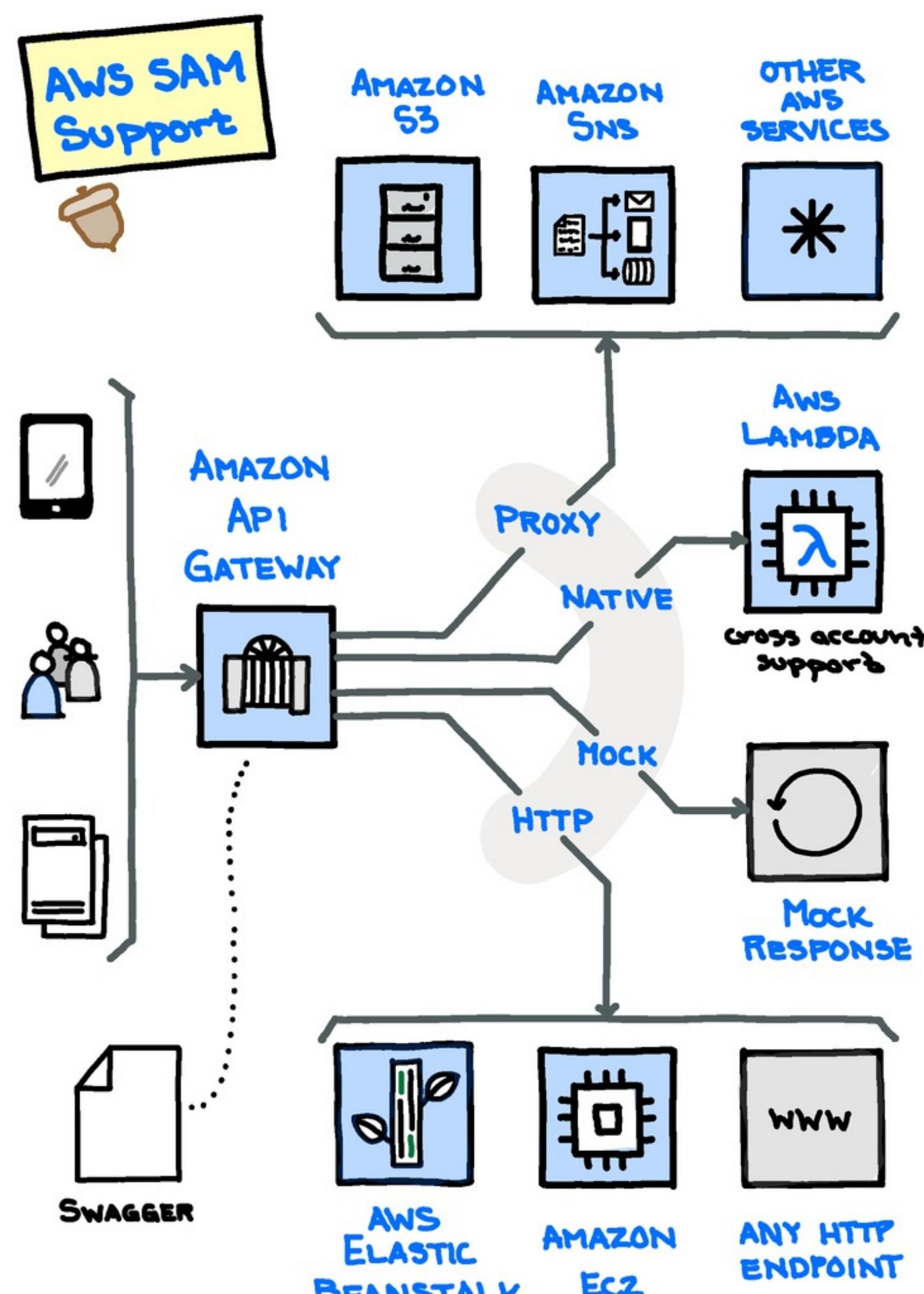


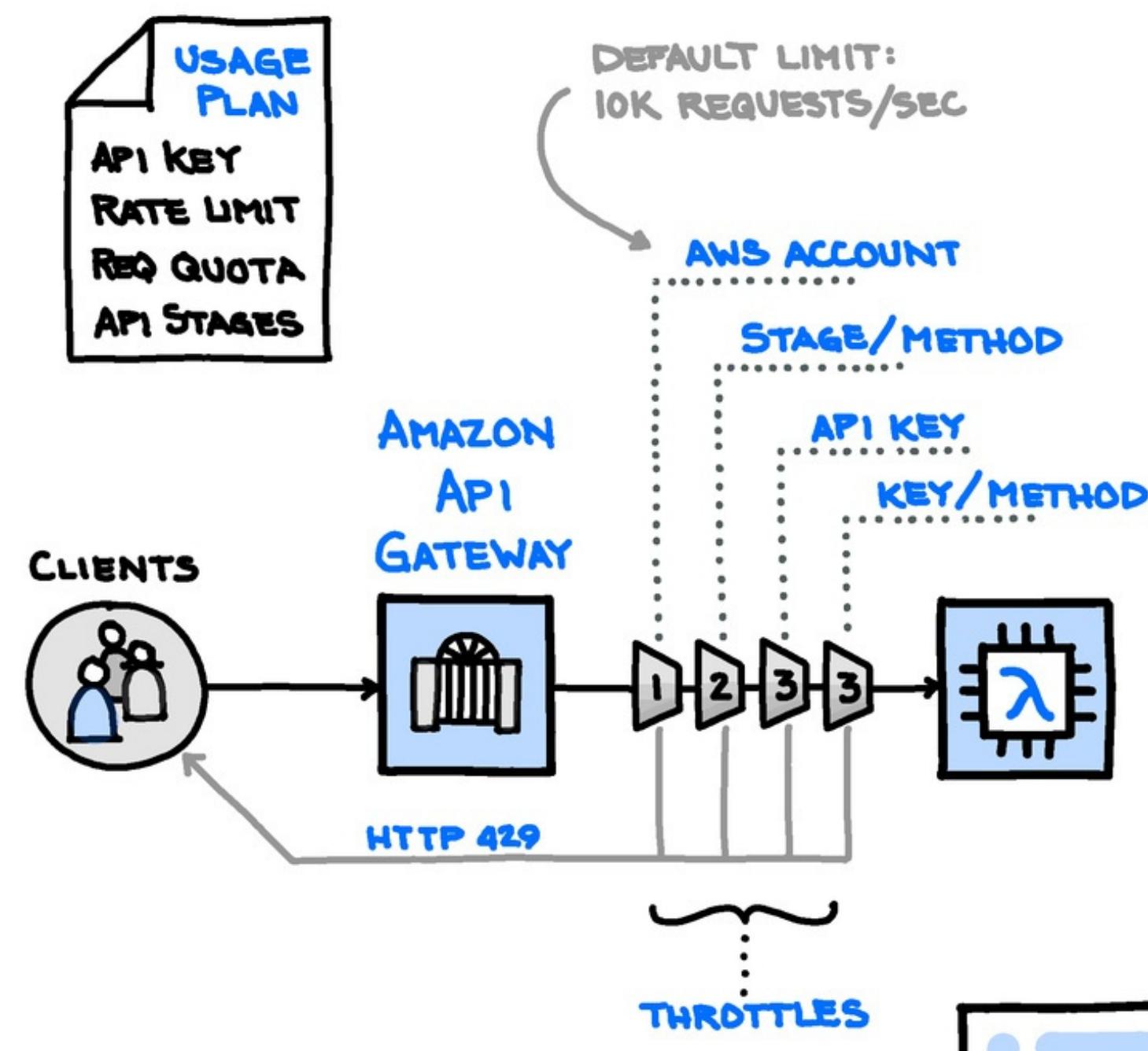
AWS Sketchbook



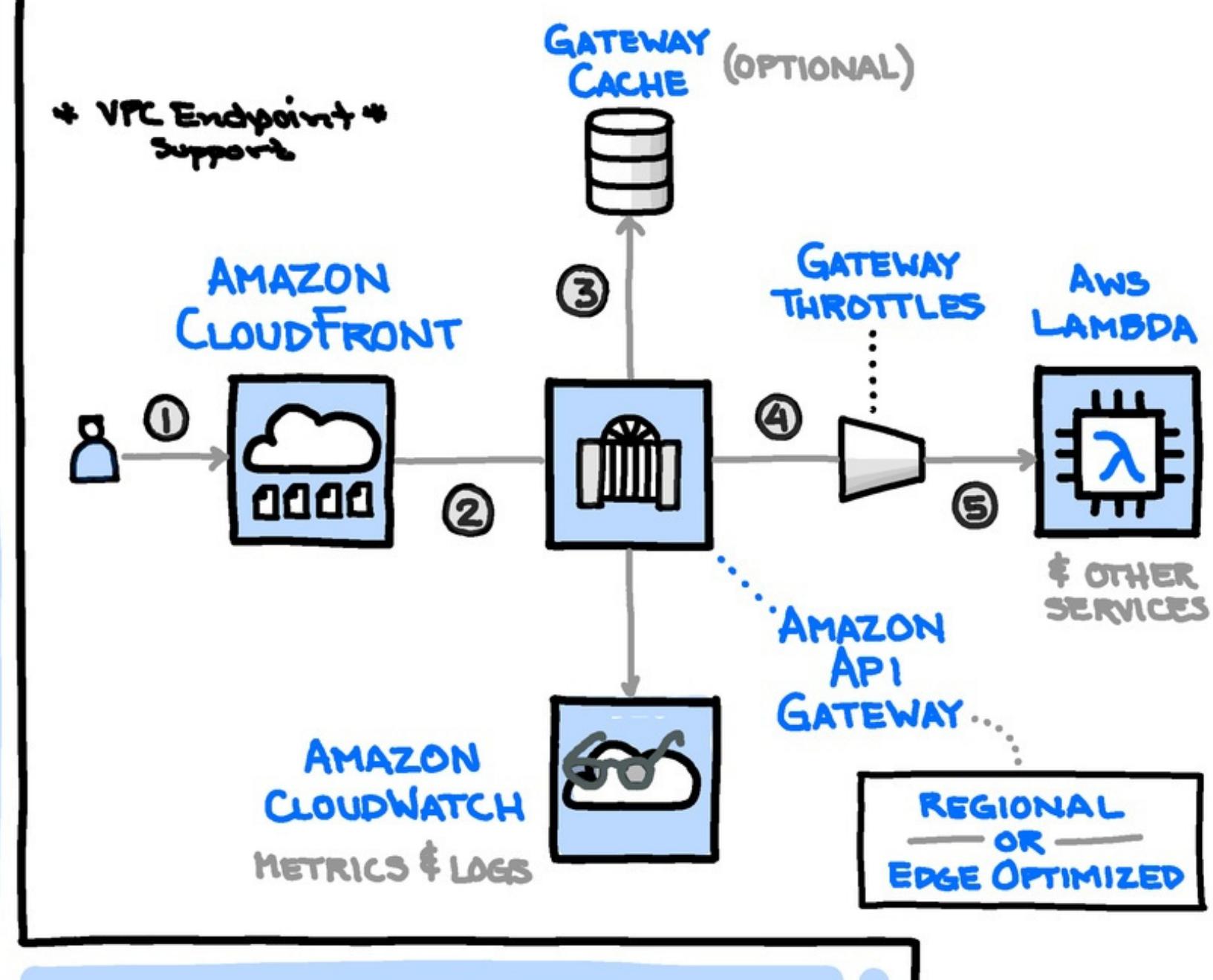
THE INTEGRATIONS



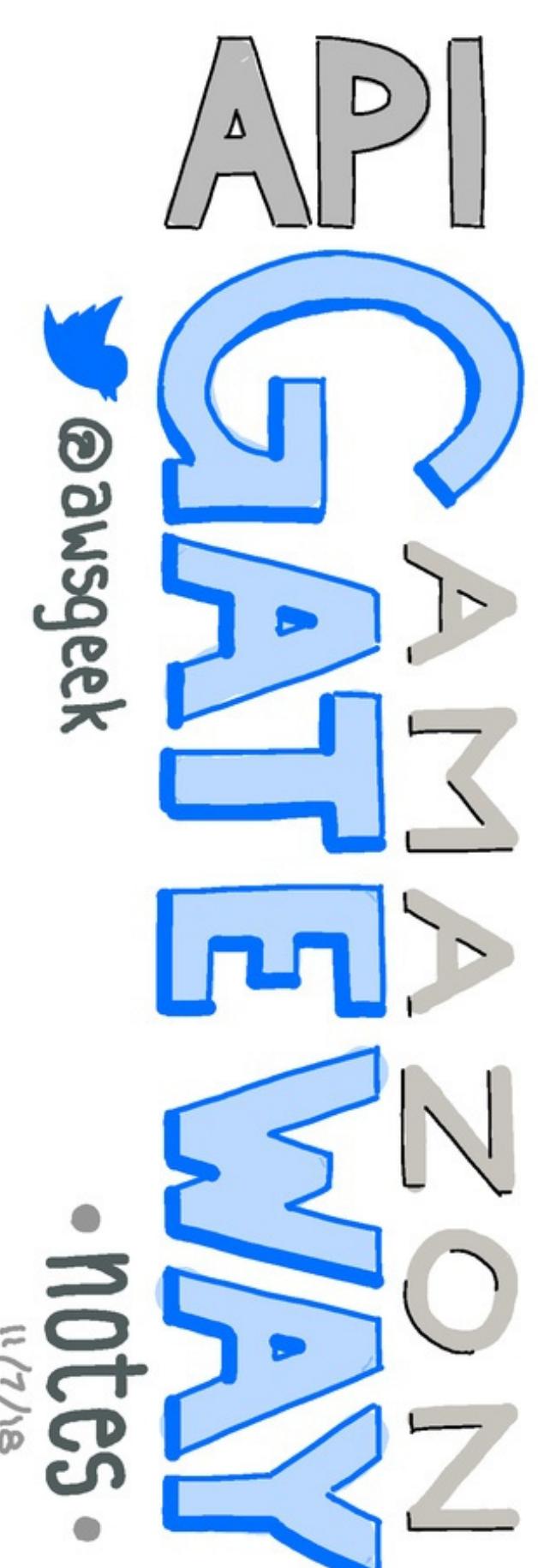
THROTTLING



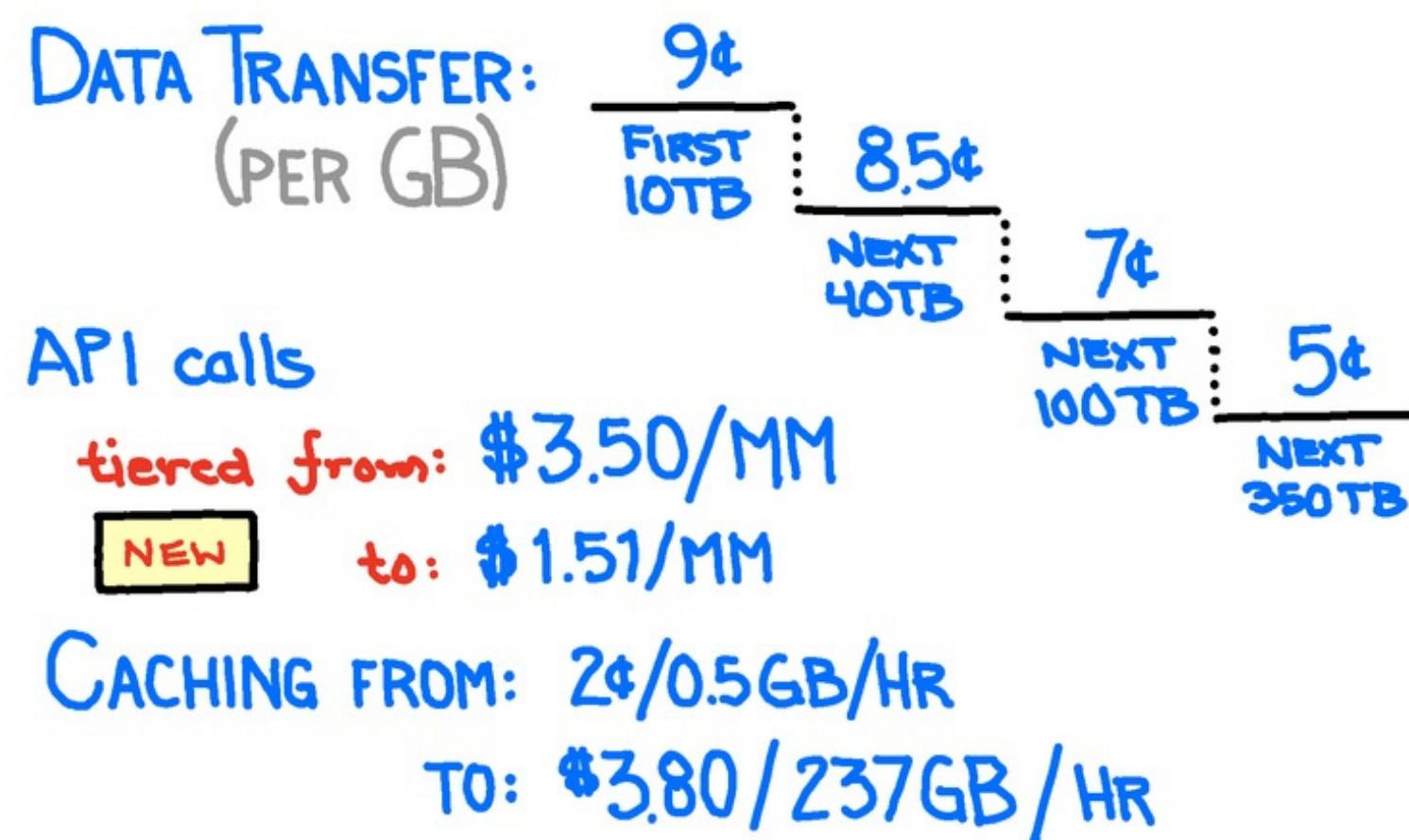
UNDER THE HOOD



EVOLUTION OF AN API

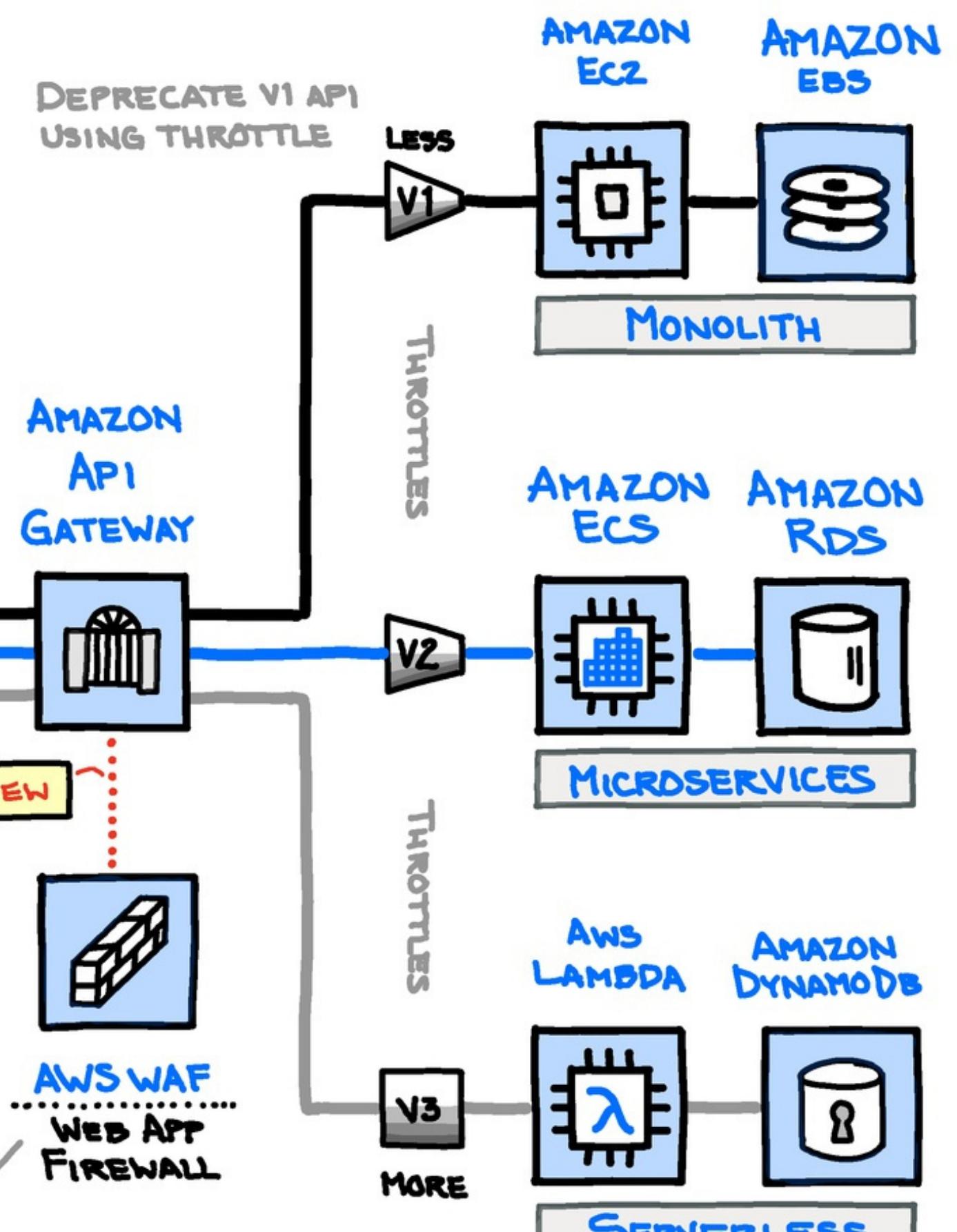


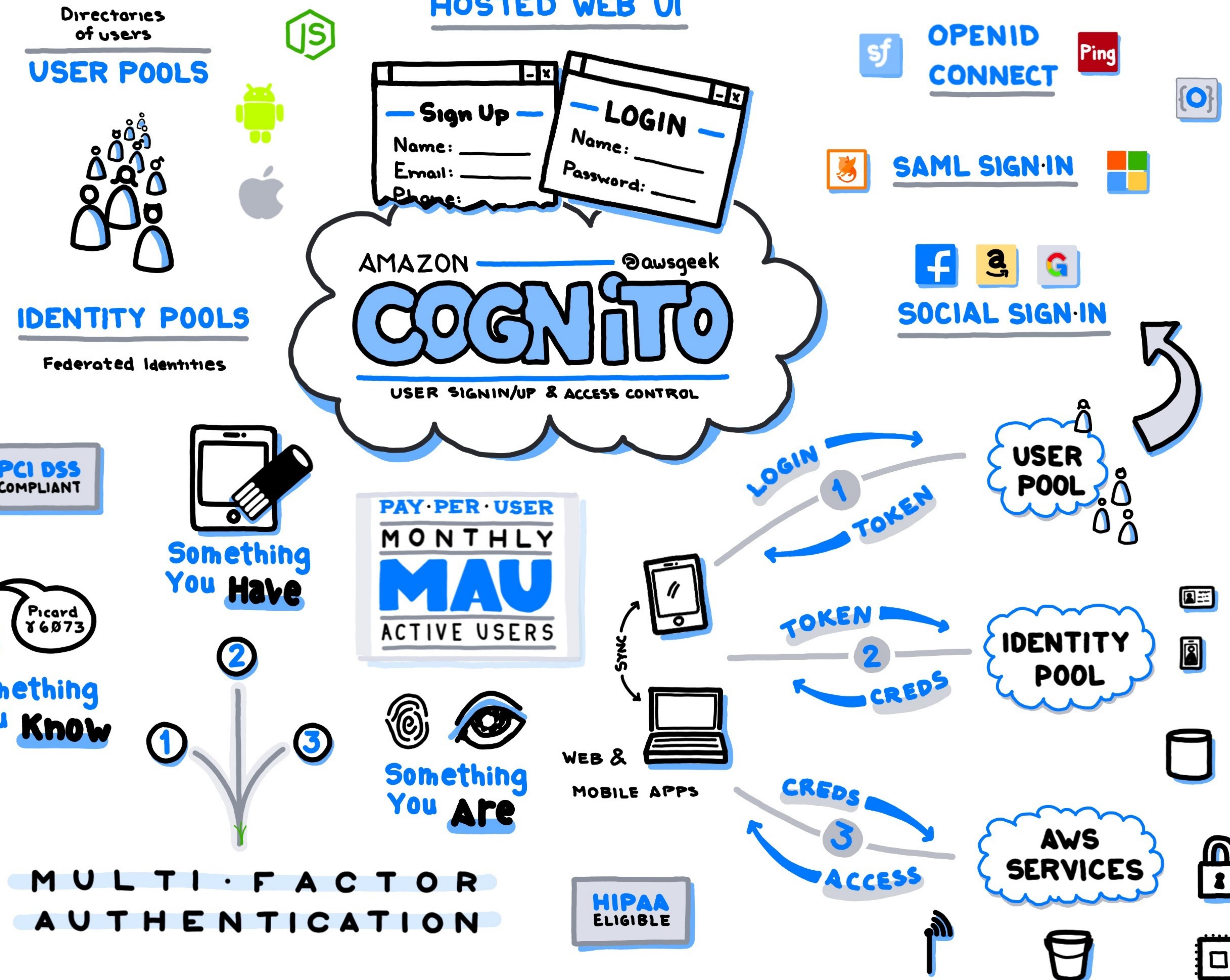
PRICING



LEGACY → MODERN → EVOLVE → MODERN → NEW

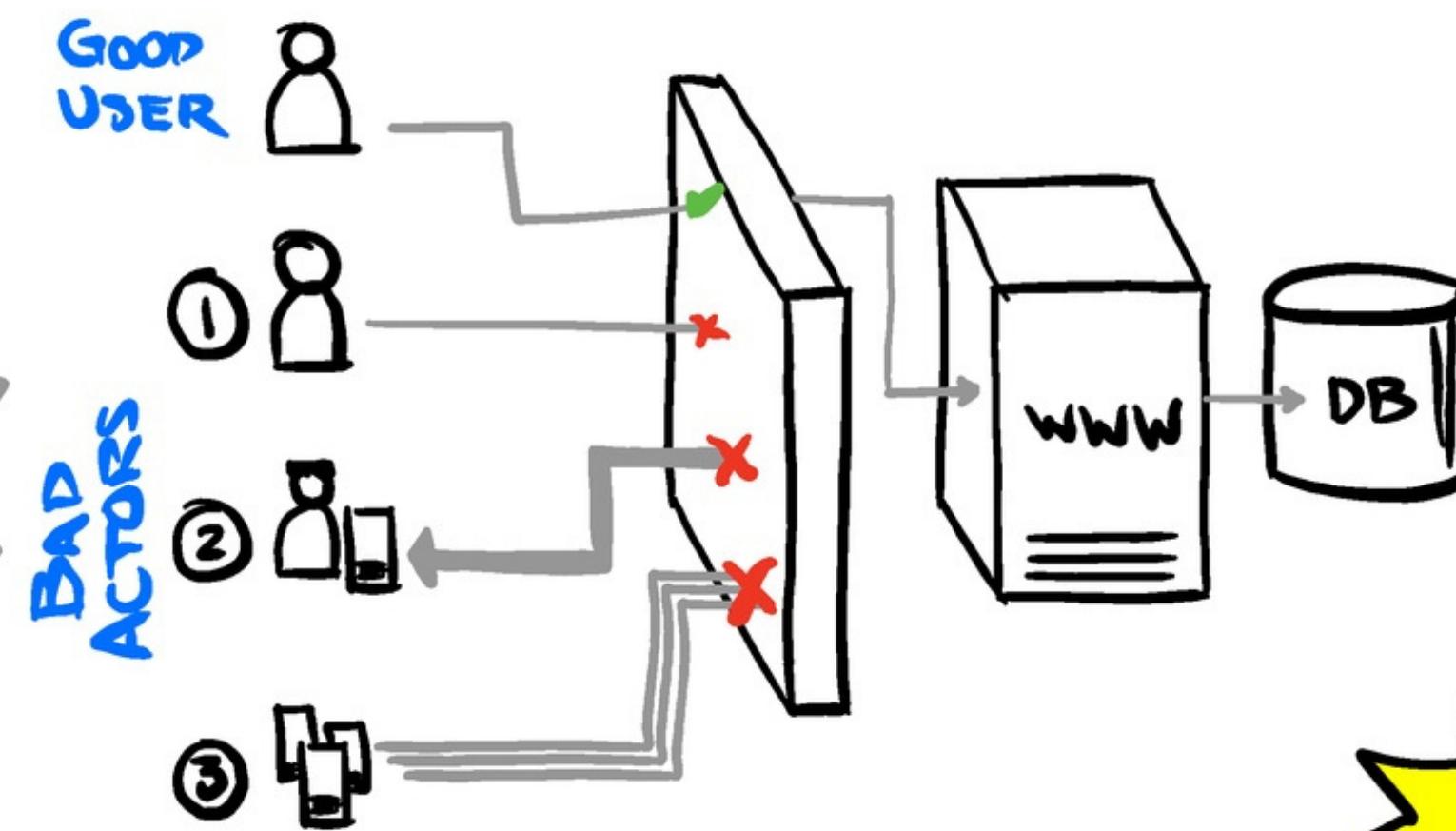
allow, block, count web requests



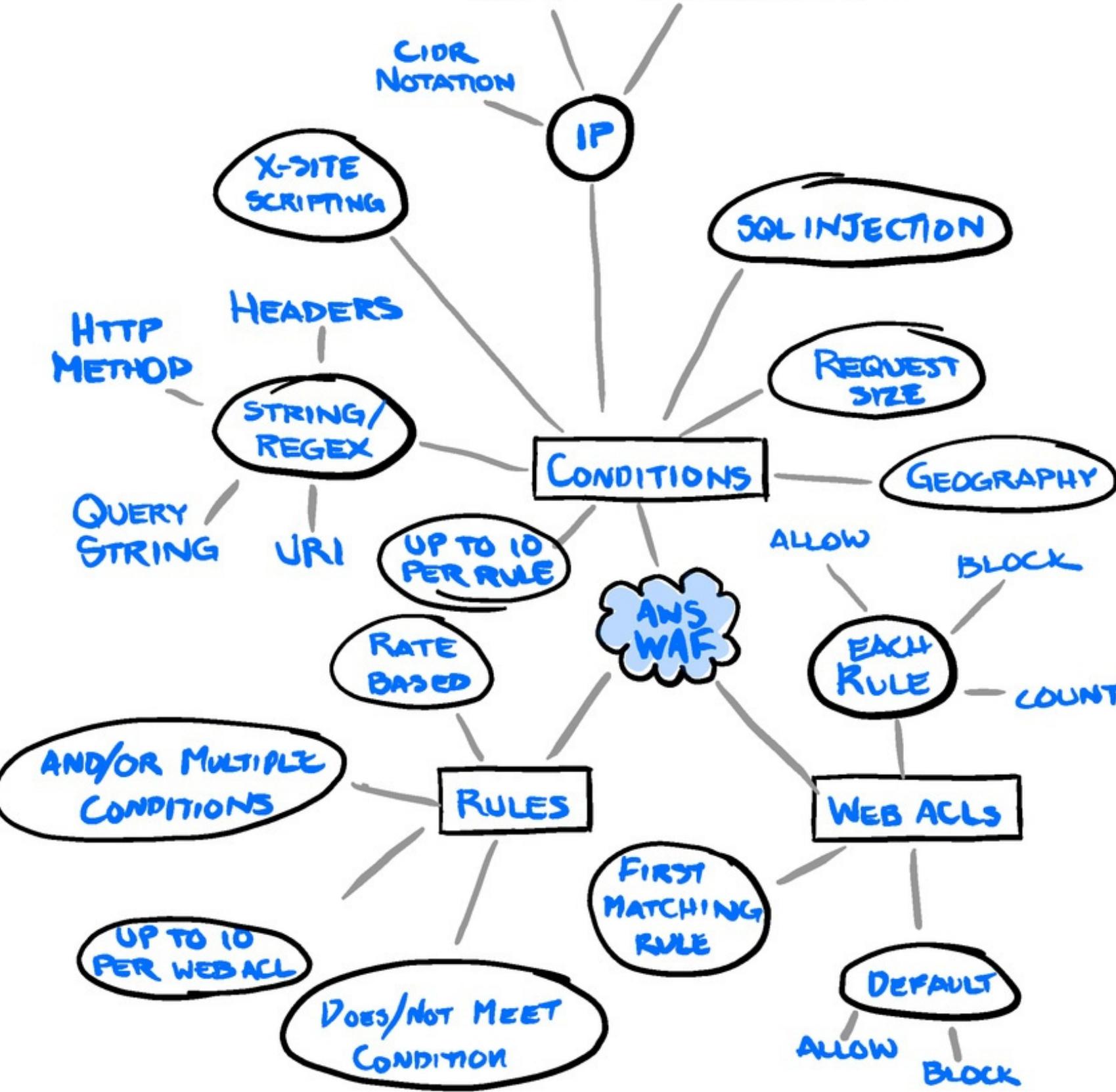


COMMON WAF USE CASES

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

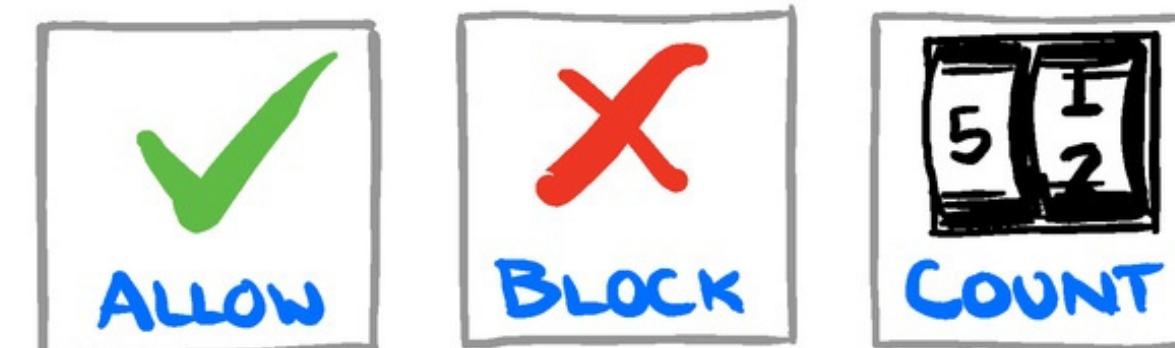


18,16,24,32 ONLY UPTO 10K PER CONDITION



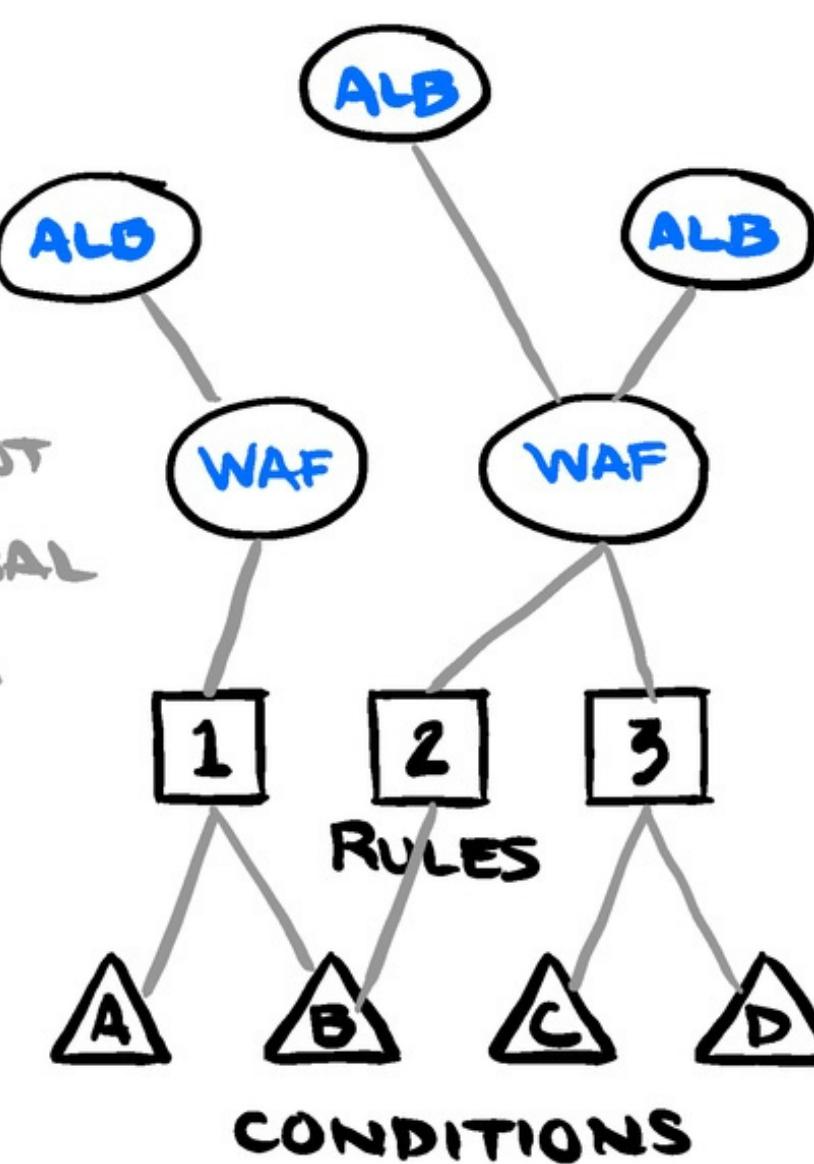
@awsgeek

jerry.hargrove@



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

* REGIONAL MAY NOT
BE USED BY GLOBAL
AND VISA-VERA

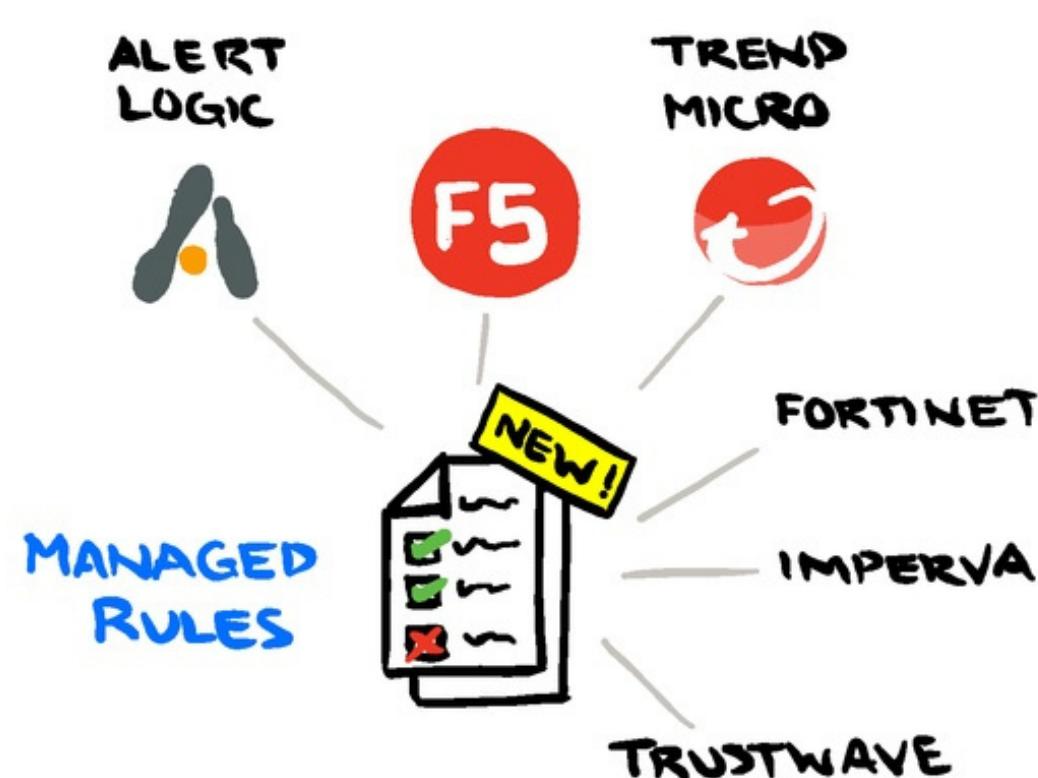


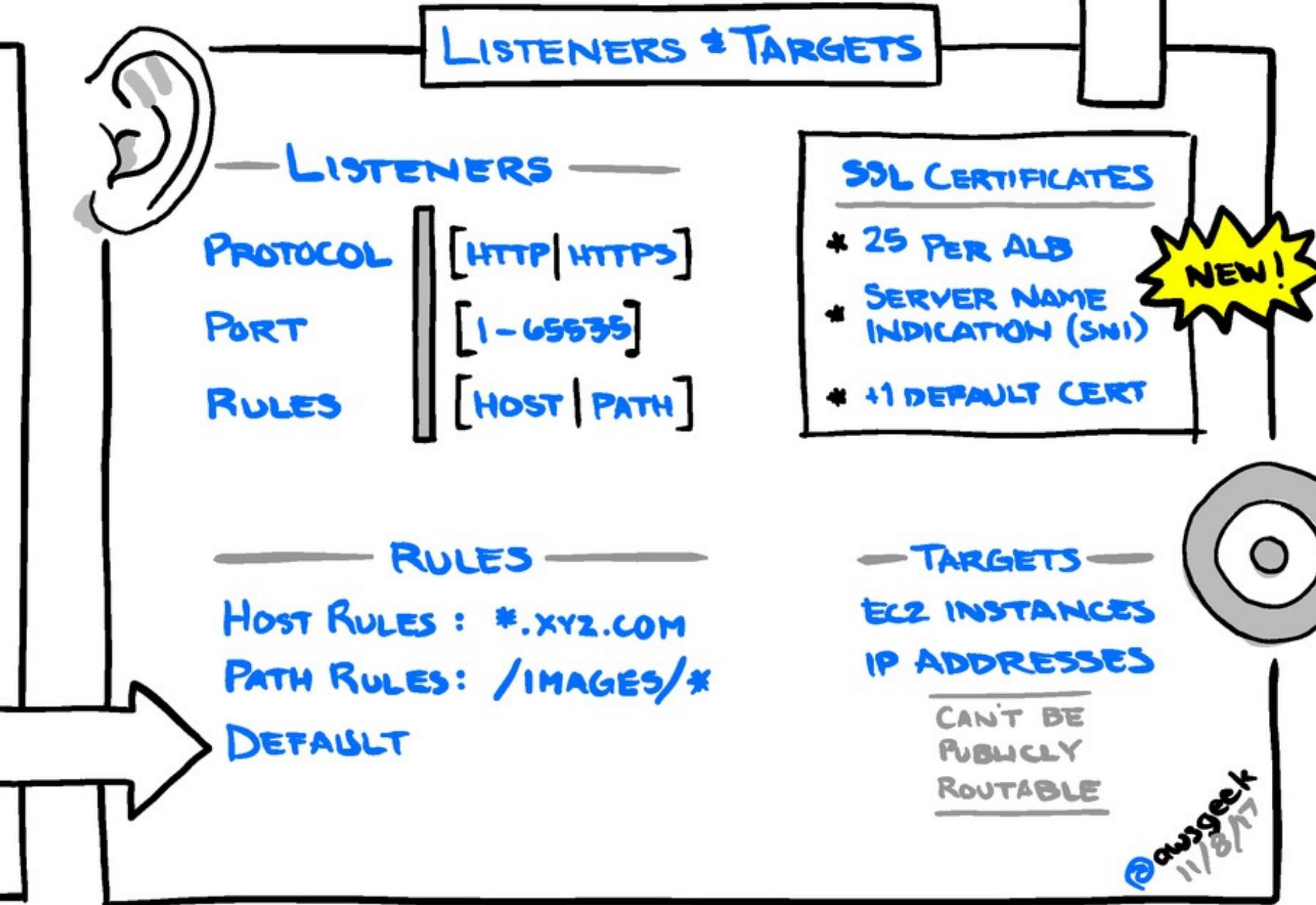
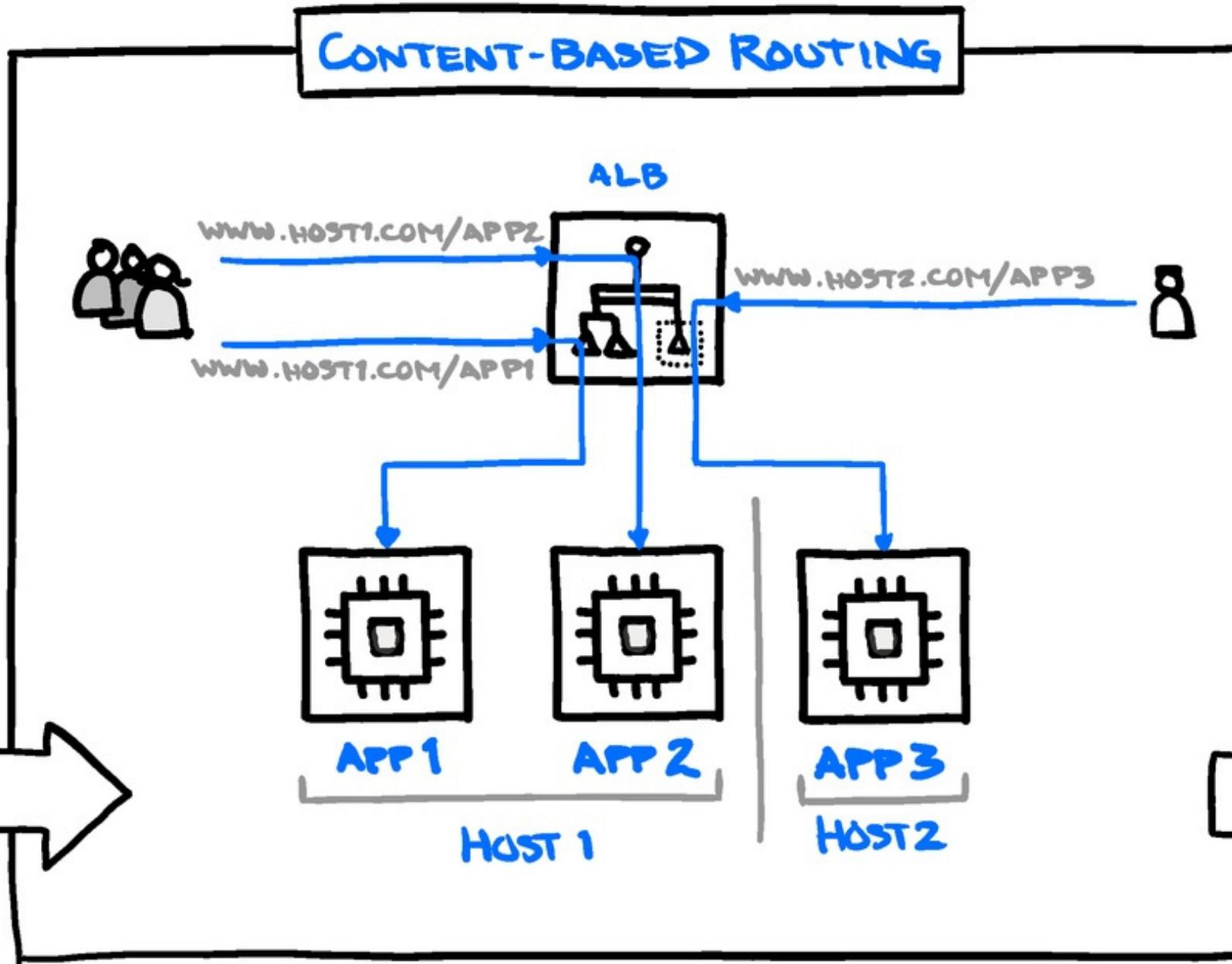
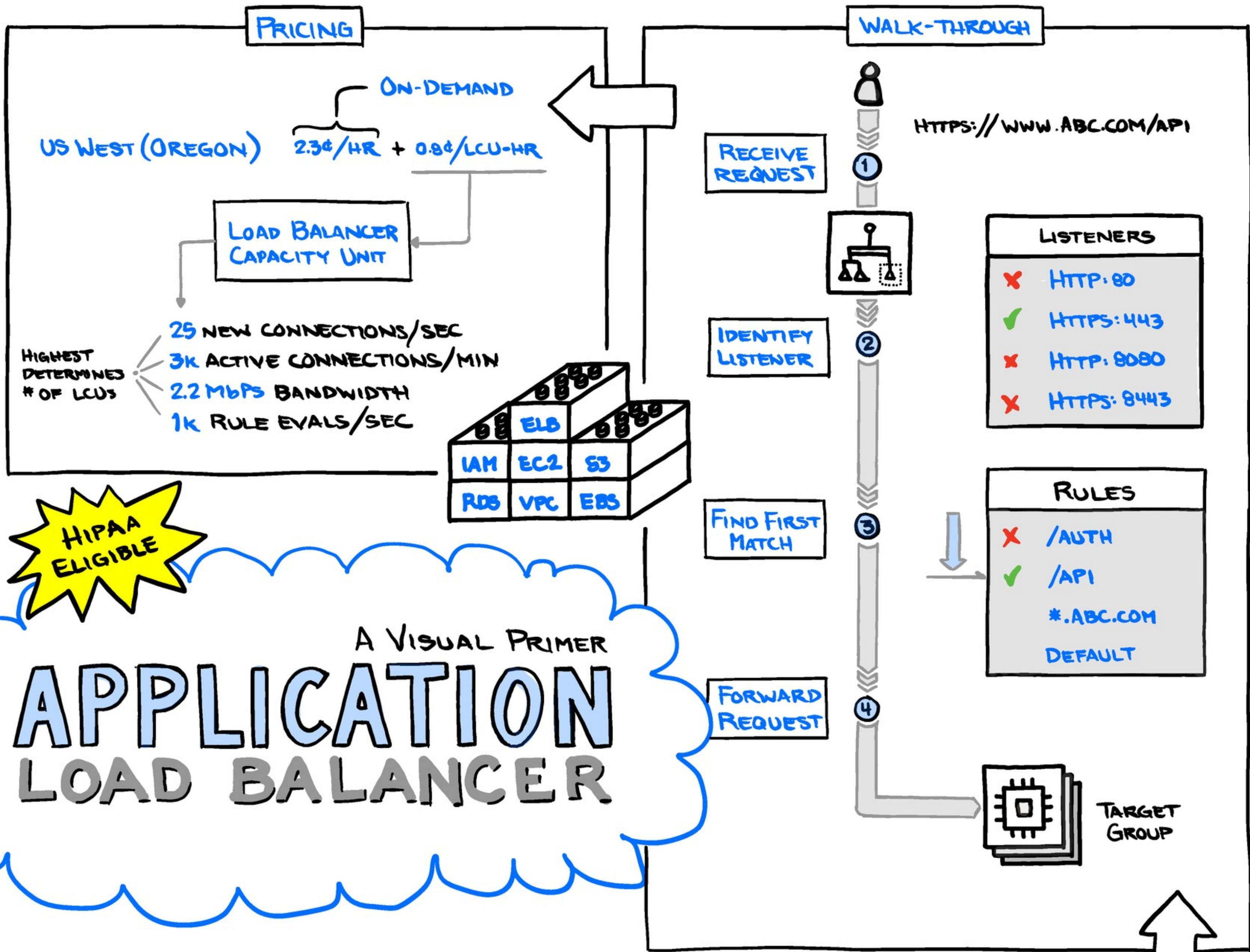
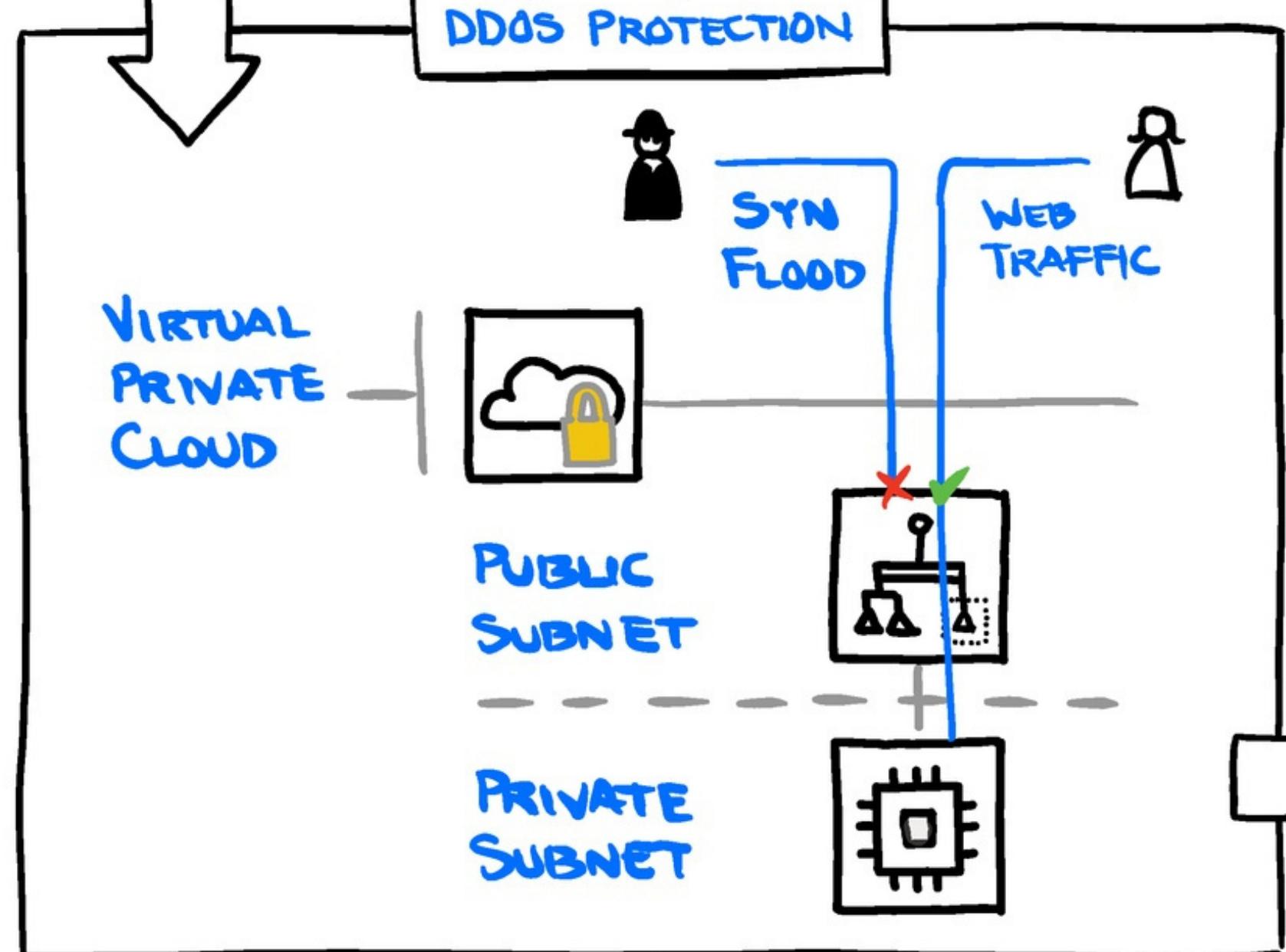
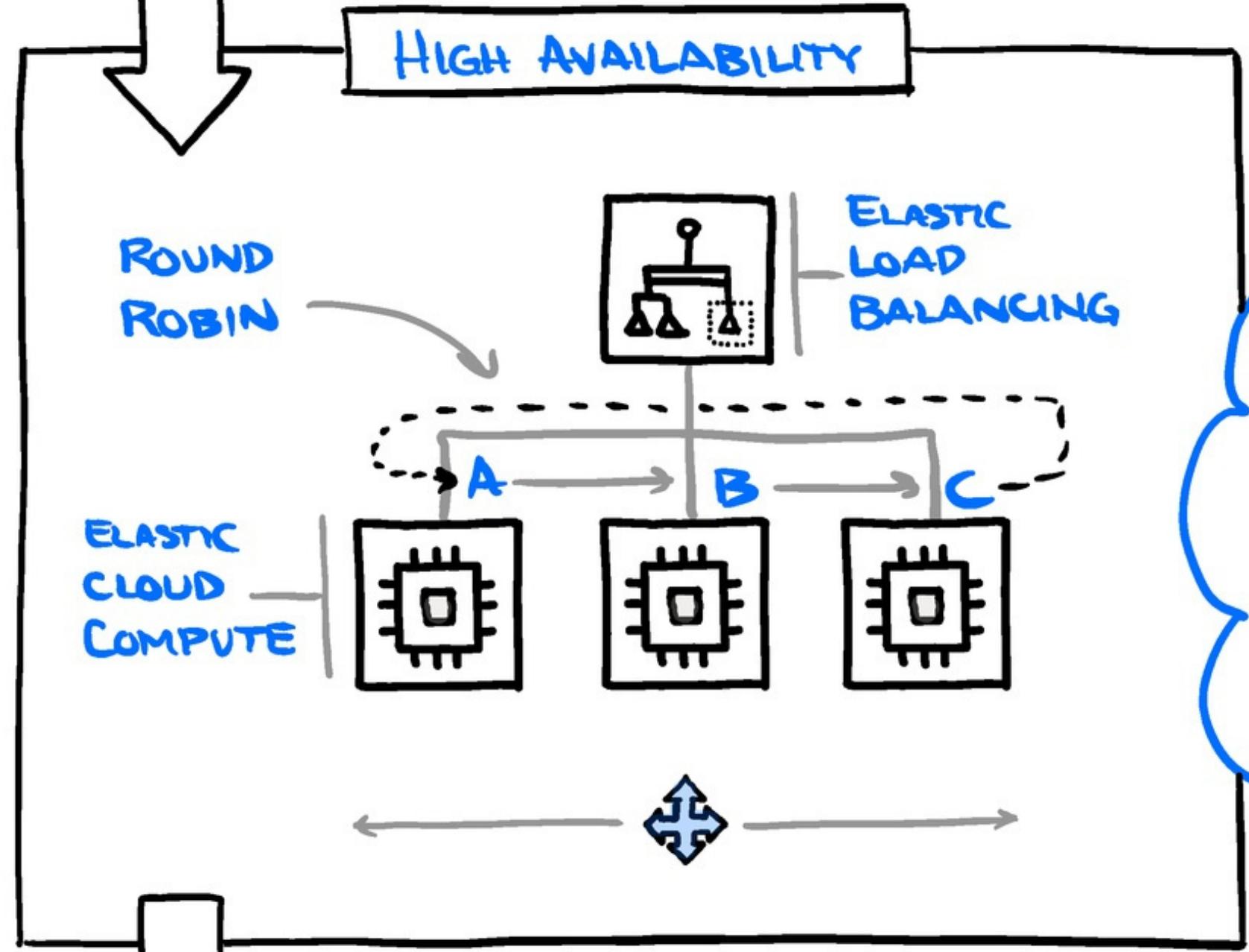
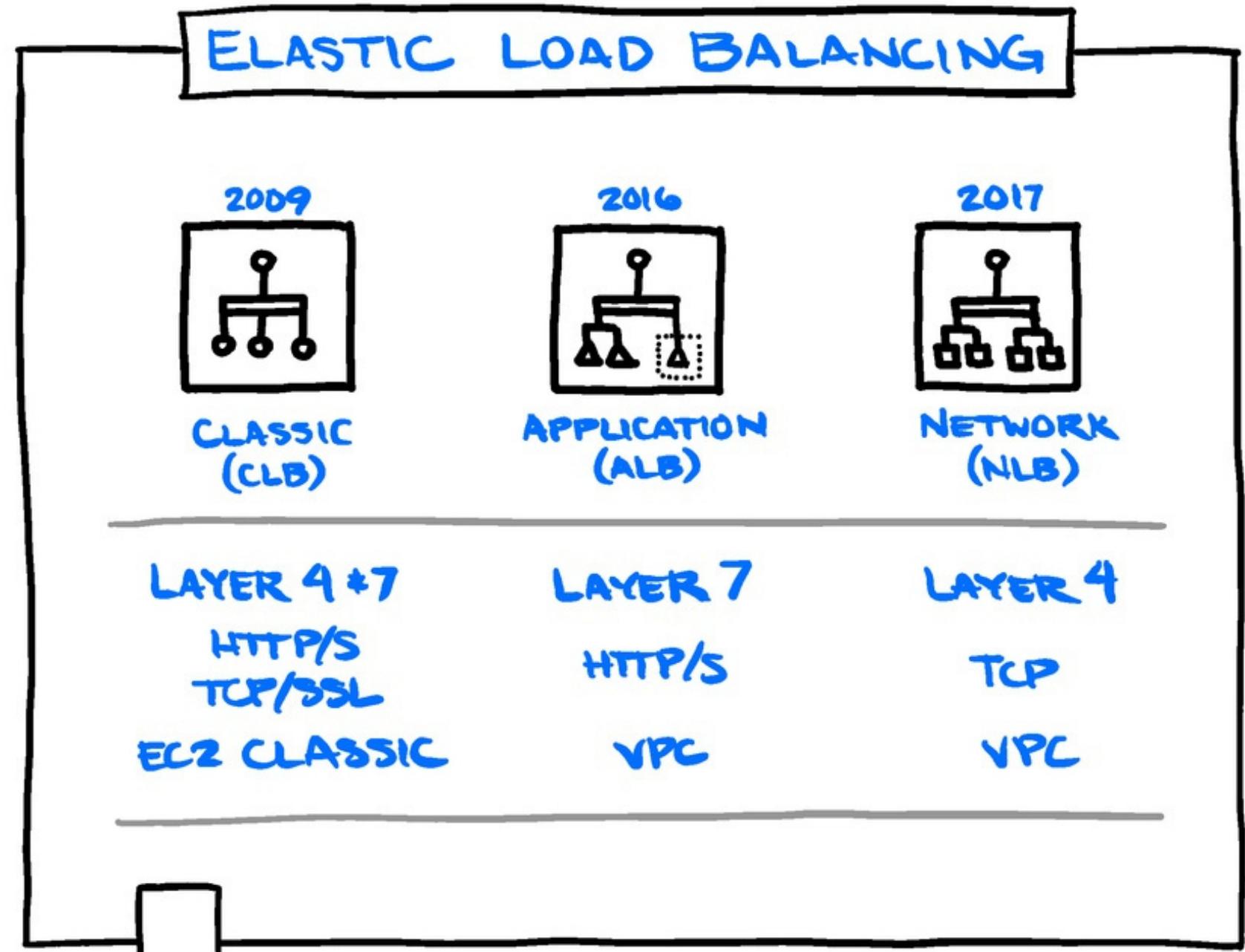
PRECONFIGURED PROTECTIONS

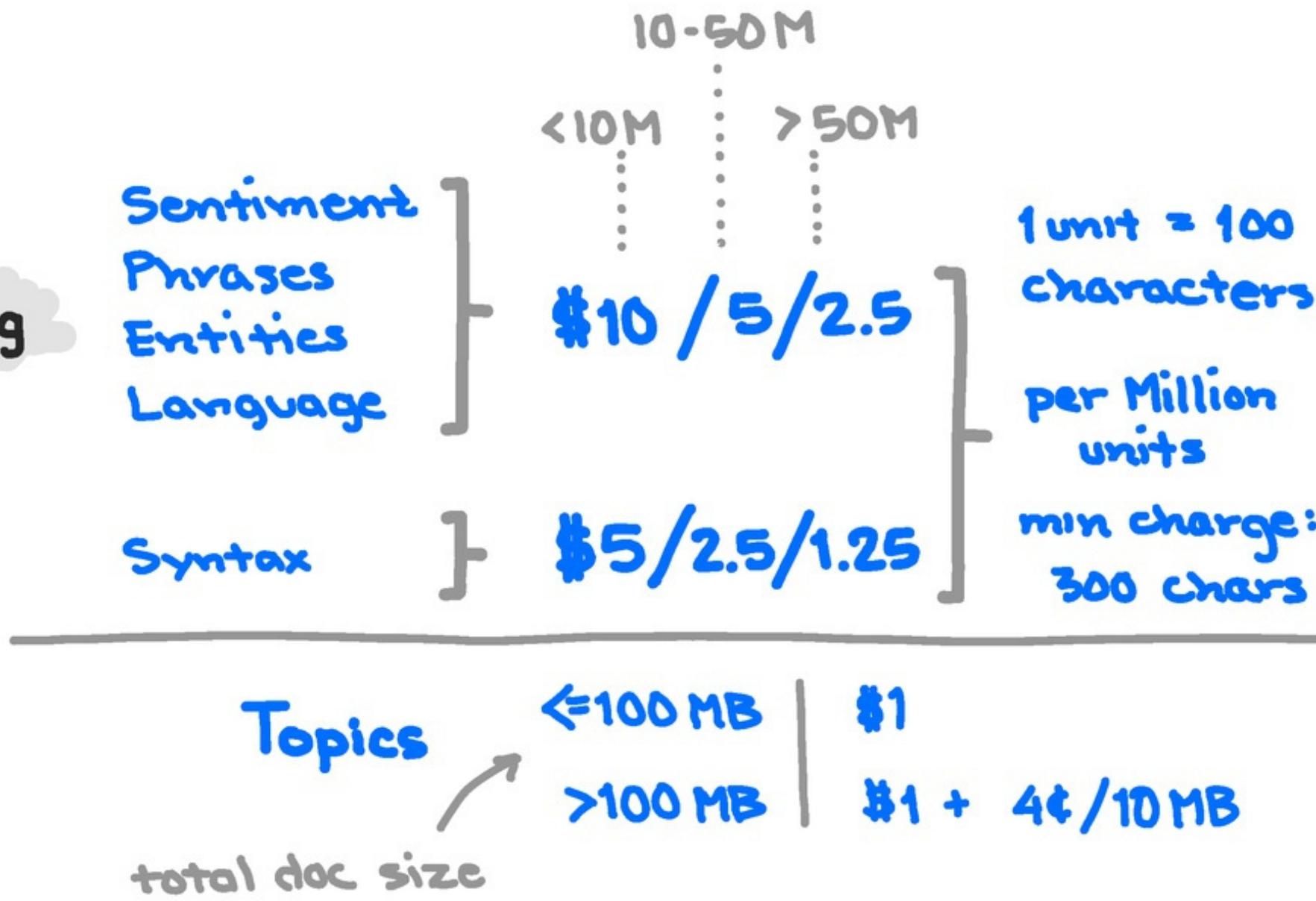
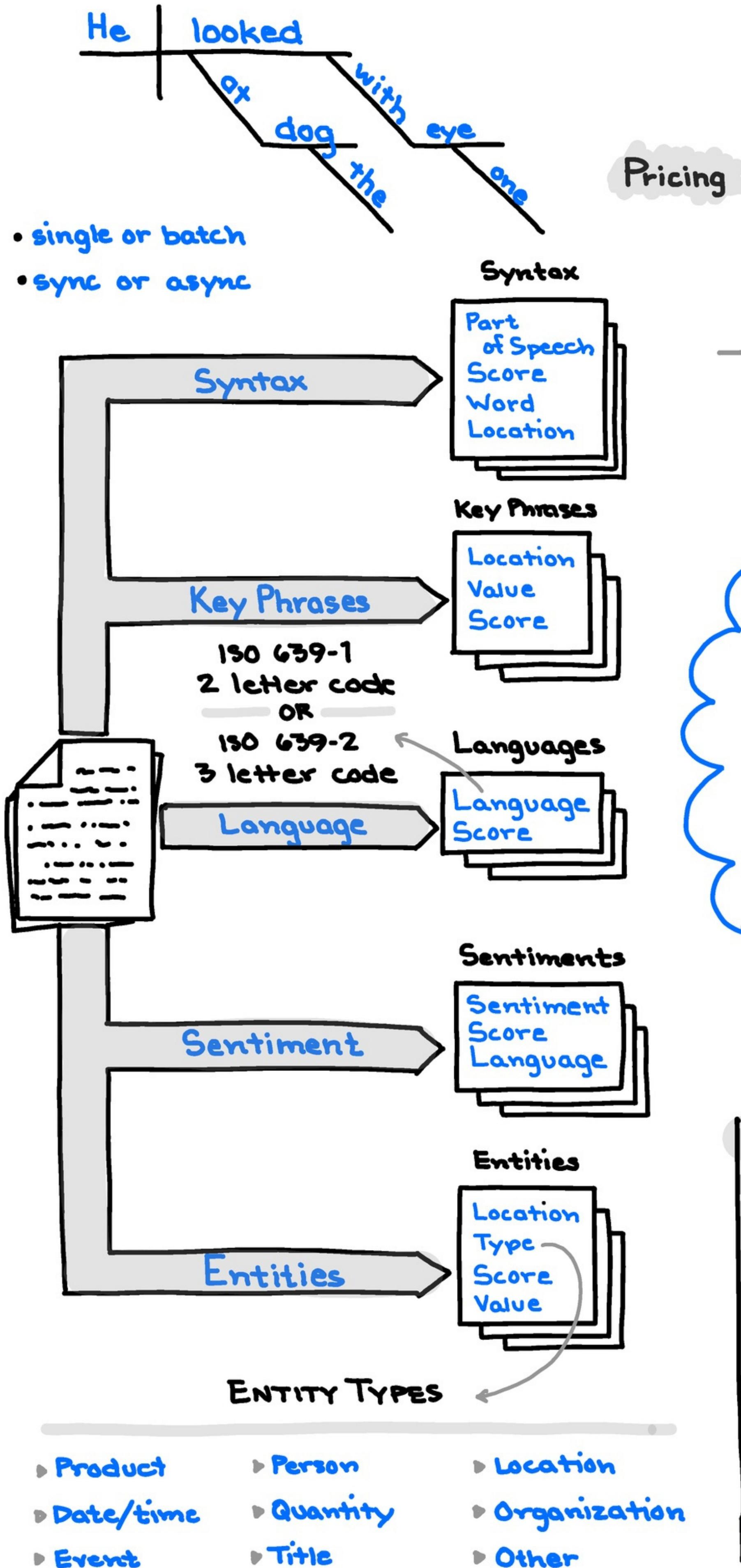
★	BAD BOT/SCRAPER
★	SQL INJECTION
★	CROSS-SITE SCRIPTING
★	HTTP FLOOD, SCANNER, PROBE
★	IP WHITE/BLACK LIST
★	KNOWN ATTACKER
	VIA CLOUDFORMATION NEW OR EXISTING WAF

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

FOLLOW:
Aws SECURITY BLOG





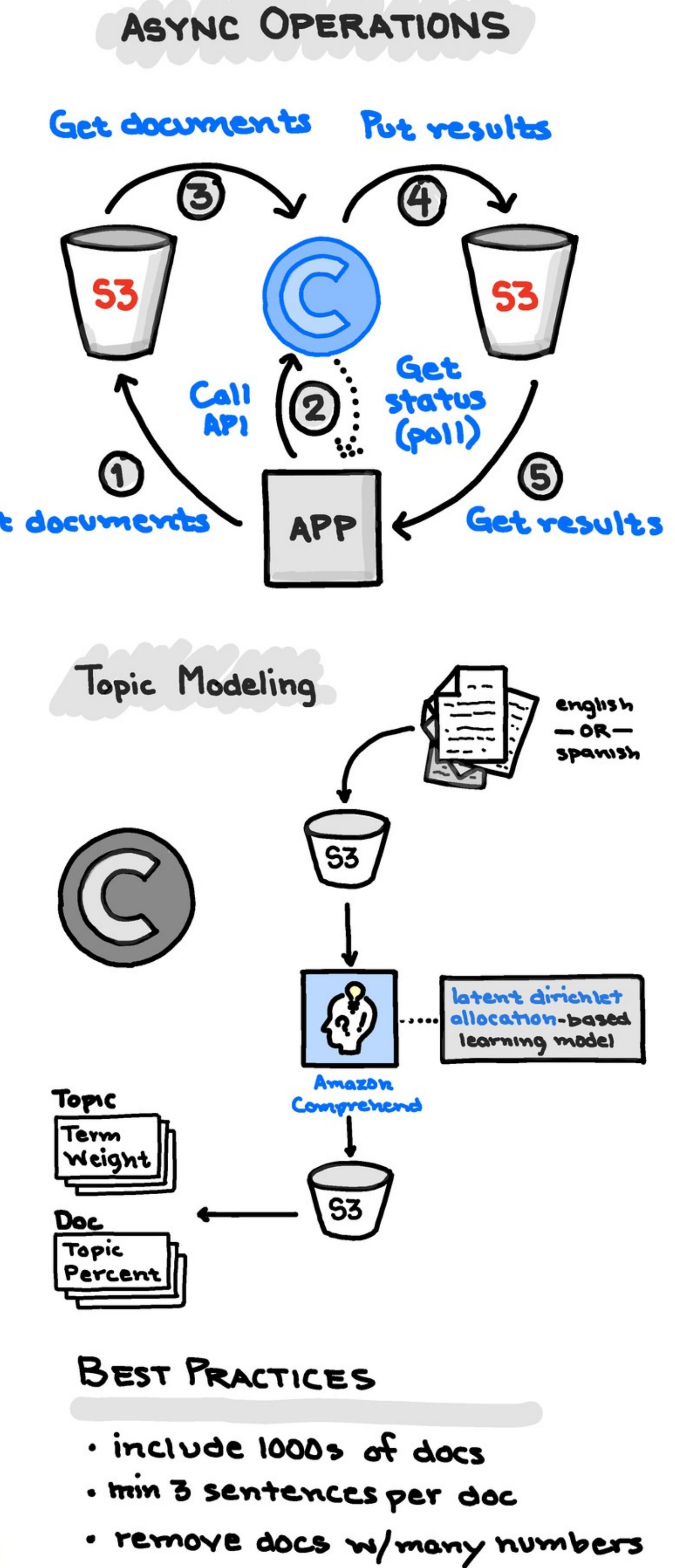


DATA PRIVACY

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



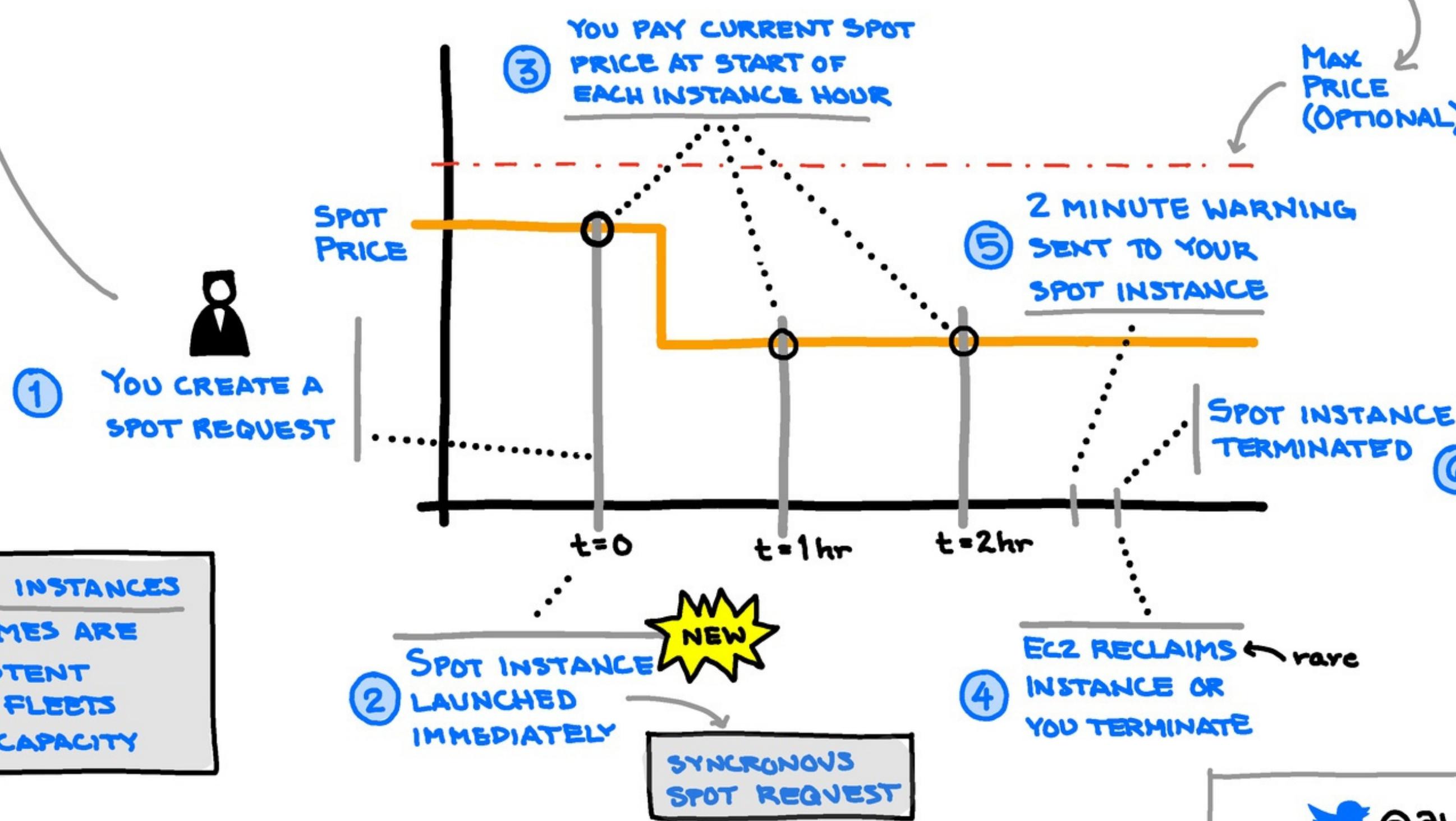
SPOT REQUEST

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

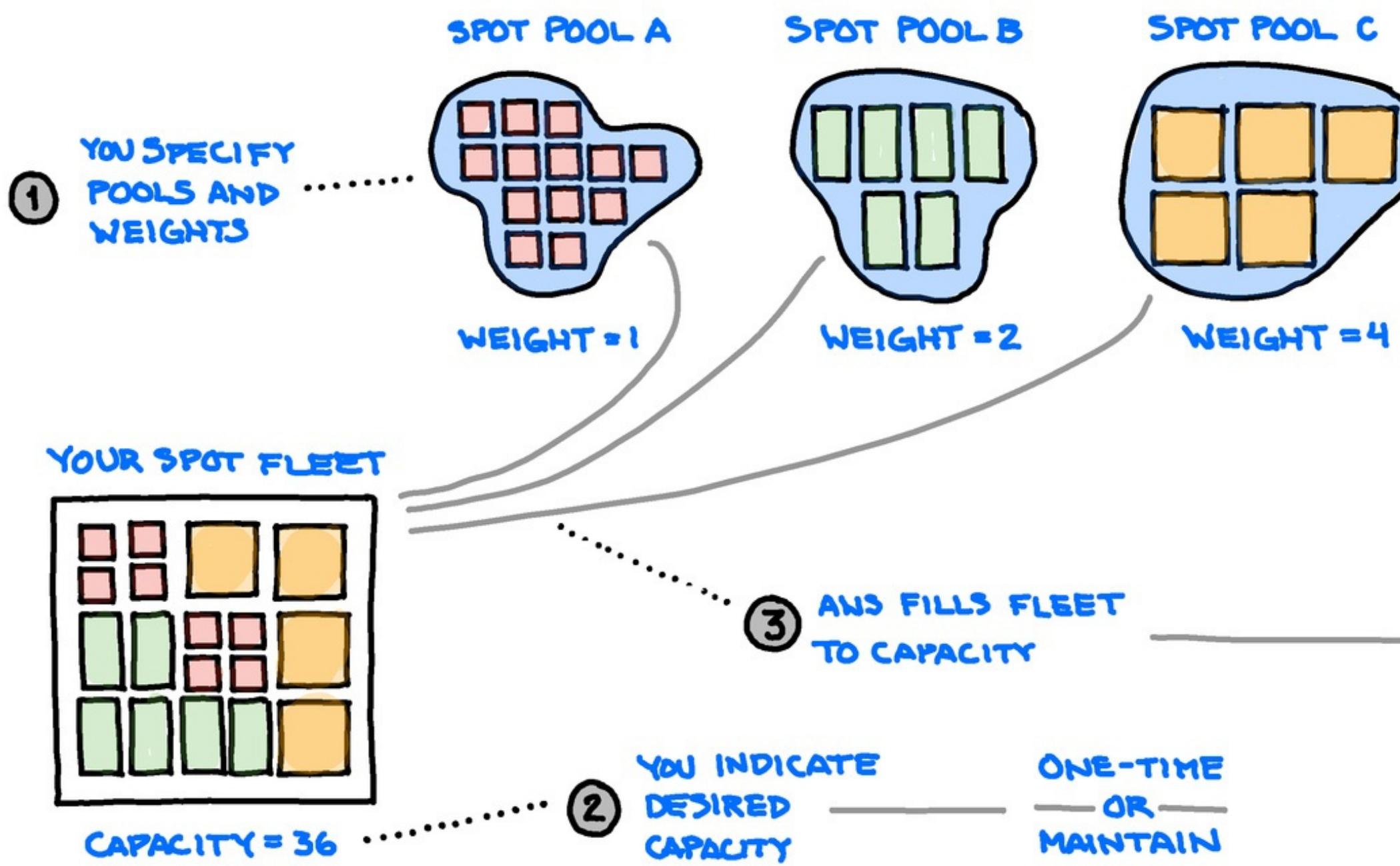
SPOT POOL

SAME INSTANCE TYPE
SAME AVAILABILITY ZONE
SAME OPERATING SYSTEM

BEHAVES LIKE
OLD 'BID PRICE'

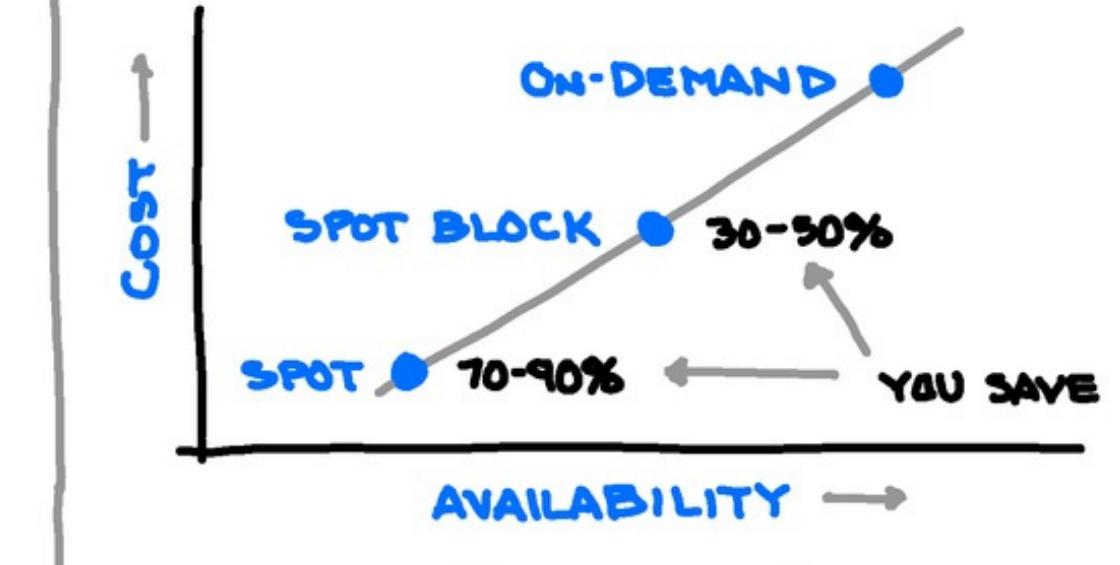
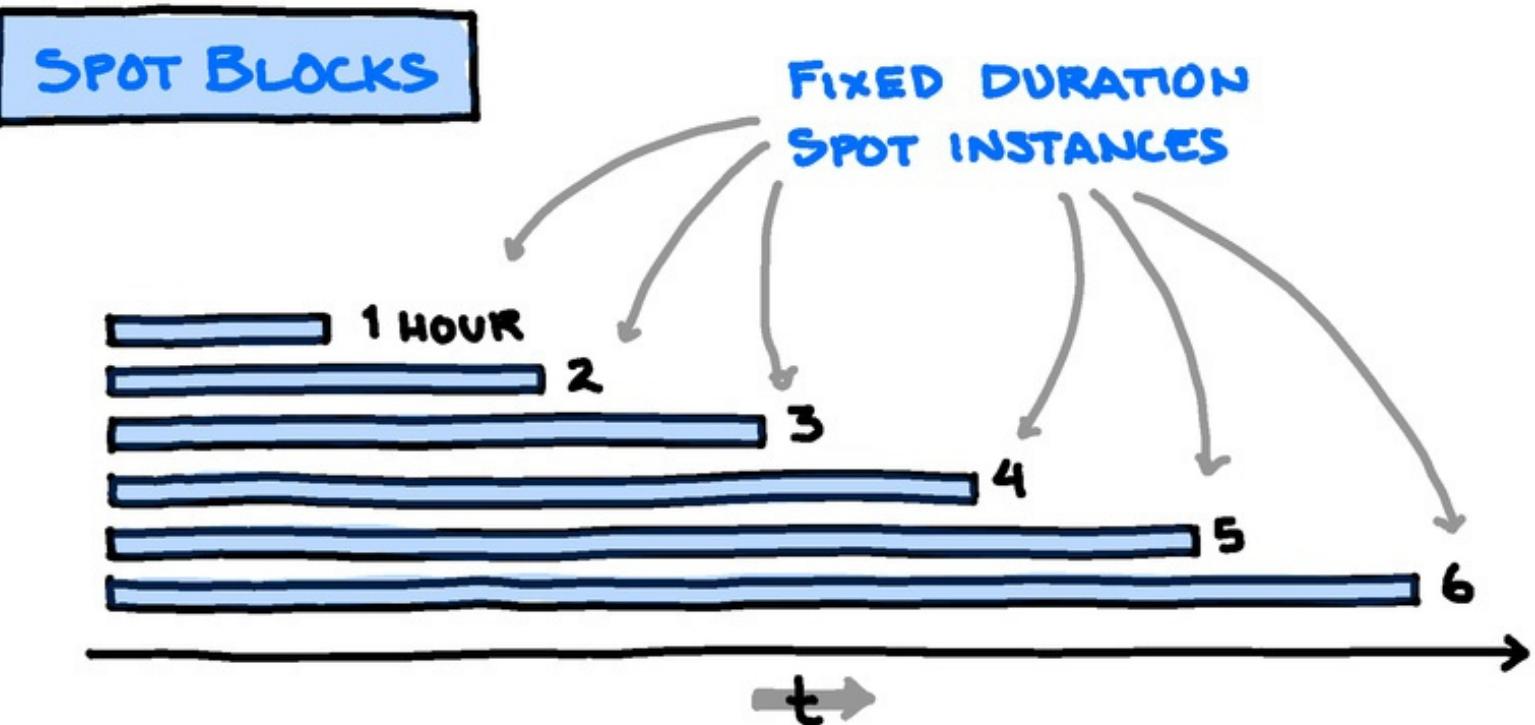
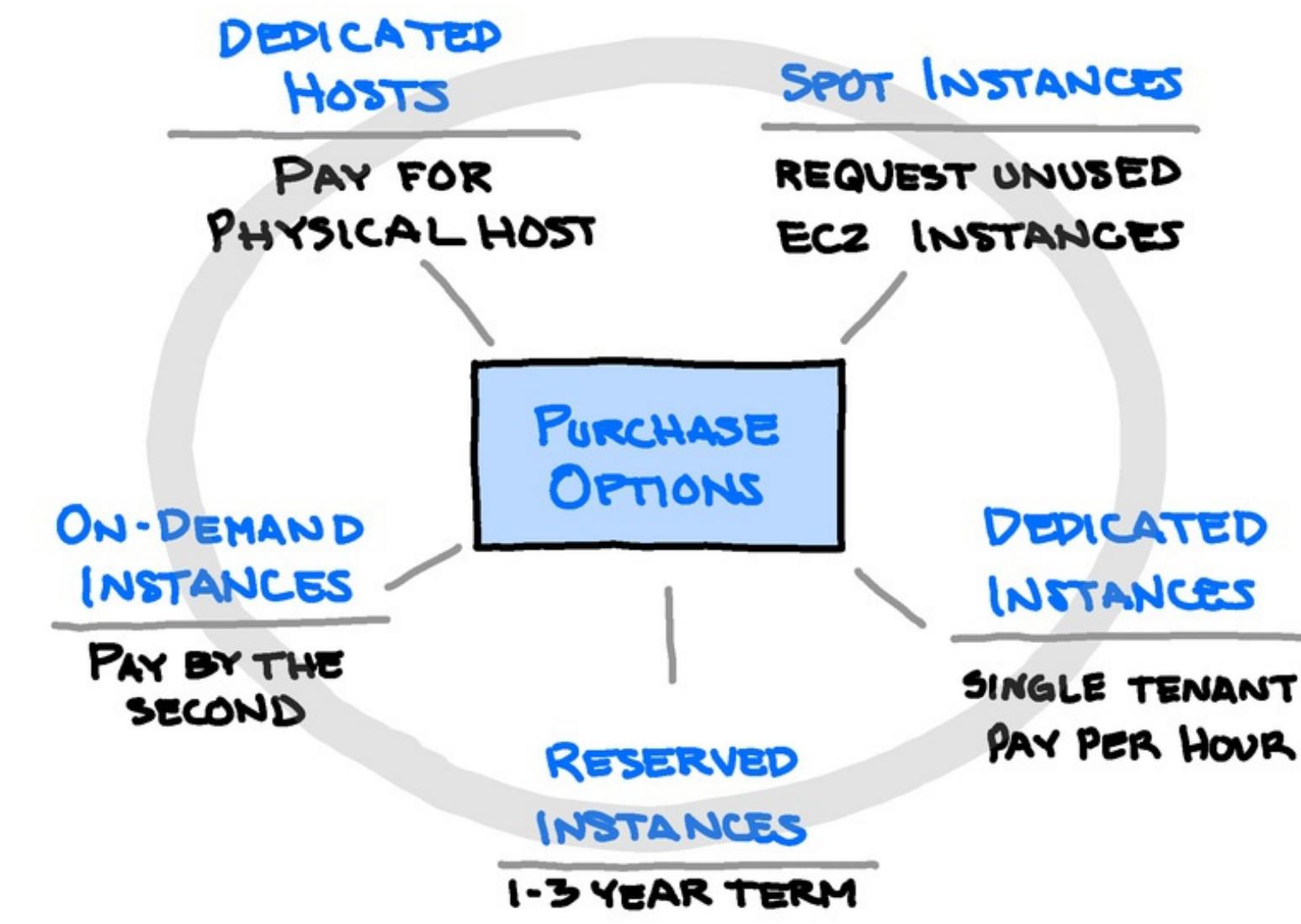


NEW
HIBERNATE SPOT INSTANCES
RAM & EBS VOLUMES ARE
SAVED FOR PERSISTENT
REQUESTS & SPOT FLEETS
SET TO MAINTAIN CAPACITY



ALLOCATION STRATEGY

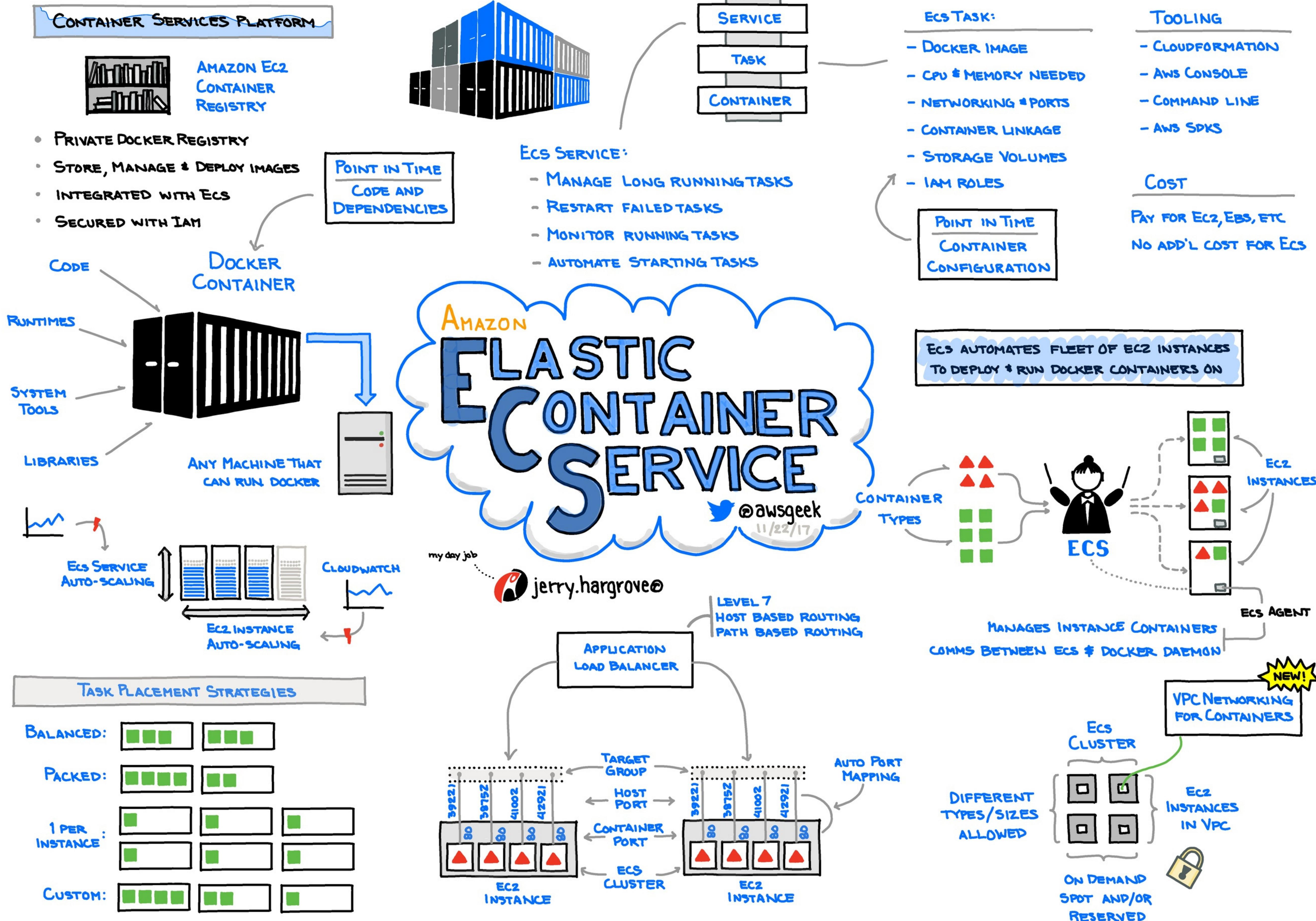
USE CHEAPEST POOL — OR — EQUALLY DISTRIBUTE

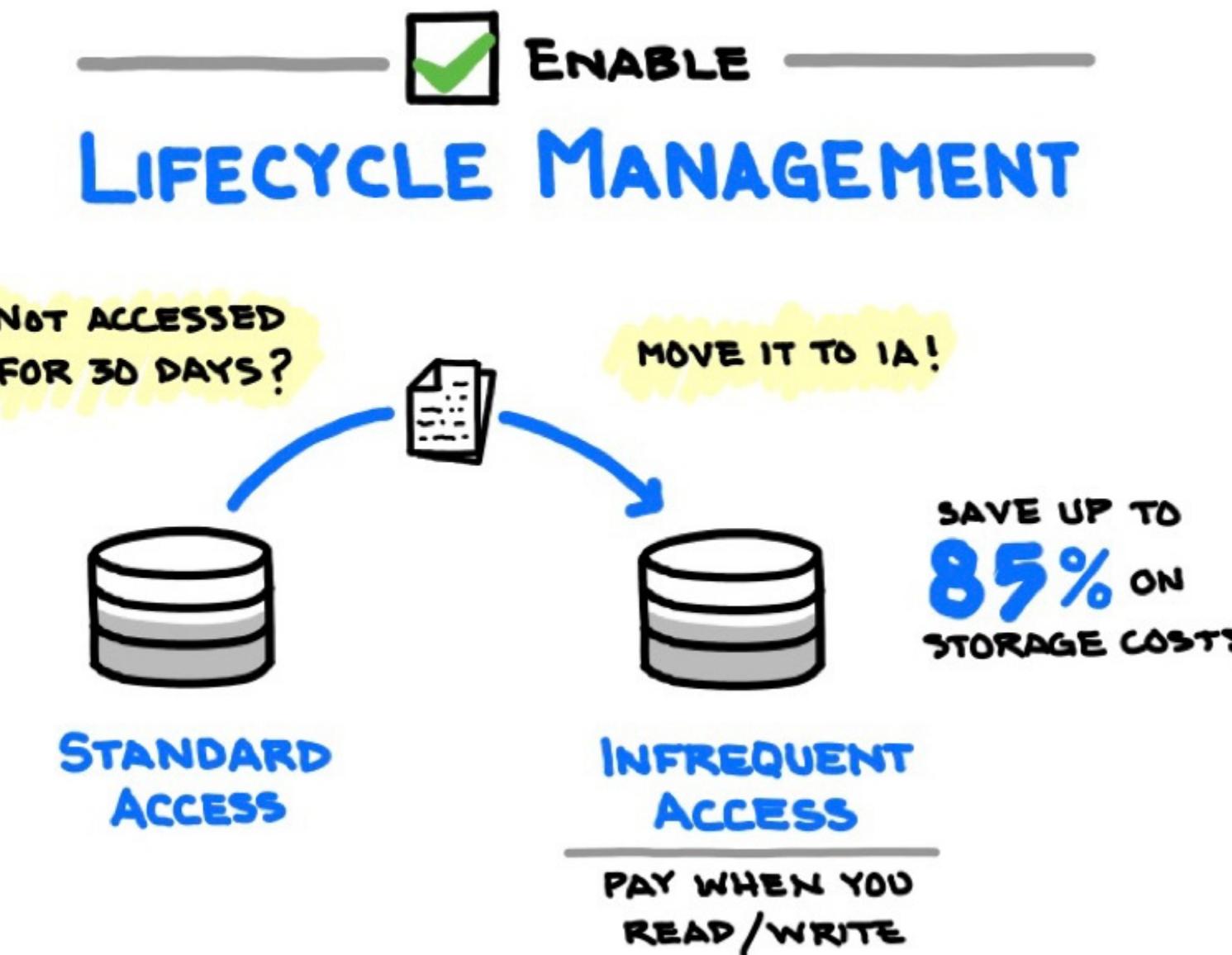
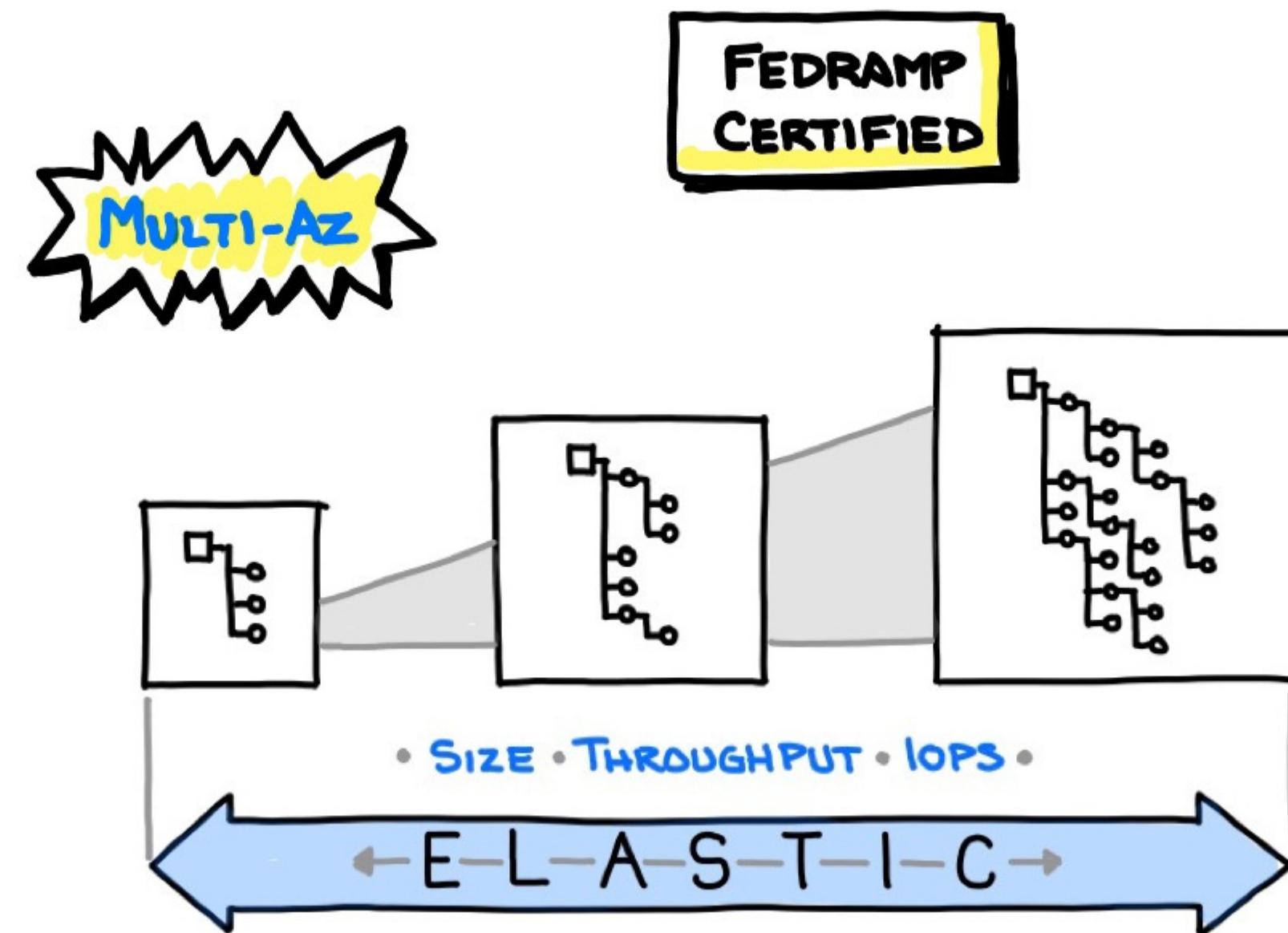
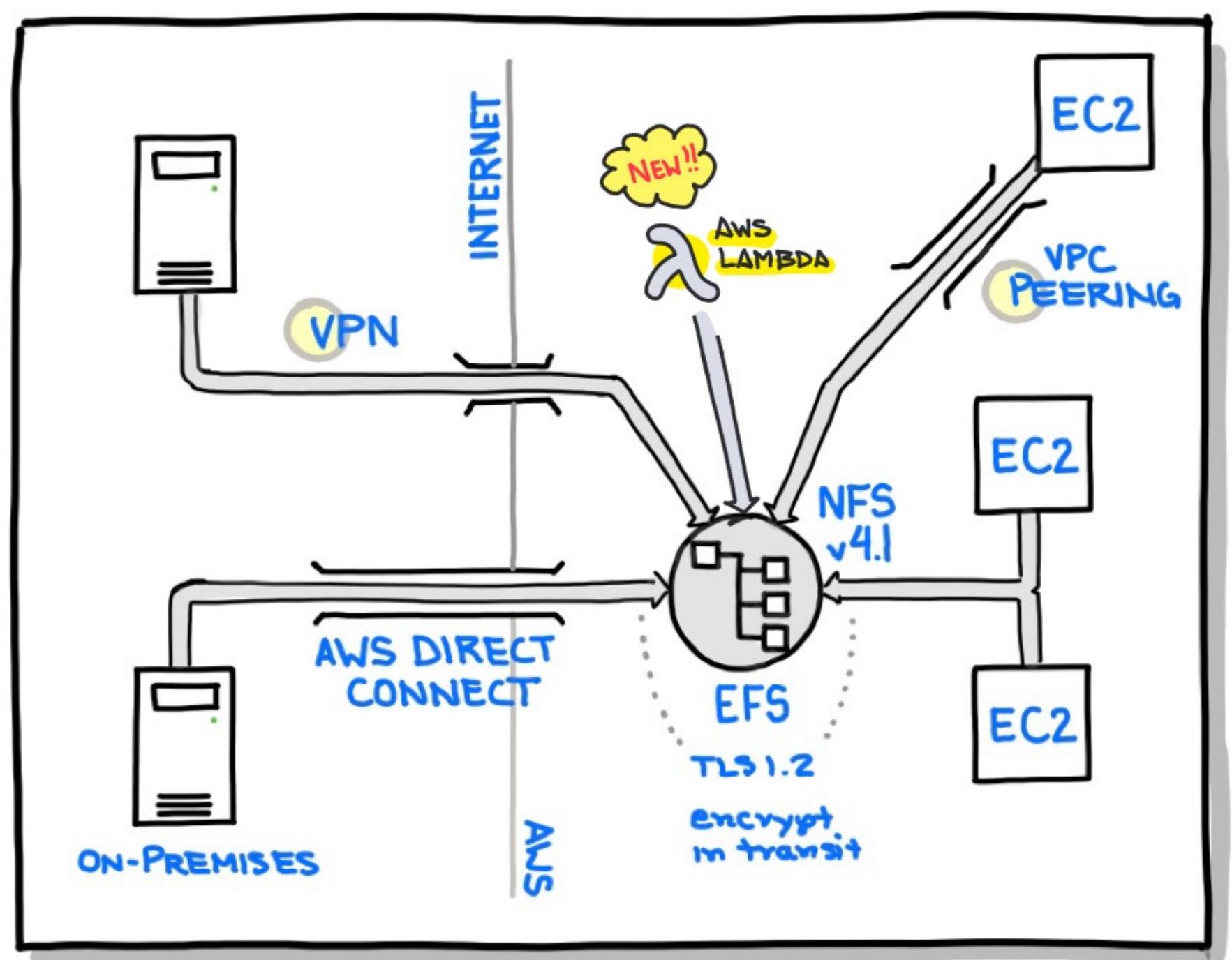


AMAZON **EC2** **SPOT** **INSTANCES**

11/29/17

@awsgeek
jerry.hargrove@





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

PROVISIONED THROUGHPUT

per MB/s/Mo

STORAGE



per GB/Mo

ACCESS



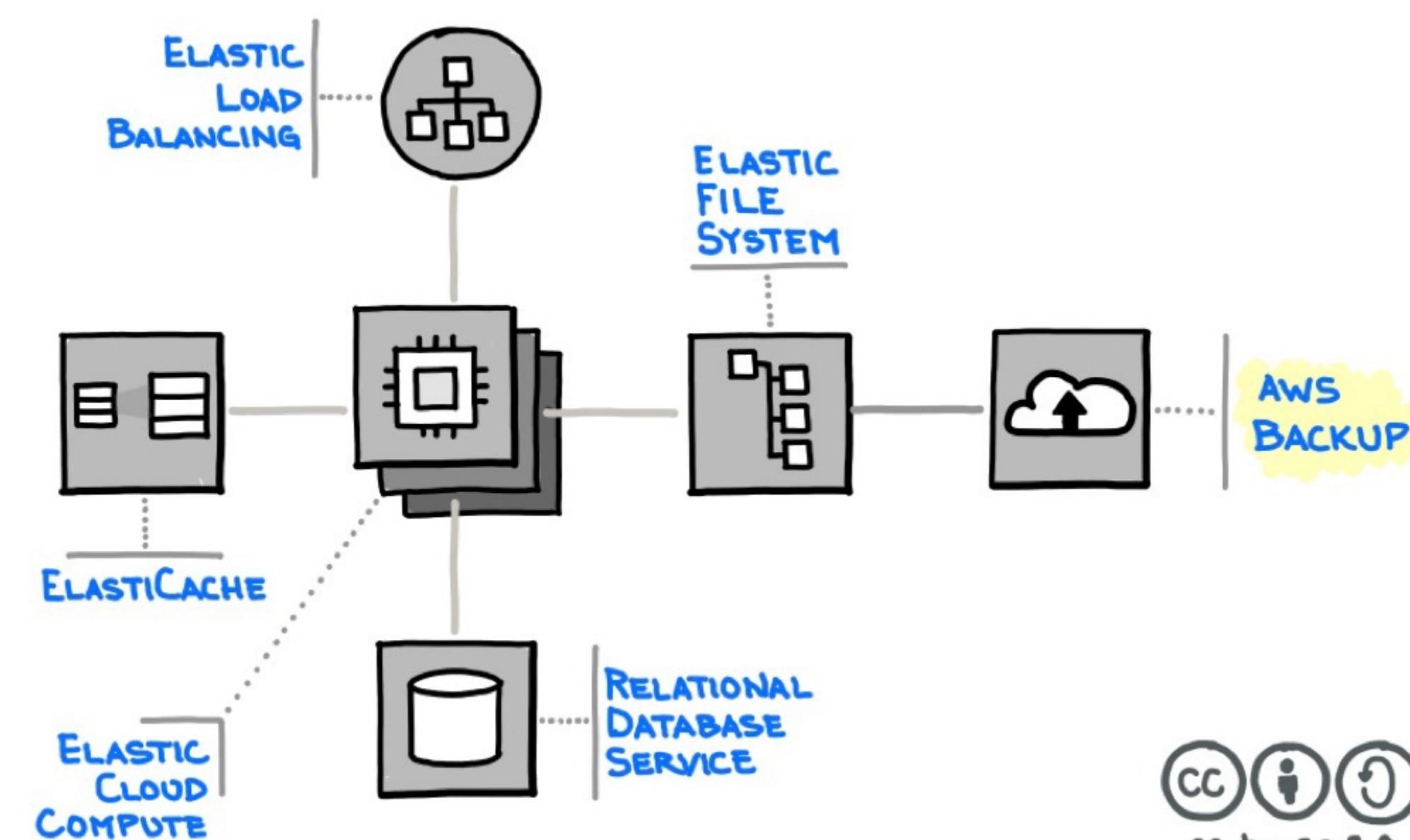
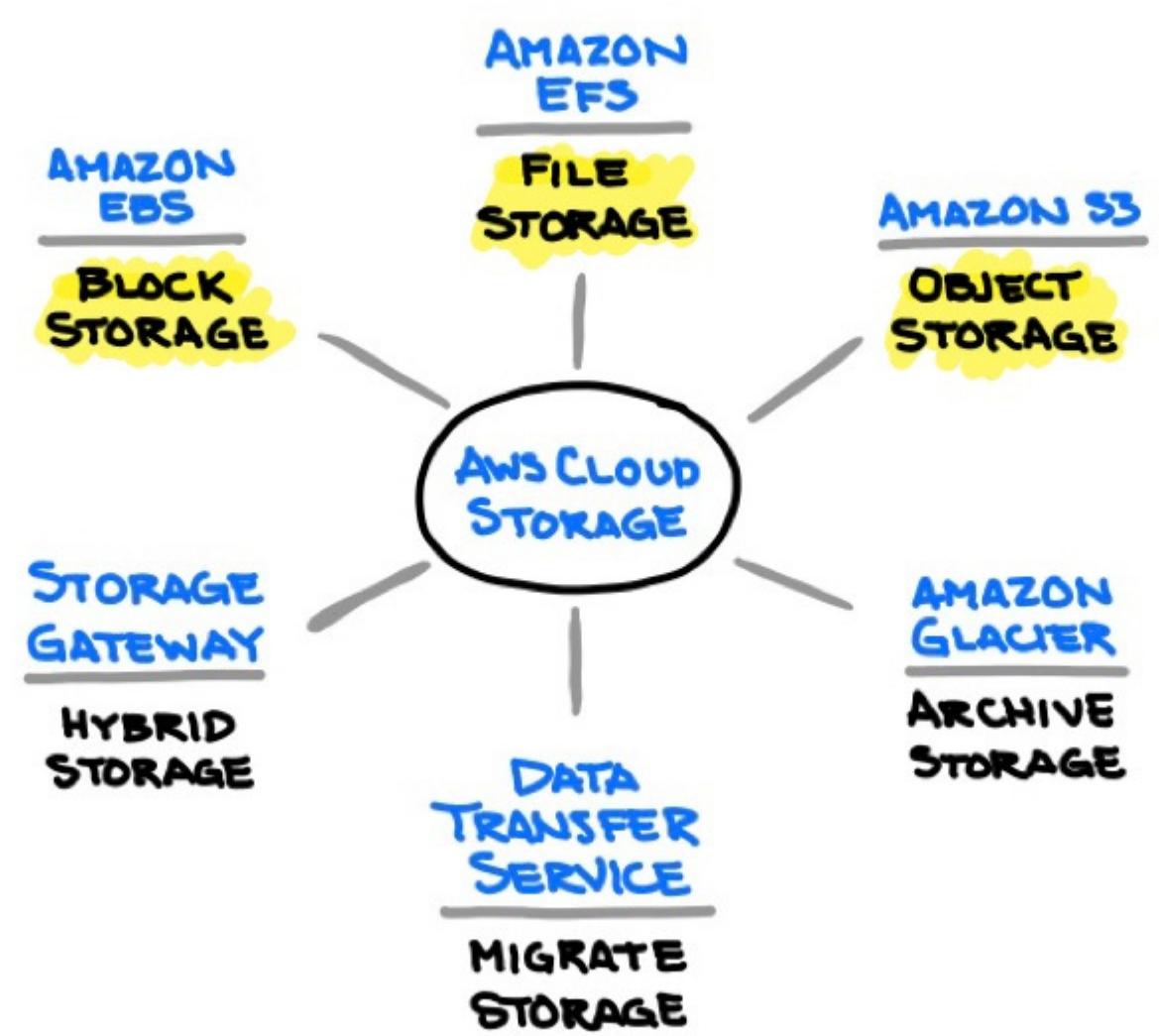
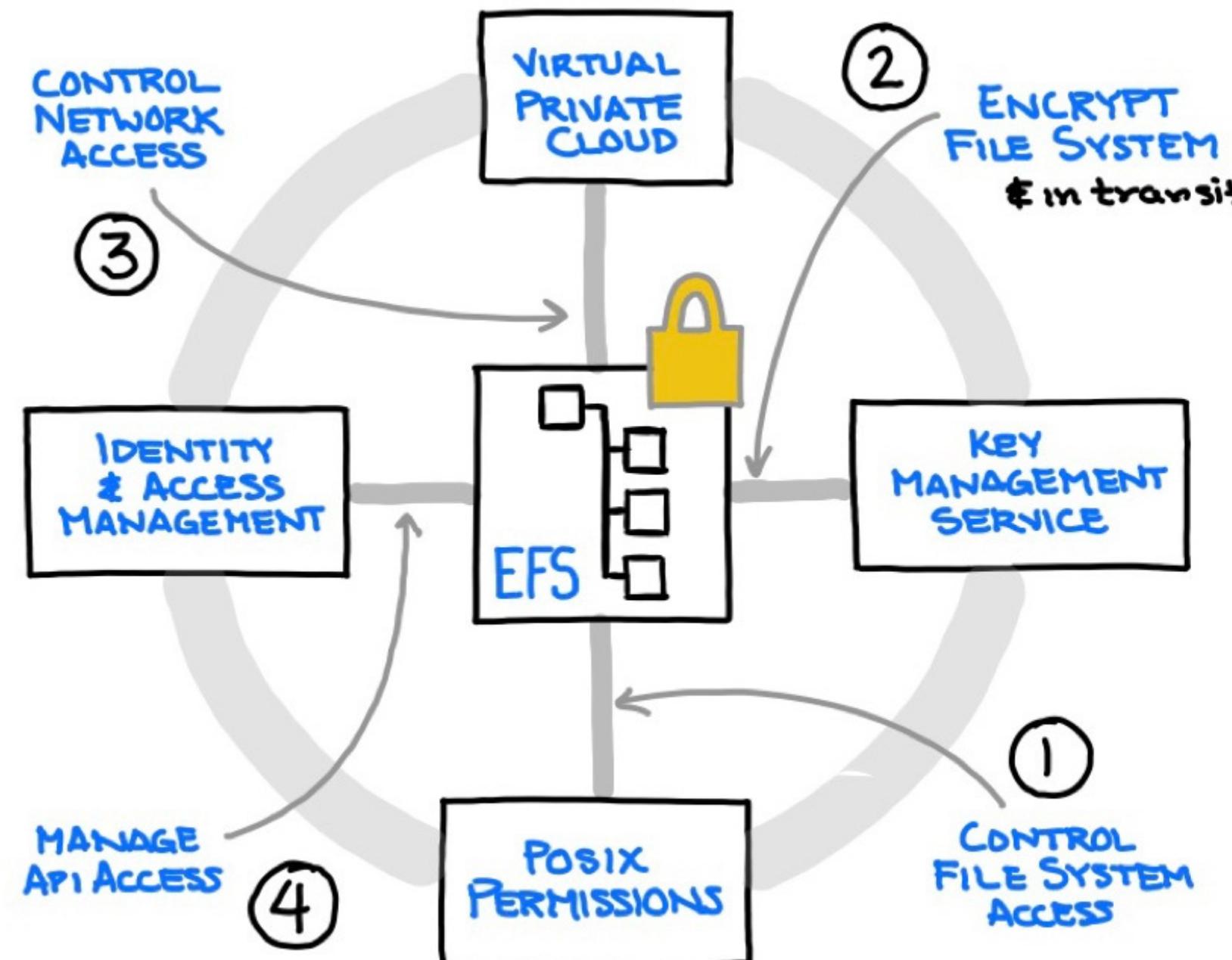
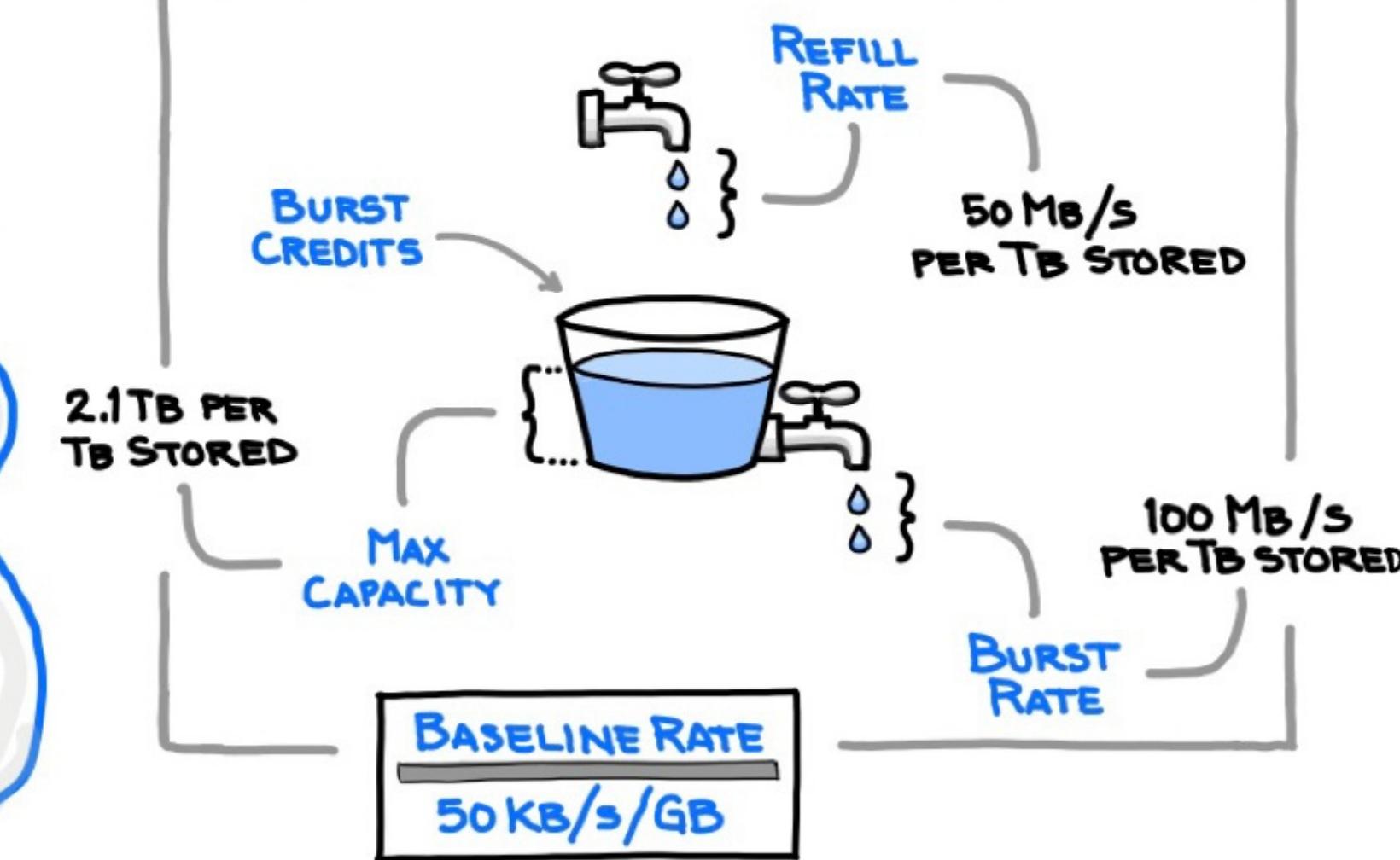
per GB
(1000x)

**EFSTCO < 50% OF
SELF-MANAGED
EQUIVALENT**

- No Bandwidth Fees
 - No Request Charges

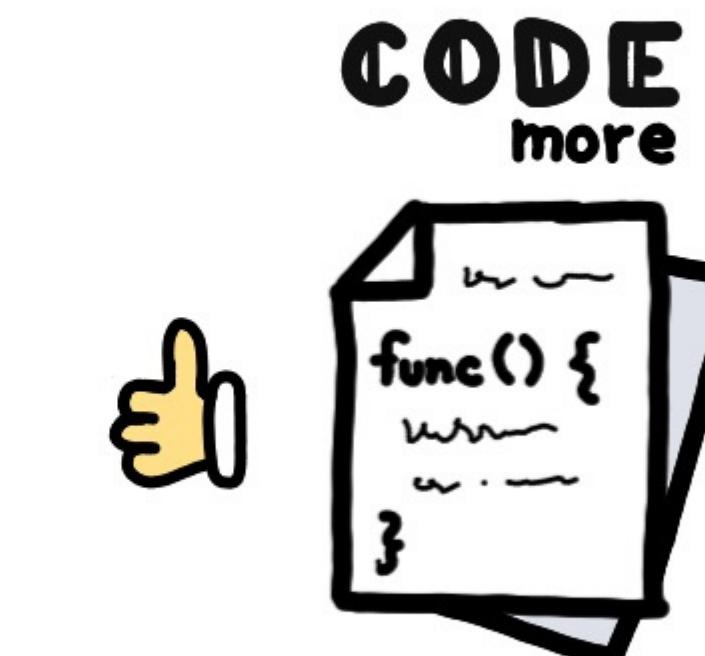
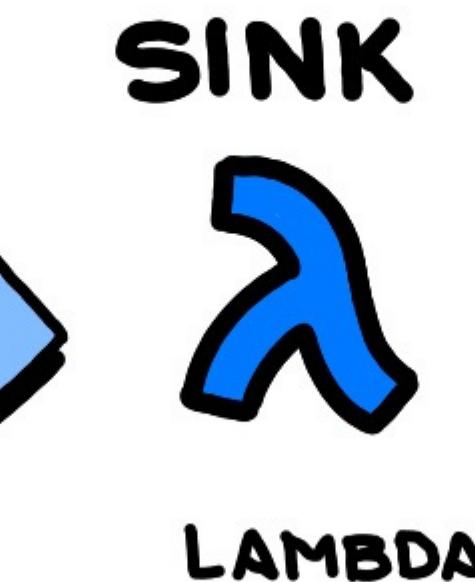
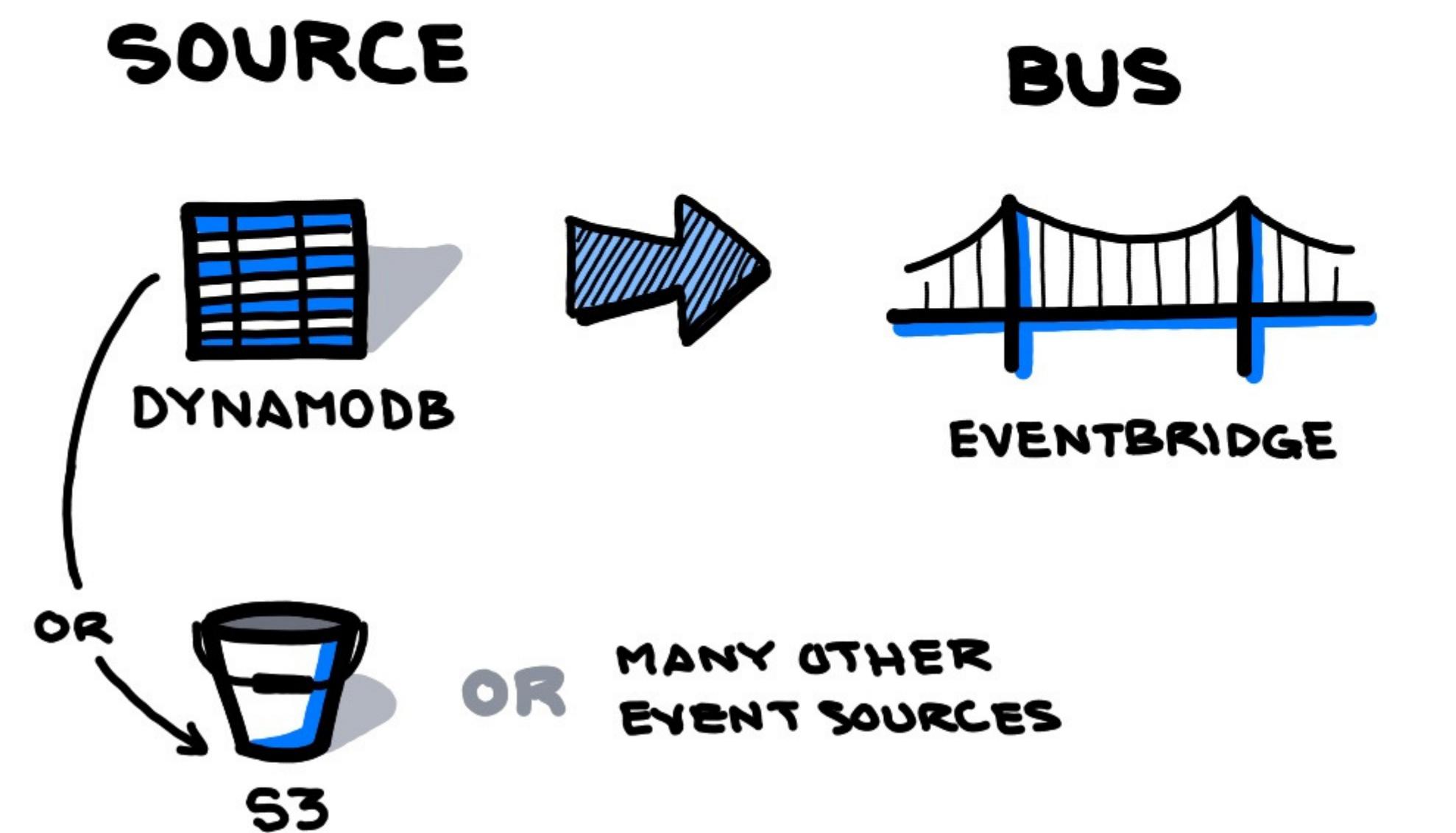


PERFORMANCE



Event Driven Apps

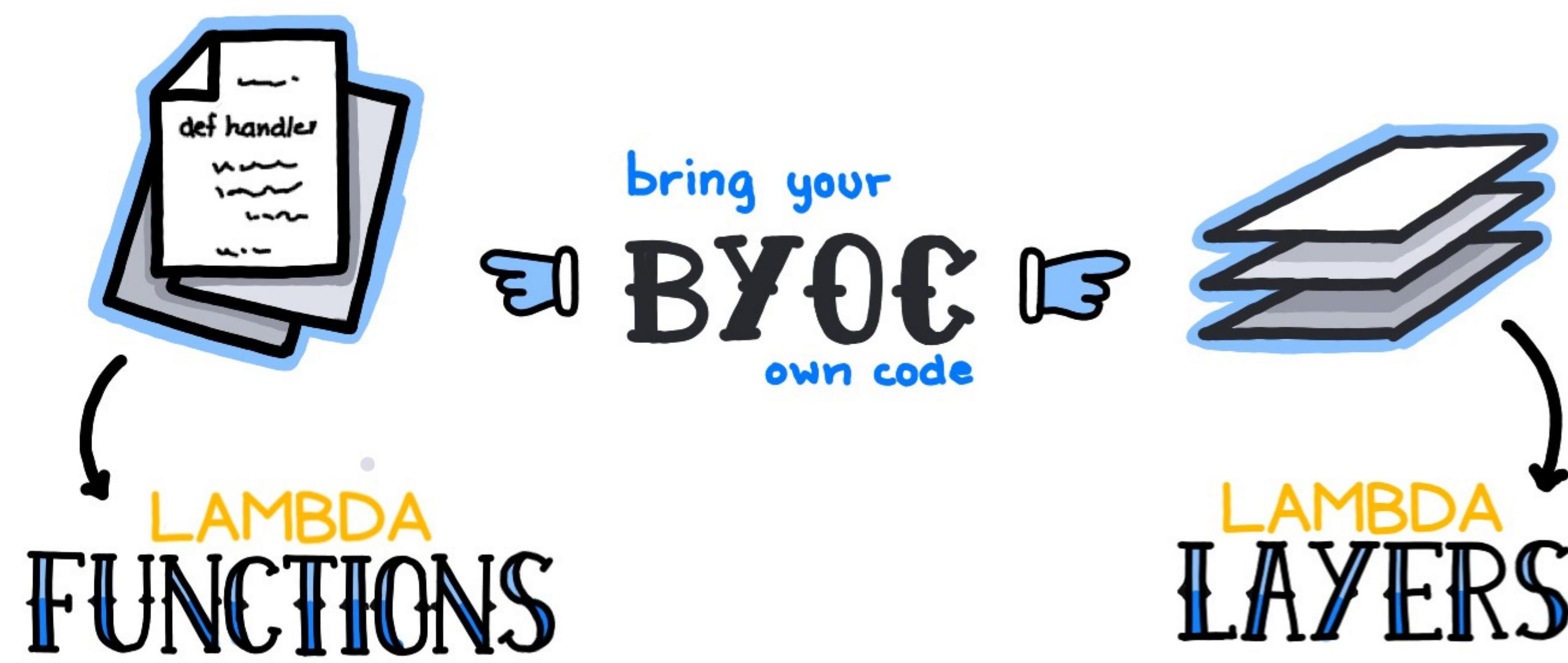
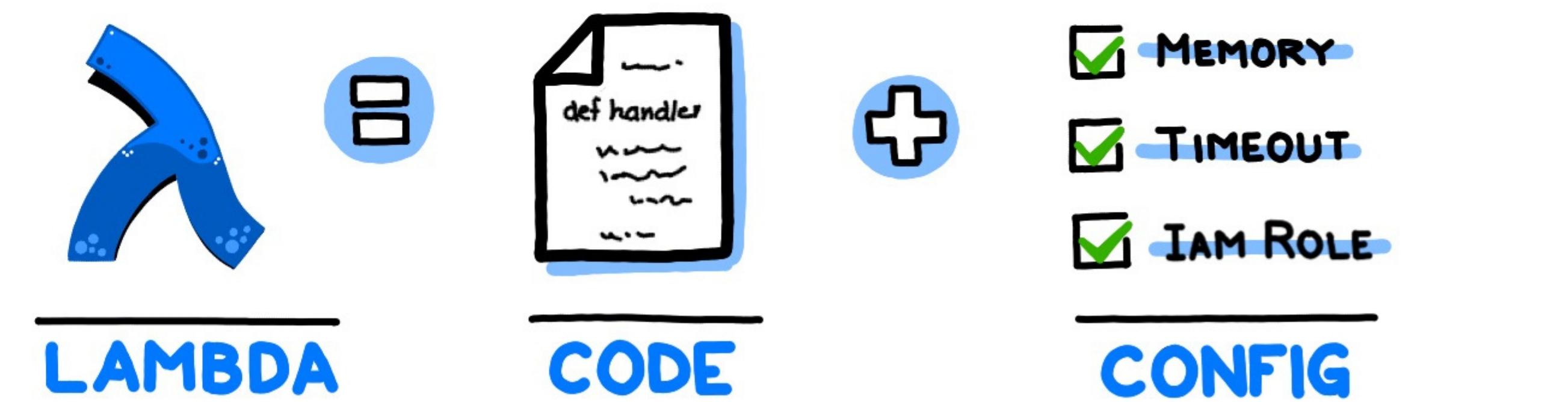
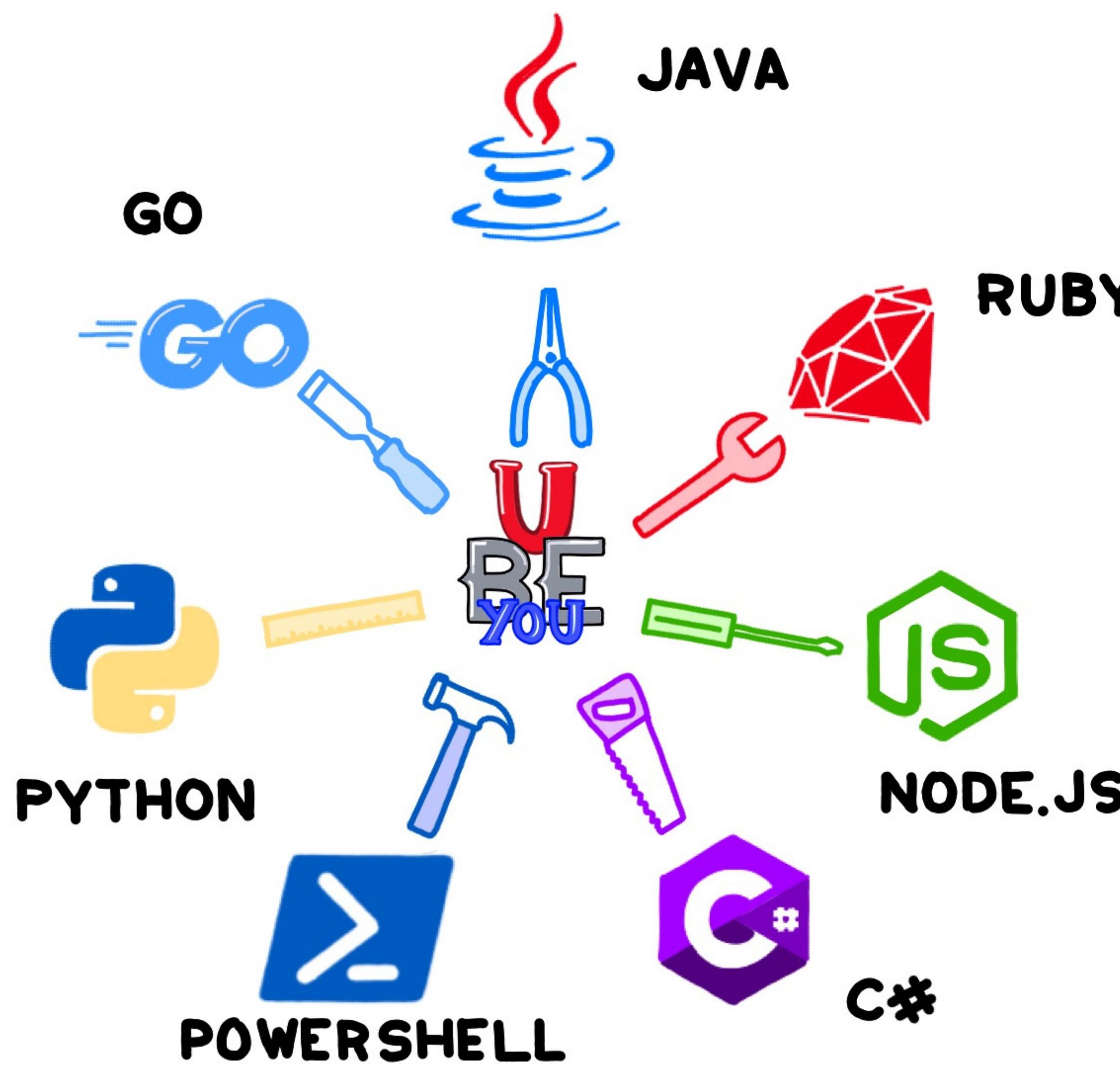
*serverlessfor everyone



AWS LAMBDA

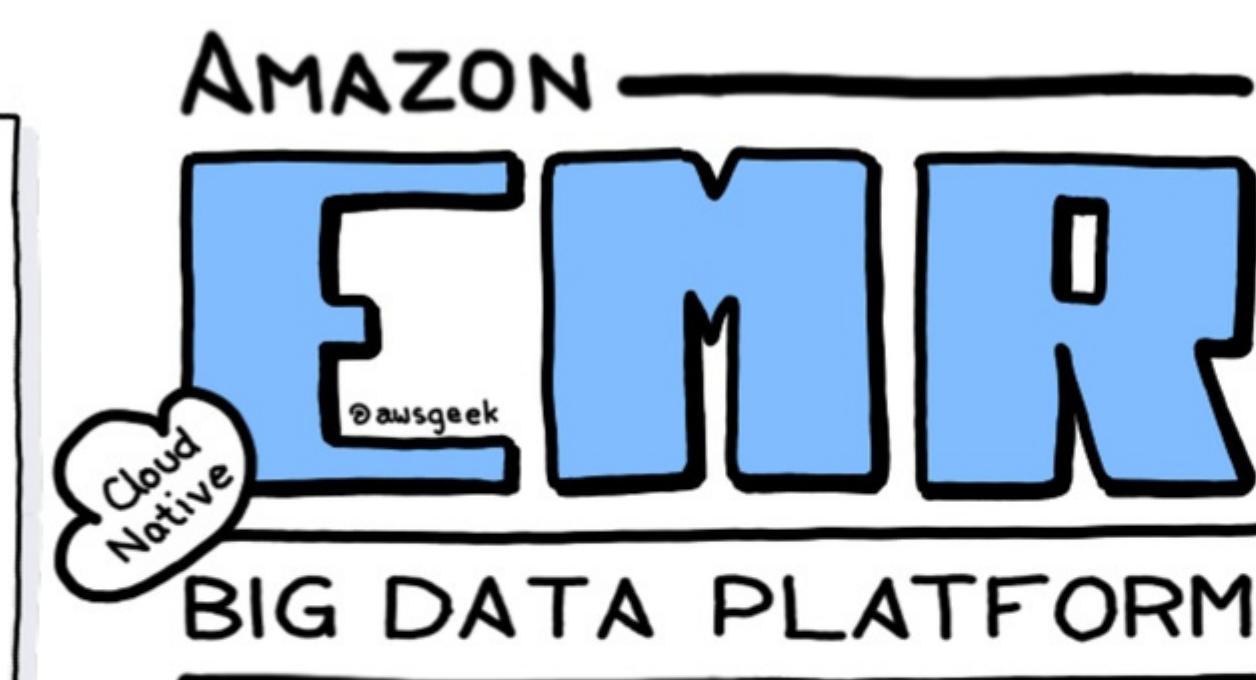
4/6/2020

@awsgeek



TIMELINE

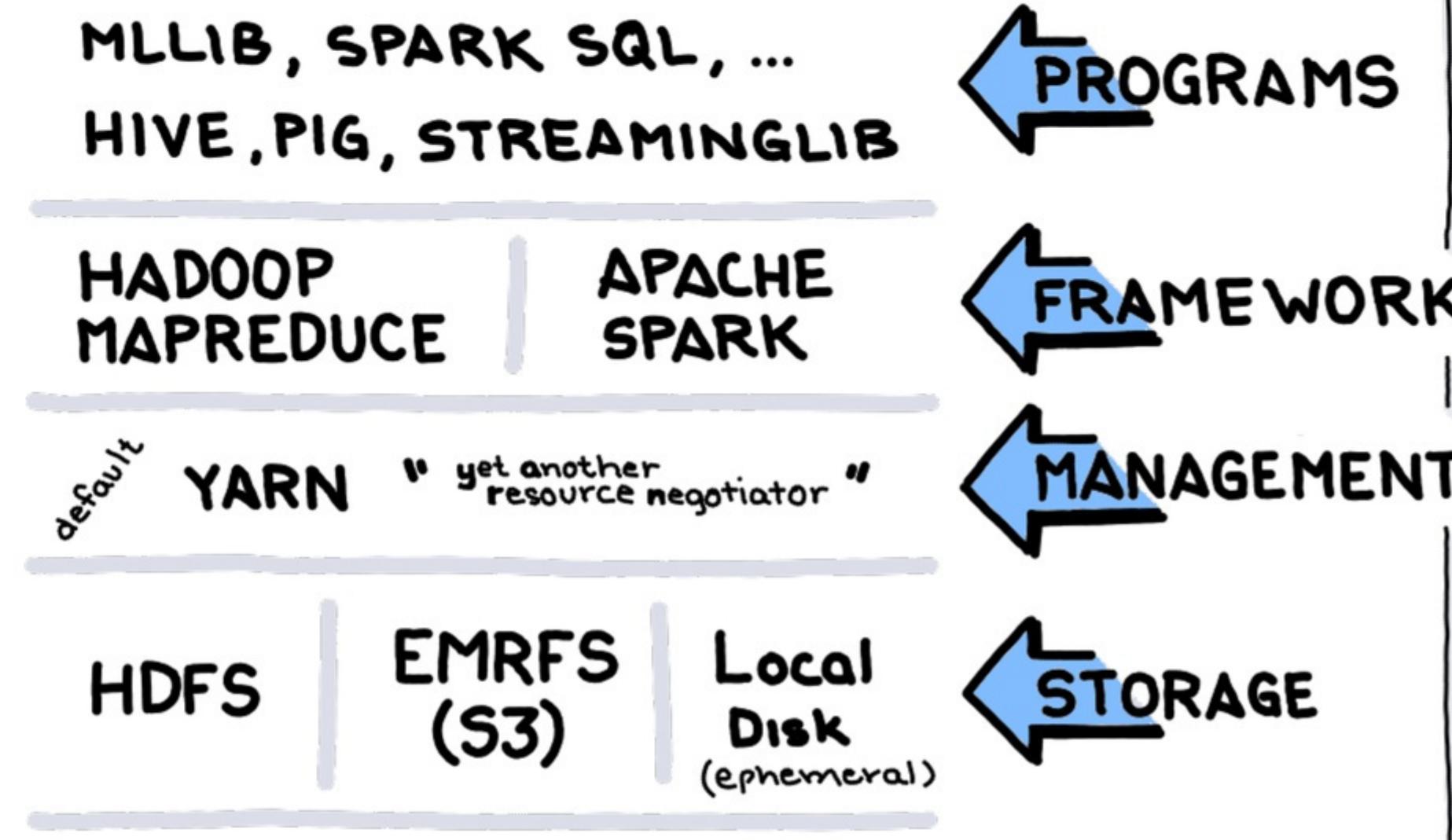
- 2009: BETA LAUNCH
PIG & HIVE
- 10: CC1/GPU INSTANCES
BOOTSTRAP ACTIONS
- 11: SPOT INSTANCES
- CC2 INSTANCES
- 12: HBASE
- DATA PIPELINE
- 13: S3 SSE
- IMPALA
- 14: IAM ROLES
- HUNK
- 15: APACHE SPARK
- PRIVATE SUBNETS
- CLOUDFORMATION
- FLINK
- 16: AUTO-SCALING
- MXNET
- NOTEBOOKS
- TENSORFLOW
- 2019: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



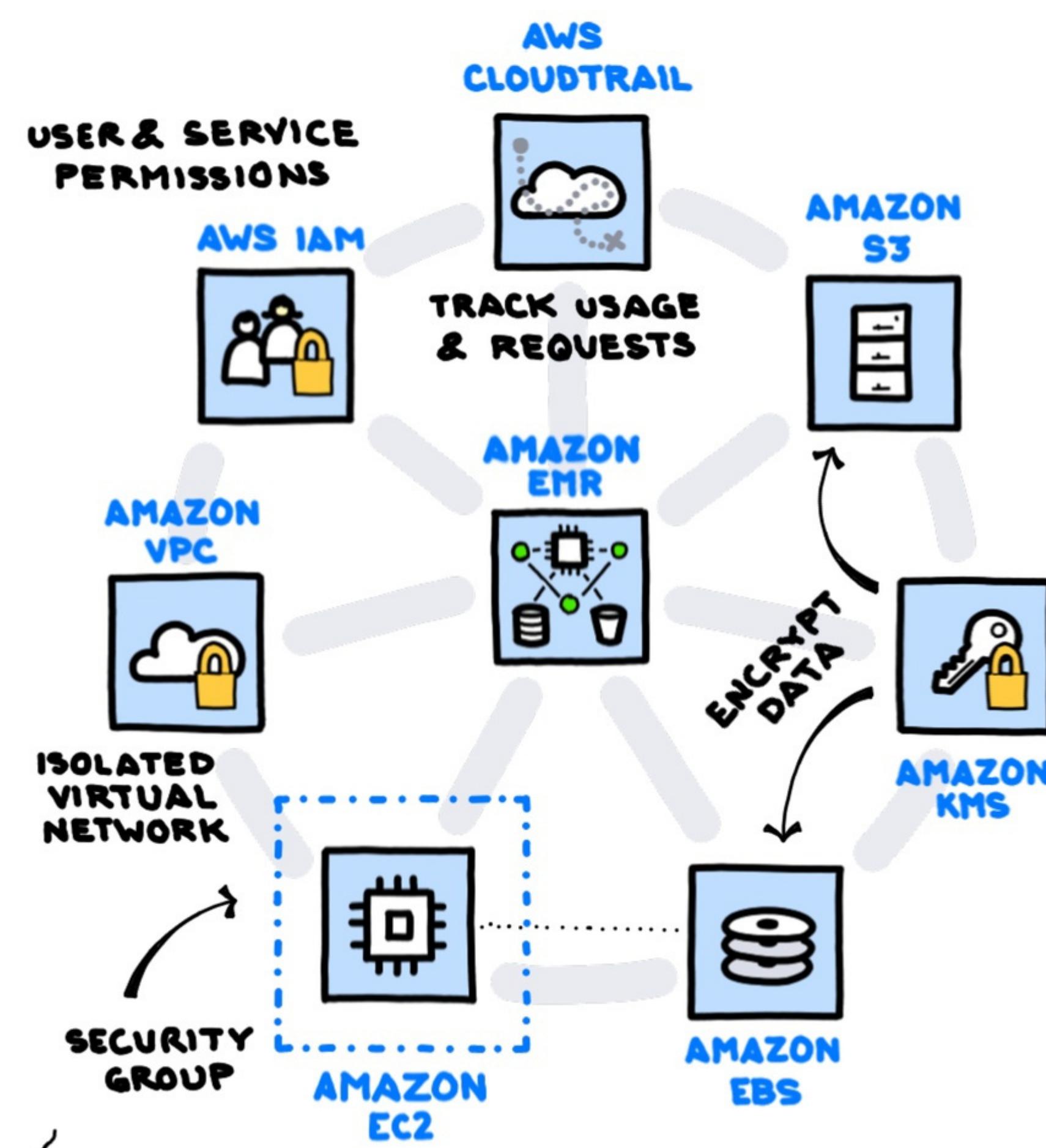
- MACHINE LEARNING
- REALTIME STREAMING
- CLICKSTREAM ANALYSIS
- GENOMICS
- ETL

- HOSTED HADOOP PLATFORM
ELASTIC CLUSTERS
- CONSOLE, CLI & SDK ACCESS
- STORAGE OPTIONS
- S3, EBS, RDS
 - DYNAMODB
 - REDSHIFT
 - GLACIER

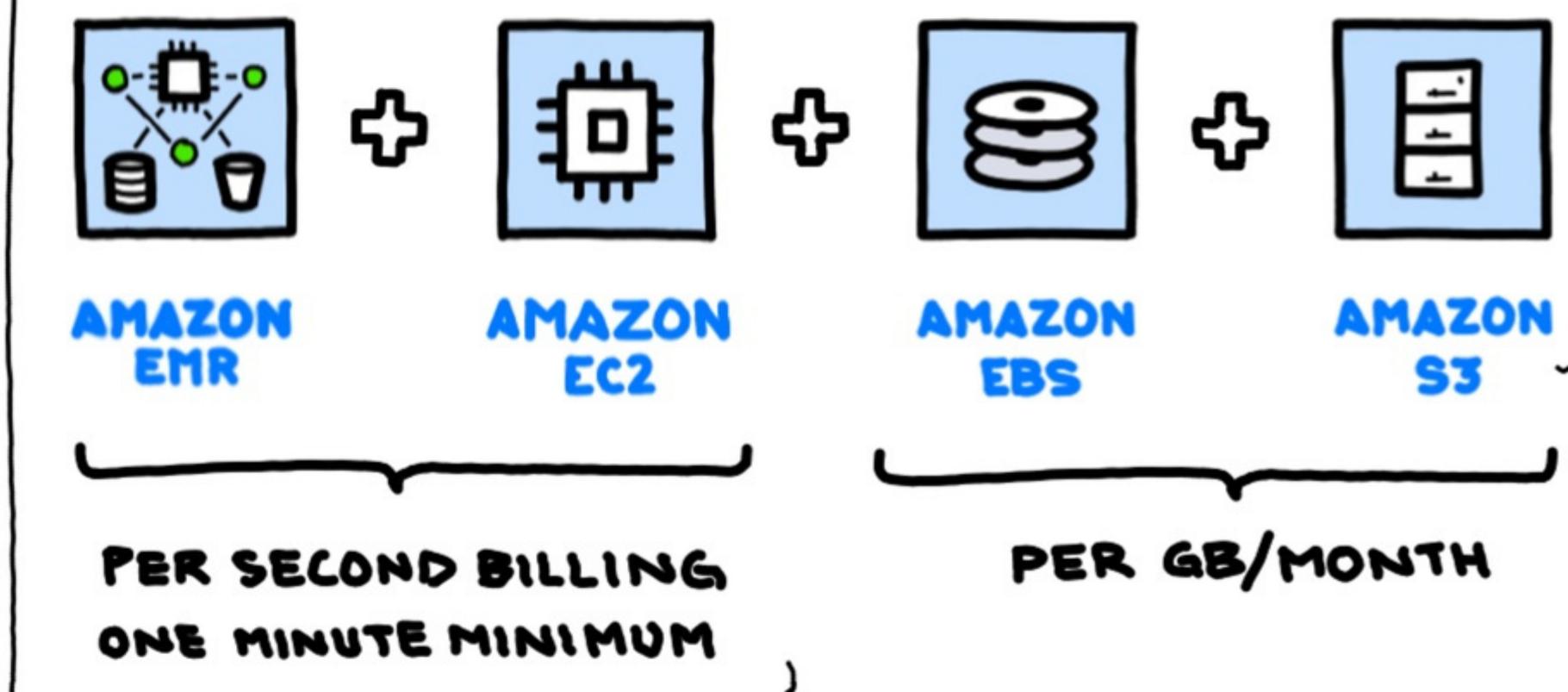
LAYERS



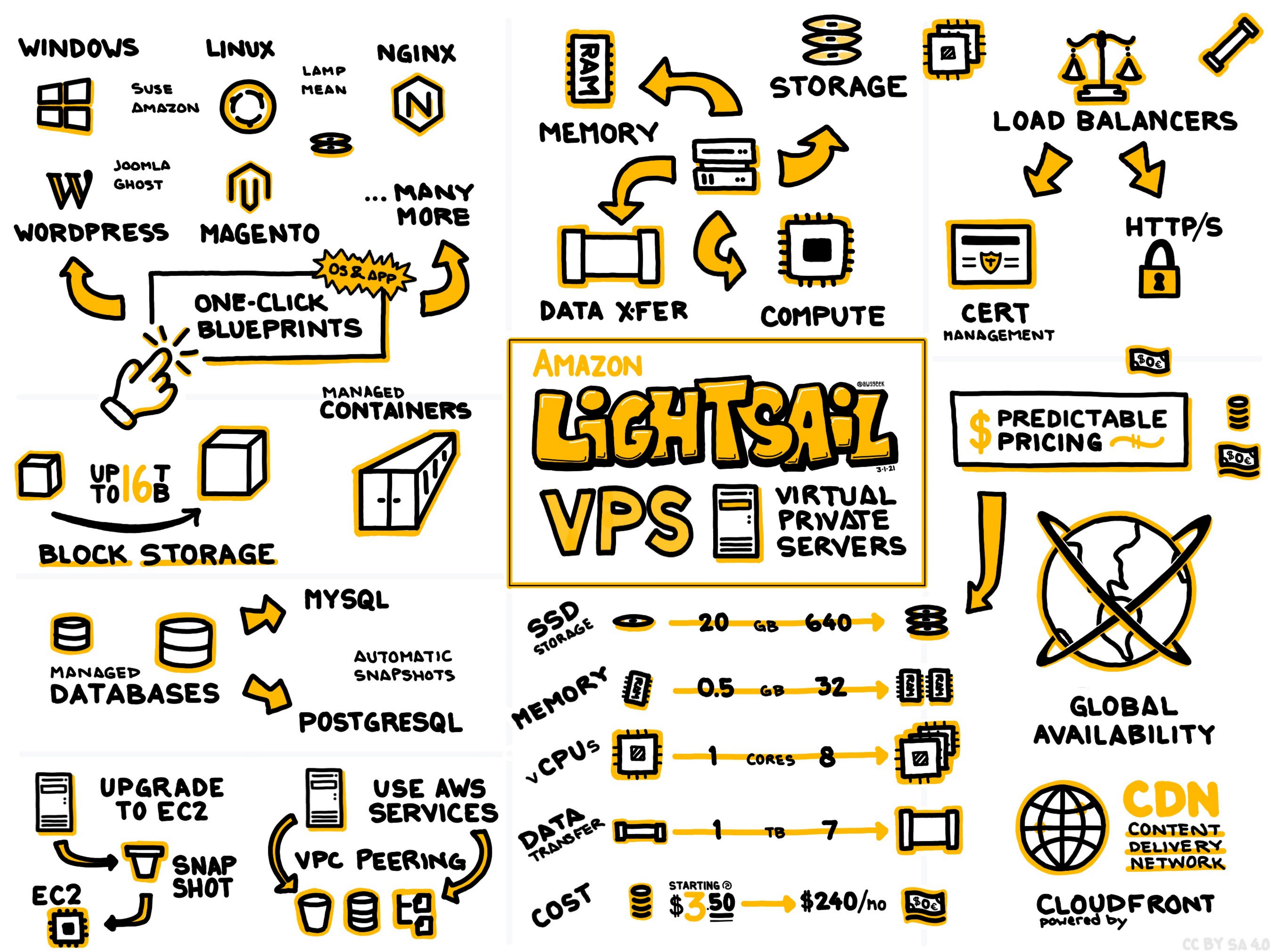
SECURITY

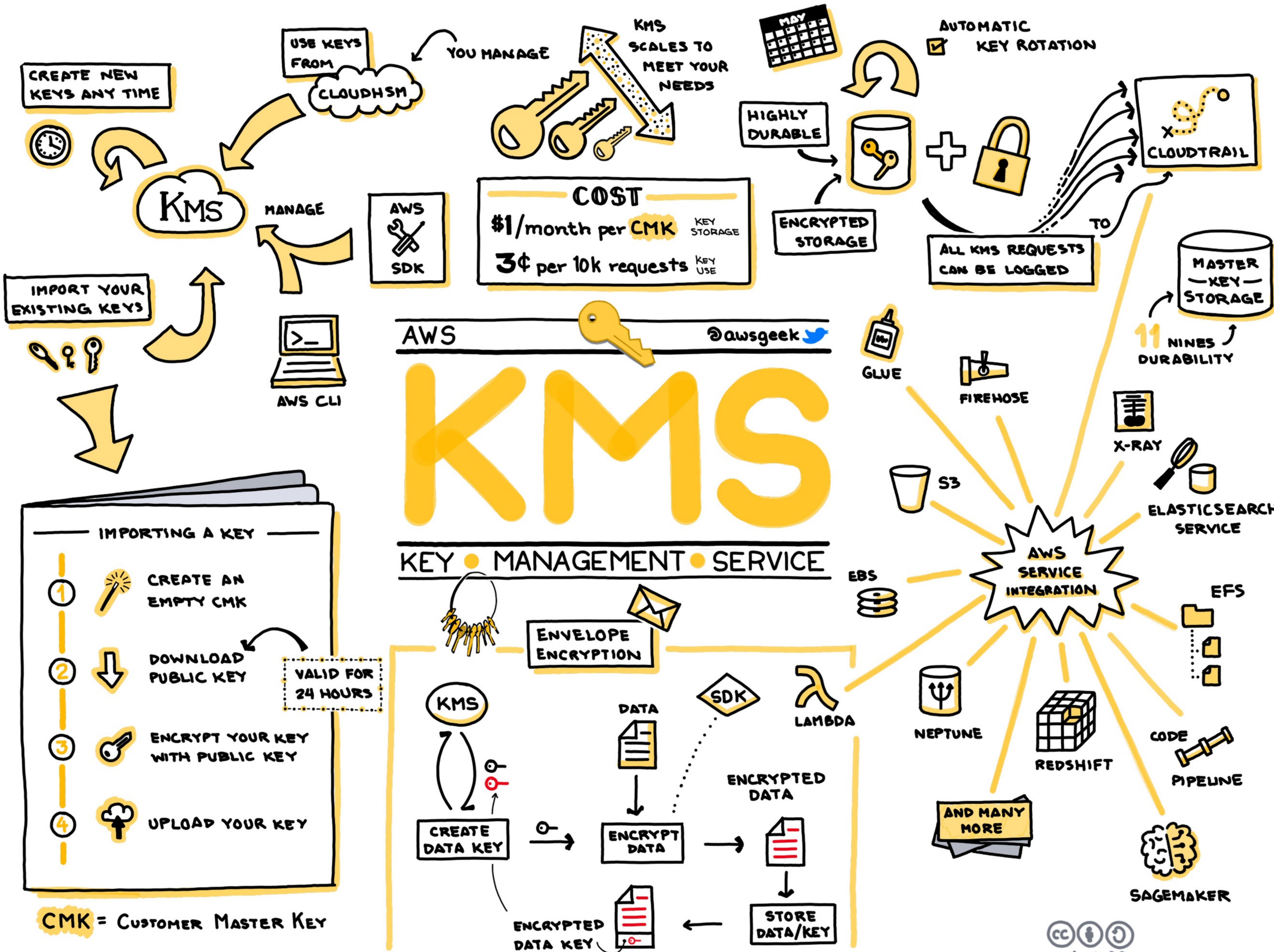


PAY-AS-YOU-GO PRICING ...



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

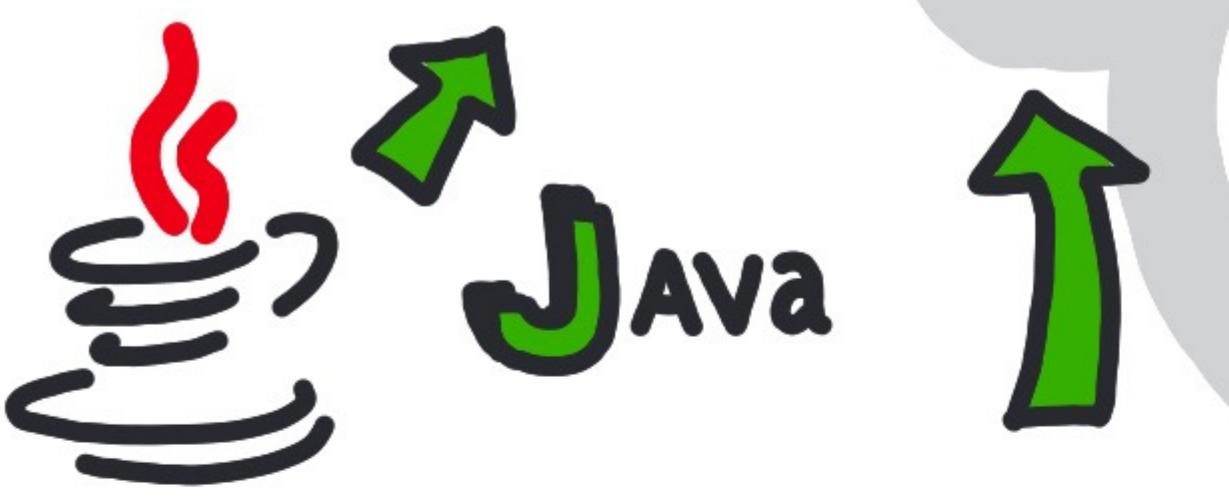
BEANSTALK

C#

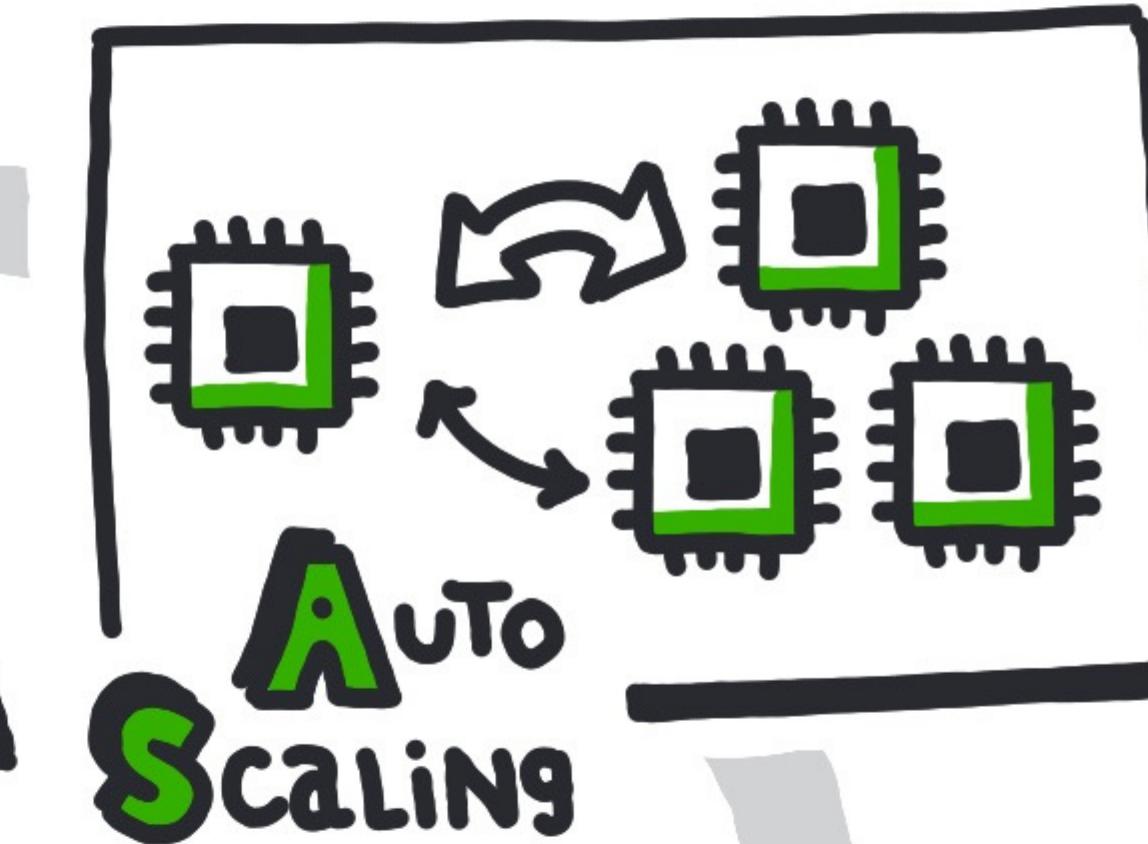
JS

ELASTIC
BEANSTALK

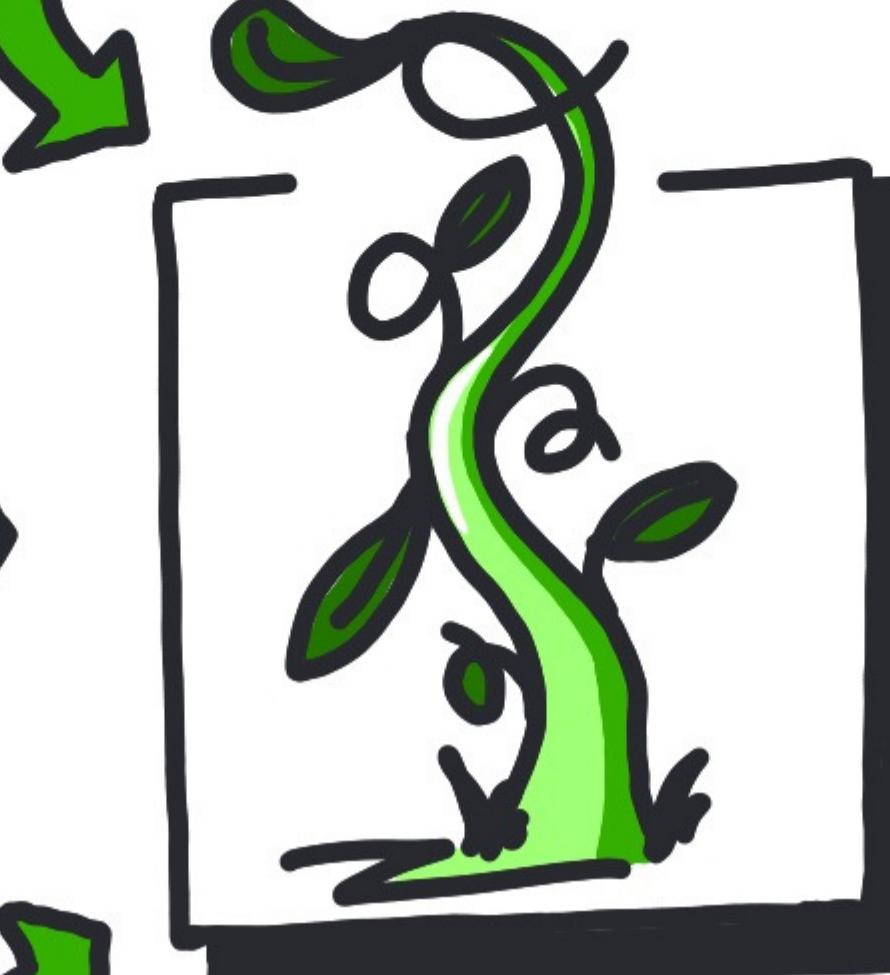
dotNET



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



Java



.Net



JavaScript



Python



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
007

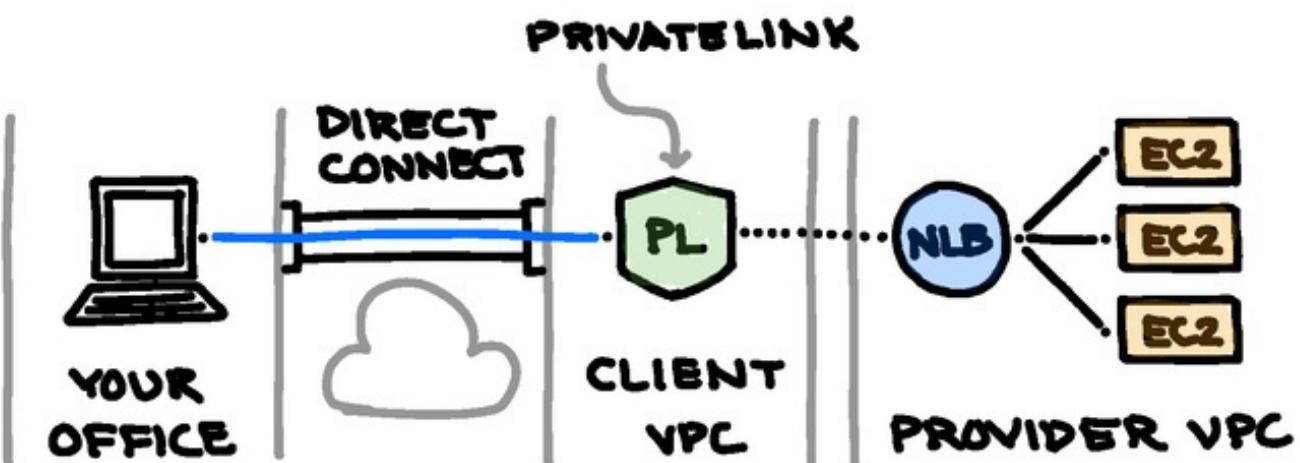


aws
CODE
ARTIFACT

PRIVATE
LINK

YOUR
VPC
CI/CD
APPS
YOUR
TOOLS

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

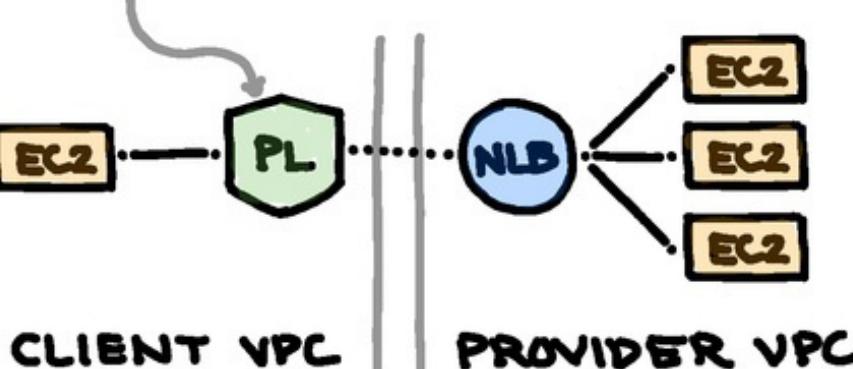
KINESIS, CODEBUILD, CONFIG

EC2, API GATEWAY, AWS SERVICE CATALOG

ELB, CLOUDFORMATION

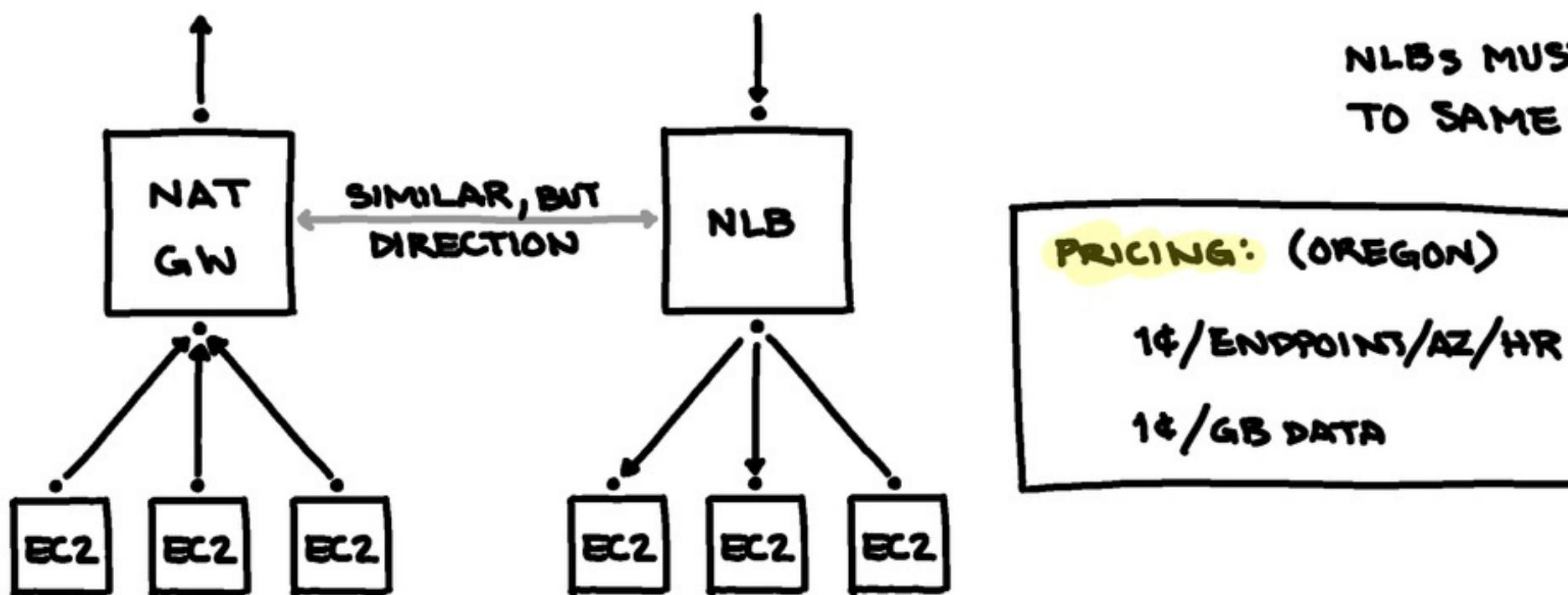
EC2 SYSTEMS MANAGER

PRIVATELINK



HYPERPLANE NODES

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



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

NLB'S MUST SELECT & ROUTE CONNECTIONS TO SAME TARGET

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

HOW TO DIFFERENTIATE TRAFFIC?

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

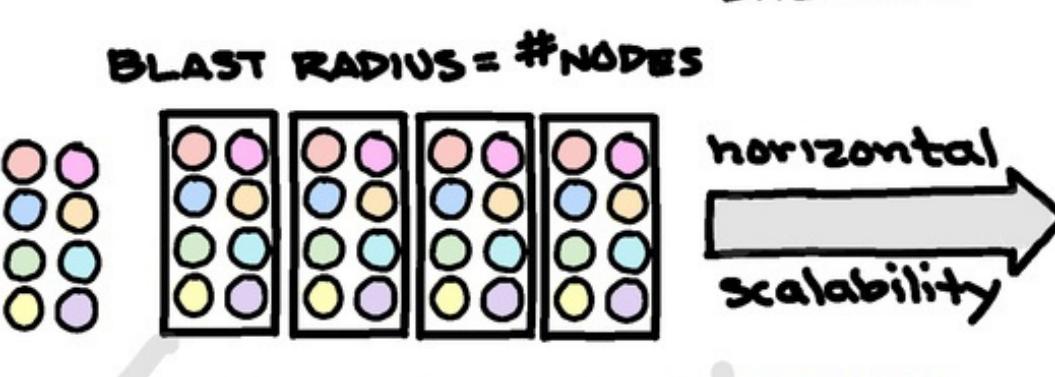
PREFERRED, BUT REQ'S CODE PATCH

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



GOOD



horizontal
scalability

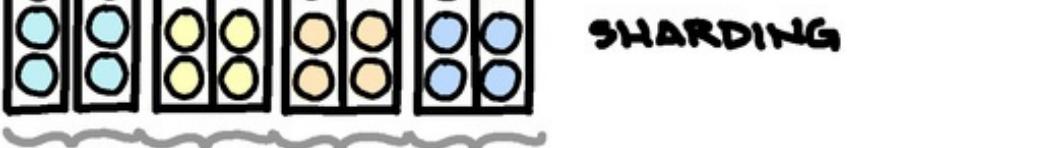
IMPACT EVERYONE

CUSTOMER



each shard has #N nodes
for redundancy

IMPACT EVERYONE



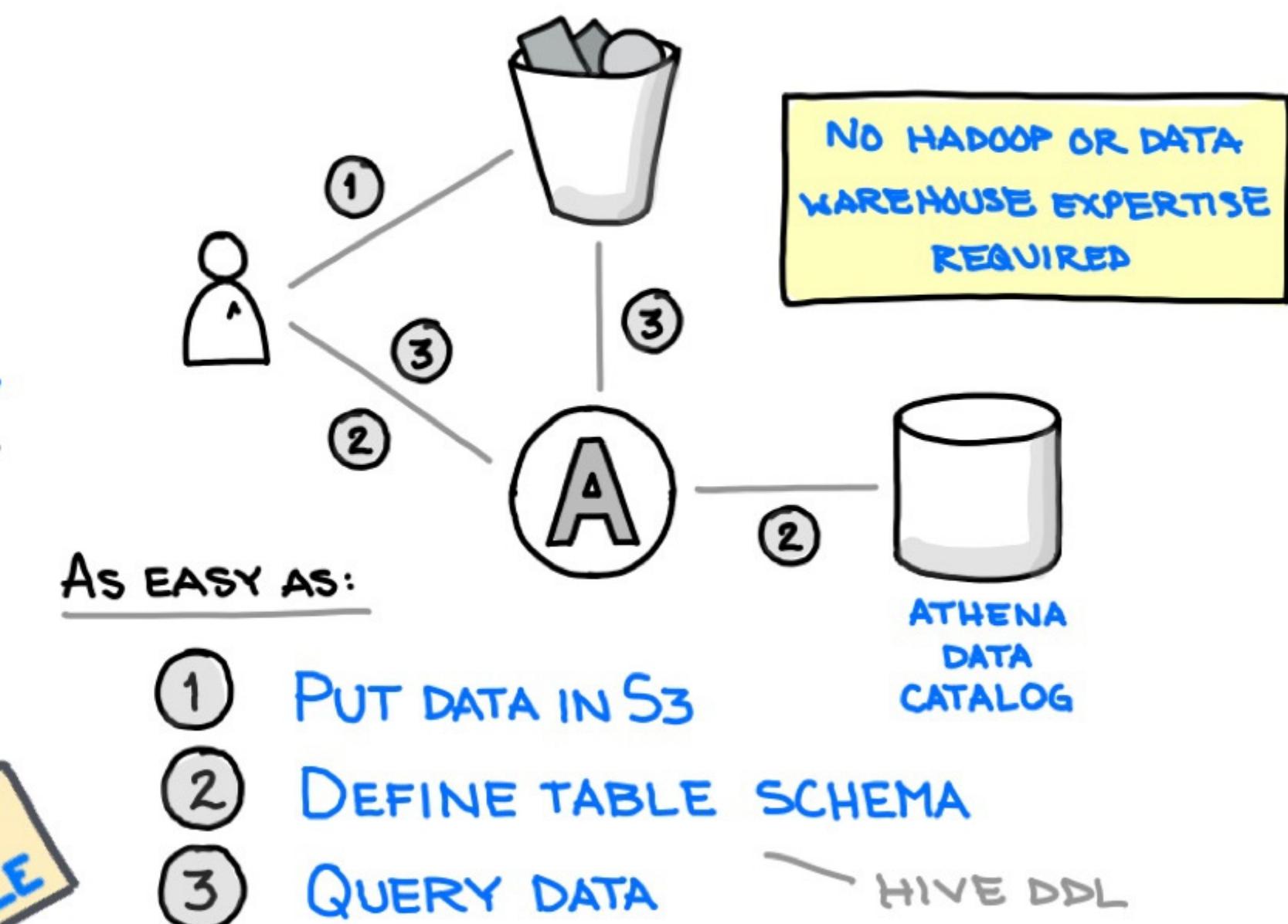
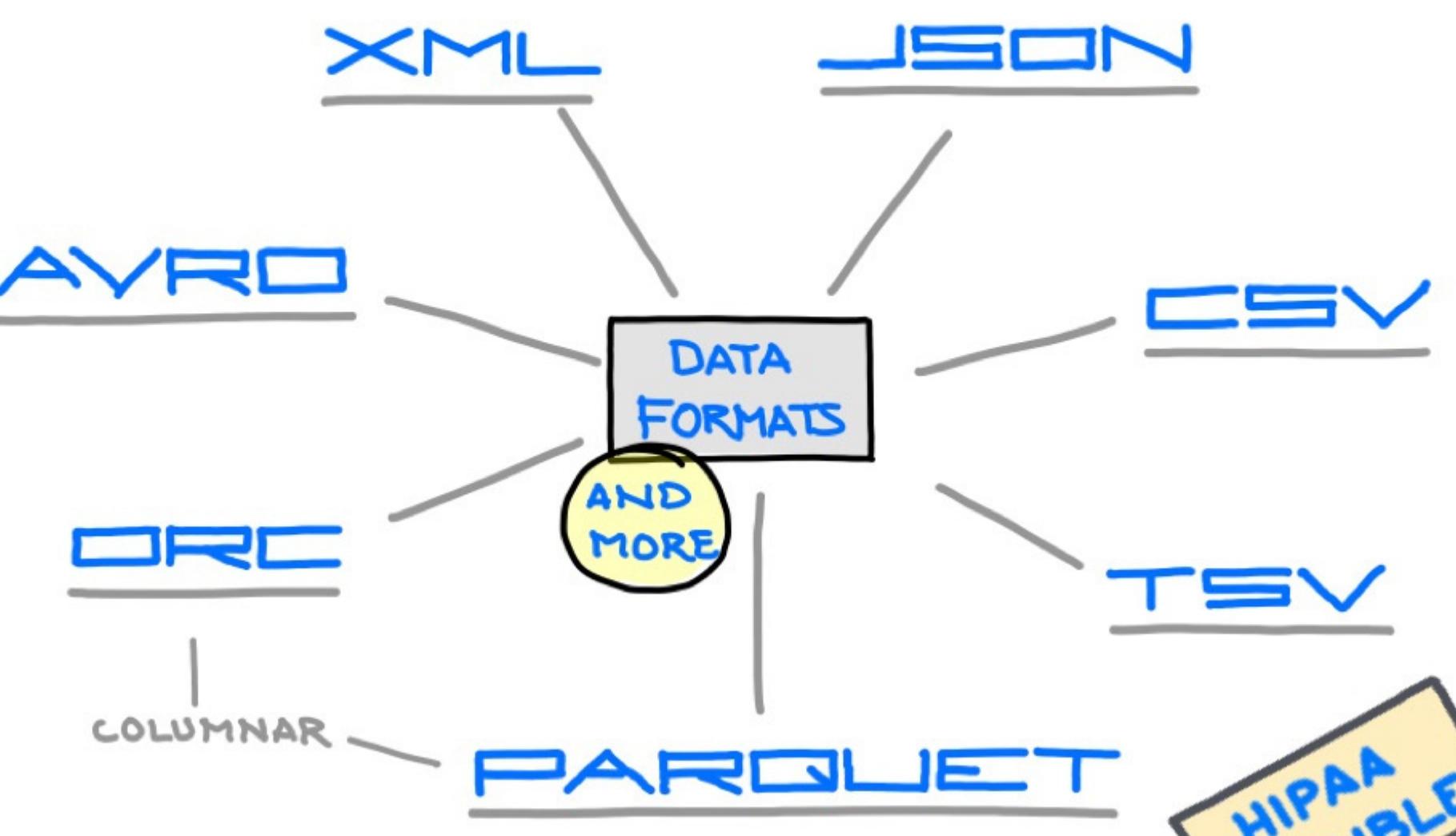
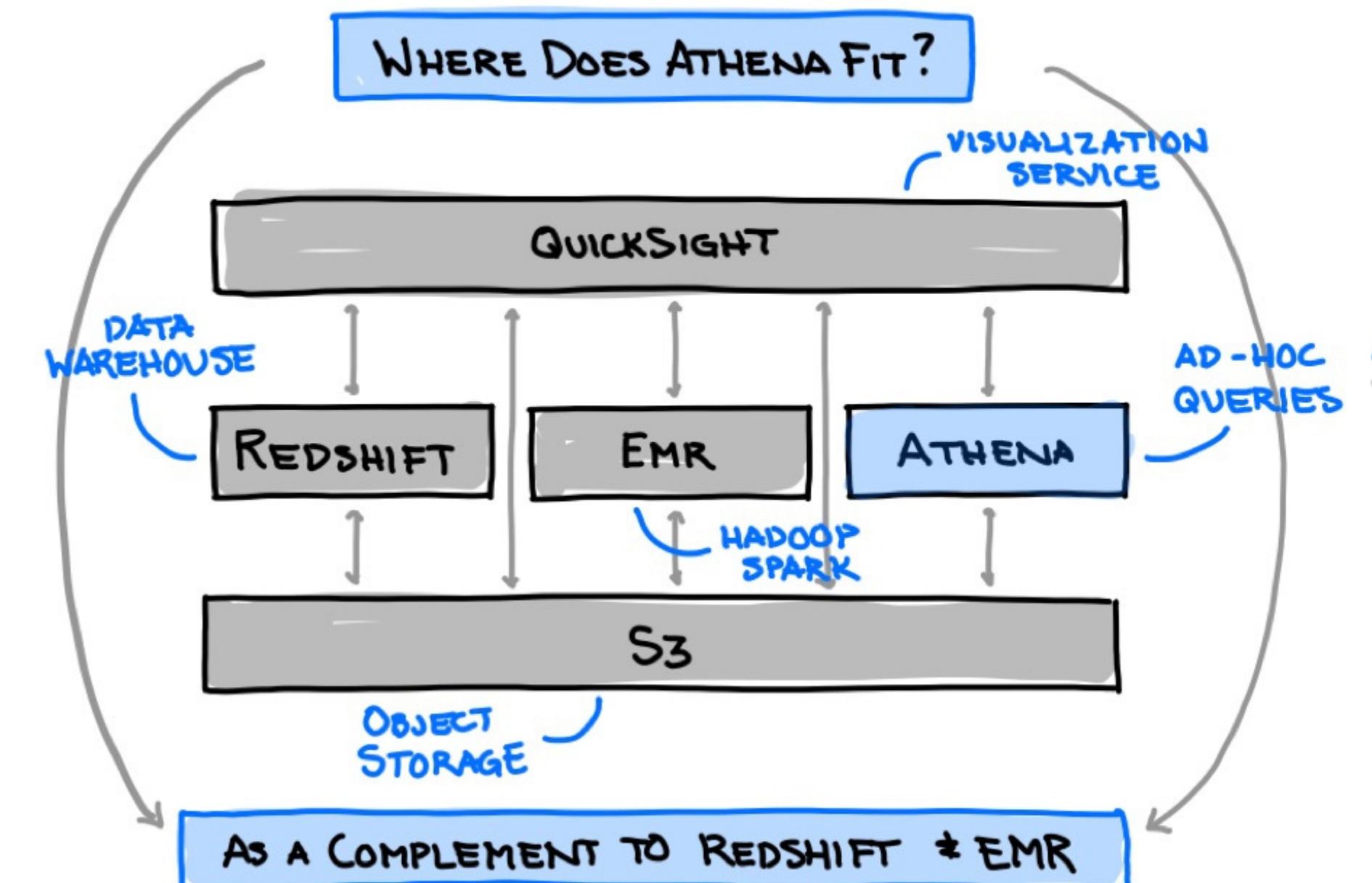
each shard has #C customers
reduces blast radius

minimize blast radius



minimize blast radius

BEST
SHUFFLE SHARDING

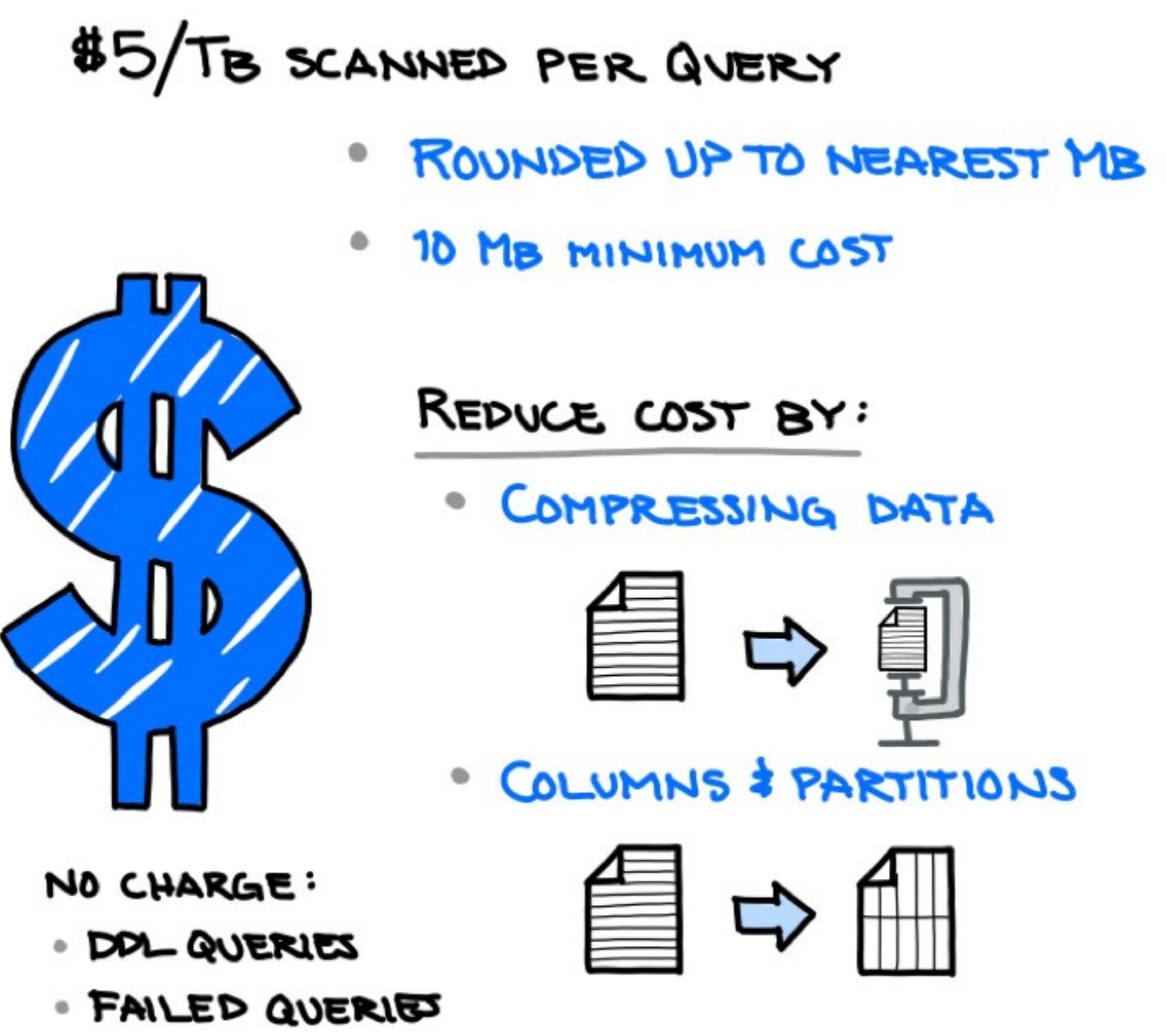
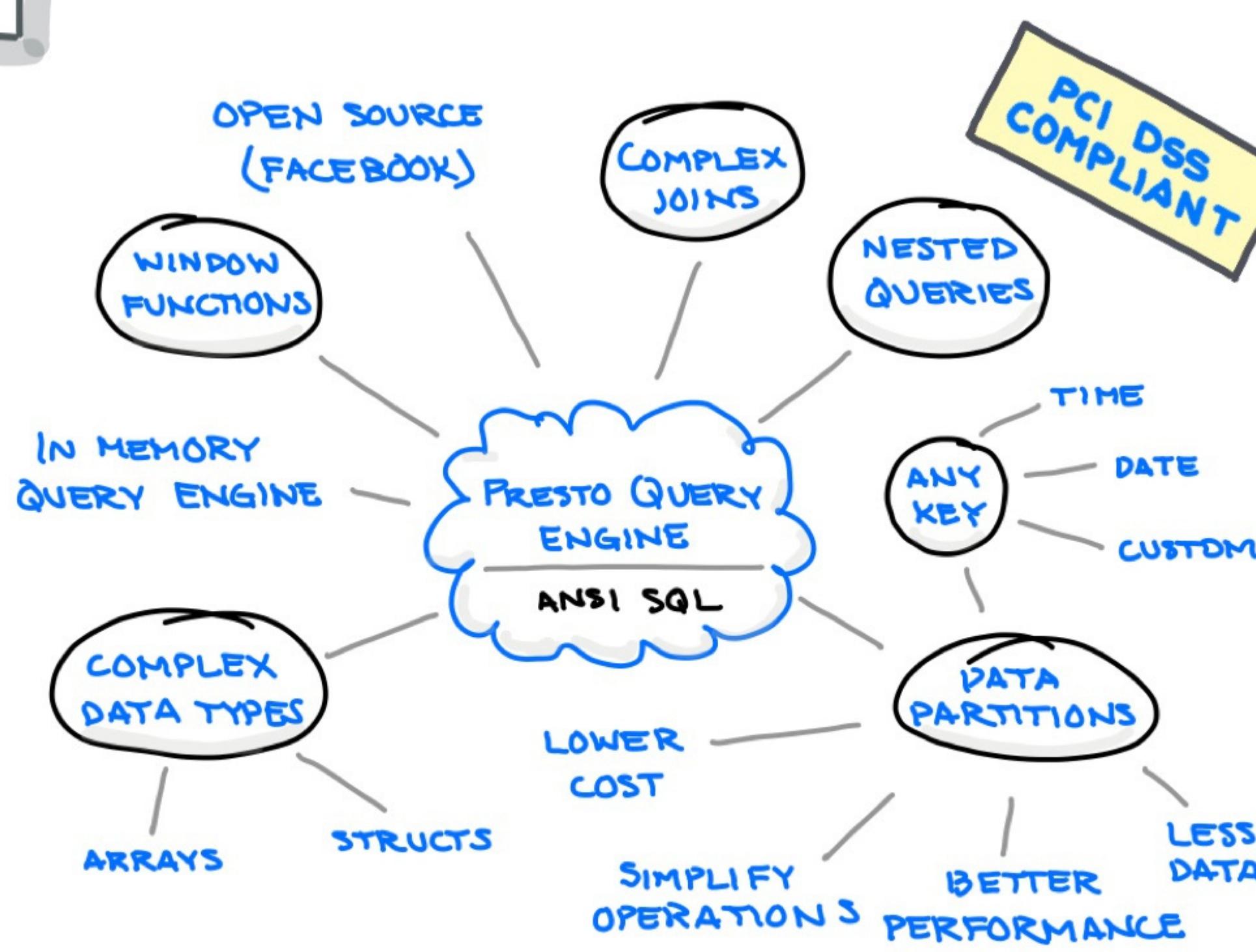
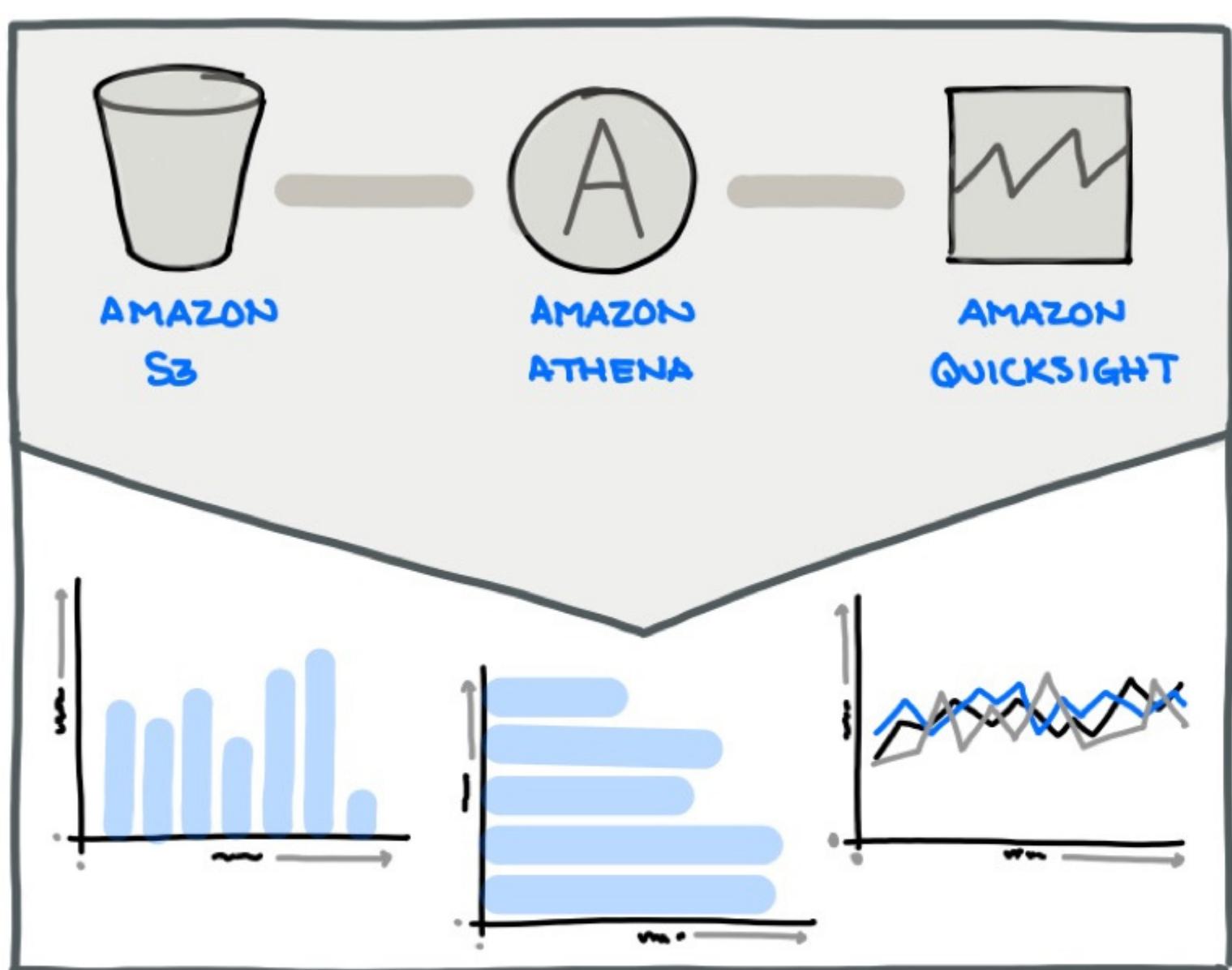
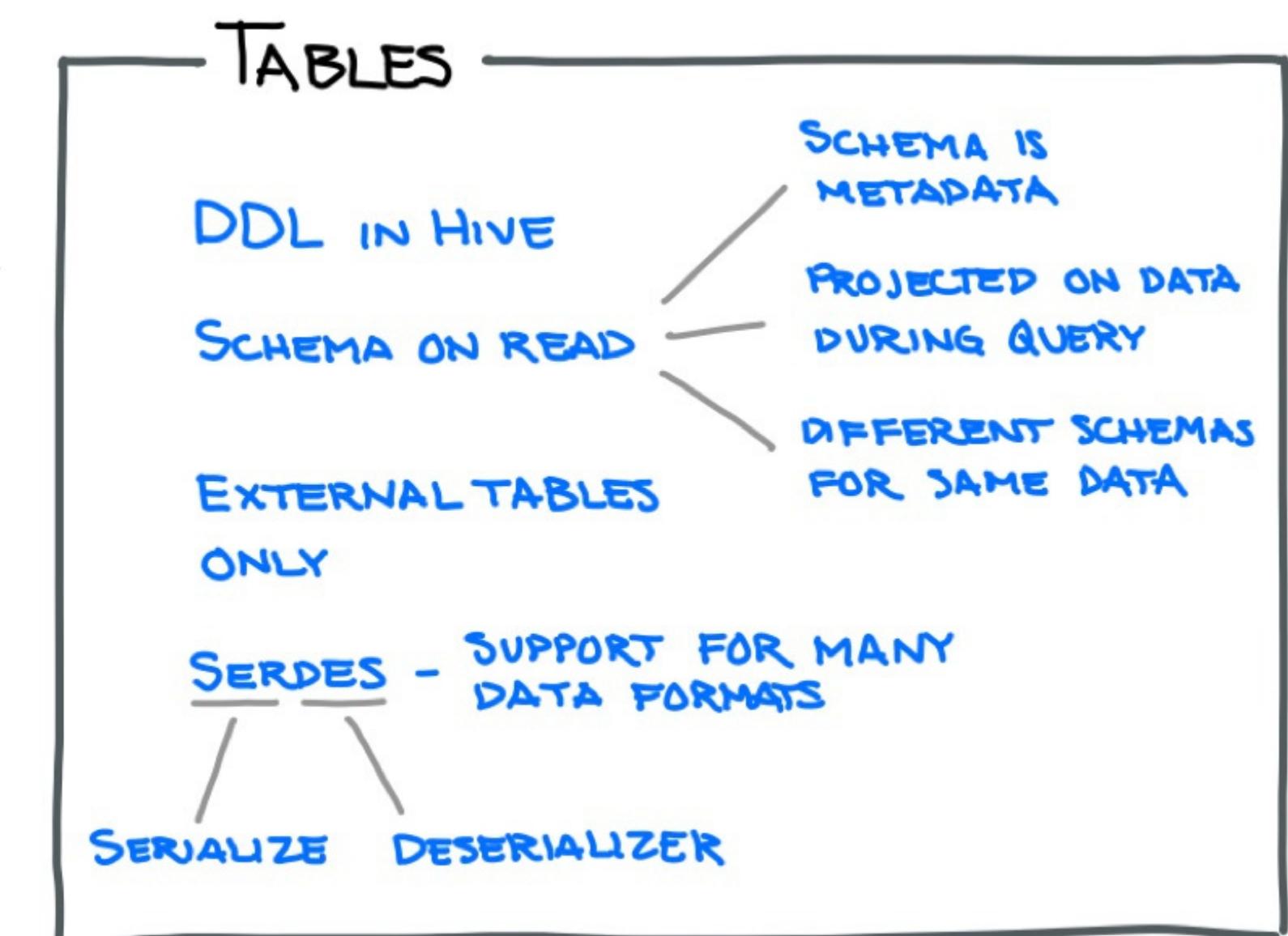


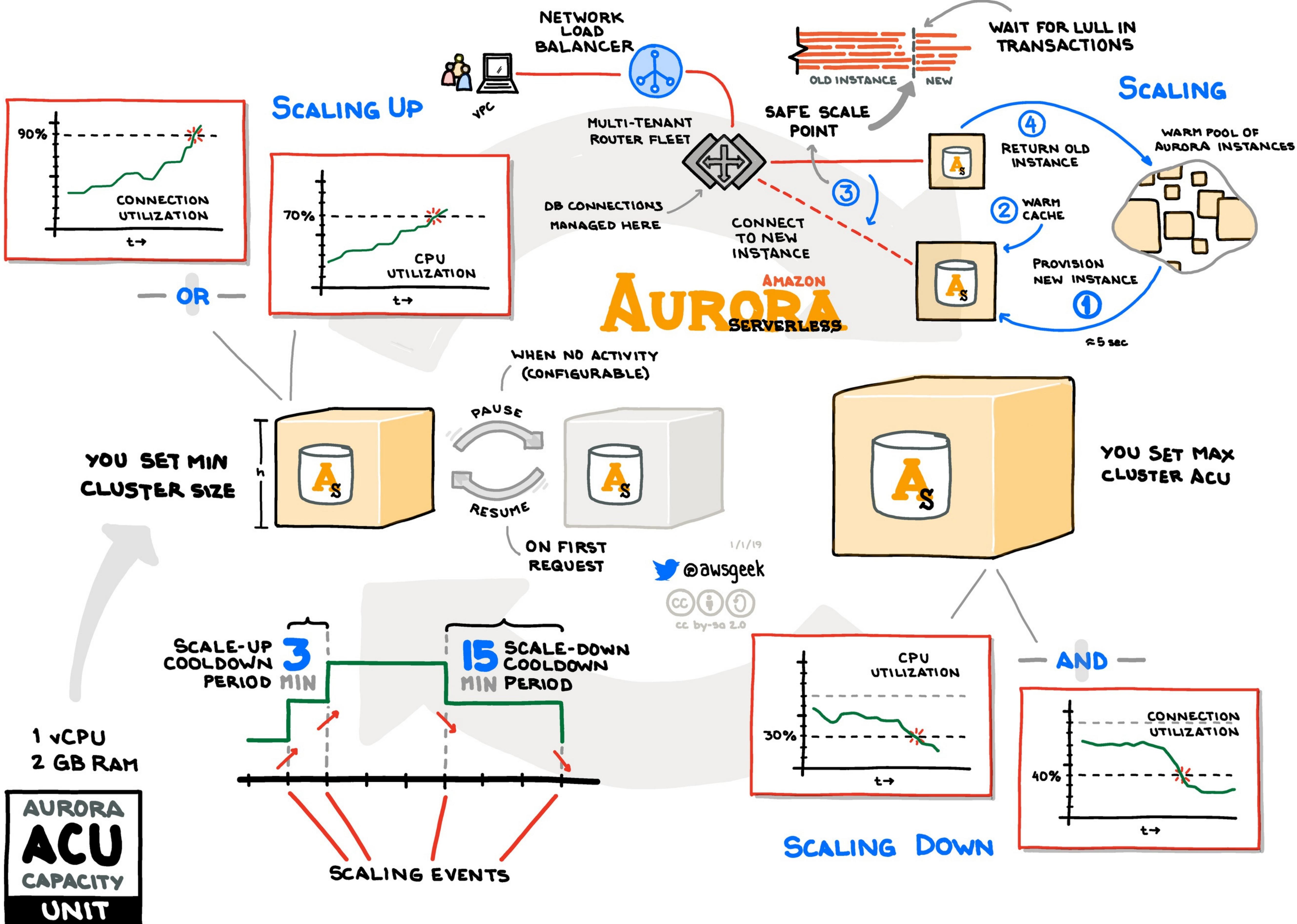
SERVERLESS	HIGHLY AVAILABLE
NO INFRA OR ADMIN	WARM COMPUTE POOLS
NO SPIN UP TIME	DATA IN S3
NO MAINTENANCE	MULTIPLE AZ
CONVENIENT	PERFORMANT
NO DATA LOADING	AUTO PARALLELIZATION
NATIVE DATA FORMATS	STREAMING RESULTS
NO ETL INVOLVED	COMPRESS / COLUMNAR

3/6/20 @awsgeek

AMAZON athena

GOAL: MAKE IT EASY TO ANALYZE DATA IN S3

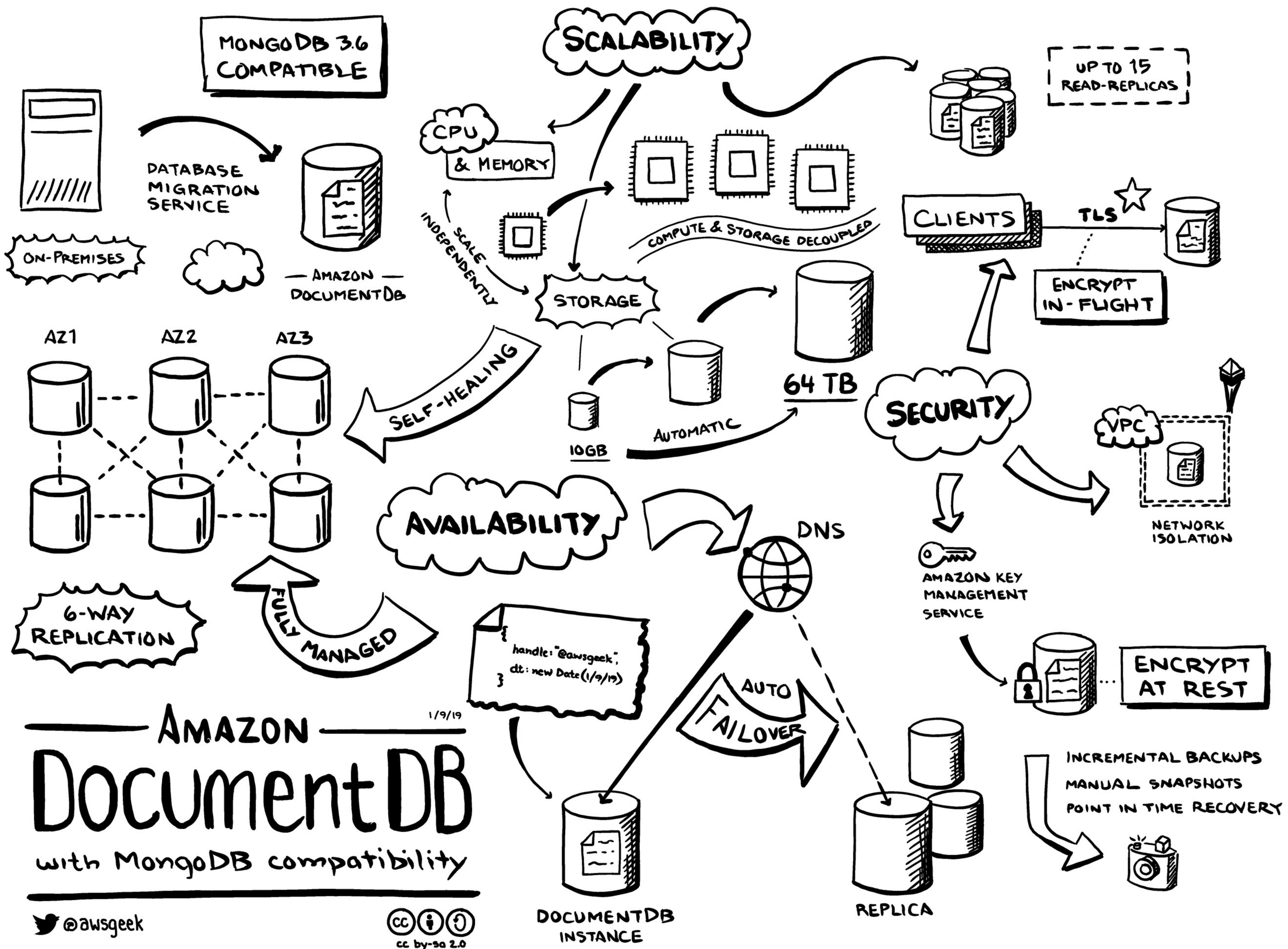




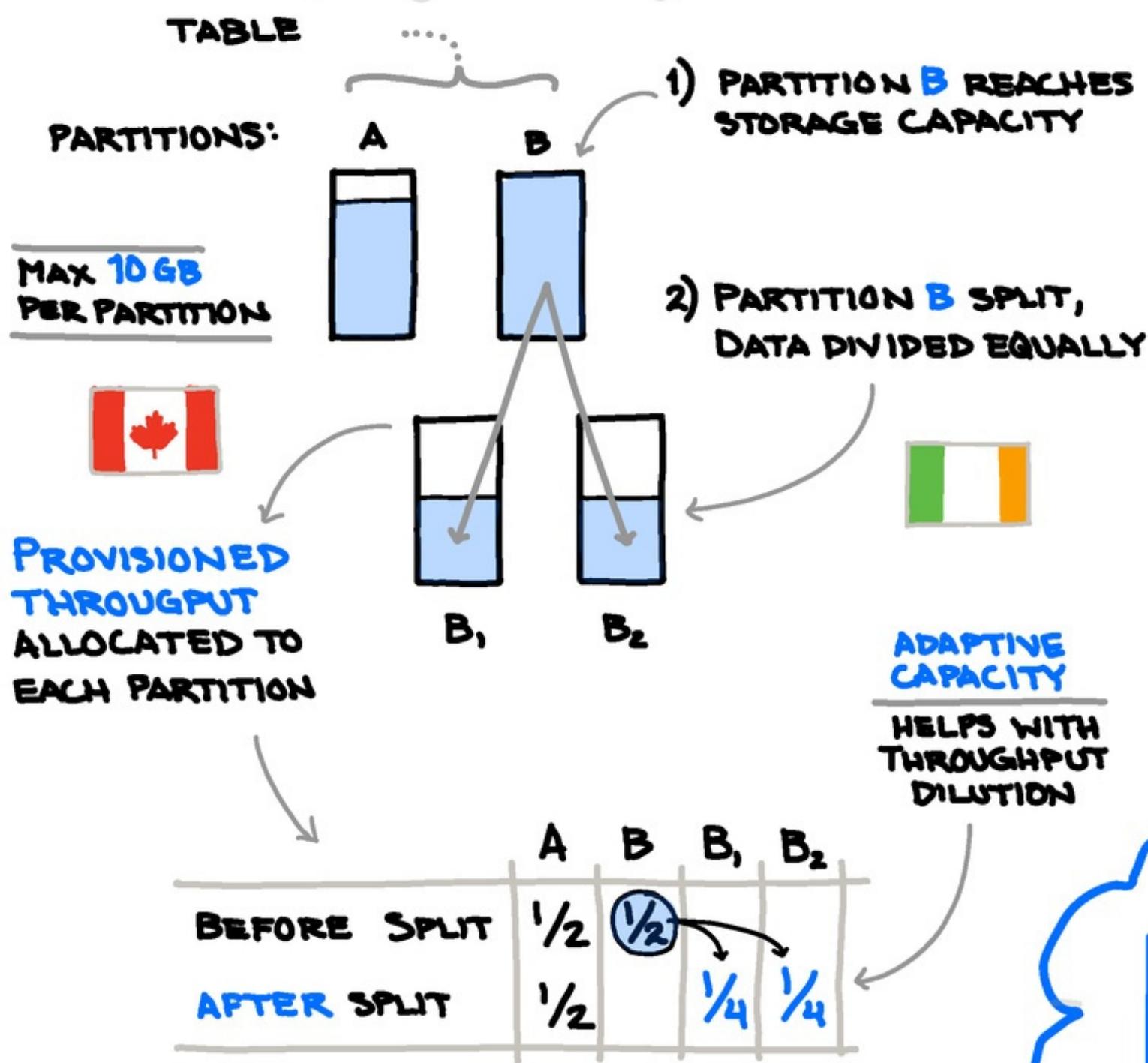
— AMAZON —

DocumentDB

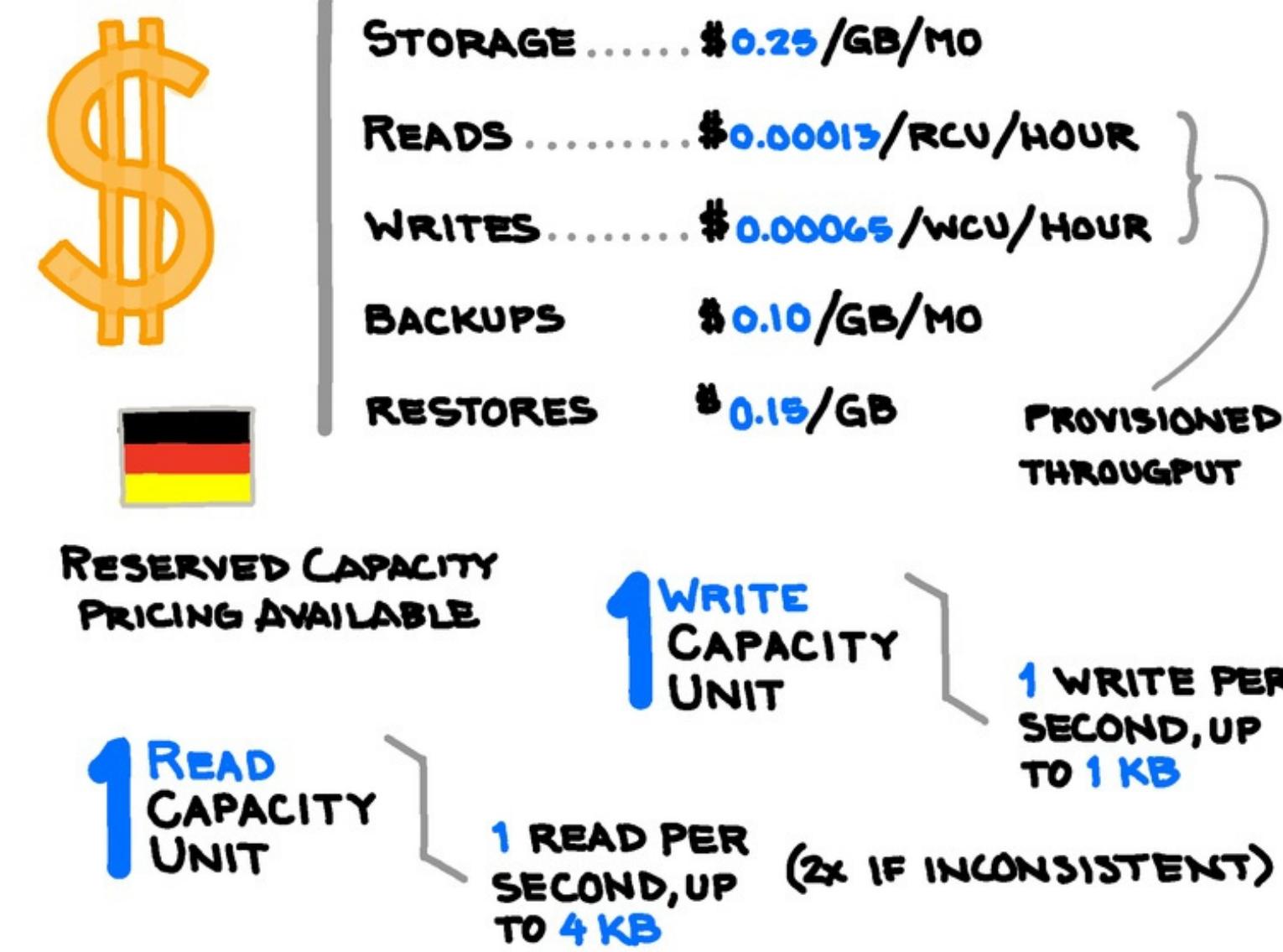
with MongoDB compatibility



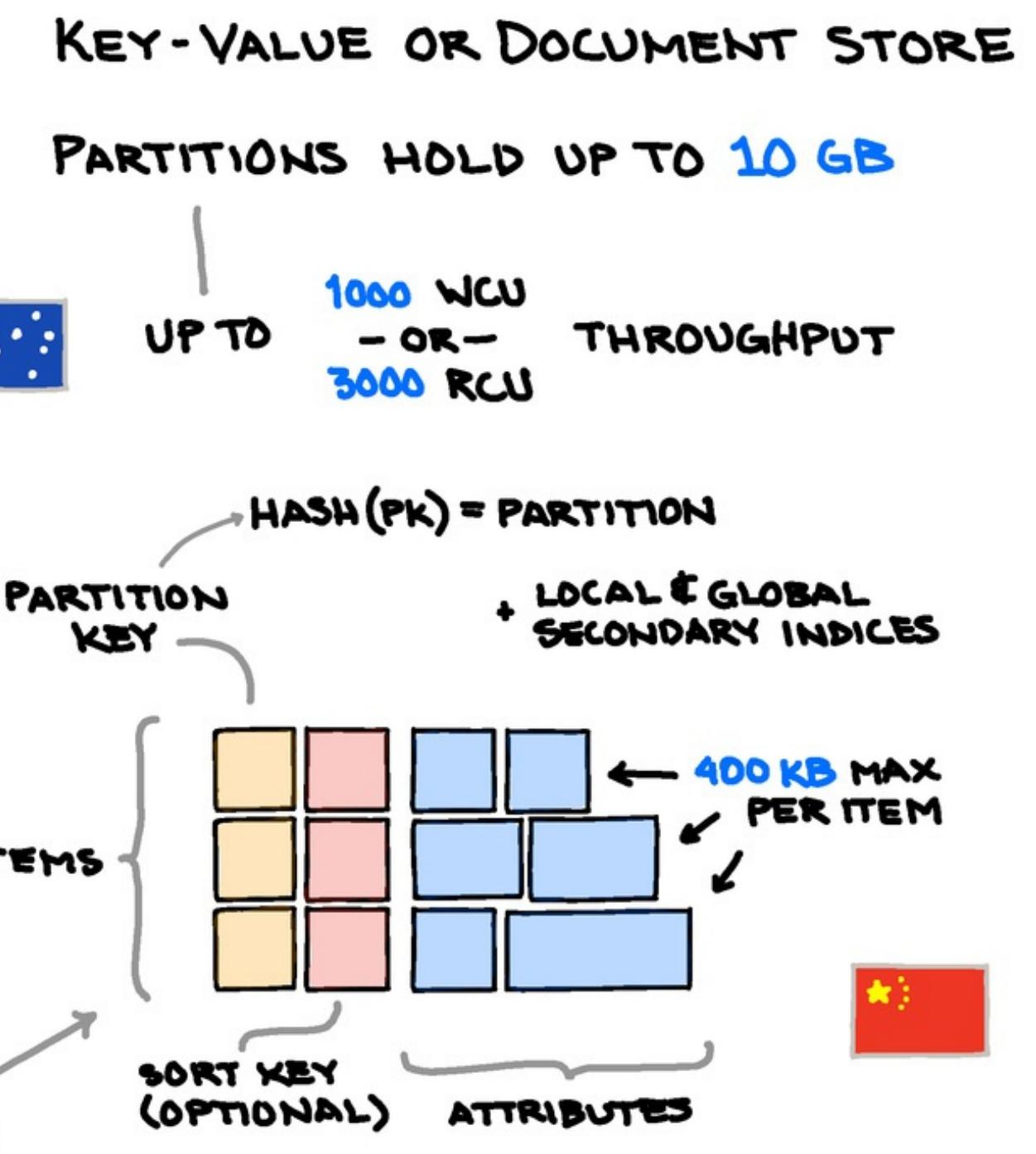
SCALABILITY



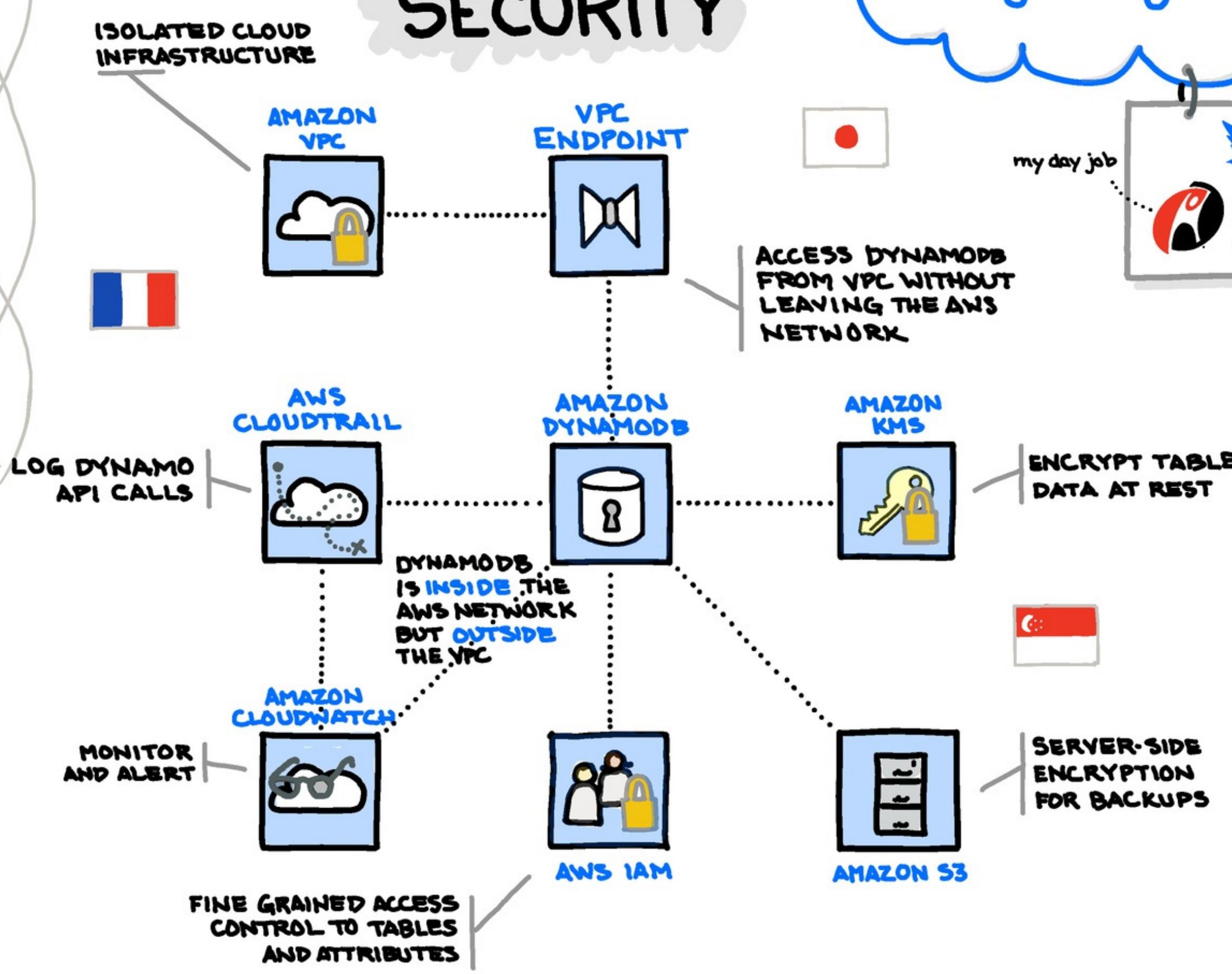
PRICING



ESSENTIALS



SECURITY

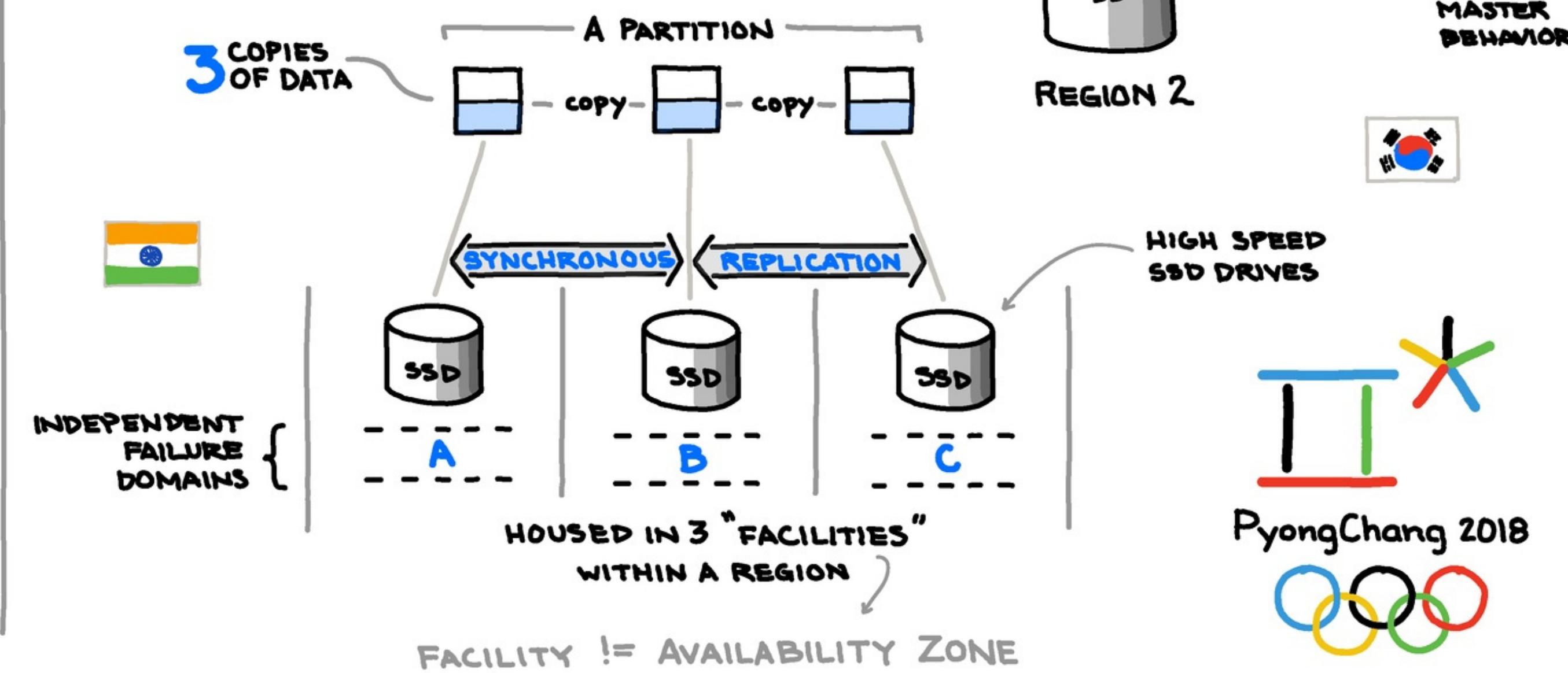


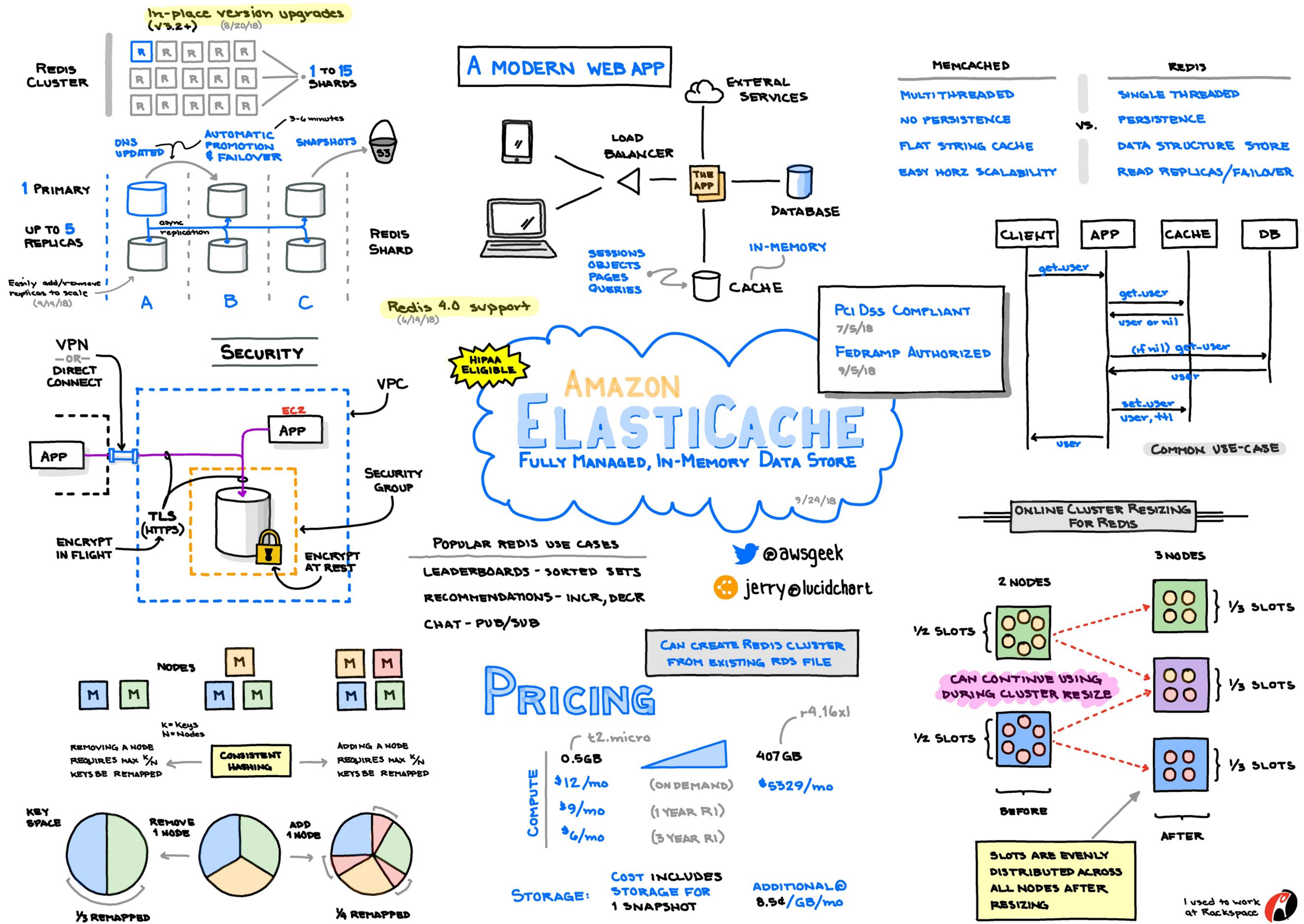
amazon DYNAMO DB

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

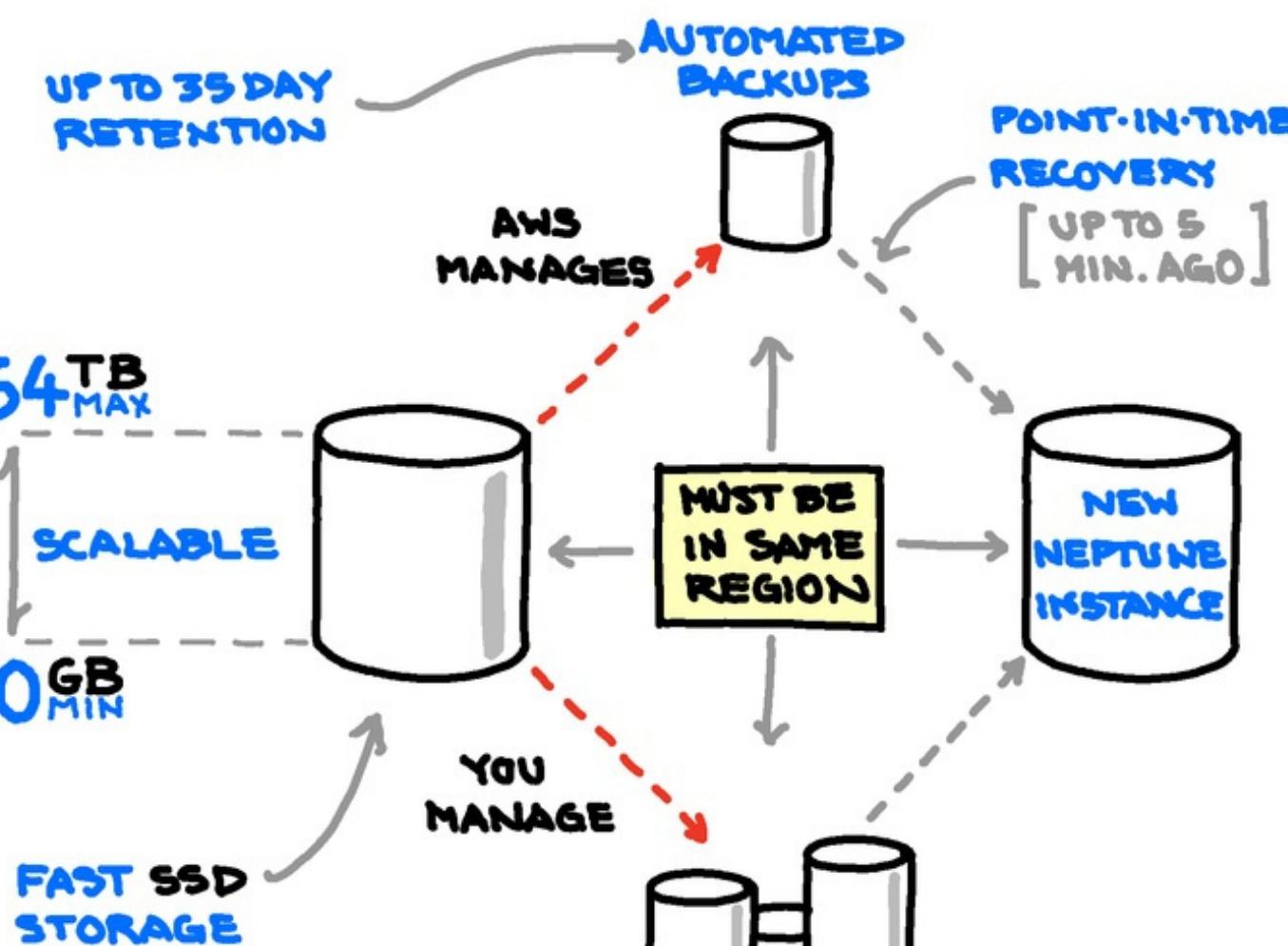
STORE AND QUERY INFO & RELATIONSHIPS BETWEEN USERS

LIFE SCIENCES

SECURELY STORE AND PROCESS PATIENT & HEALTHCARE DATA

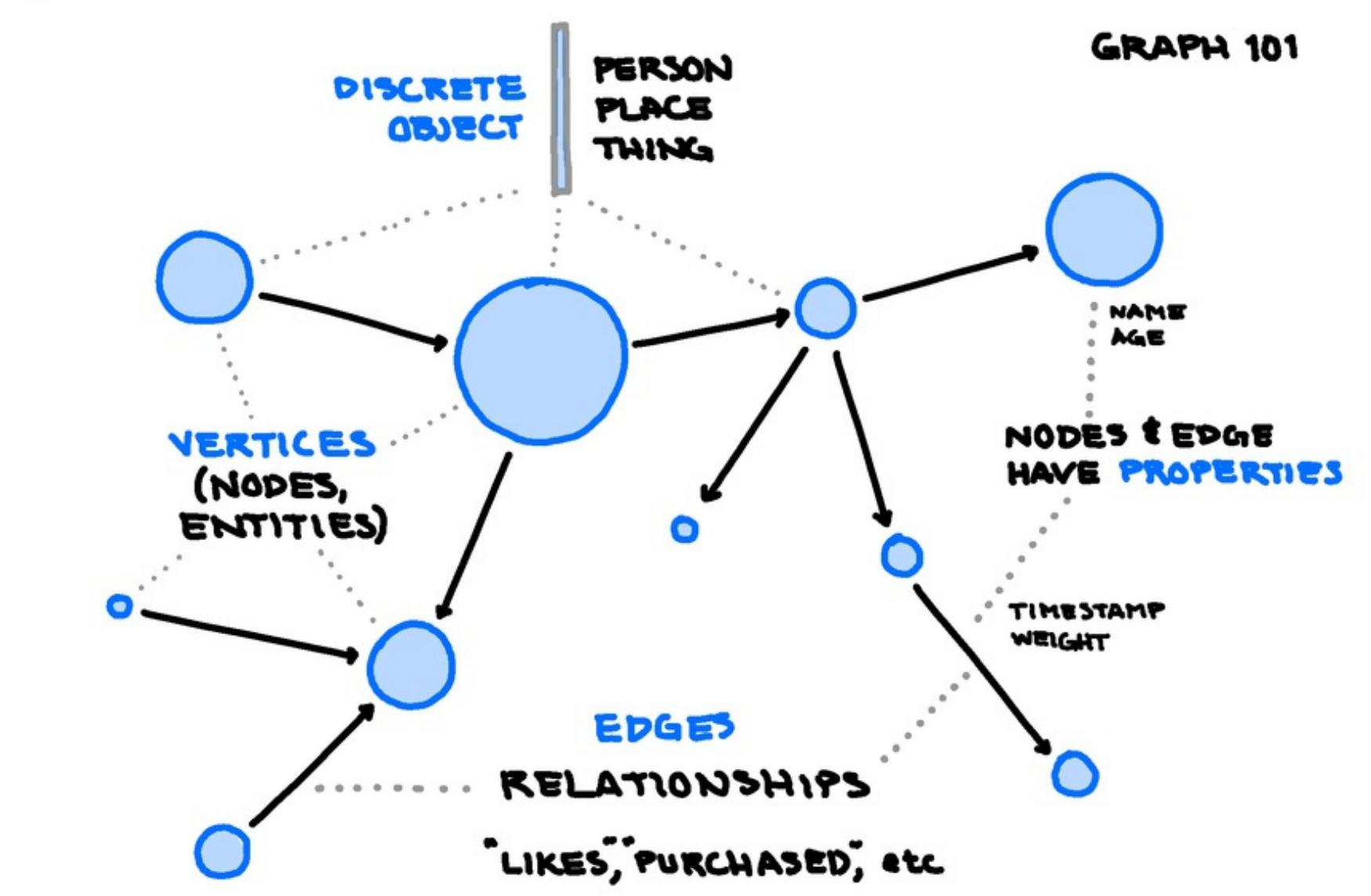
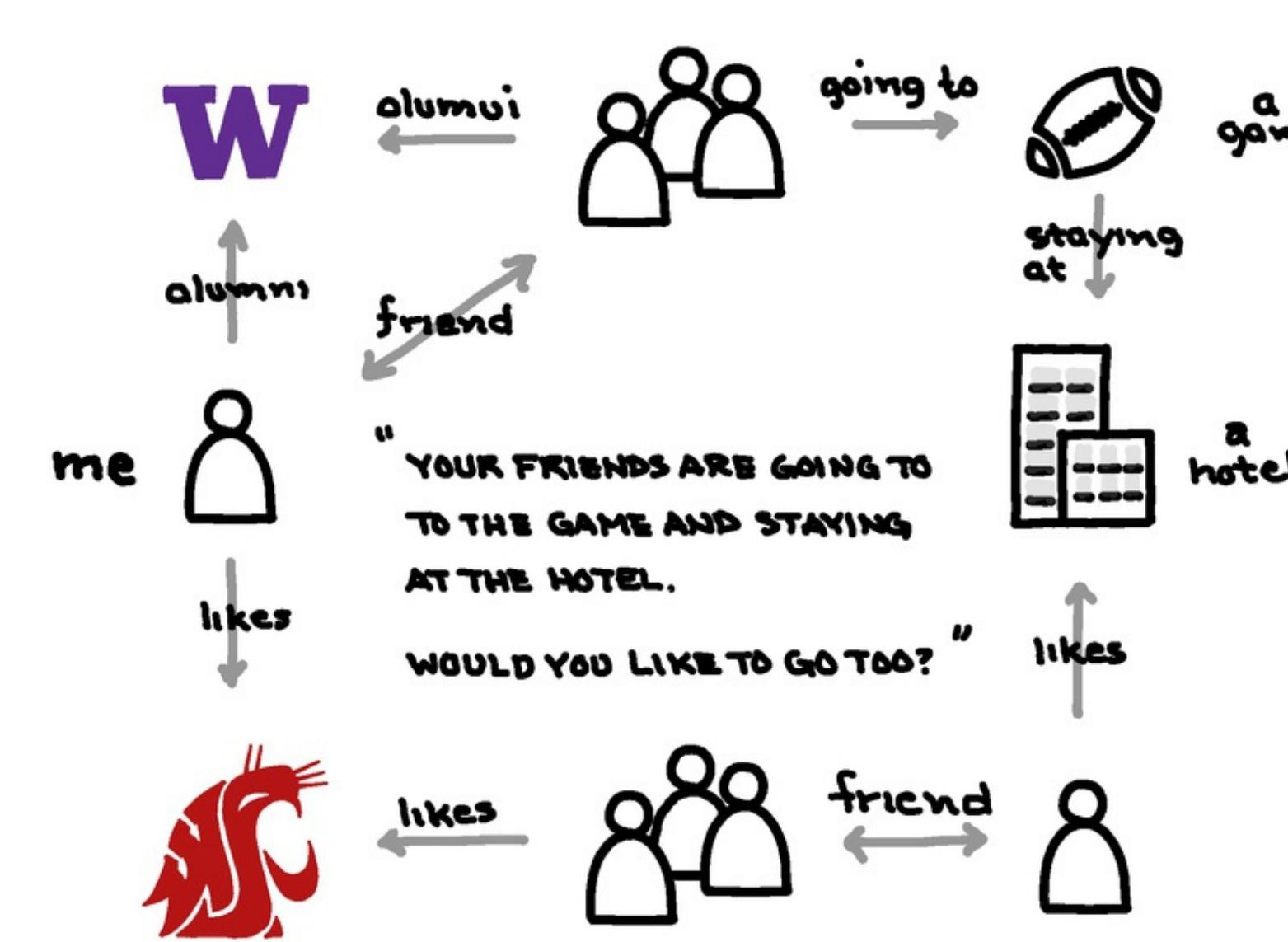
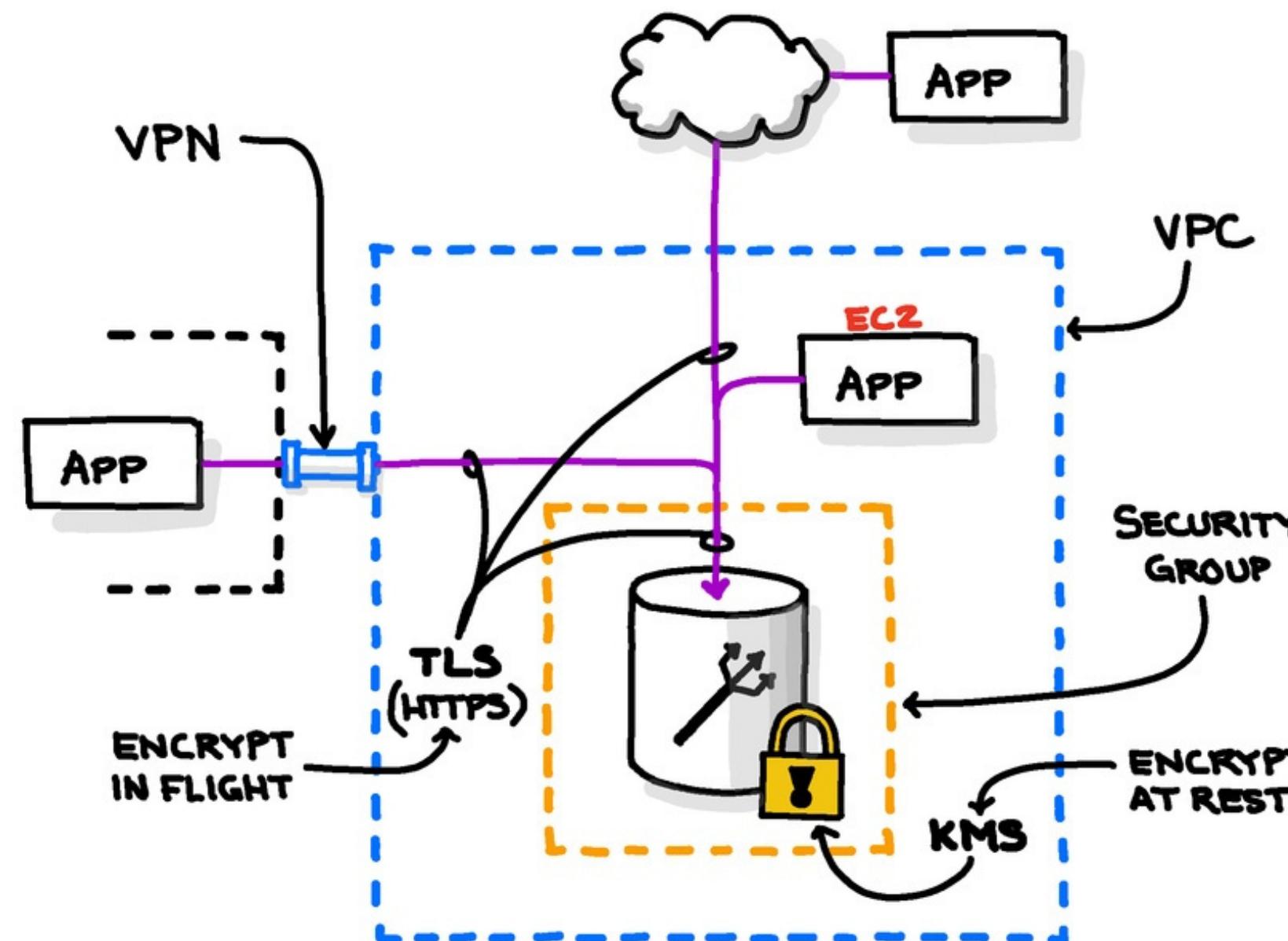
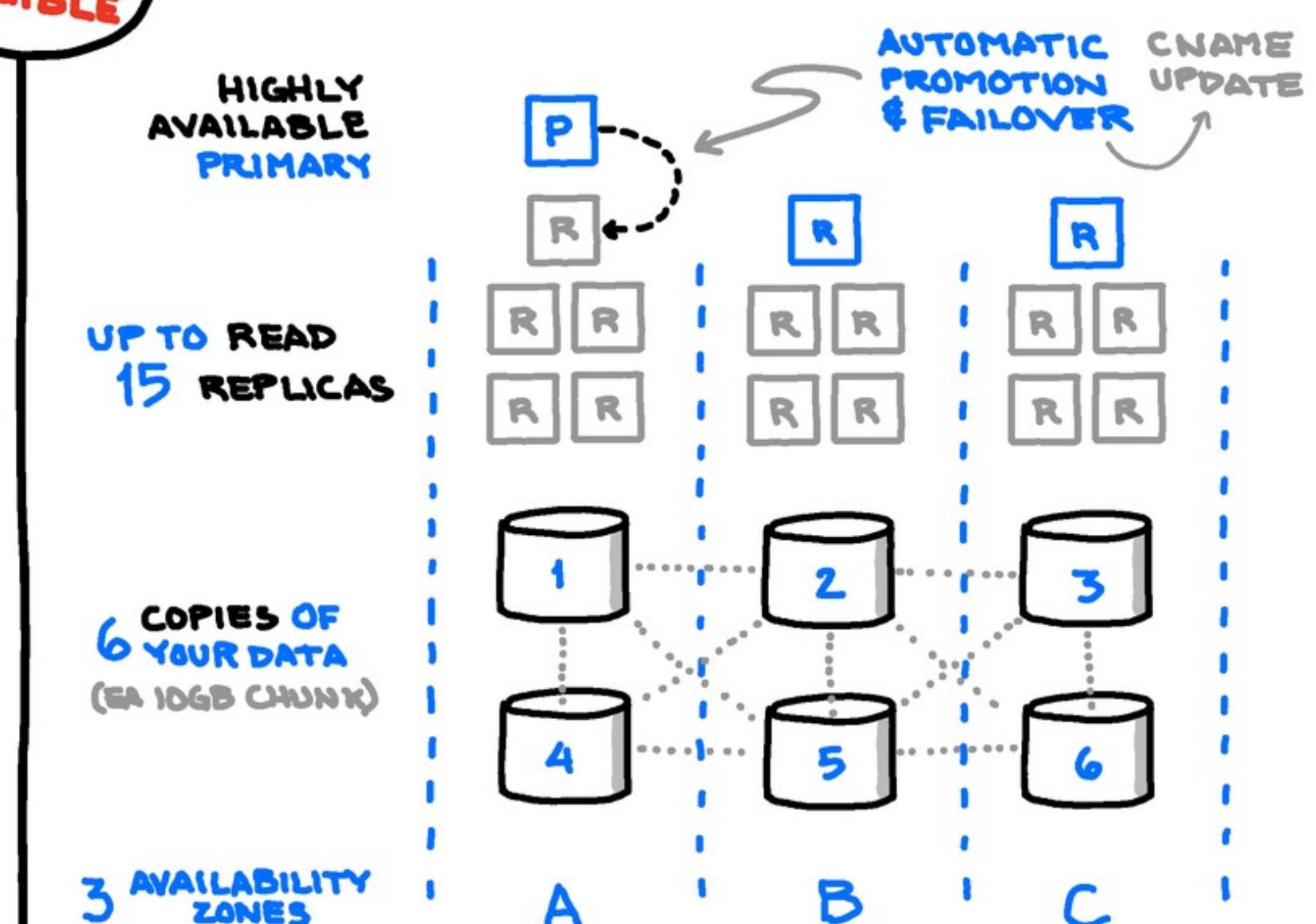
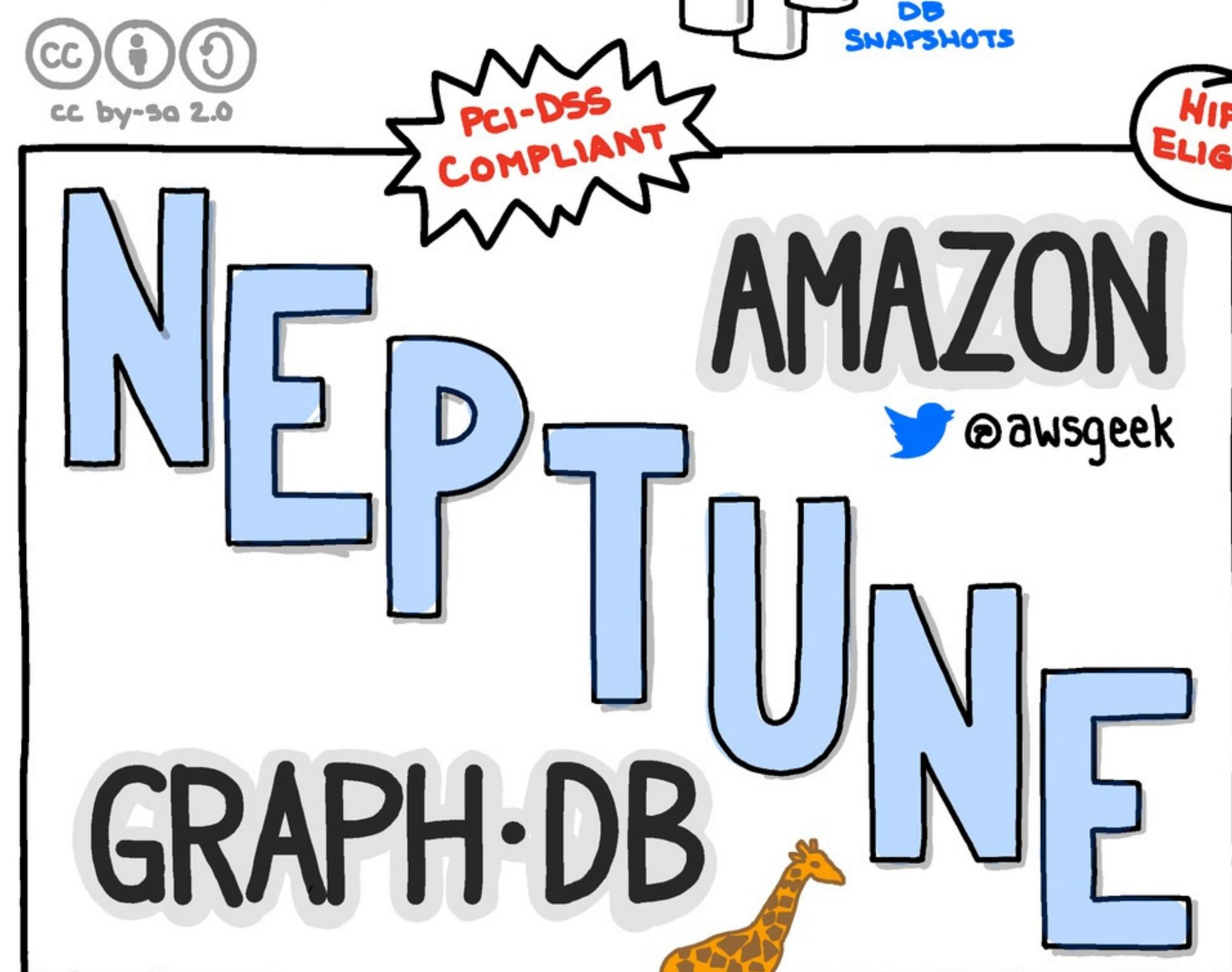
NETWORK/IT OPS

STORE NETWORK TOPOLOGY & DISCOVER RELATIONSHIPS
BETWEEN HOSTS

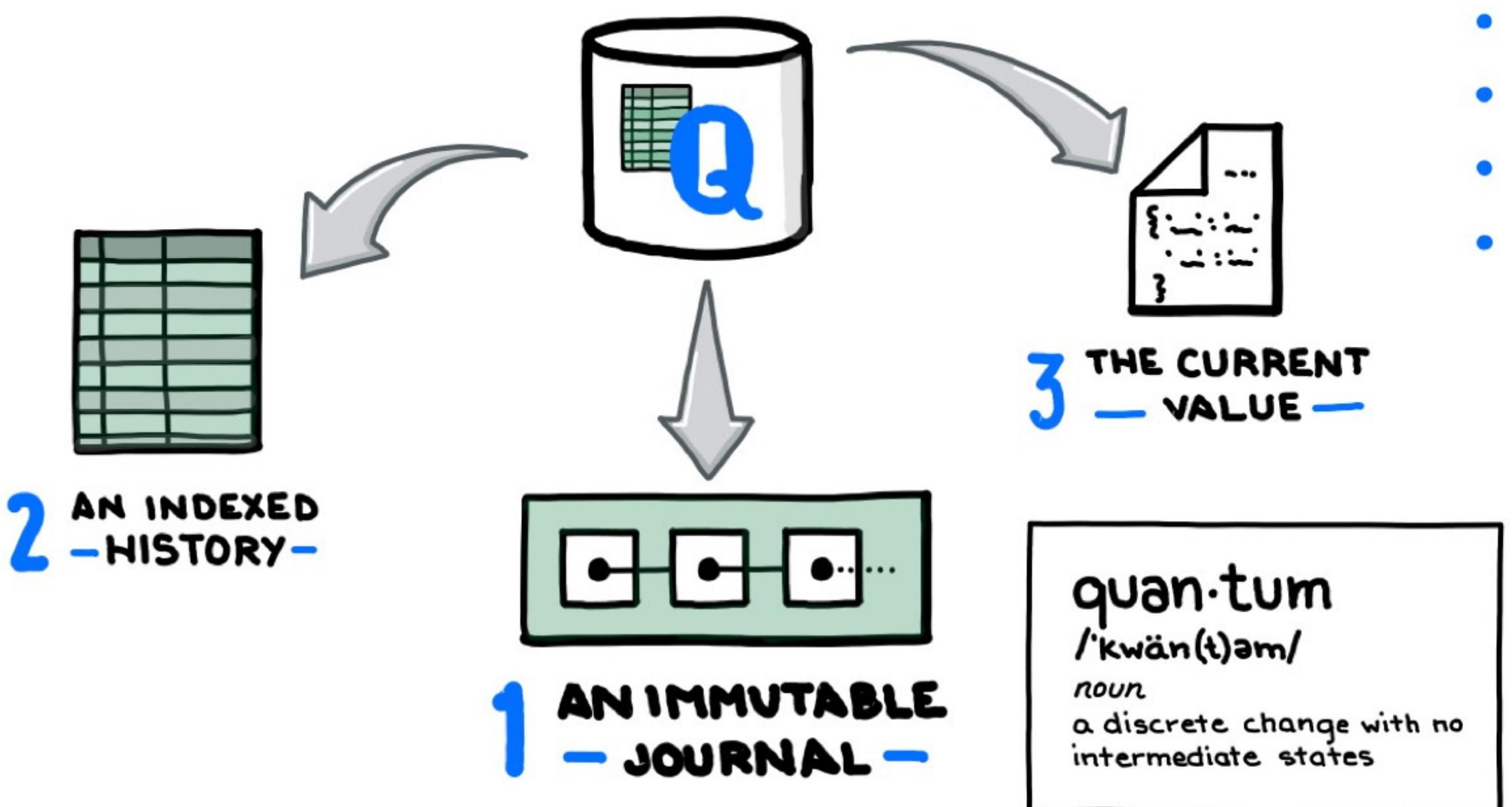


PRICING

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

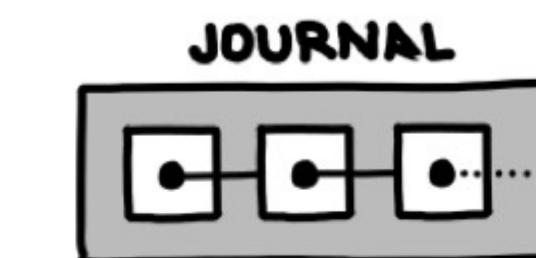
US EAST (VIRGINIA)

70¢ WRITE / MILLION REQUESTS

13.6¢ READ / MILLION REQUESTS

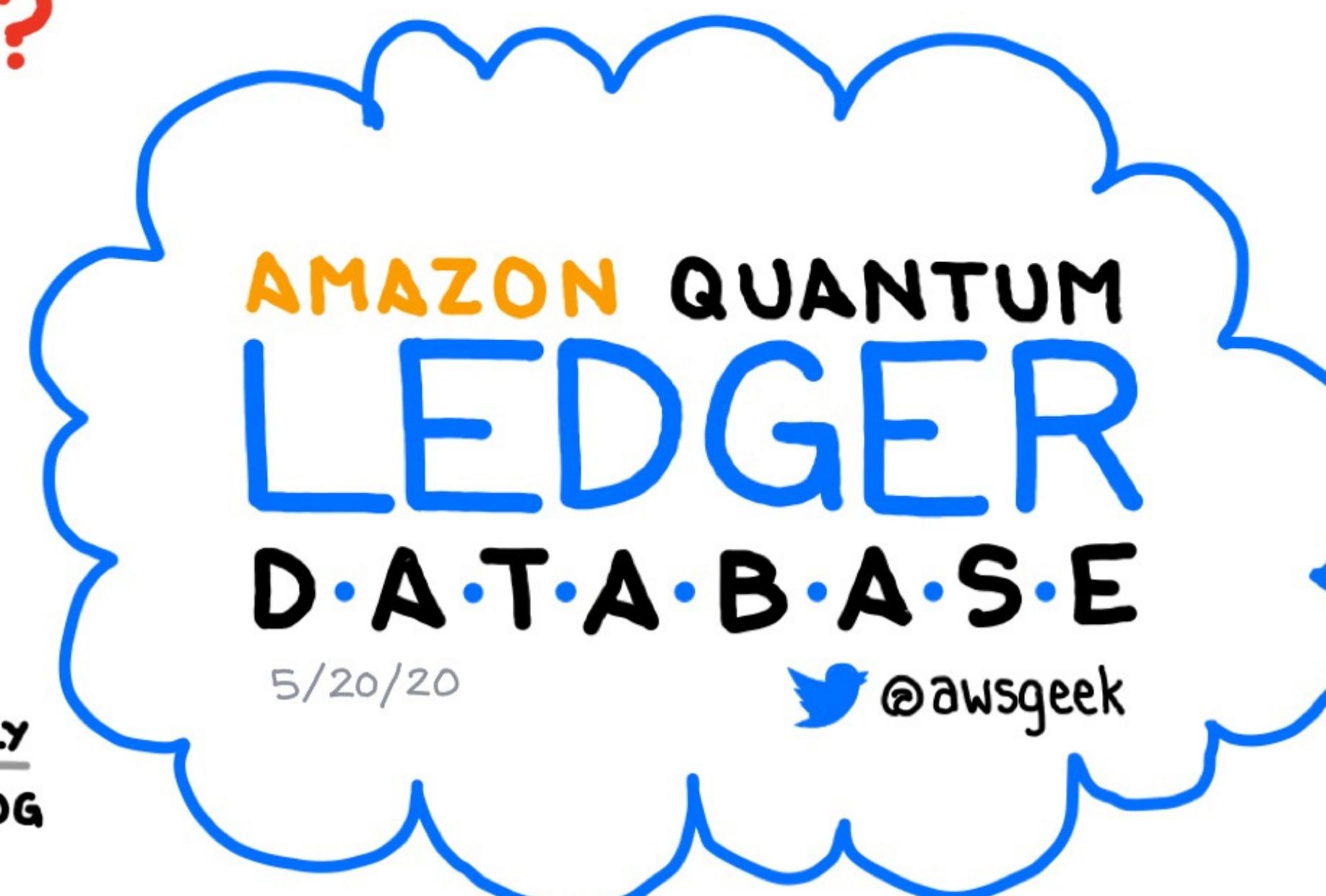
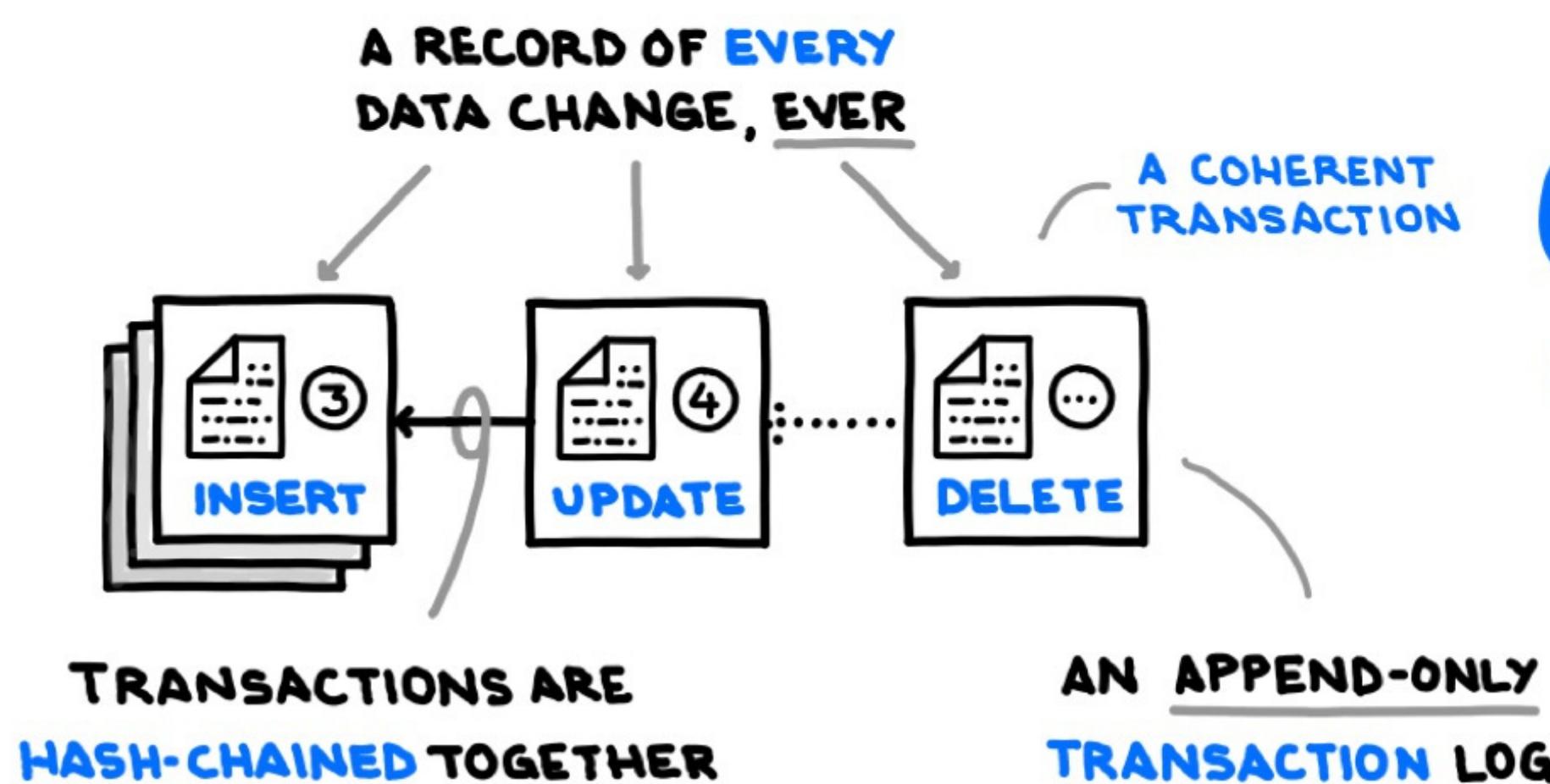


25¢ PER GB/MO

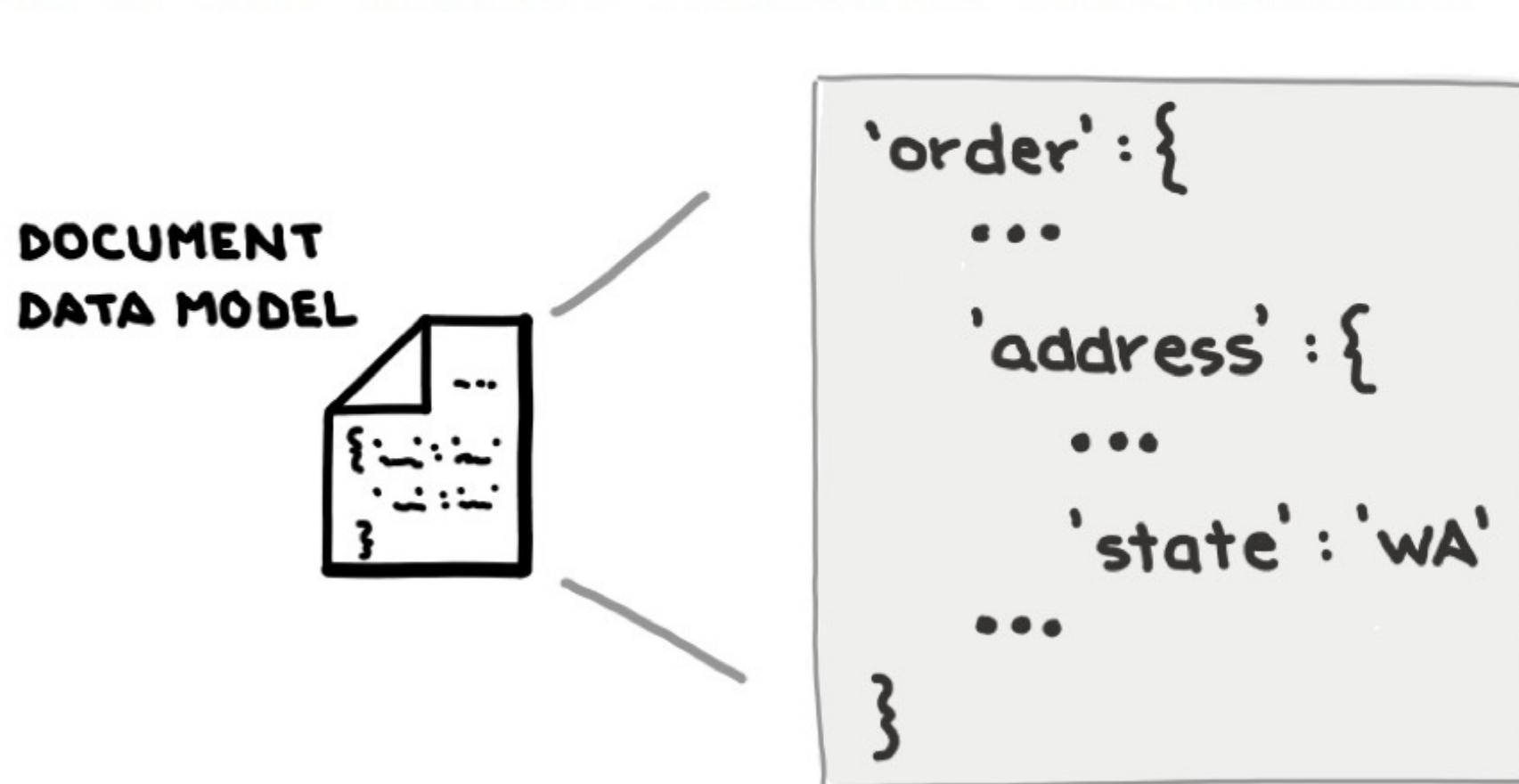


3¢ PER GB/MO

WHAT IS AN IMMUTABLE JOURNAL?



How is Data Stored/Queried?



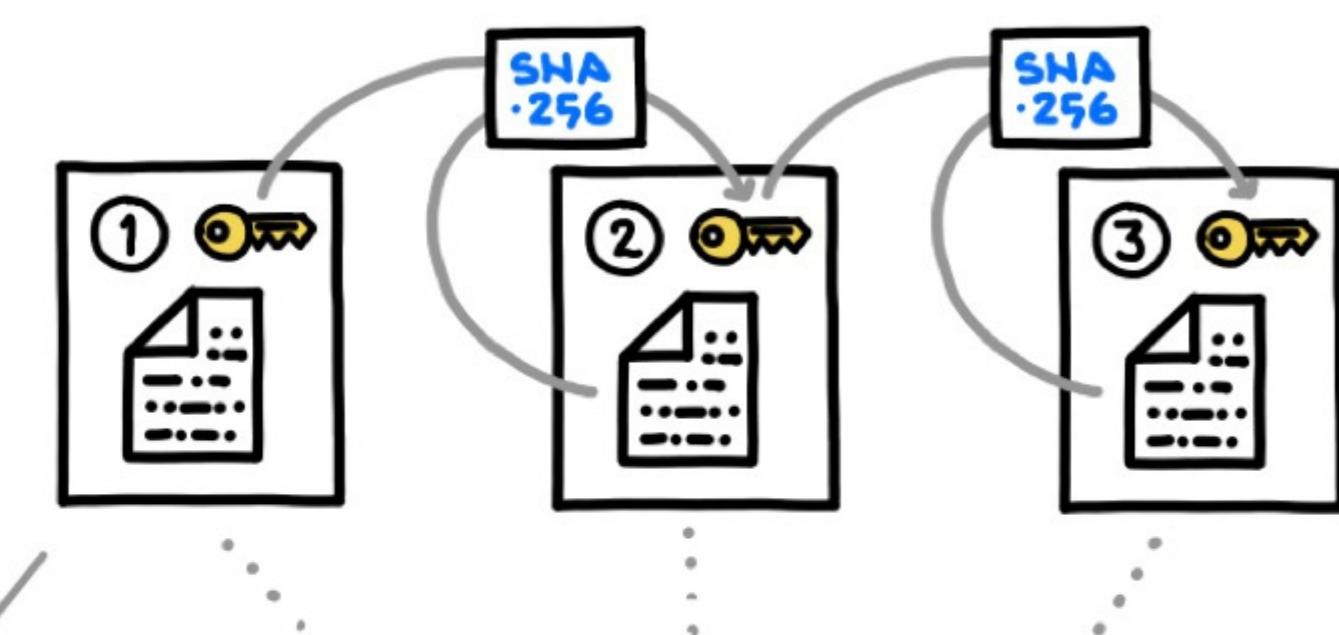
NESTED DOCS
LIKE JOINED TABLES

QUERY

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)

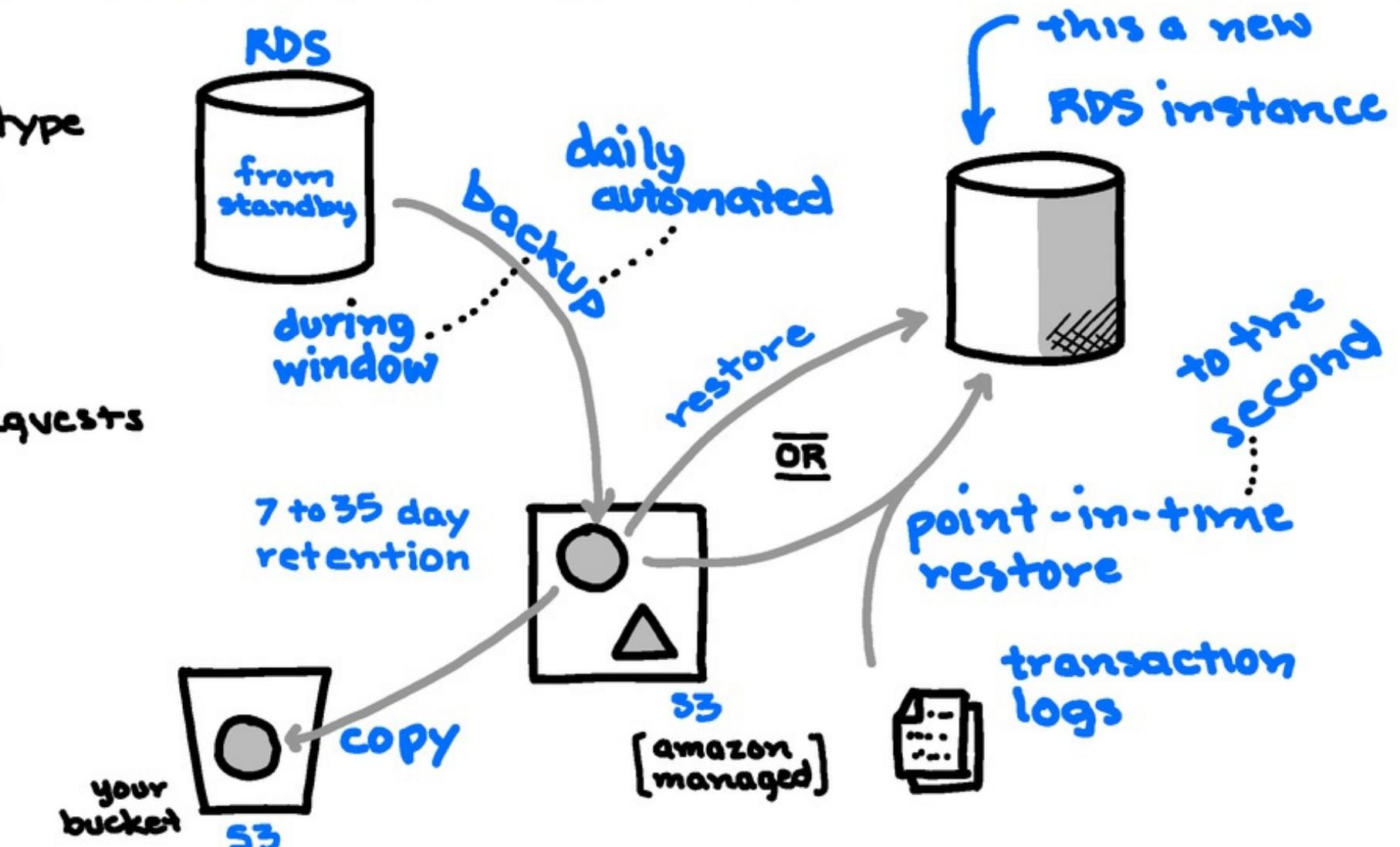
DB INSTANCE HOURS per engine/instance type
billed hourly, round up

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

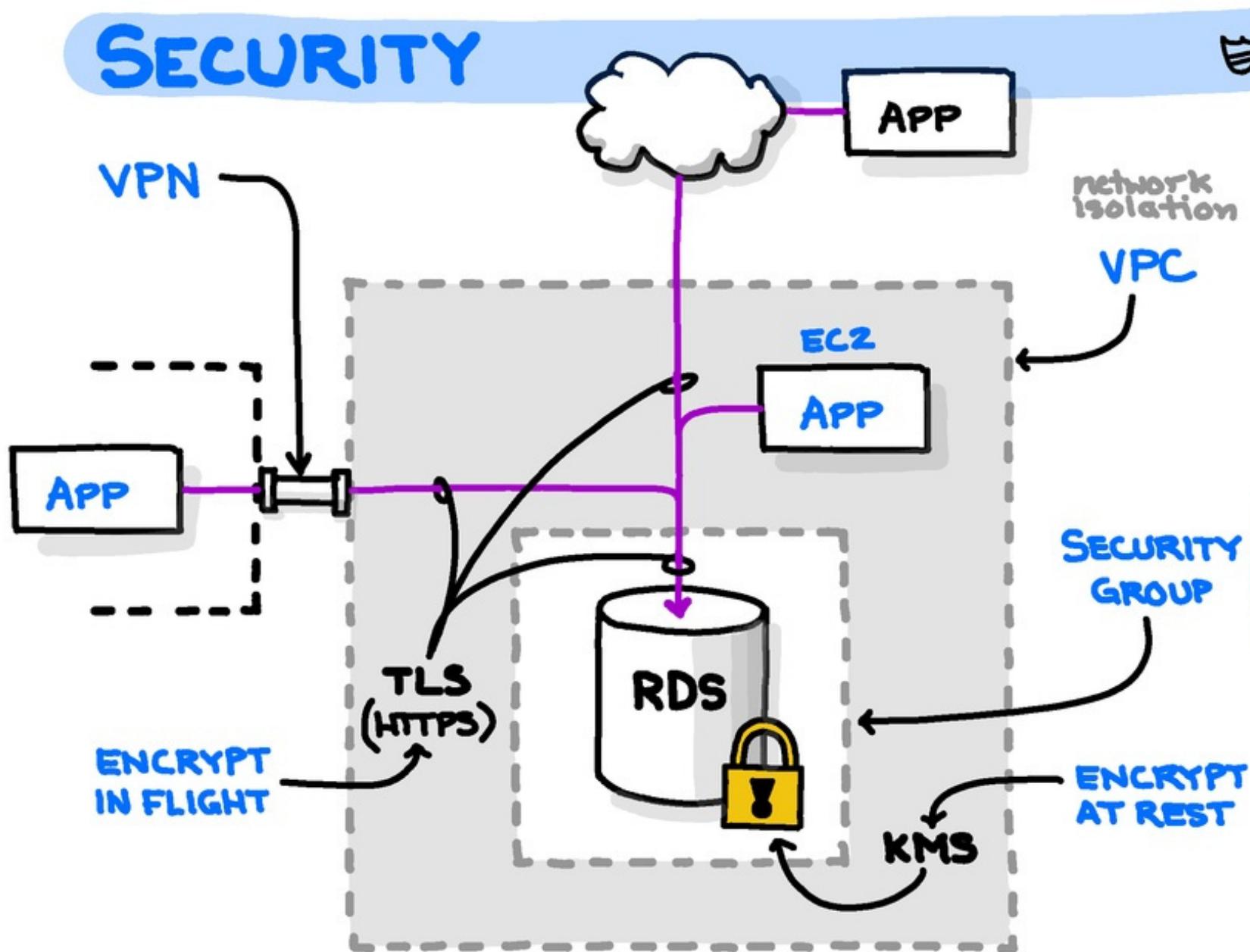
BACKUP STORAGE 100% of DB size free
9.5¢/GB/Mo after

DATA TRANSFER varies by destination

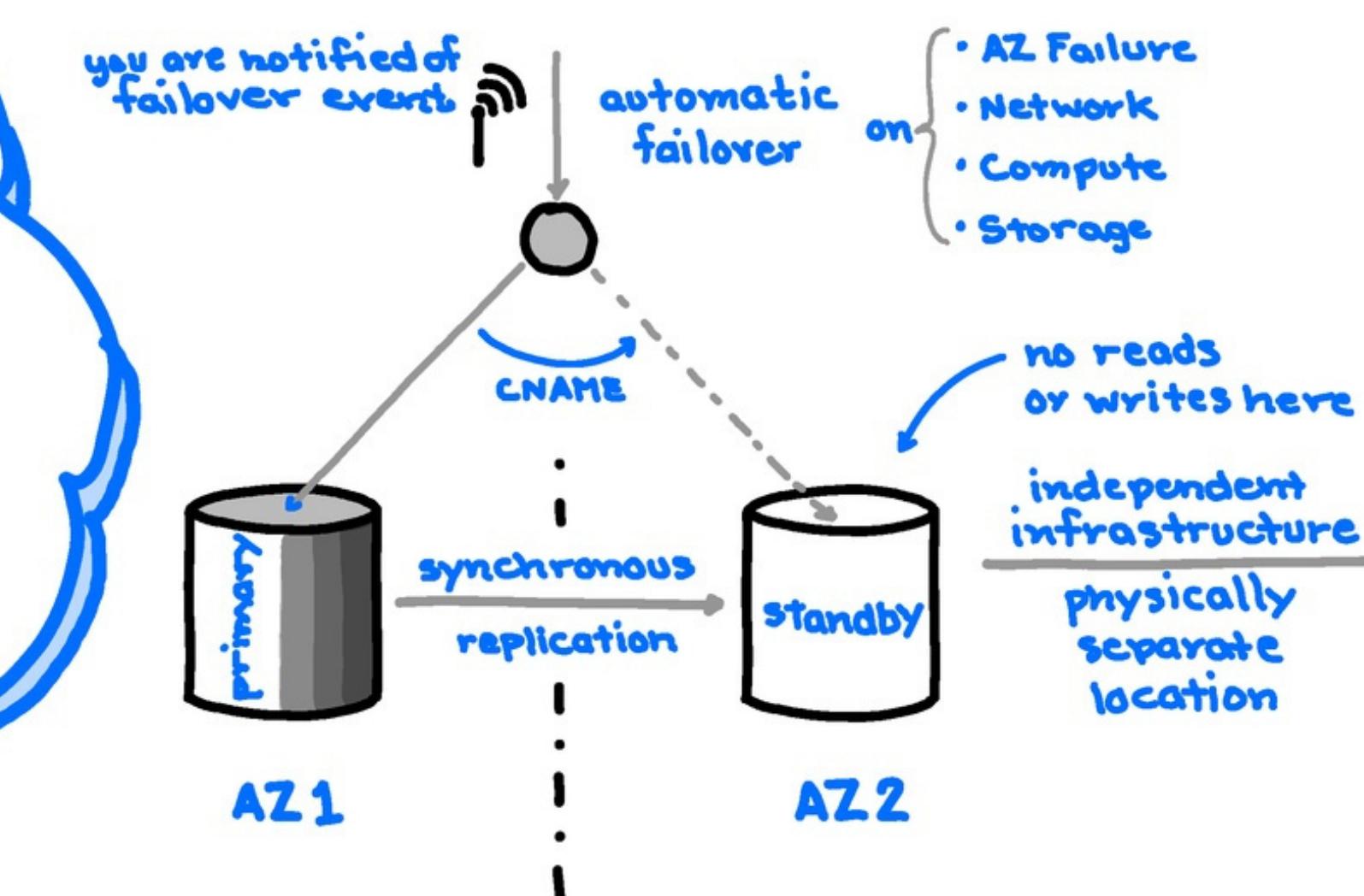
BACKUPS



SECURITY

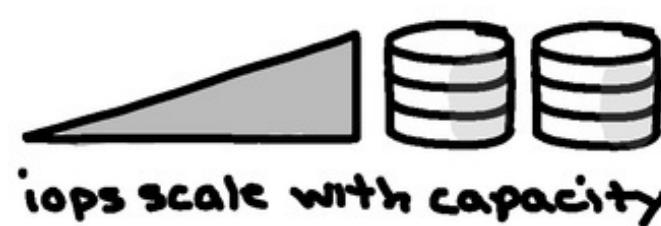


MULTI-AZ

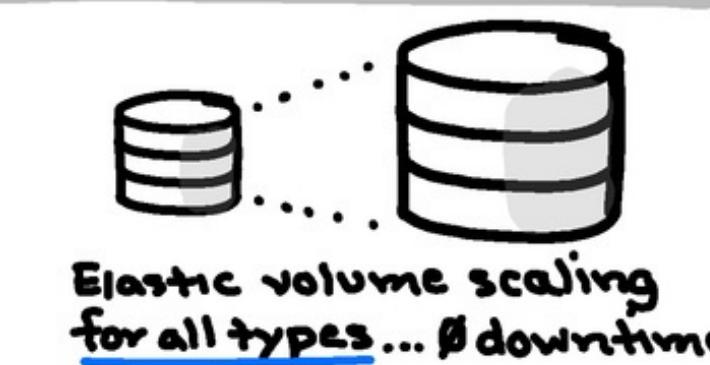


STORAGE

GP2 General Purpose
SSD 16TB Max

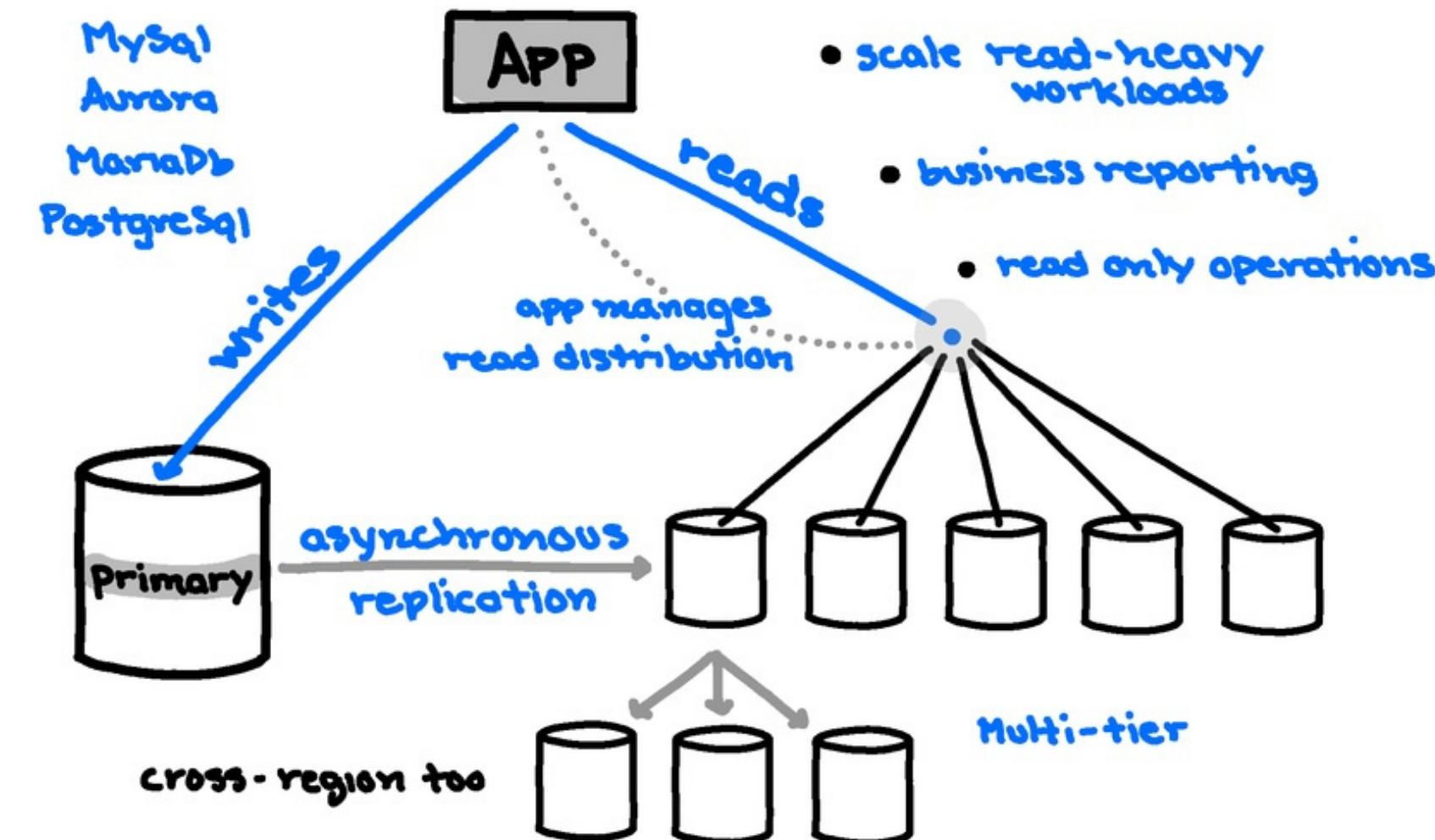


IOP1 Provisioned IOPS
SSD 16TB Max
30K IOPS



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

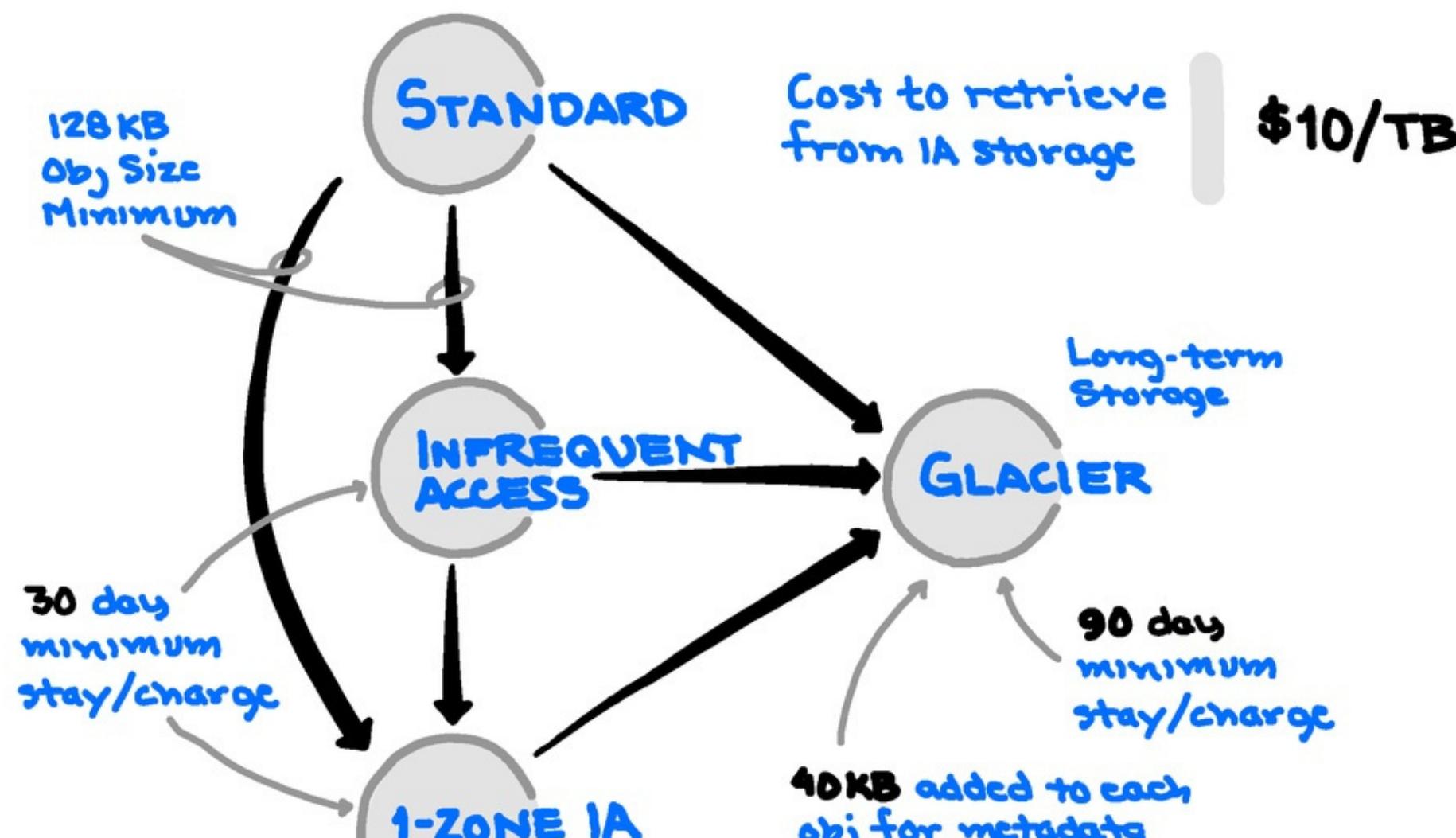
11 NINES DURABILITY

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

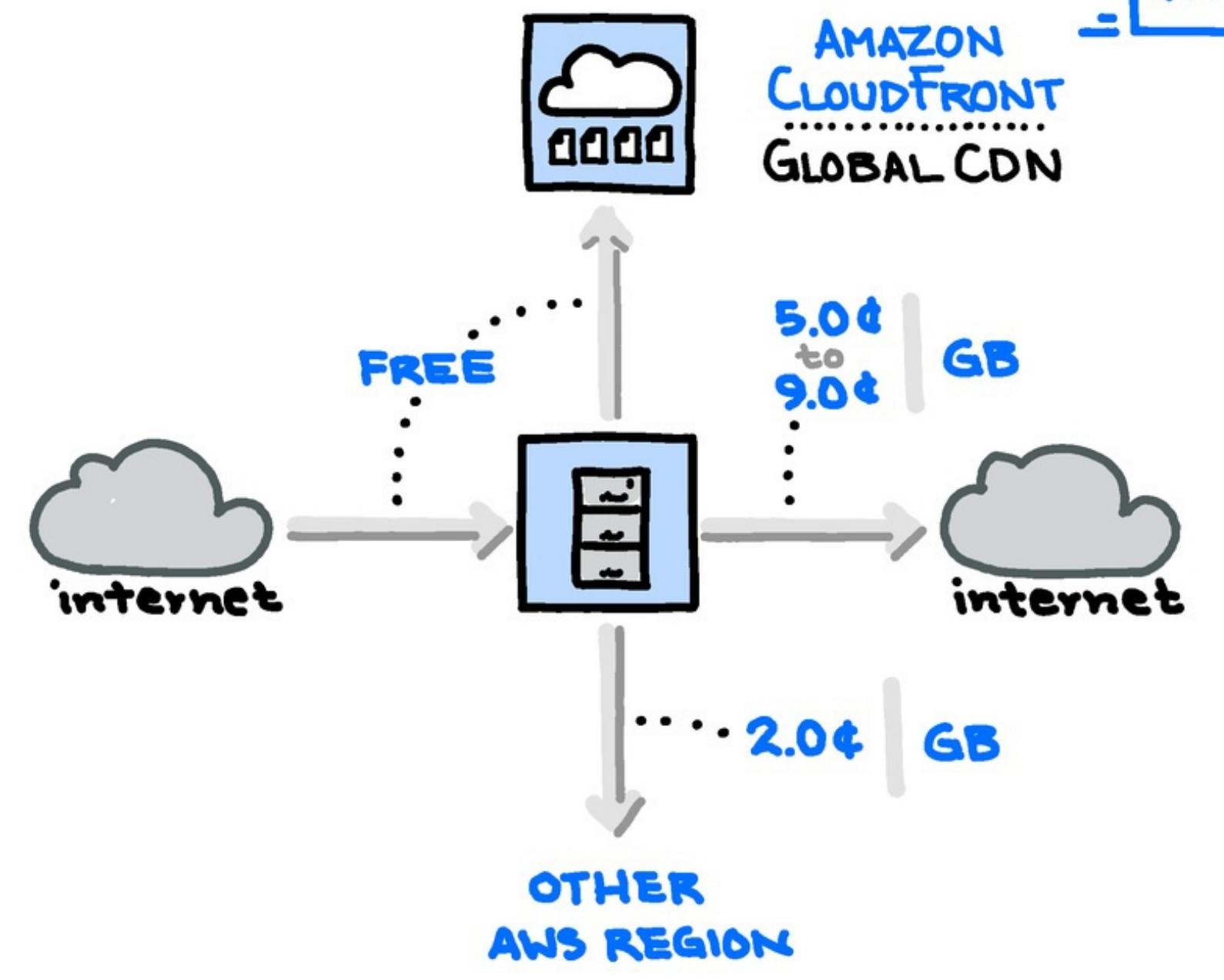
STORAGE

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

per GB/Mo

INFREQUENT ACCESS
STD 1-ZONE
GLACIER

DATA TRANSFER



AMAZON S3

OBJECT STORAGE



Cost:

\$2/TB scanned
70¢/TB returned

Standard Storage

\$10/TB scanned
or returned

IA Storage

Retrieve subset
of data
Use simple SQL

OBJECT LOCKING

PREVENT OBJECT DELETION

CAN'T DELETE
TIL DATE

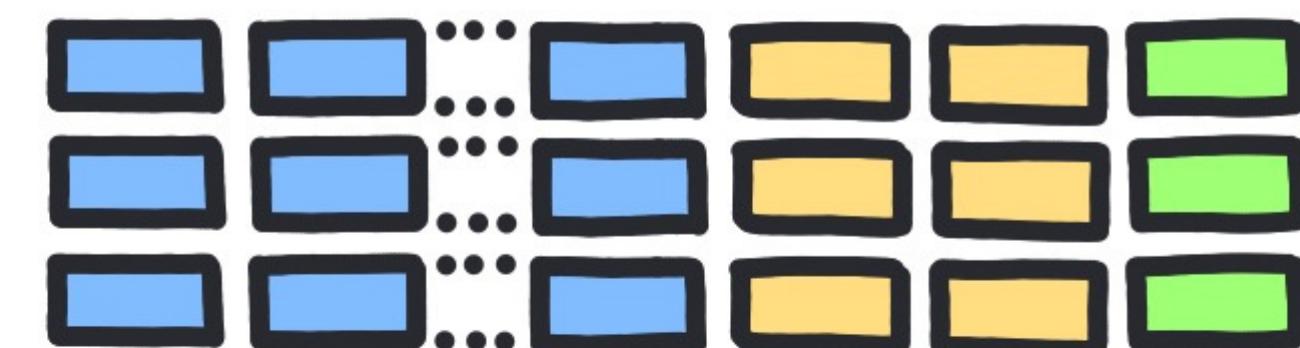
NEVER DELETE
(EVER)

GOVERNANCE

COMPLIANCE

TABLE

DIMENSIONS
up to 128/table

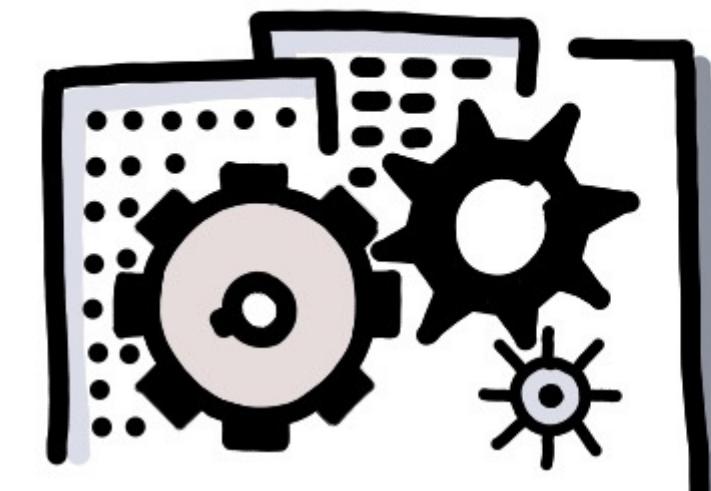


TIMESTAMP

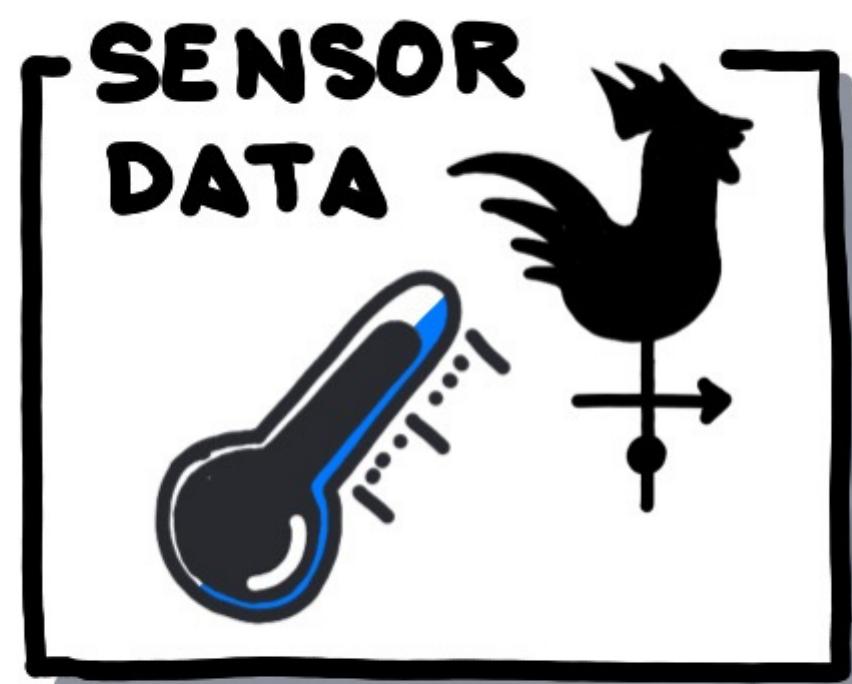
str, bool,
big int, double

MEASURE NAME & VALUE:TYPE

TIME SERIES
DATA



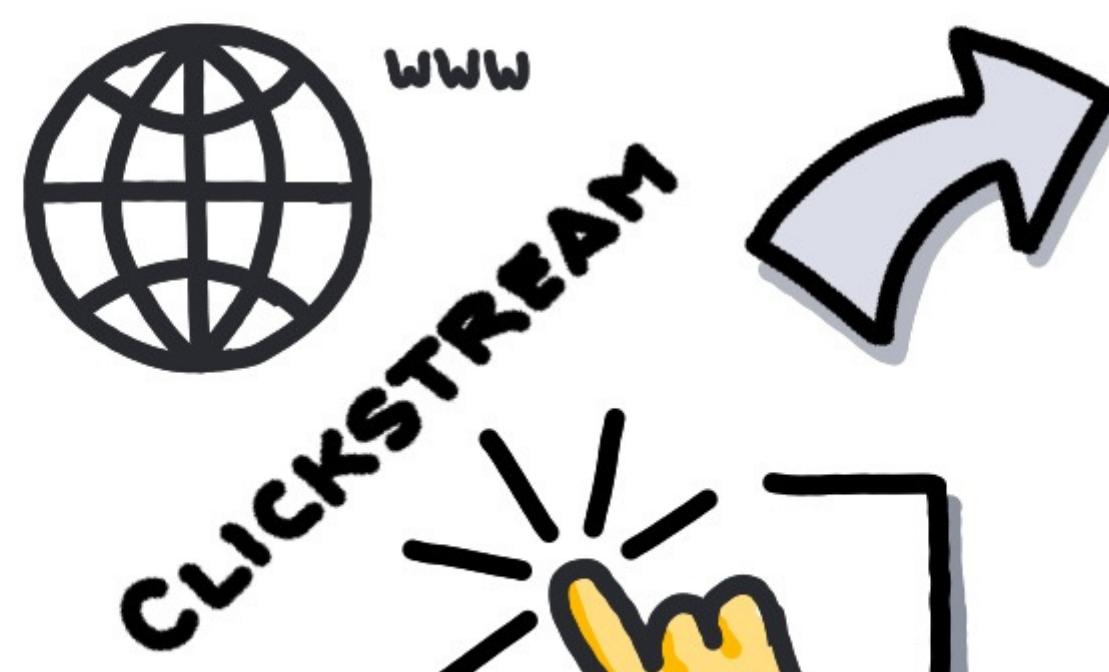
INDUSTRIAL
TELEMETRY



SENSOR
DATA



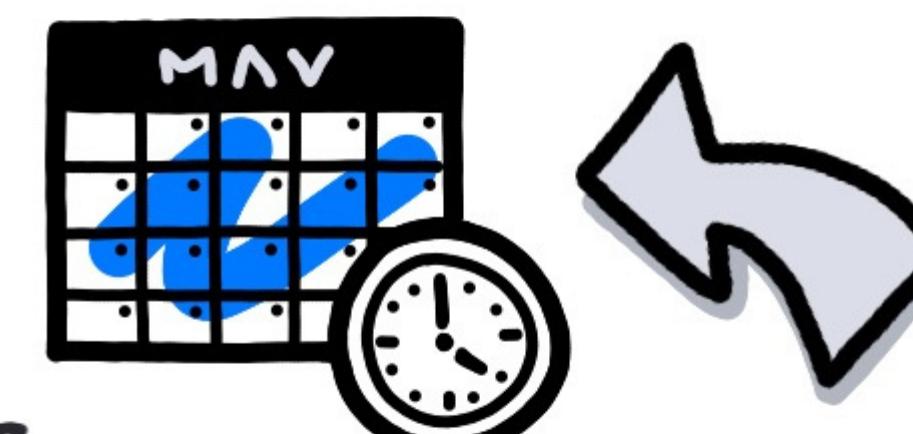
WEATHER



CLICKSTREAM



DATA IS
ALWAYS
ENCRYPTED

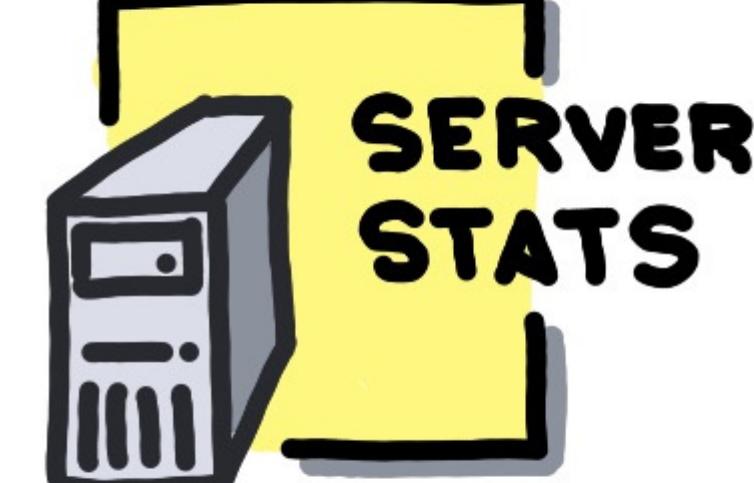


HT HT
HT III

→ timestamped
→ deduplicated



TIME
STREAM
DB



SERVER
STATS



MEMORY
STORE

Monitoring
Analytics



FAST
QUERIES

1 hr → 1 yr
RETENTION



SSD
STORE

AI/ML
Biz Intel



COMING SOON
USES
a subset
of SQL



MAGNETIC
STORE

1 day → 20 yr
RETENTION



HISTORICAL
QUERIES



TIME-BASED
RETENTION
POLICY

TI~~M~~E STREAM

9/30/2020

TIME • SERIES • DATABASE

@awsgeek

CC BY SA 4.0



EVENTBRIDGE

SERVERLESS EVENT BUS

EVENT

S·O·U·R·C·E·S

SaaS Partners



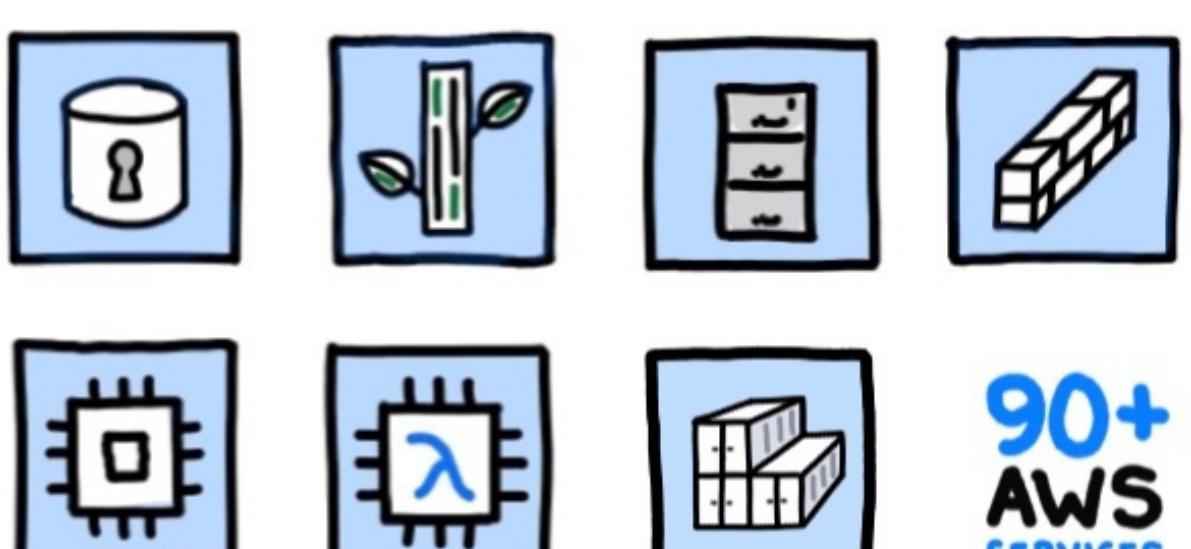
...and more

Your Apps



...yes, more

AWS Services



many more

90+ AWS SERVICES

C·O·S·T

CUSTOM &
SaaS EVENTS

\$1 Million
Published

AWS EVENTS
free



EVENT

B·U·S·E·S

SaaS
EVENTS



PARTNER

multiple

YOUR APP
EVENTS



CUSTOM

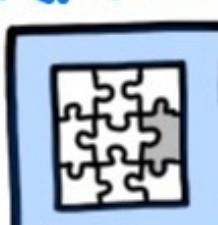
single

AWS
SERVICE
EVENTS



DEFAULT

CLOUD
FORMATION

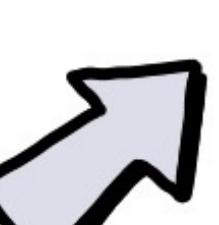


DEPLOY



CONFIG

MONITOR



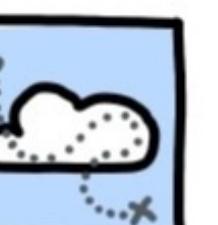
EVENT



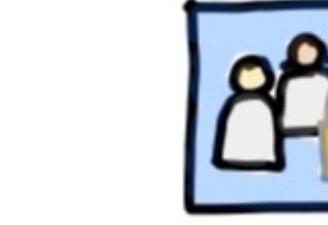
AUDIT



CLOUDTRAIL



SECURE



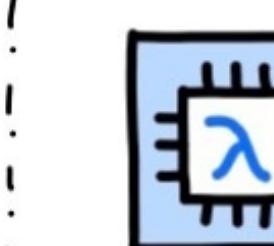
IAM

CLIQUE

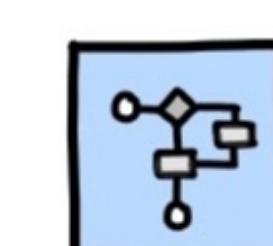


EVENT

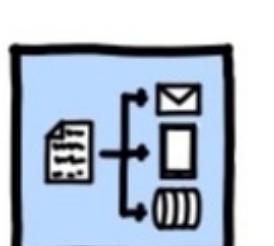
T·A·R·G·E·T·S



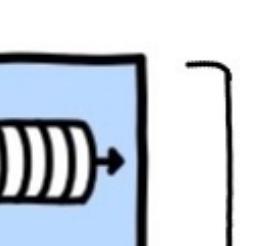
LAMBDA



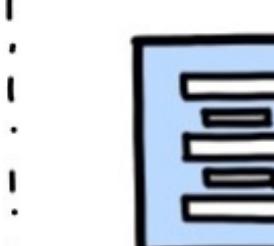
STEP
FUNCTIONS



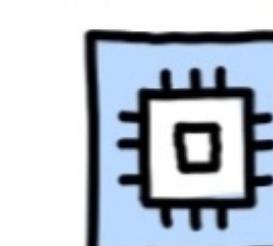
SNS



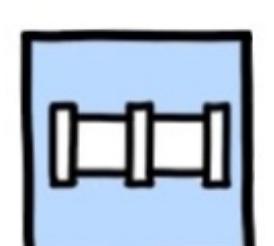
SQS



KINESIS



EC2



CODE
PIPELINE



CODE
BUILD

DEFAULT

EVENT BUS

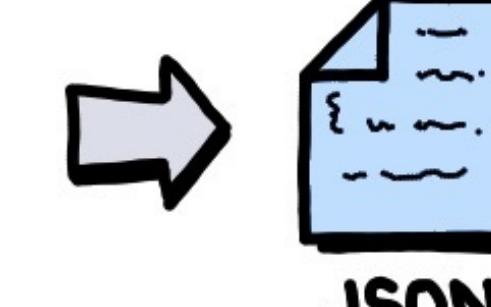
different account

OVER 15
TARGETS

E·V·E·N·T

DETAILS

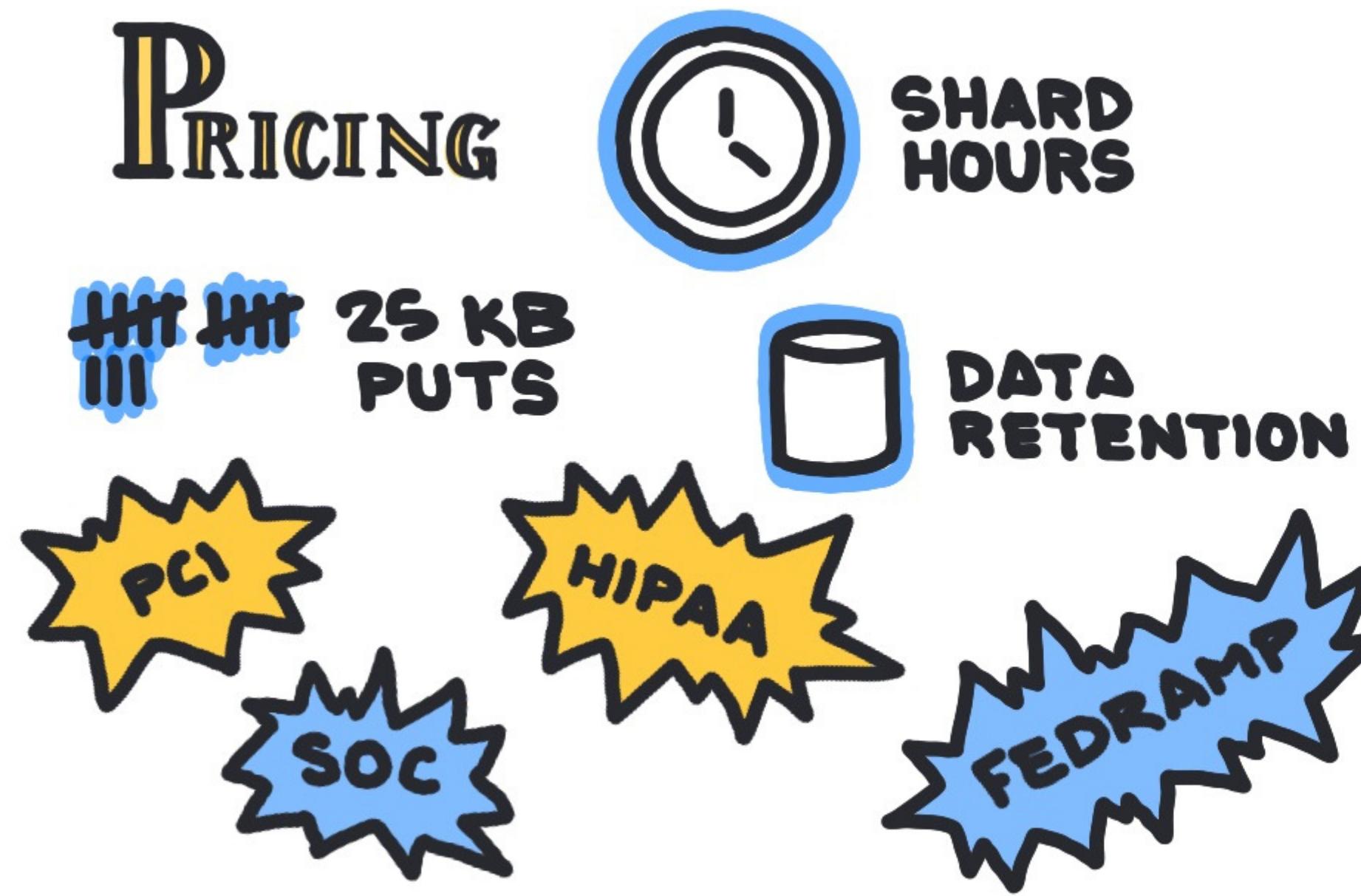
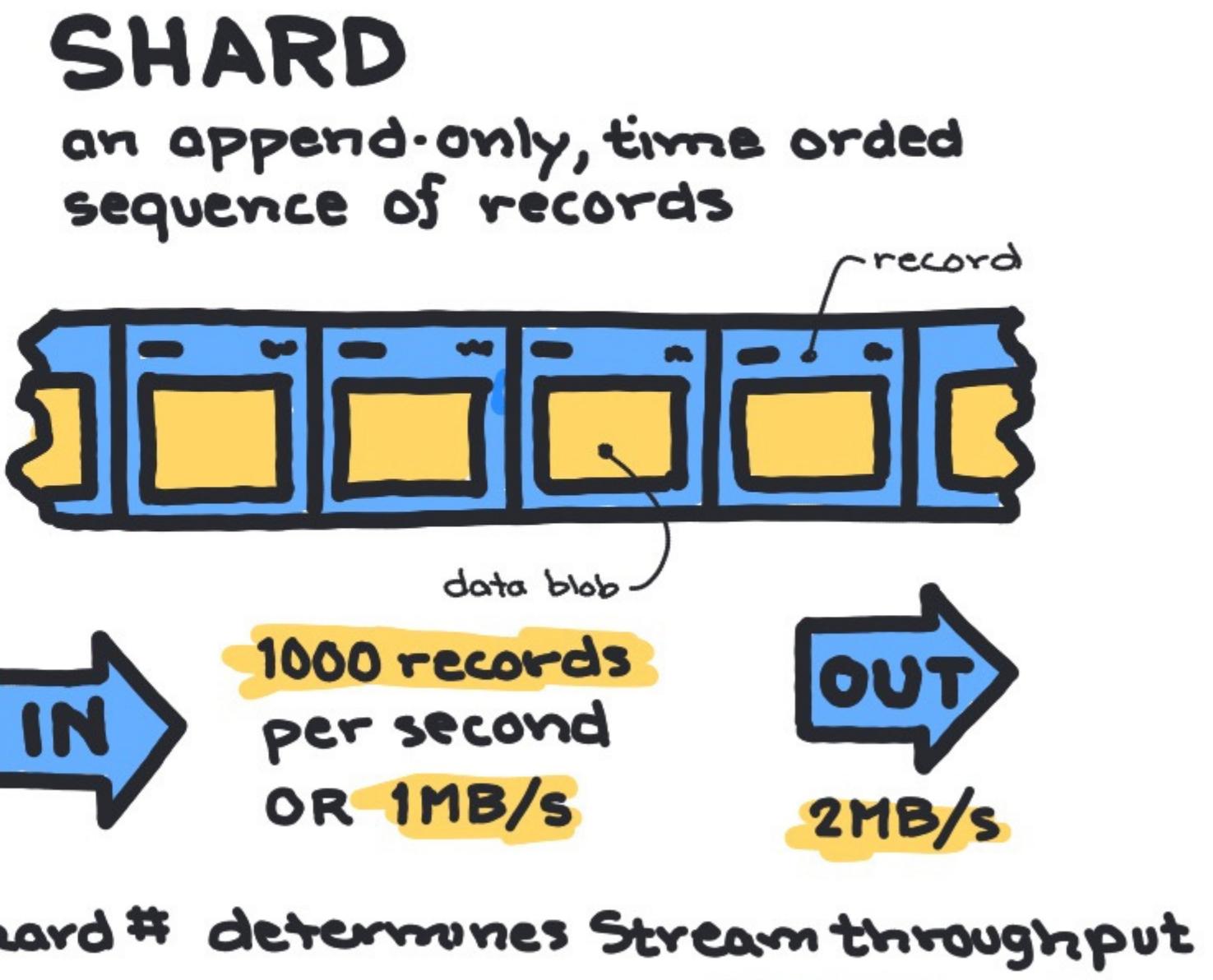
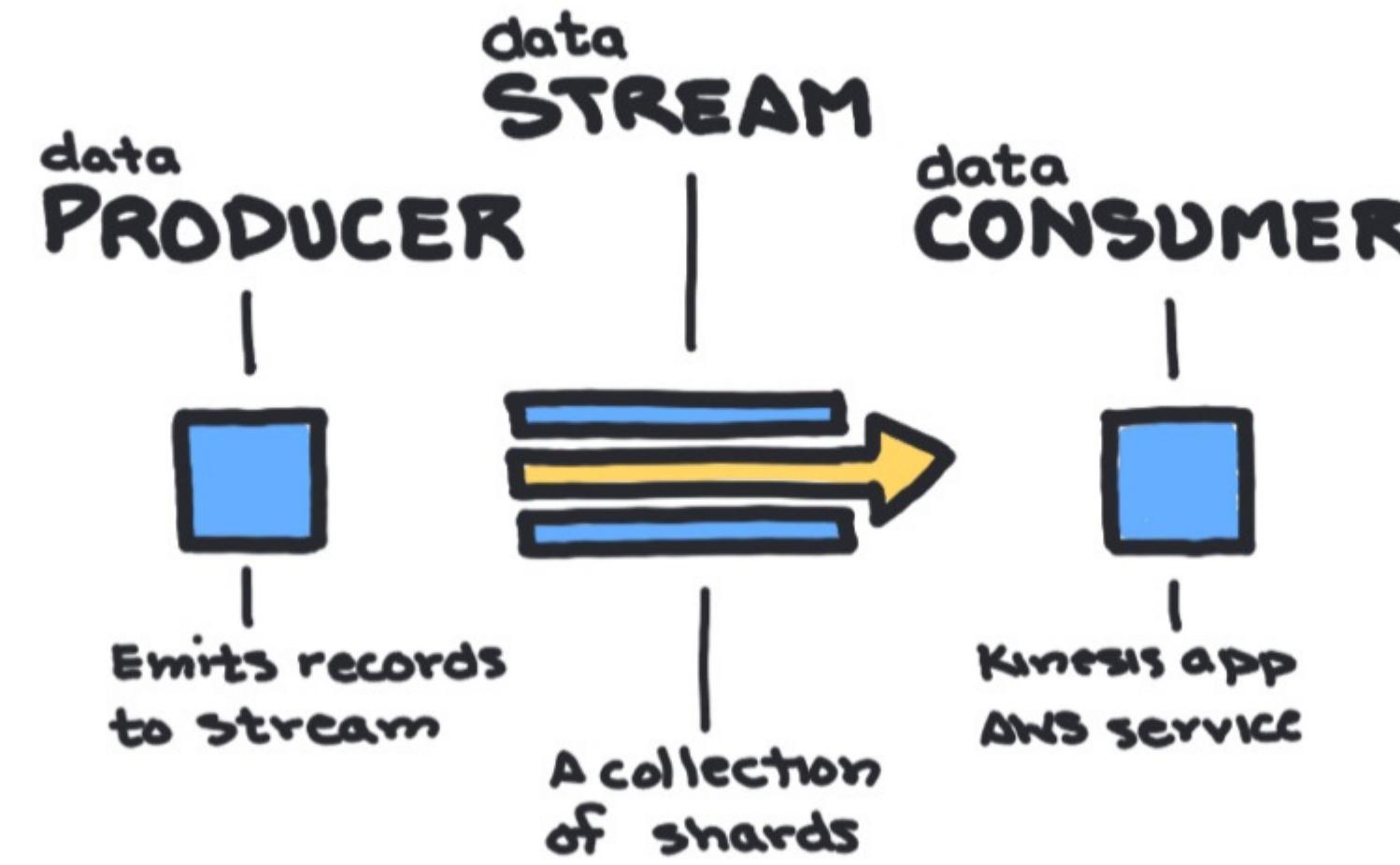
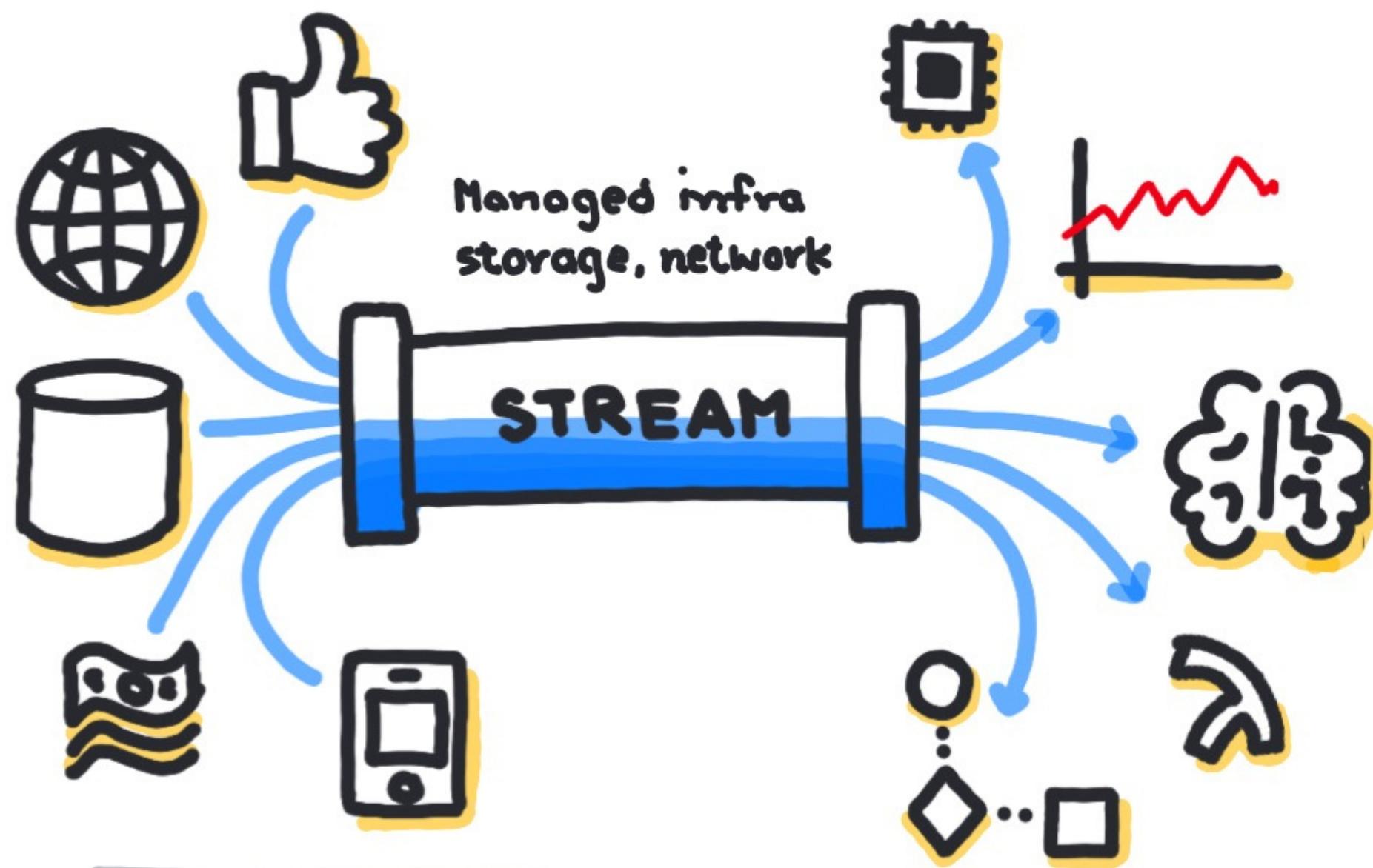
SOURCE
TIME
ACCOUNT
DETAIL
...



HIPAA
Eligible

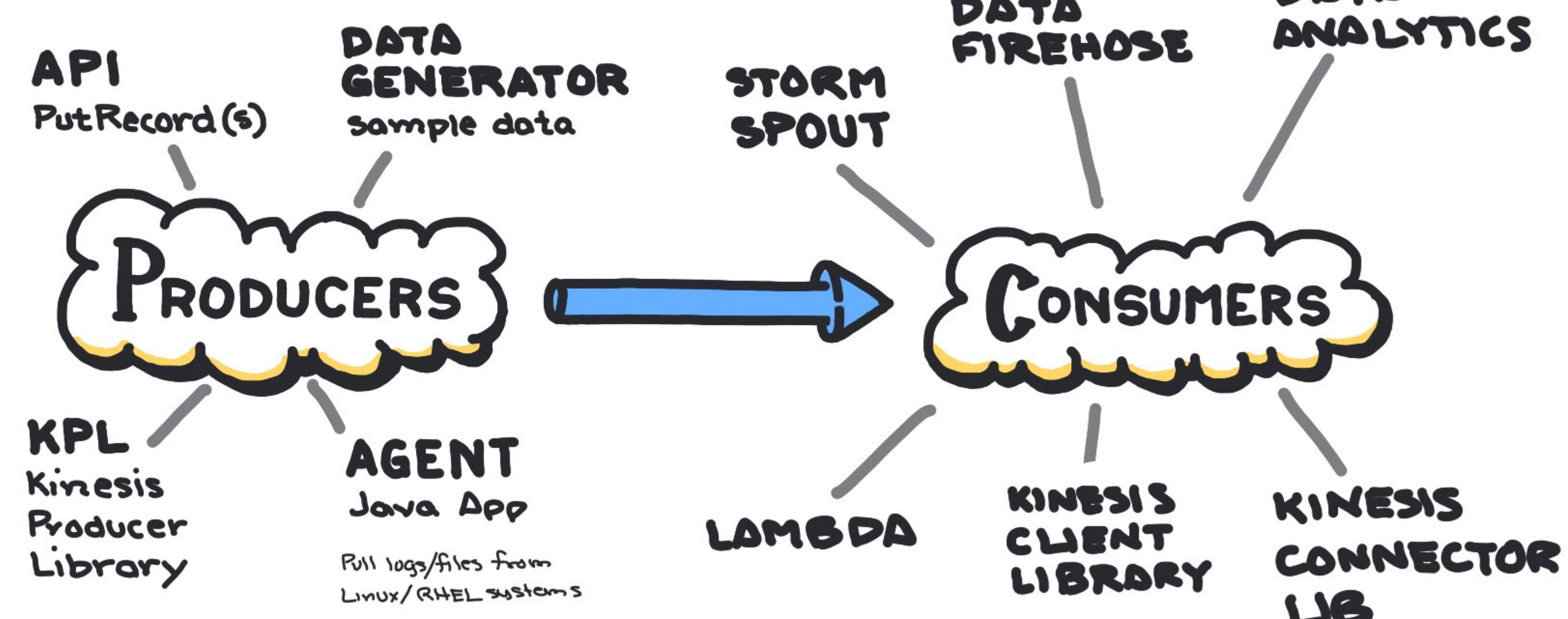
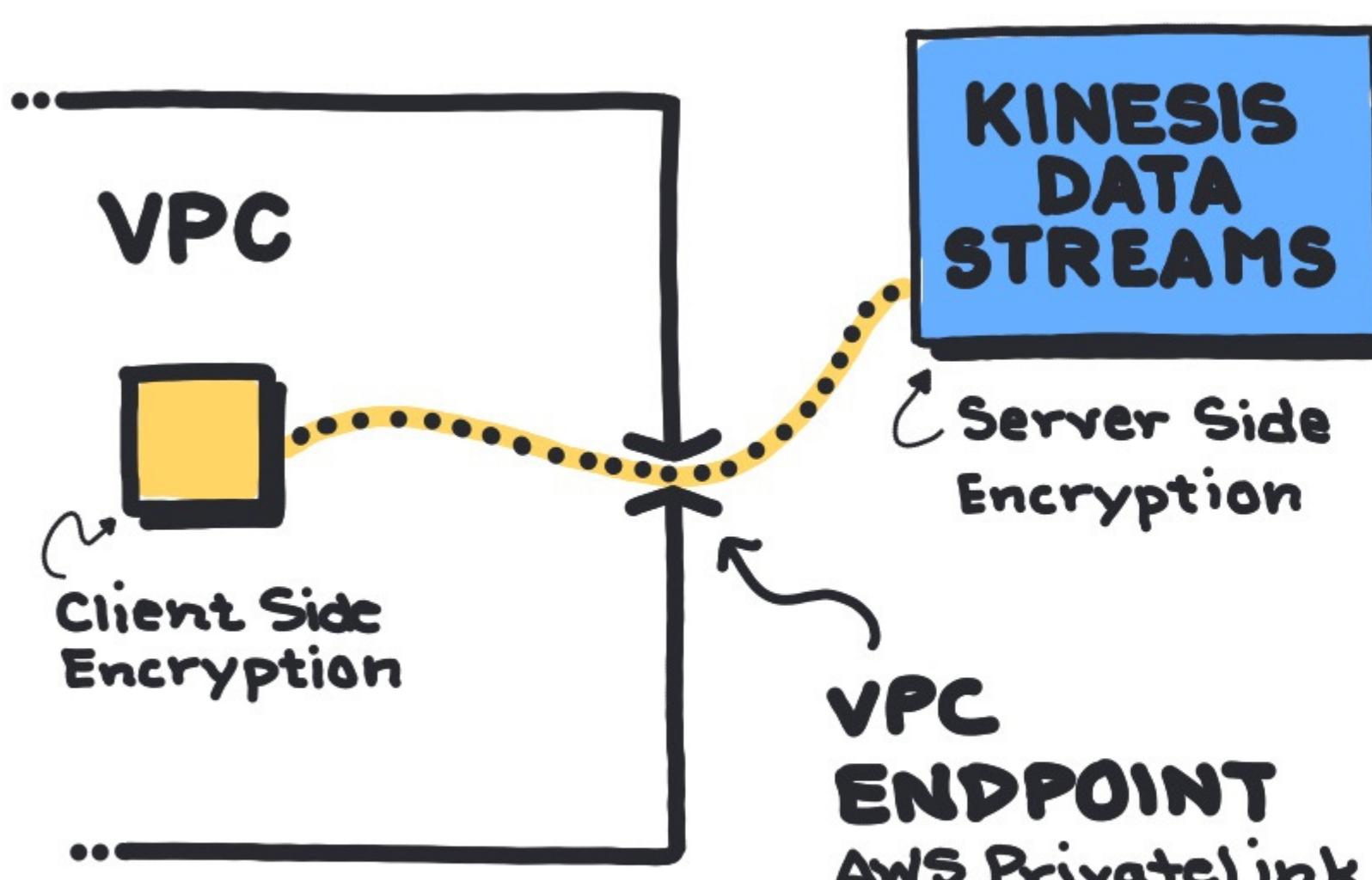
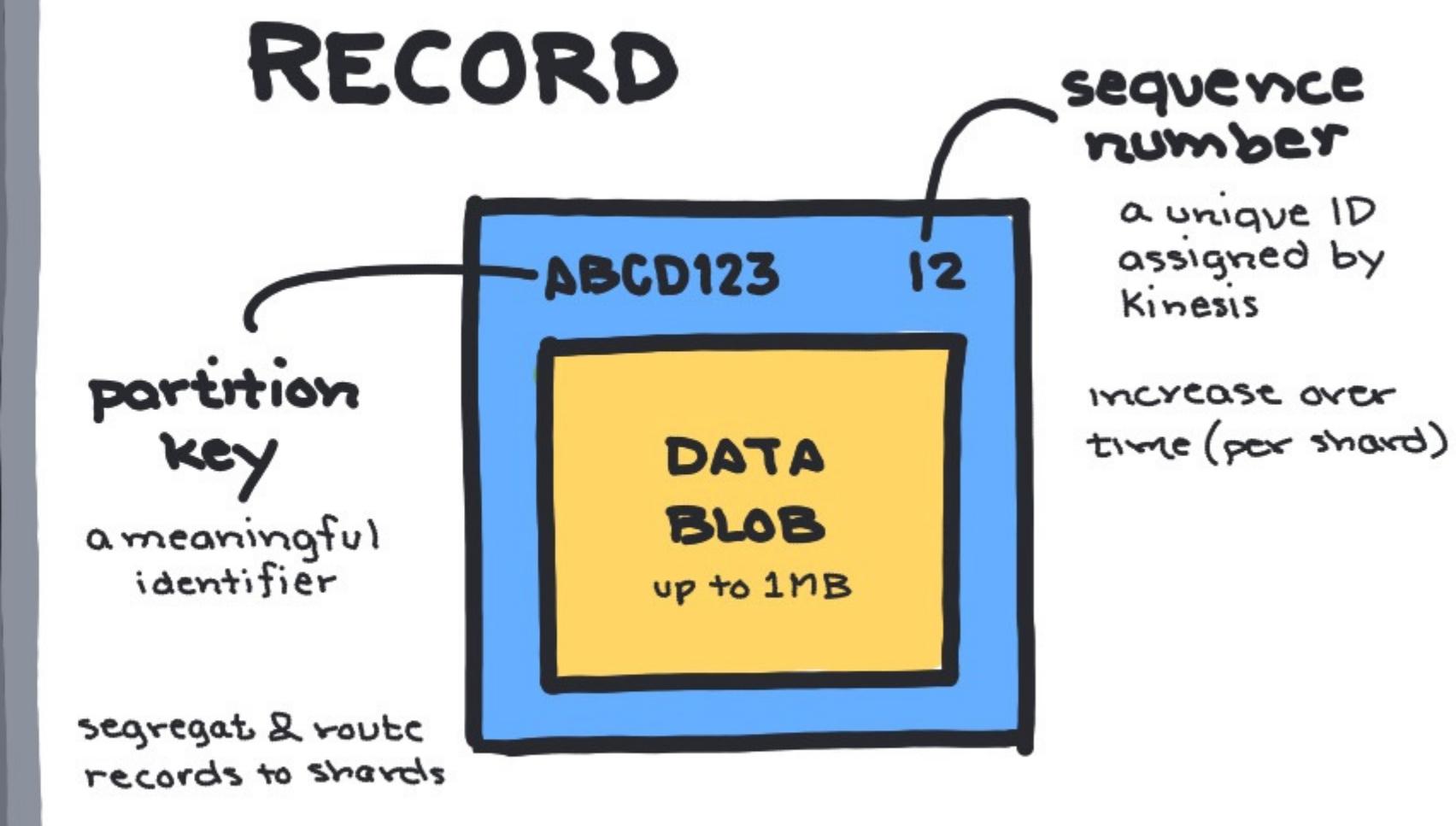
COMPLIANT

- GDPR
- DoD
- SOC
- FedRamp
- ISO

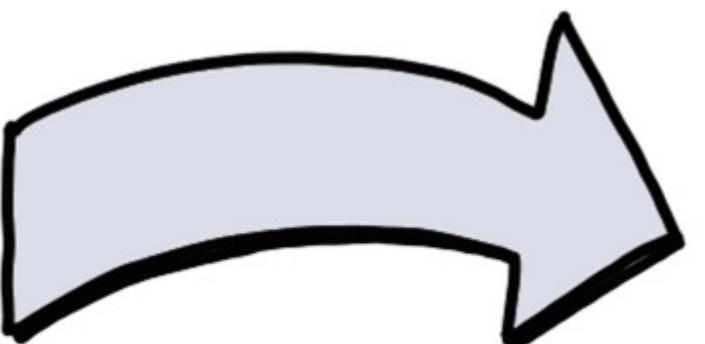


DATA KINESIS STREAMS

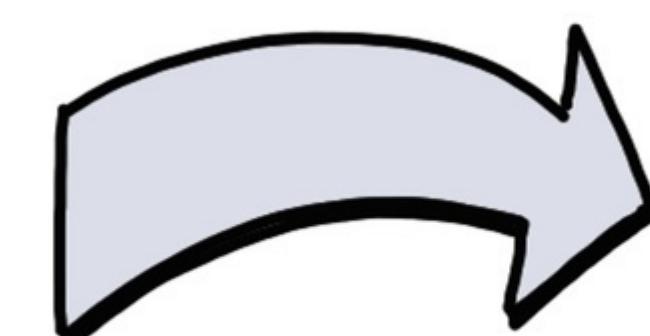
STREAM • DATA • AT • SCALE



CREATE



SUBSCRIBE

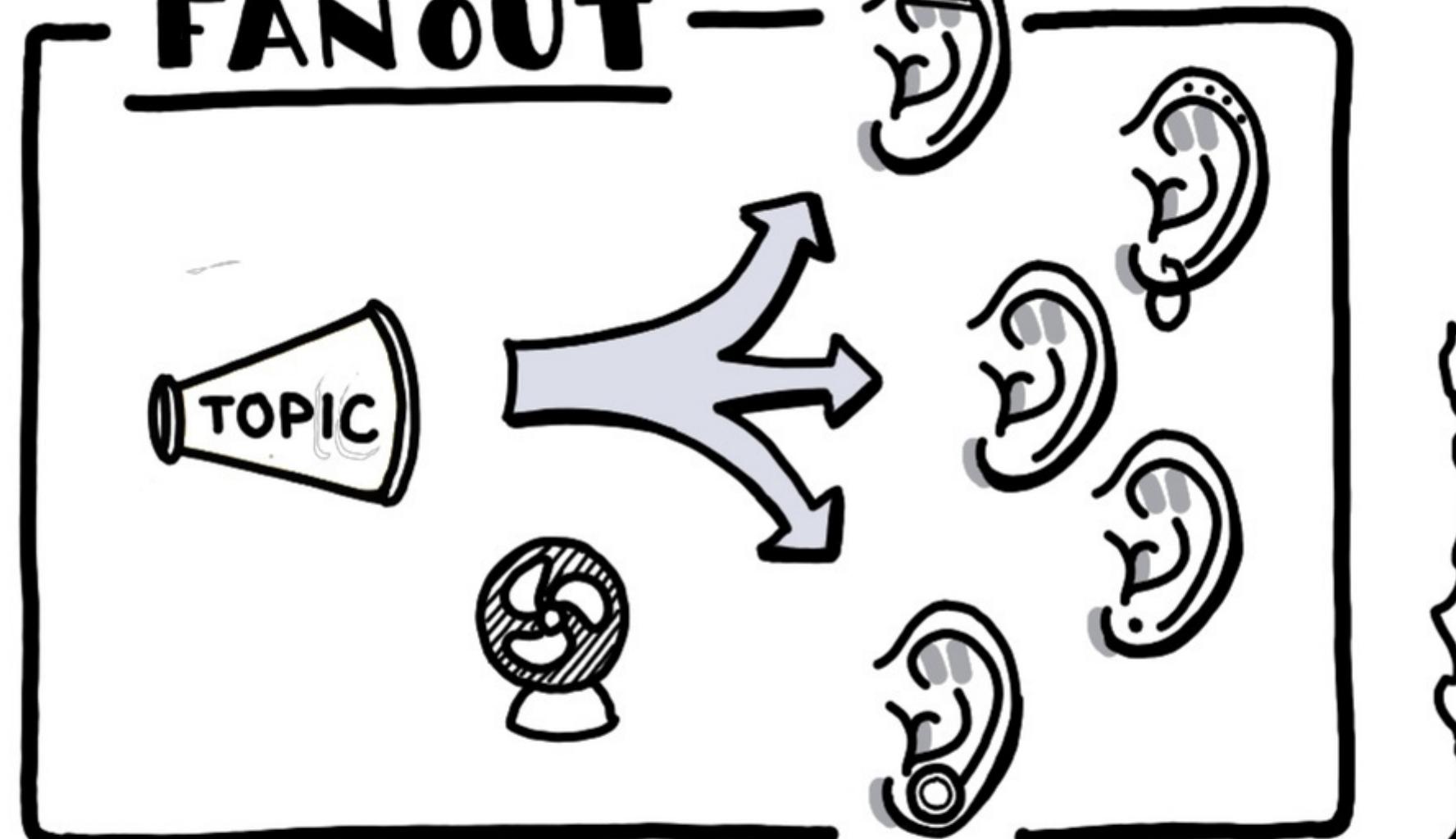


PUBLISH



A TOPIC

FAN OUT



HIPAA
ELIGIBLE

Service
(https)



Mobile
Device



Phone
(Sms)

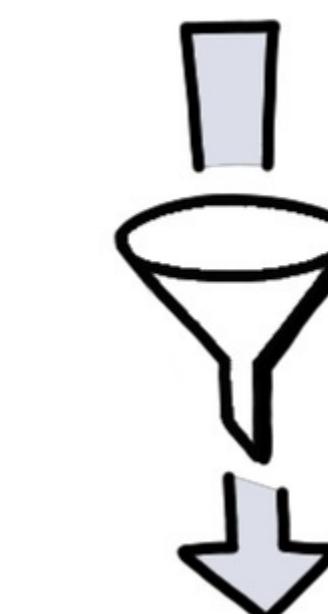


worldwide

Phone
(Sms)

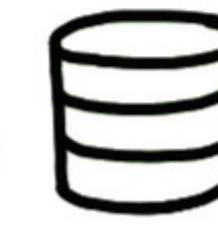


A
Message

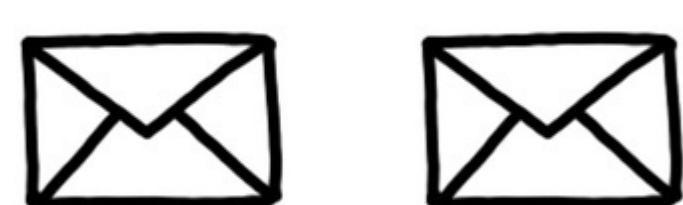


Filter

Queue
(sqS)



Subscriber



PUBLISHERS

SUBSCRIBERS

sQS
Lambda
Http/s

AMAZON — @awsgeek
SNS
— PUB/SUB —
NOTIFICATIONS

Storage
Compute
Networking
Databases
Dev Tools

SNS
EVENTHUB

PCI
COMPLIANT



Language
SDKs

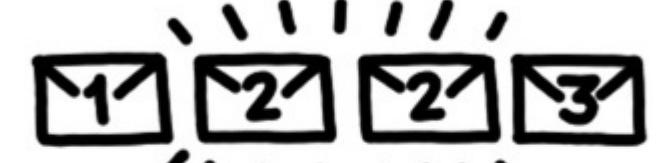


Command Line
Interface



Web
Console

AT LEAST ONCE
DELIVERY



PUBLISHED

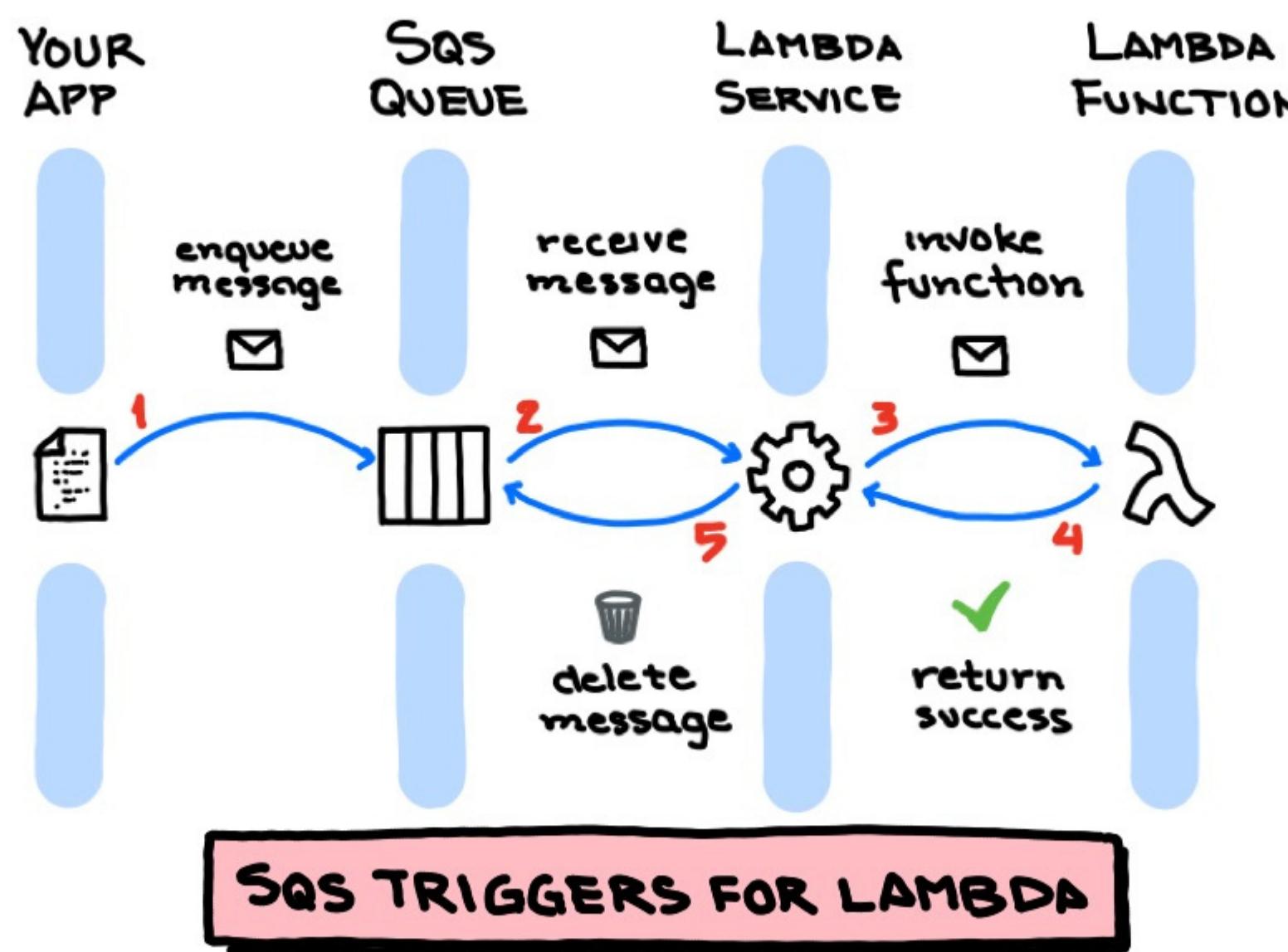
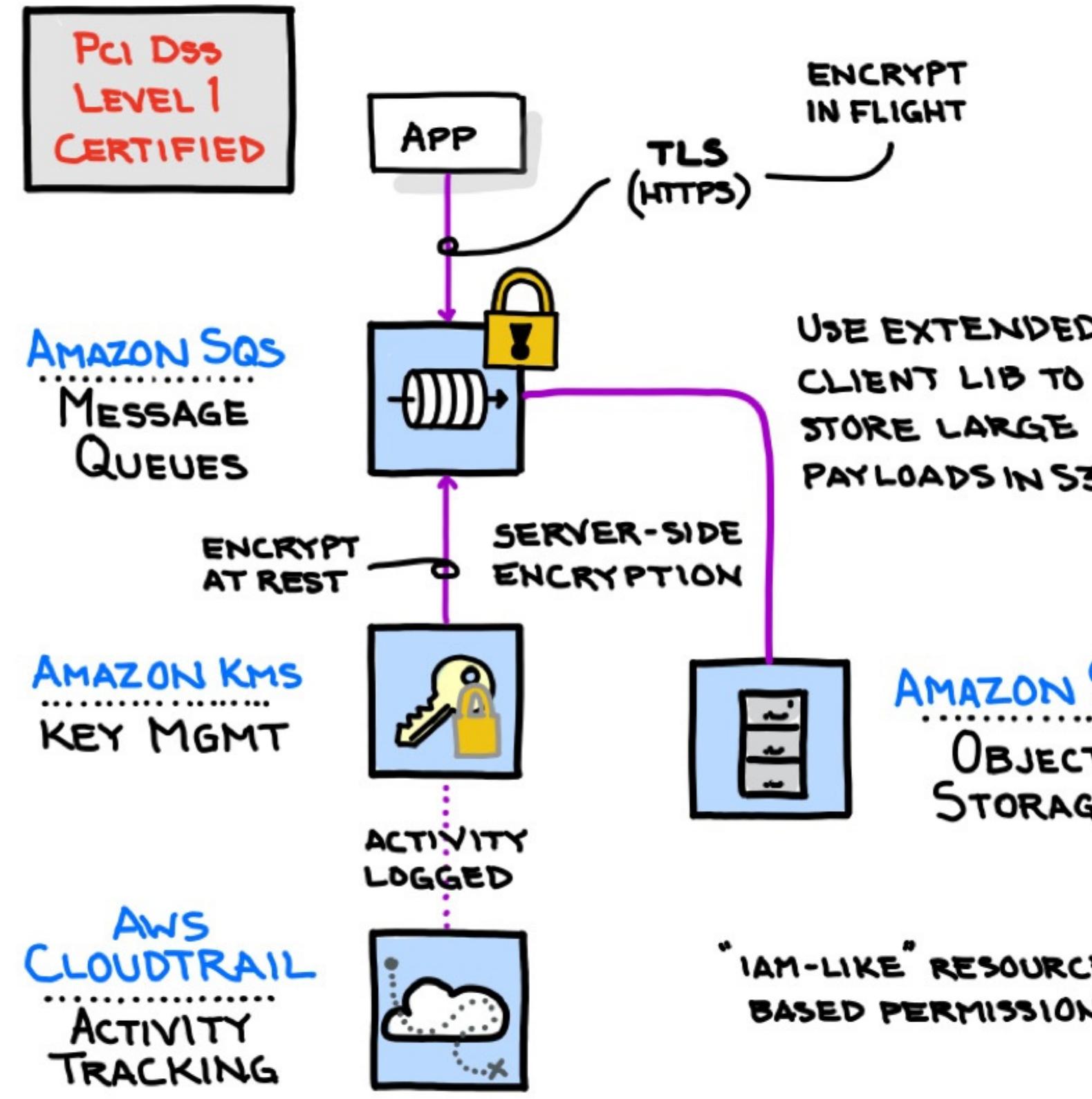


BEST EFFORT
ORDERING



cc-by-sa

Security



Pricing

each 64K chunk of payload counts as 1 request

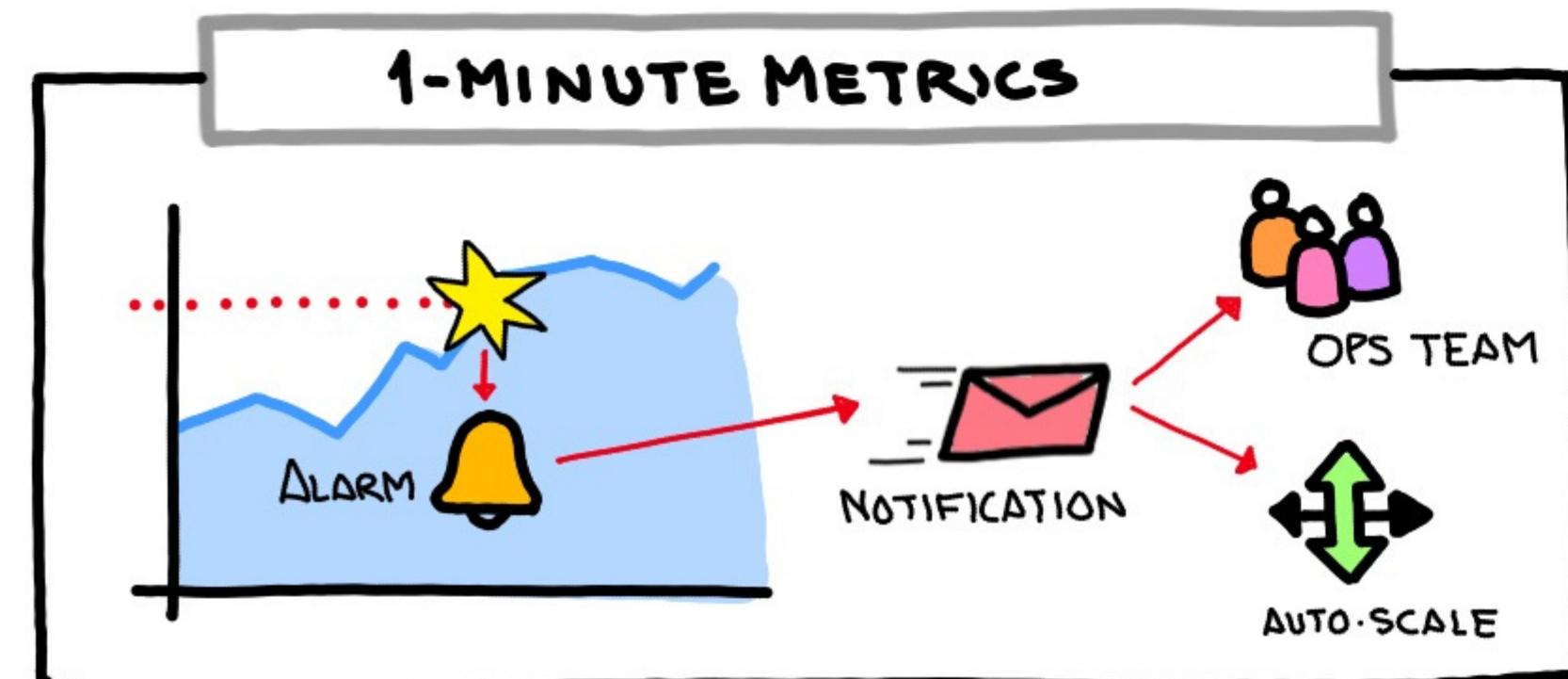
additional costs for S3 + KMS

Standard ... 40¢ per MM requests

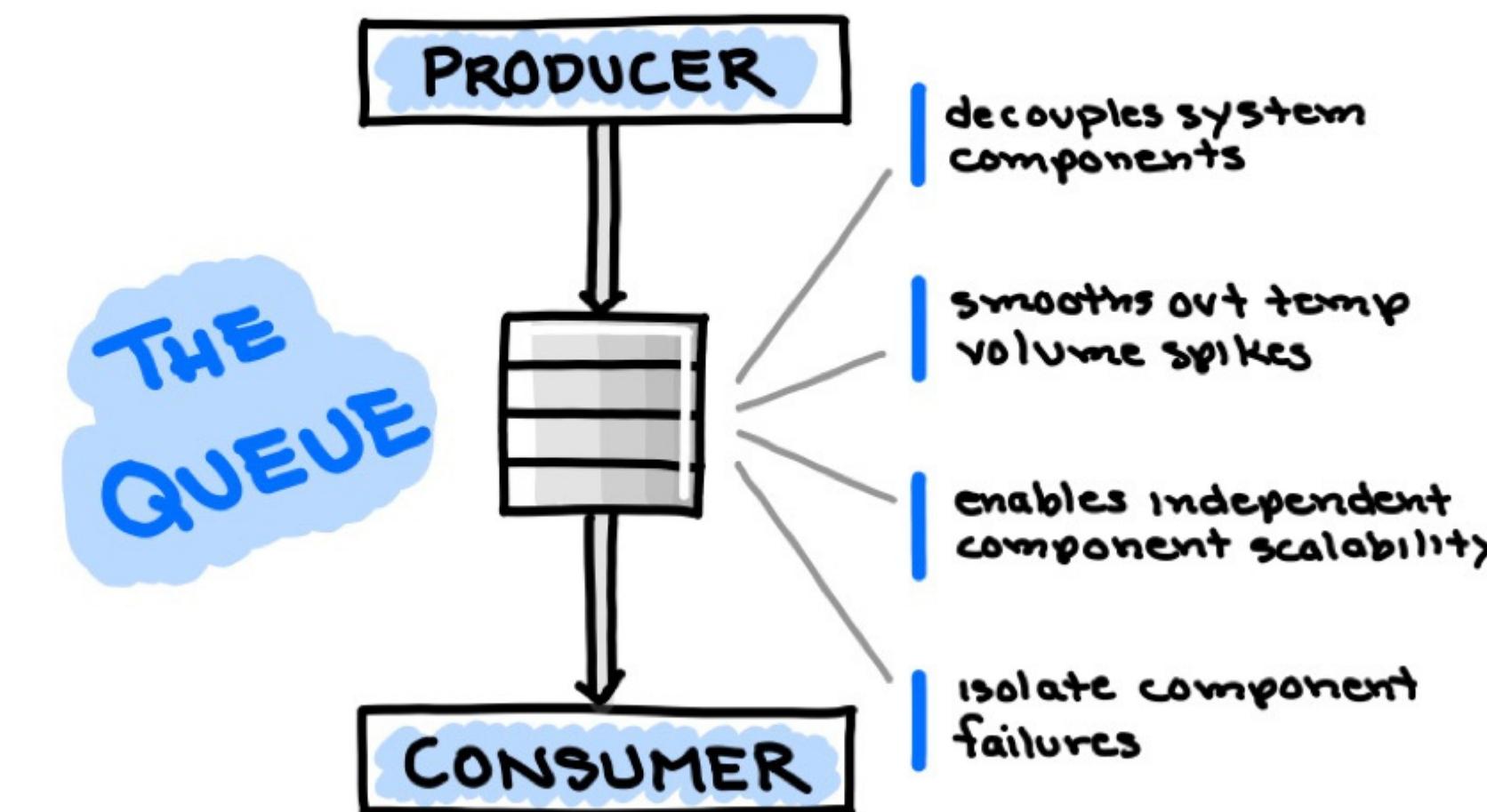
FIFO 50¢ per MM requests

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

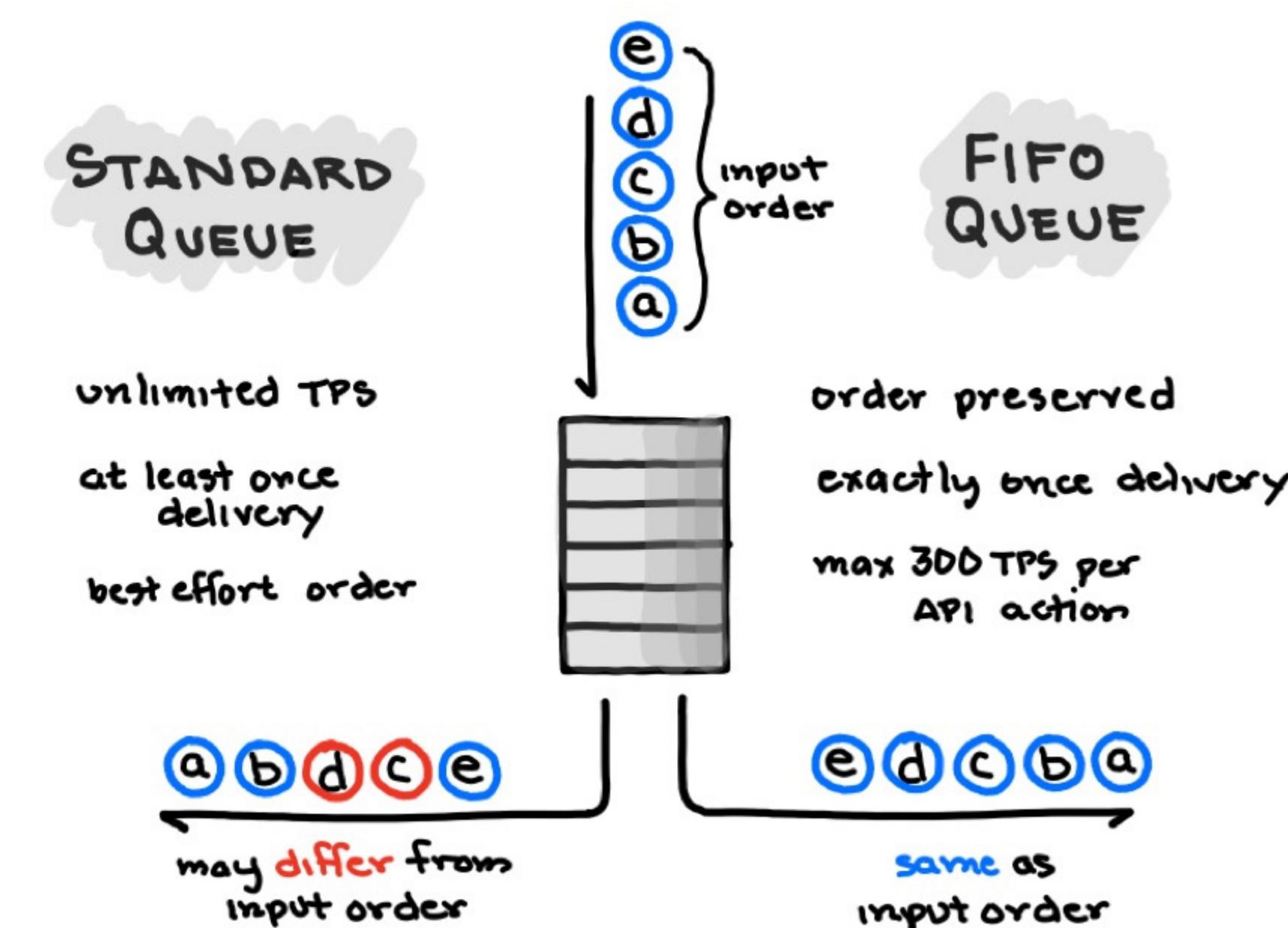
MIN: 1 MIN MAX: 14 DAYS

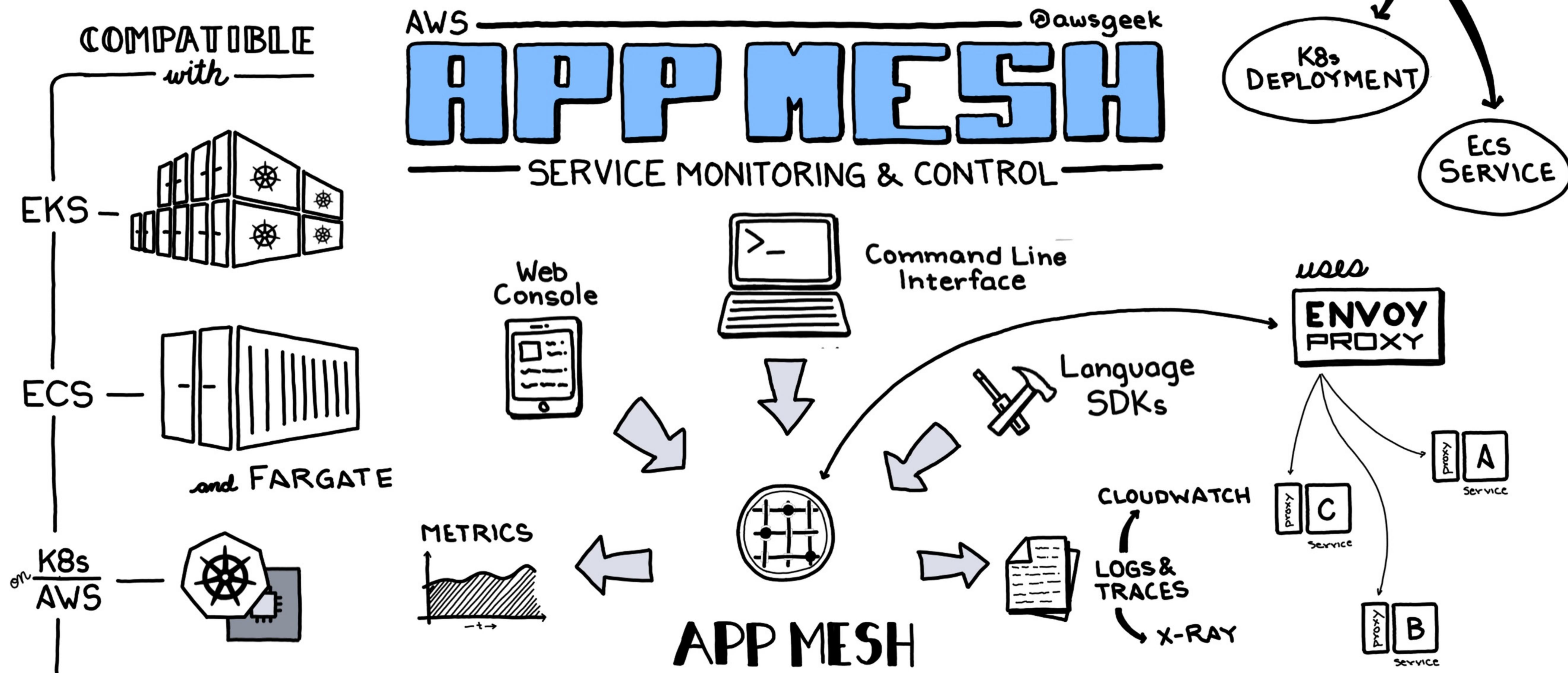
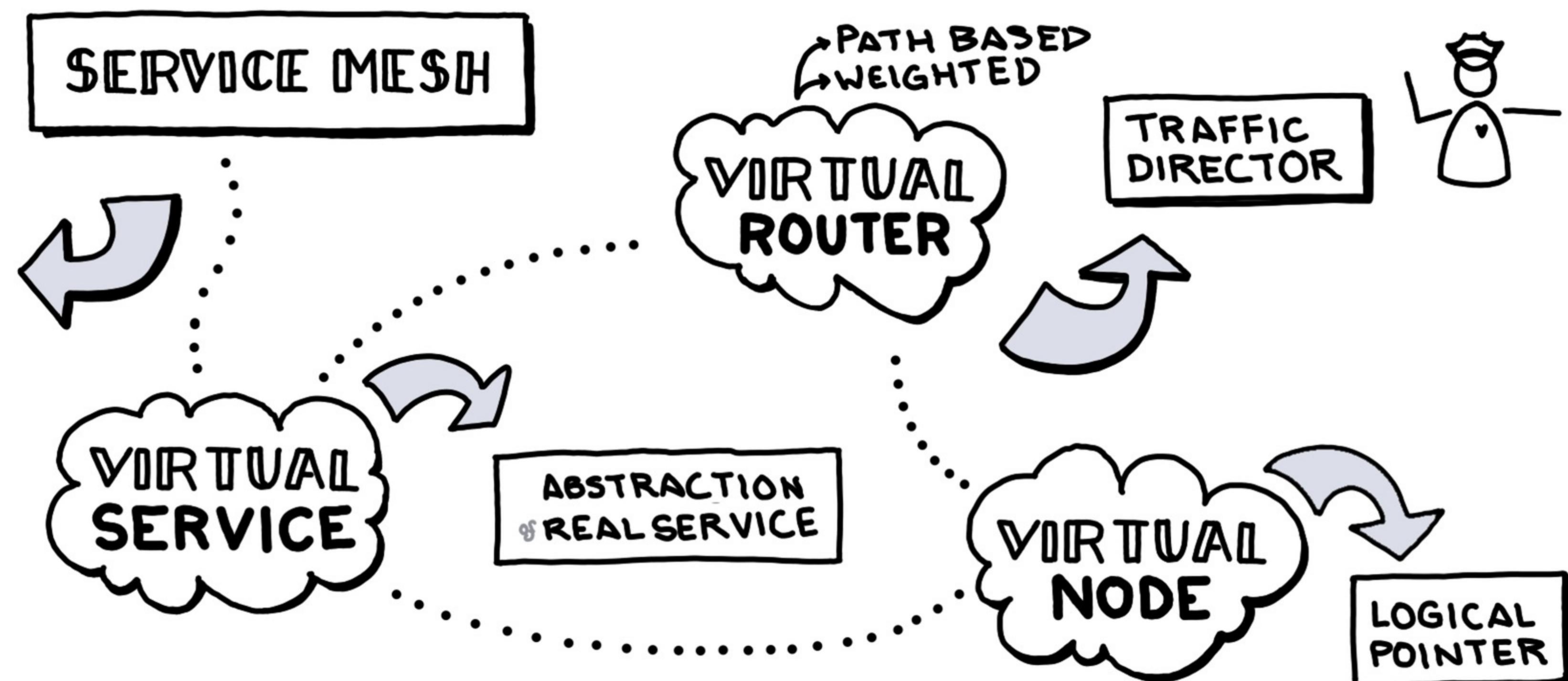
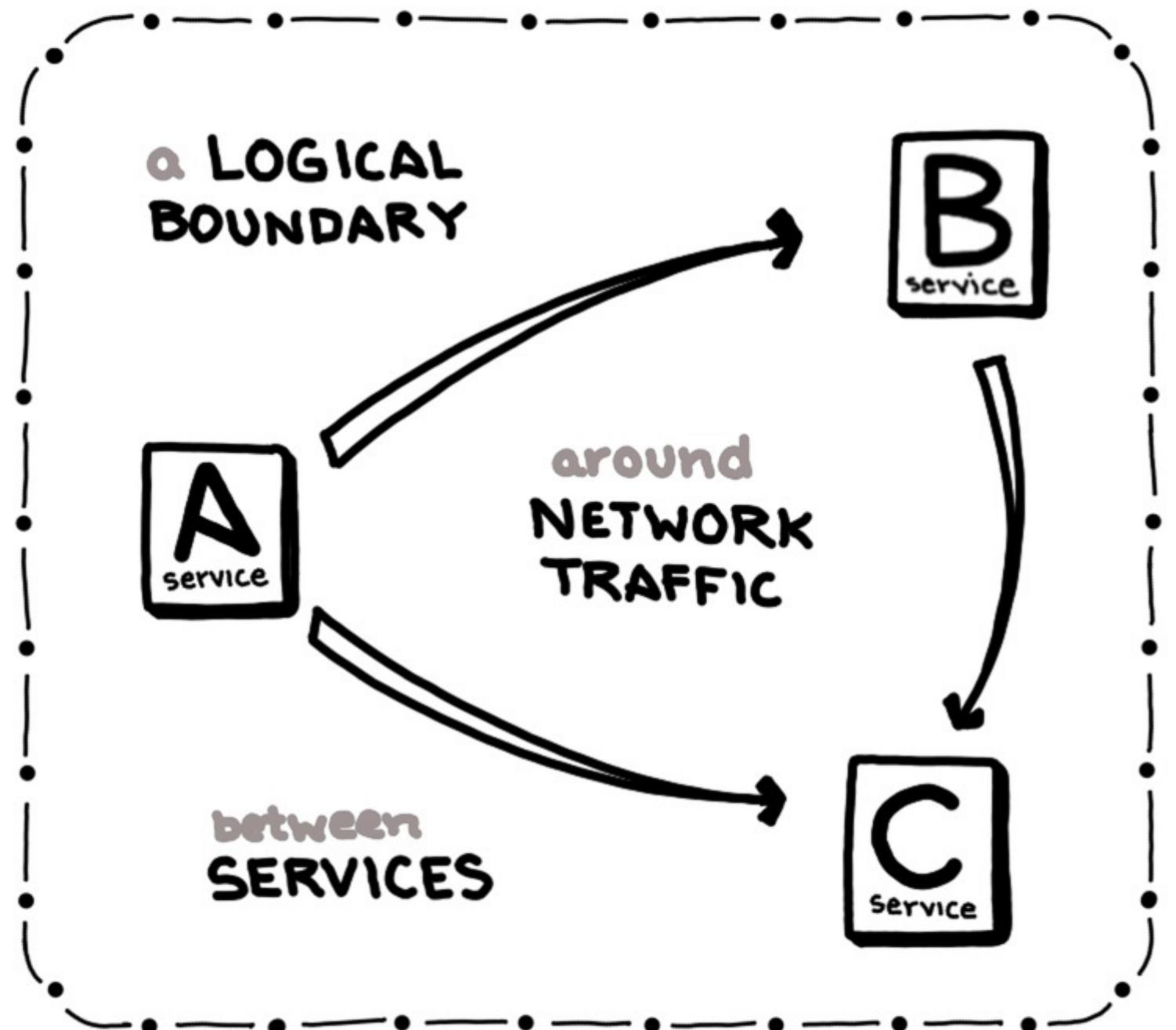
MAXIMUM MESSAGE SIZE

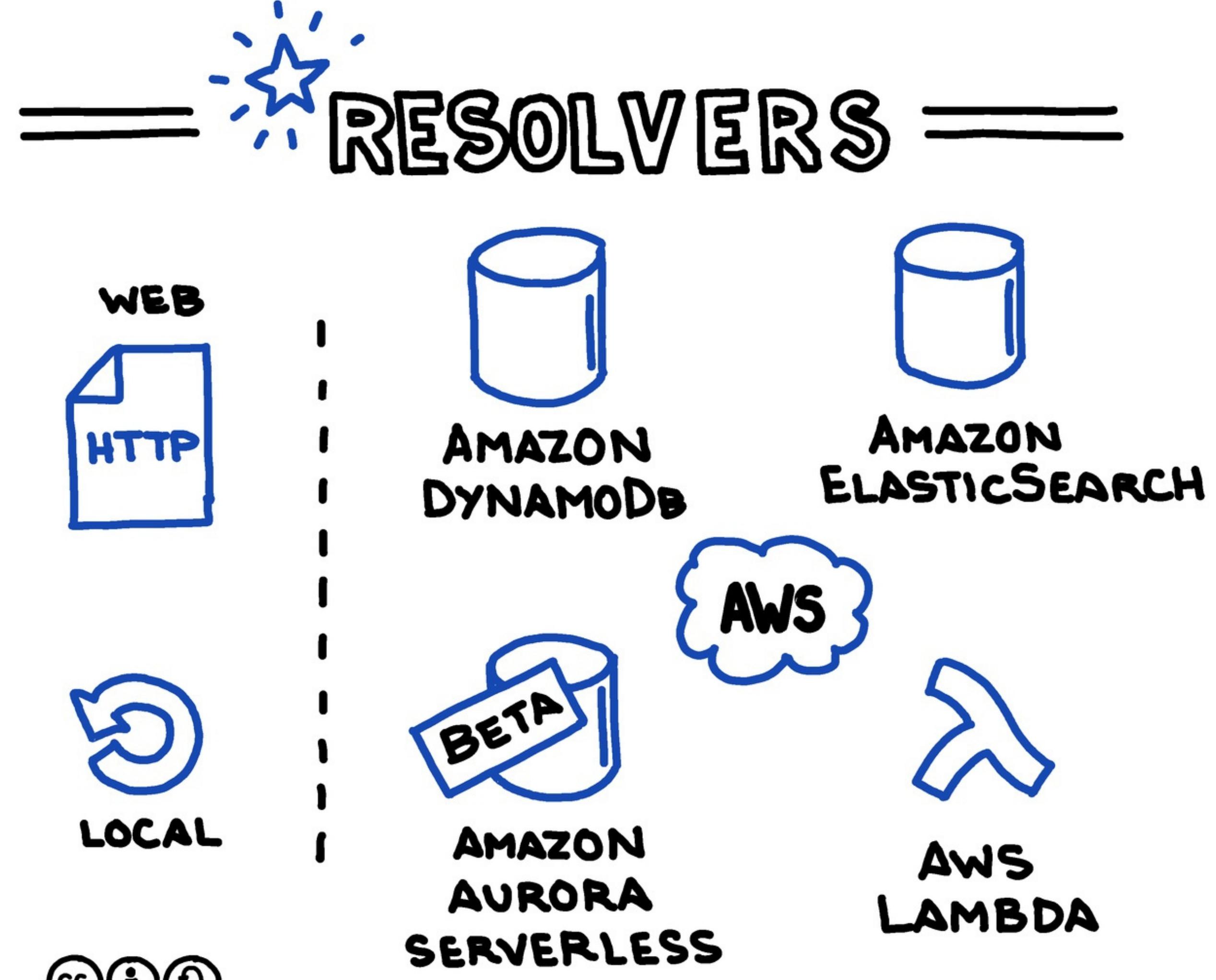
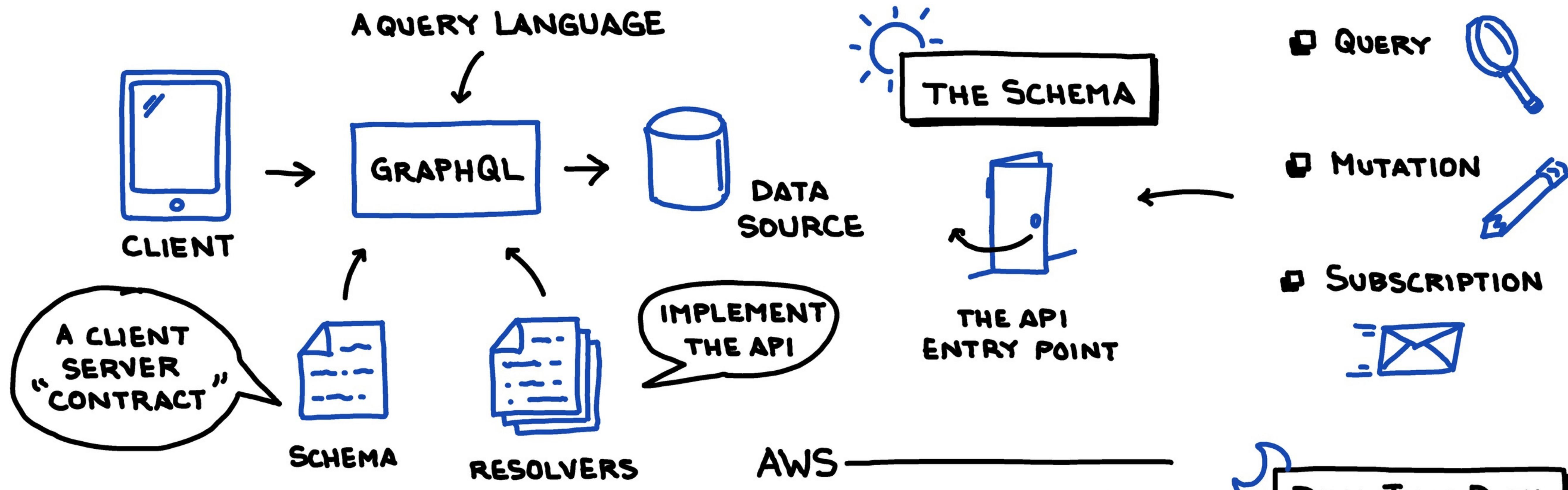
MIN: 1 KB MAX: 256 KB

MAXIMUM INFLIGHT MESSAGES

STD: 120K FIFO: 20K







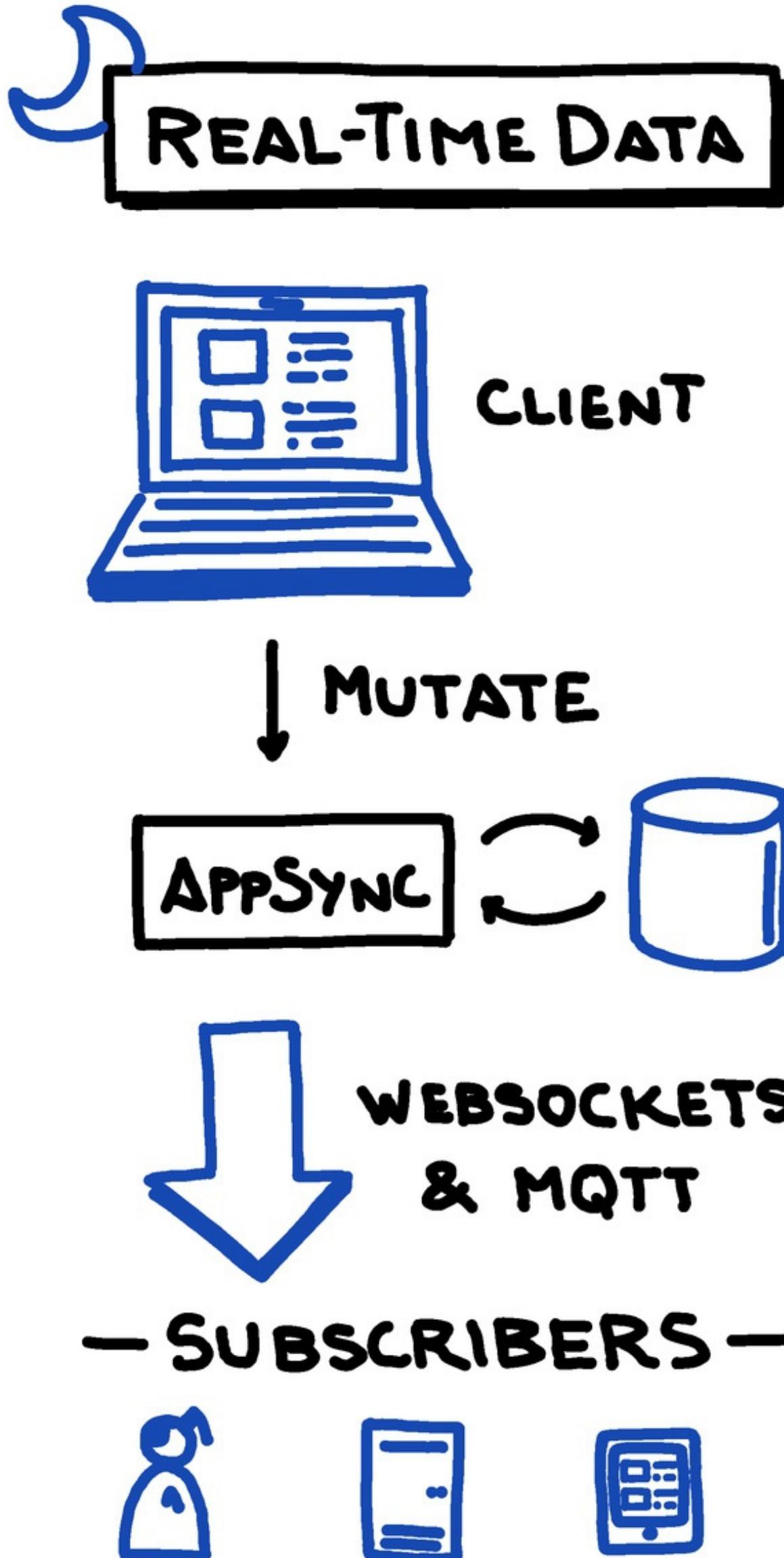
AWS — **APPSYNC**
MANAGED • GRAPHQL

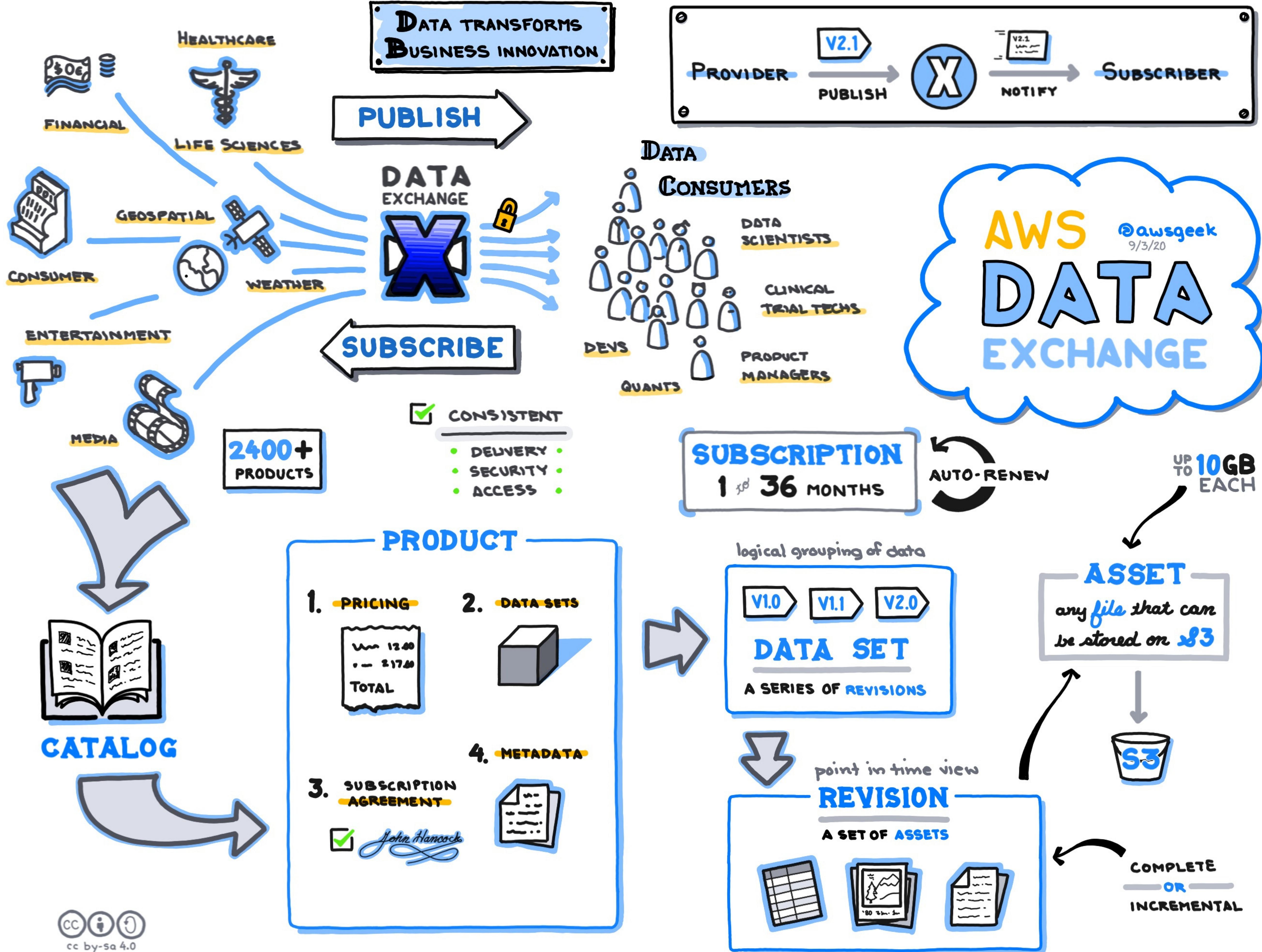
1/23/19

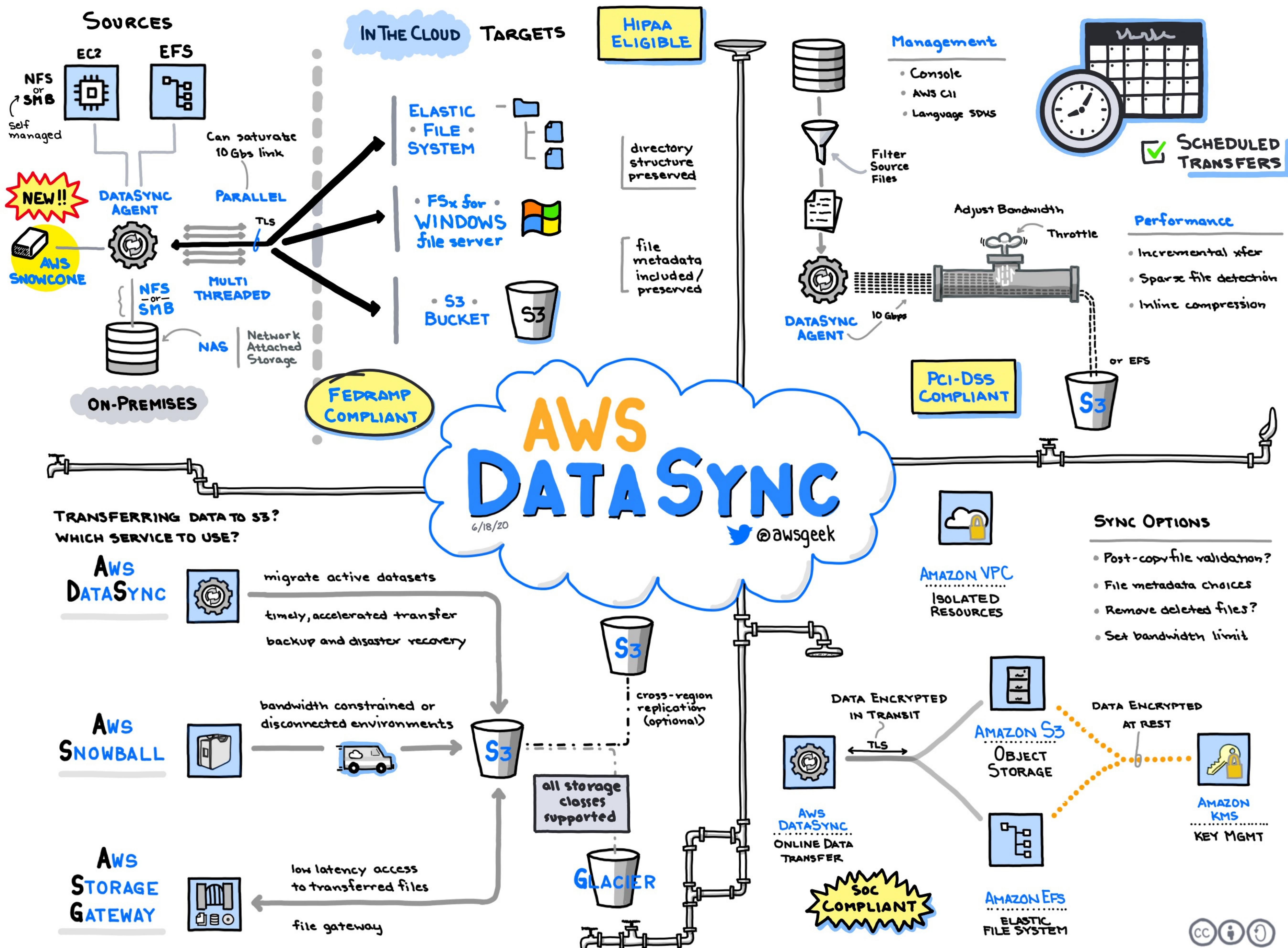
@awsgeek

OFFLINE DATA ACCESS

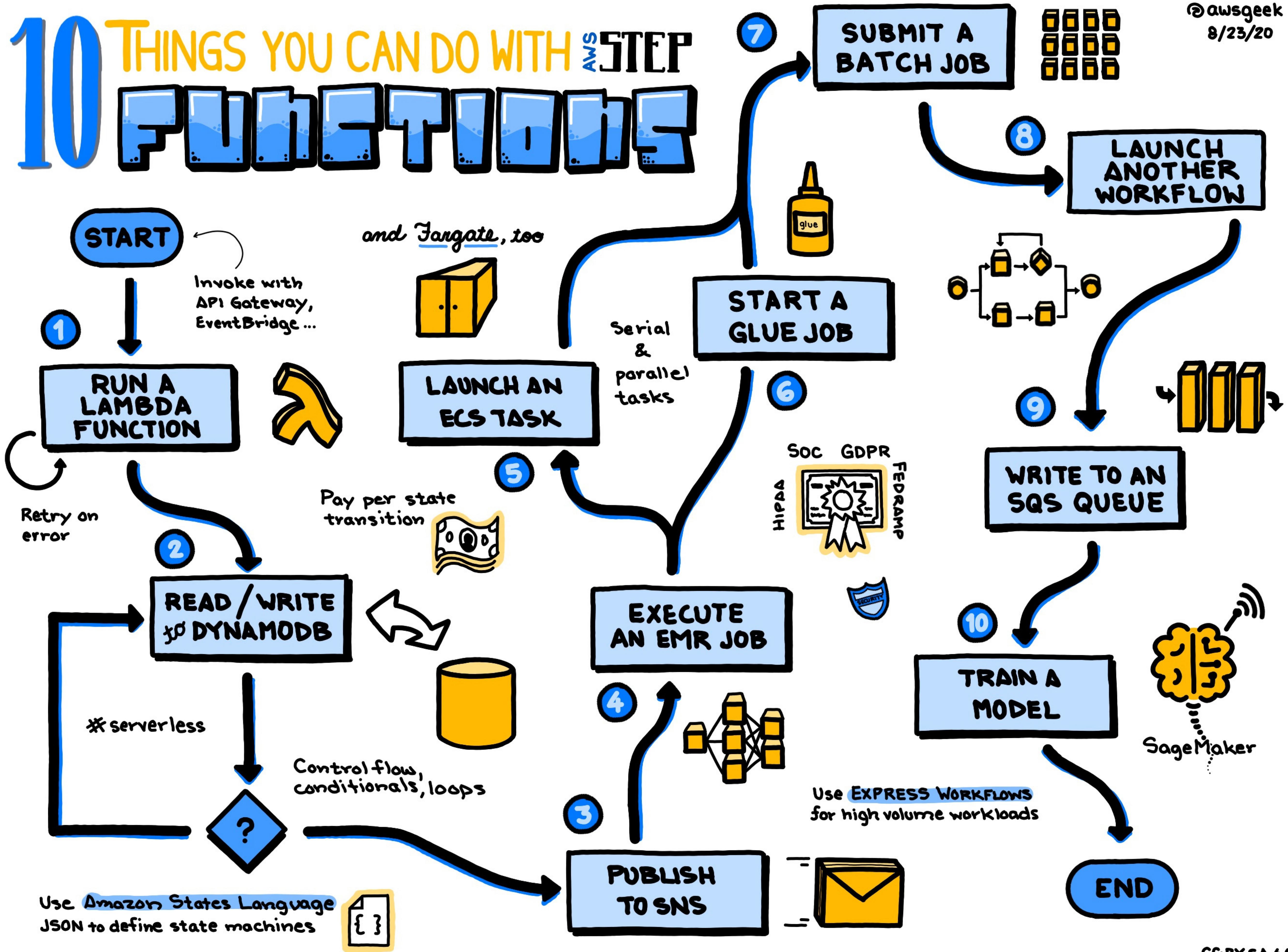
- ① MUTATE OFFLINE
 - ② UPLOAD CHANGES
 - ③ RESOLVE CONFLICTS
- APP SYNC

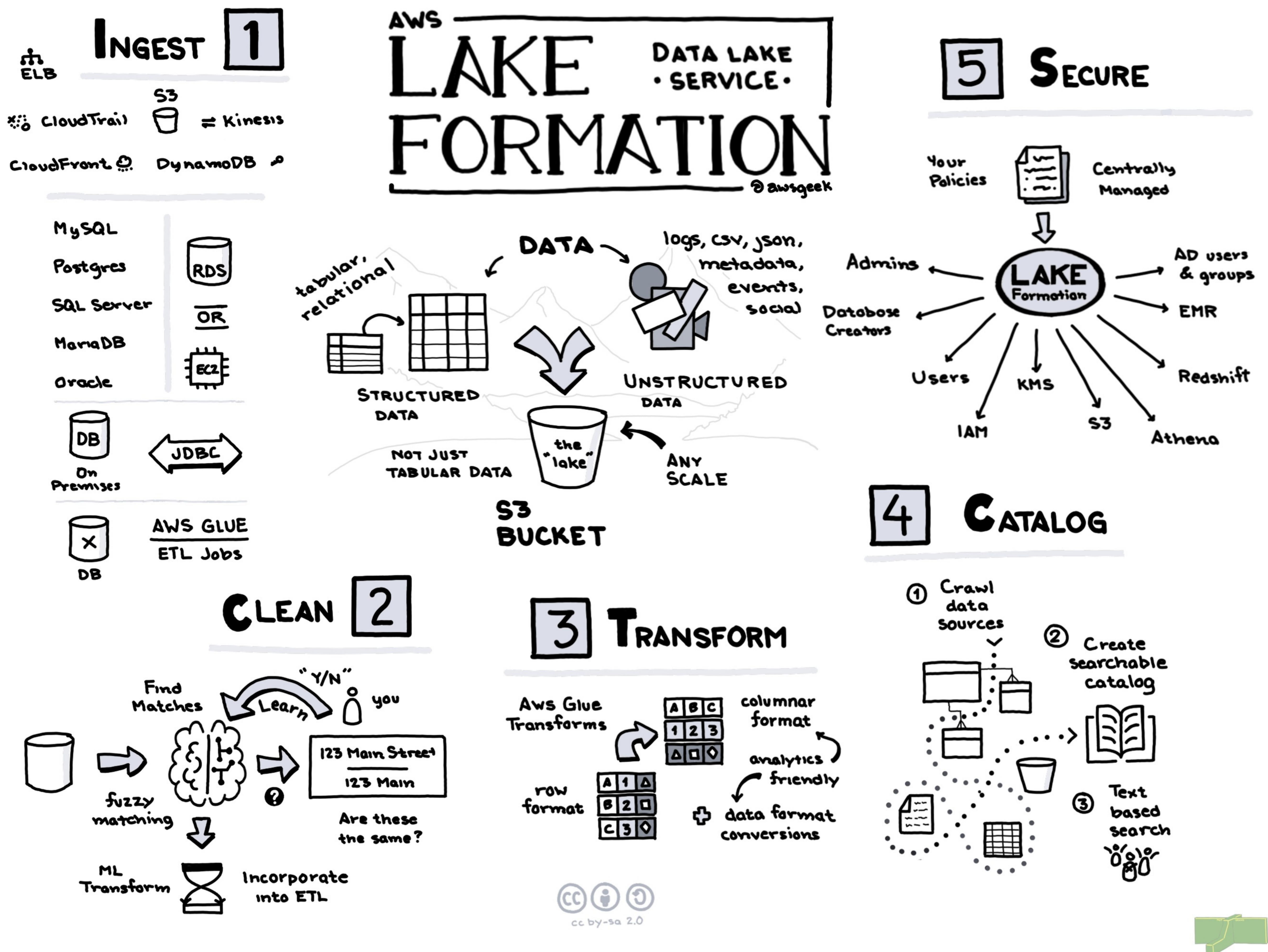






10 THINGS YOU CAN DO WITH AWS STEP FUNCTIONS





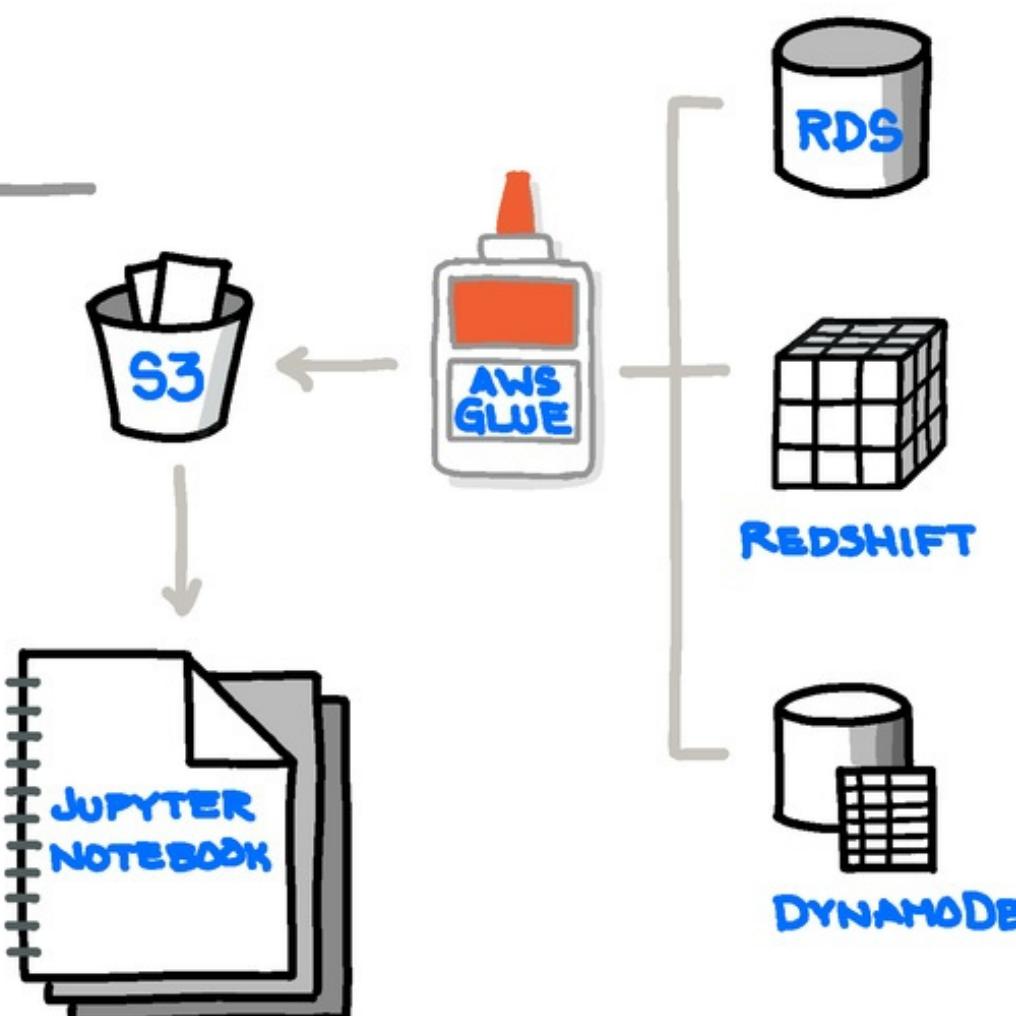
BUILD

COMMON TEMPLATES

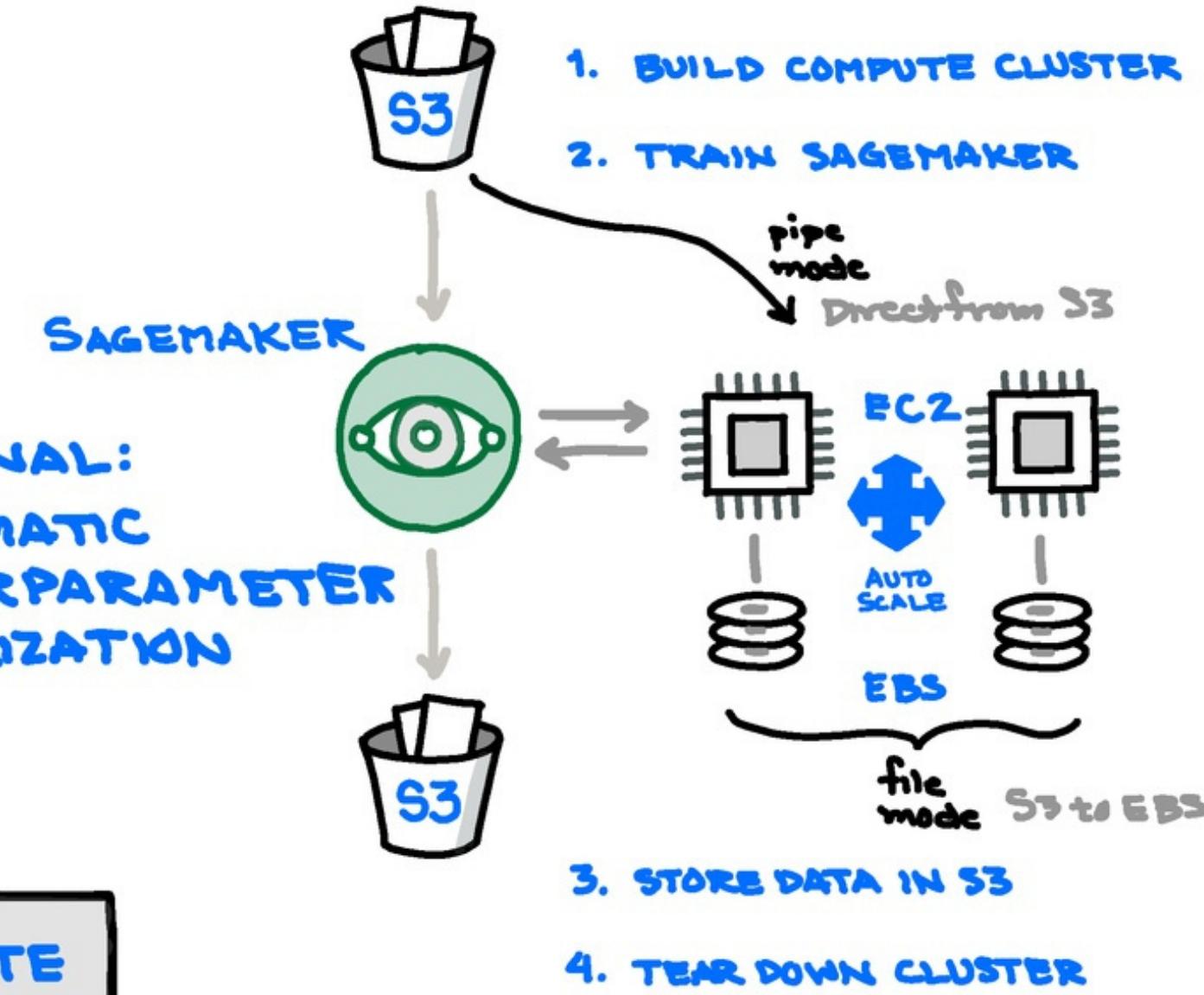
- TIME SERIES FORECAST
- DIRECT MARKETING TARGETS
- PREDICT CUSTOMER CHURN

ADV. TEMPLATES

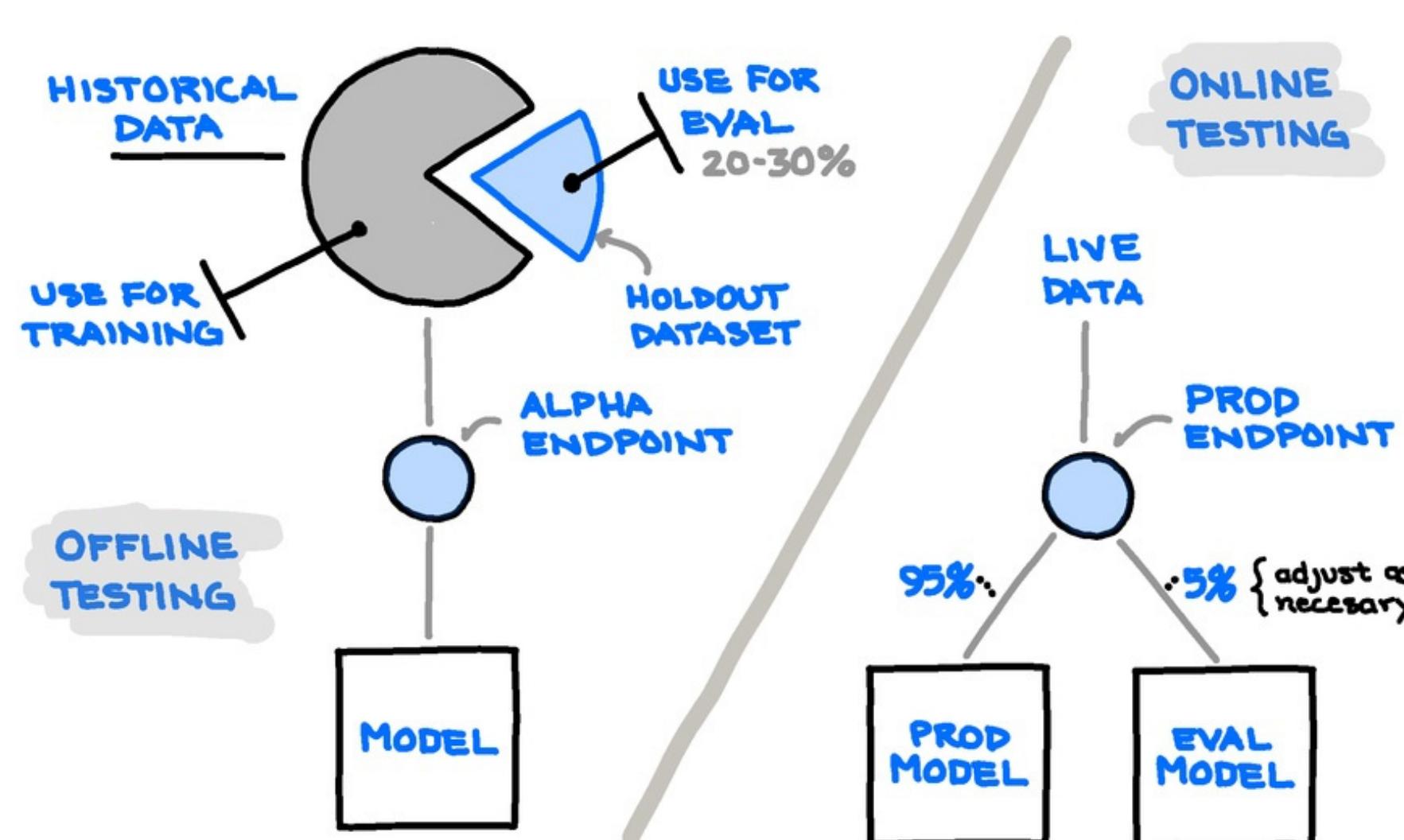
- BYO TENSORFLOW & MXNET CONTAINERS
- BYO SCIKIT OR R.ALGO



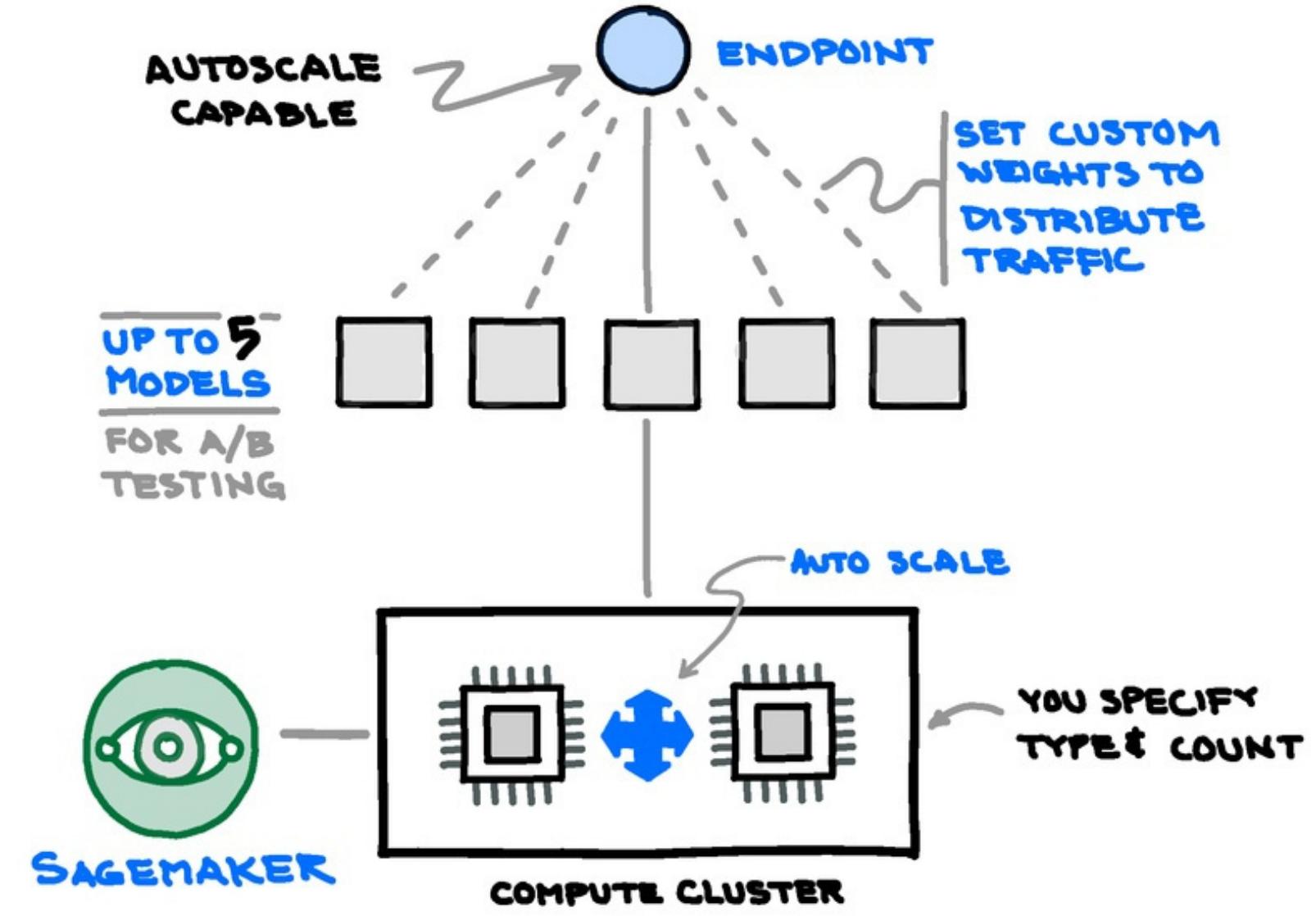
TRAIN



EVALUATE



DEPLOY



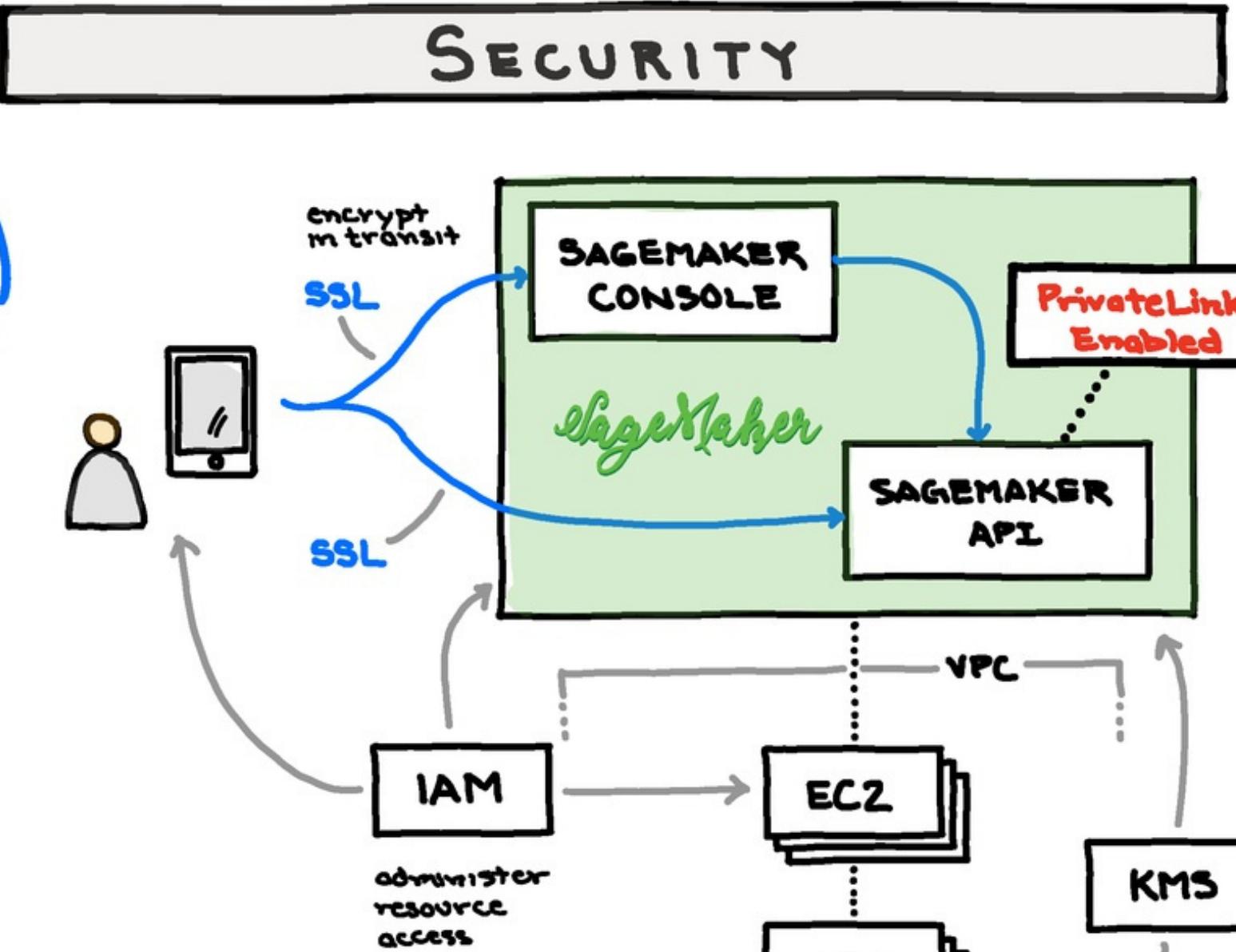
AMAZON SageMaker

11/6/18

PCI DSS COMPLIANT

@awsgeek • jerry@

DEEP LENS
IMPORTS MODELS
FROM SAGEMAKER

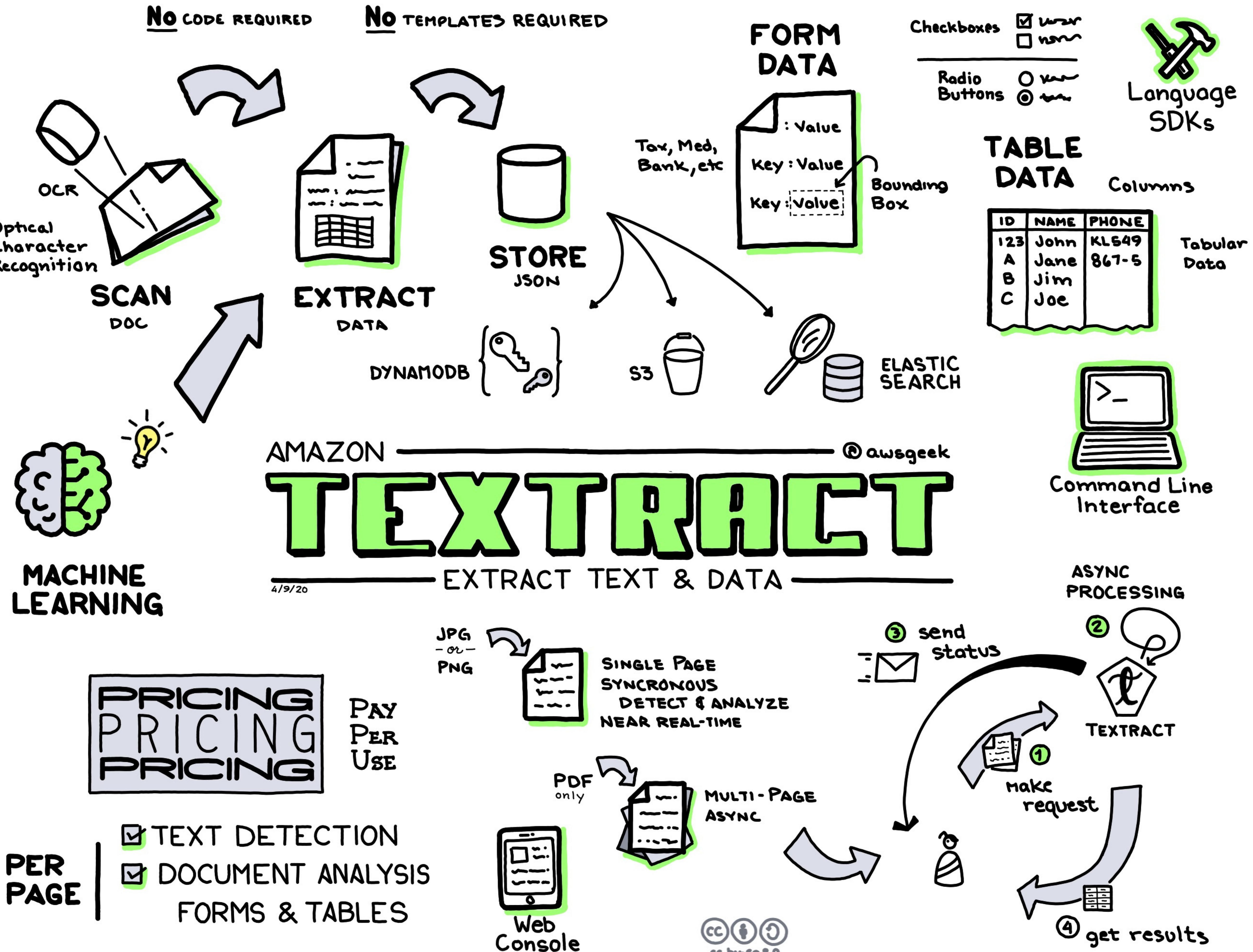


PRICING

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



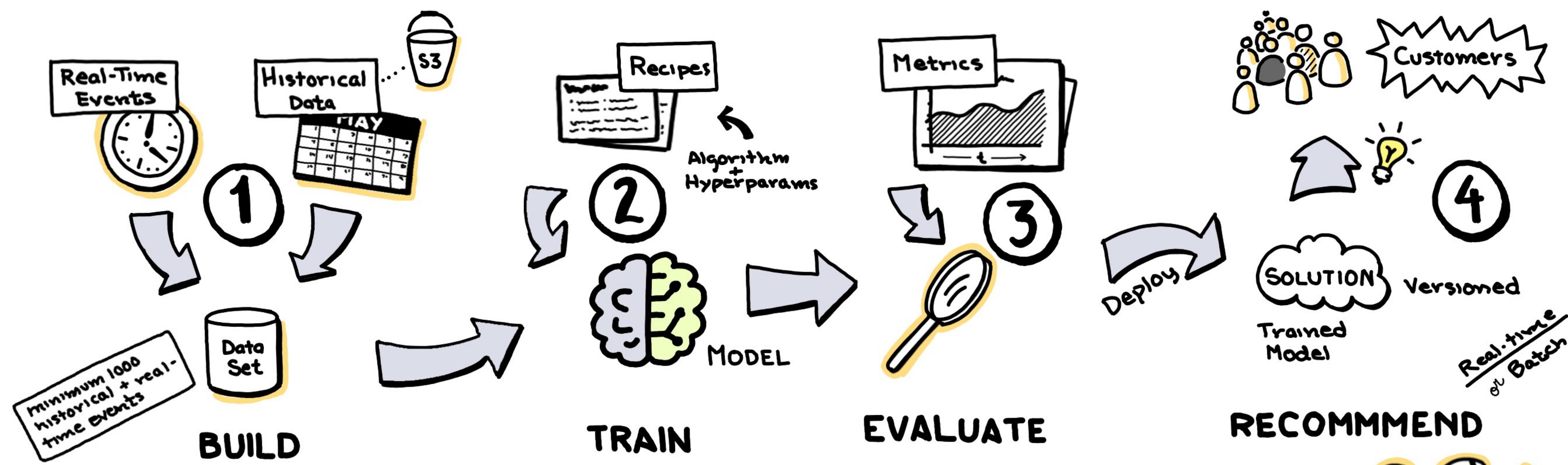
SPEECH →
← TO TEXT

VOCABULARY
FILTERING

REAL TIME

CLOSE CAPTIONING



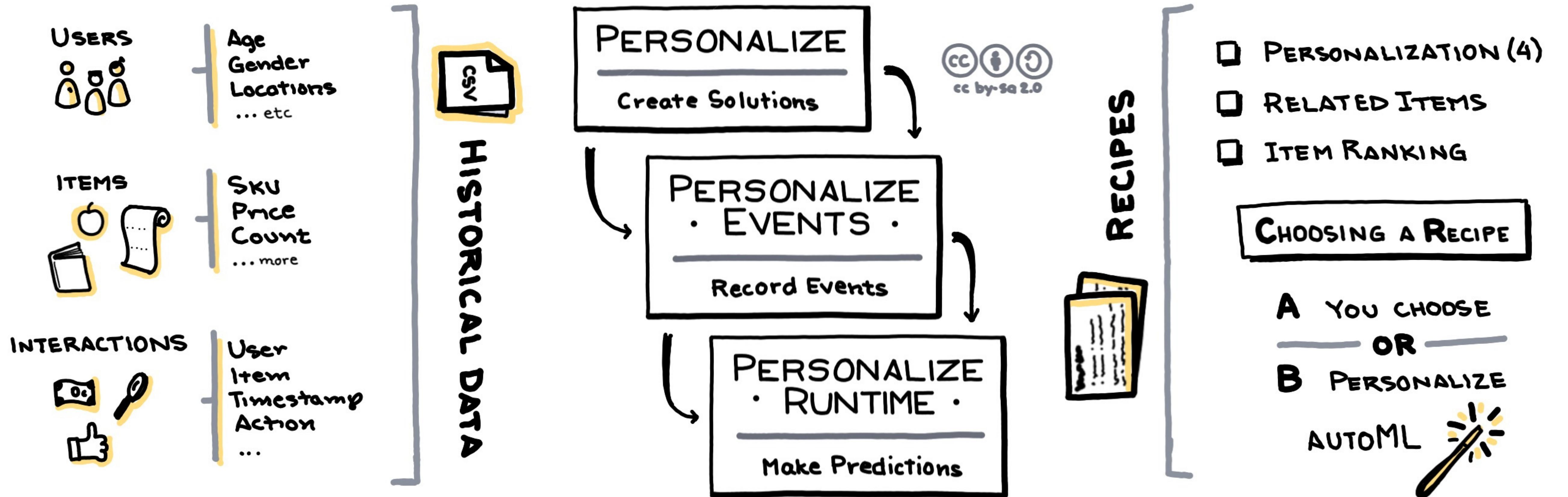


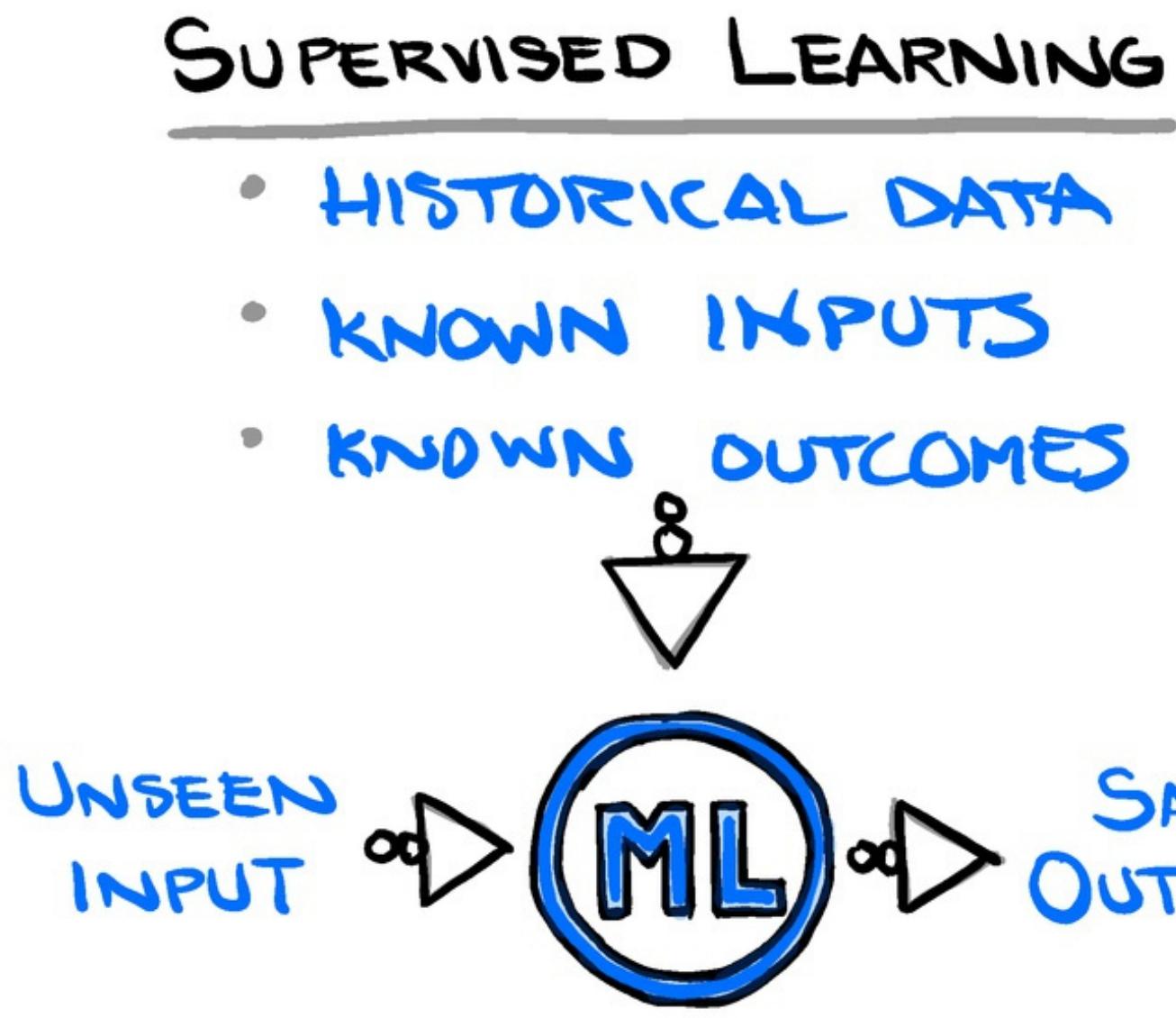
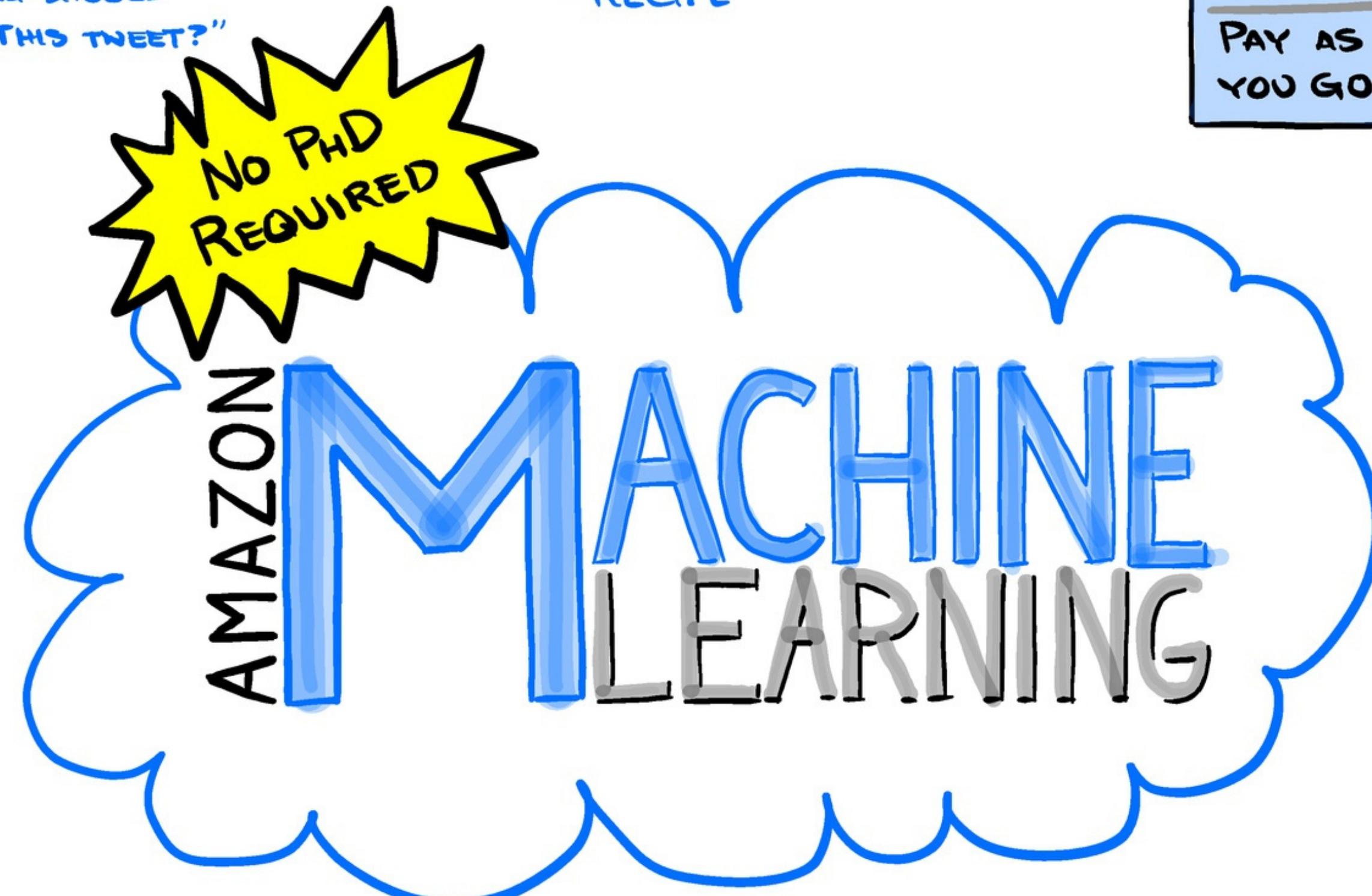
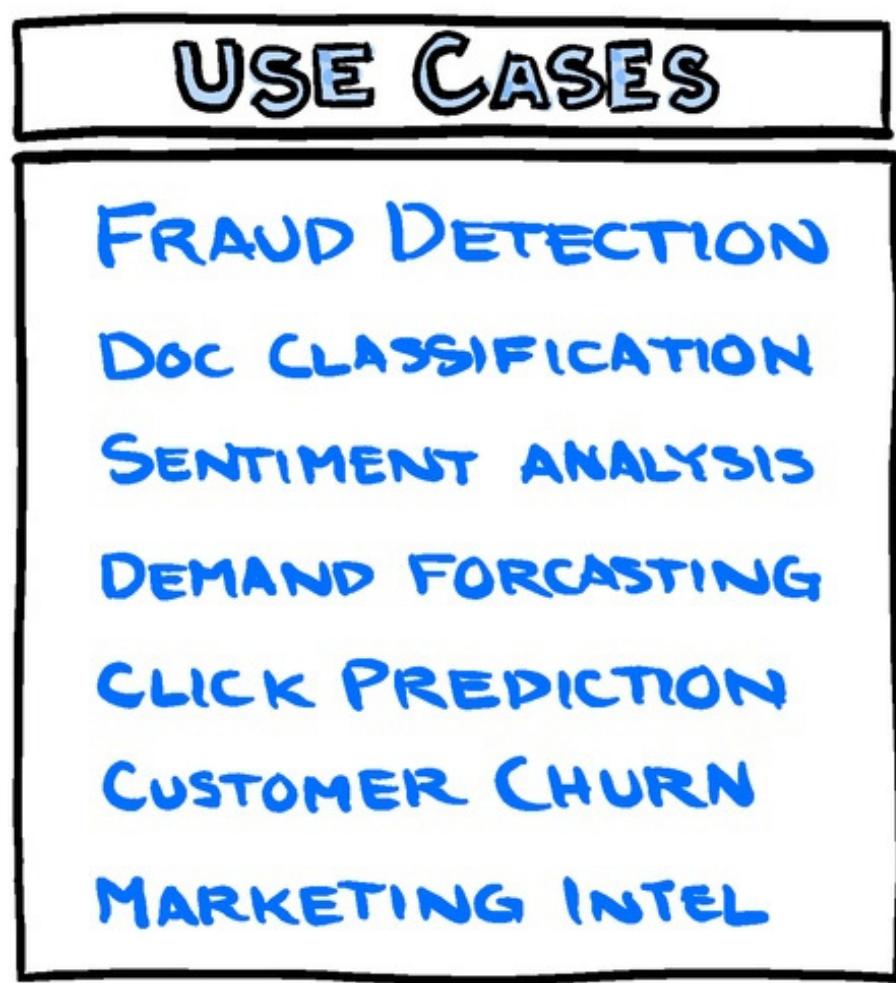
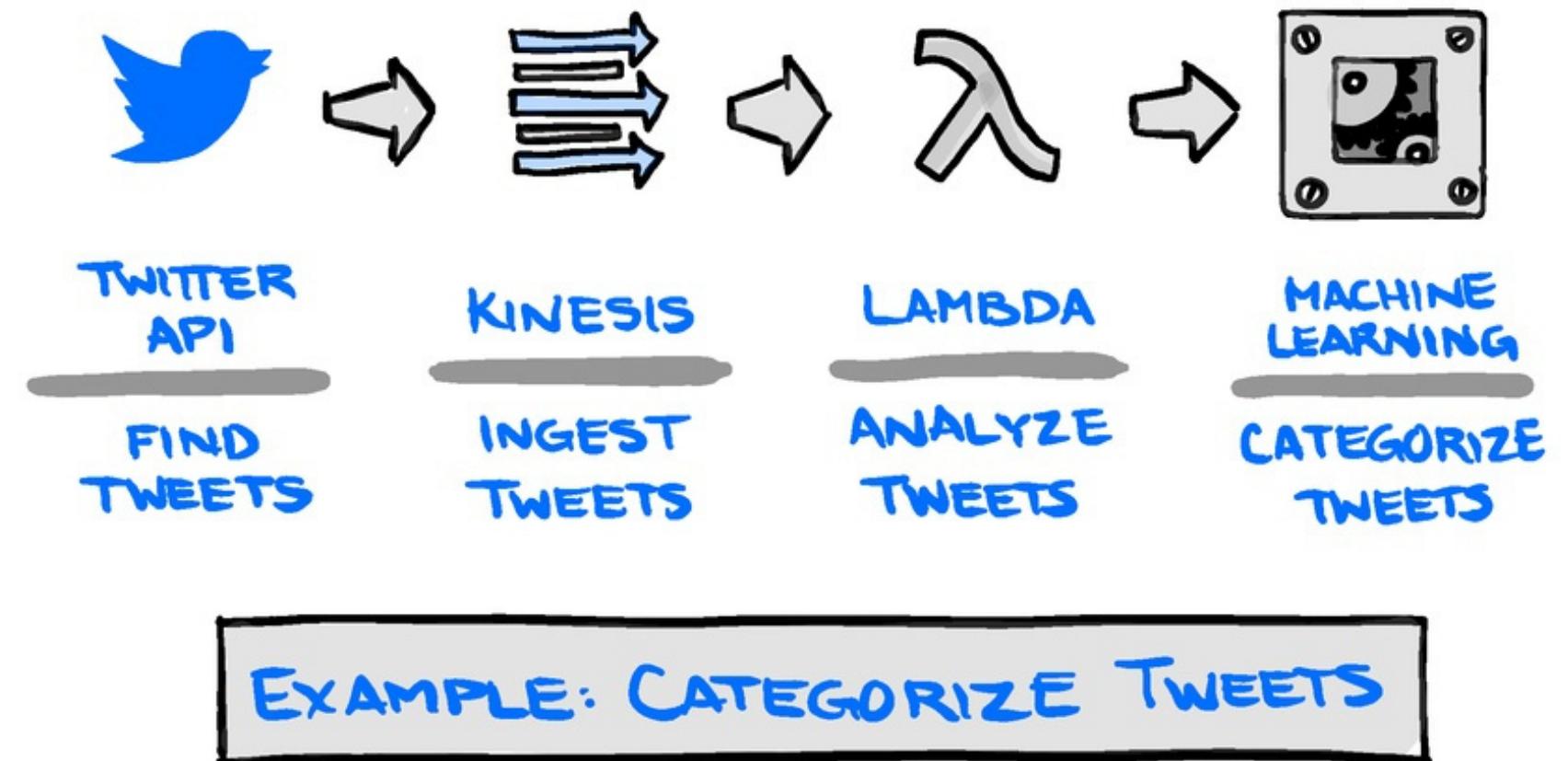
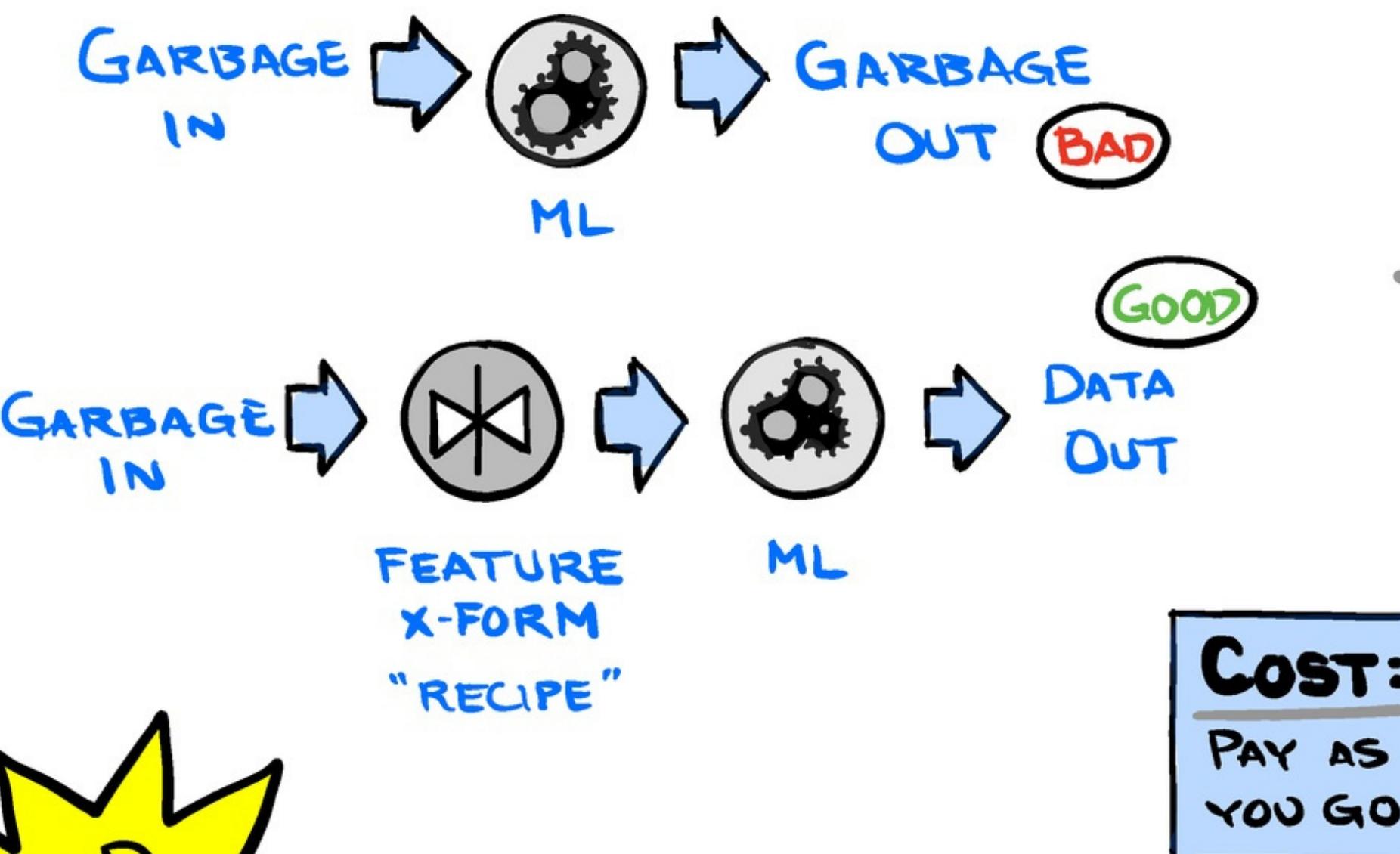
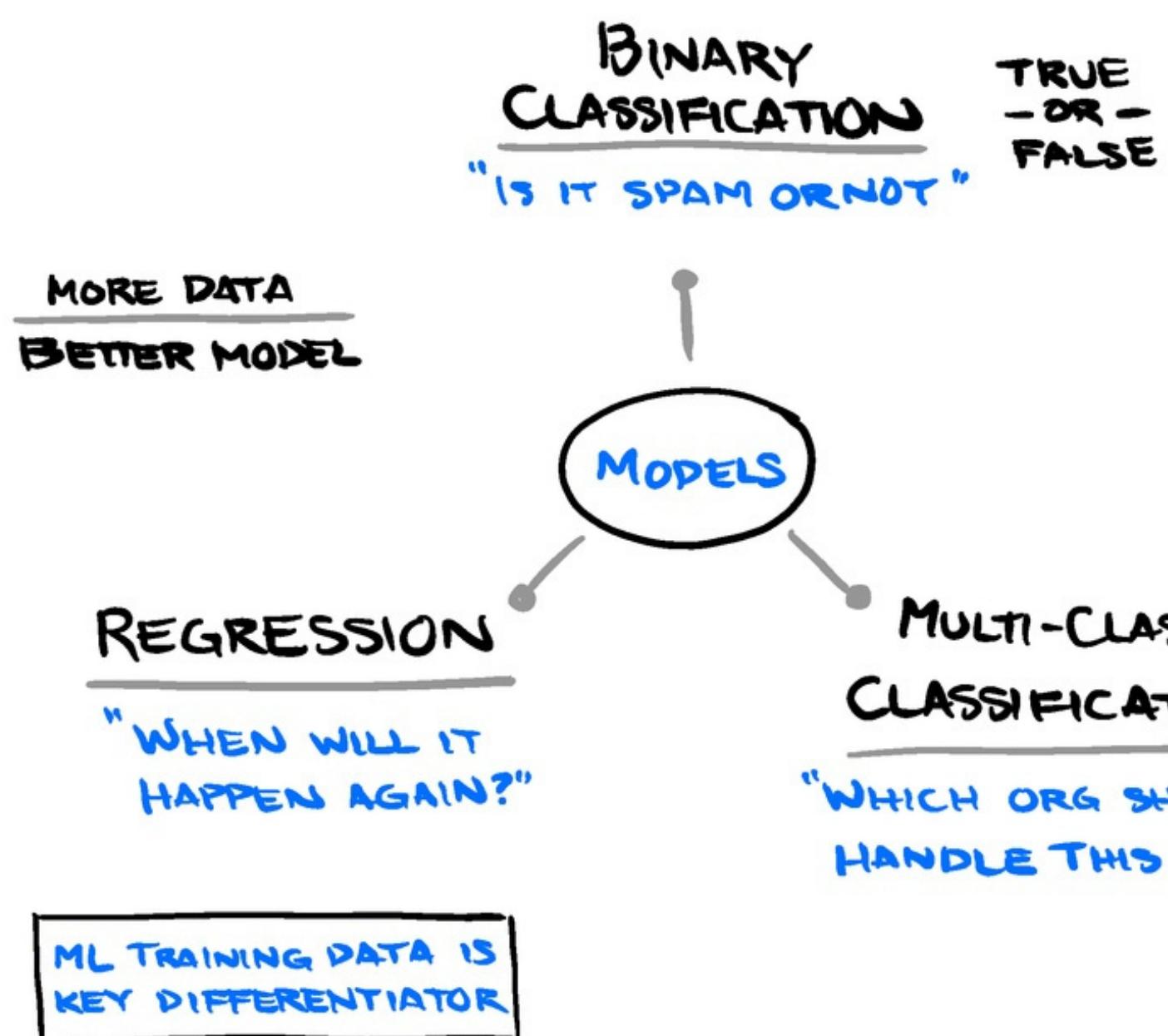
AMAZON PERSONALIZE

REAL-TIME RECOMMENDATIONS

3/30/20

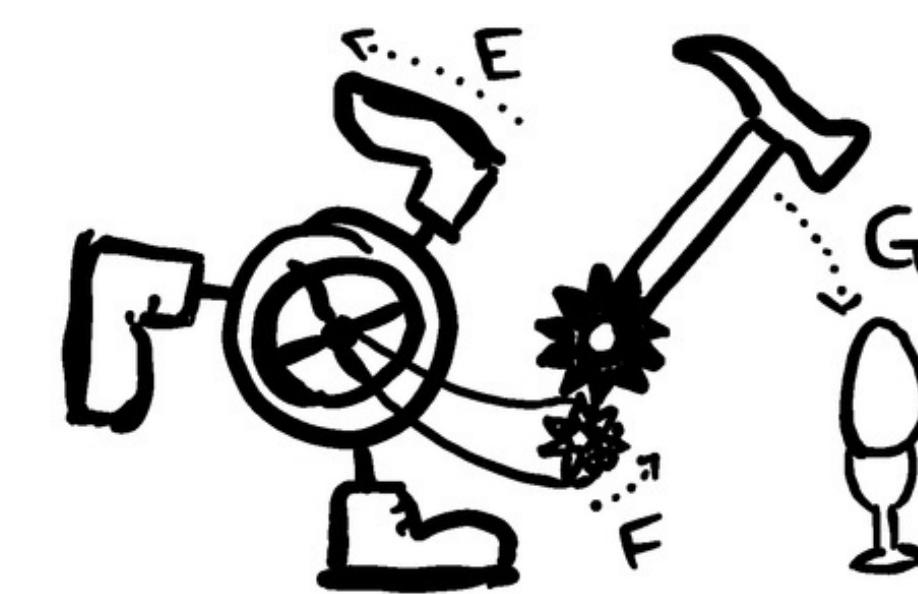
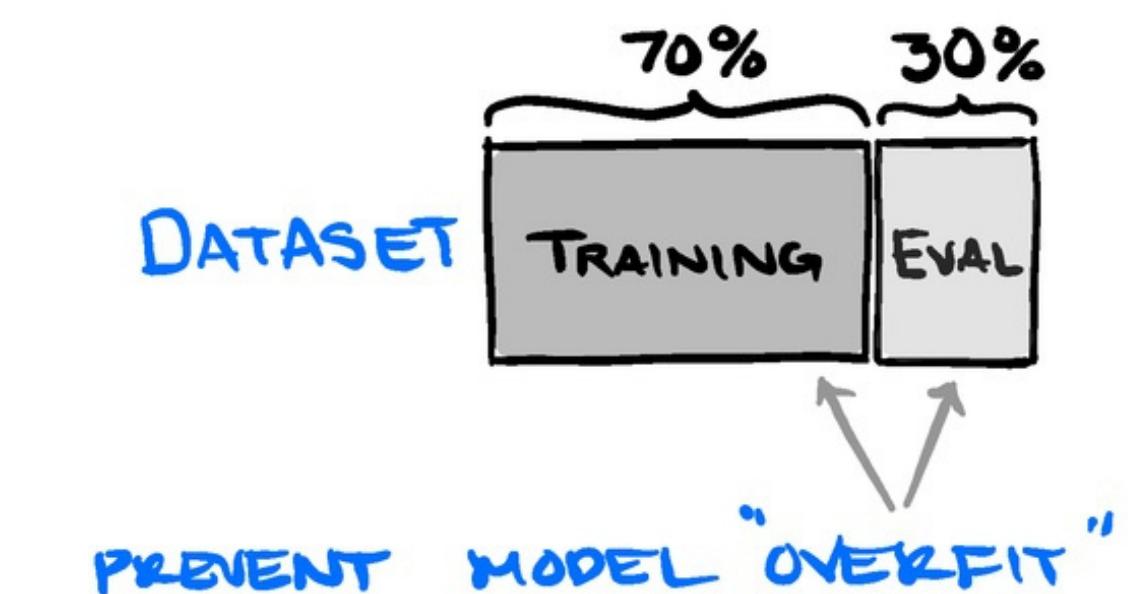
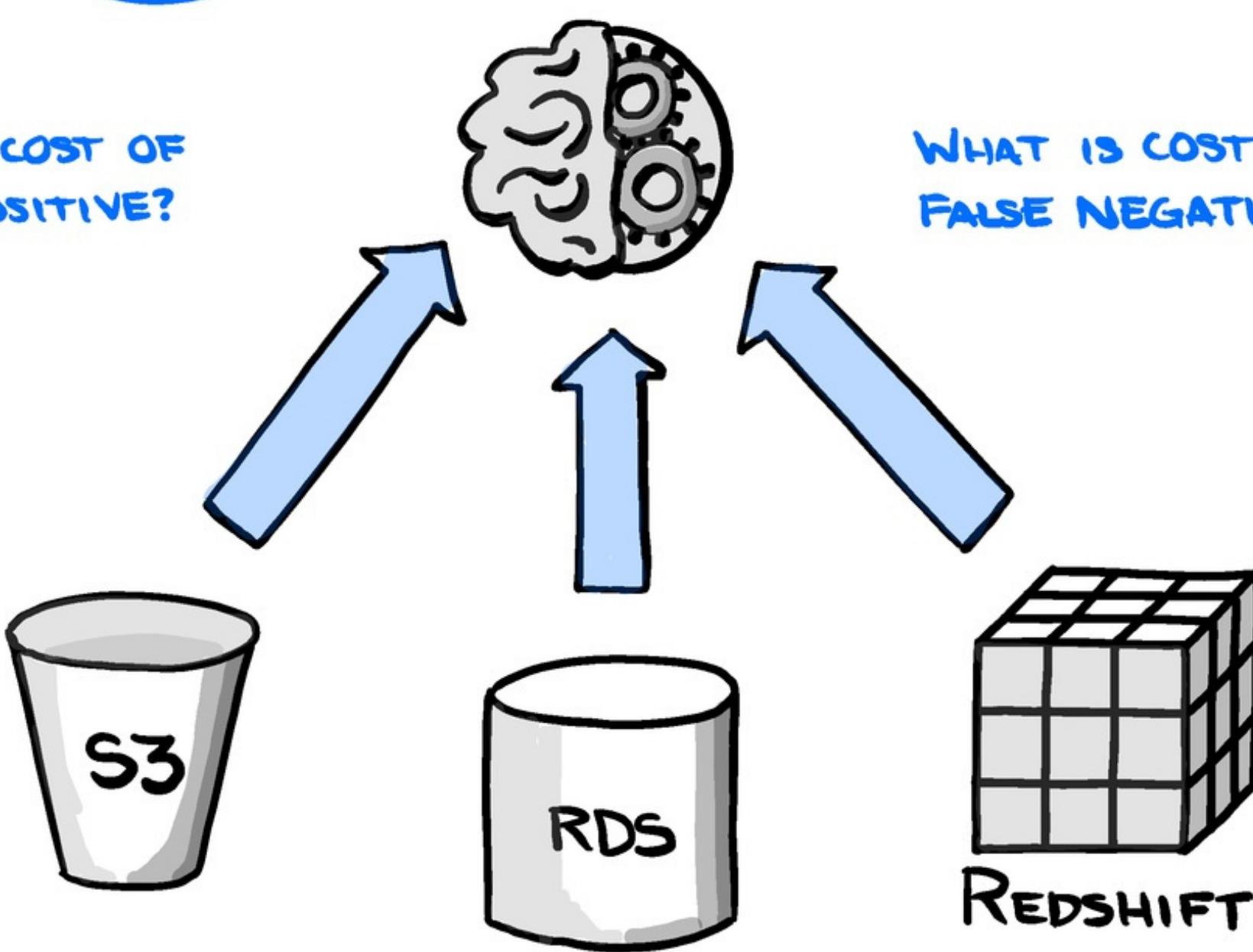
@awsgeek



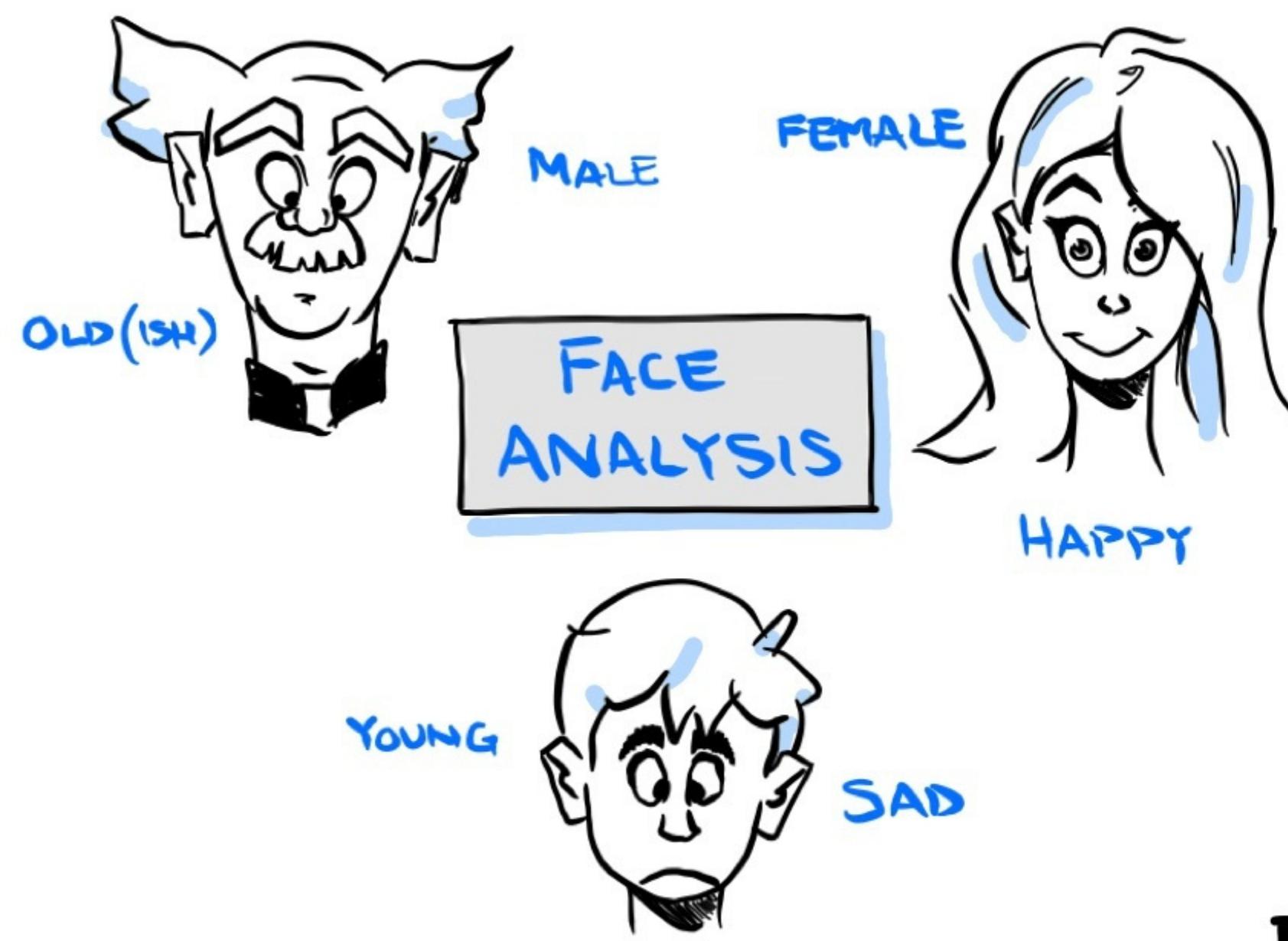
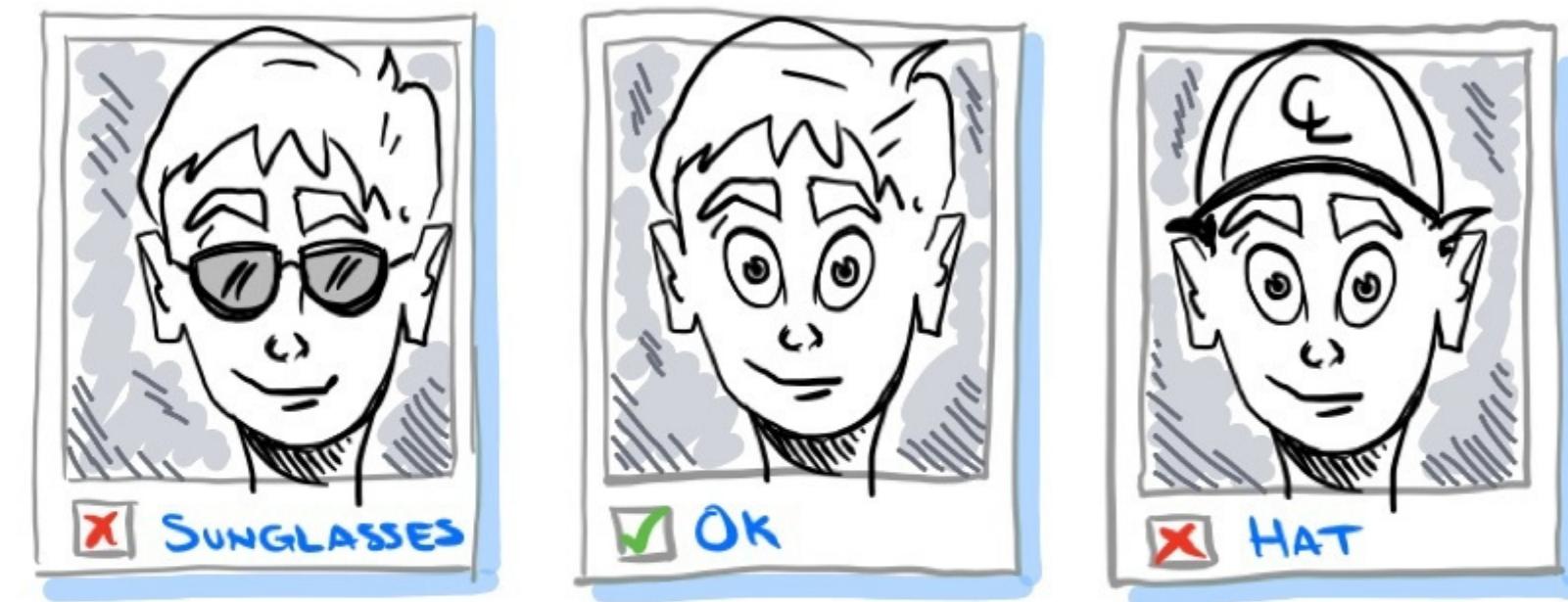
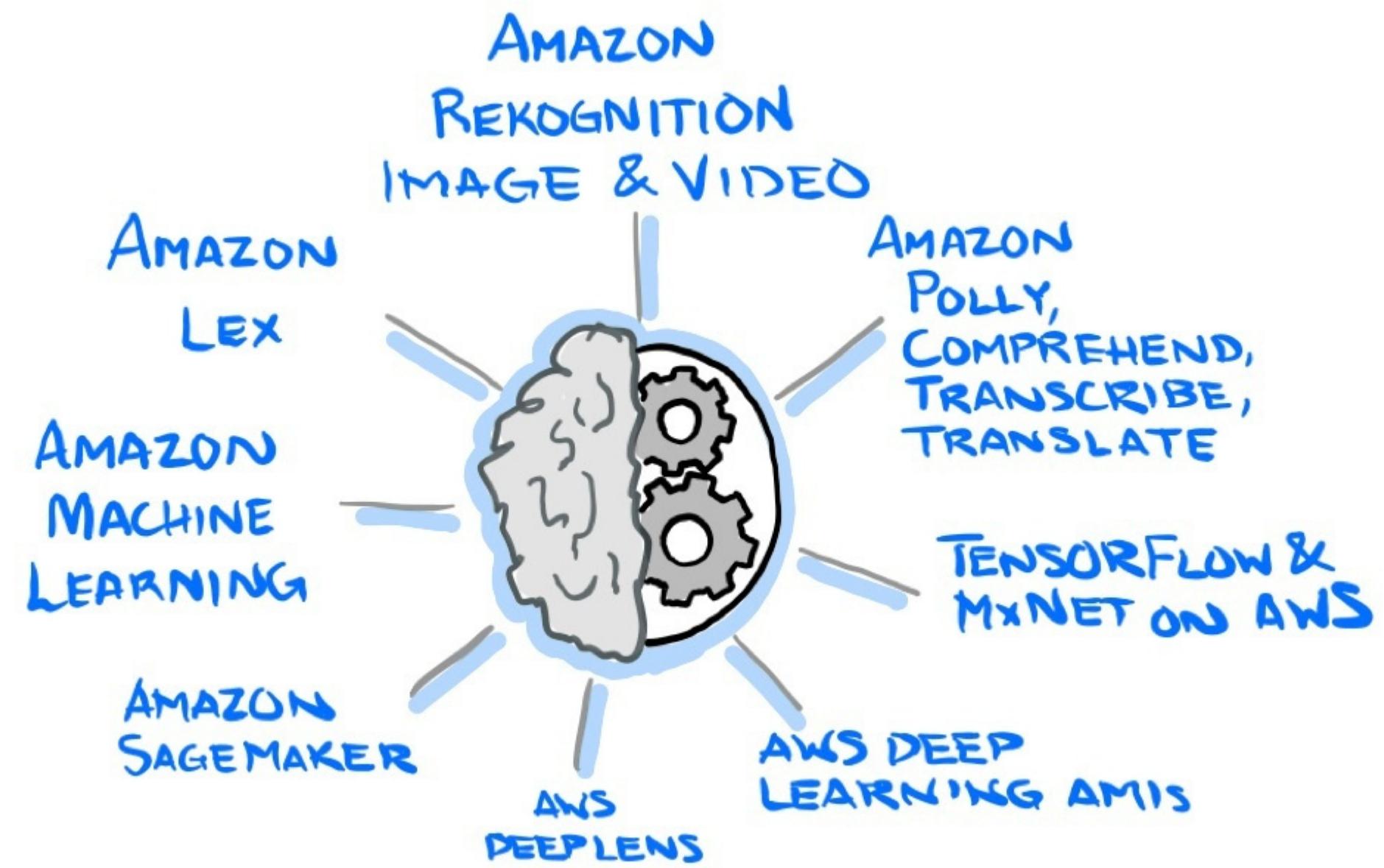
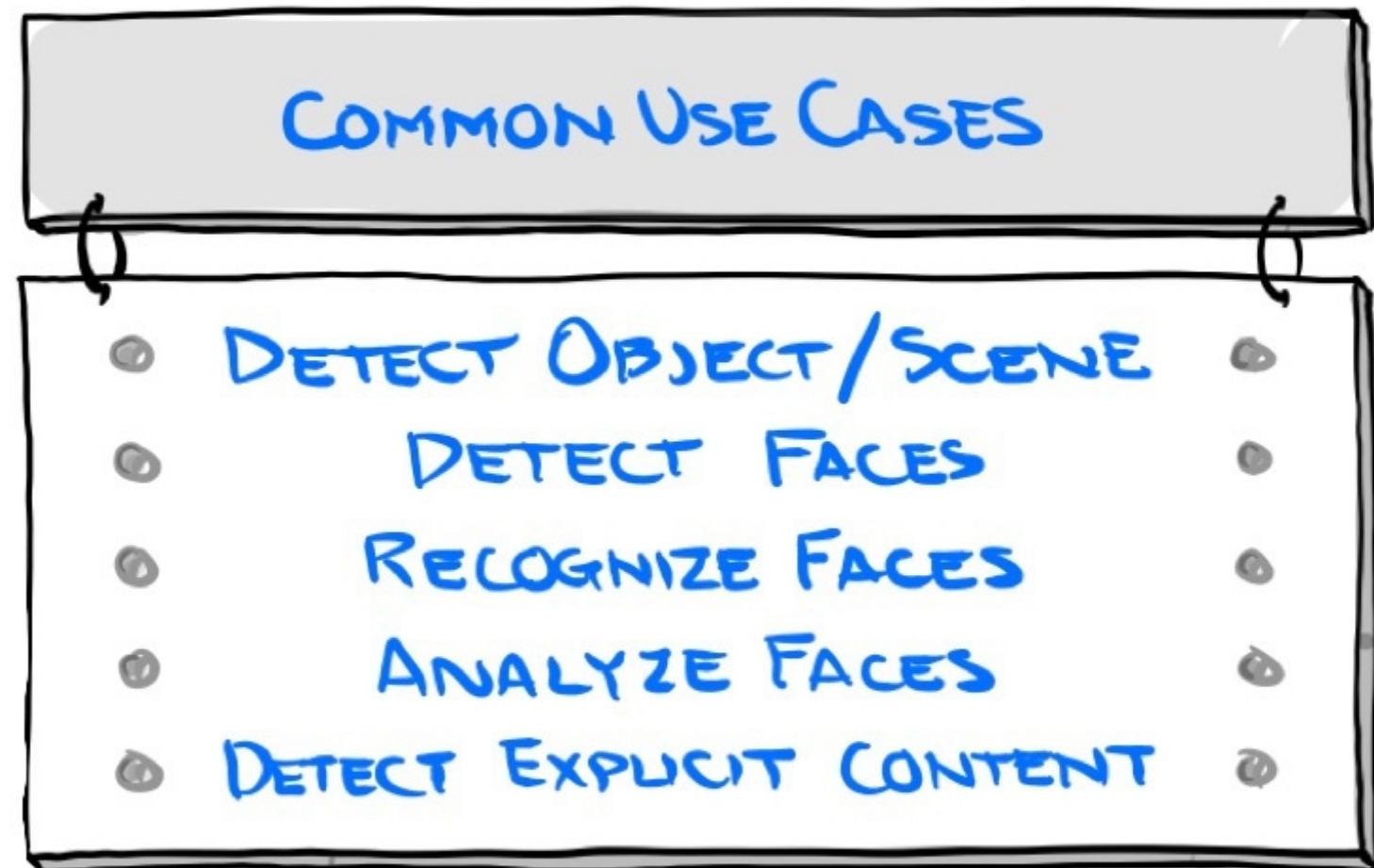


WHAT IS COST OF FALSE POSITIVE?

WHAT IS COST OF FALSE NEGATIVE?



@awsgeek
9/22/17

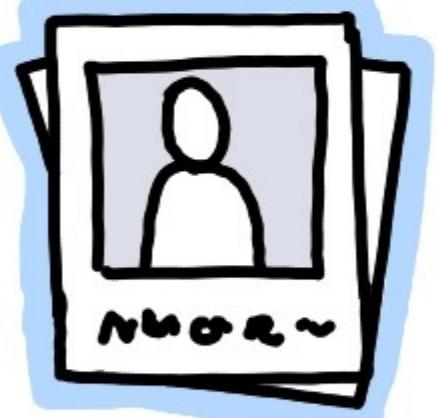


AMAZON AI FAMILY



PRICING

① \$ PER IMAGE

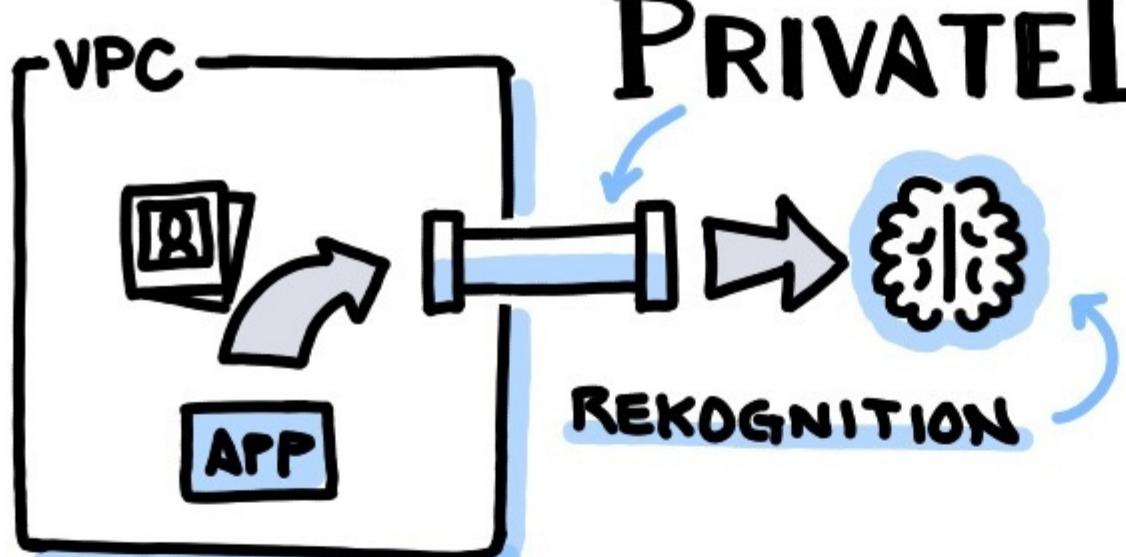
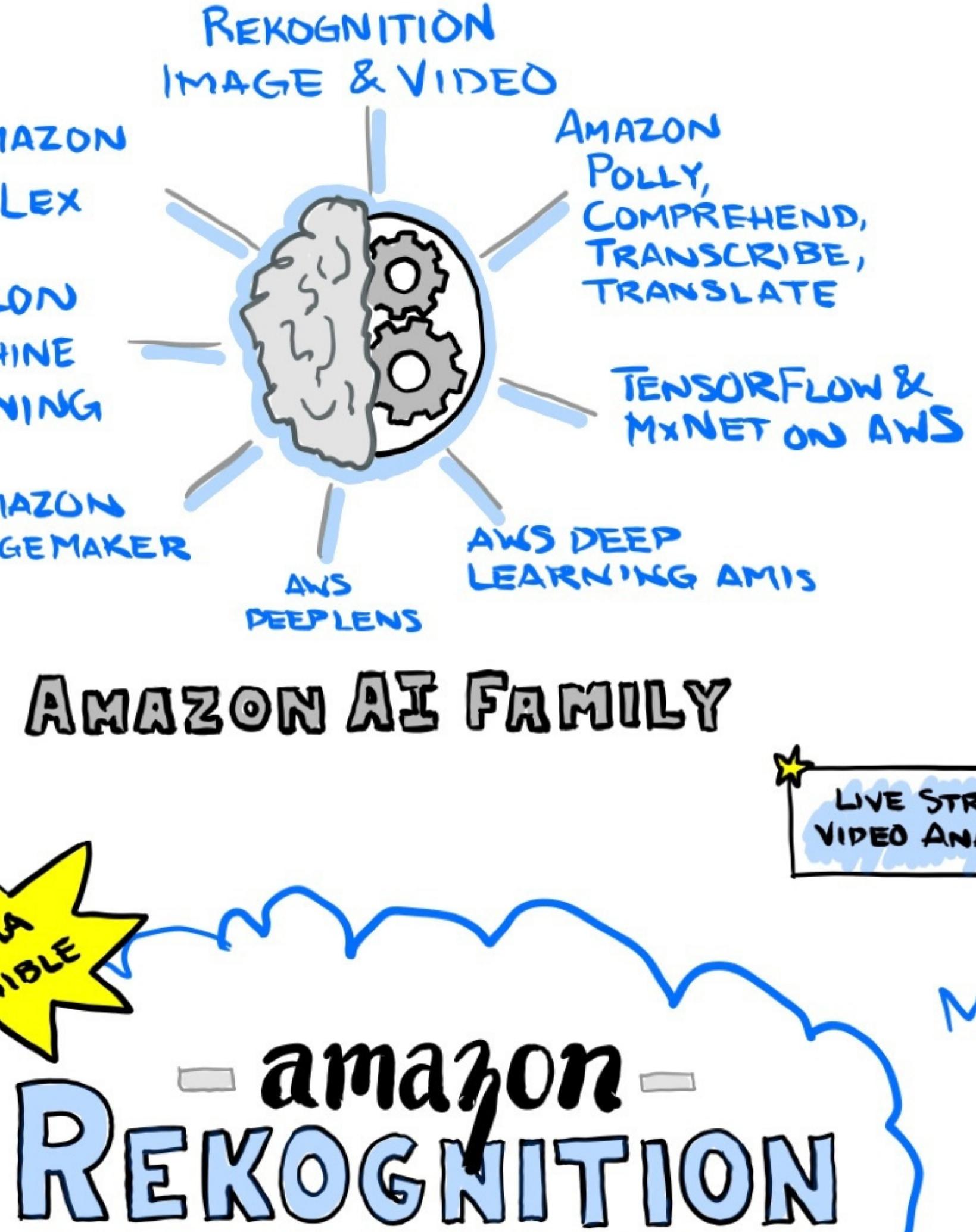


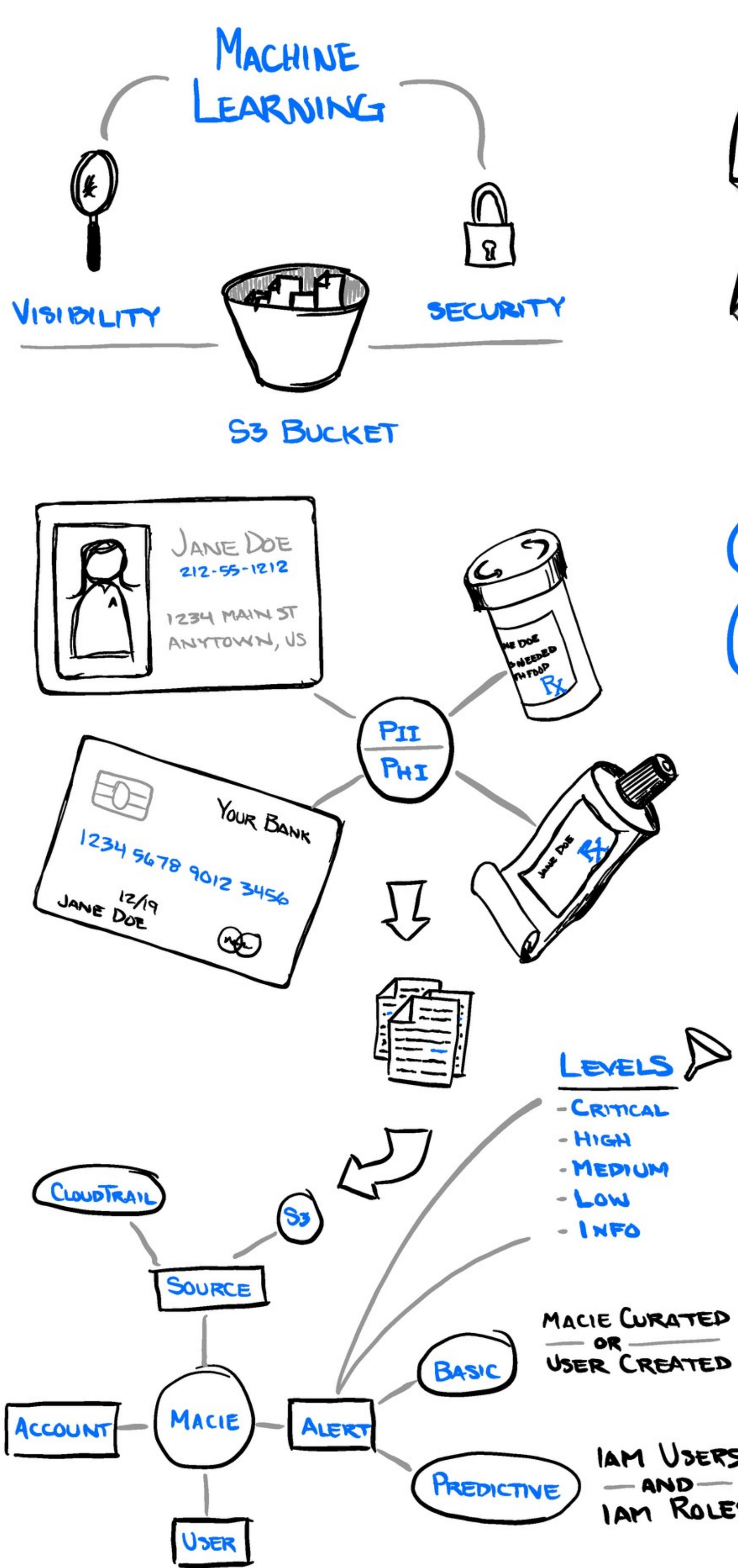
② \$



VIDEO

③ \$ PER MINUTE





AS EASY AS:

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

ENCRYPTED S3 OBJECTS

SERVER SIDE ENCRYPTION



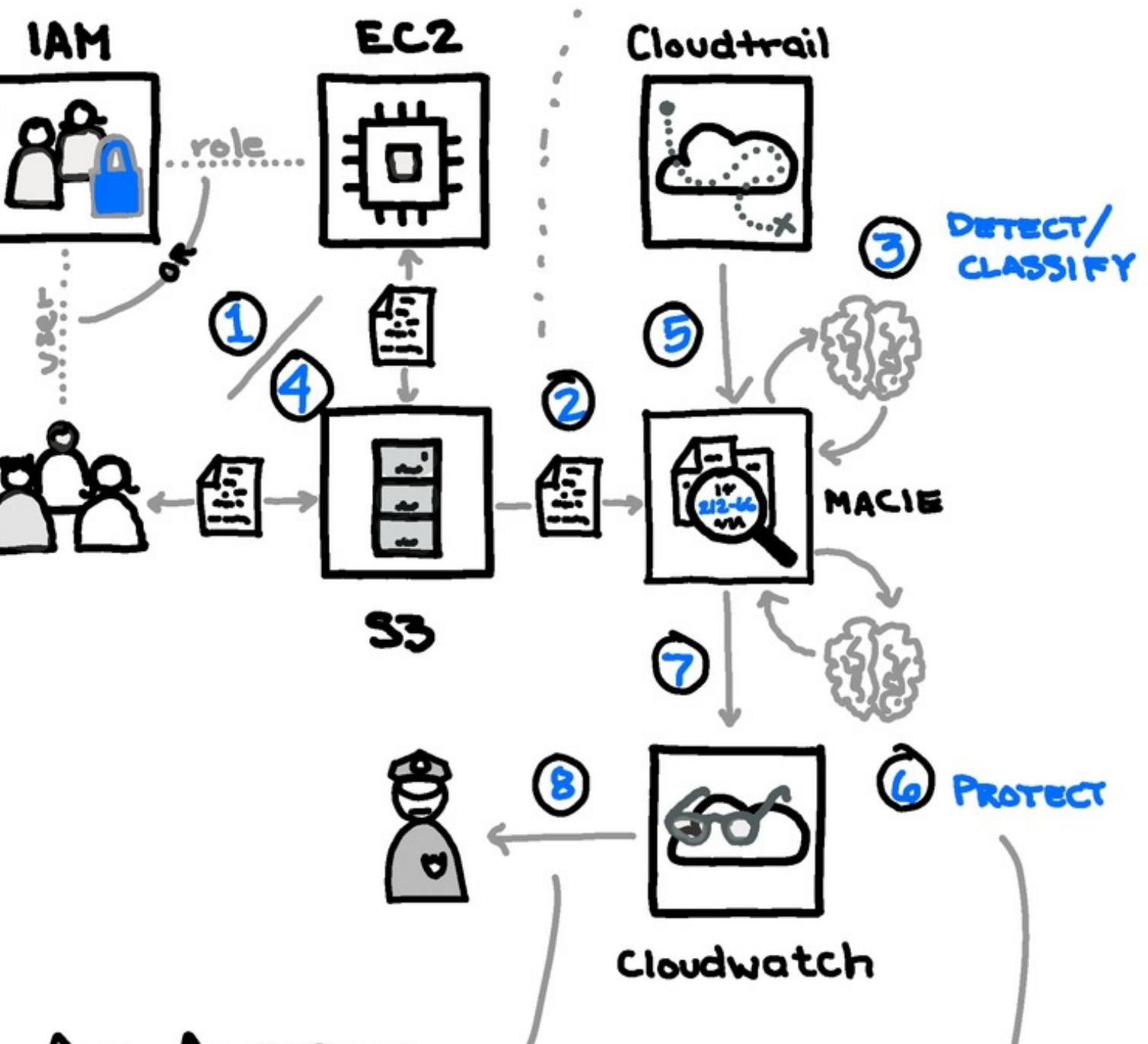
KMS KEYS



CLIENT ENCRYPTED

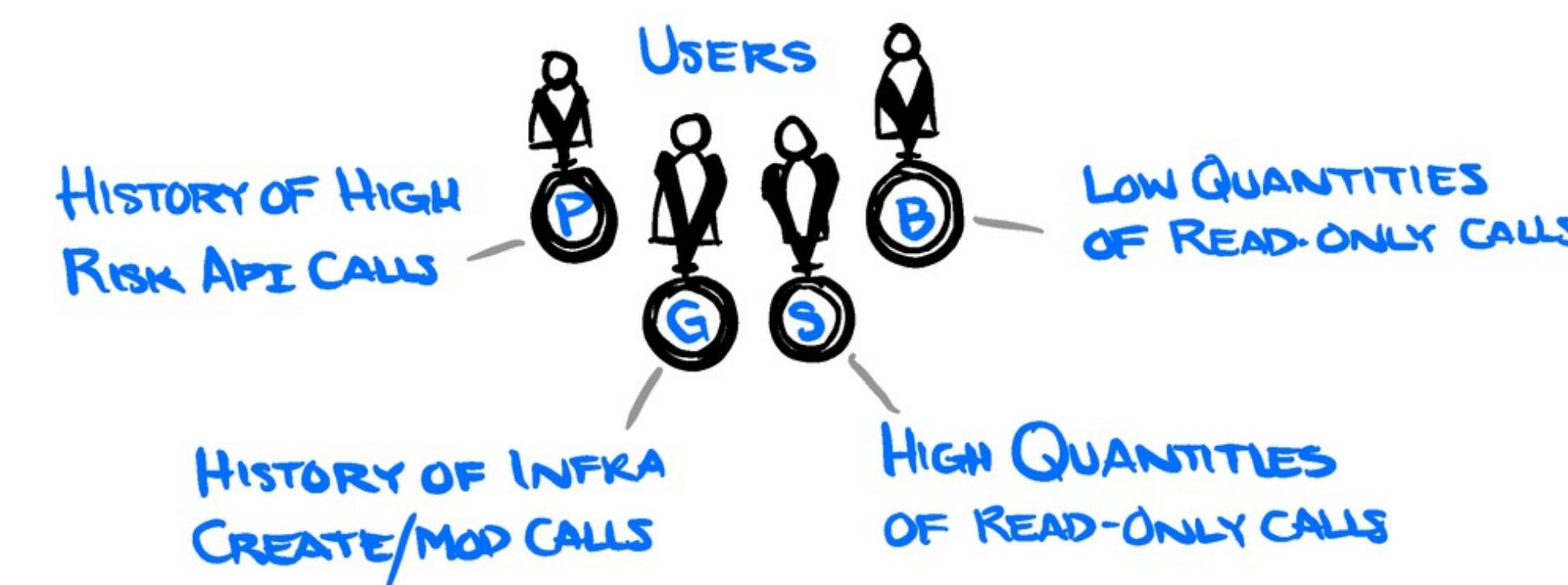


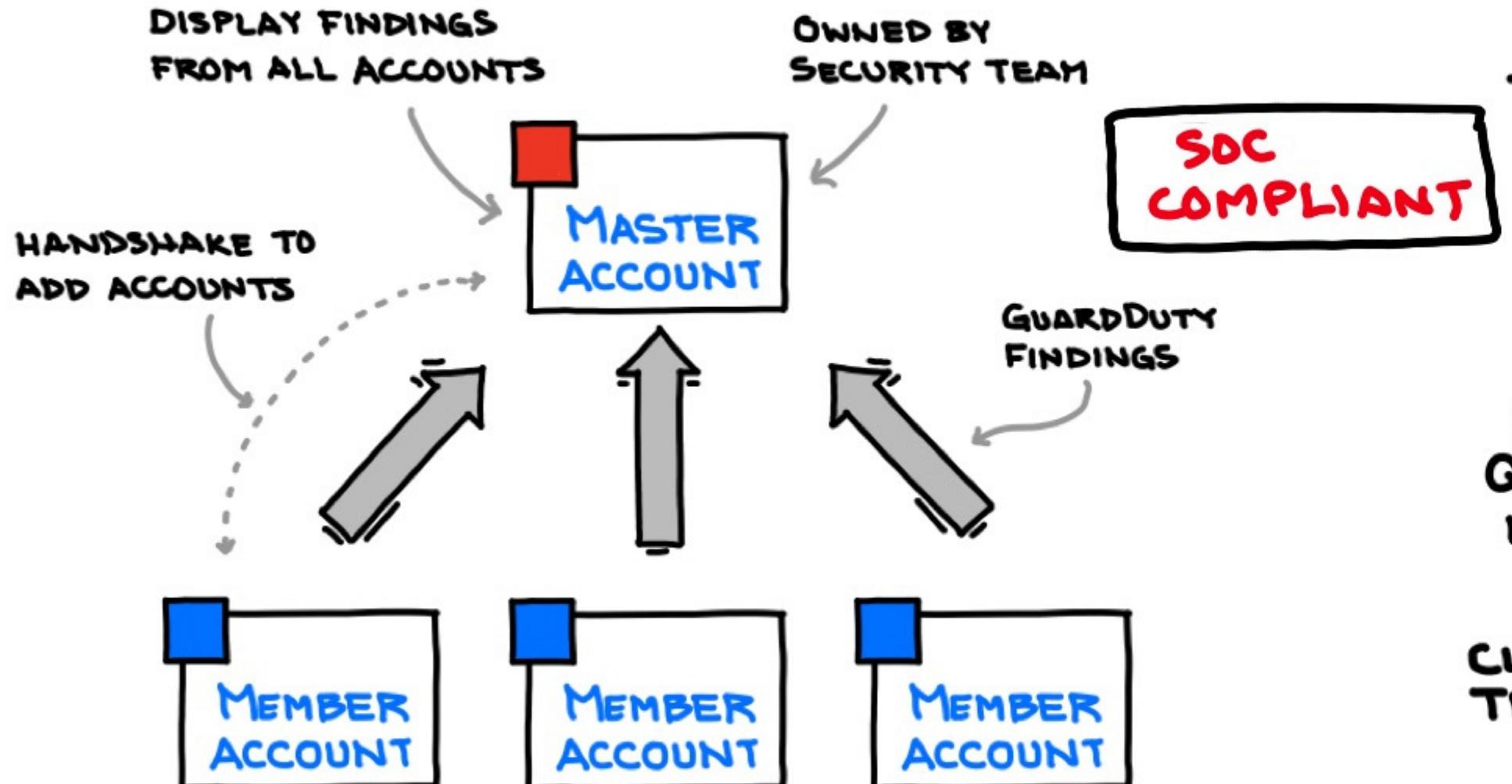
\$5/GB	CONTENT CLASSIFICATION
\$4/MM	EVENT PROCESSING
5¢/GB/Mo	EXTENDED DATA RETENTION
+ TRAIL EVENT COSTS + S3 GET/LIST COSTS	



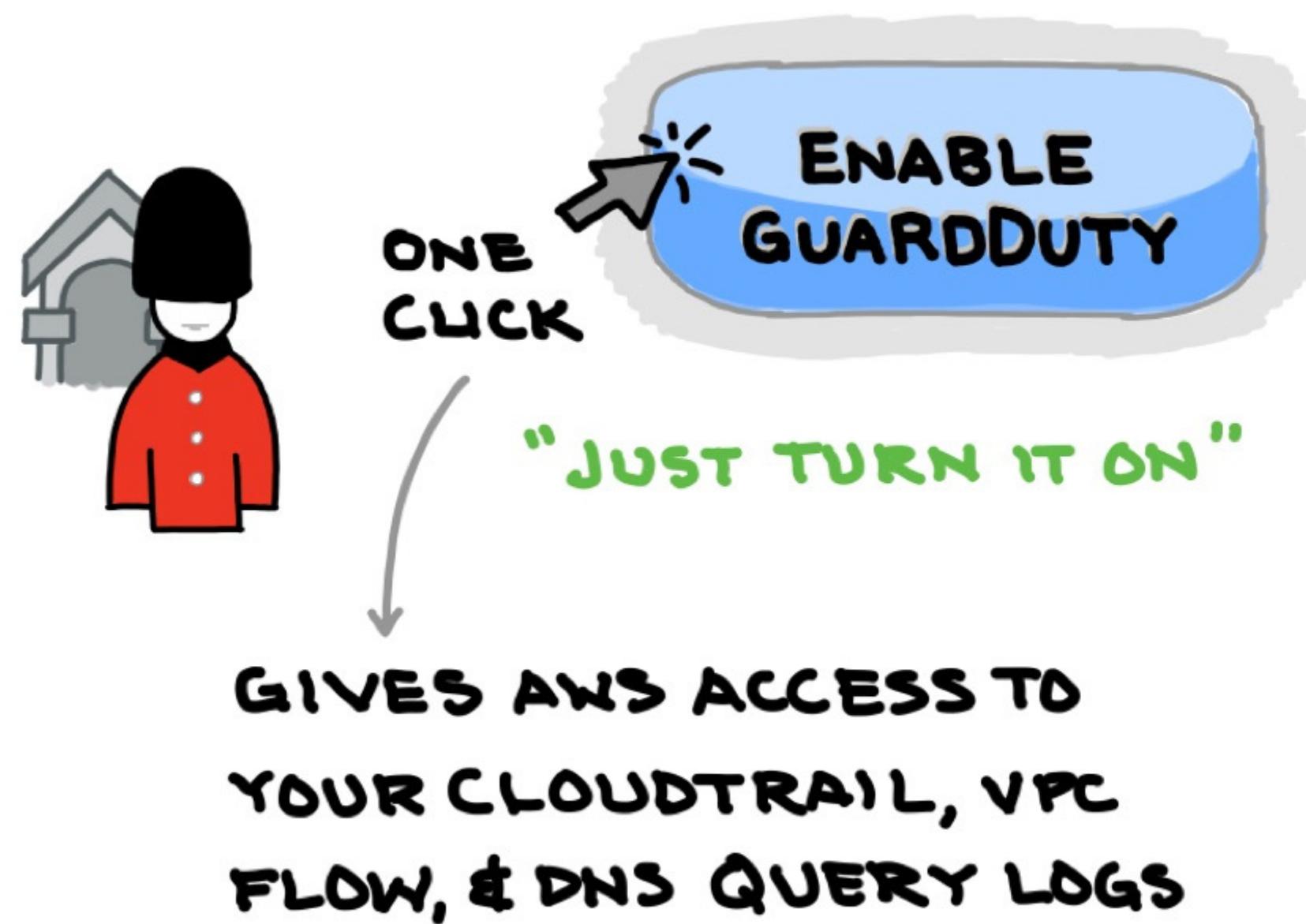
AN ALERT:

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





CENTRALIZED THREAT DETECTION

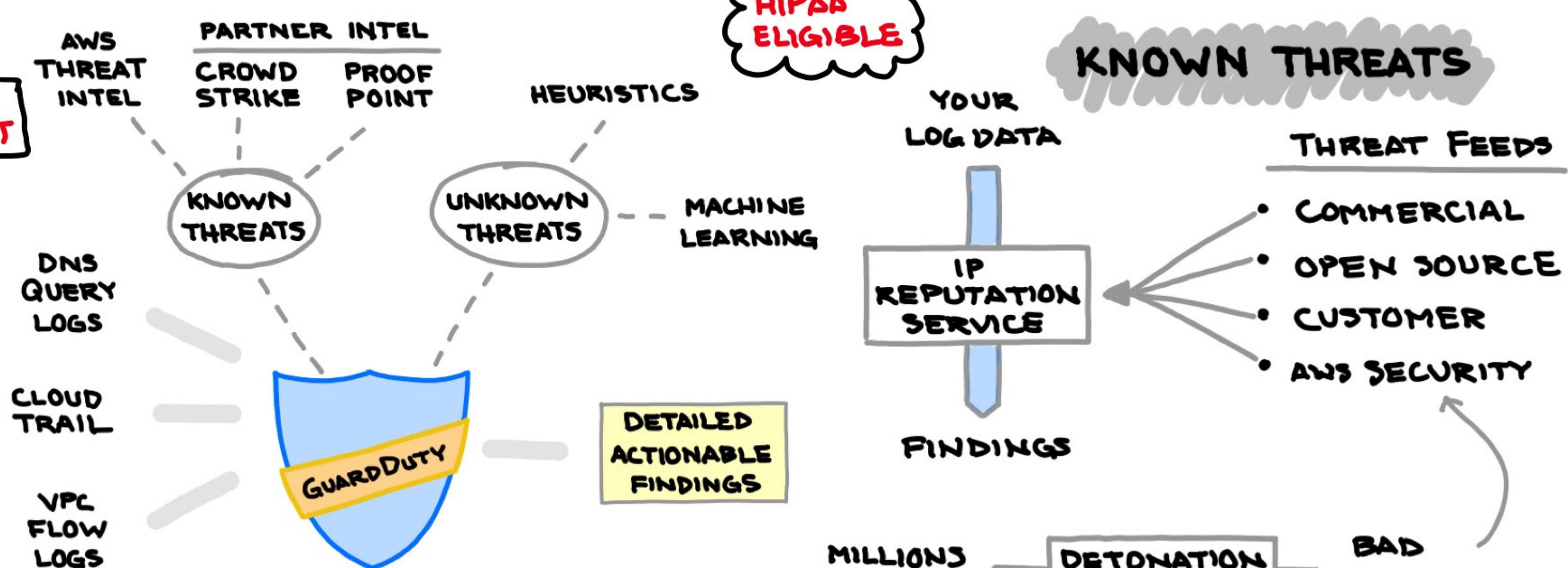


PRICING (US WEST - OREGON)

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 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



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...



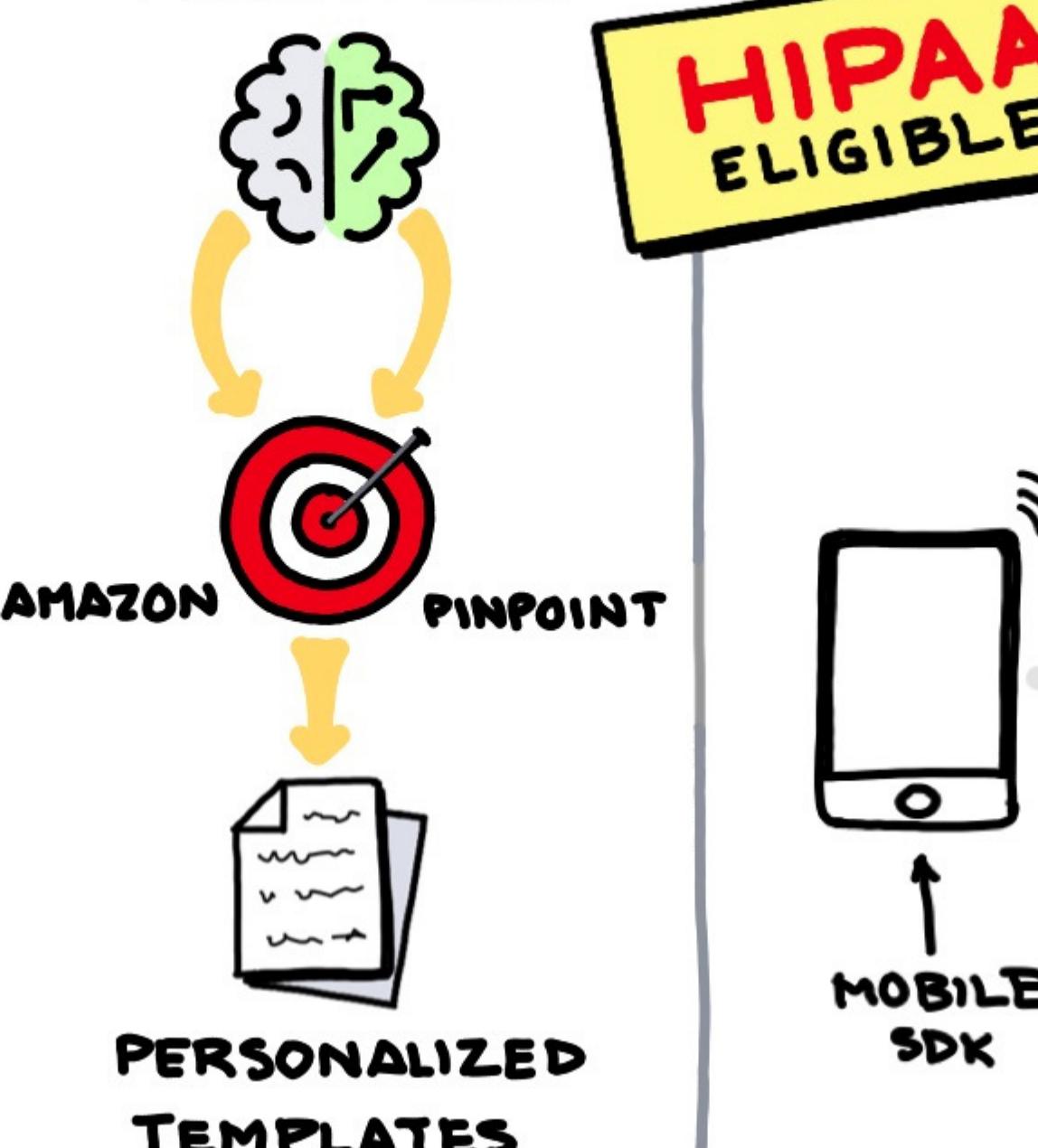
3 MULTI-CHANNEL MESSAGING

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

AMAZON PERSONALIZE

HIPAA ELIGIBLE

REPLACES MOBILE ANALYTICS AUTO-EXPORT



AMAZON PinPOINT

CAMPAGN MANAGEMENT

CUSTOMER ENGAGEMENT FAMILY of SERVICES

AMAZON SIMPLE EMAIL SERVICE
SCALABLE EMAIL PLATFORM

AMAZON CONNECT
CUSTOMER CONTACT CENTER

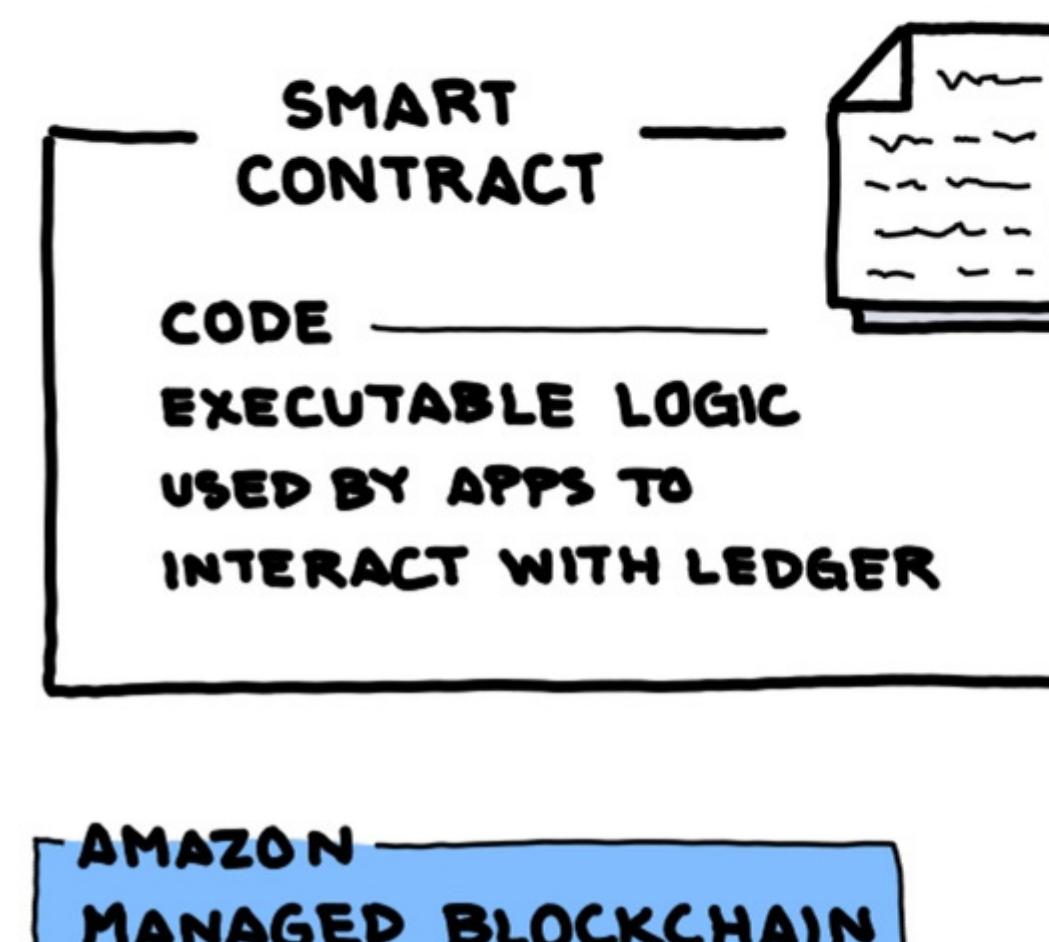
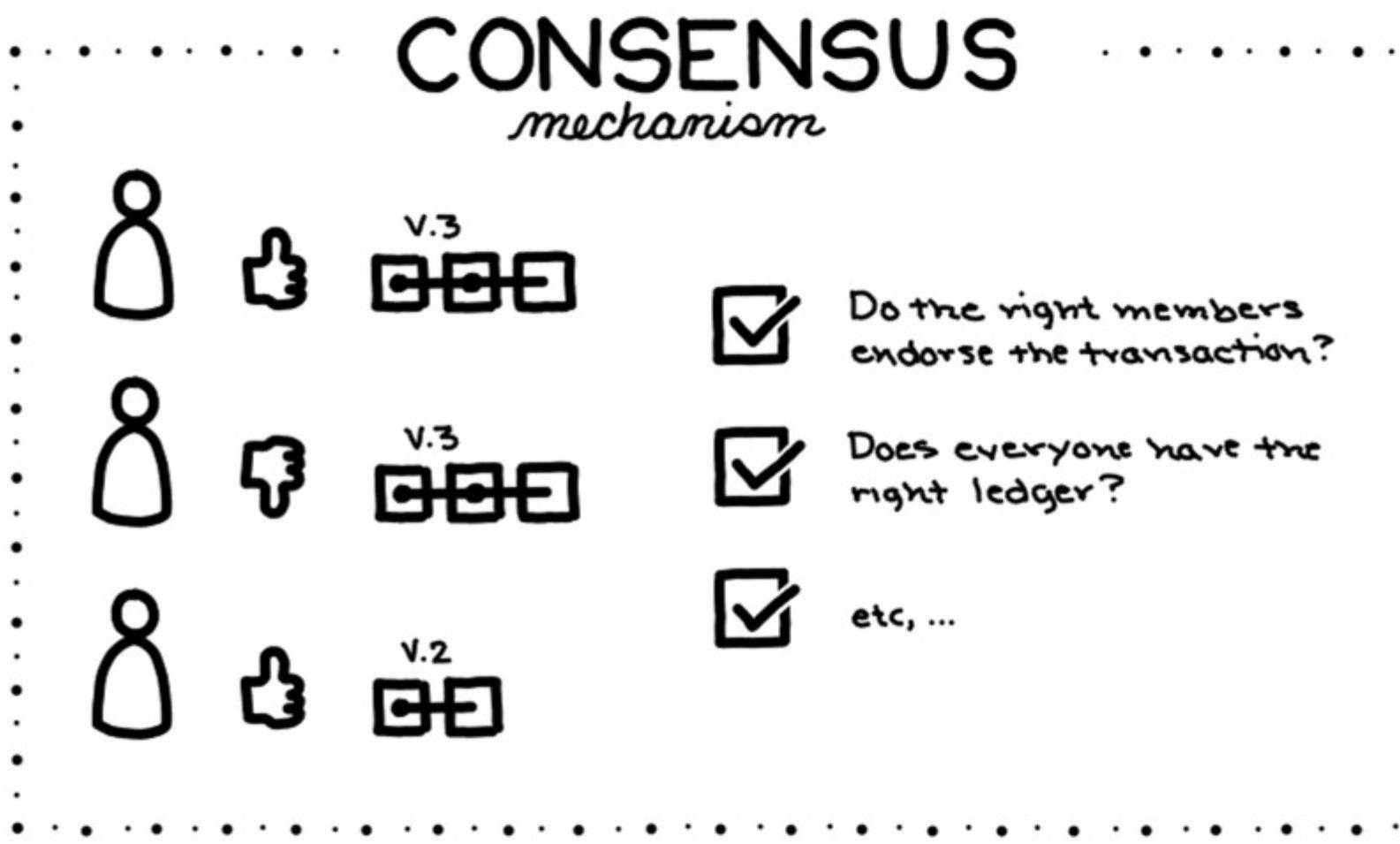
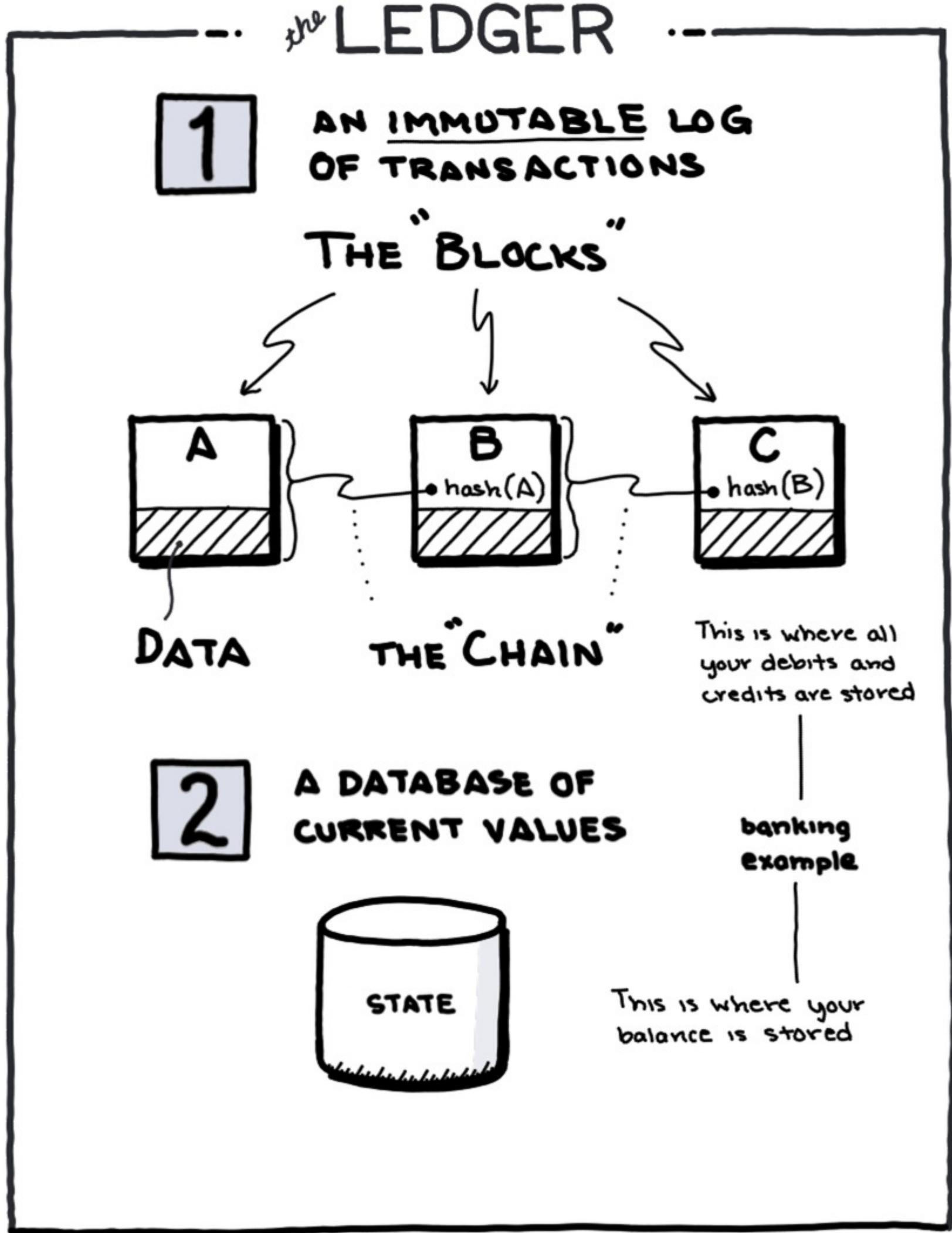
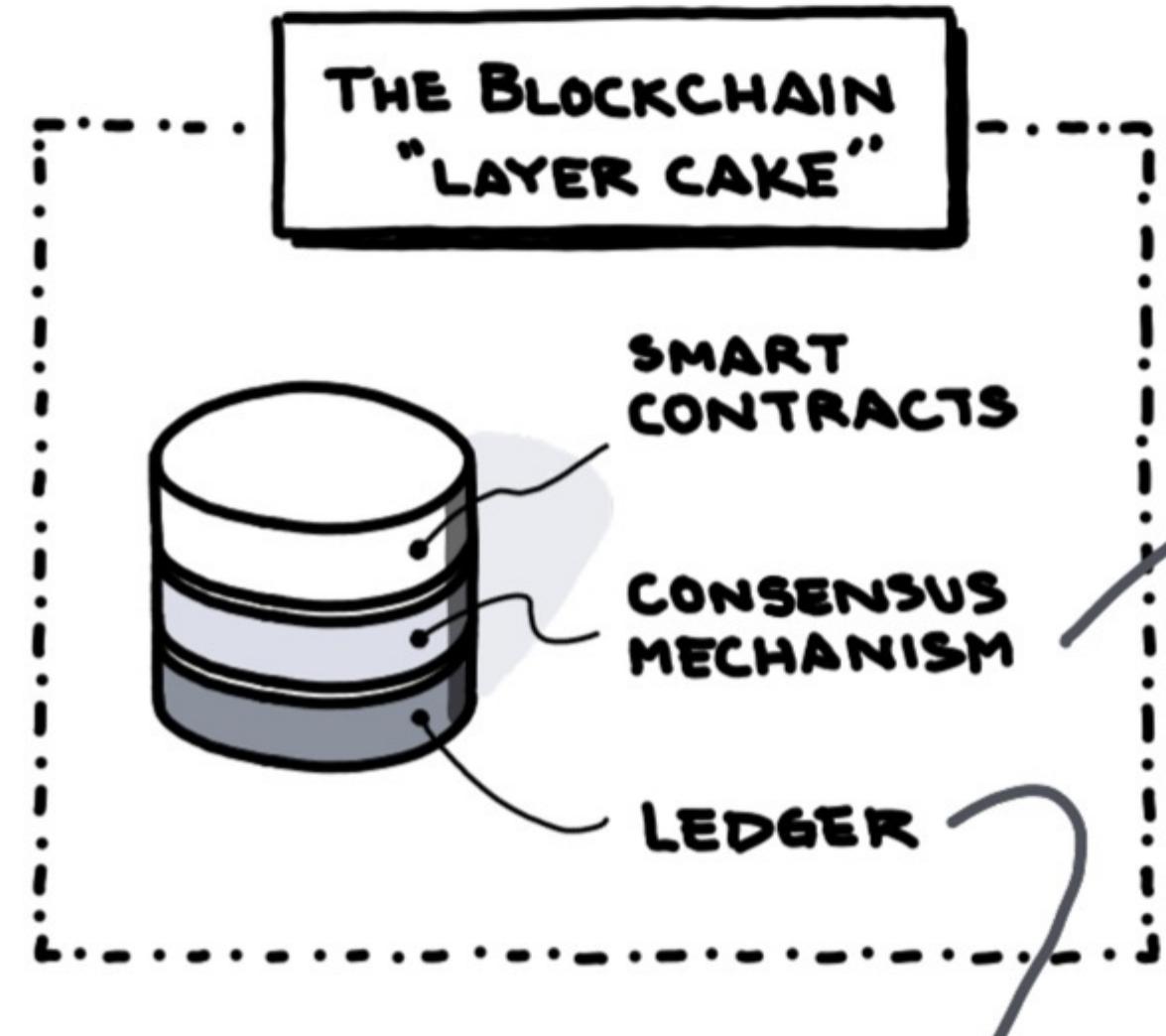
AMAZON MANAGED

BLOCKCHAIN

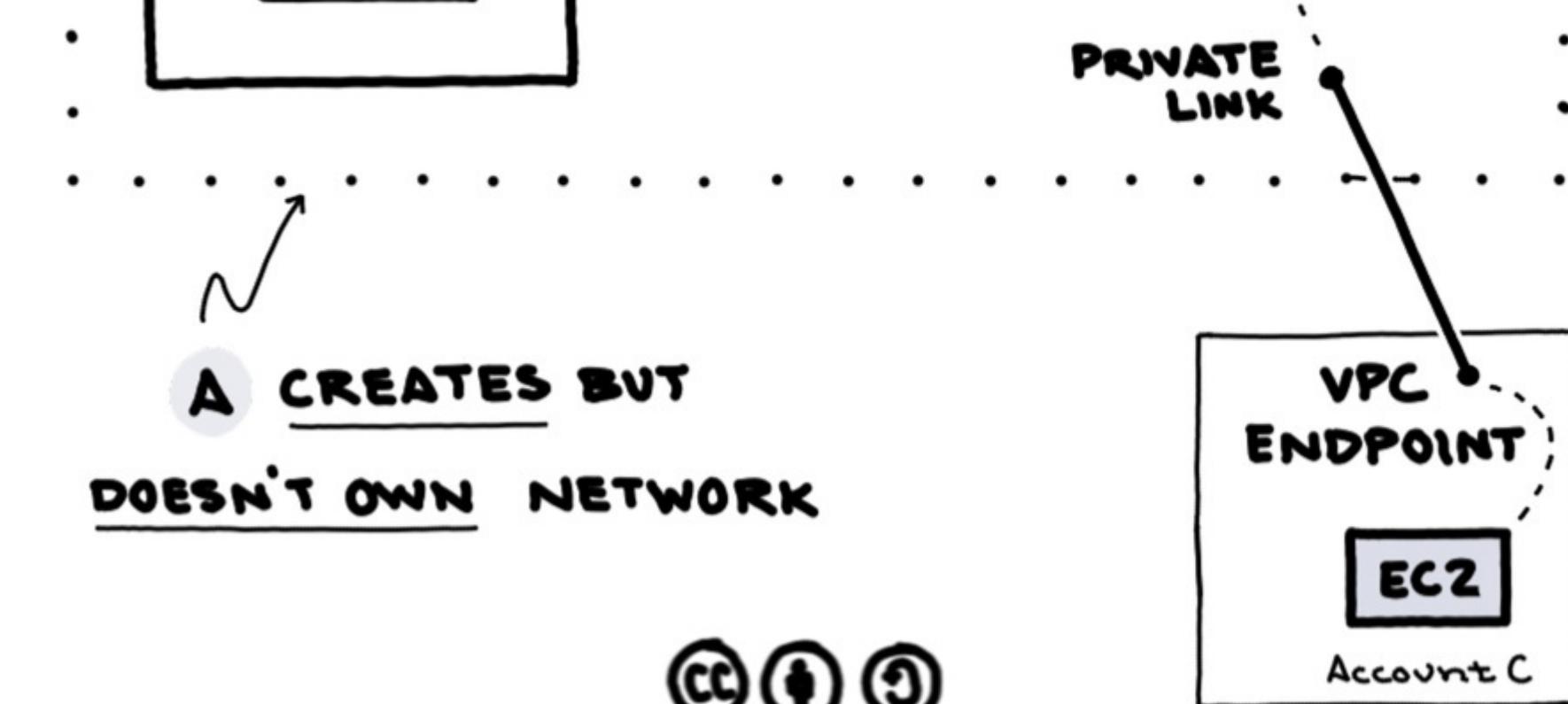
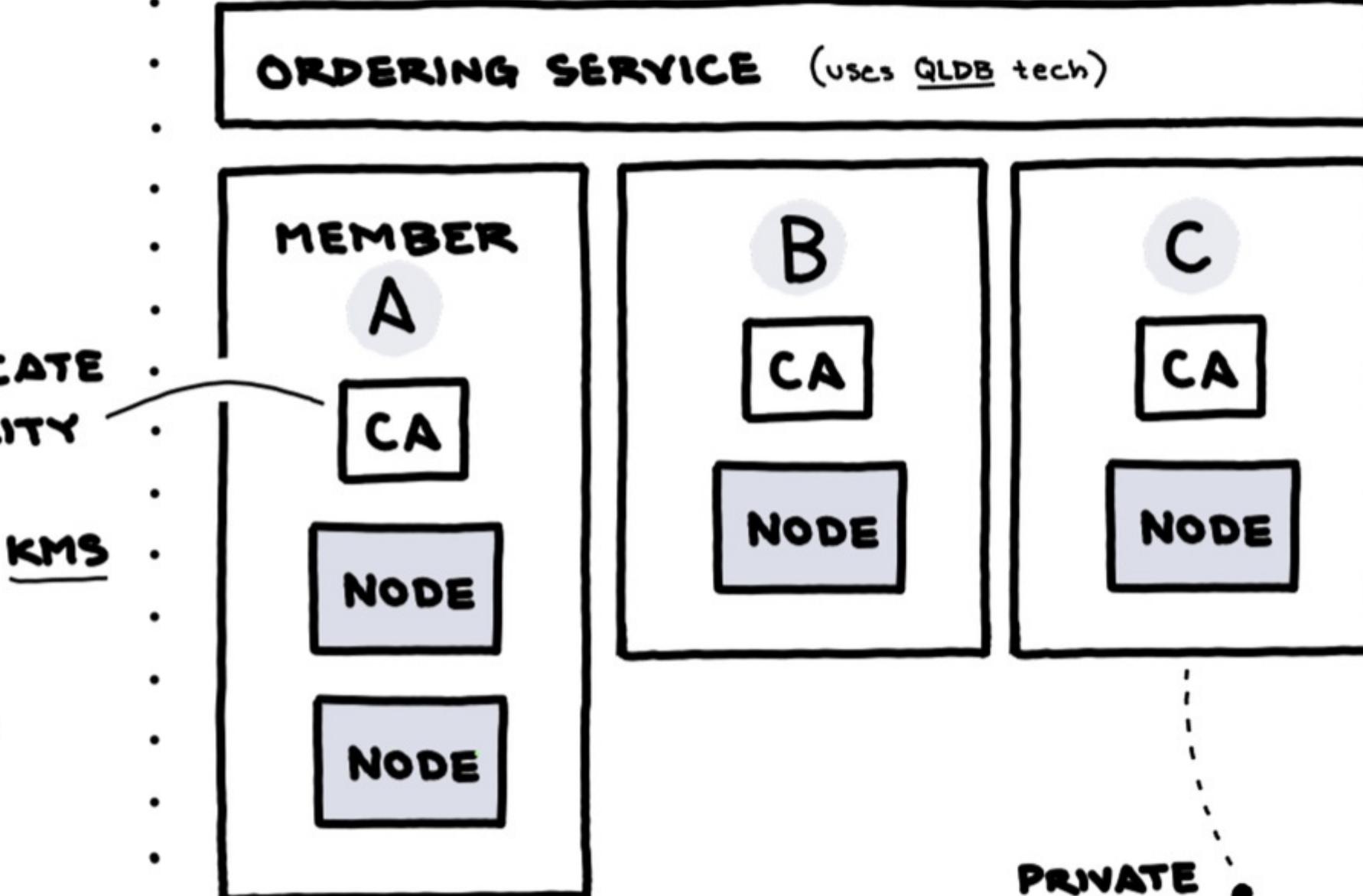
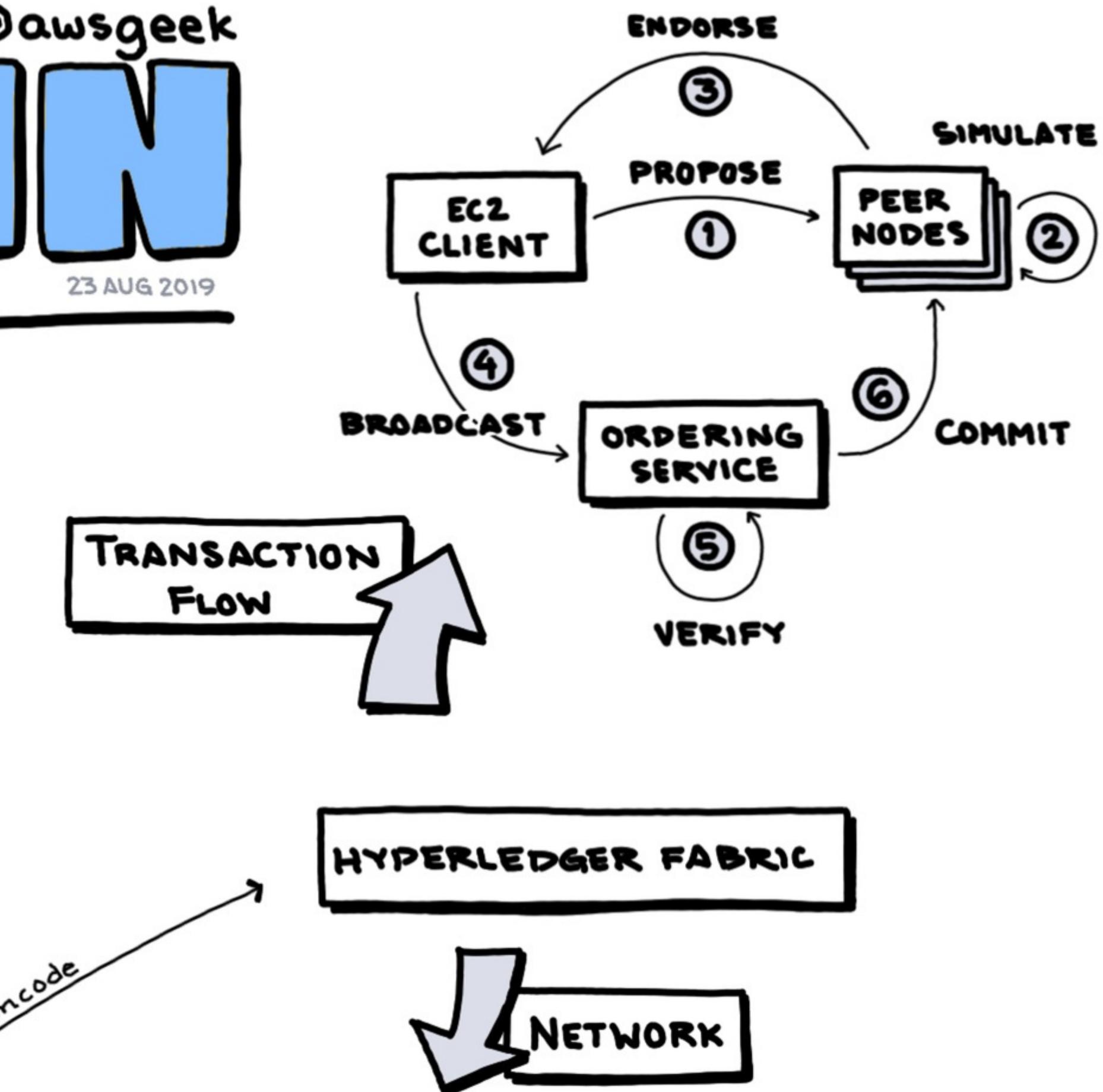
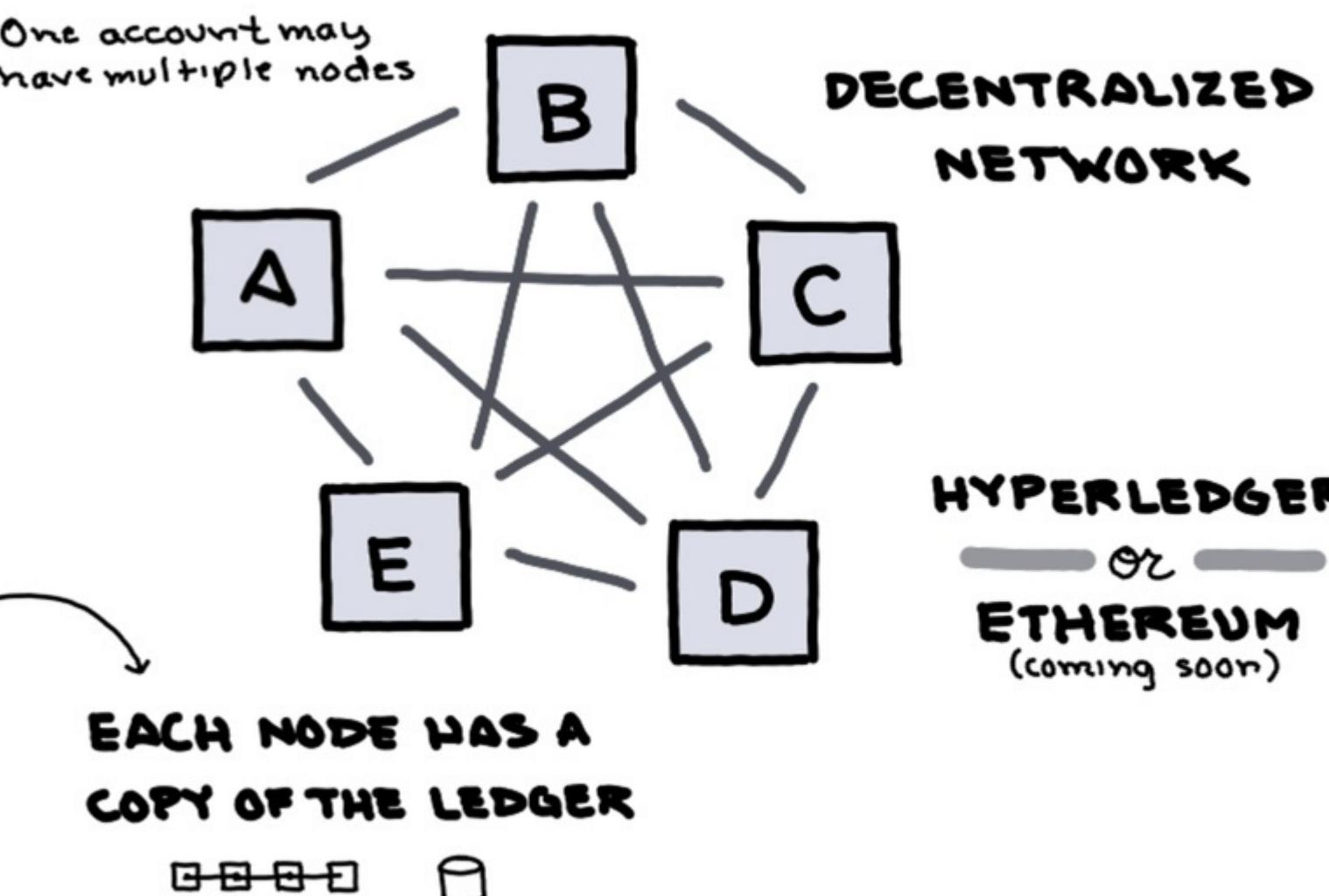
@awsgeek

23 AUG 2019

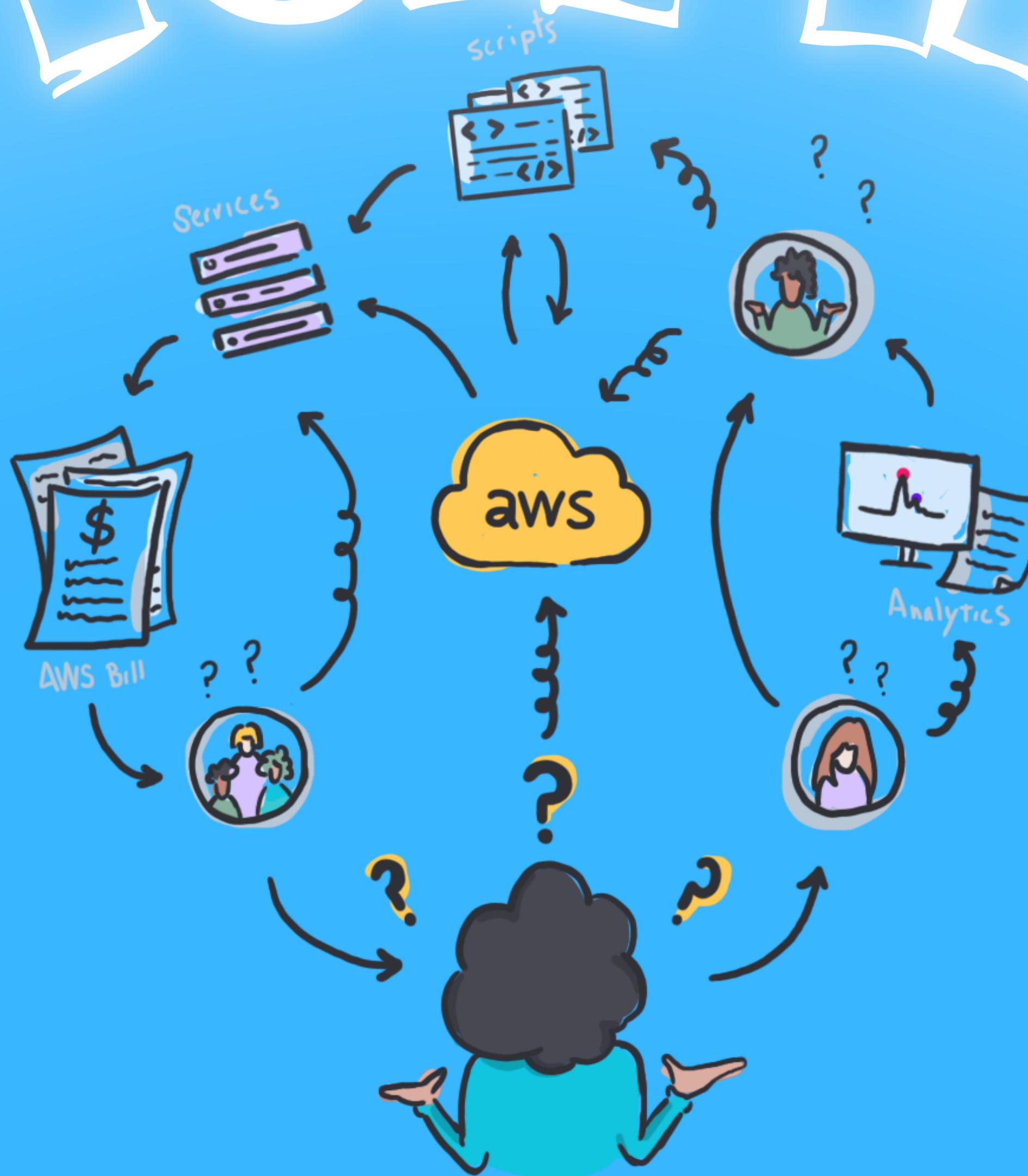
SCALABLE BLOCKCHAIN NETWORKS



AMAZON MANAGED BLOCKCHAIN



Thanks



Content: awsgeek.com

Curated By: [him431](#)