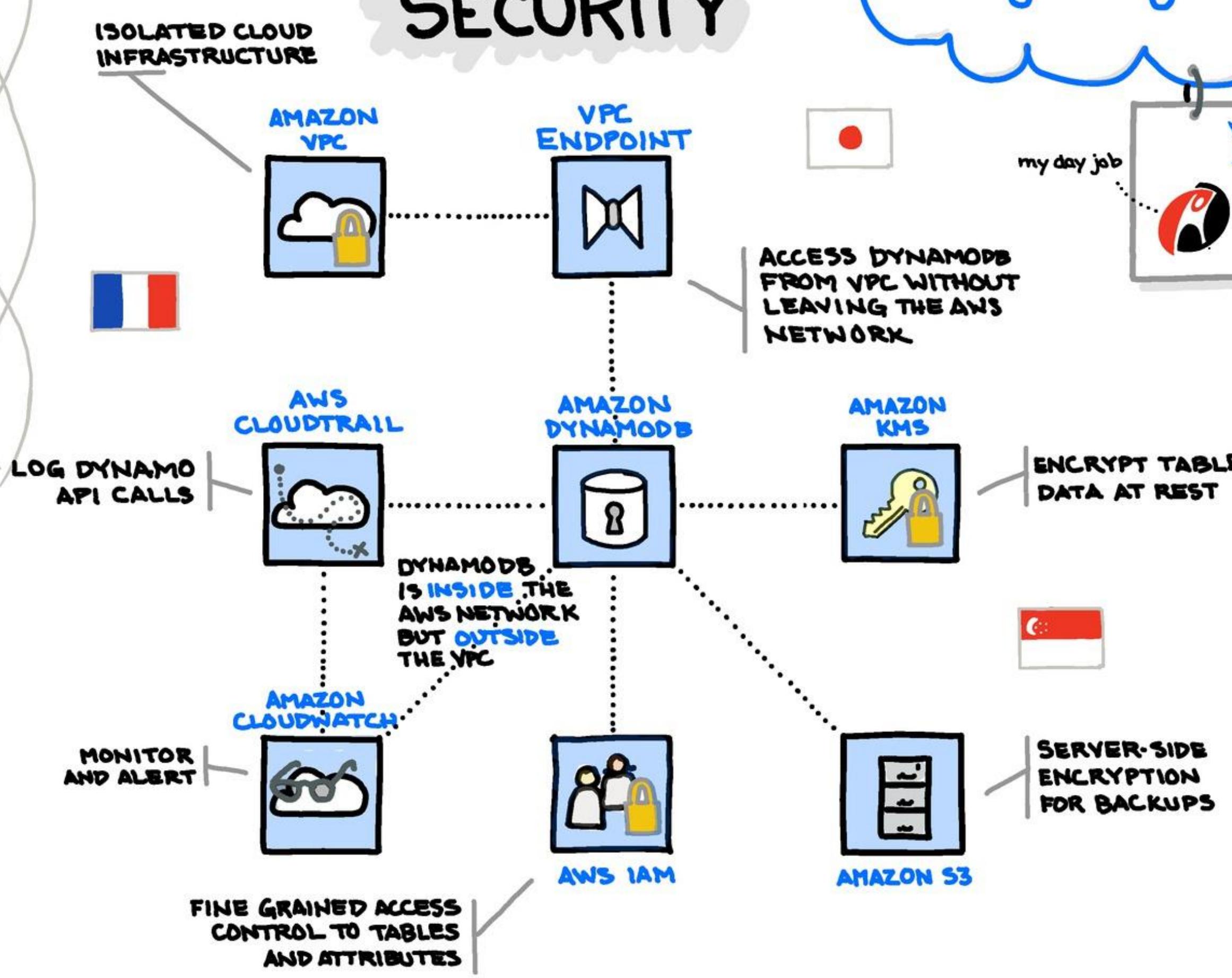
# PRICING



# ESSENTIALS



# SECURITY

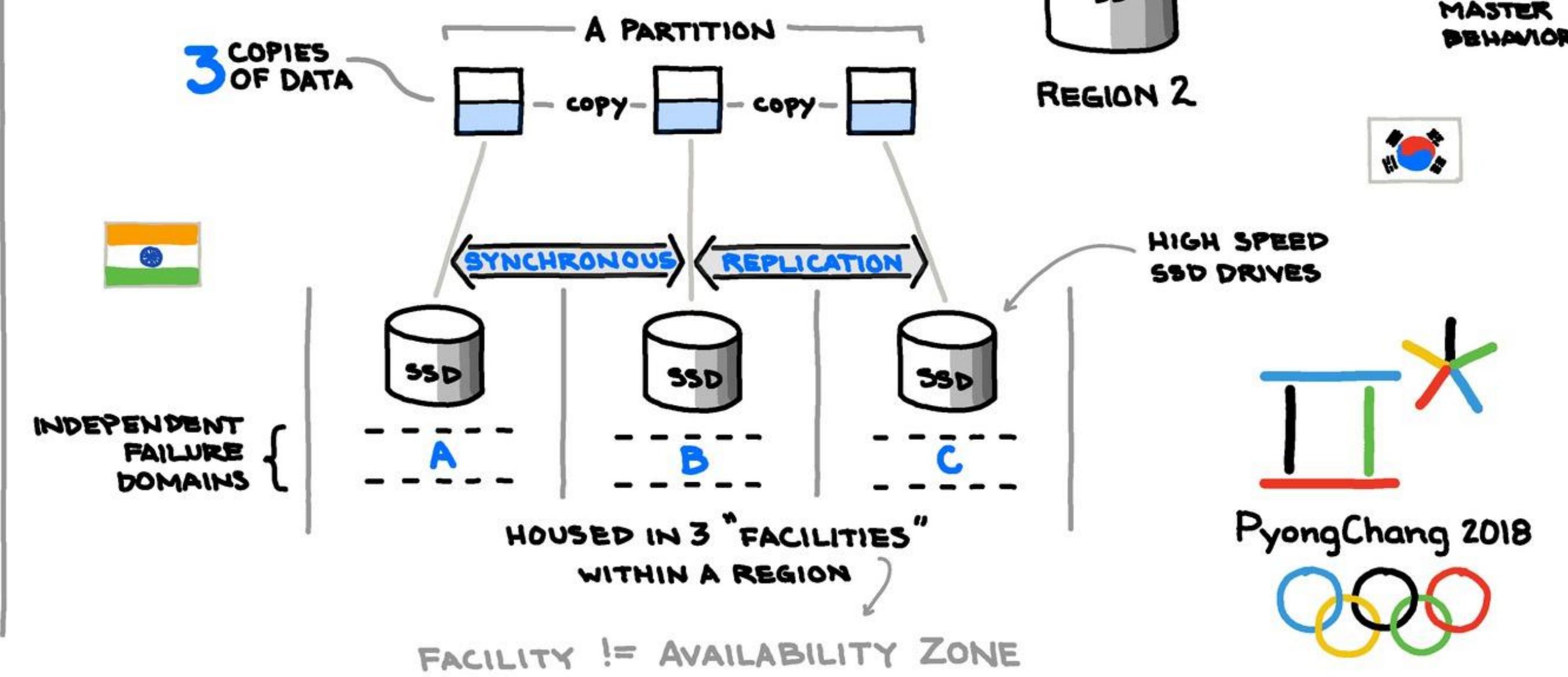


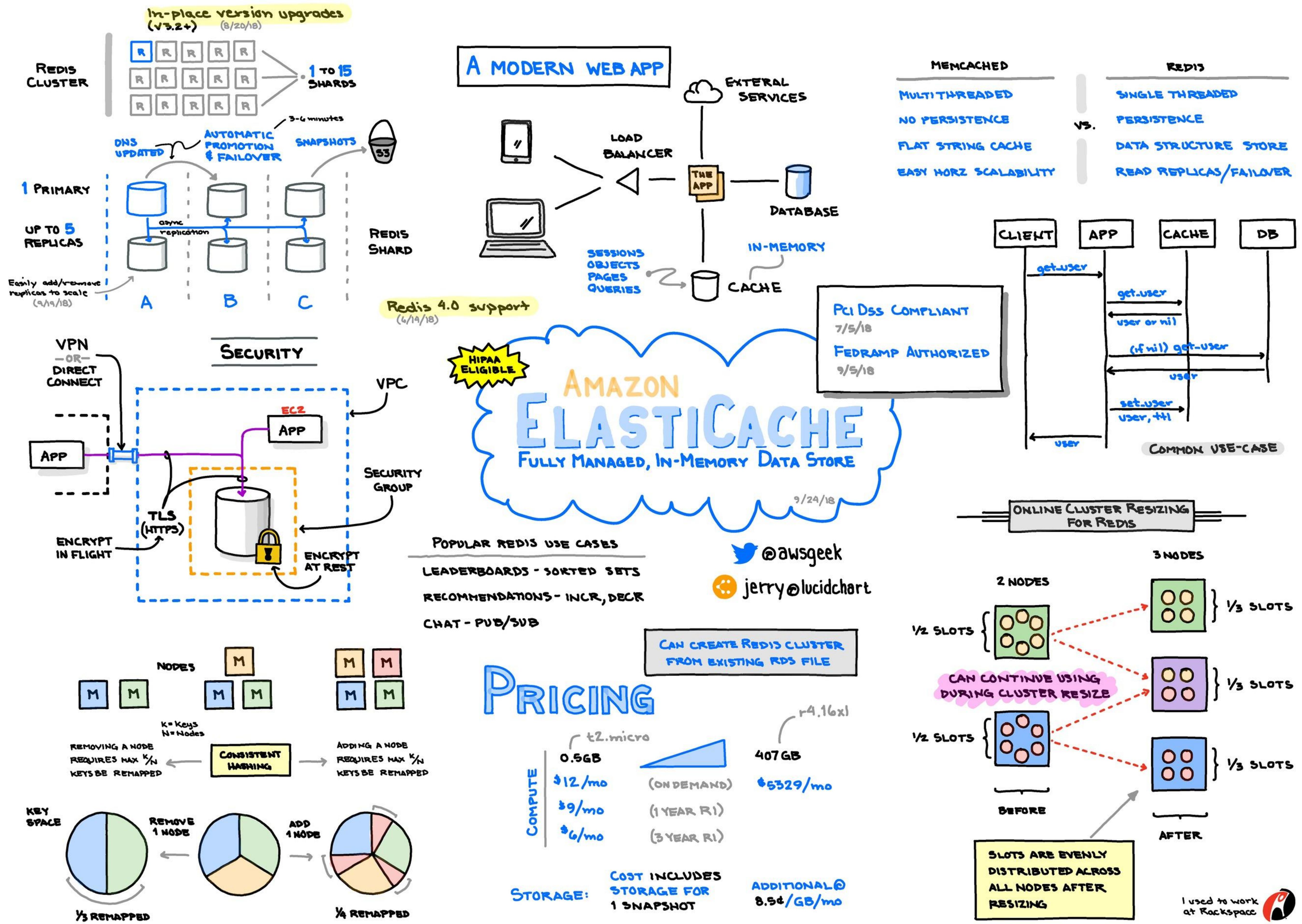
# amazon DYNAMO DB

a fast, flexible no-sql database

2/10/18

# AVAILABILITY





**SOCIAL NETWORKING**  
GROUP FRIENDS WHO LIKE OR DISLIKE SIMILAR THINGS

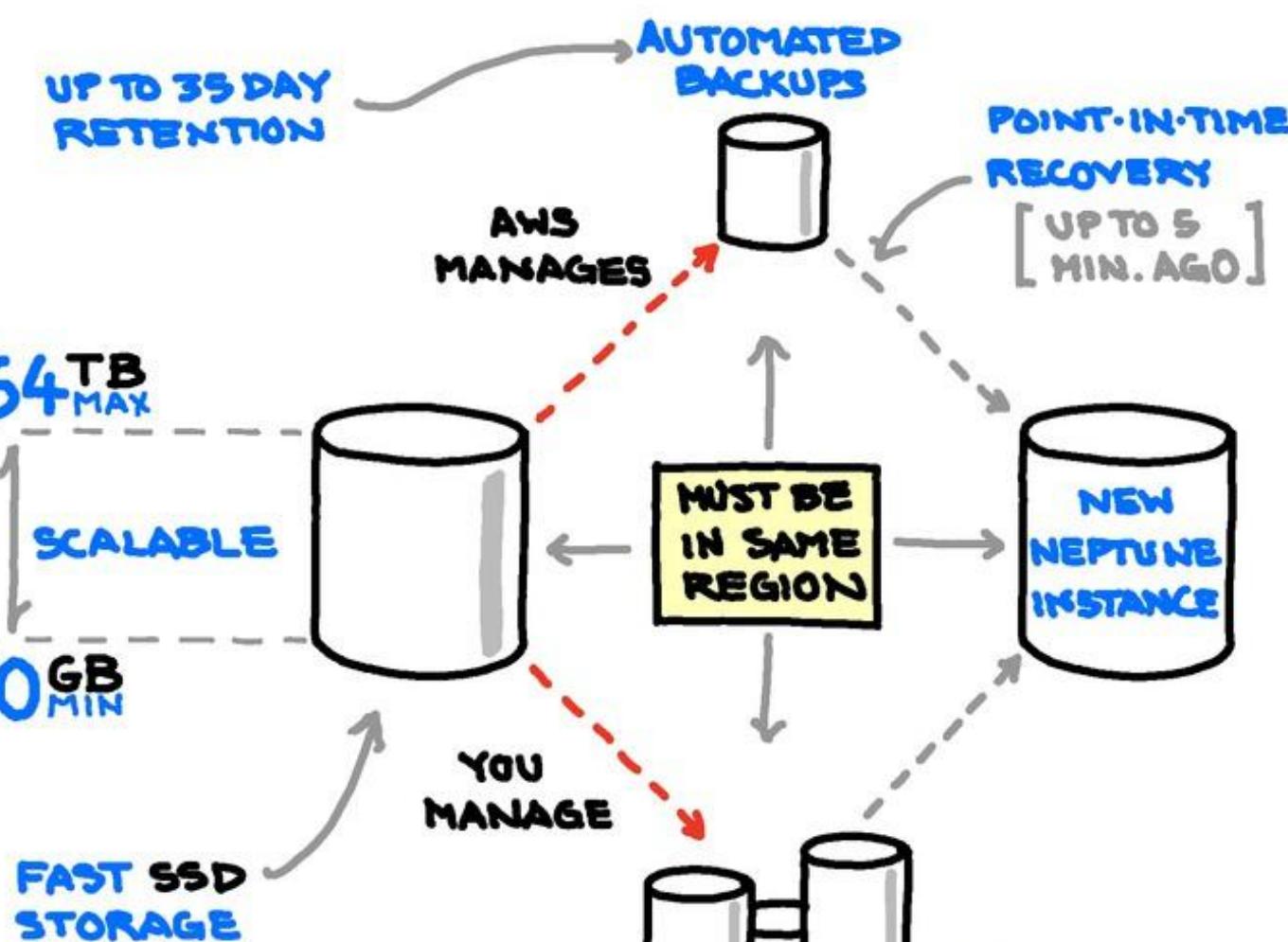
**RECOMMENDATION ENGINE**  
MAKE PURCHASE SUGGESTIONS BASED ON OTHER USERS WITH SIMILAR INTERESTS

**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

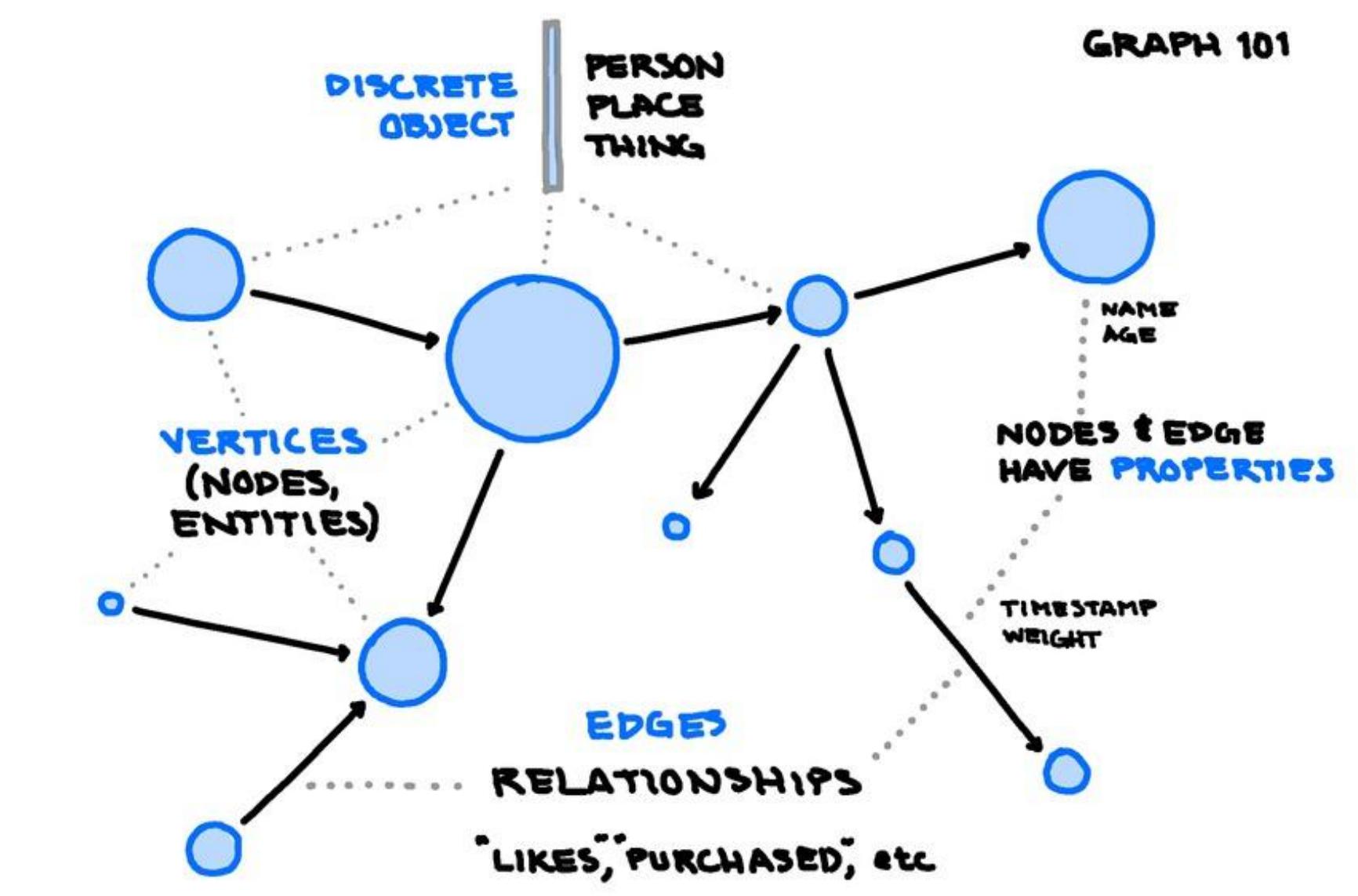
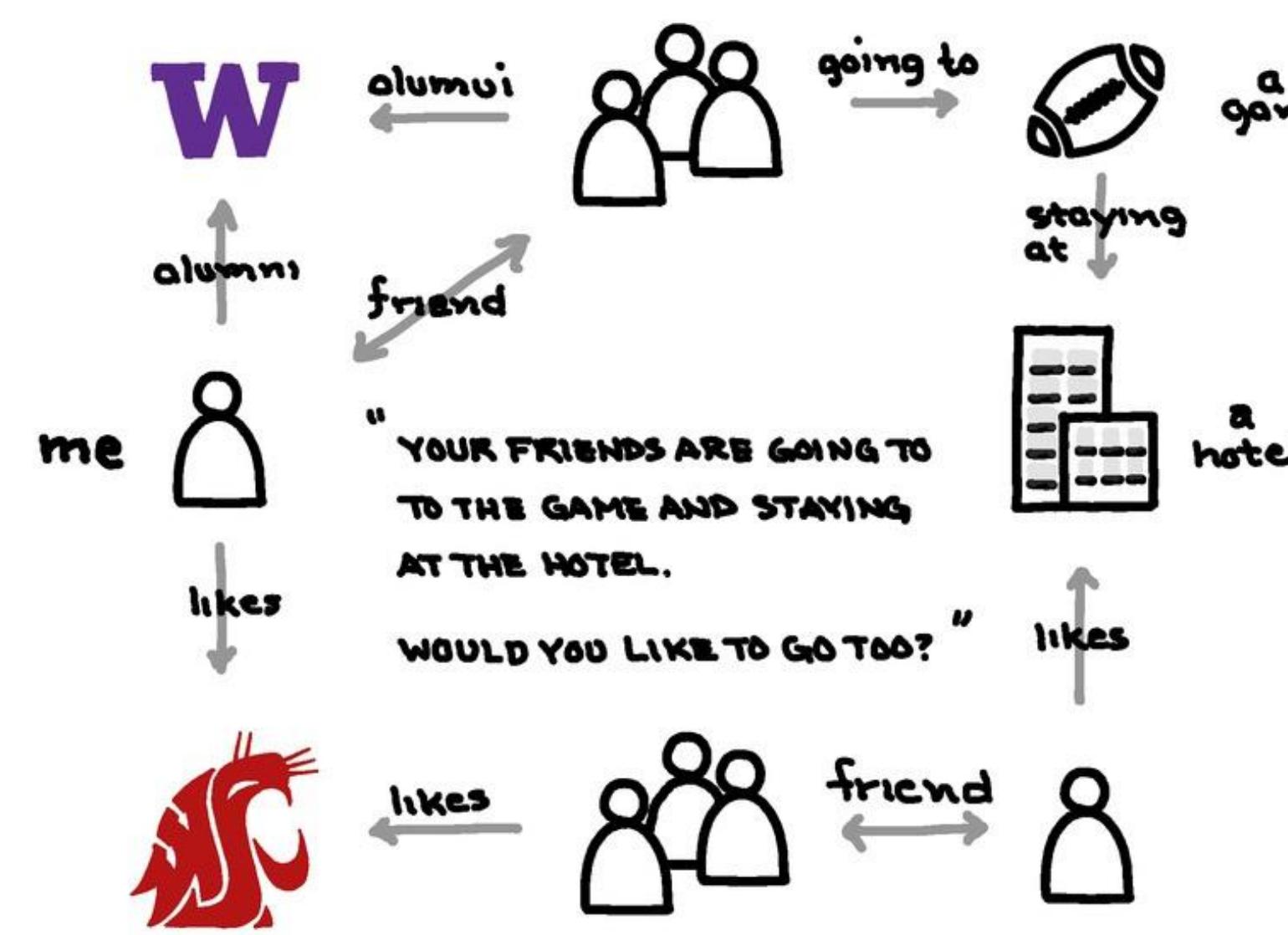
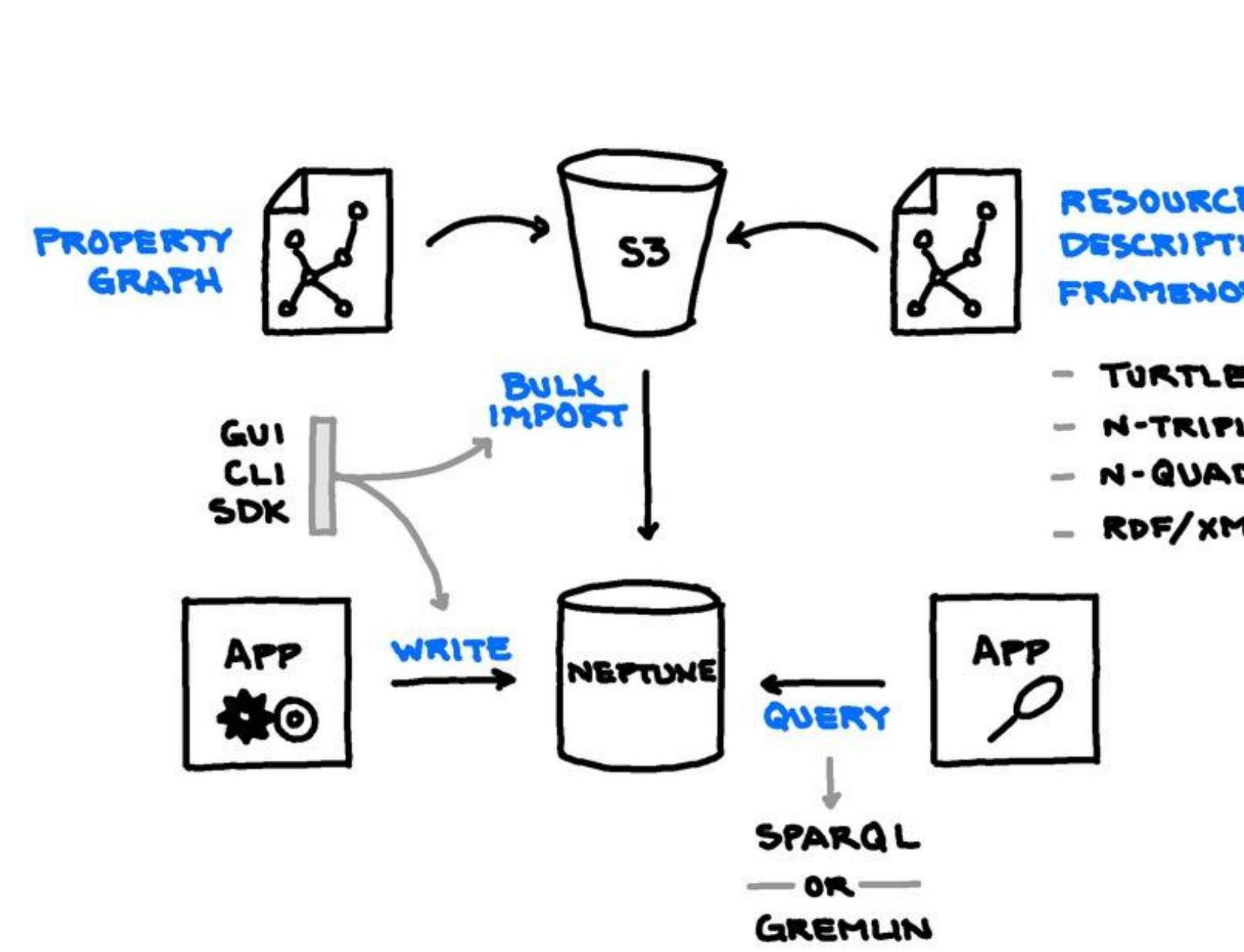
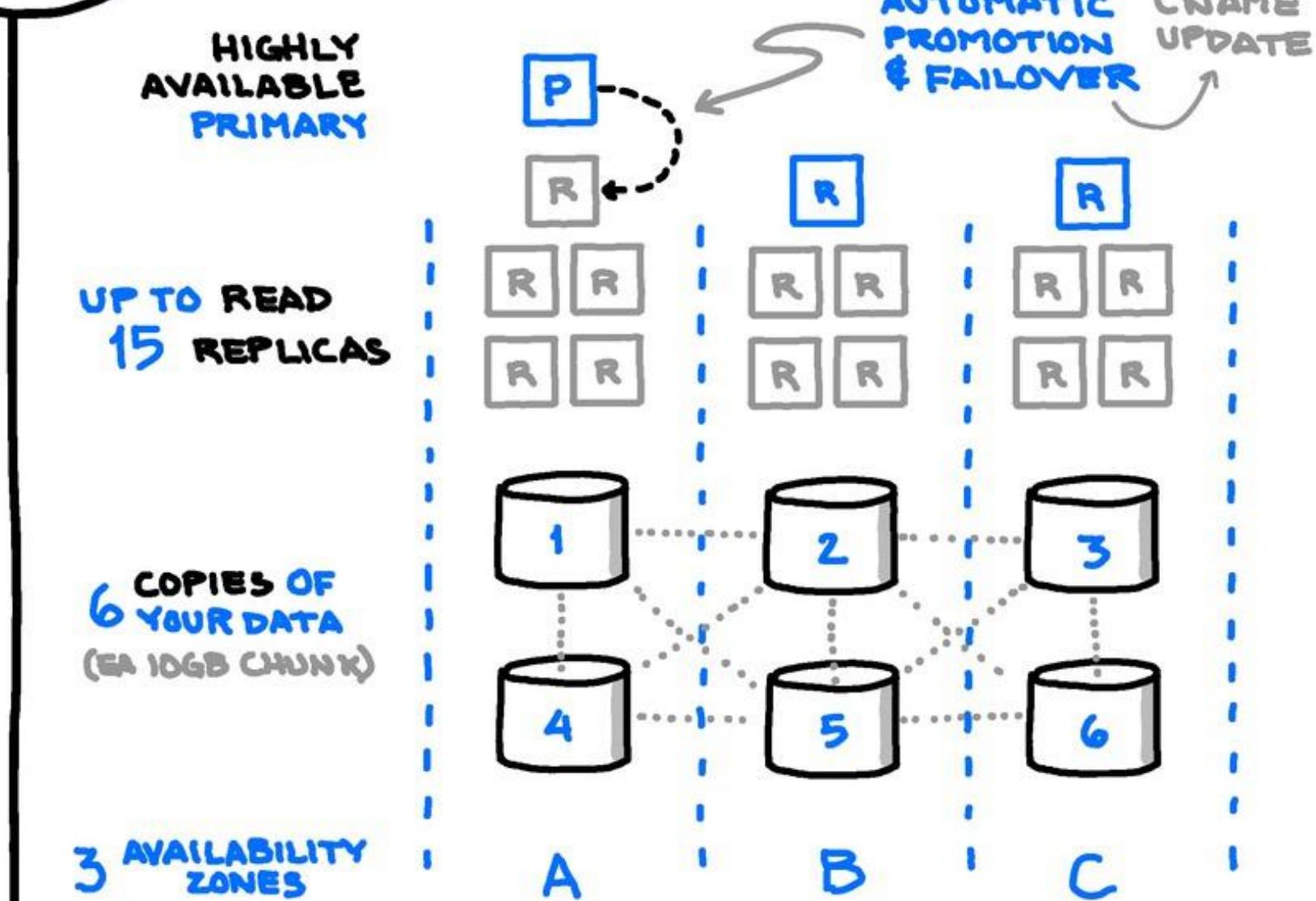
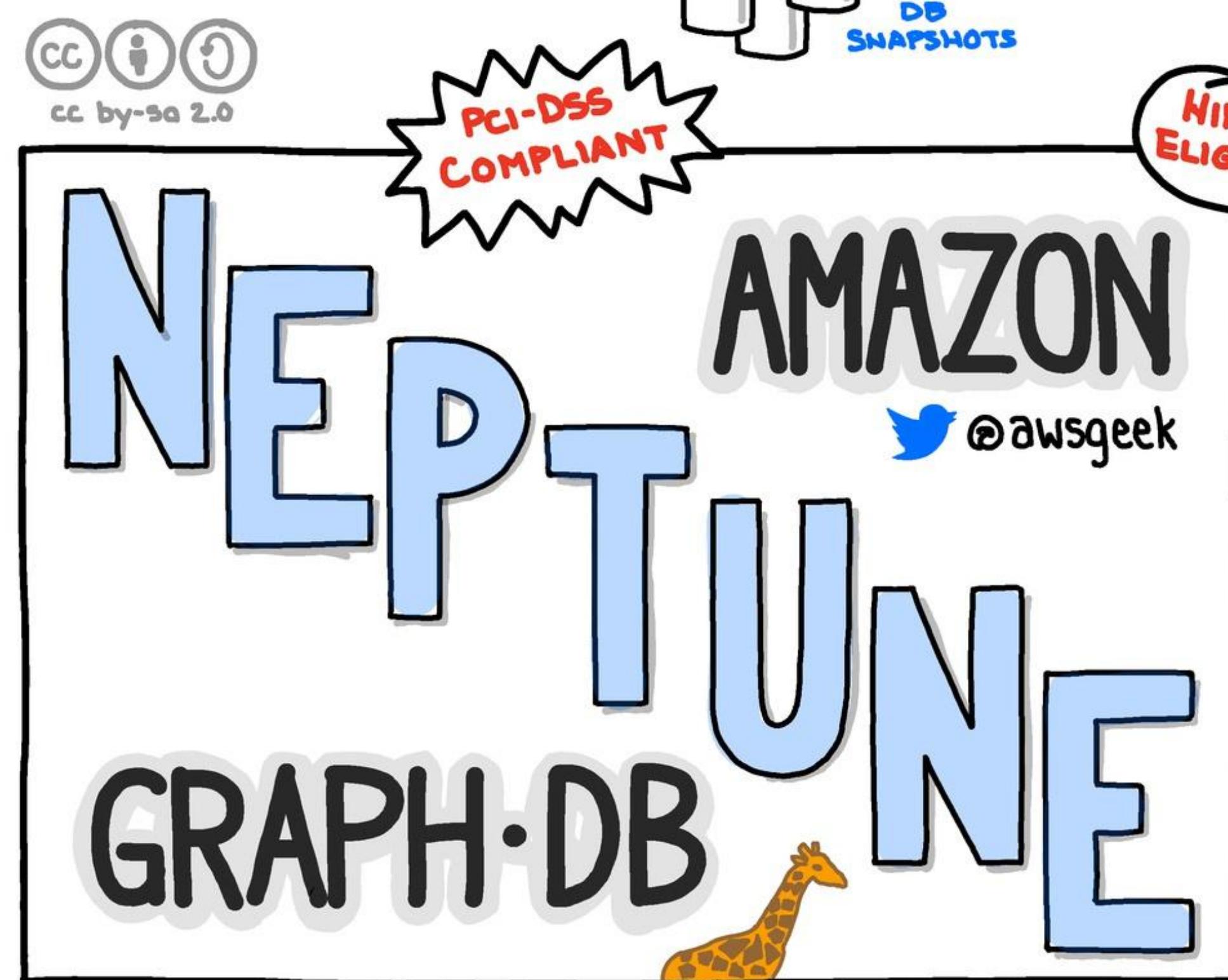


# PRICING

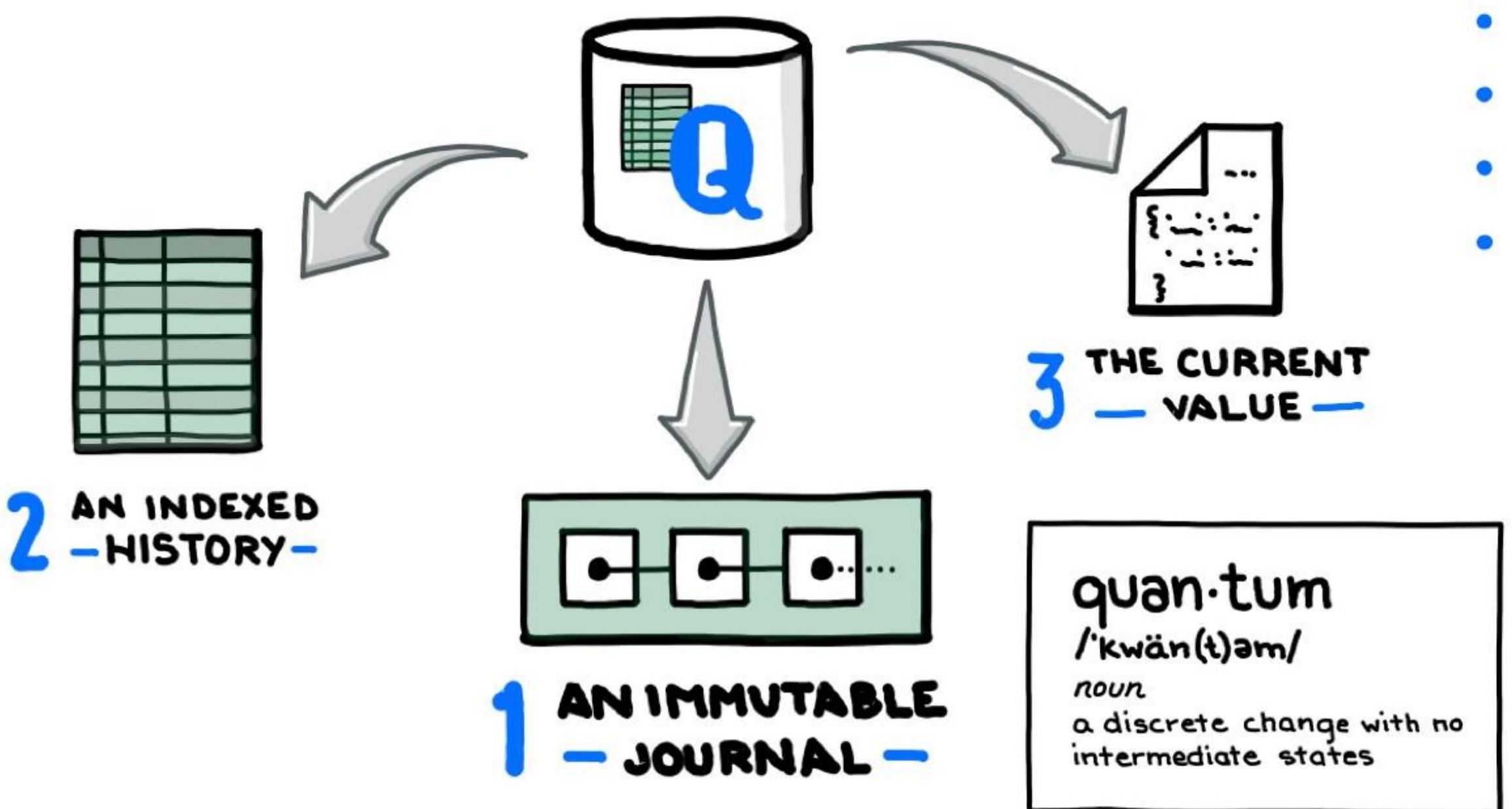
ON-DEMAND	PRIMARY - PER HOUR REPLICAS - SAME
STORAGE	10¢/GB/MO
BACKUPS	20¢/MILLION REQUESTS UP TO DB SIZE, FREE \$3 RATES AFTER
DATA TRANSFER	IN .. FREE OUT .. 2¢/GB TO OTHER REGION .. 9¢/GB TO INTERNET

STARTING AT 35¢/HR FOR R4.LG

per 16KB read  
4KB write



## 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?

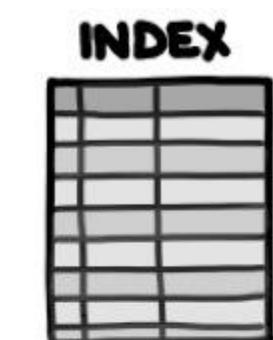
**im·mu·ta·ble**  
*/i(m)'myooðab(ə)b/*  
 adjective  
 unchanging over time or unable to be changed

5¢ TO 9¢ PER GB

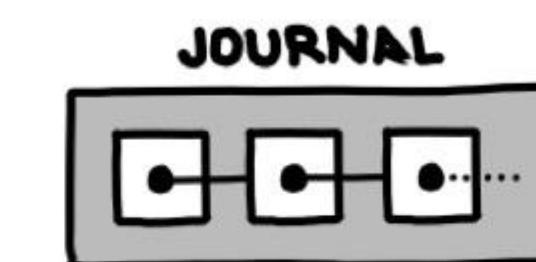
US EAST (VIRGINIA)

70¢ WRITE / MILLION REQUESTS

13.6¢ READ / MILLION REQUESTS

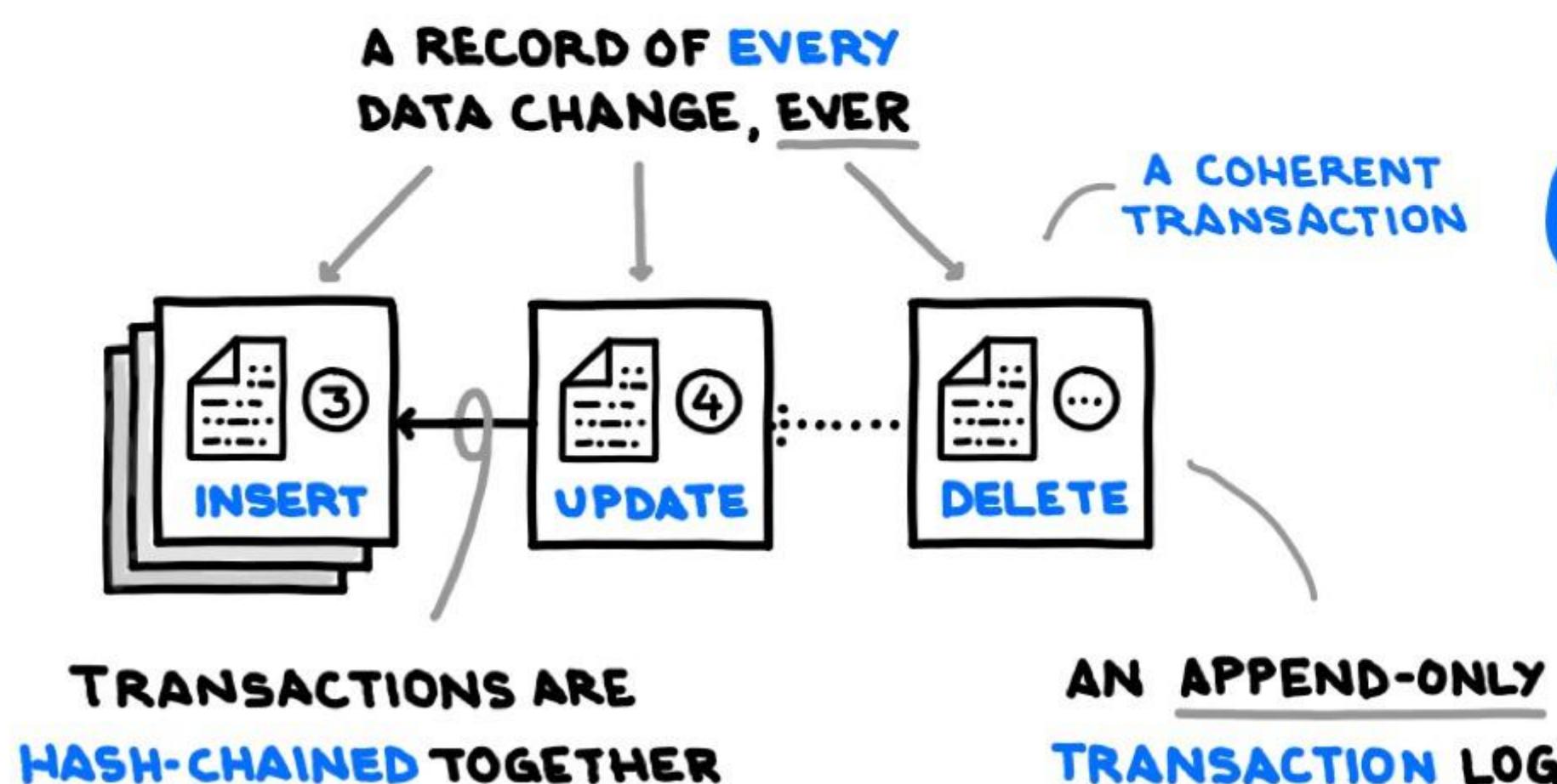


25¢ PER GB/MO

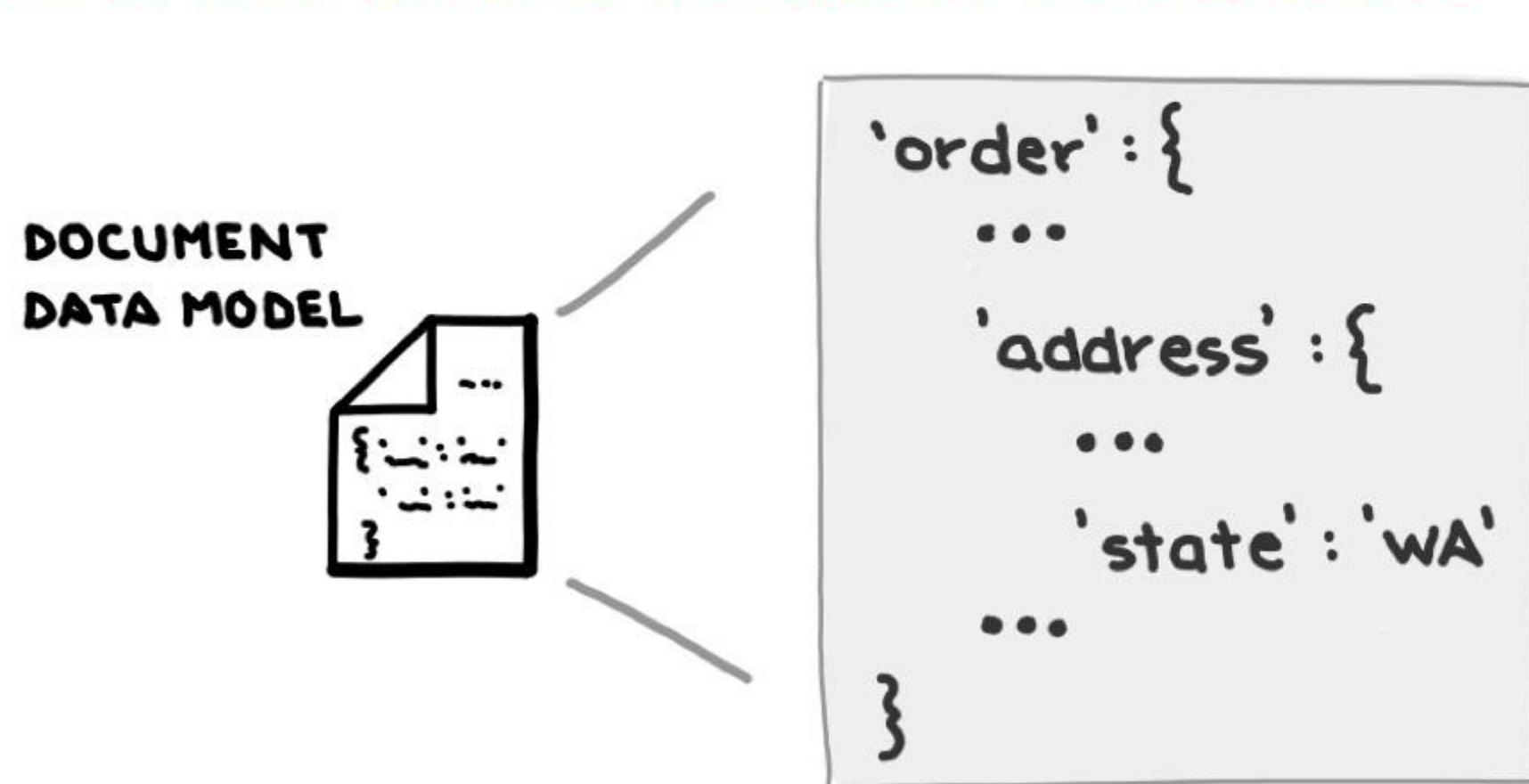


3¢ PER GB/MO

## WHAT IS AN IMMUTABLE JOURNAL?



## How is Data Stored/Queried?



NESTED DOCS  
LIKE JOINED  
TABLES

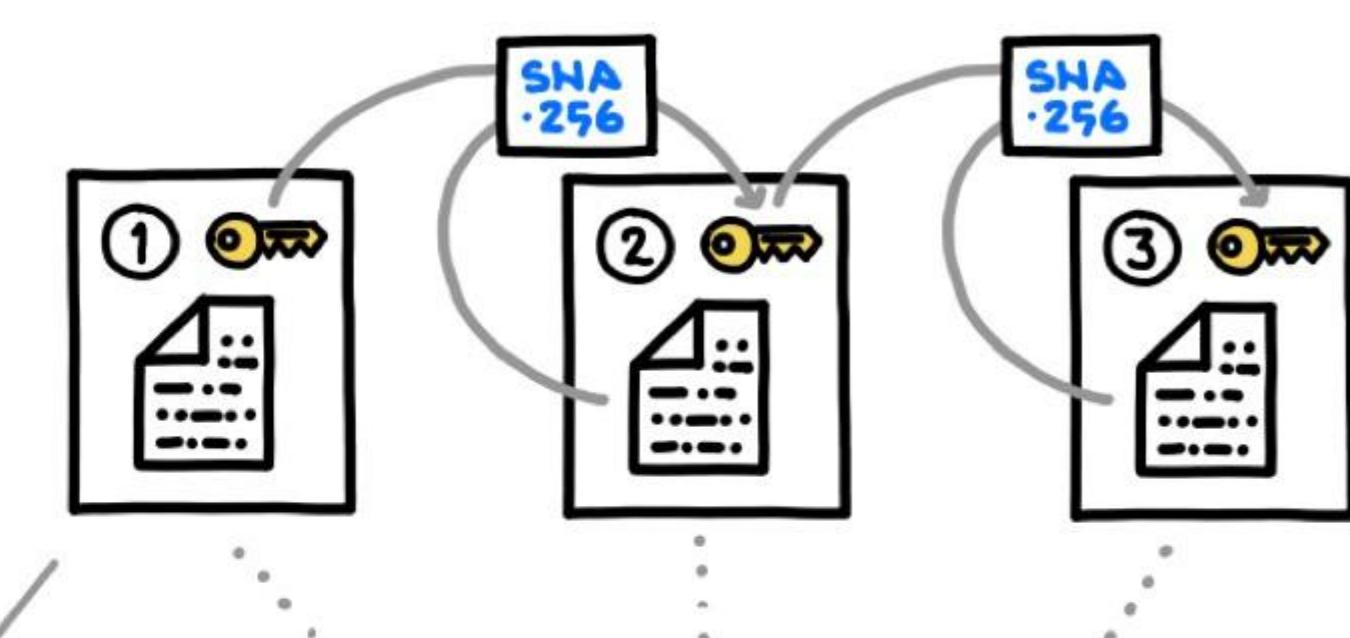
QUERY

```
SELECT *  
FROM orders AS o  
WHERE o.address.state = 'WA'
```

### 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
- commercial
- open source
- cloud native by Amazon

## PRICING

COSTS: (Oregon)

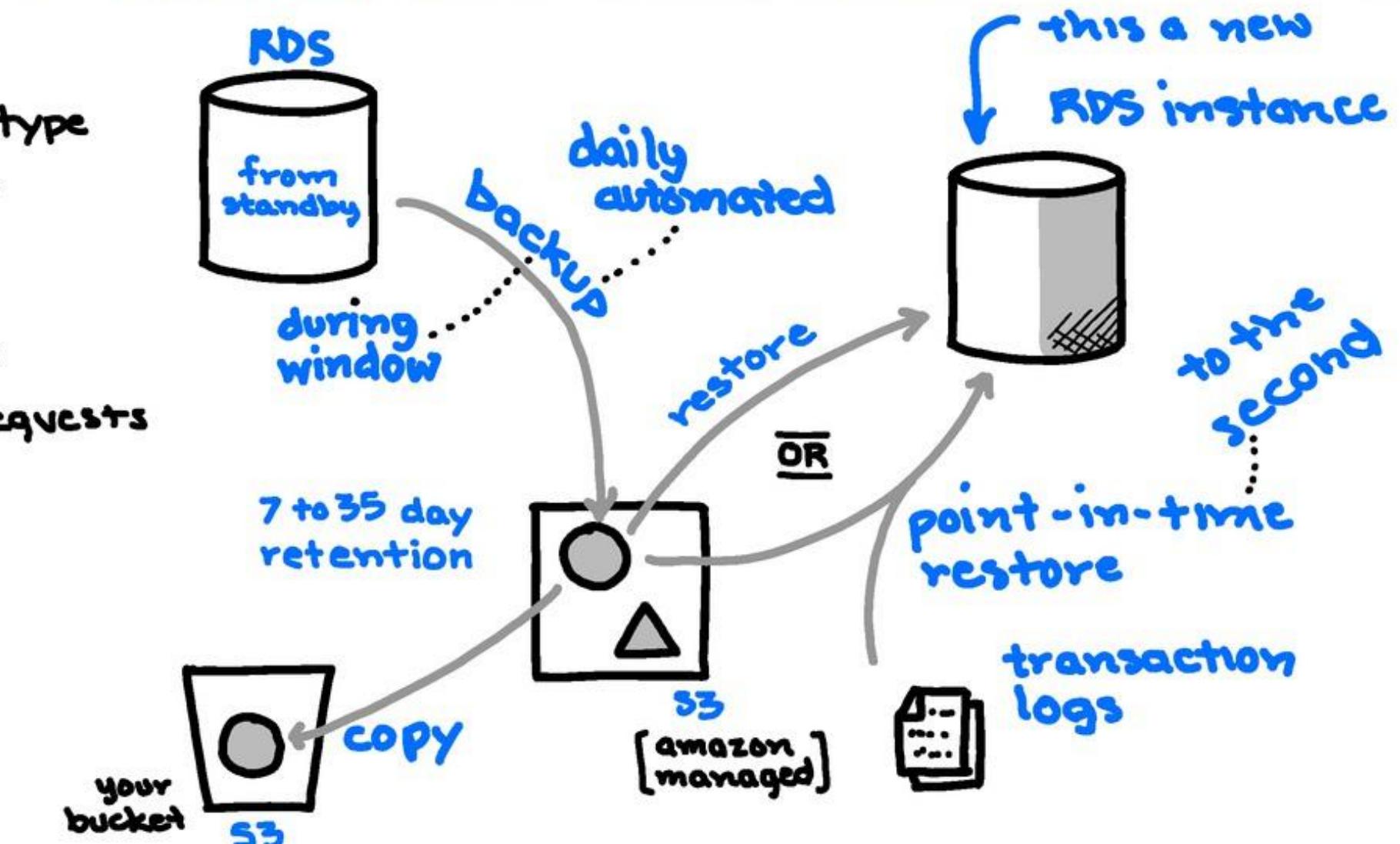
DB INSTANCE HOURS per engine/instance type  
billed hourly, round up

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

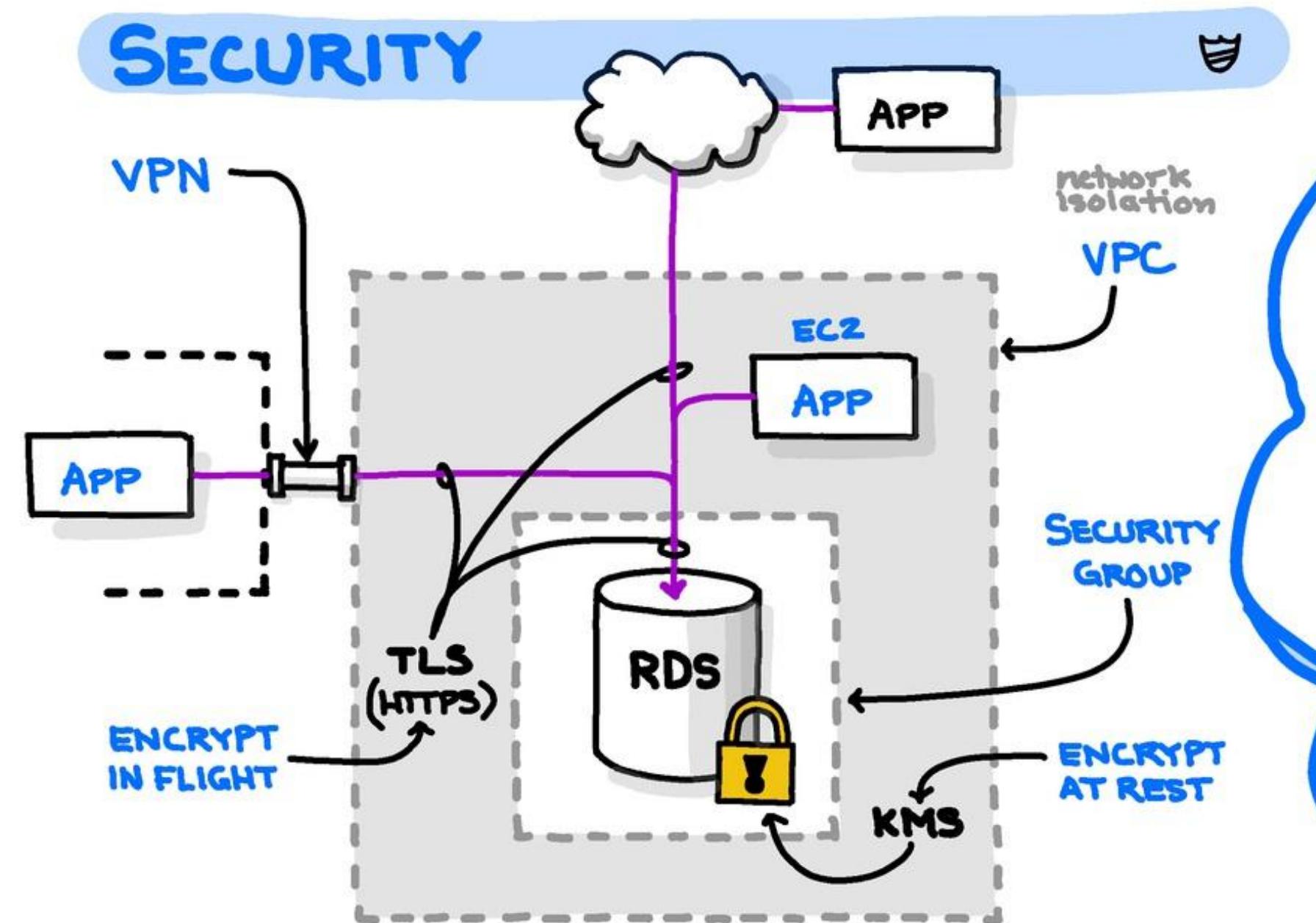
BACKUP STORAGE 100% of DB size free  
9.5¢/GB/Mo after

DATA TRANSFER varies by destination

## BACKUPS

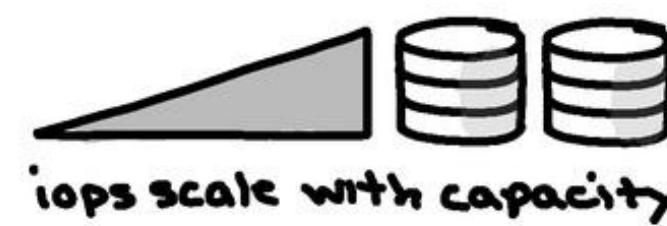


## SECURITY

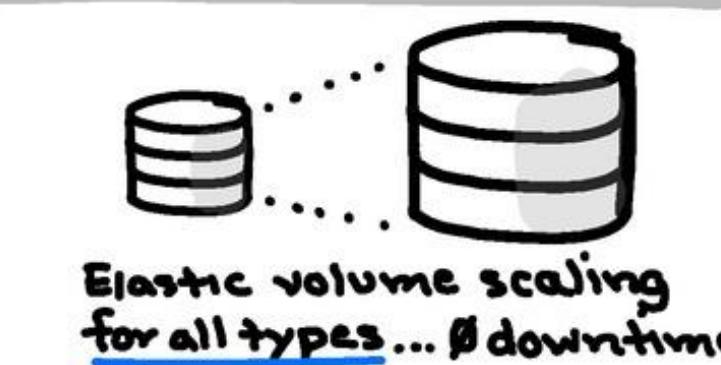


## STORAGE

**GP2** General Purpose  
SSD 16TB Max

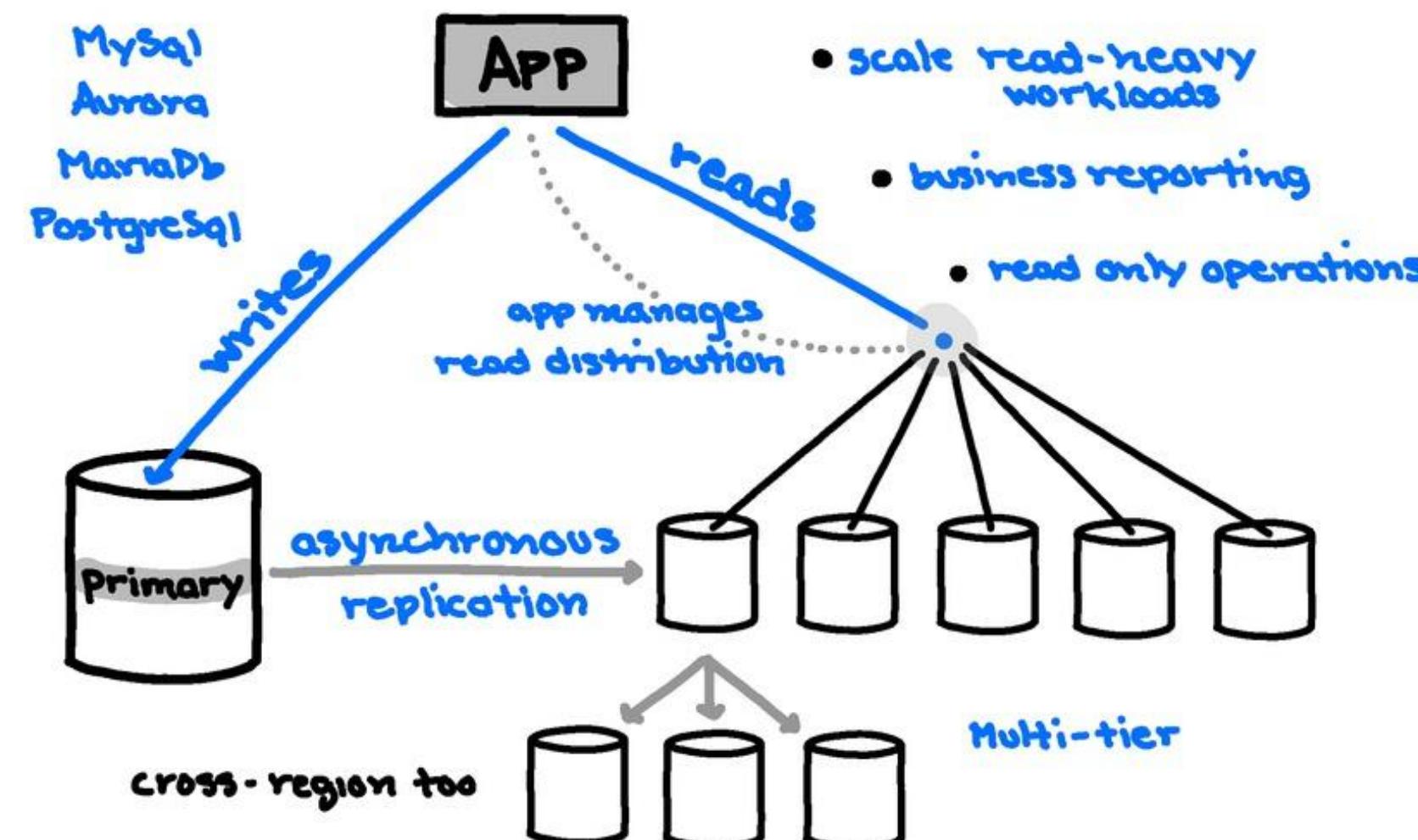


**IOP** Provisioned IOPS  
SSD 16TB Max  
30K IOPS



**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**

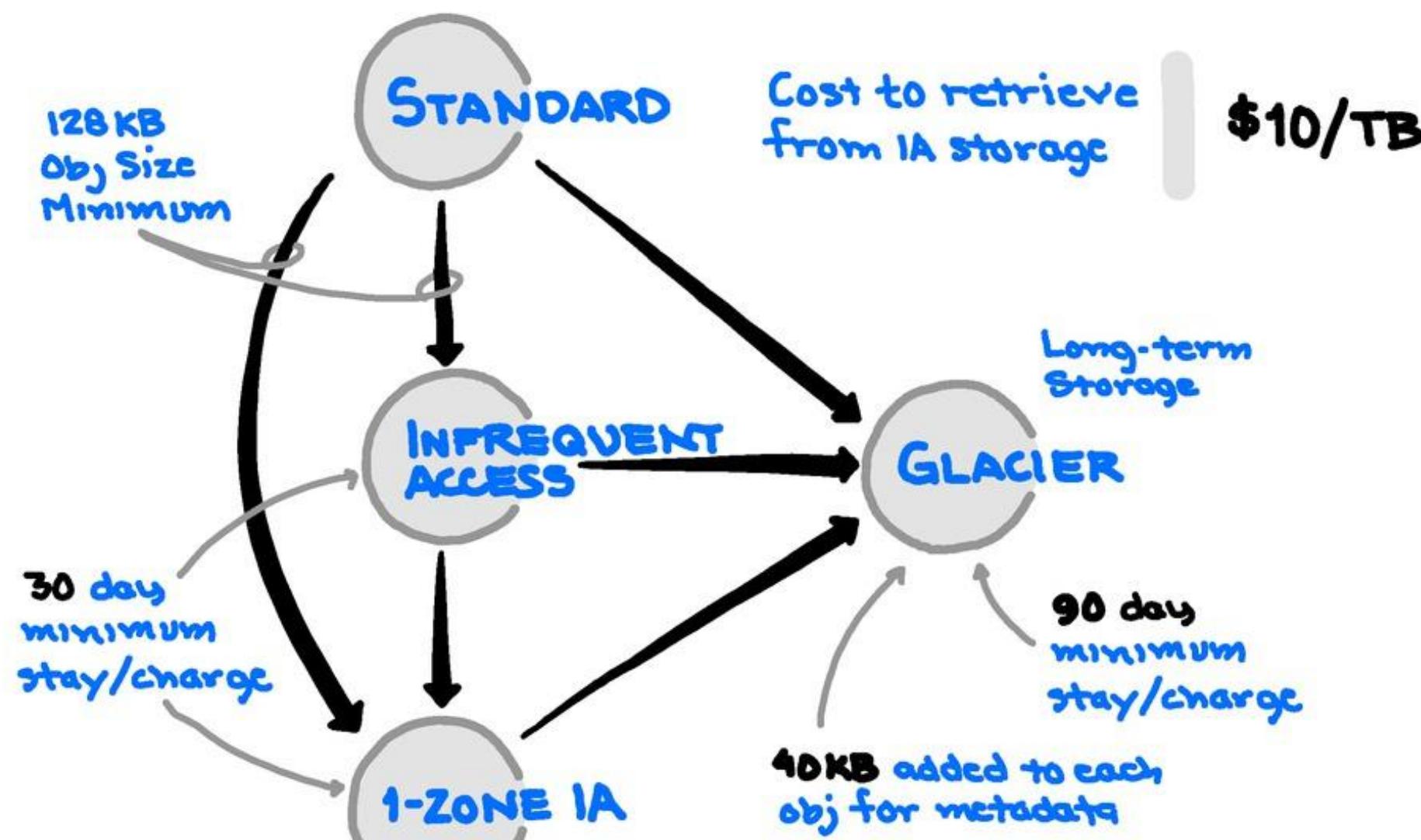
**11 NINES DURABILITY**

**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)]

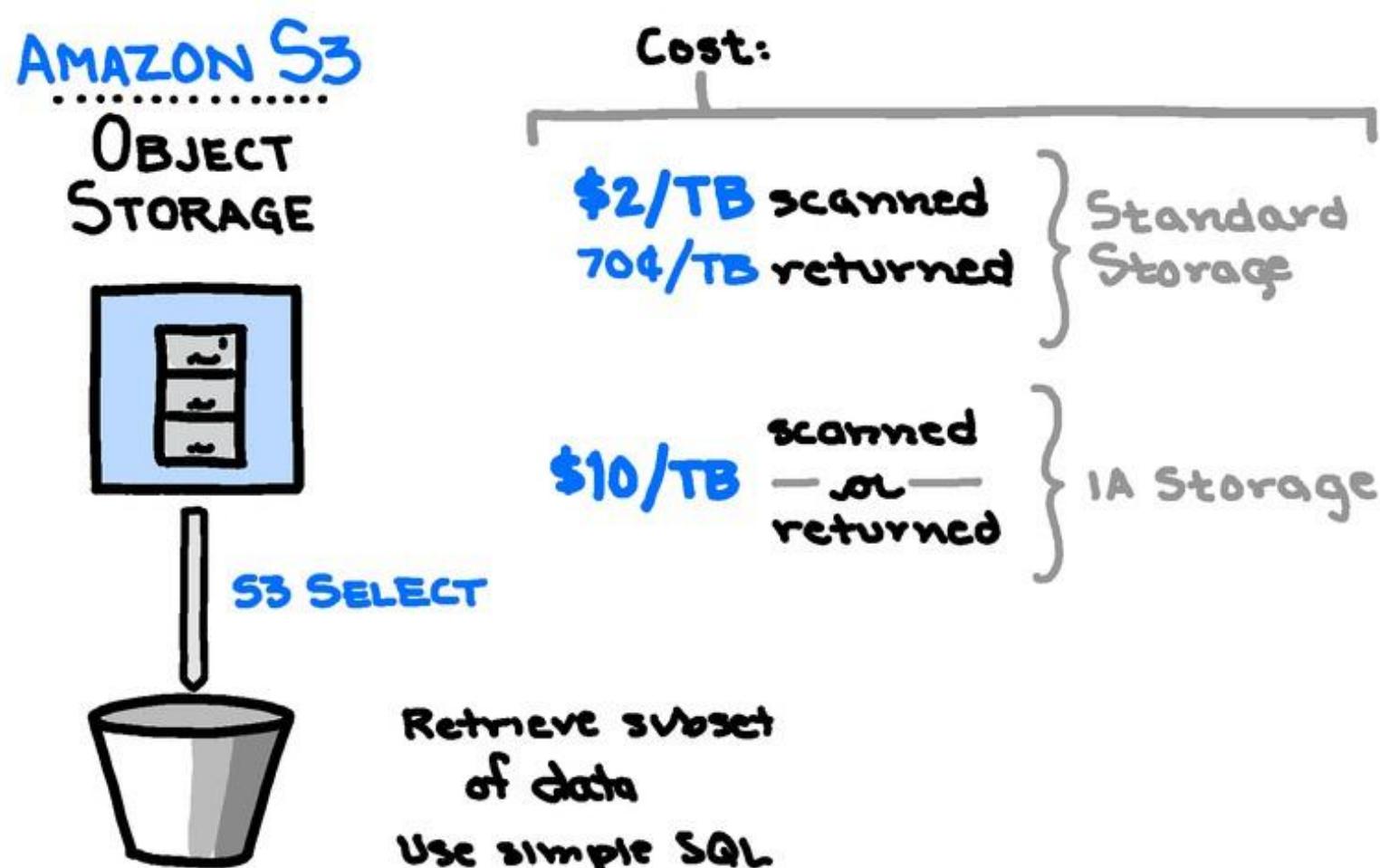
REQUESTS (\$USD per 1,000,000 requests)



	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



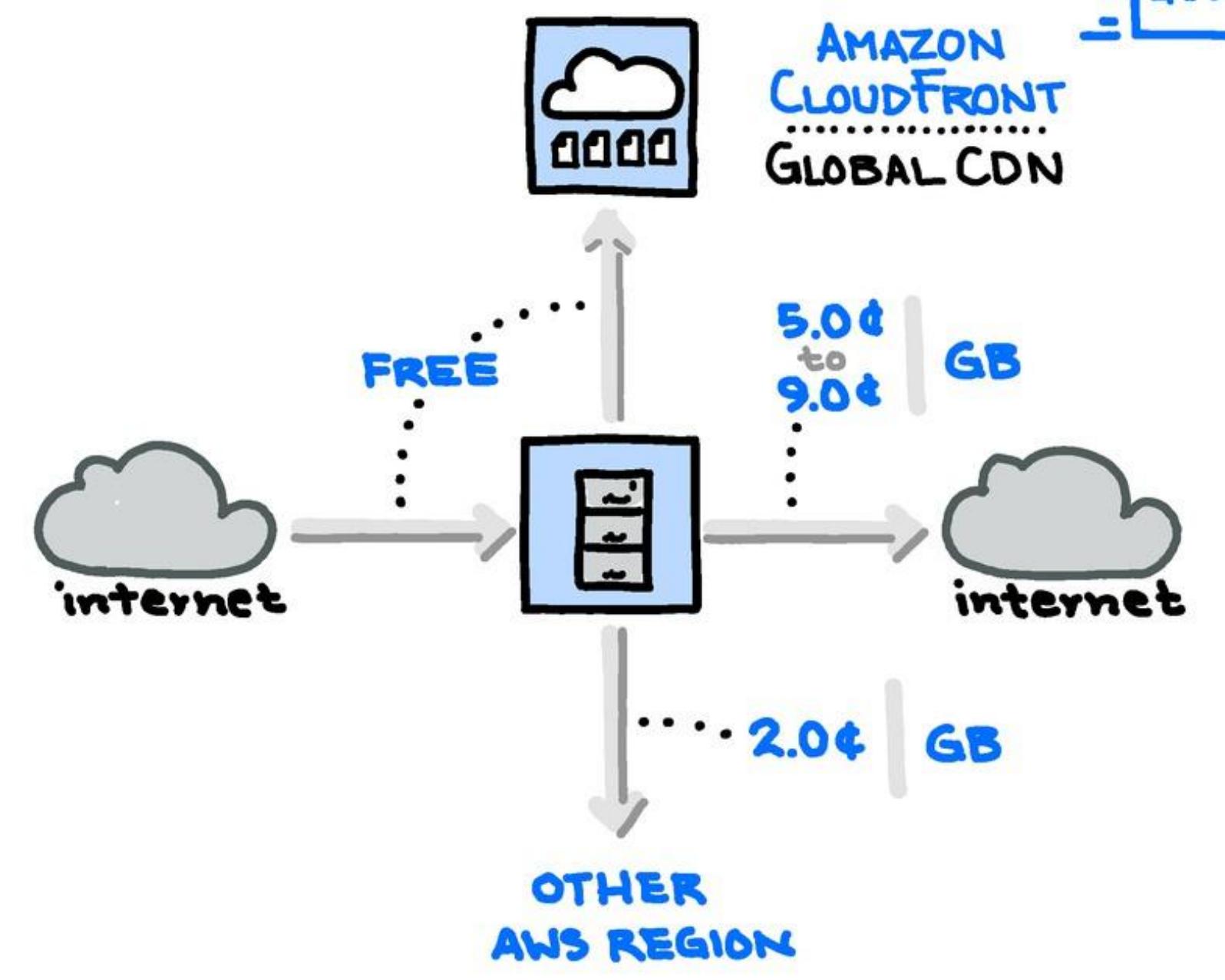
	TB	\$ per GB/Mo
[0, 50]	2.3¢	
[51, 500]	2.2¢	
[501, ∞)	2.1¢	

**INFREQUENT ACCESS**

**STD 1-ZONE**

**GLACIER**

## DATA TRANSFER



## OBJECT LOCKING

PREVENT OBJECT DELETION

## GOVERNANCE

CAN'T DELETE TIL DATE

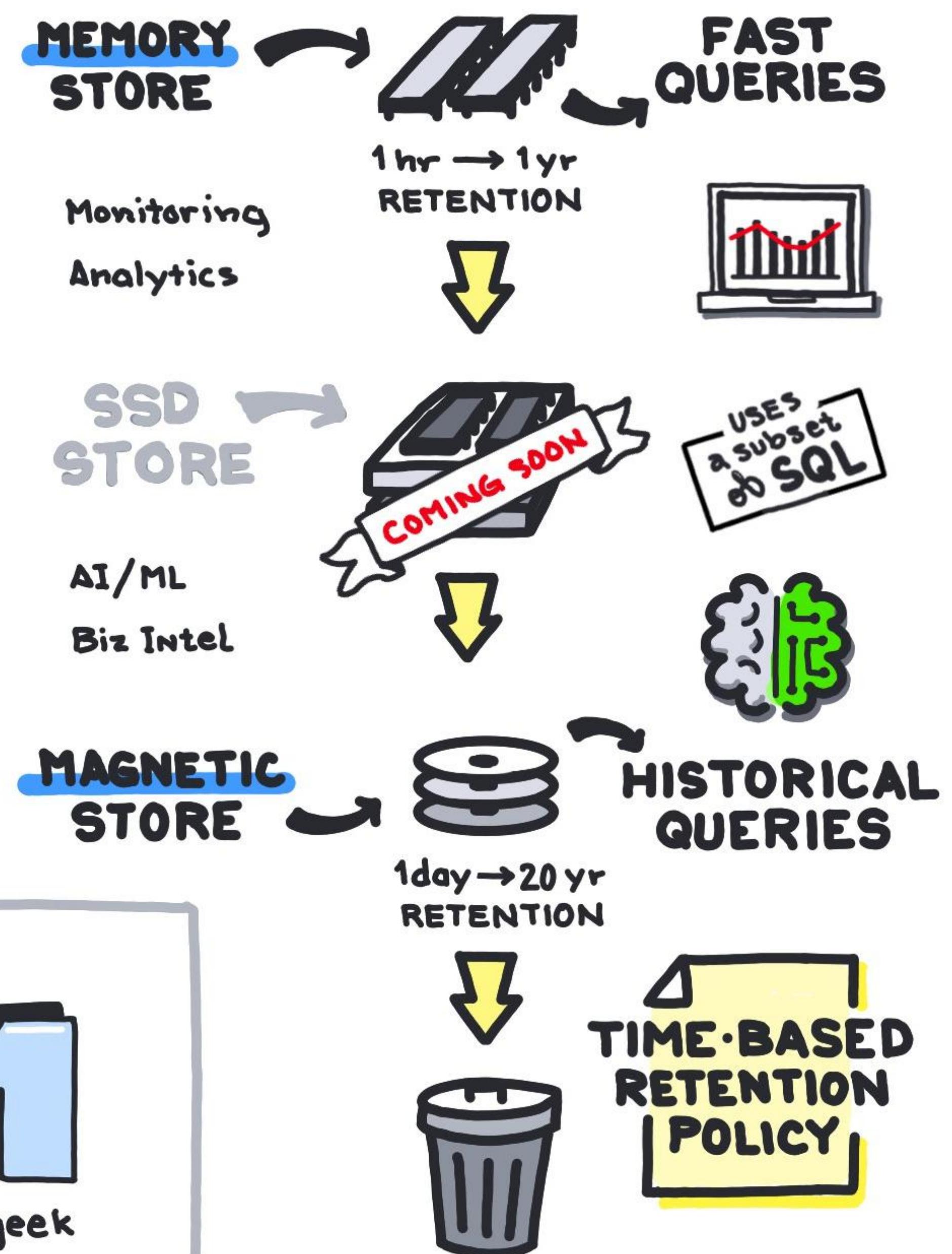
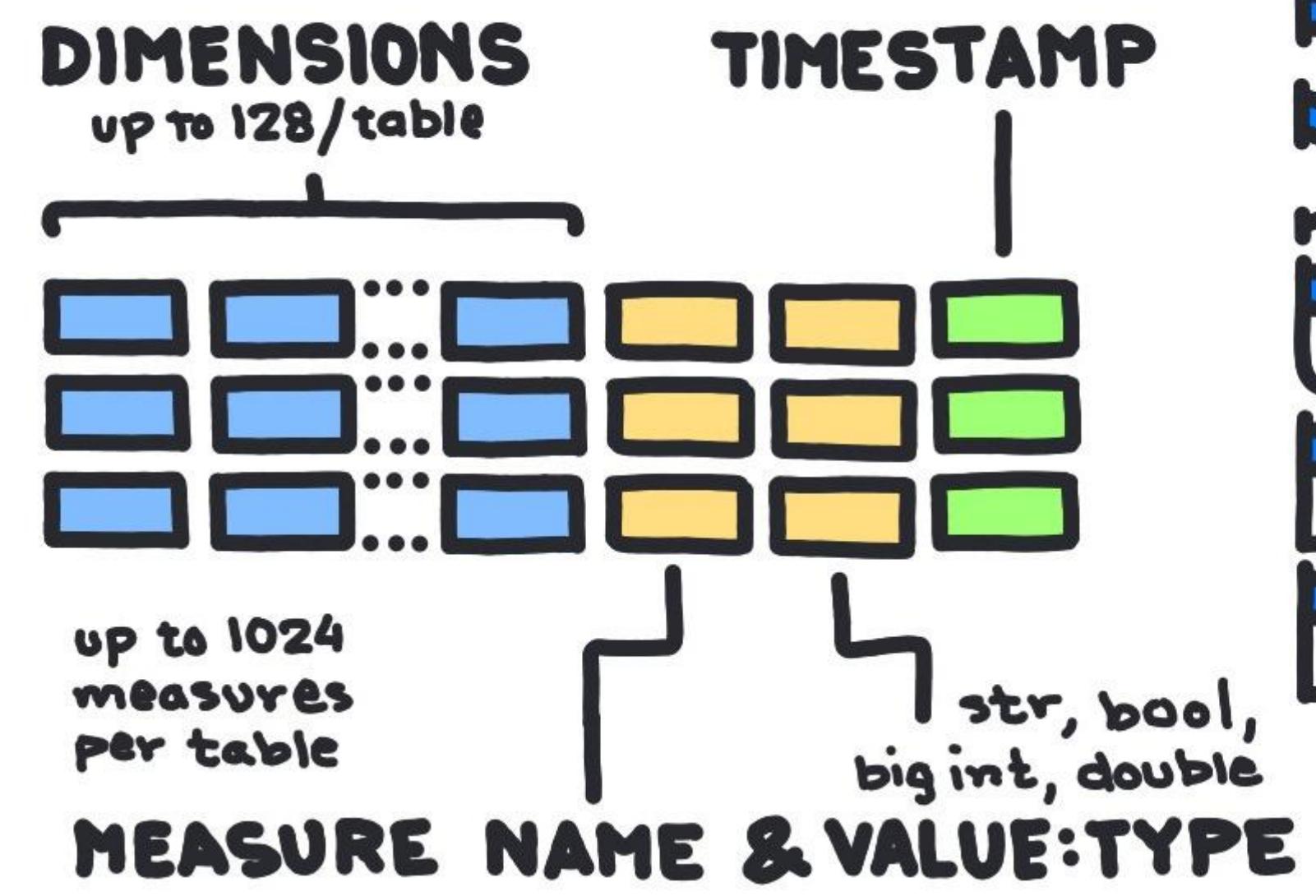
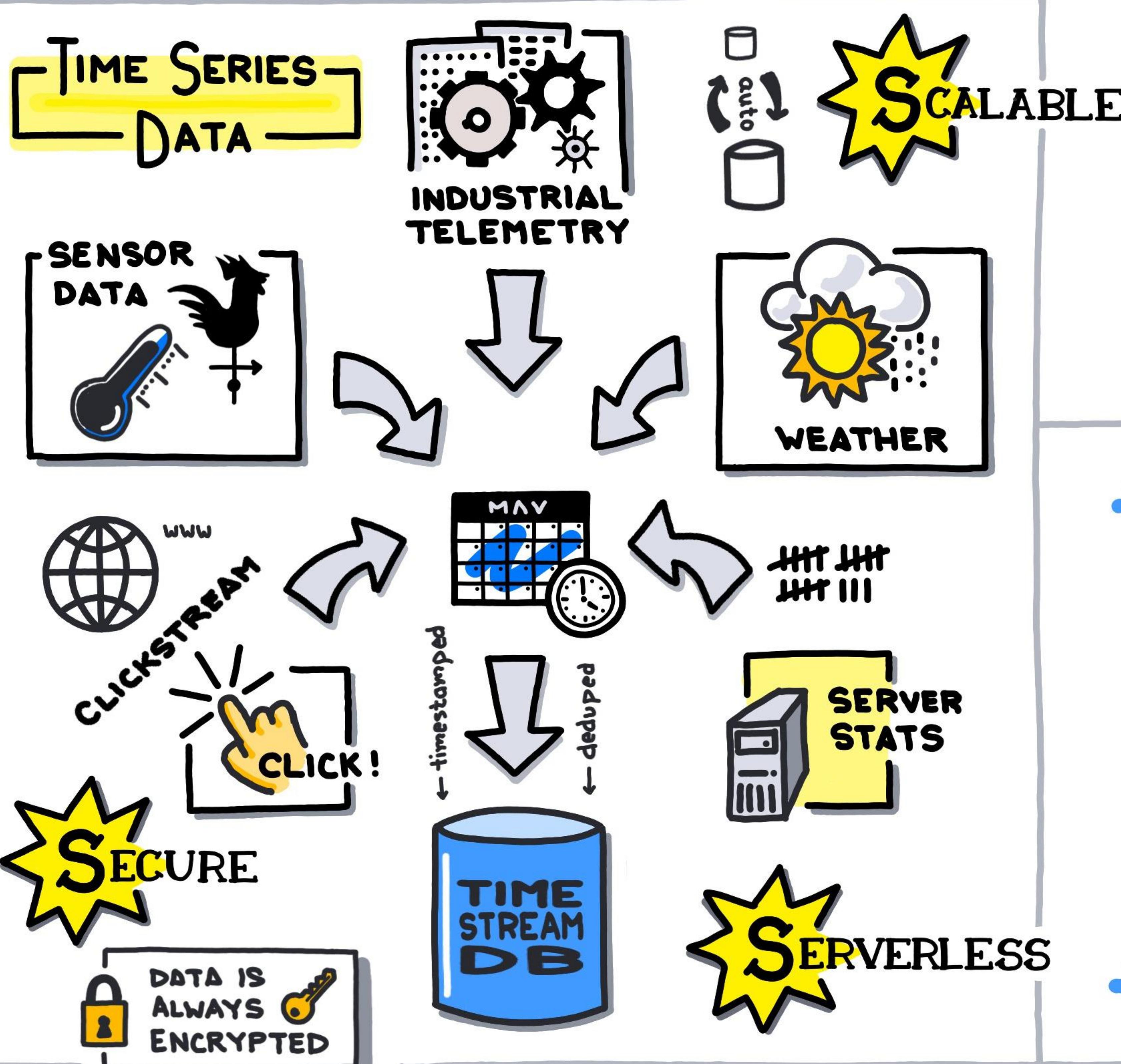
## COMPLIANCE

NEVER DELETE (EVER)

jerry@lucidchart

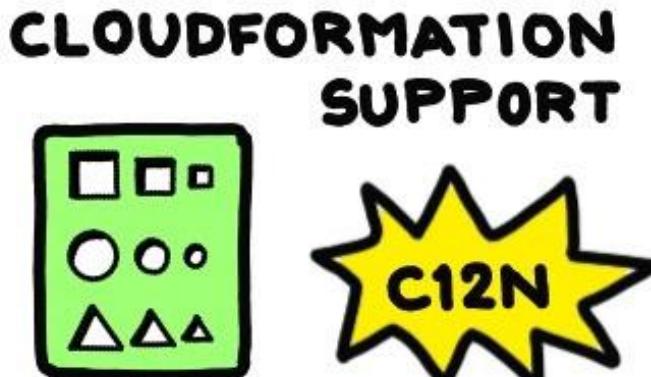
@awsgeek

# TIMESTREAM



# TIMESTREAM

9/30/2020 — TIME • SERIES • DATABASE — DawsgEEK



## TEMPLATE

10/7/19

AMAZON

# EVENTBRIDGE

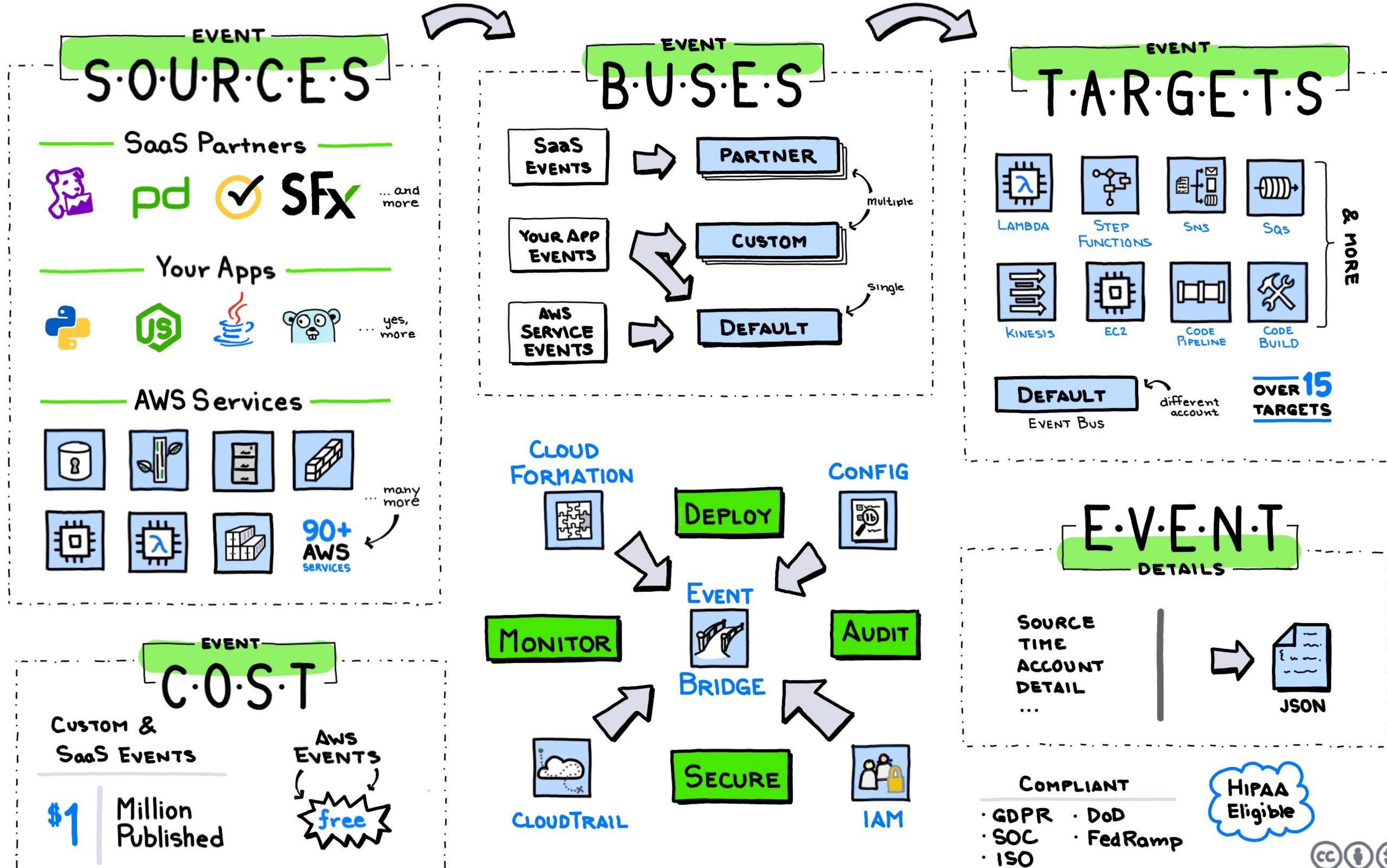
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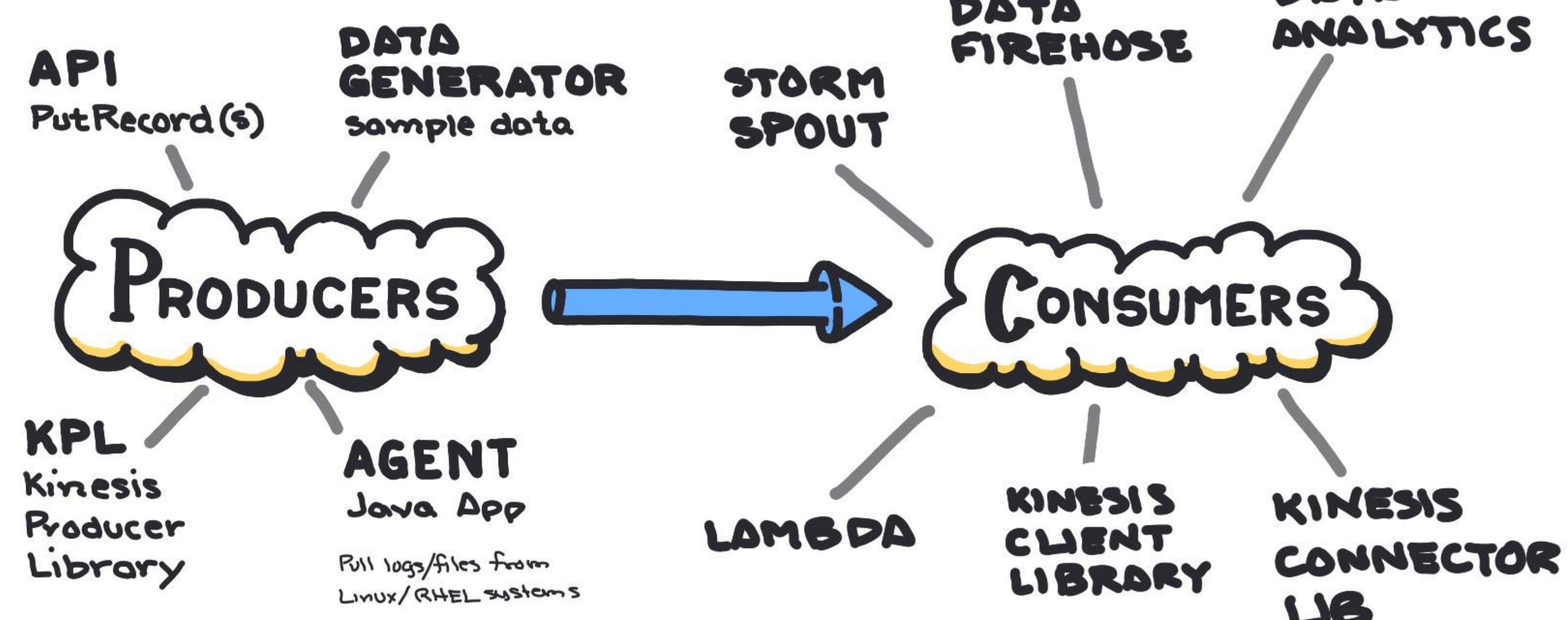
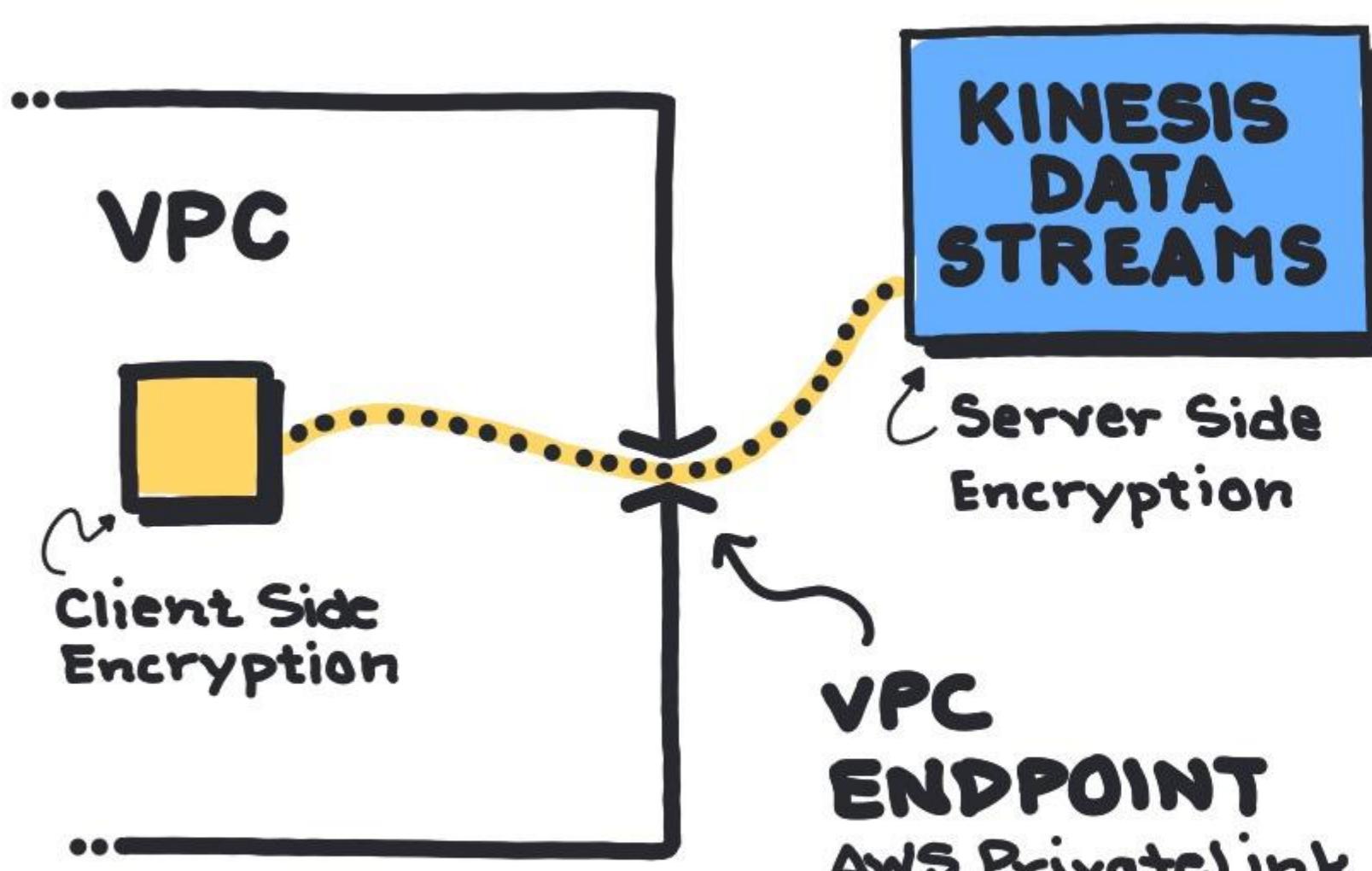
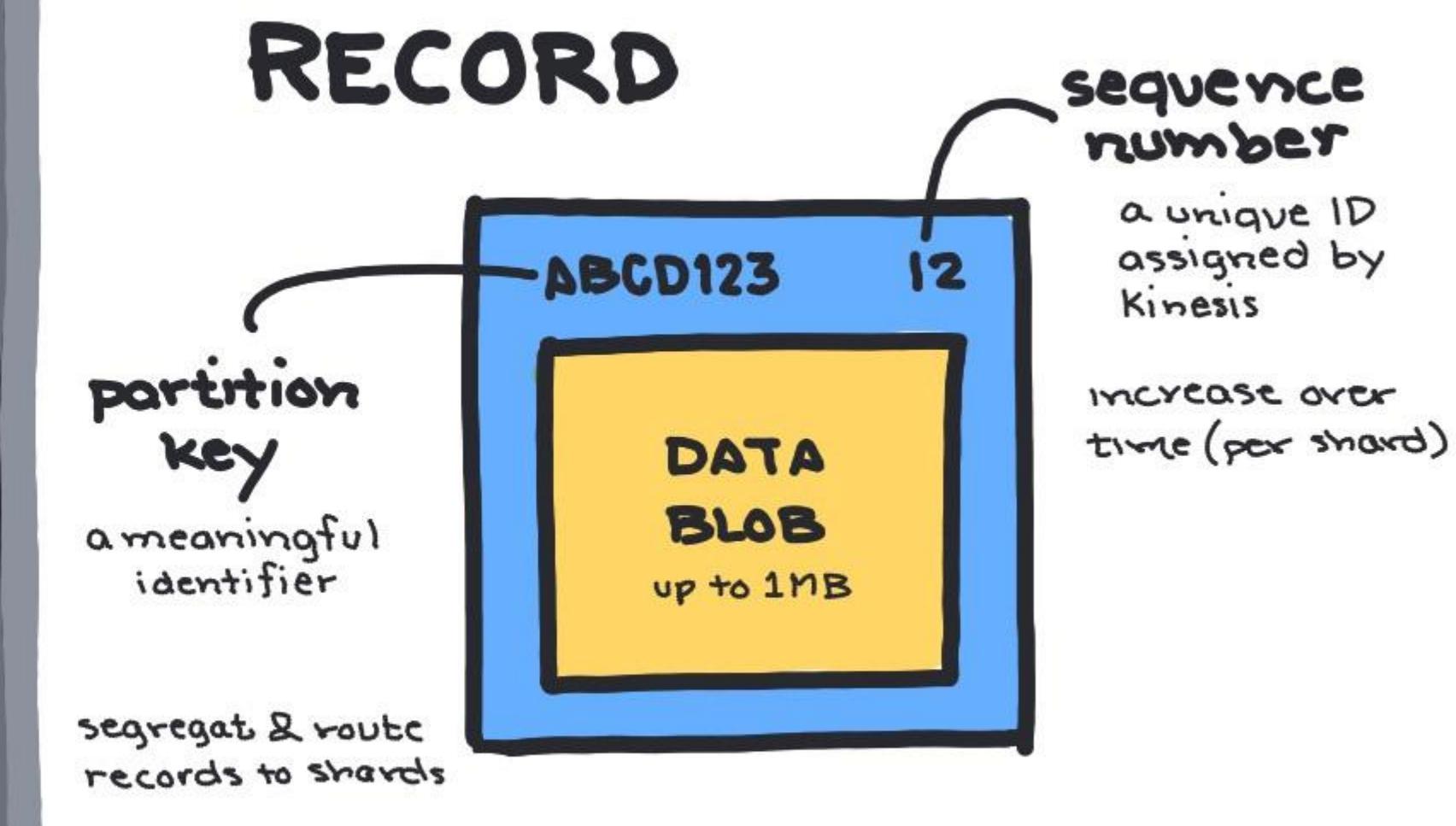
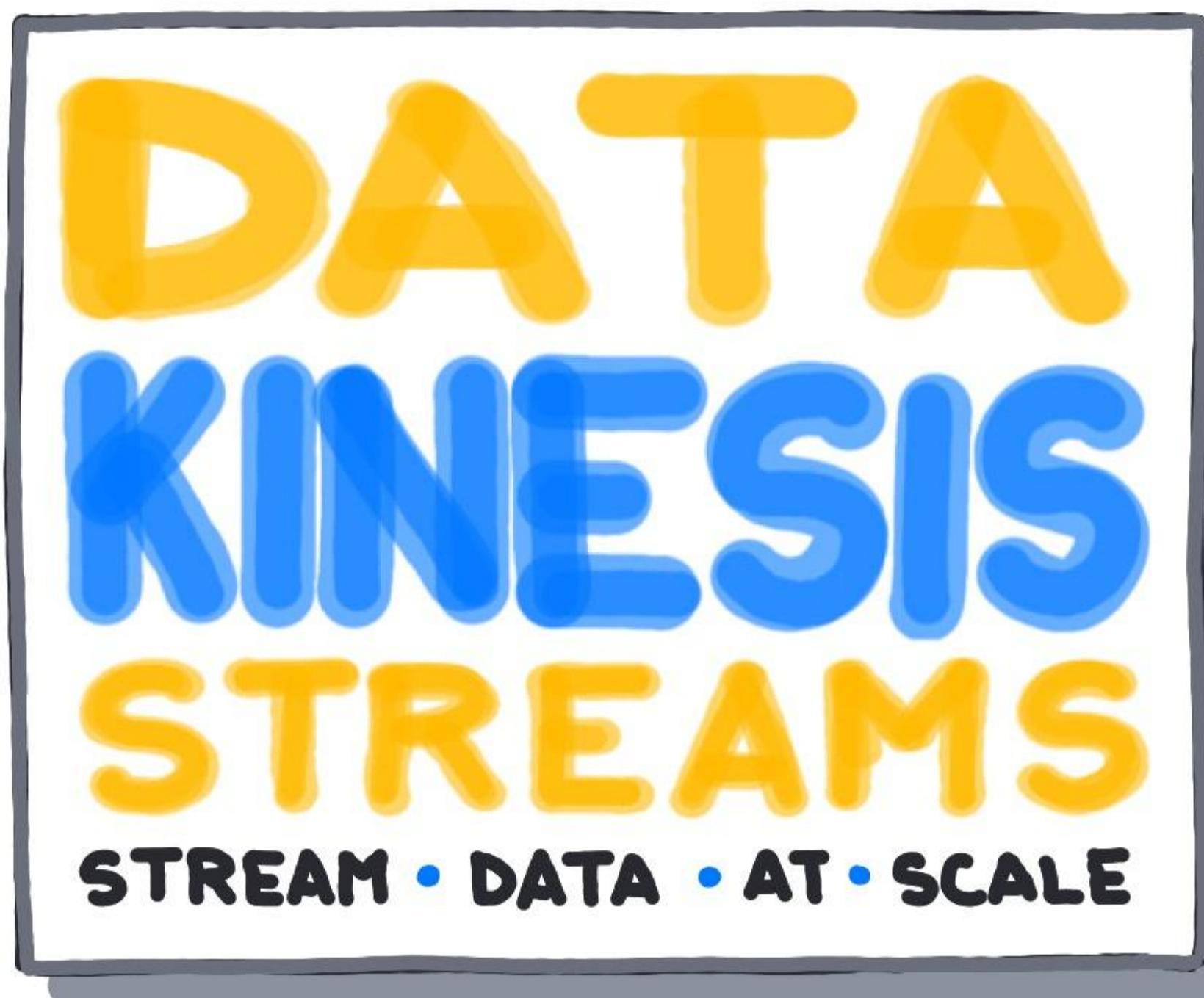
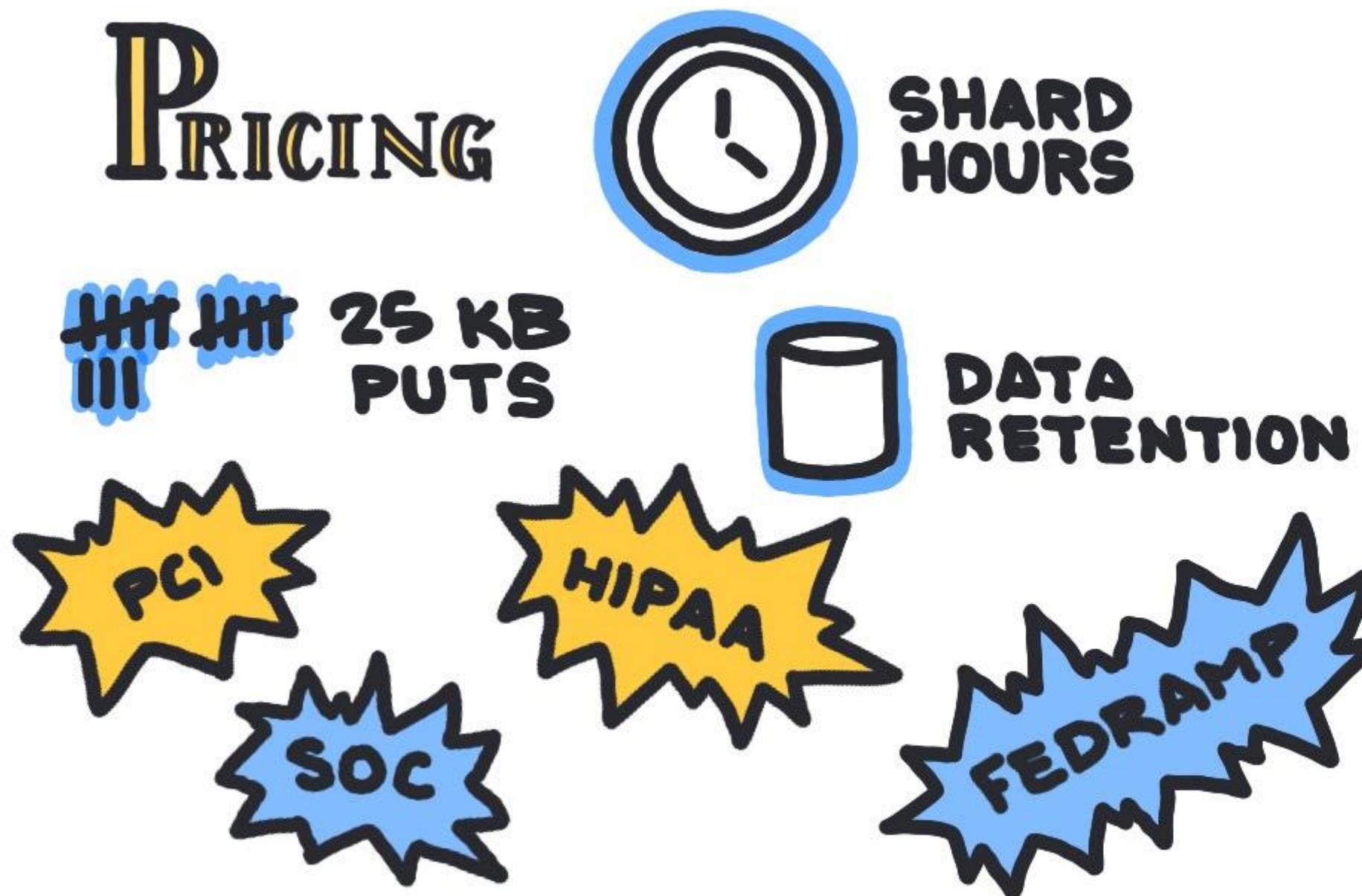
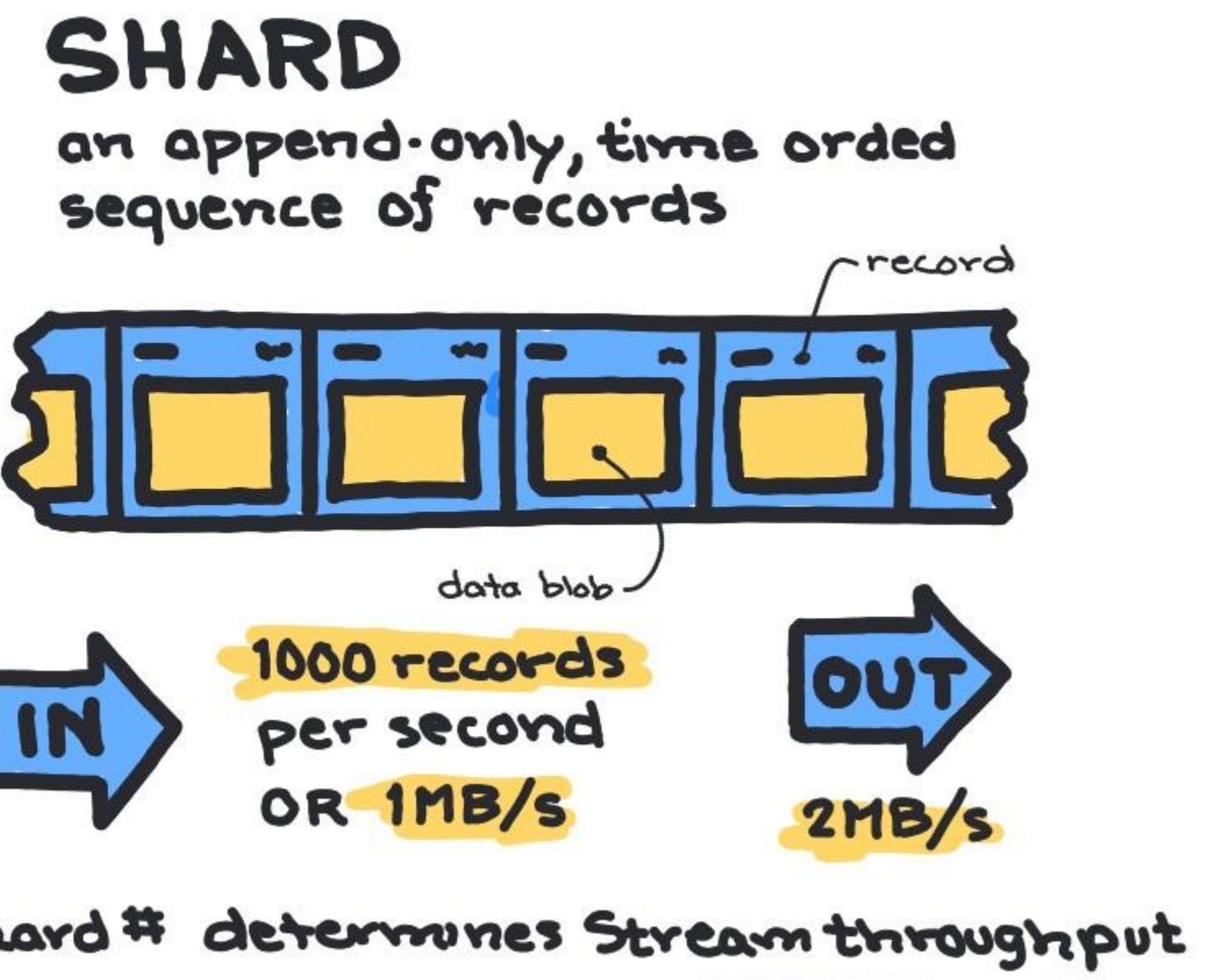
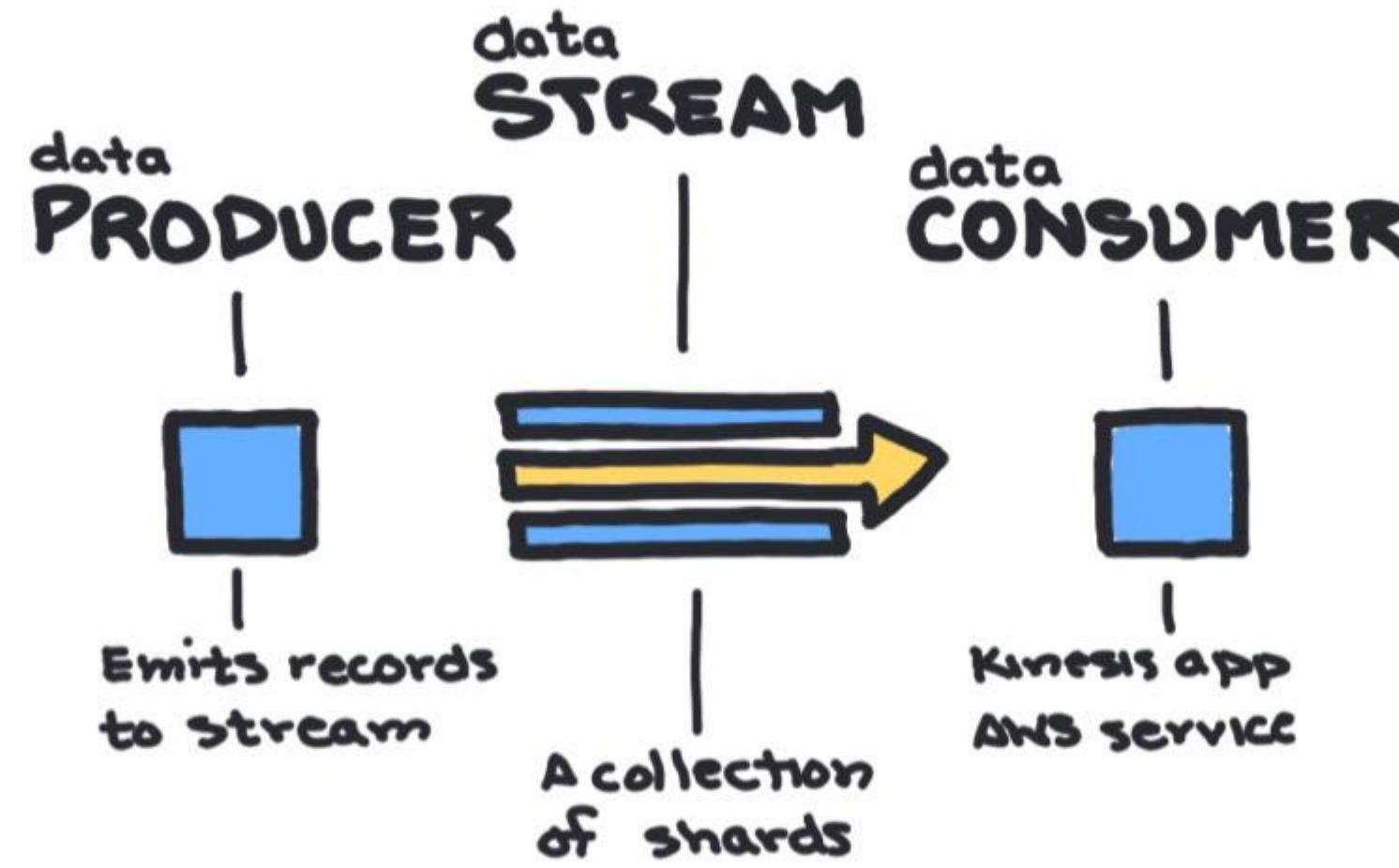
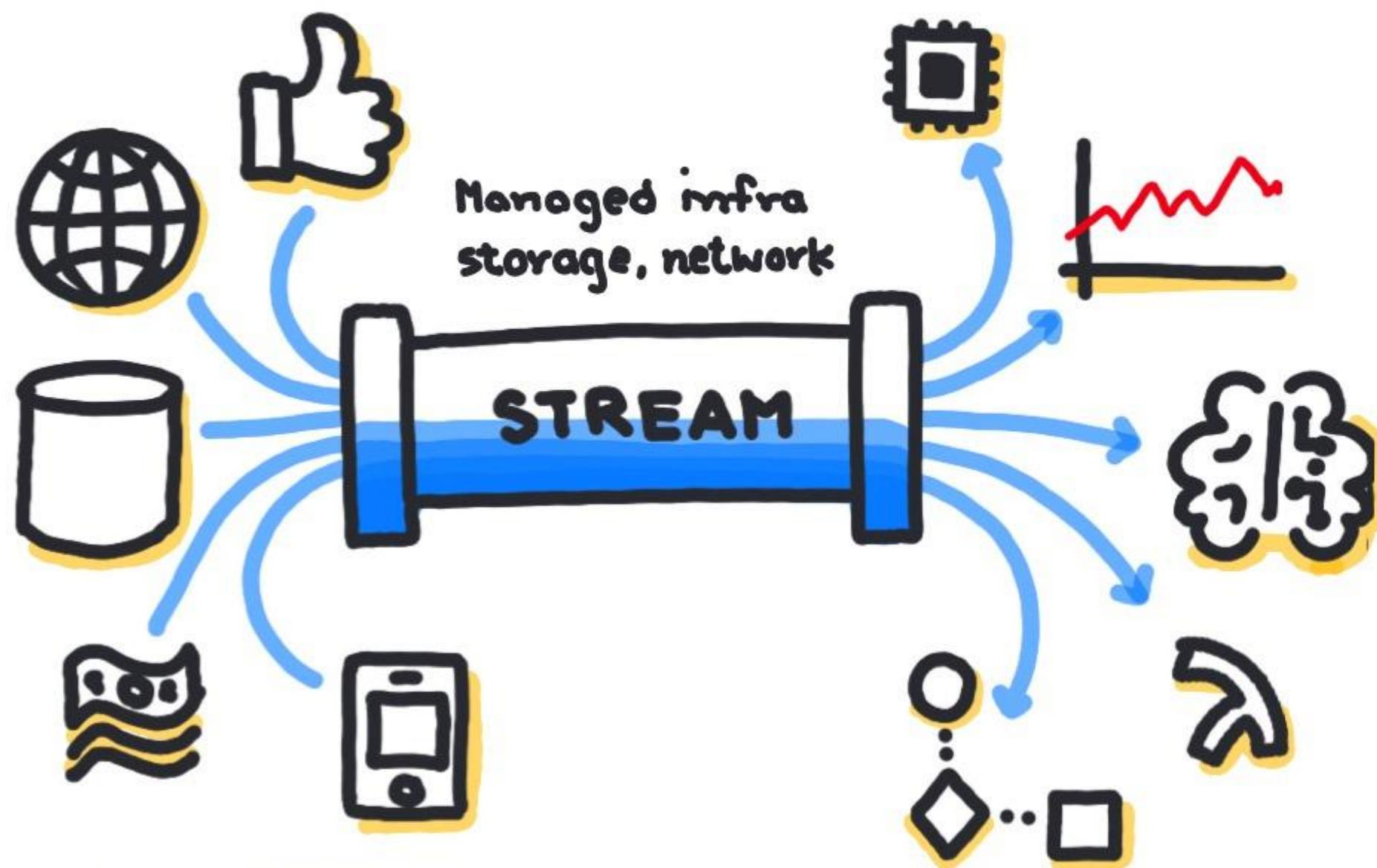
- **Dawsgeek**

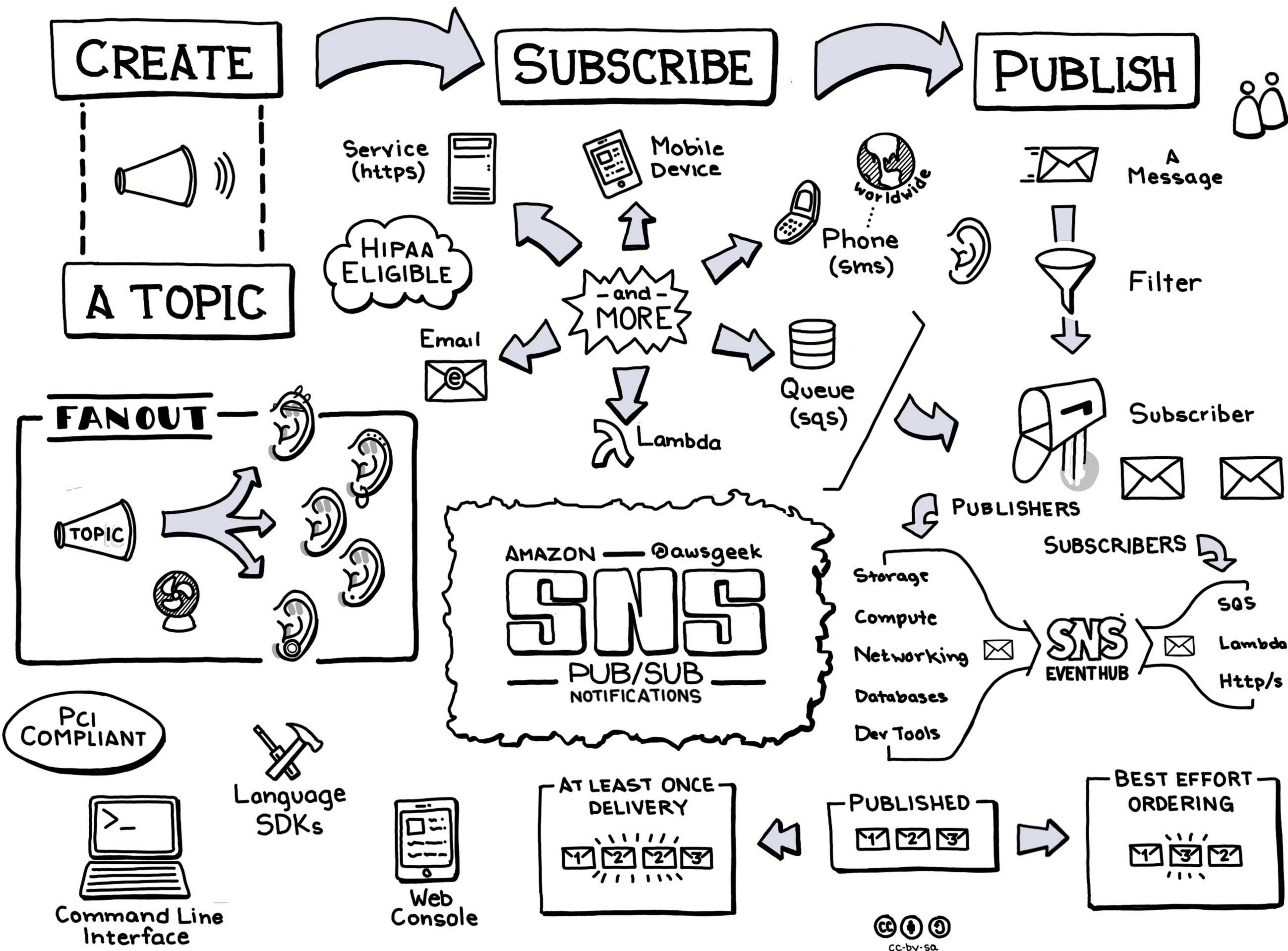
# THE SERVICE FORMERLY KNOWN AS



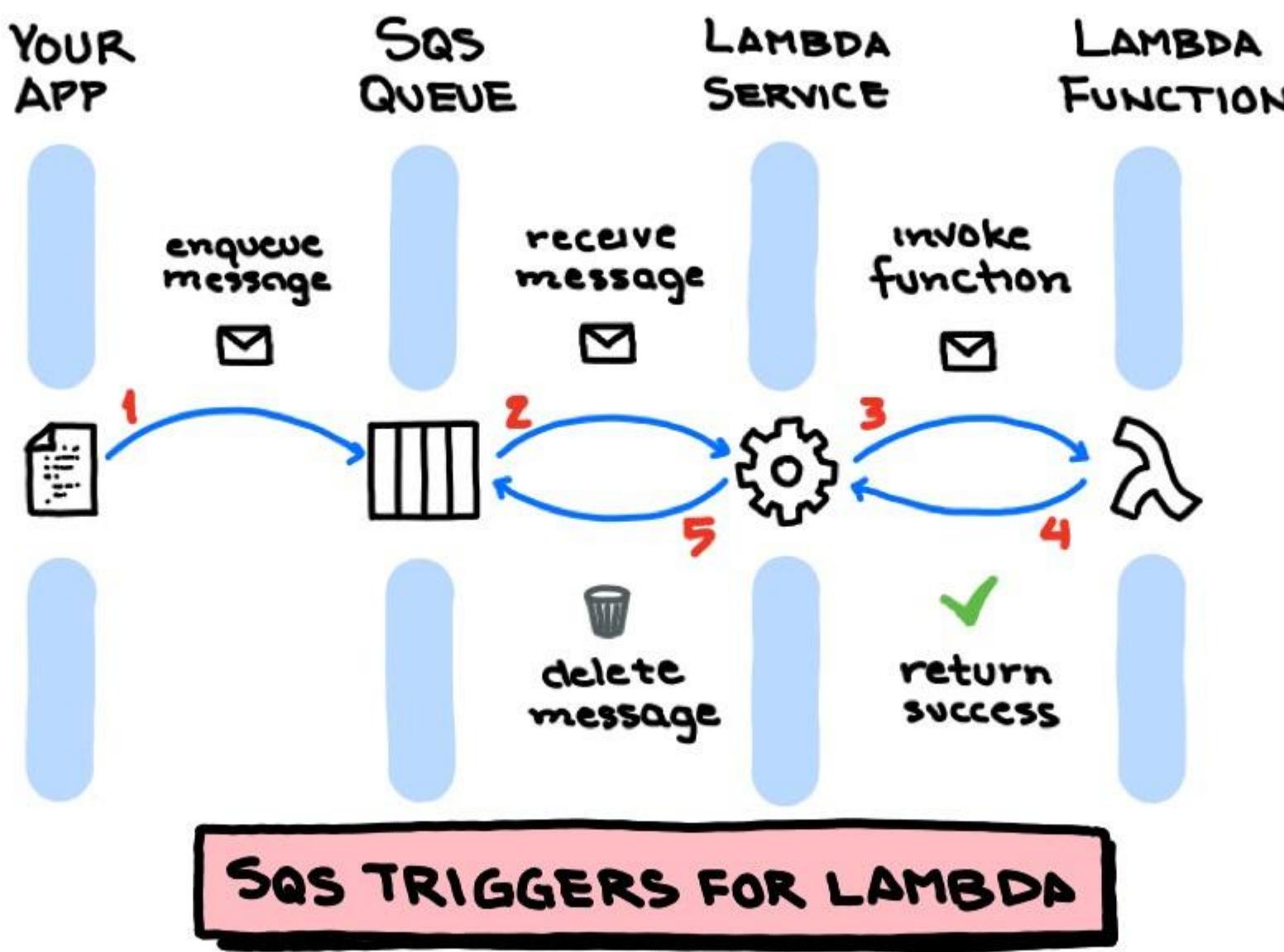
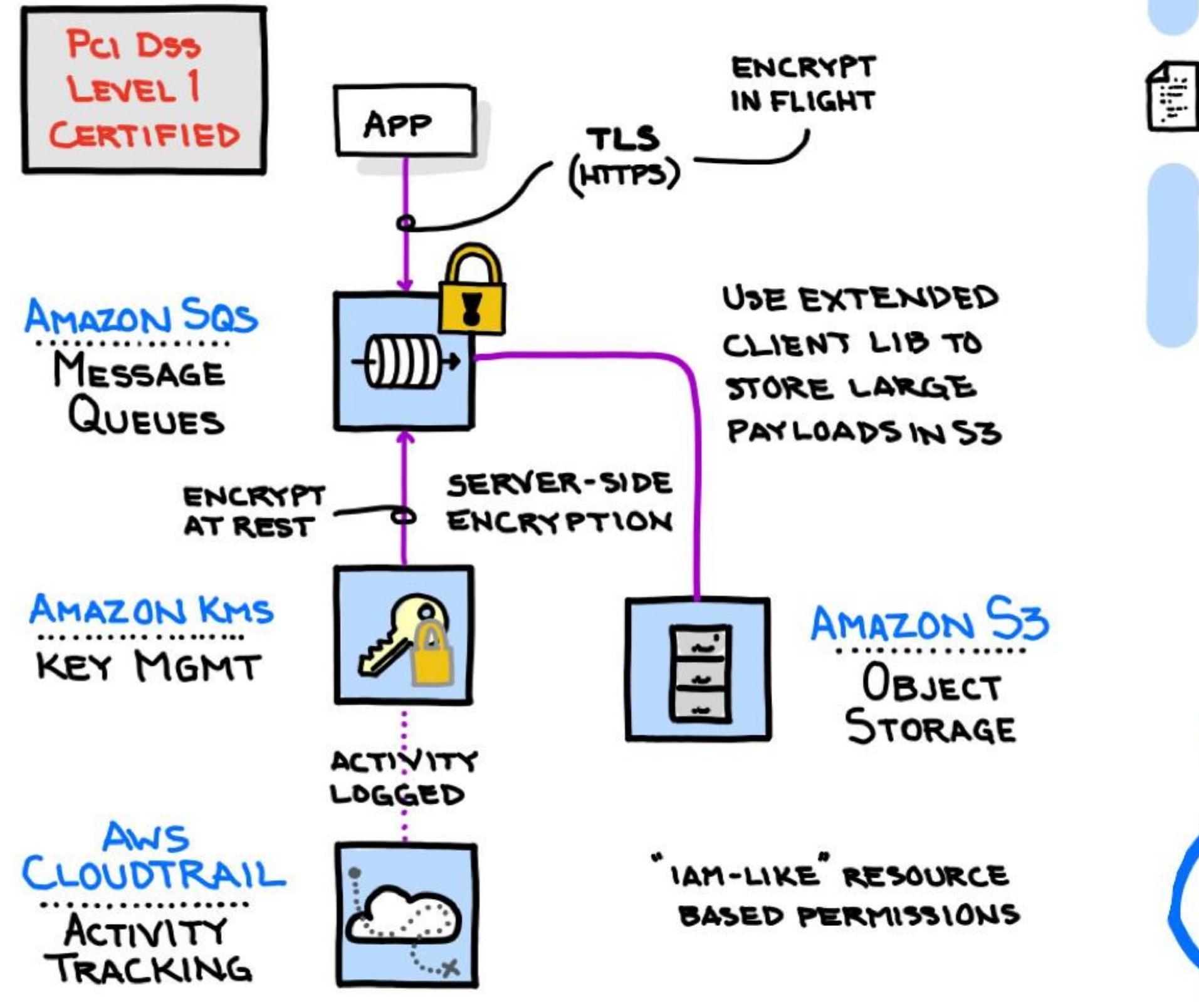
## CLOUDWATCH EVENTS







# Security



# Pricing

each 64K chunk of payload counts as 1 request

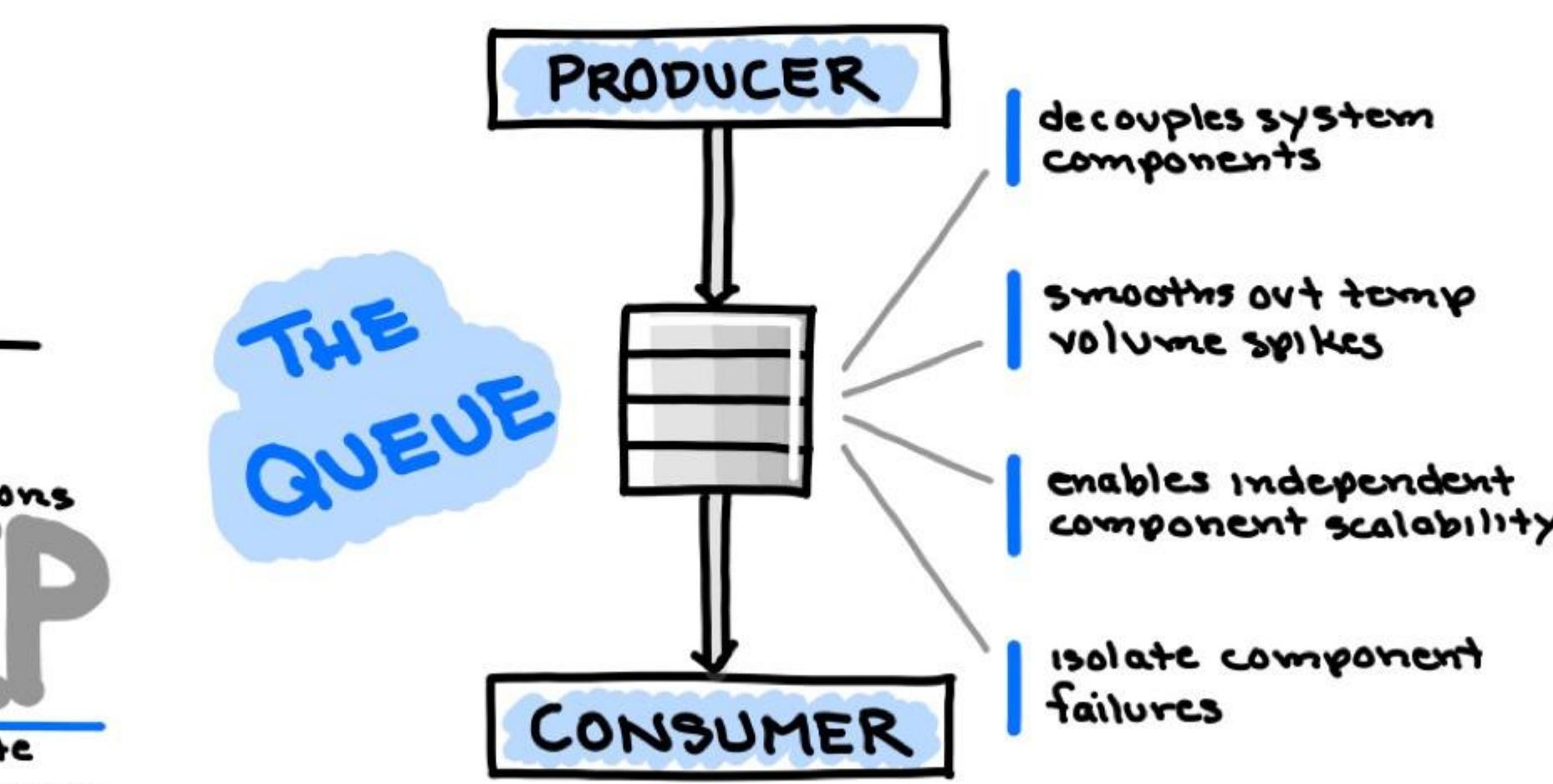
additional costs for S3 + KMS

**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



# Limits

MESSAGE RETENTION PERIOD

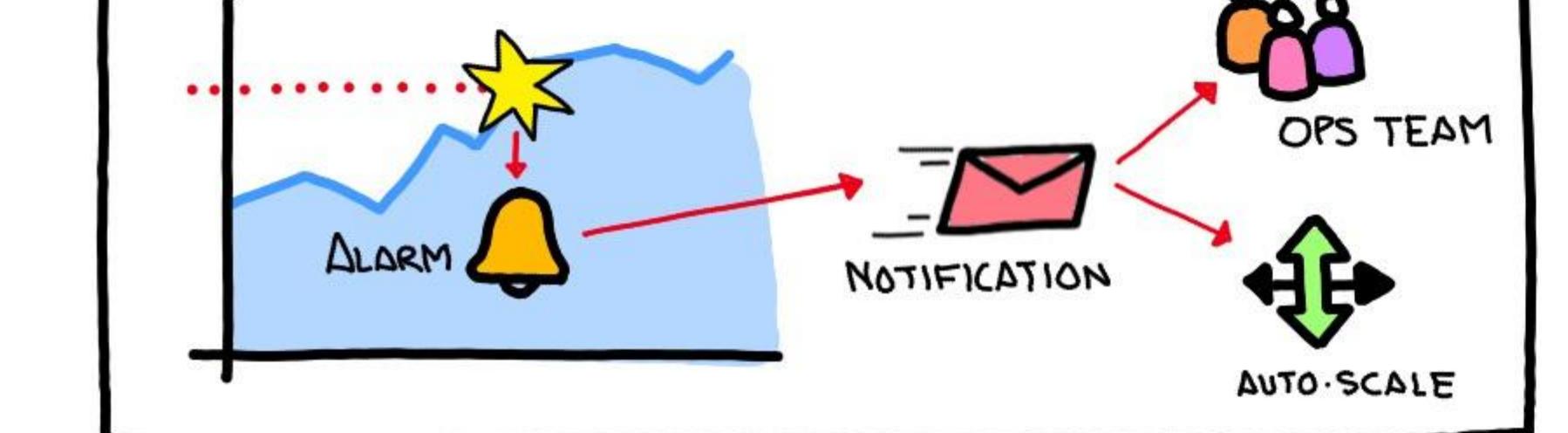
MIN: 1 MIN MAX: 14 DAYS

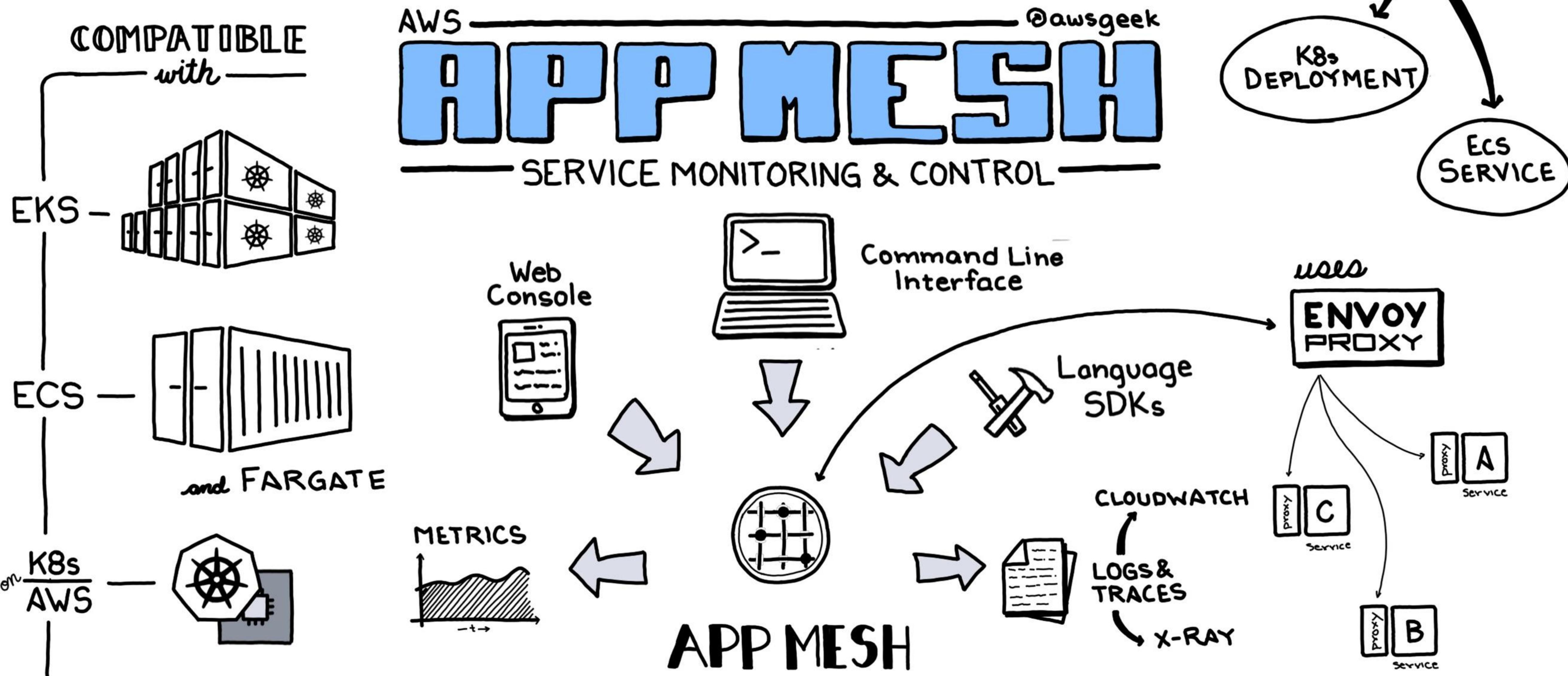
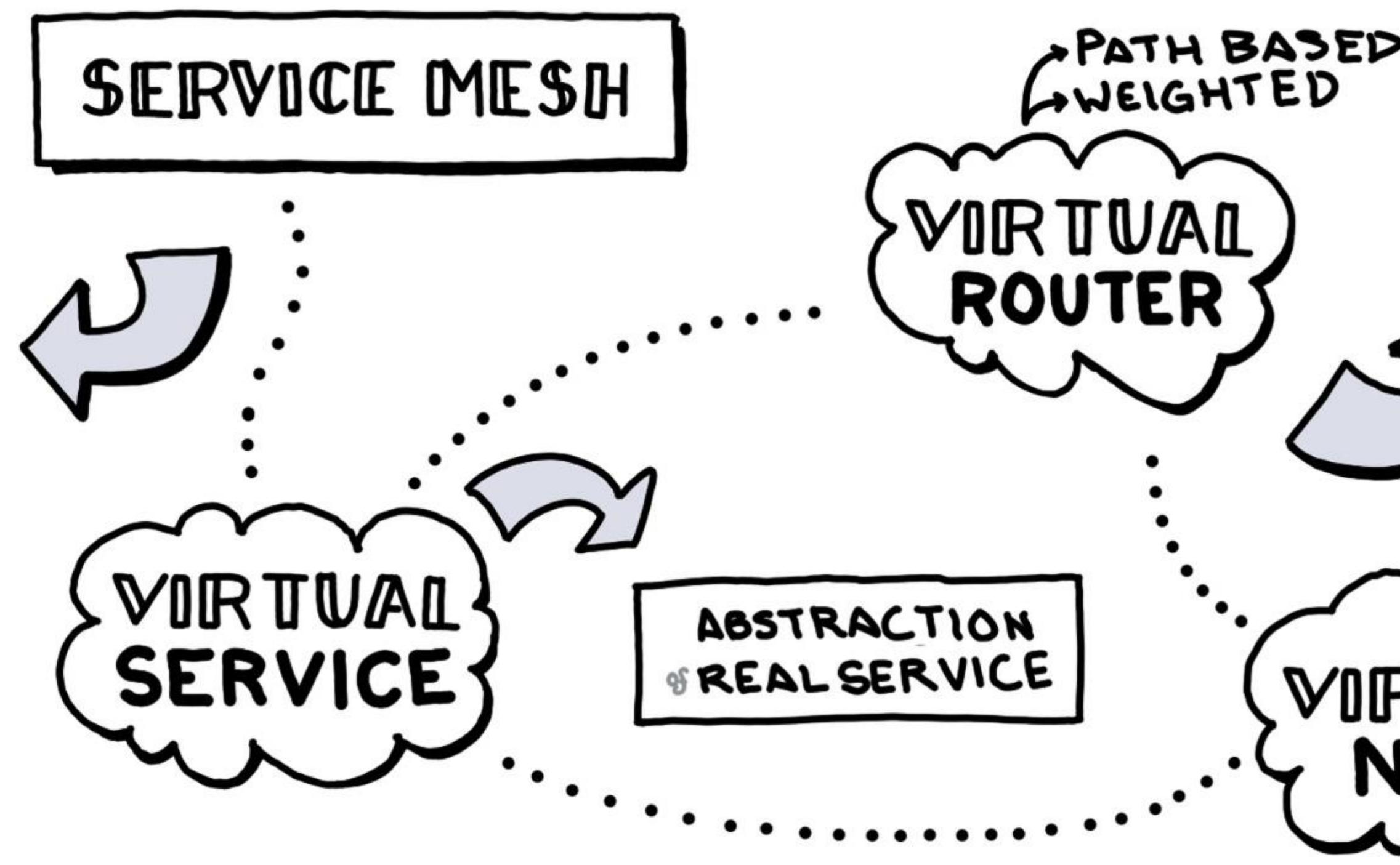
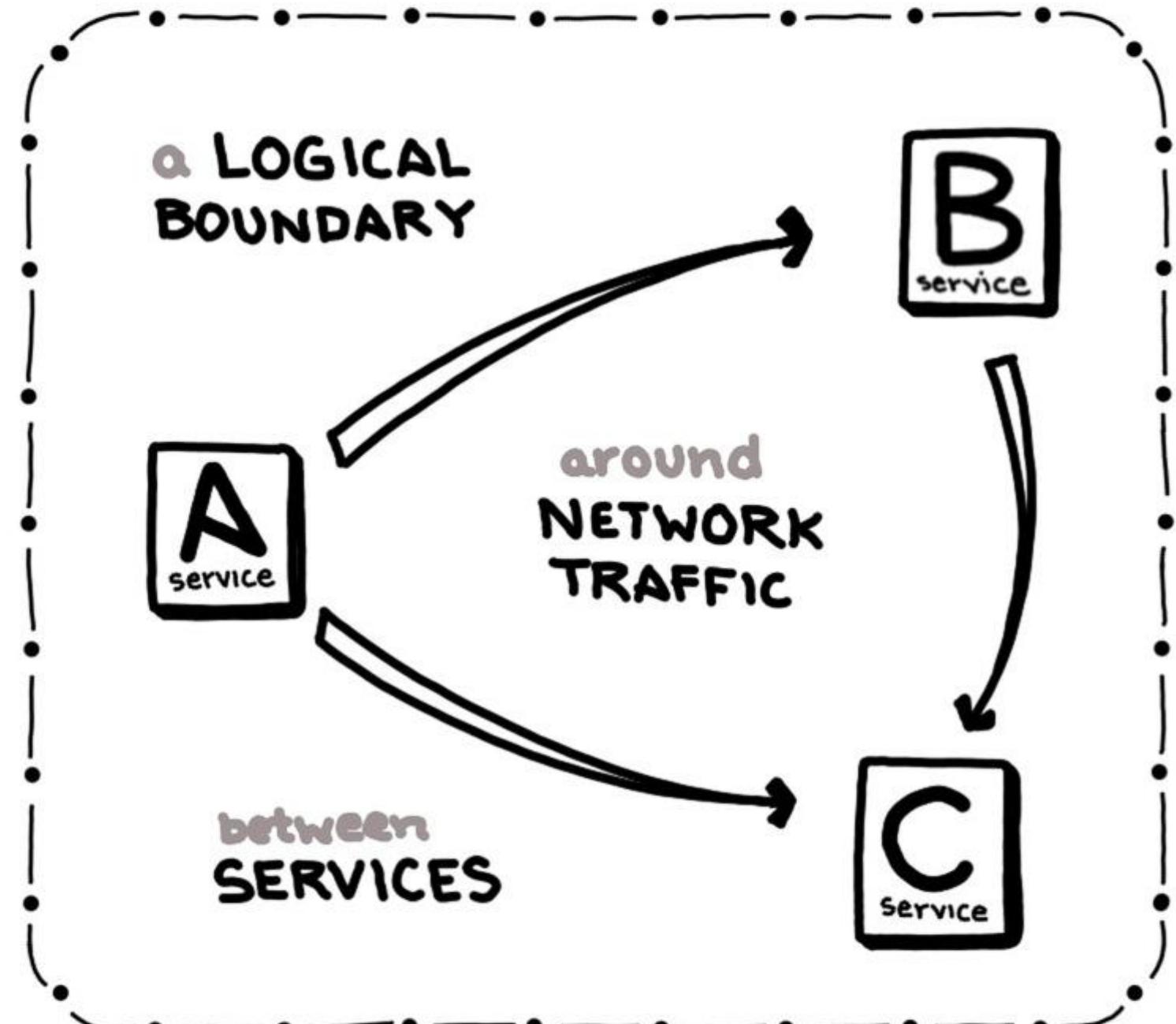
MAXIMUM MESSAGE SIZE

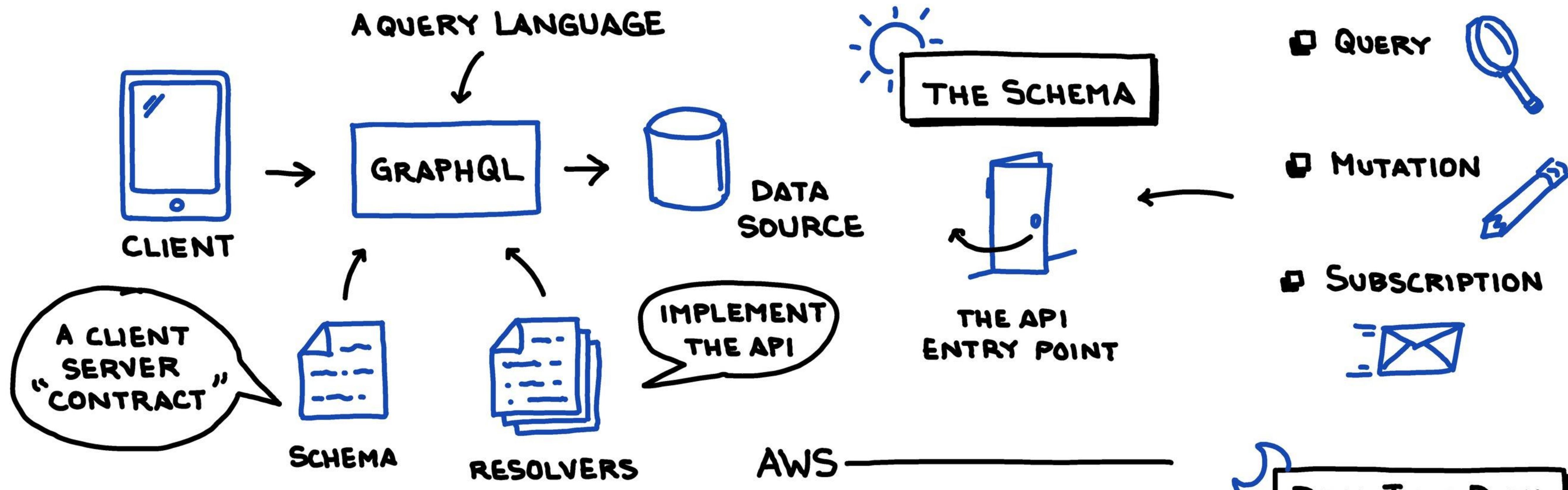
MIN: 1 KB MAX: 256 KB

MAXIMUM INFLIGHT MESSAGES

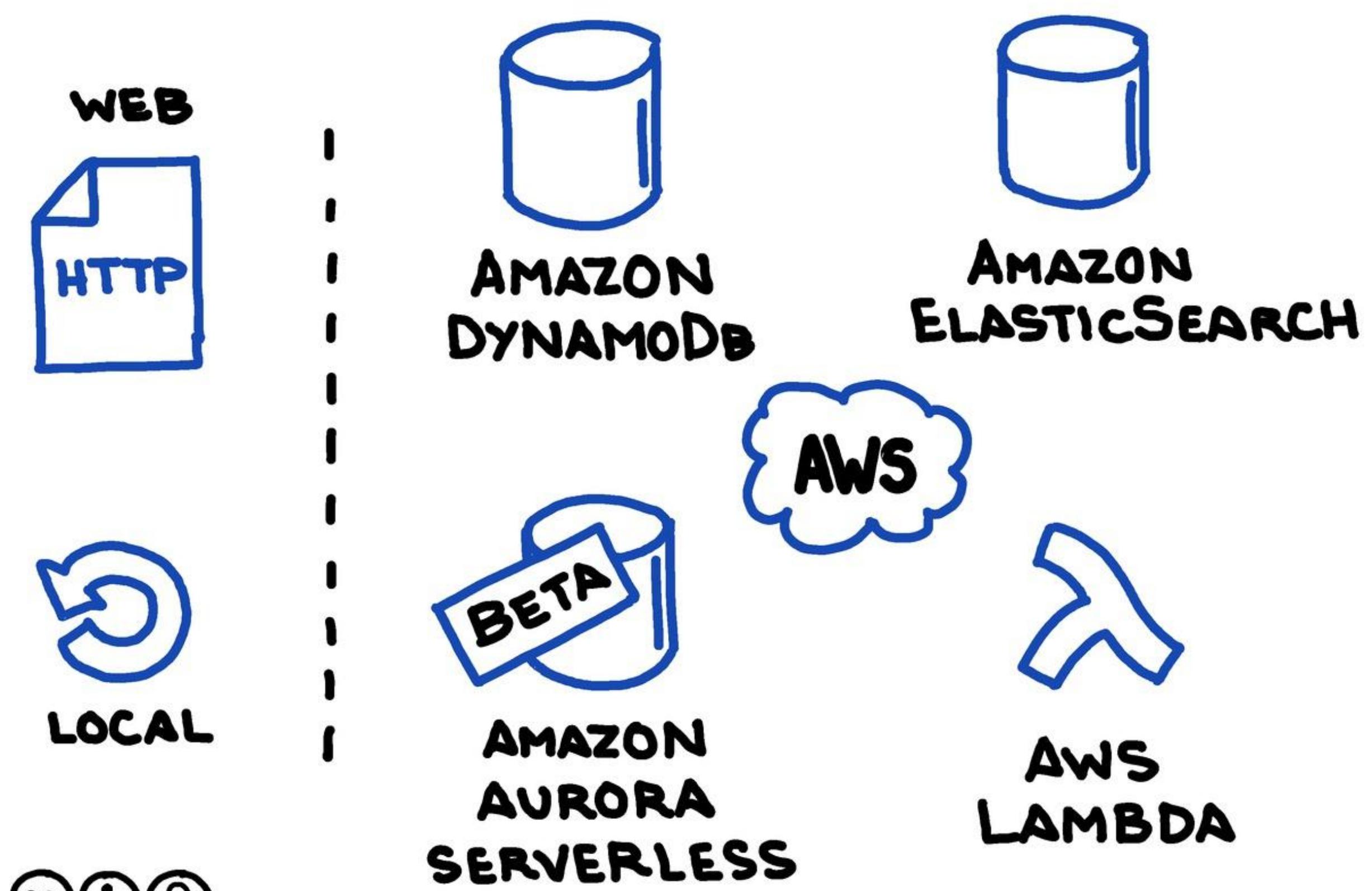
STD: 120K FIFO: 20K







## RESOLVERS



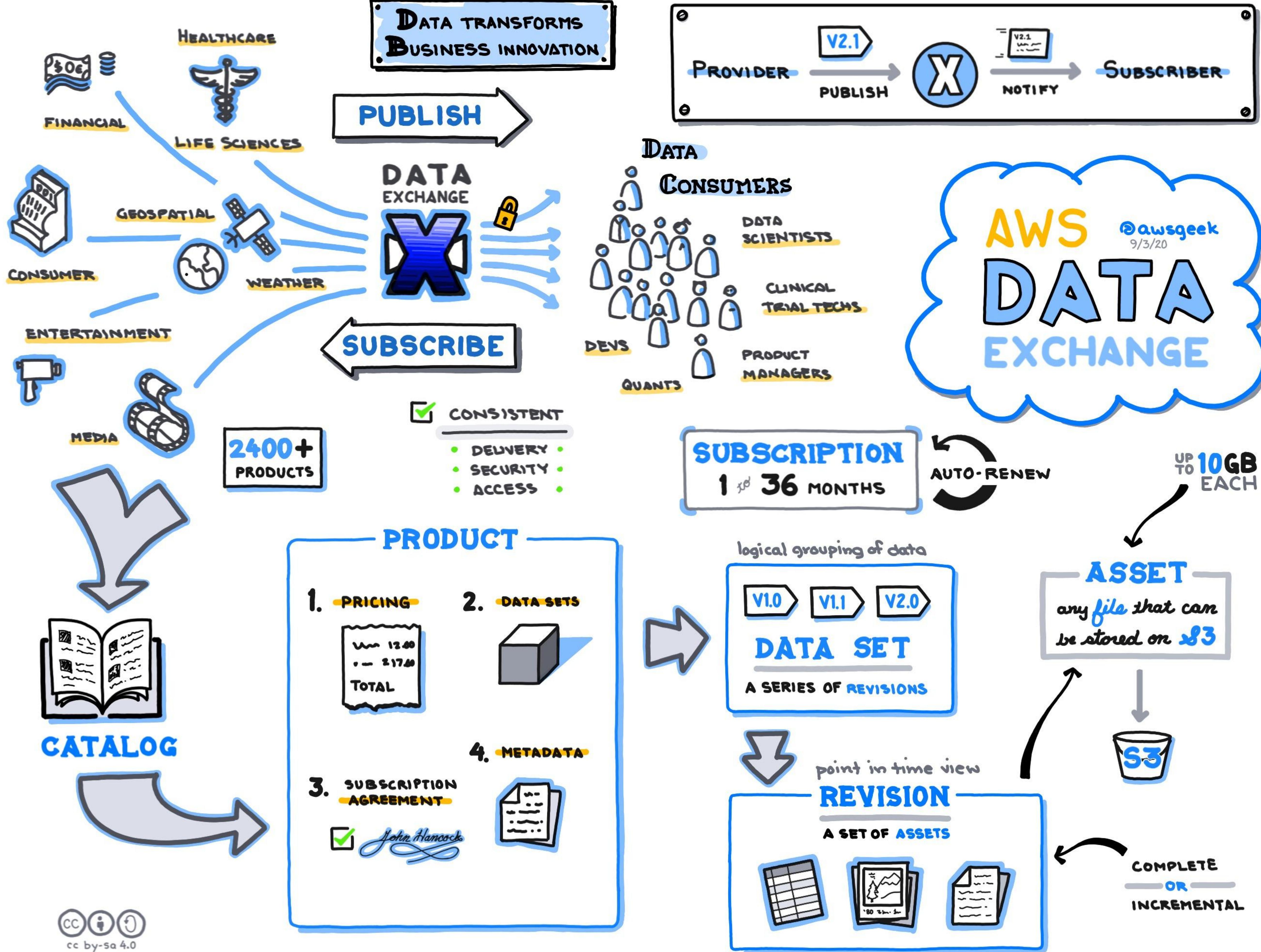
AWS —  
**APPSYNC**  
MANAGED • GRAPHQL  
1/23/19 @awsgeek

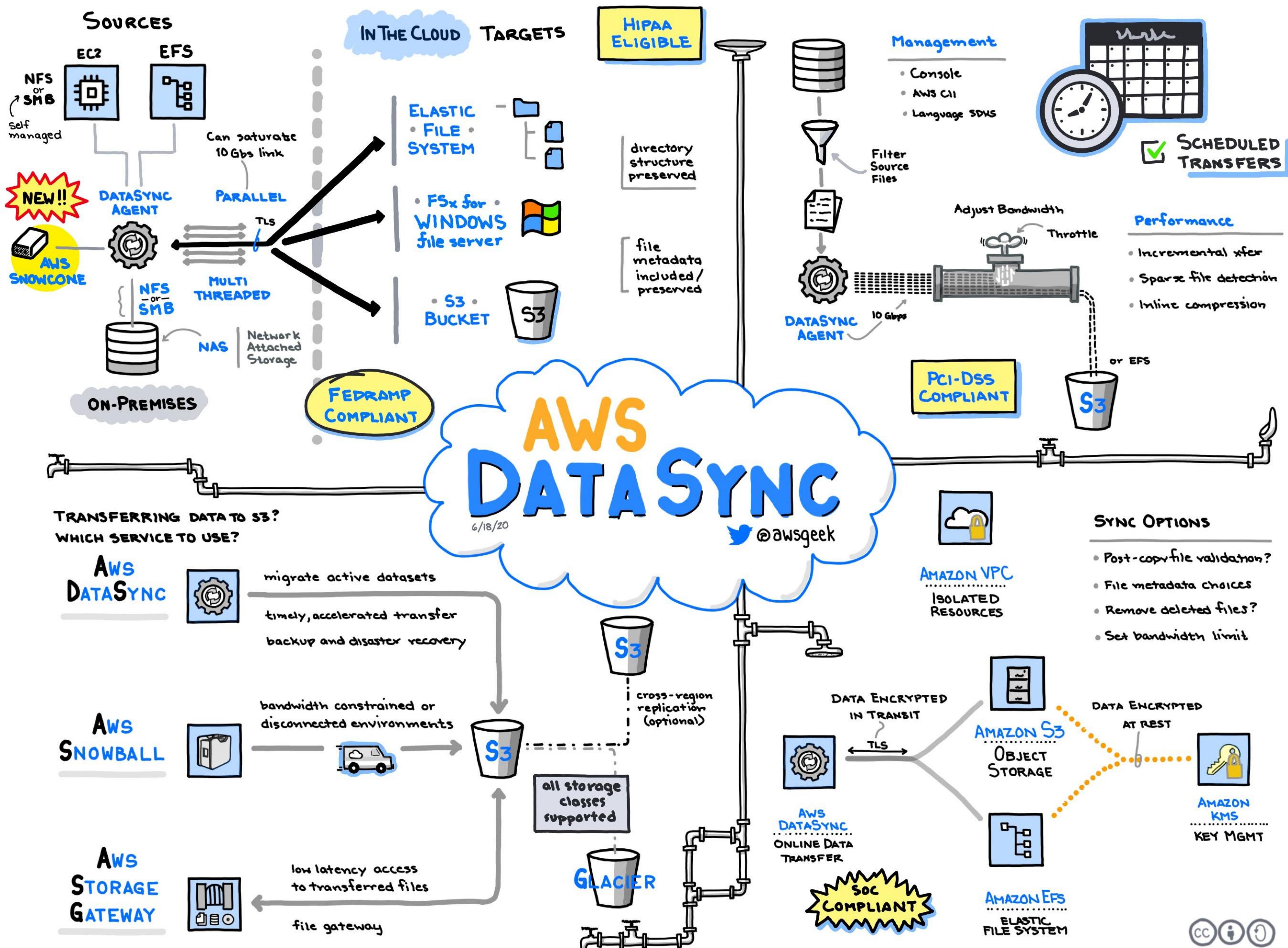
### OFFLINE DATA ACCESS

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

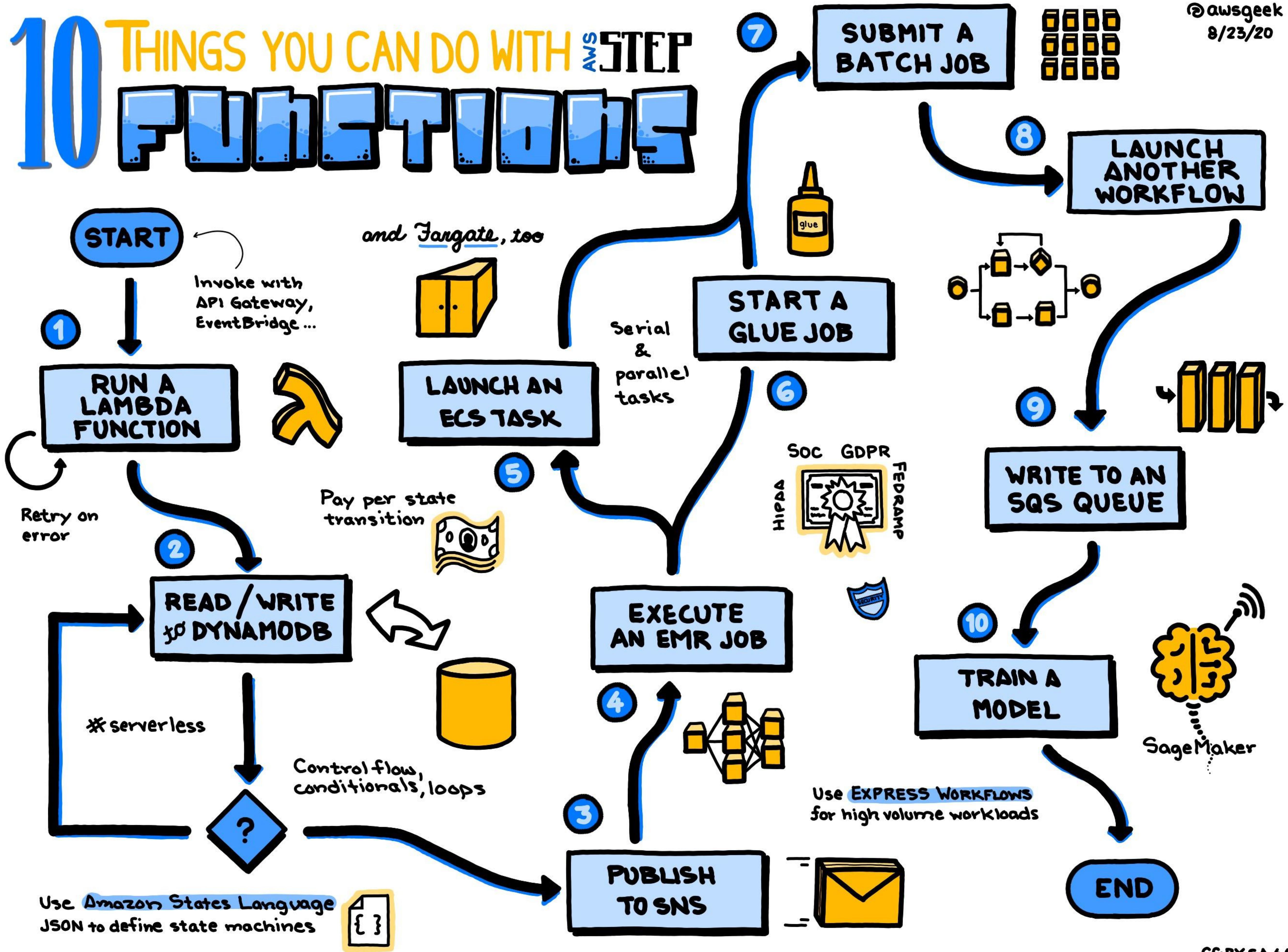
### REAL-TIME DATA







# 10 THINGS YOU CAN DO WITH AWS STEP FUNCTIONS



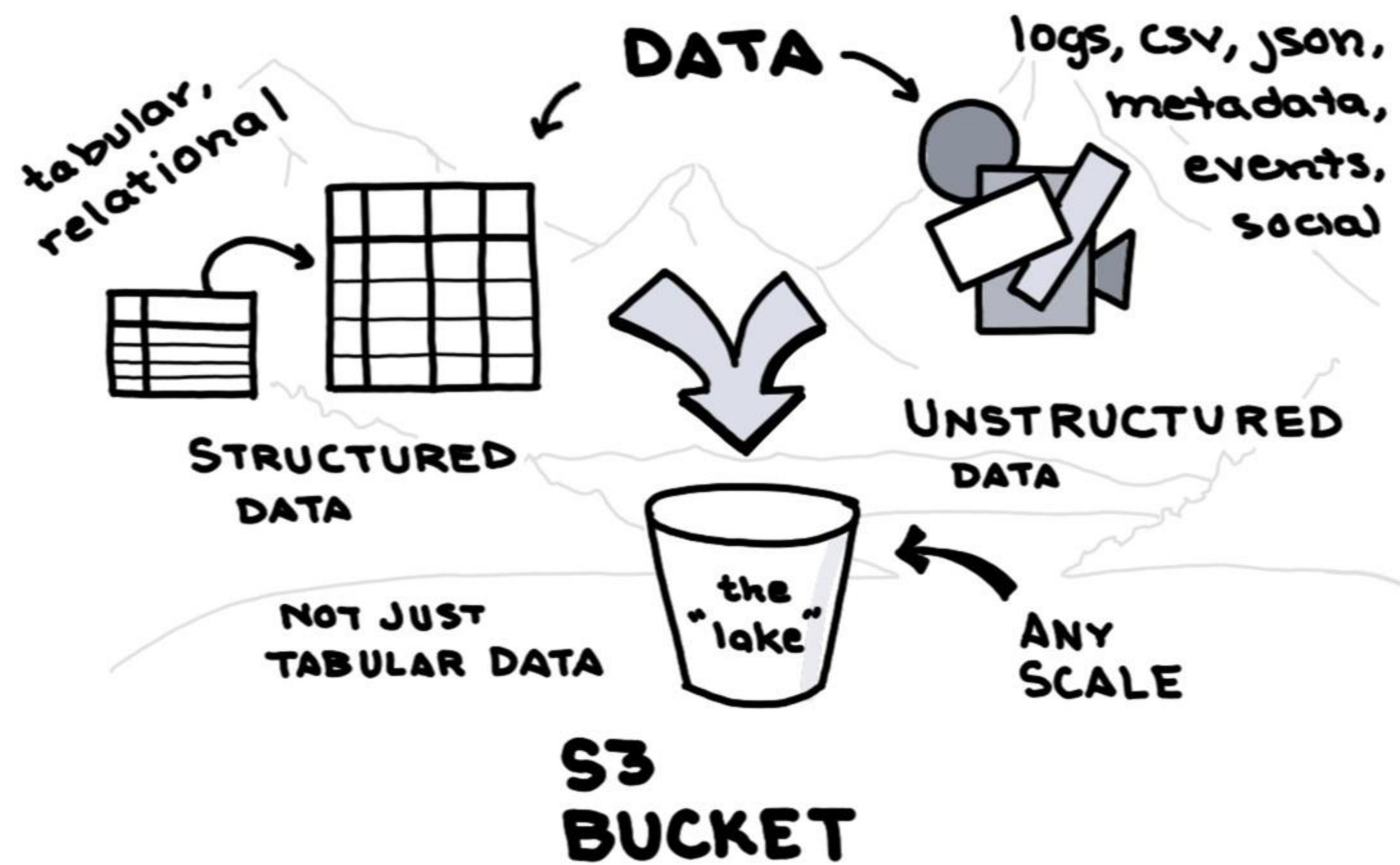
## INGEST

1



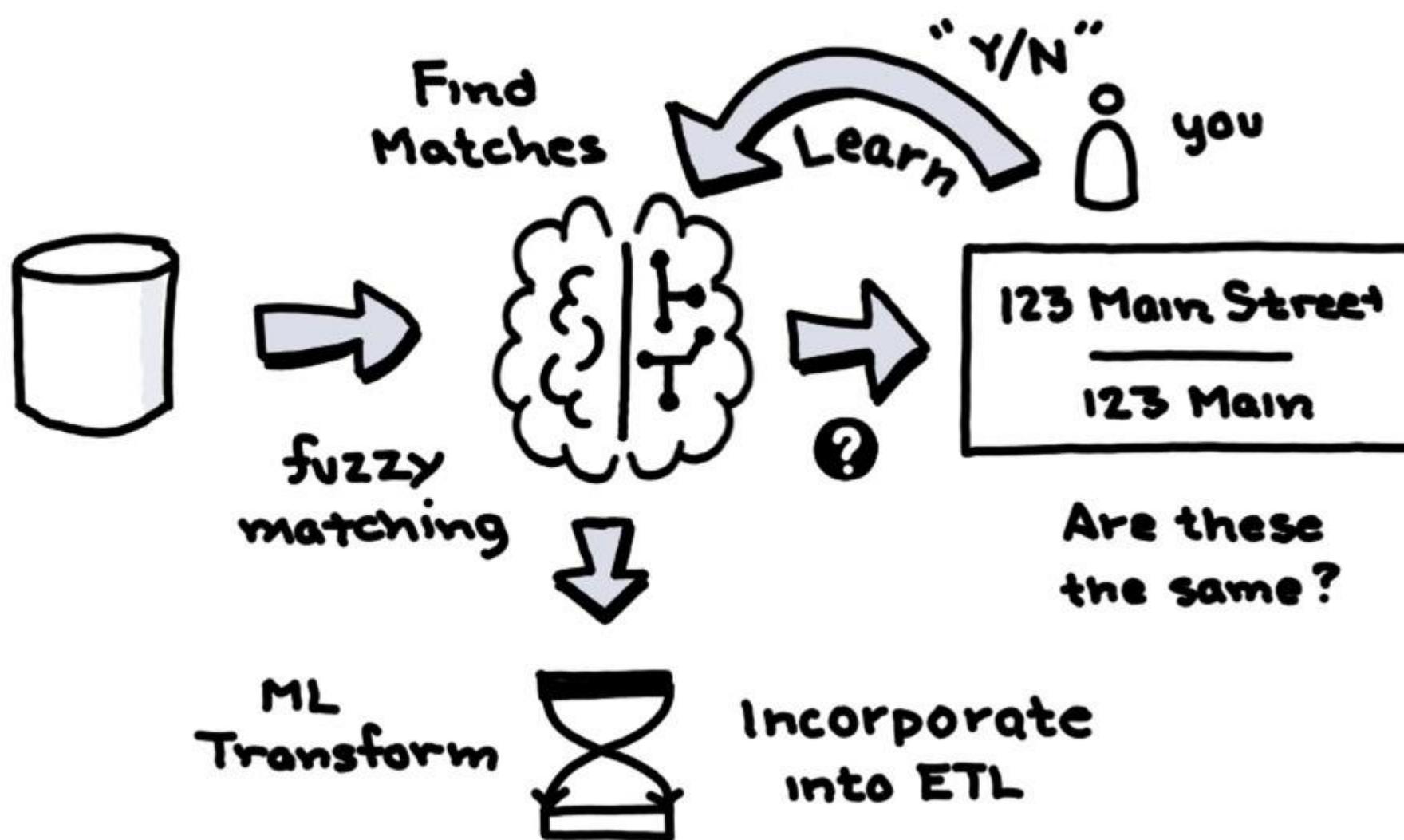
# AWS LAKE FORMATION

DATA LAKE SERVICE © awsgeek

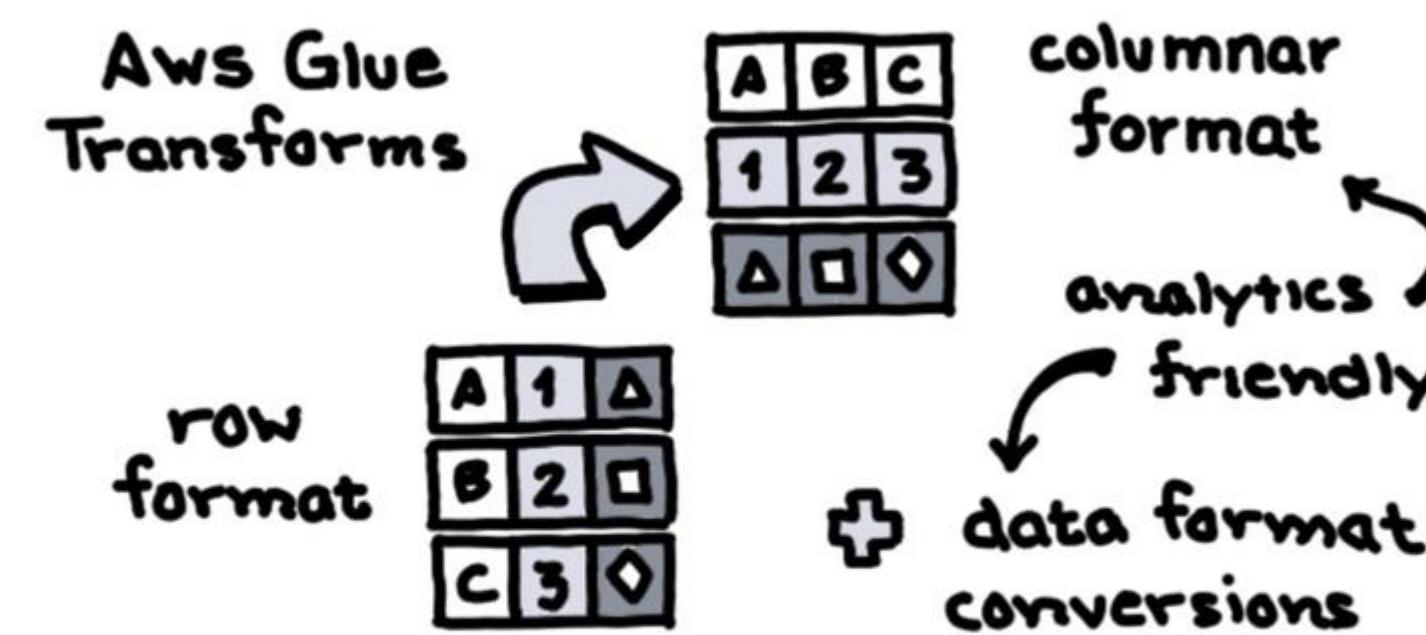


## CLEAN

2

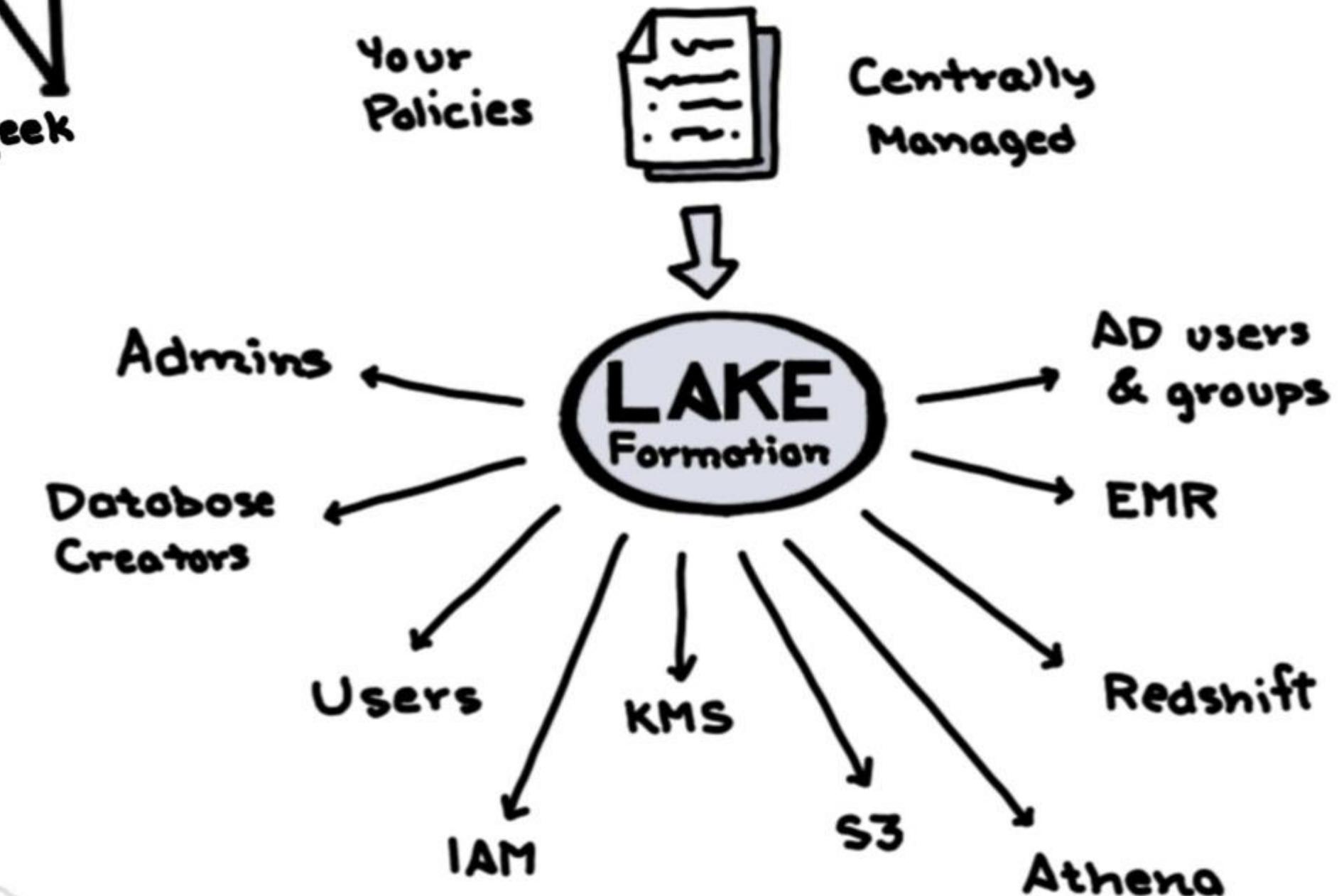


## TRANSFORM



## SECURE

5



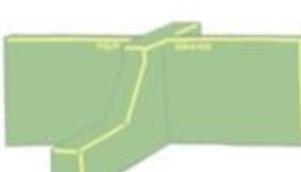
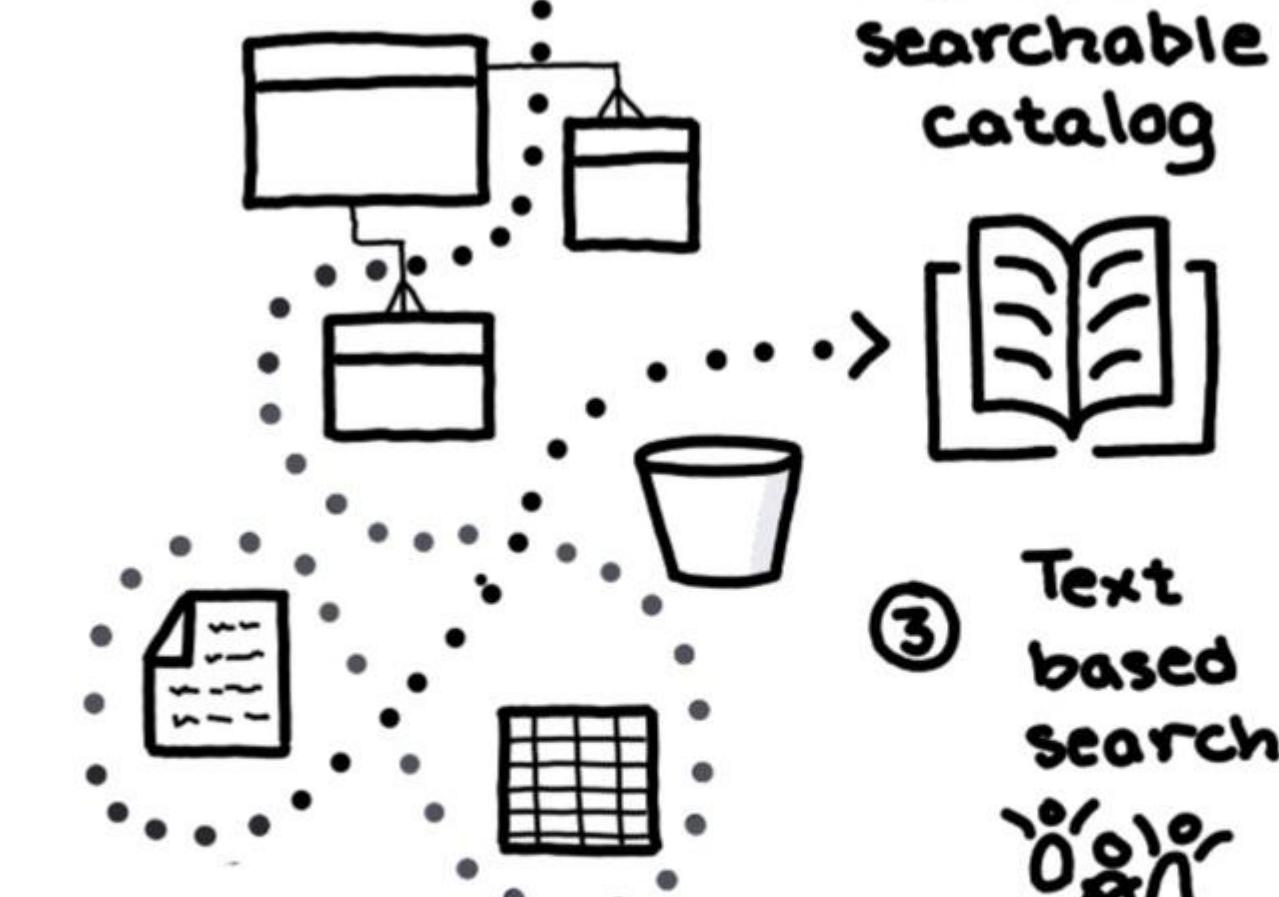
## CATALOG

4

1 Crawl data sources

2 Create searchable catalog

3 Text based search



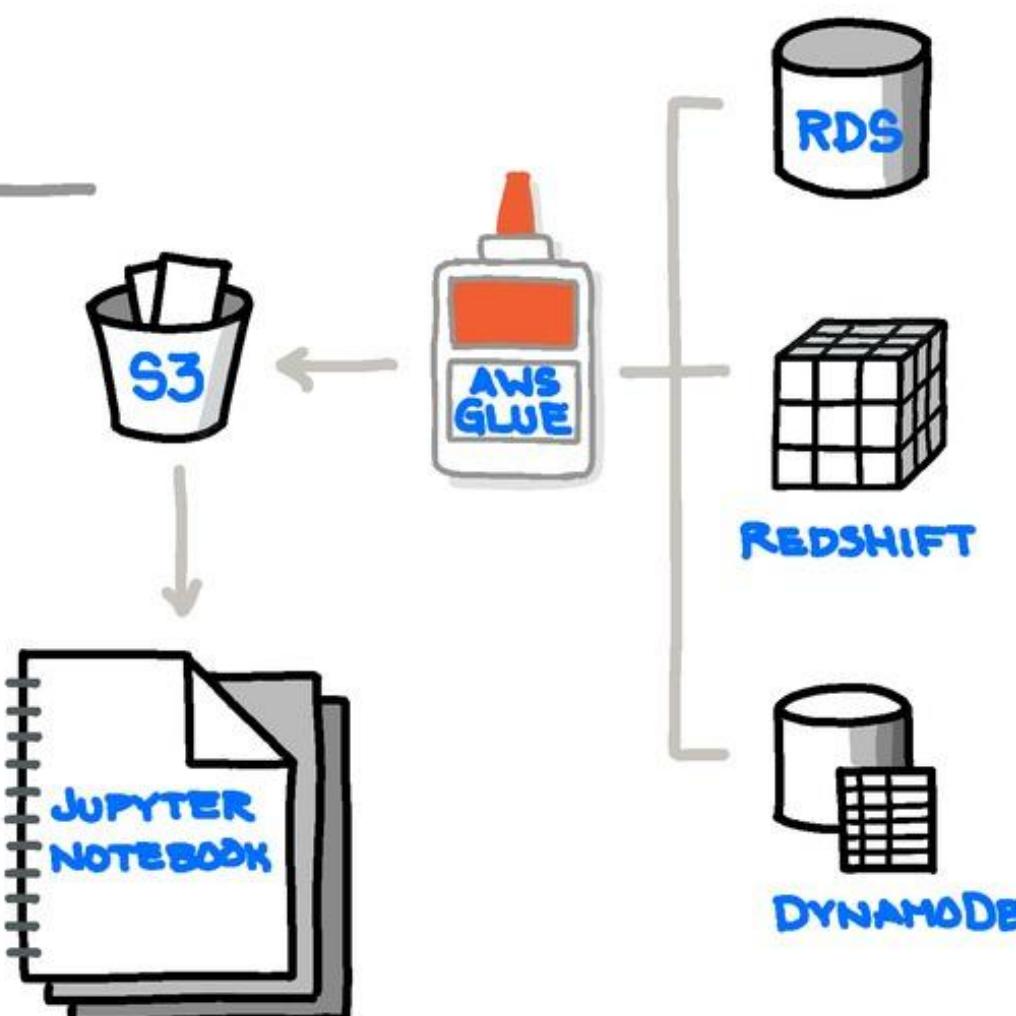
## BUILD

### COMMON TEMPLATES

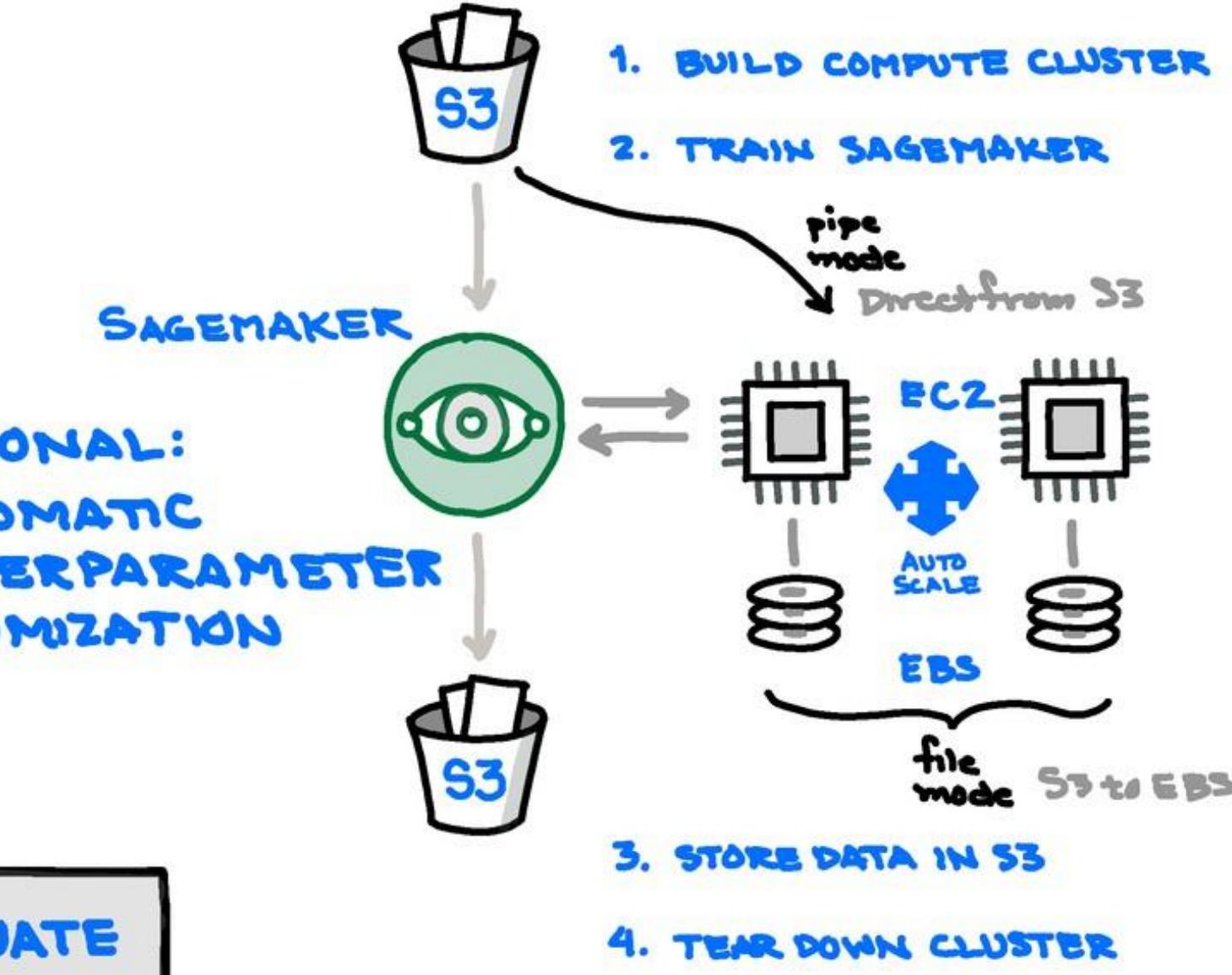
- TIME SERIES FORECAST
- DIRECT MARKETING TARGETS
- PREDICT CUSTOMER CHURN

### ADV. TEMPLATES

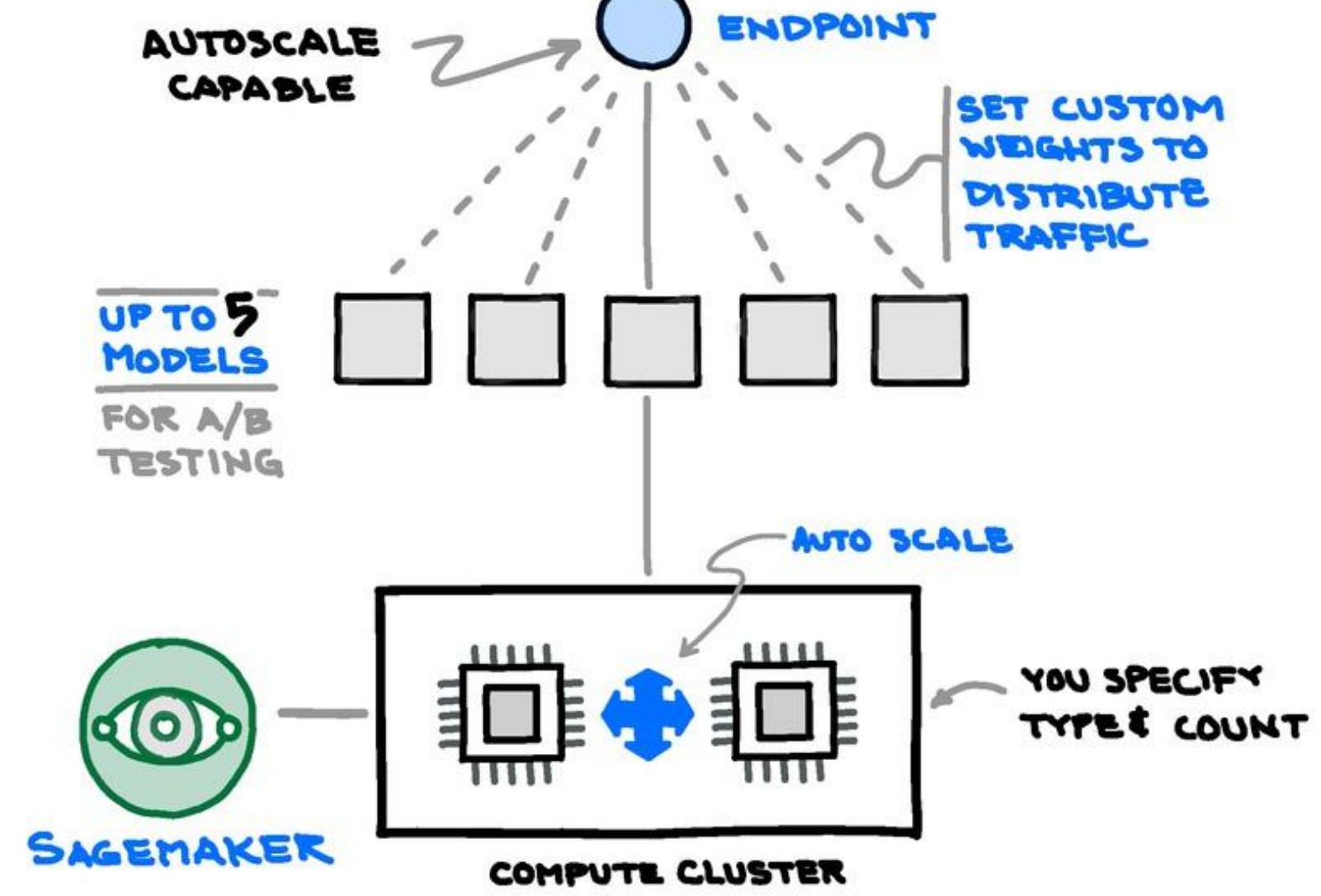
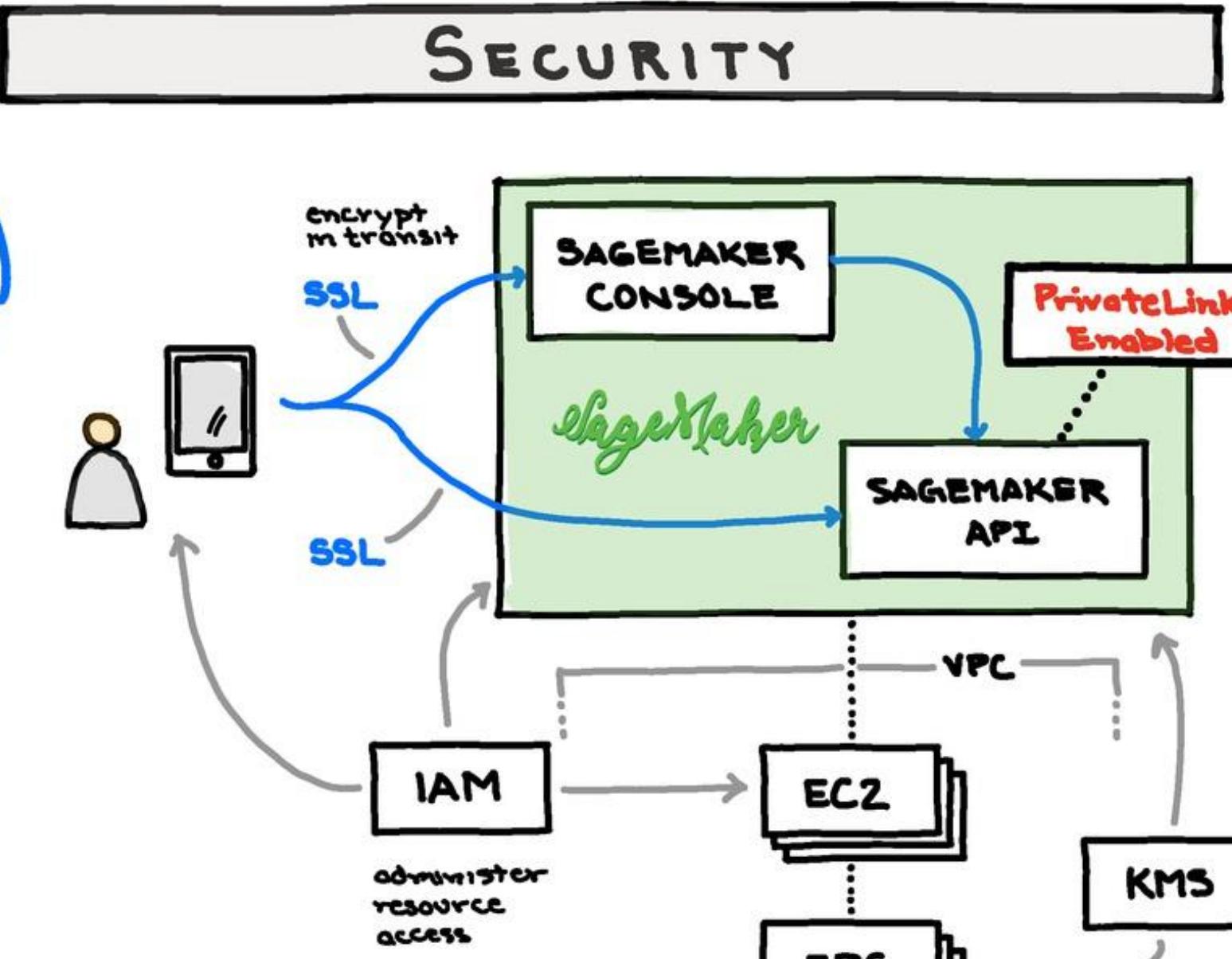
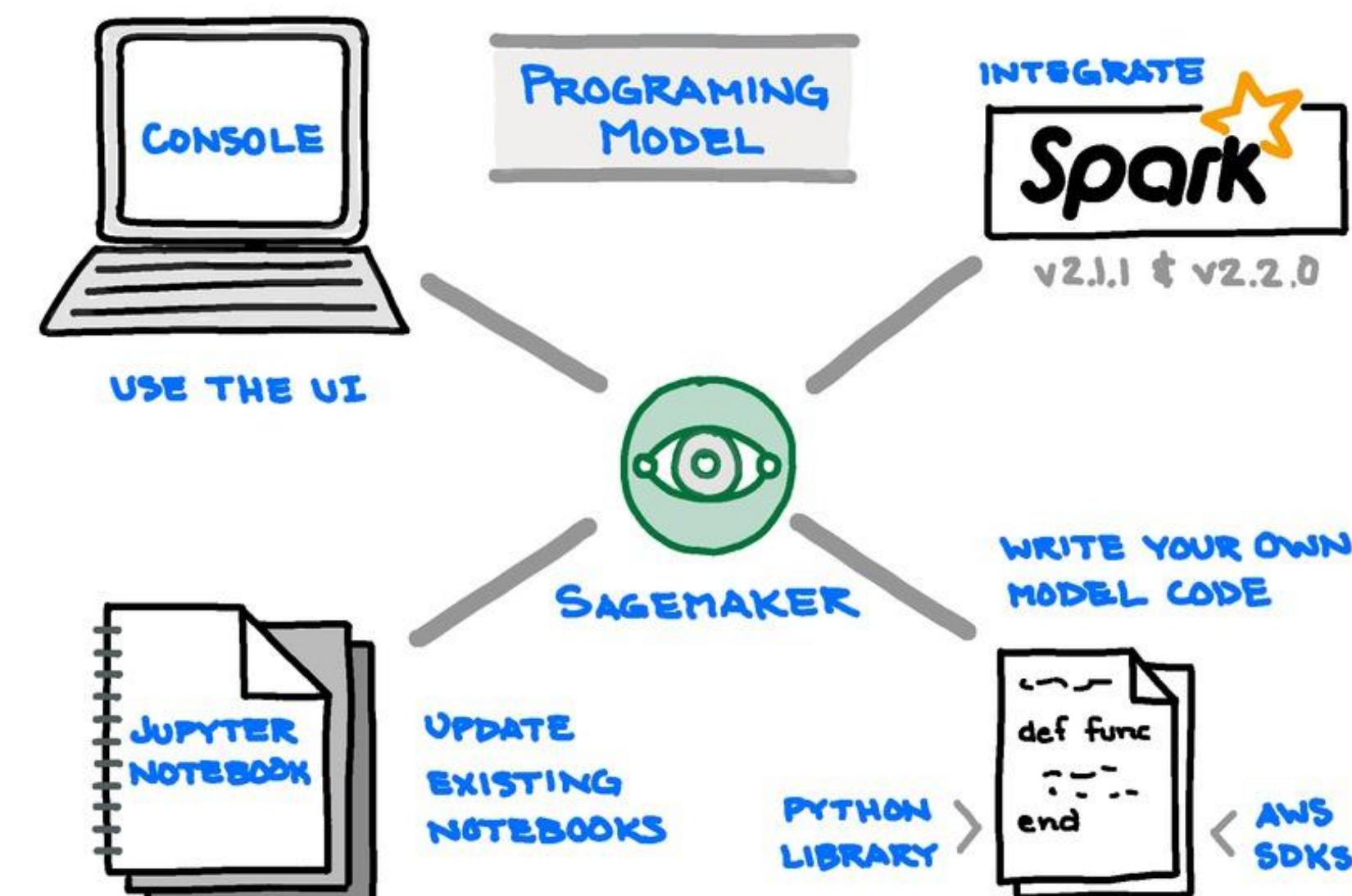
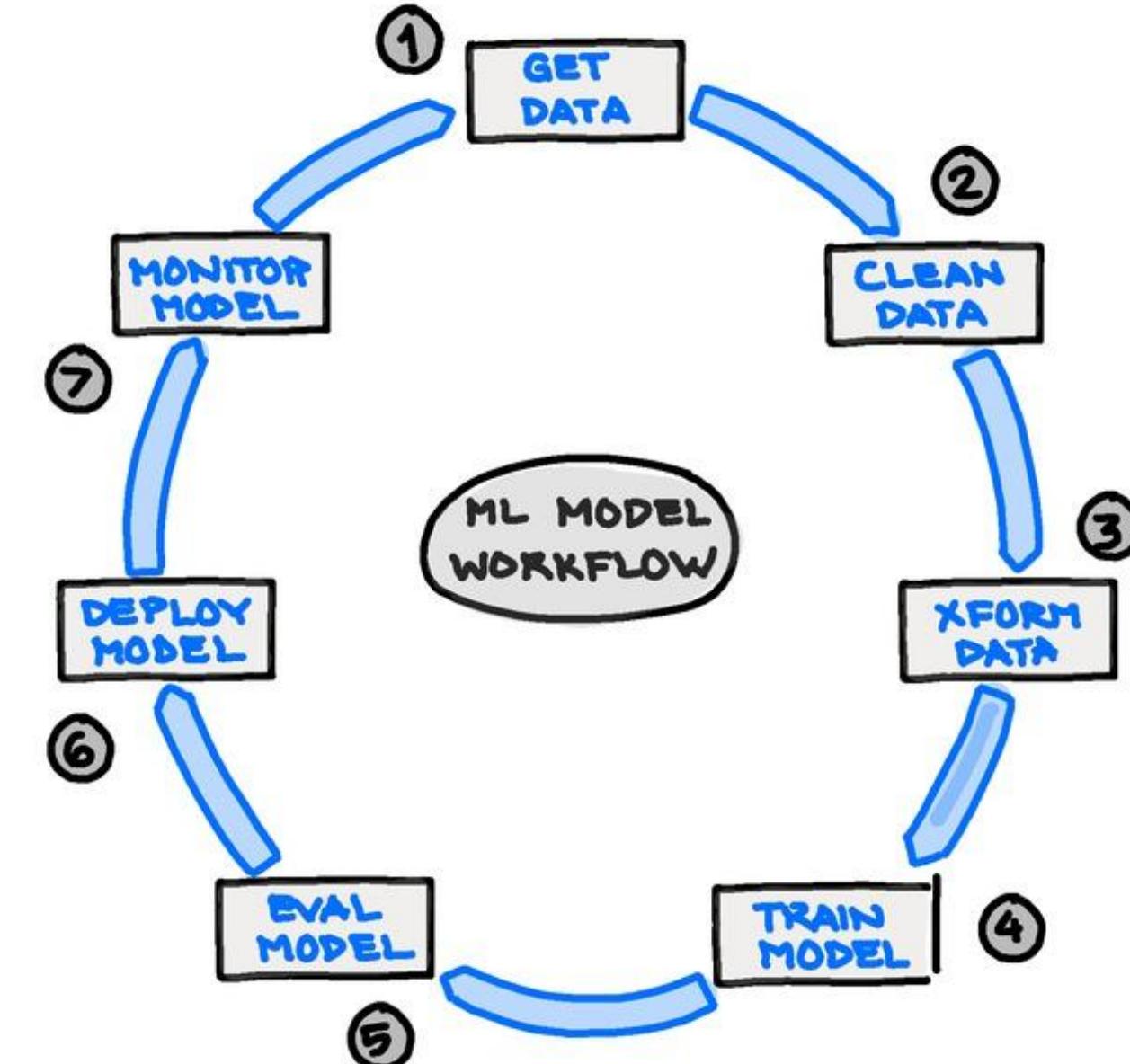
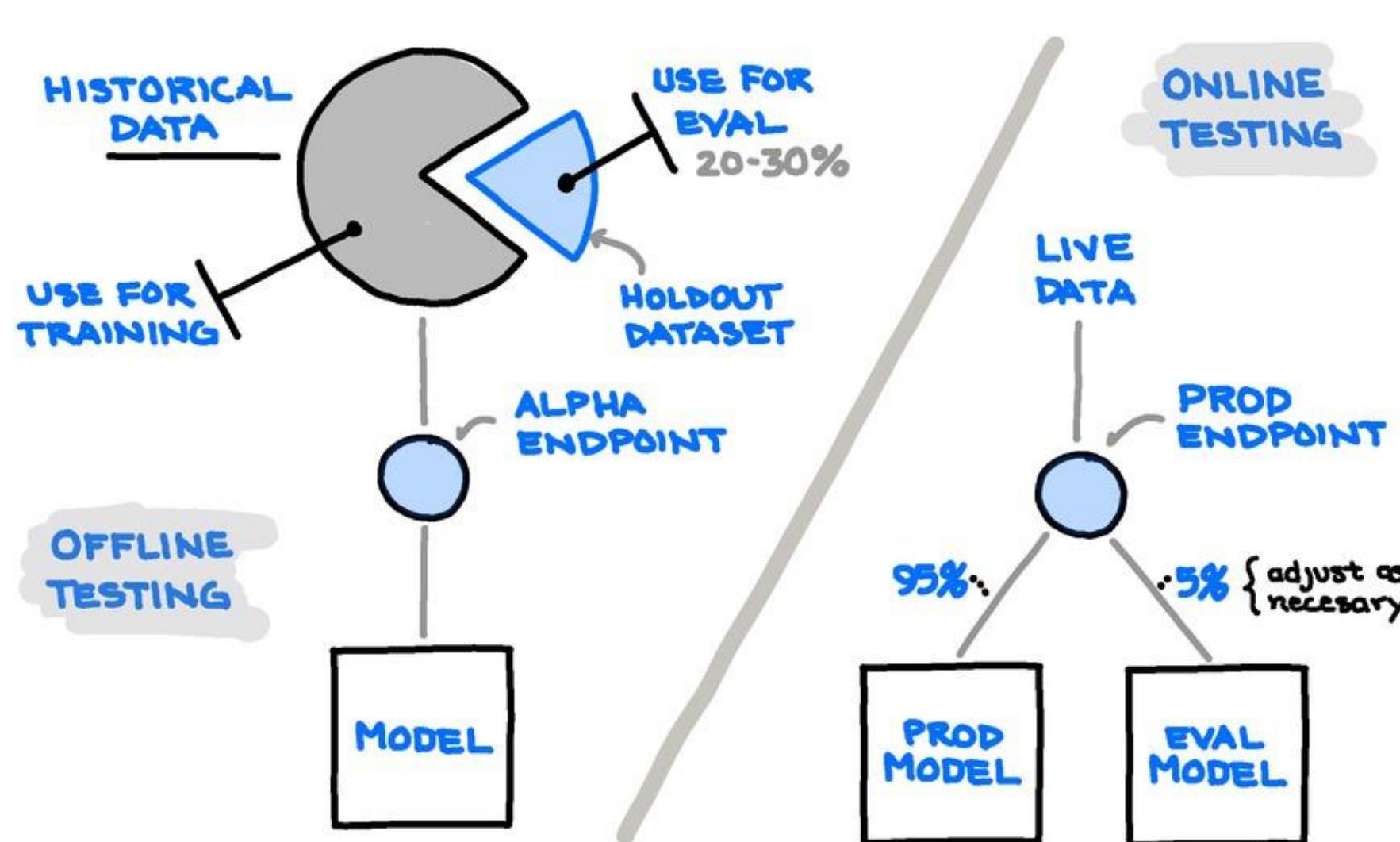
- BYO TENSORFLOW & MXNET CONTAINERS
- BYO SCIKIT OR R.ALGO



## TRAIN



## EVALUATE

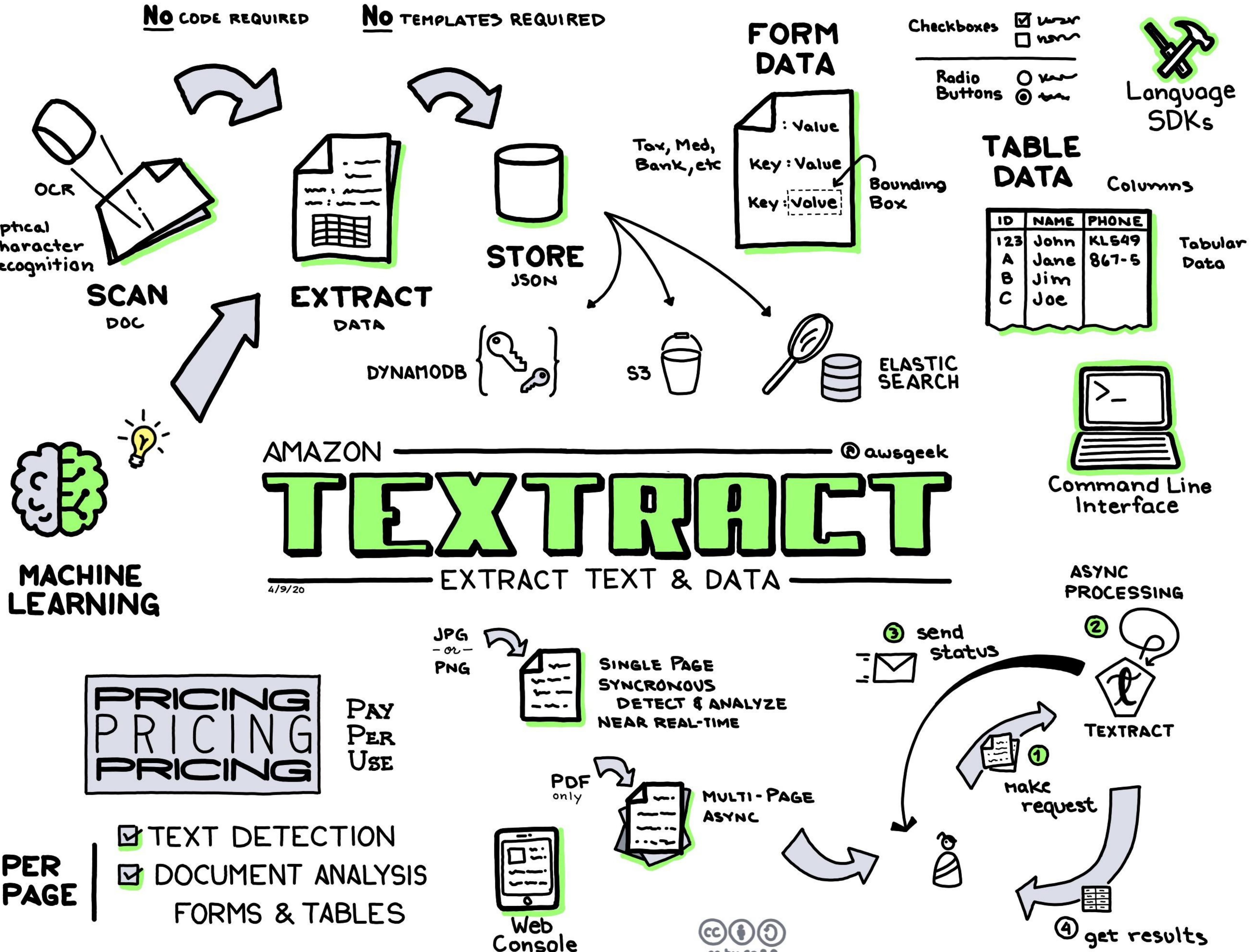


## PRICING

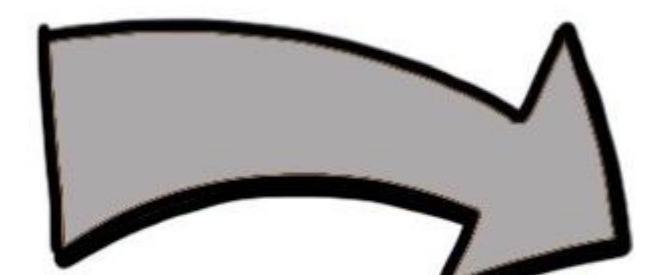
INSTANCE FEES: ON DEMAND, HOURLY RATE, 1 MINUTE MINIMUM, PER SECOND

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

PROCESSING FEES: 1.6¢ / GB (IN/OUT)

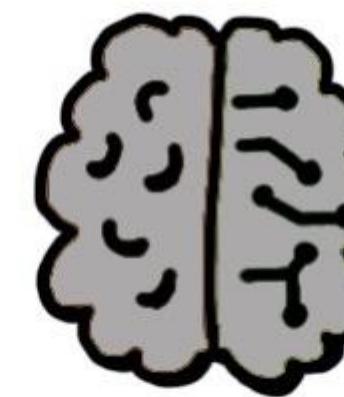
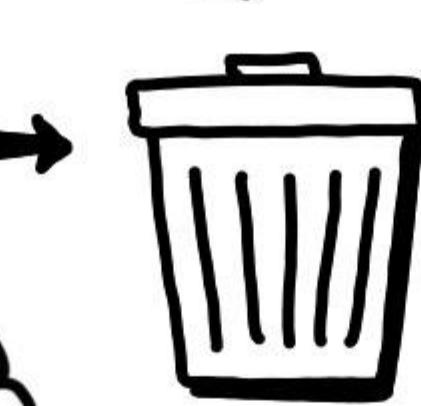
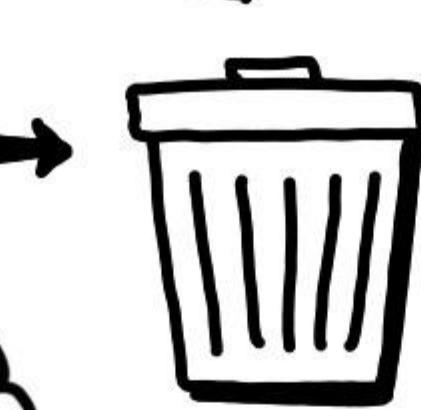
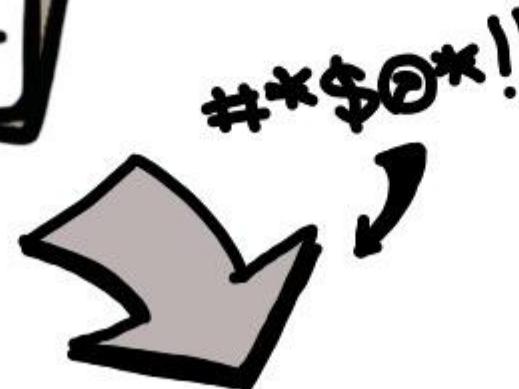


## AUTOMATIC SPEECH RECOGNITION



SPEECH →  
← TO TEXT

VOCABULARY  
FILTERING



## DEEP LEARNING PUNCTUATION AND FORMATTING



CLI

5/21/20

## BRING YOUR OWN BYOV VOCABULARY



CUSTOM  
VOCABULARIES

## AMAZON TRANSCRIBE

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## STREAMING TRANSCRIPTION



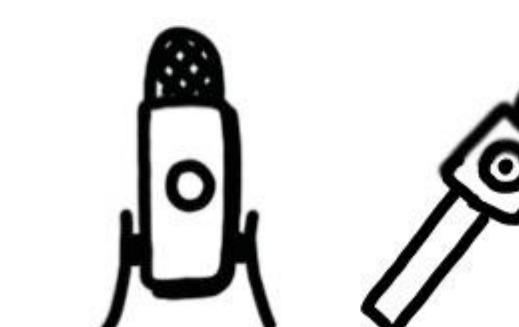
WEB SOCKET

HTTP/2



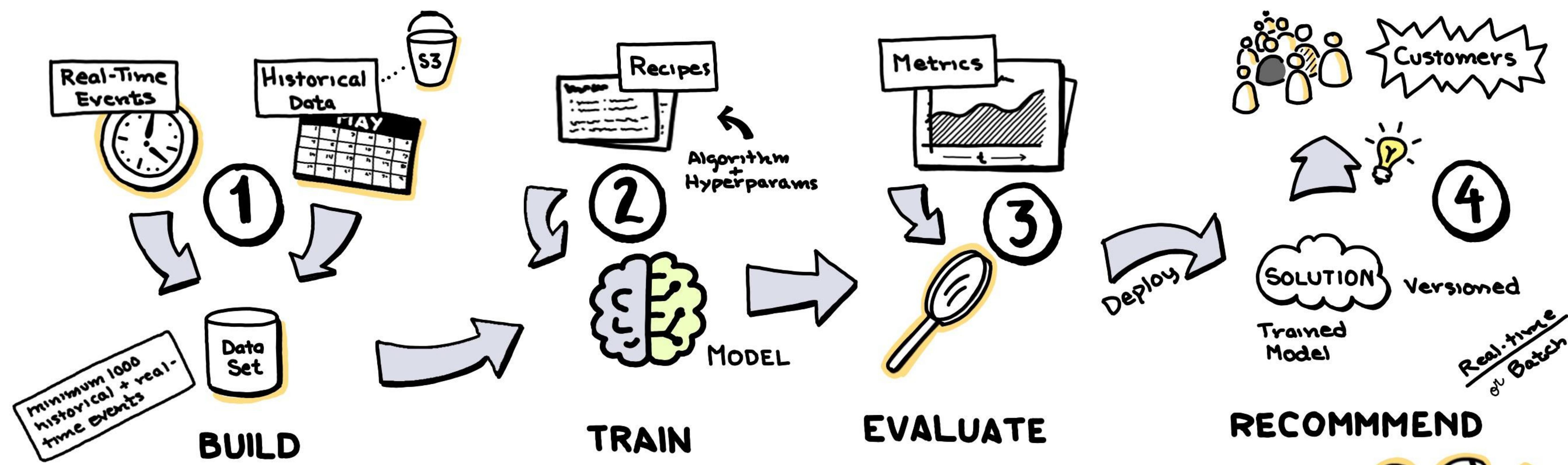
## MULTIPLE SPEAKER • IDENTIFICATION •

"DIARIZATION"



CHANNEL  
ID

CC BY-SA 4.0



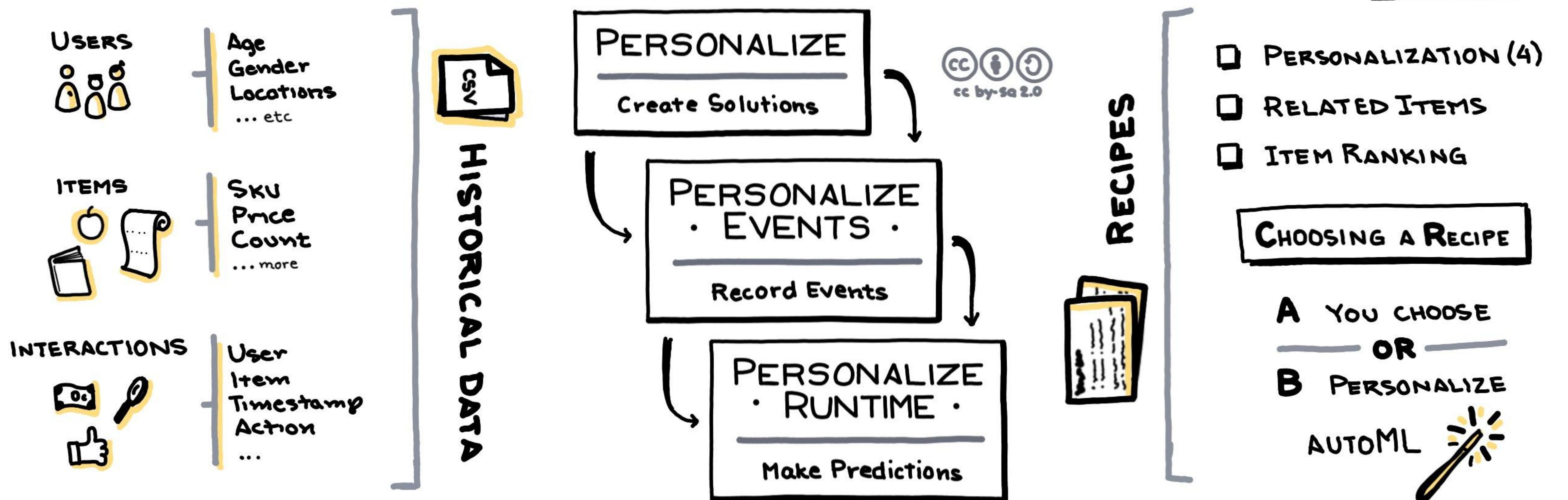
# MACHINE LEARNING

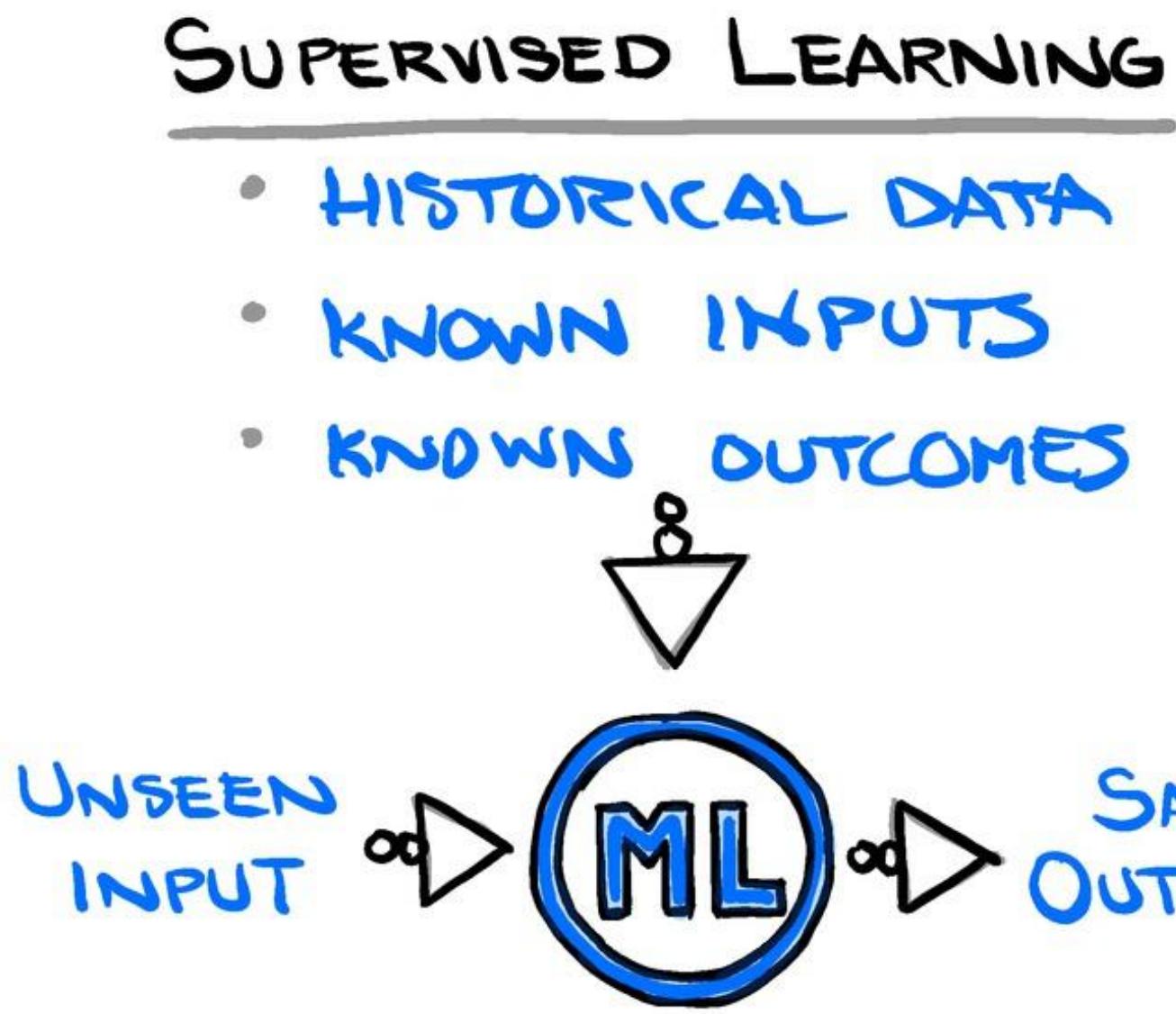
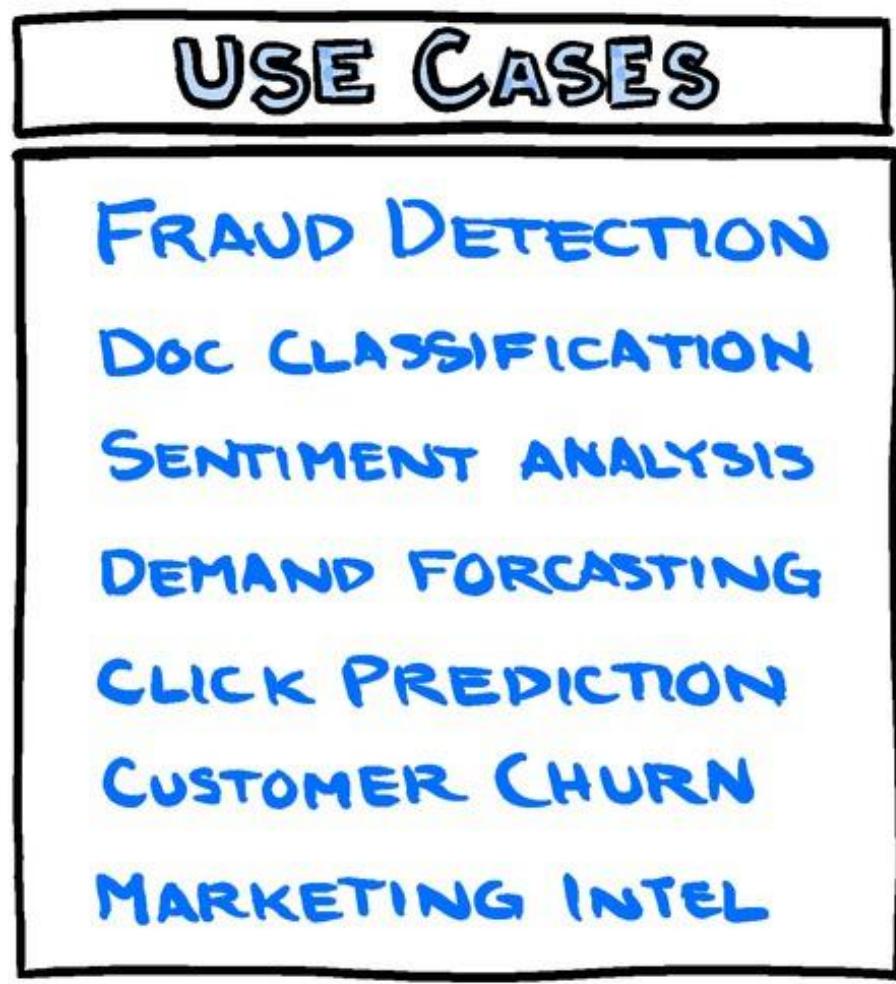
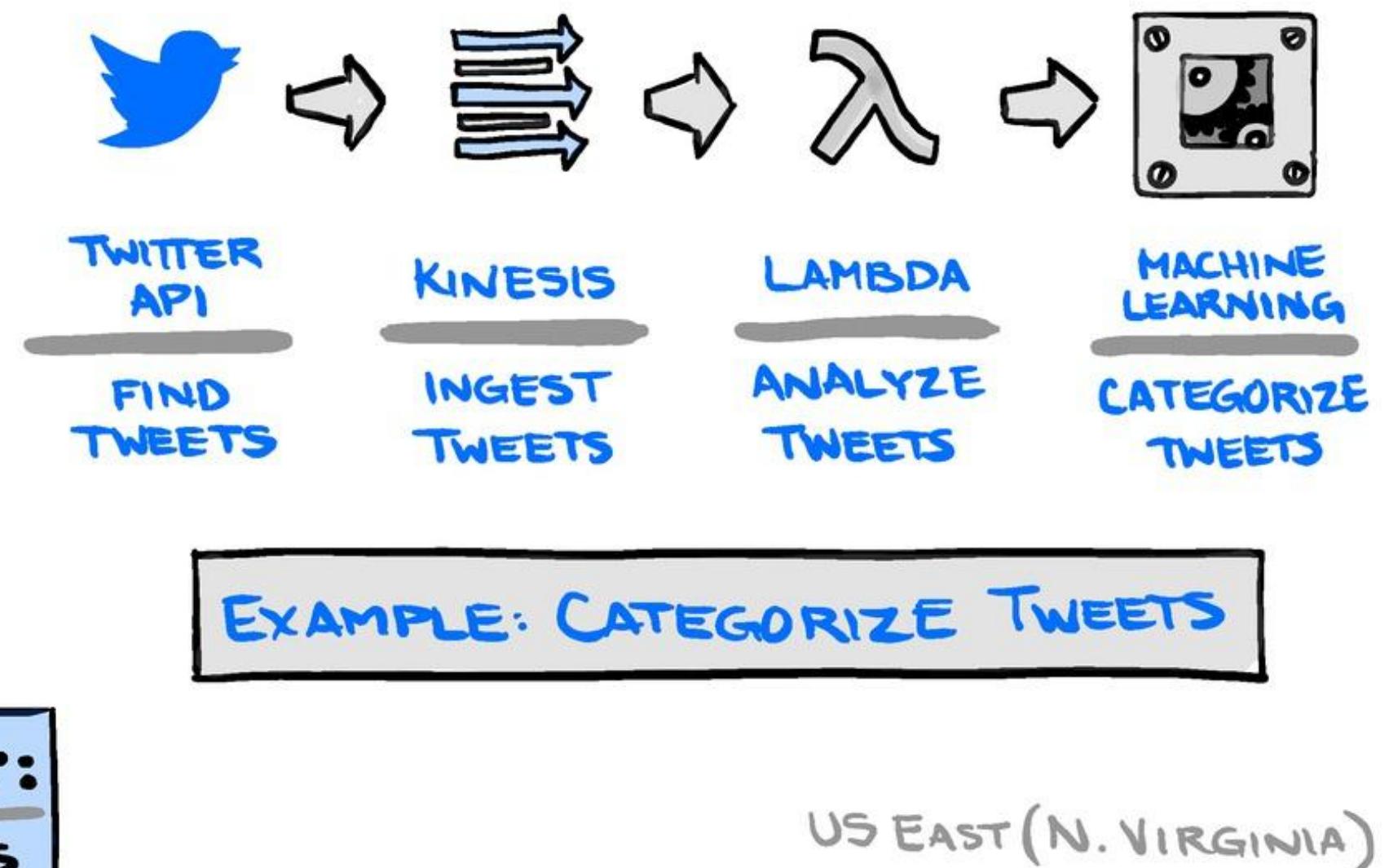
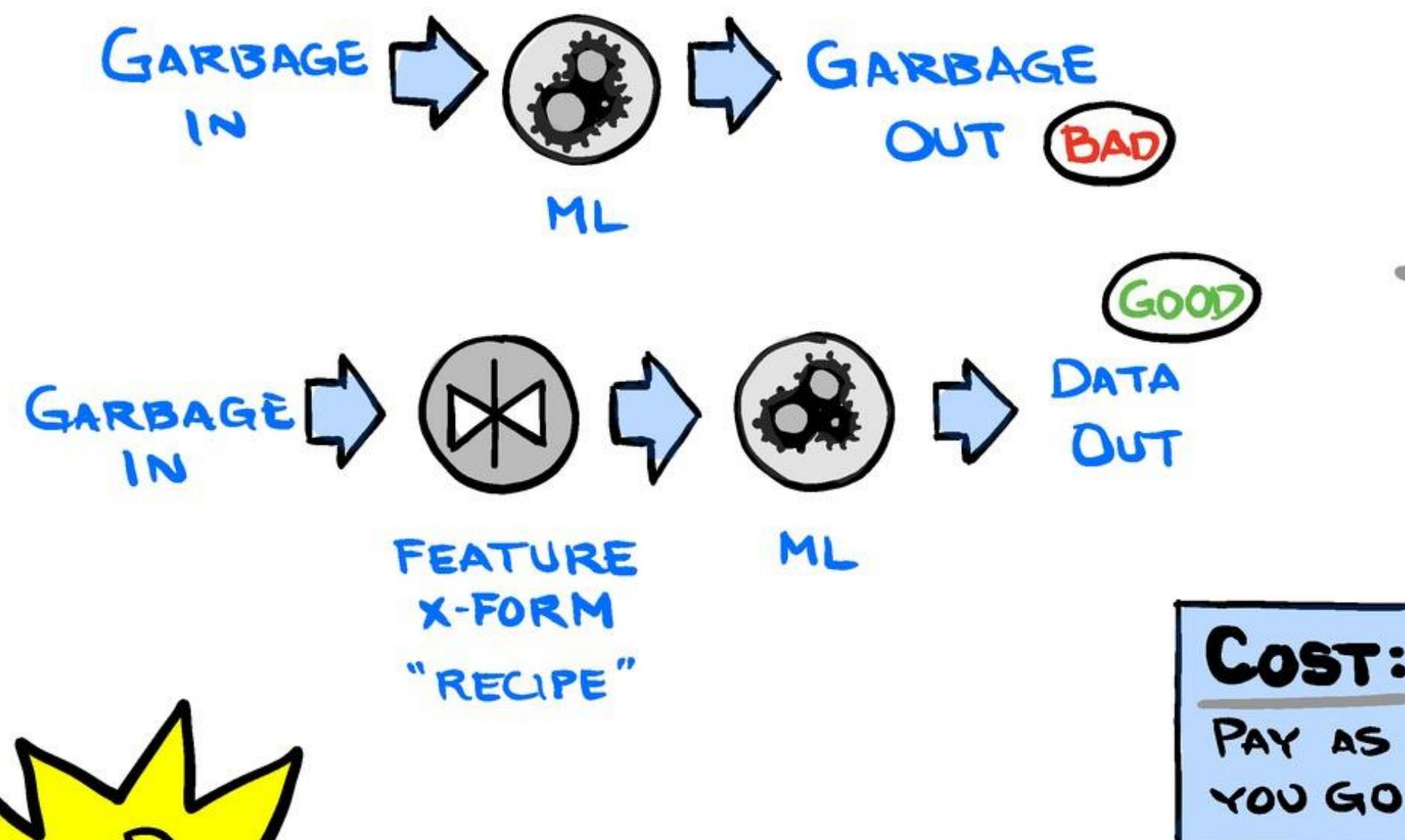
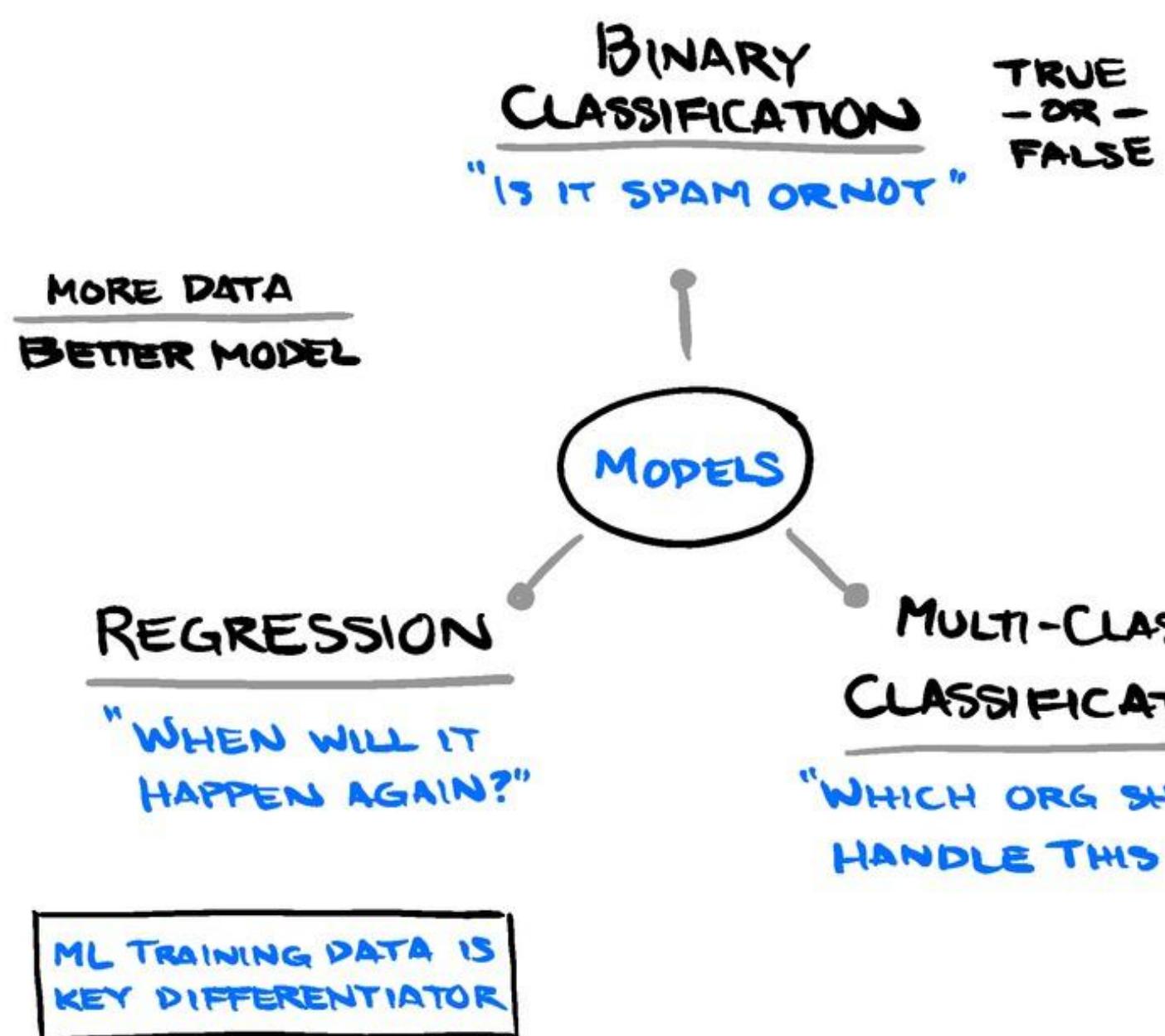
# AMAZON PERSONALIZE

REAL-TIME RECOMMENDATIONS

3/30/20

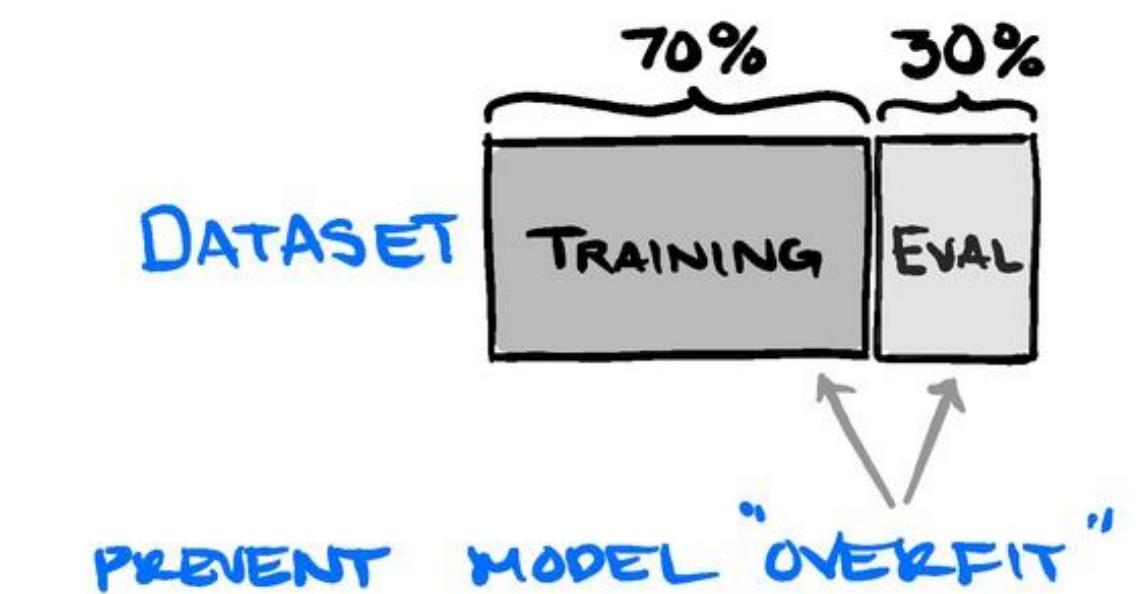
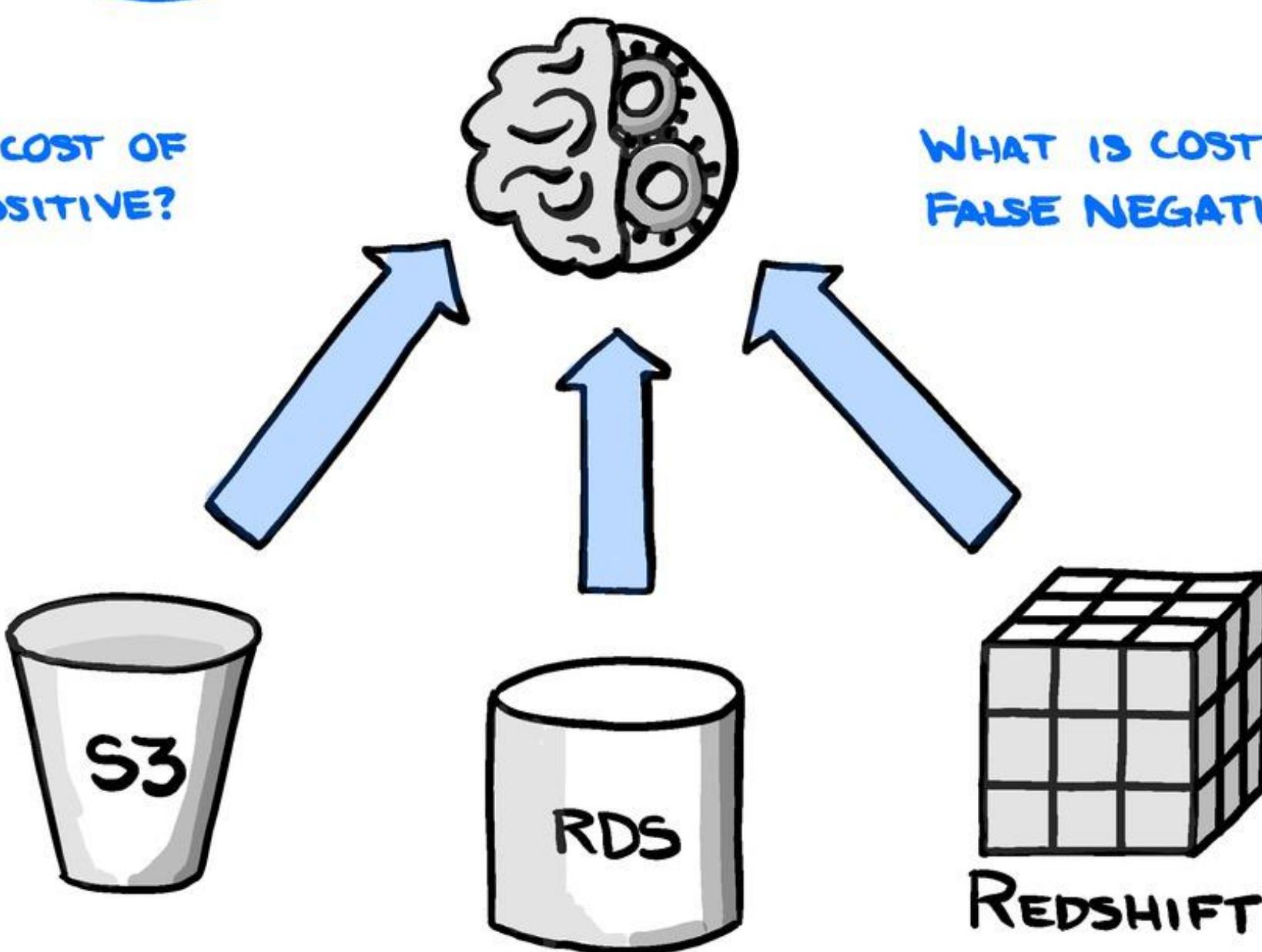
@awsgeek



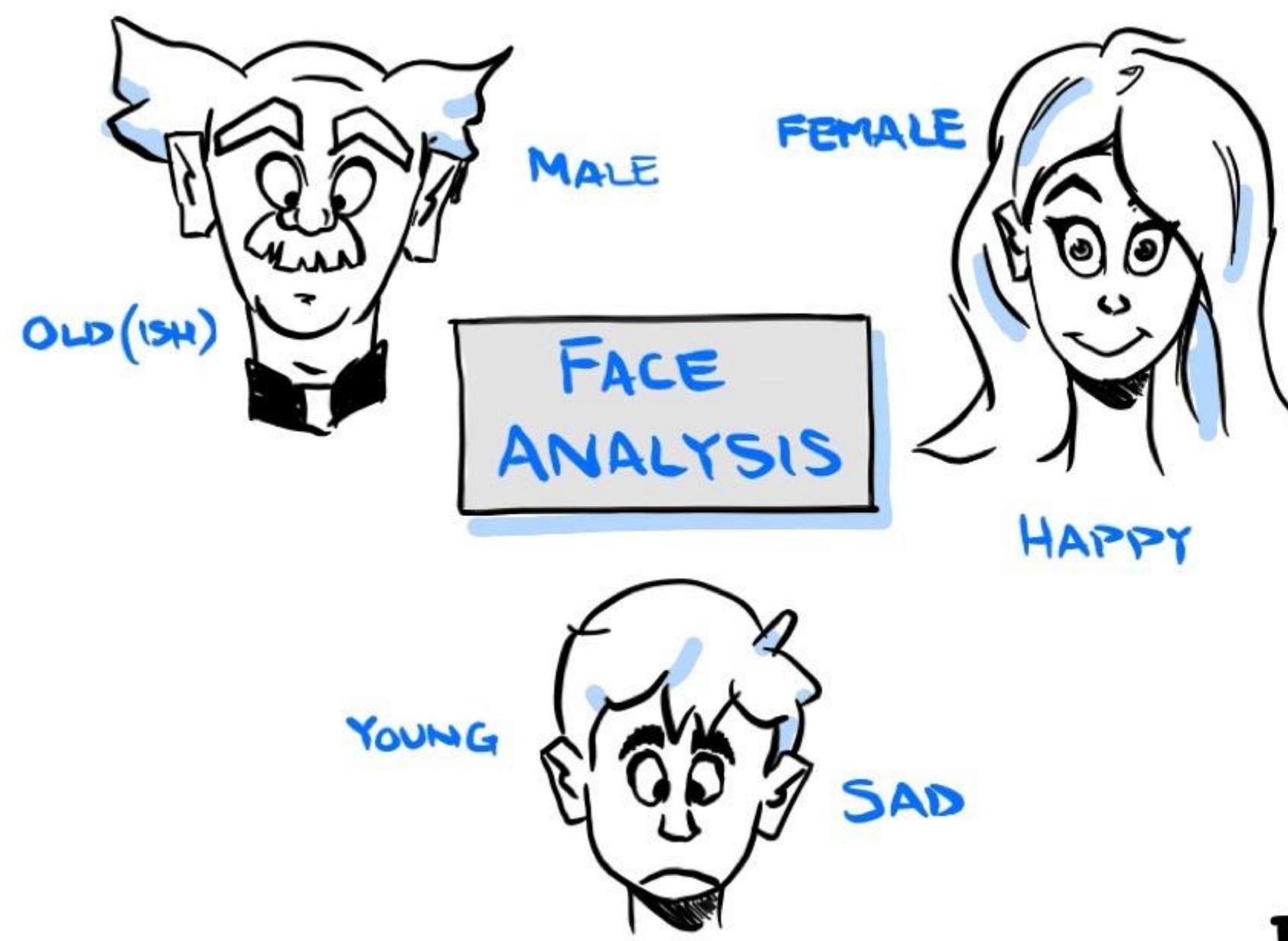
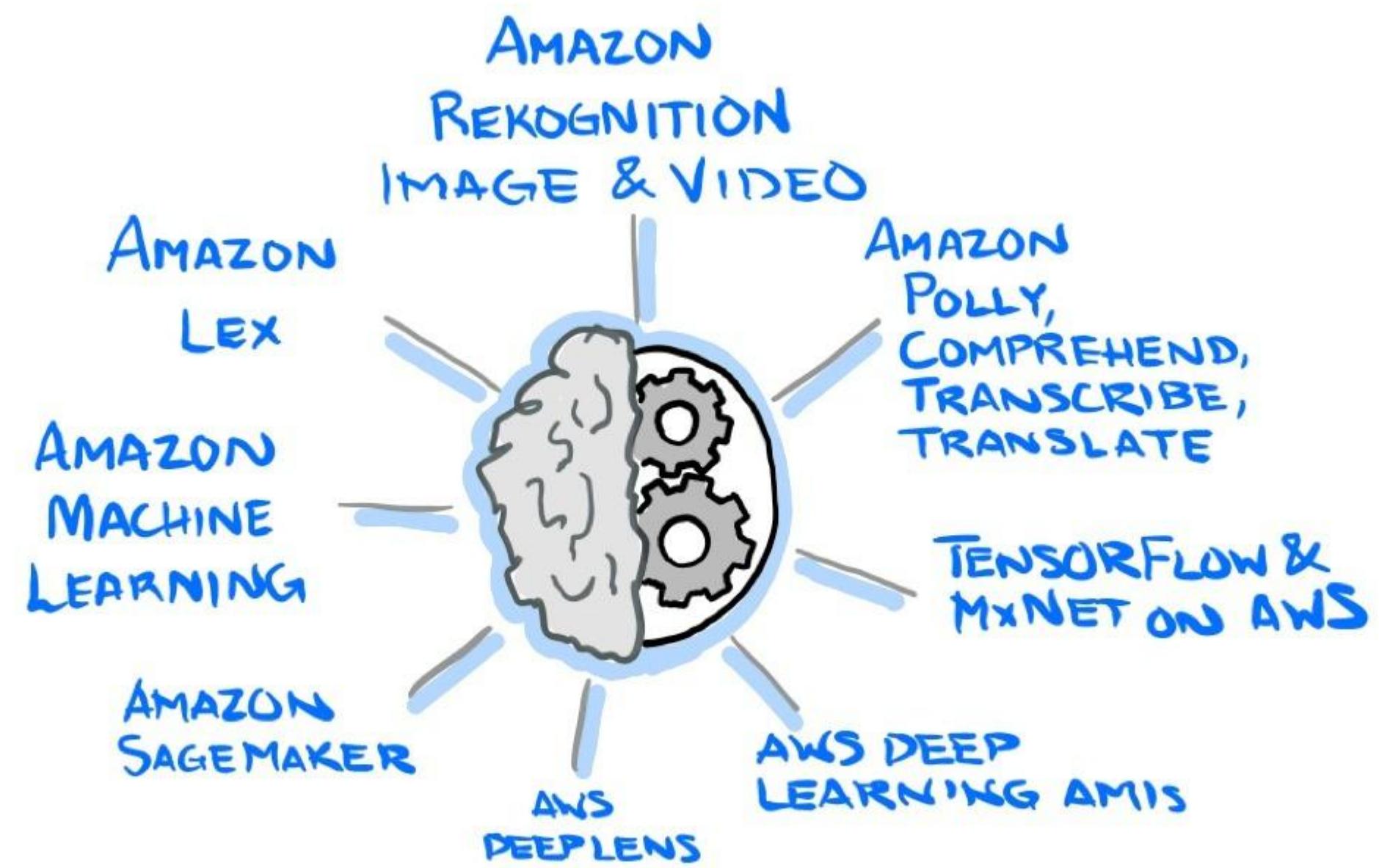
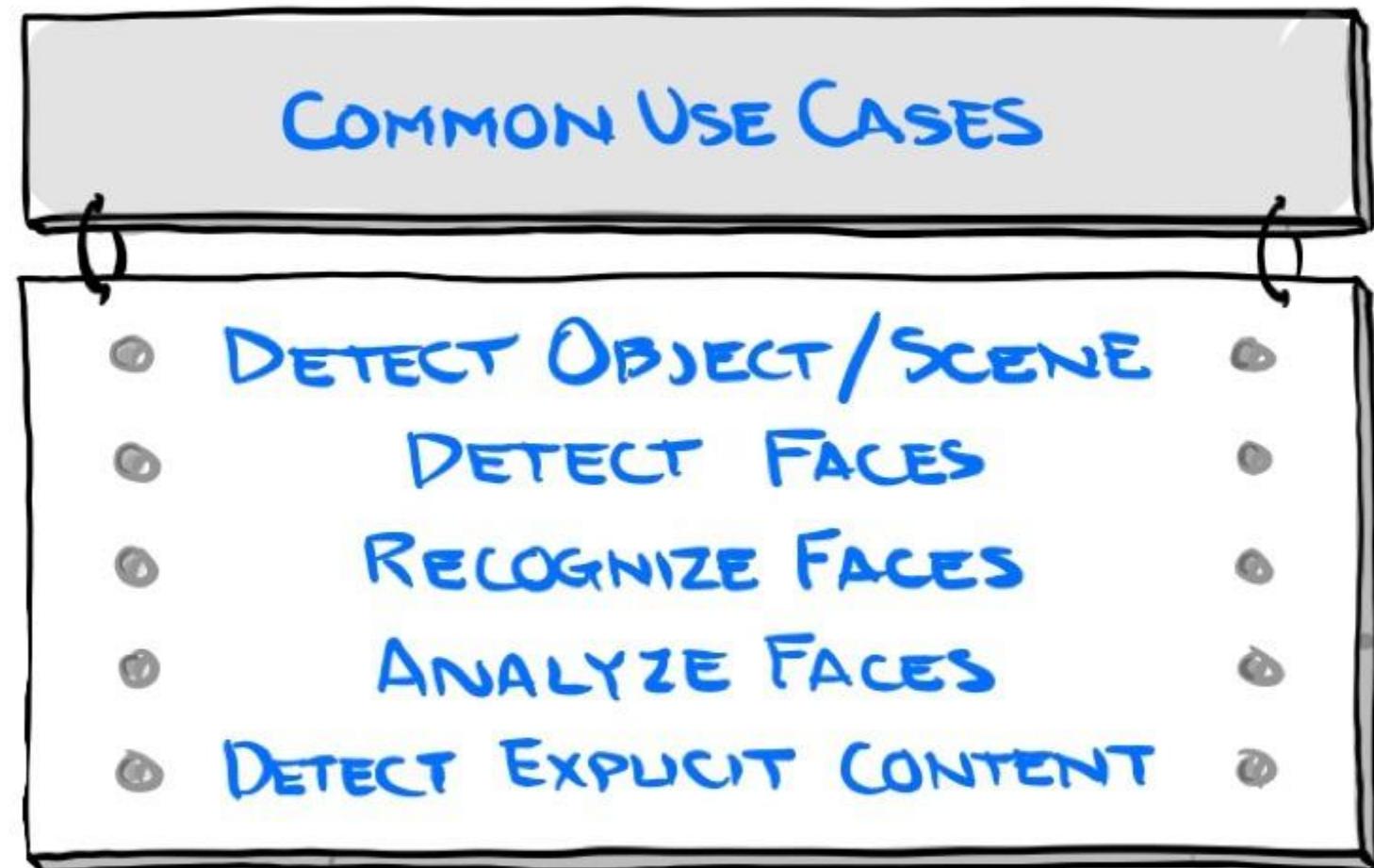


WHAT IS COST OF FALSE POSITIVE?

WHAT IS COST OF FALSE NEGATIVE?



@awsgeek  
9/22/17



## AMAZON AI FAMILY



MOUNTAINS

BOUNDING BOXES !!

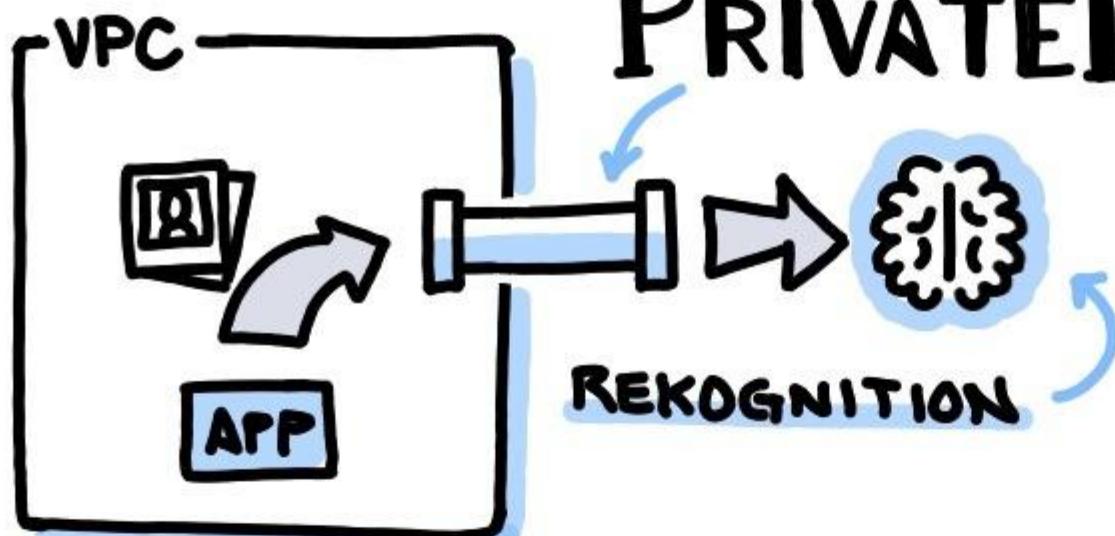
BIRDS

# amazon REKOGNITION

11/2/19

@awsgeek

## PRIVATELINK



## PRICING

① \$ PER IMAGE



② \$



③ \$ PER MINUTE



IMAGE

VIDEO

TREES /  
HIERACHICAL  
METADATA /  
OUTDOORS

PERSON

BOB

TEXT "BOB"

BOB IS NAKED



AS EASY AS:

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

ENCRYPTED S3 OBJECTS

SERVER SIDE ENCRYPTION

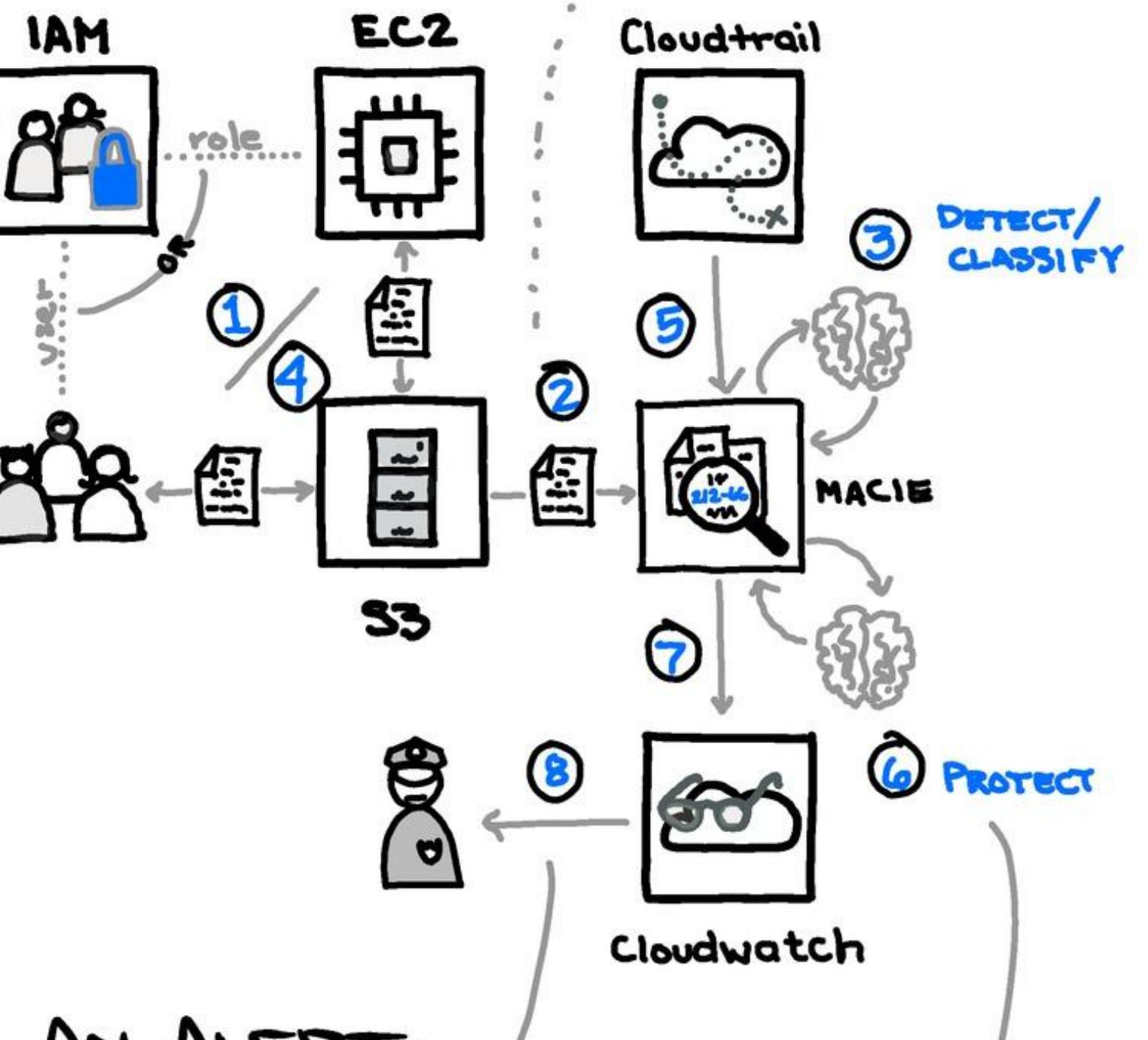
✓ WITH IAM PERMISSION

KMS KEYS

CLIENT ENCRYPTED

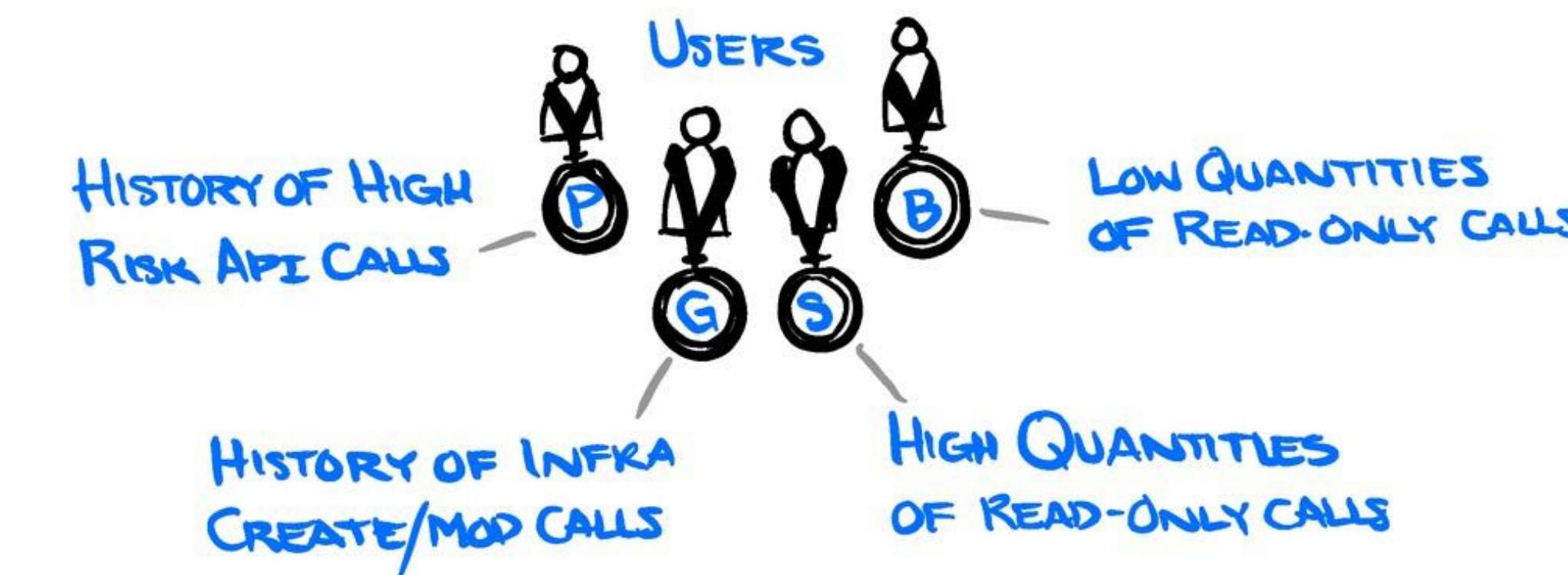


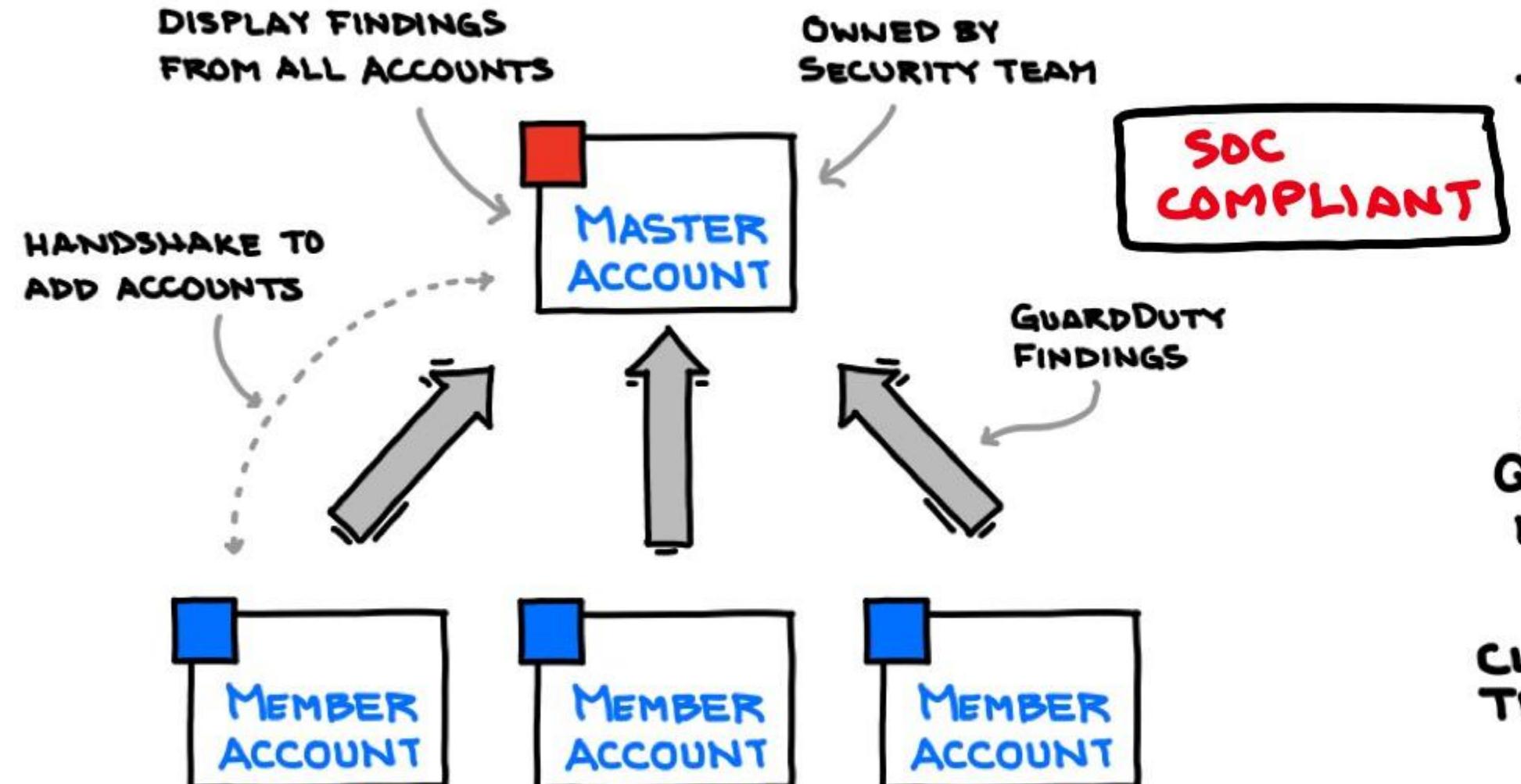
<b>CONTENT CLASSIFICATION</b>	\$5/GB
<b>EVENT PROCESSING</b>	\$4/MM
<b>EXTENDED DATA RETENTION</b>	5¢/GB/Mo
+ TRAIL EVENT COSTS + S3 GET/LIST COSTS	



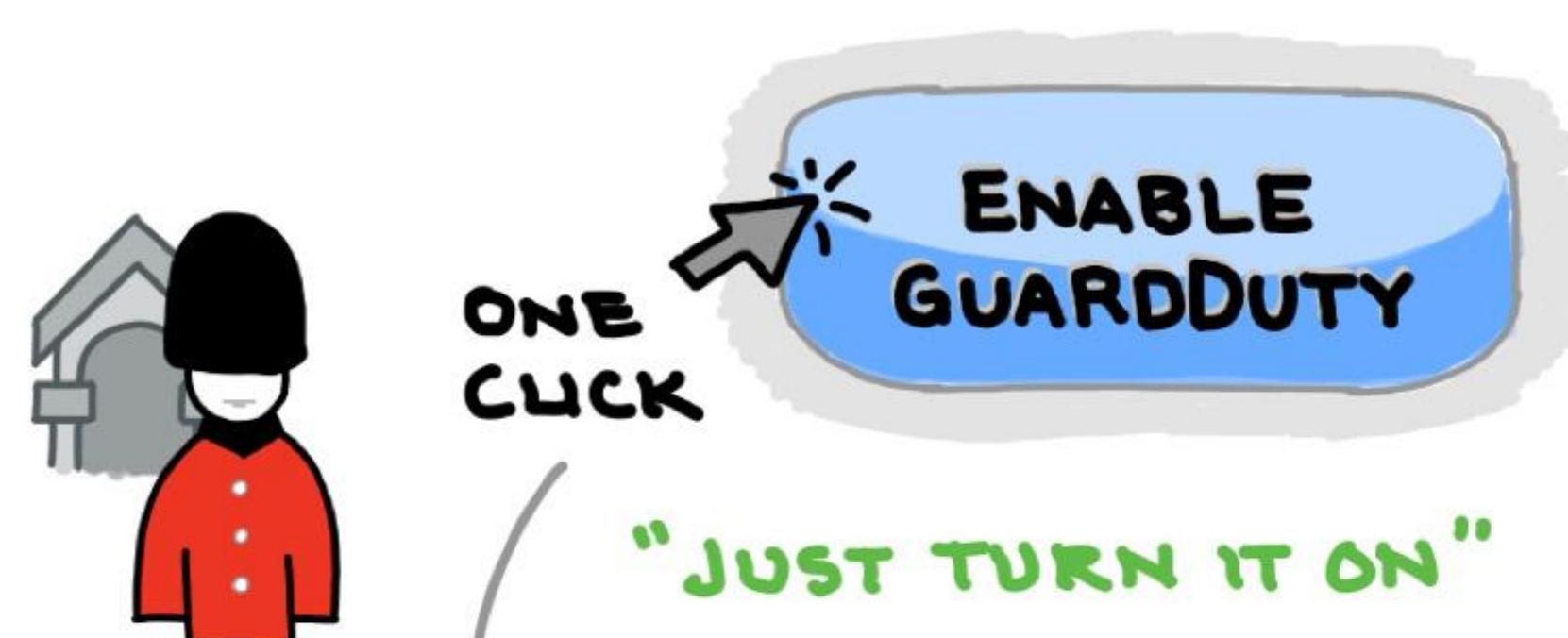
AN ALERT:

- |  |  |
|--|--|
| <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



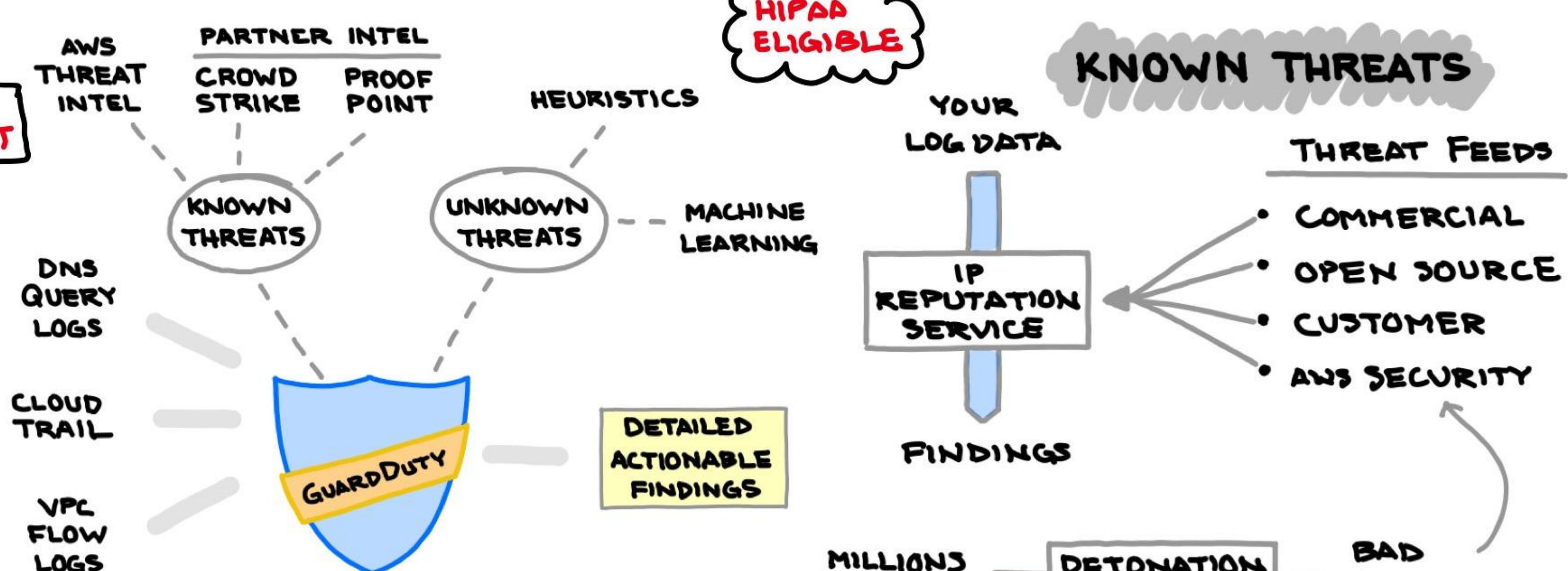
GIVES AWS ACCESS TO  
YOUR CLOUDTRAIL, VPC  
FLOW, & DNS QUERY LOGS

## 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

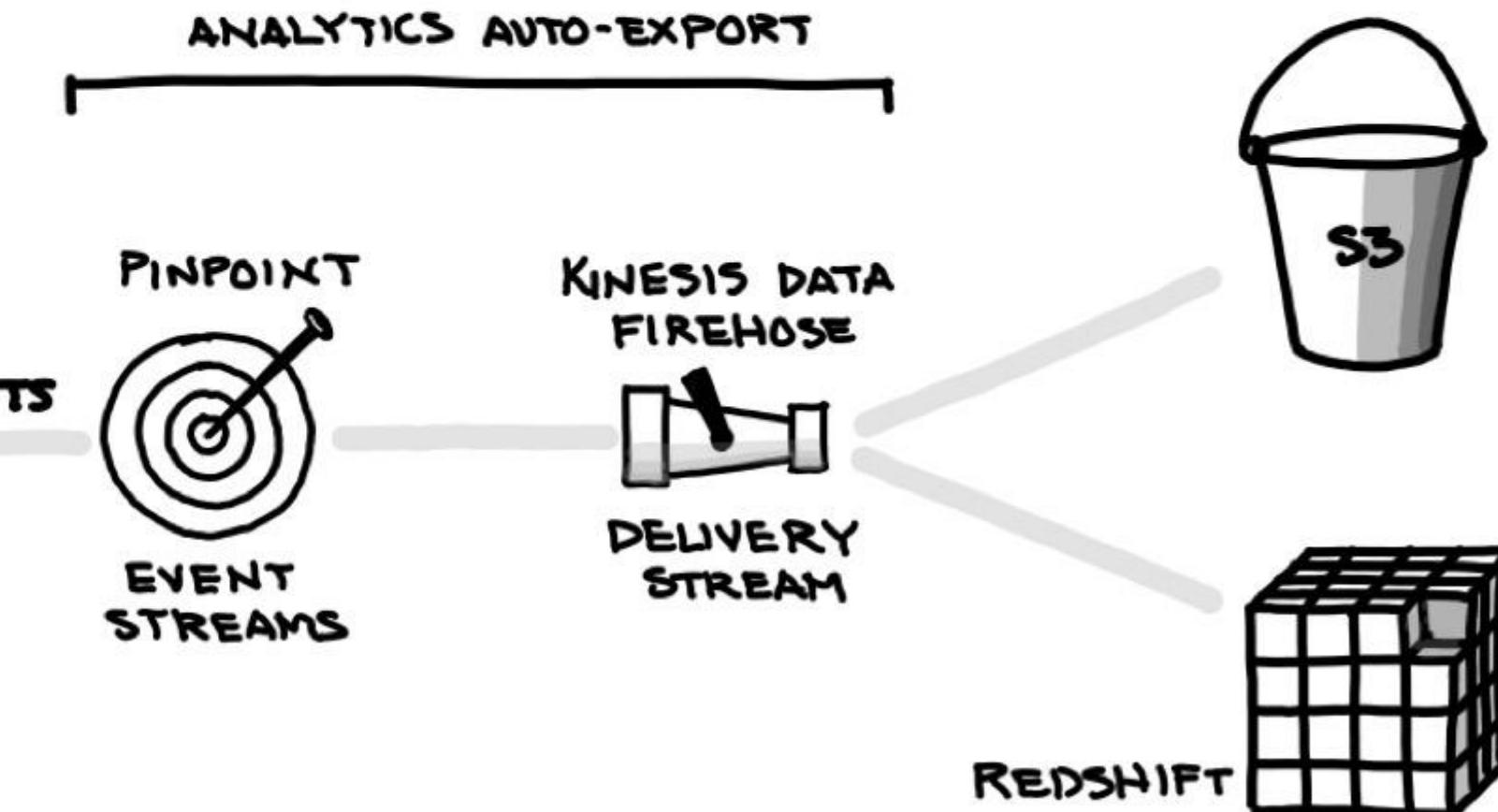
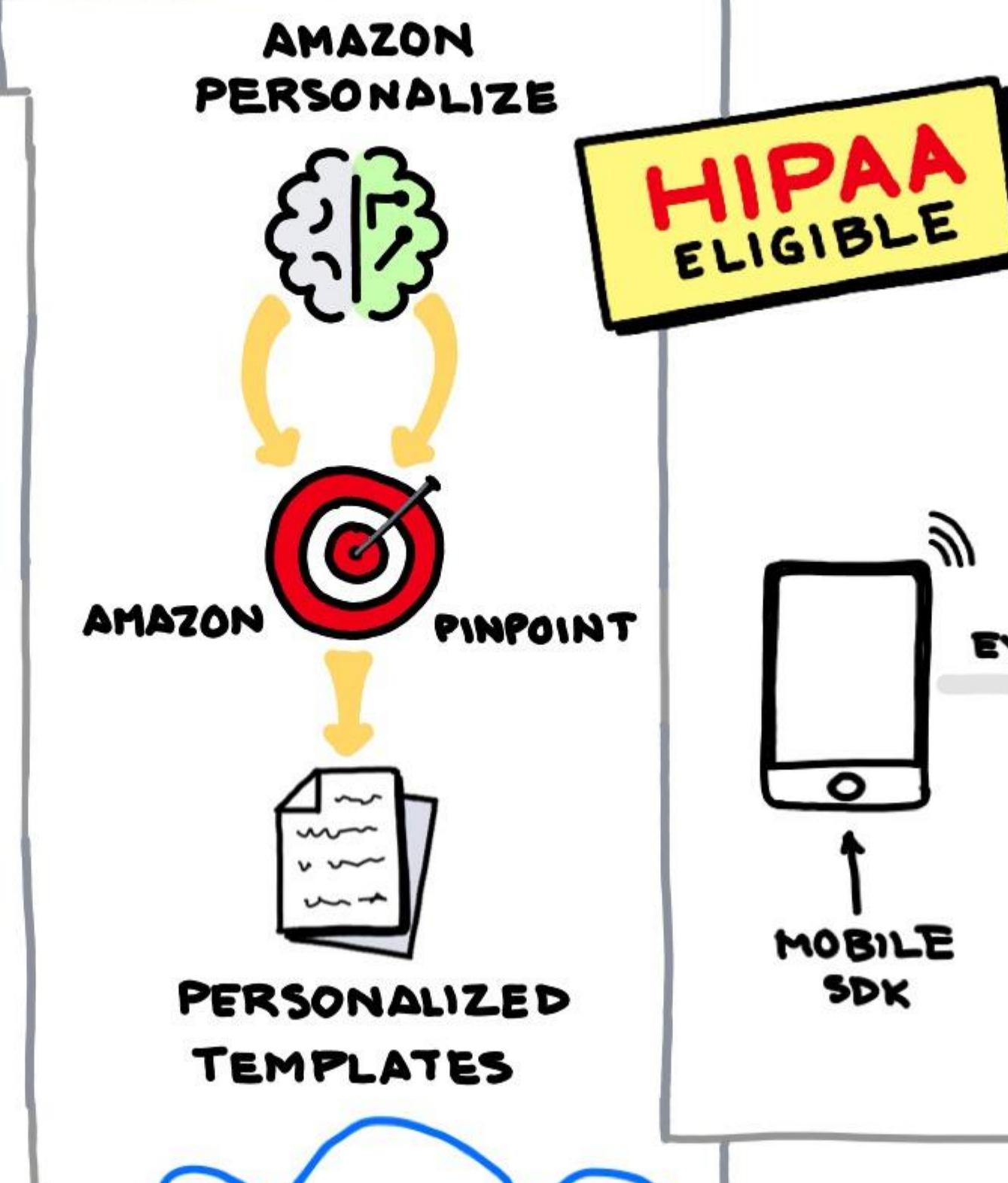
## DETECTION CATEGORIES

- RECON
- STEALTH
- BACKDOOR
- CRYPTO(CURRENCE)
- TROJAN
- PEN TESTING\*
- UNAUTH ACCESS

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

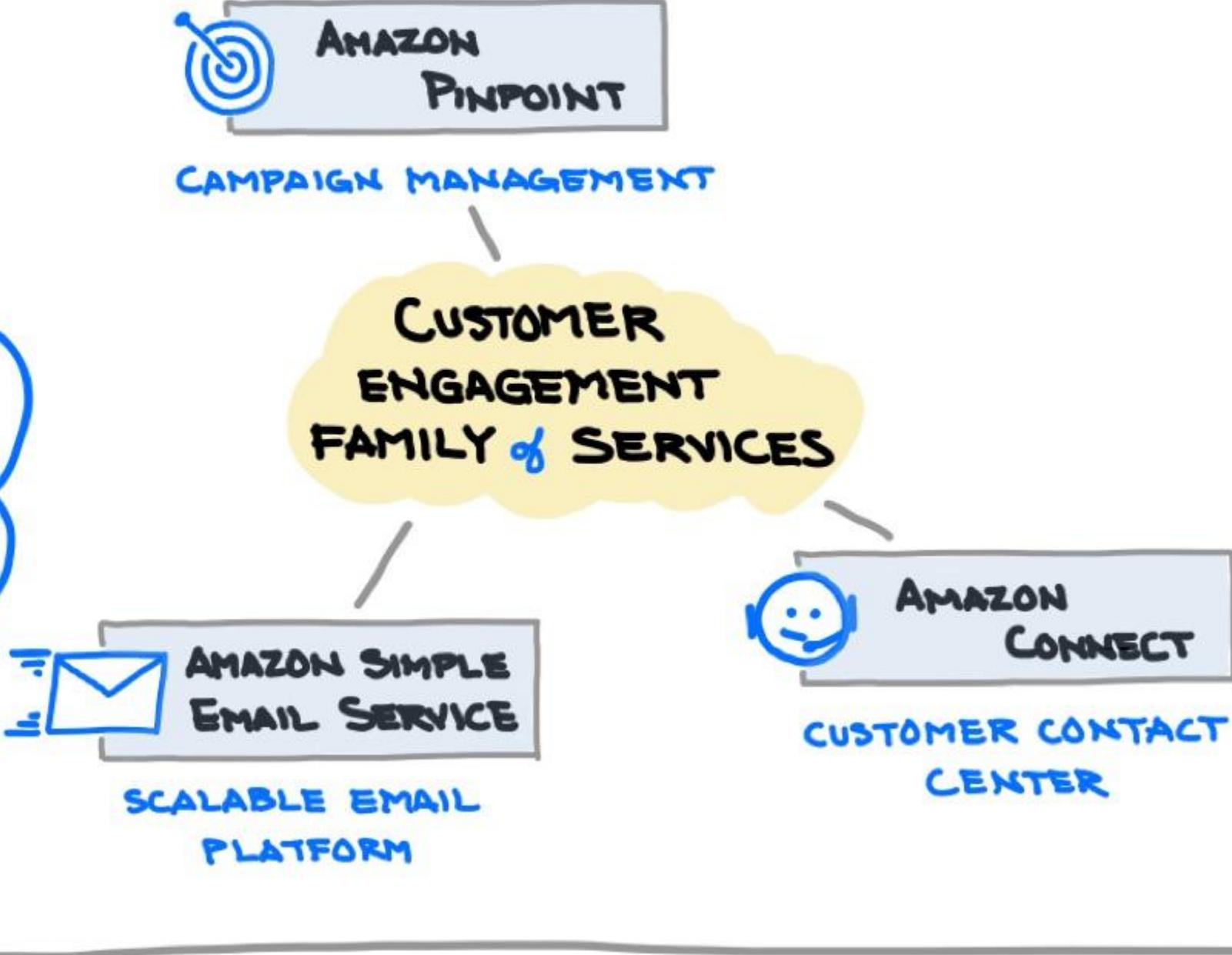


CUSTOMER ENGAGEMENT

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

# amazon Pinpoint

@awsgeek



## 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

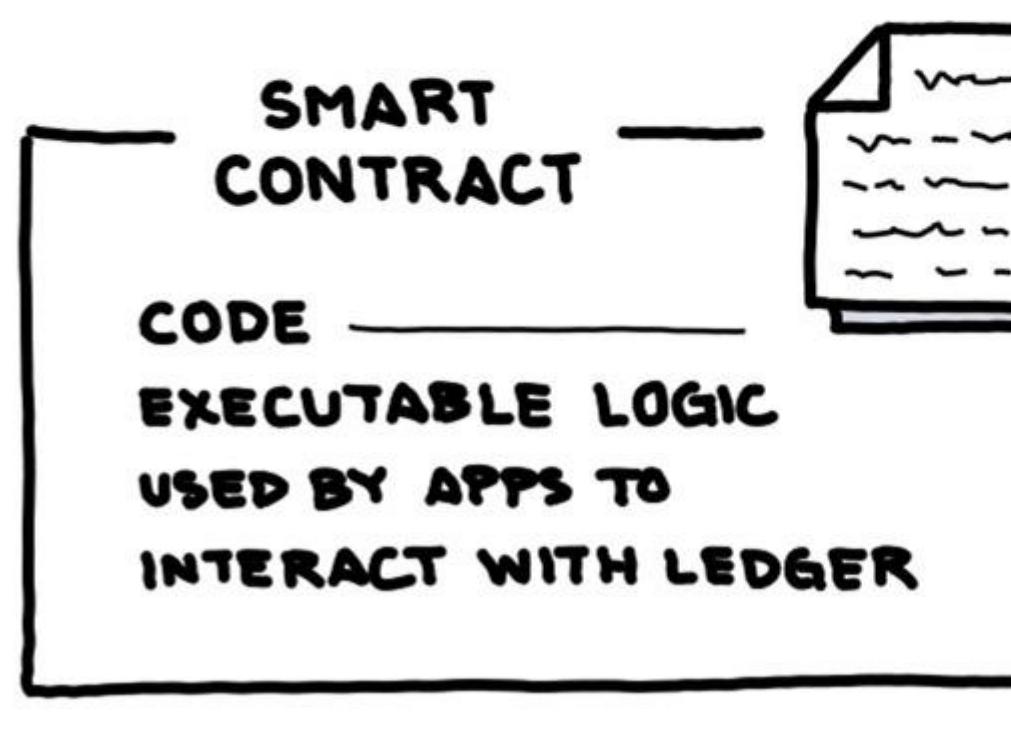
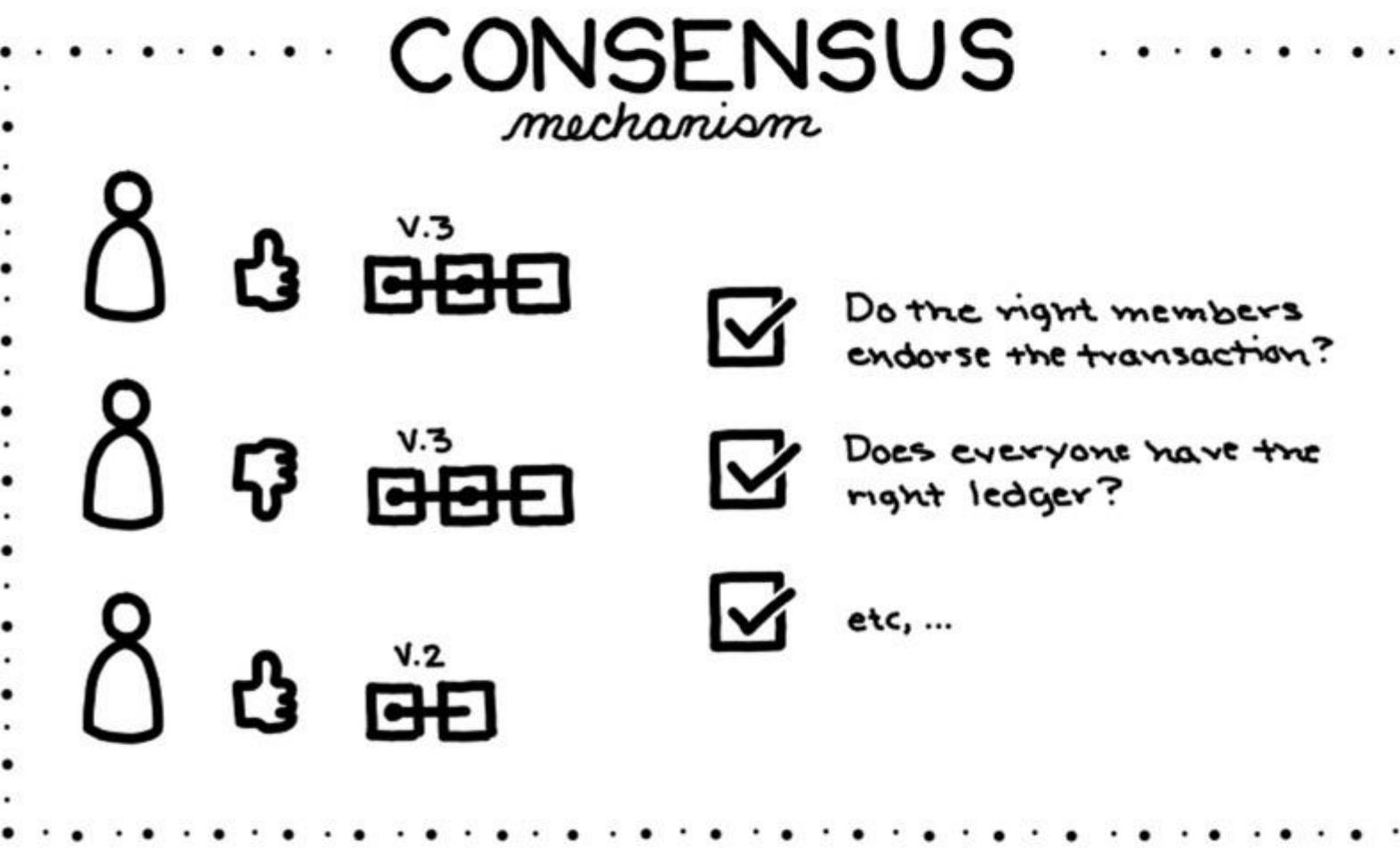
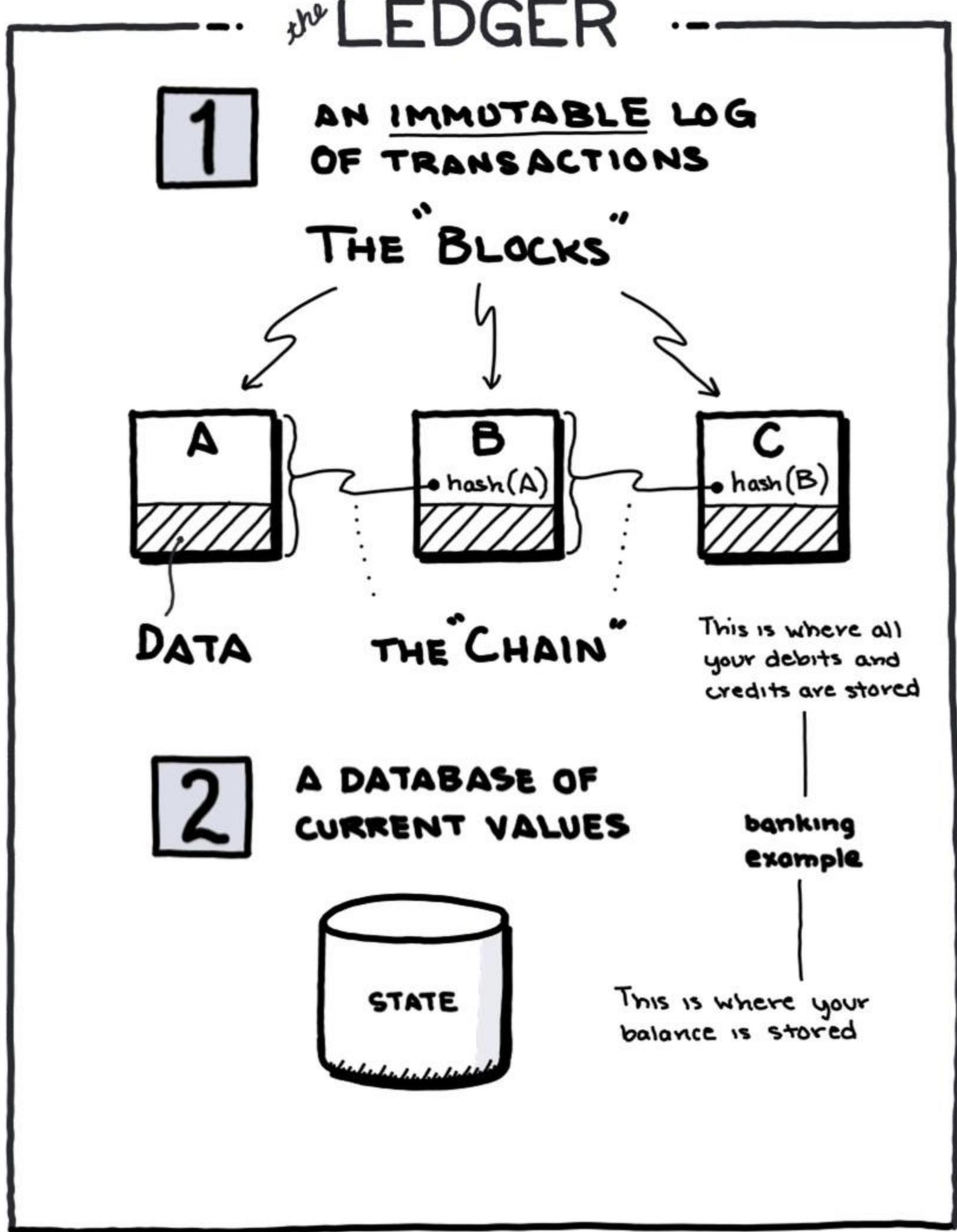
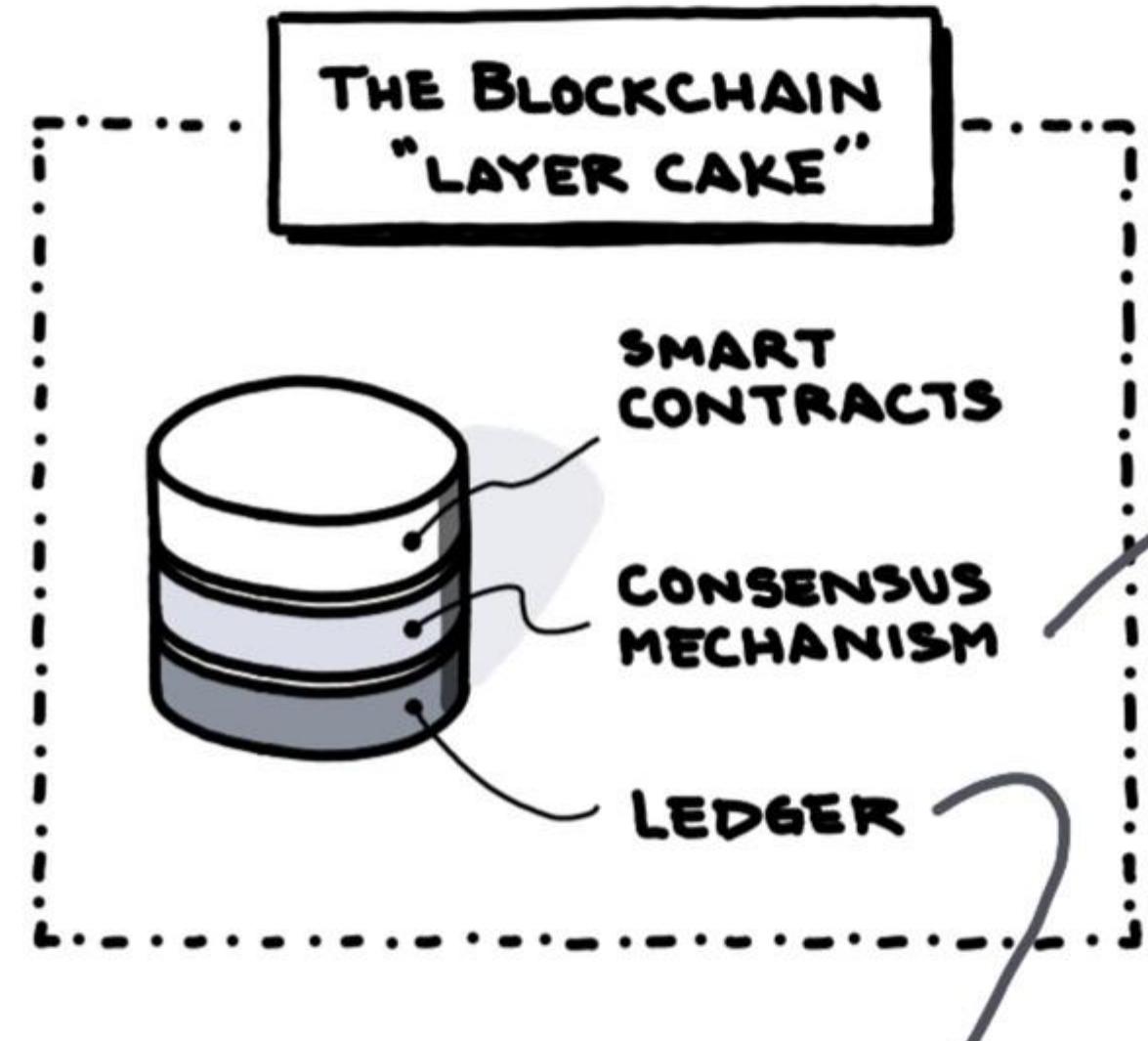
AMAZON MANAGED

# BLOCKCHAIN

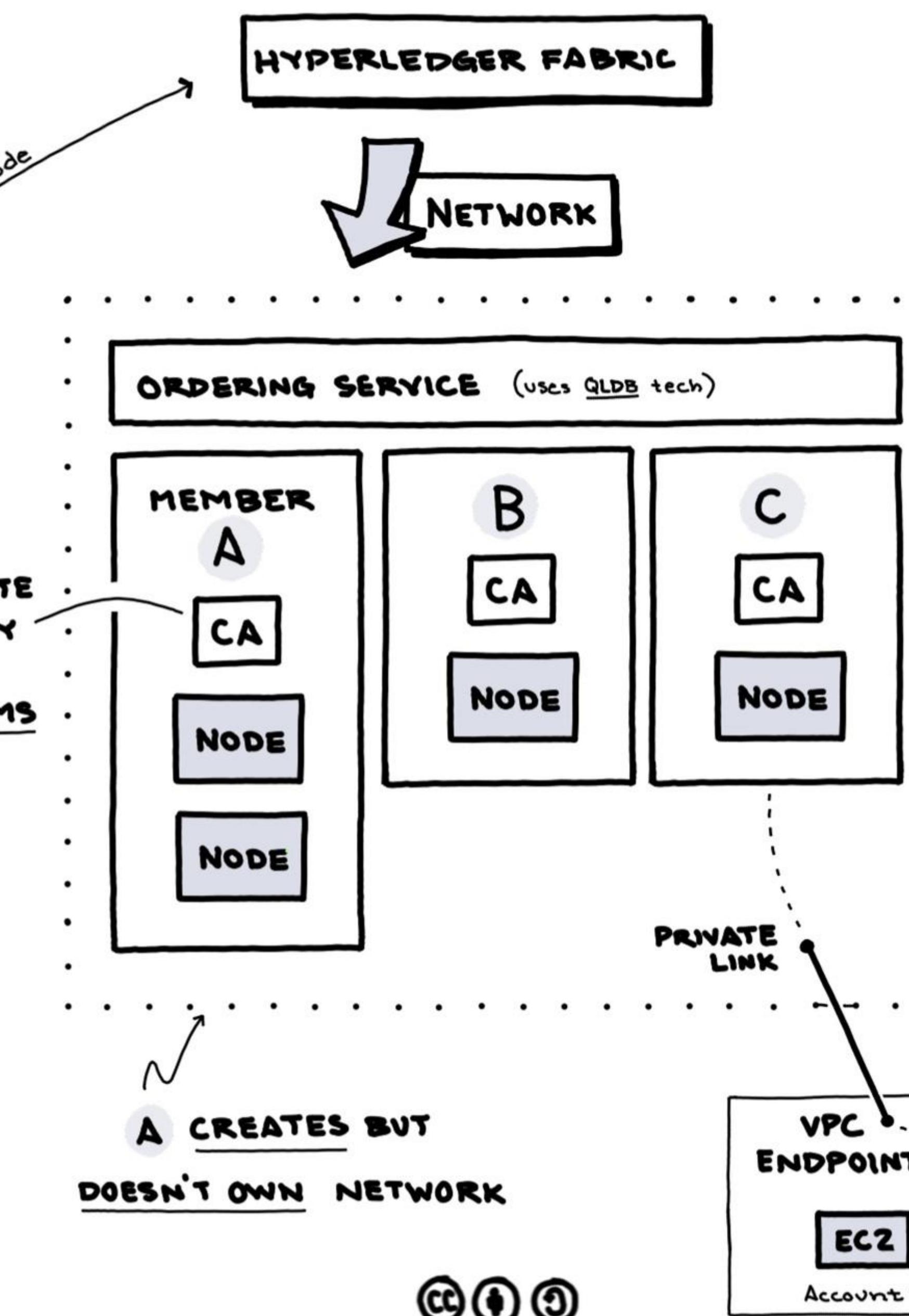
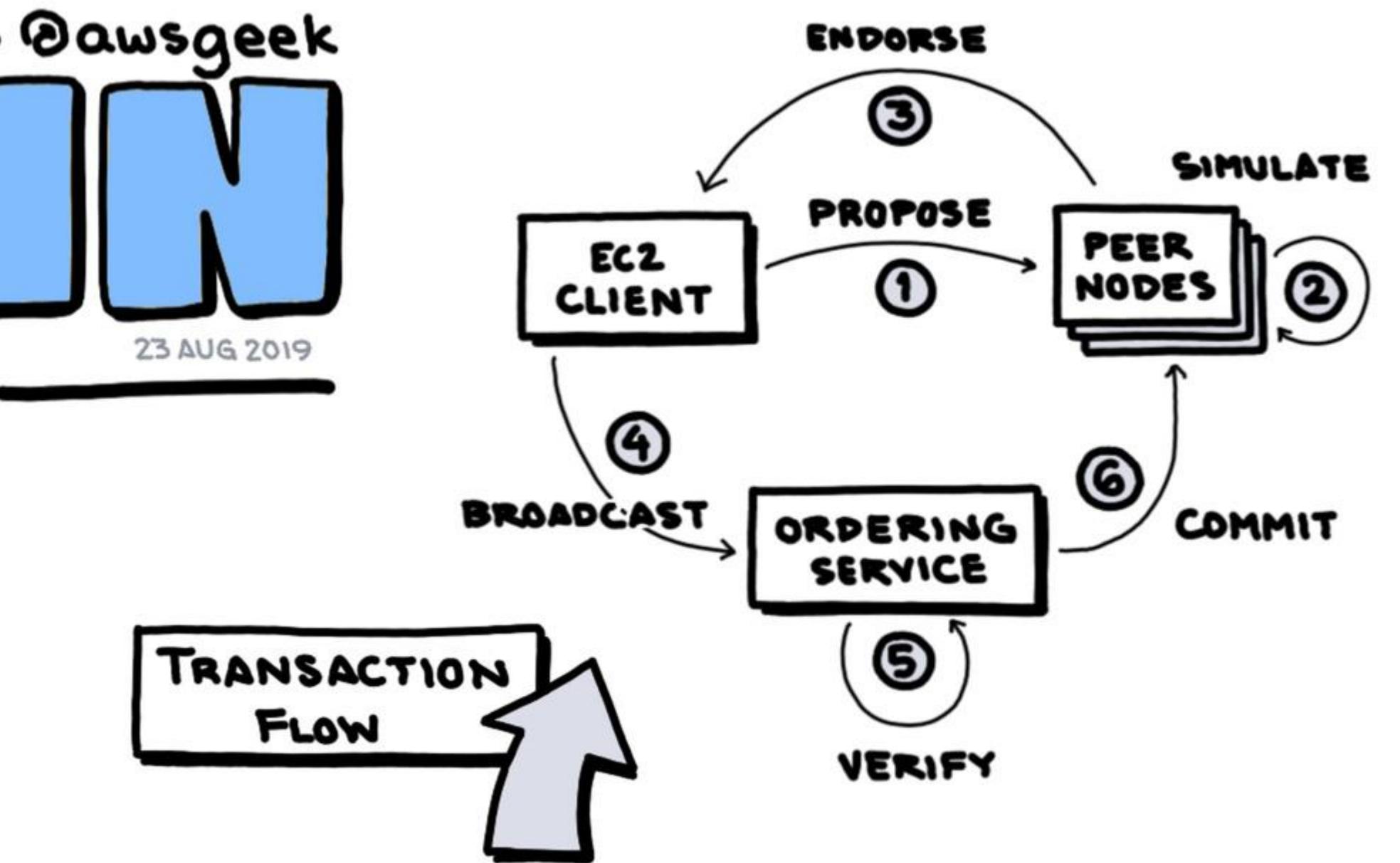
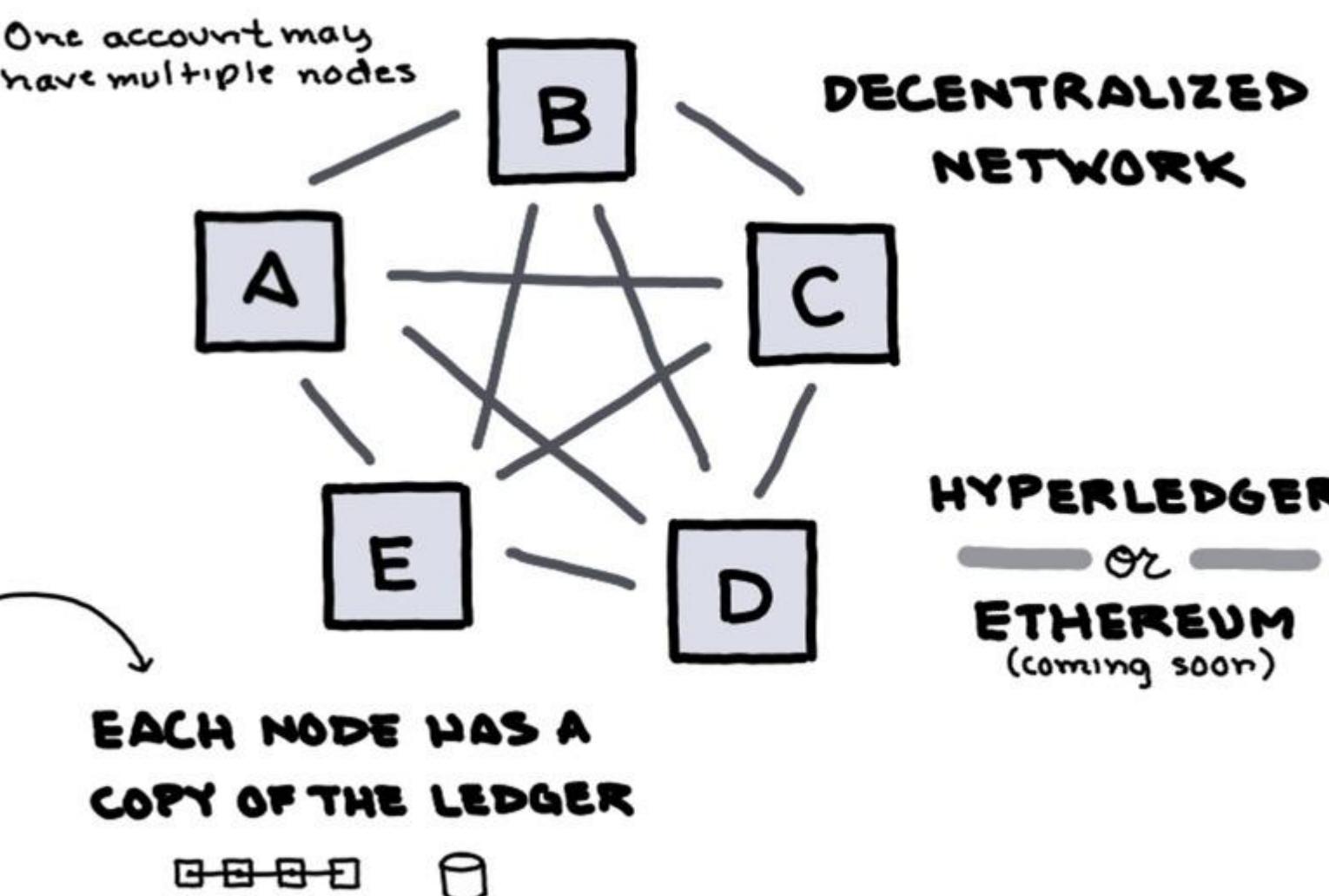
@awsgeek

23 AUG 2019

SCALABLE BLOCKCHAIN NETWORKS



AMAZON MANAGED BLOCKCHAIN



The image features a large, hand-drawn-style word "Cloud" in white on a light blue background. Below the word, there is a simple diagram illustrating a cloud computing architecture. It consists of three main components: a stack of four purple rectangular boxes labeled "Services", a stack of three white rectangular boxes labeled "scripts", and a circular icon containing a person's head with question marks around it. Arrows point from the "Services" stack to the "scripts" stack, and another arrow points from the "scripts" stack to the person icon.



# Content: awsgeek.com

Curated By:  him431