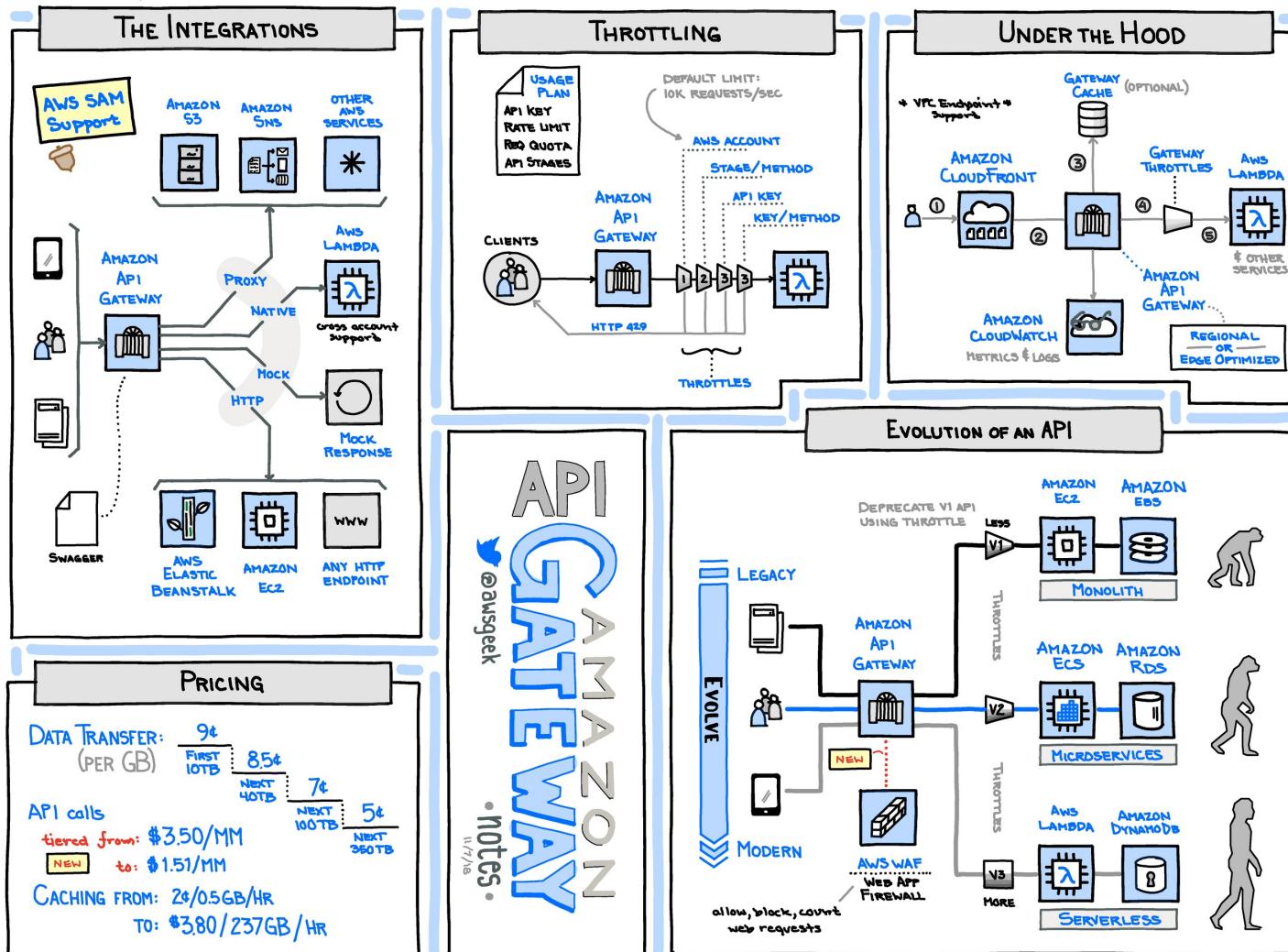


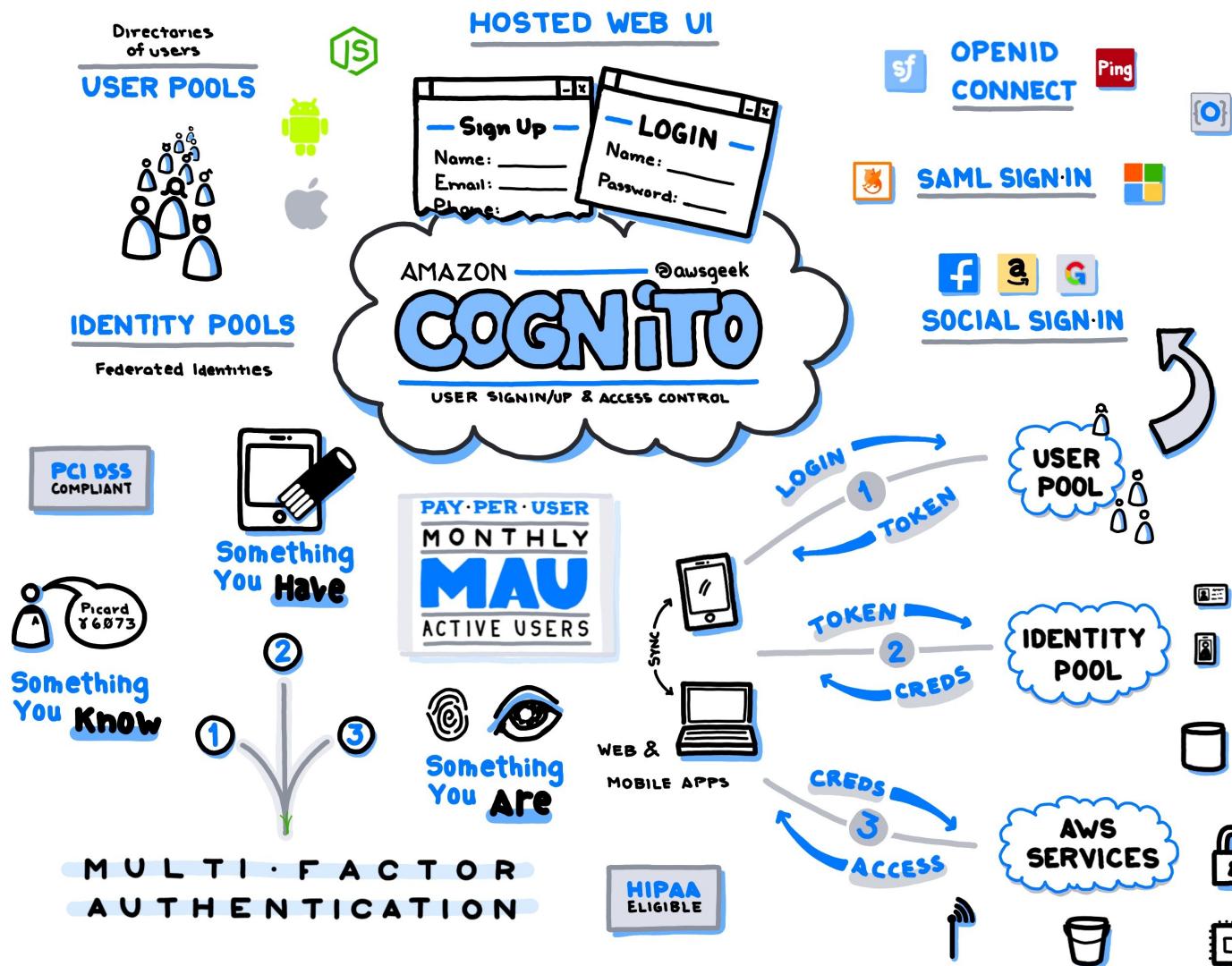
AWS Sketchbook



Content: awsgeek.com

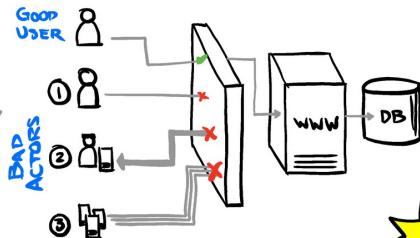
Curated By:  him431



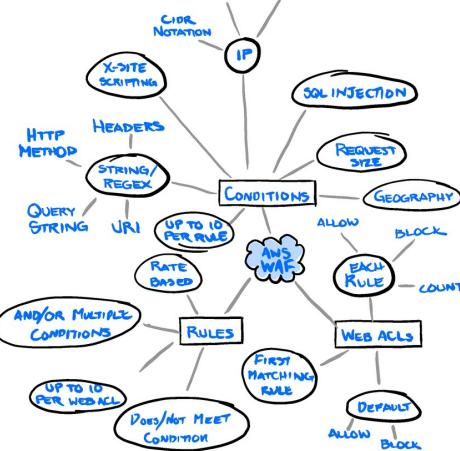


COMMON WAF USE CASES

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

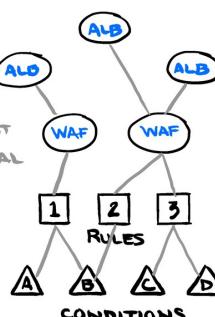


18,16,24,32 ONLY UP TO 10K PER CONDITION



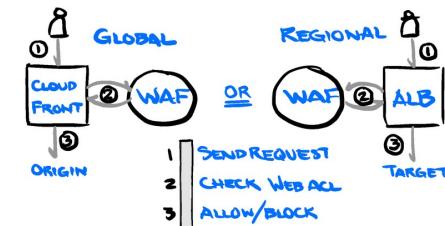
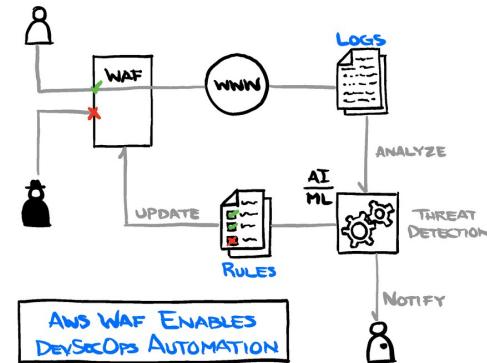
* ACL, RULE, CONDITION ARE EITHER GLOBAL OR REGION SPECIFIC

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



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

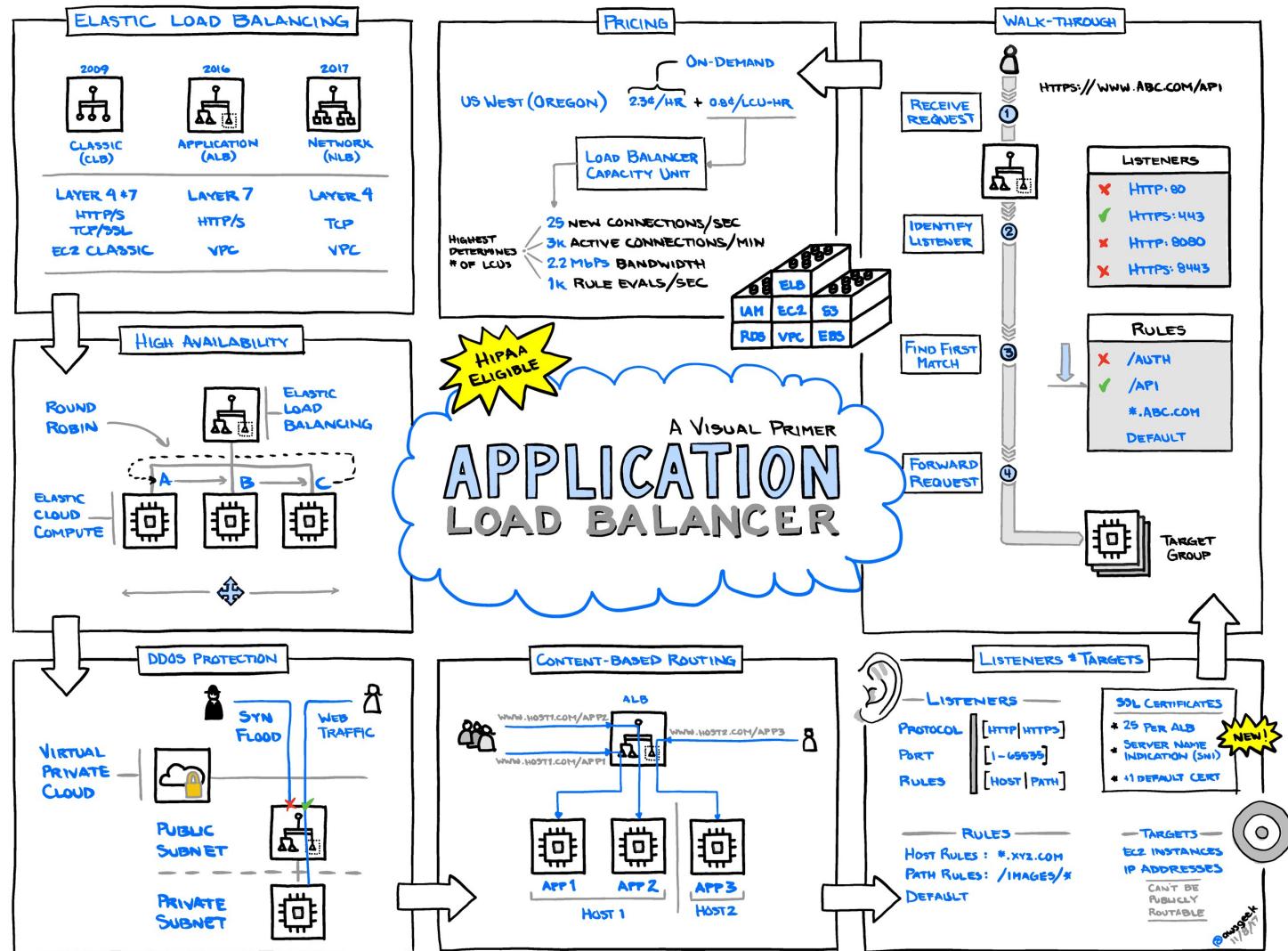
FOLLOW:
[AWS SECURITY BLOG](#)

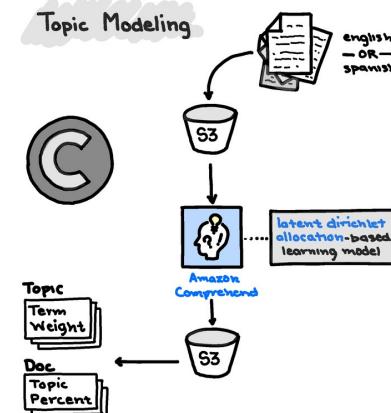
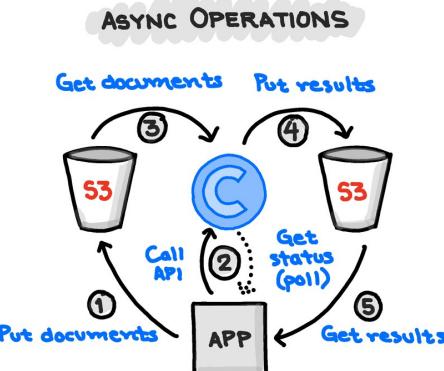
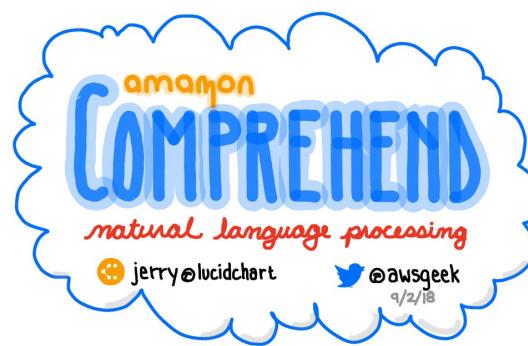
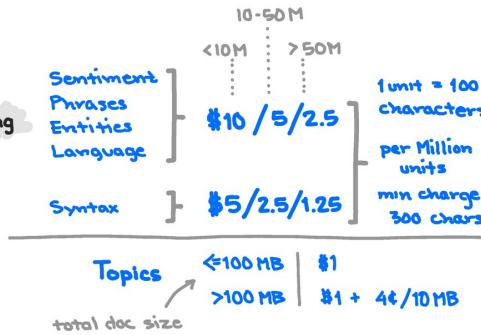
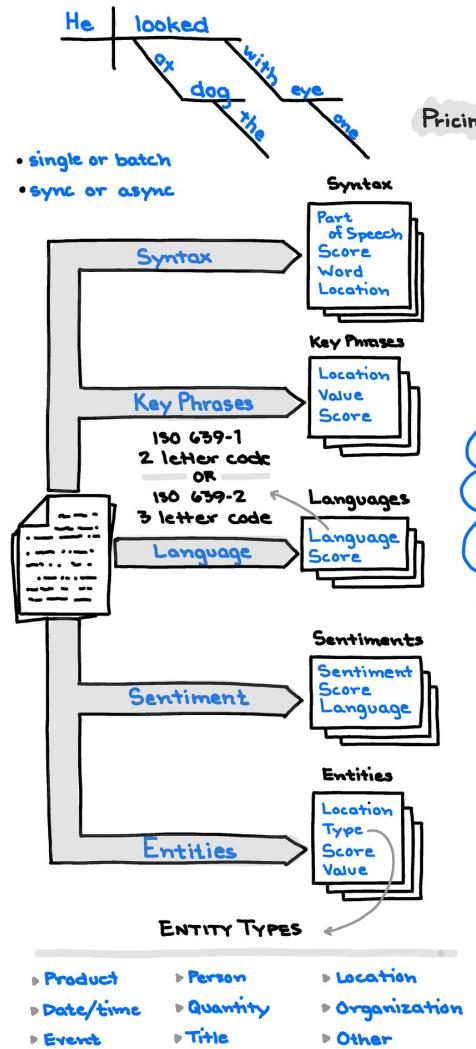


PRECONFIGURED PROTECTIONS

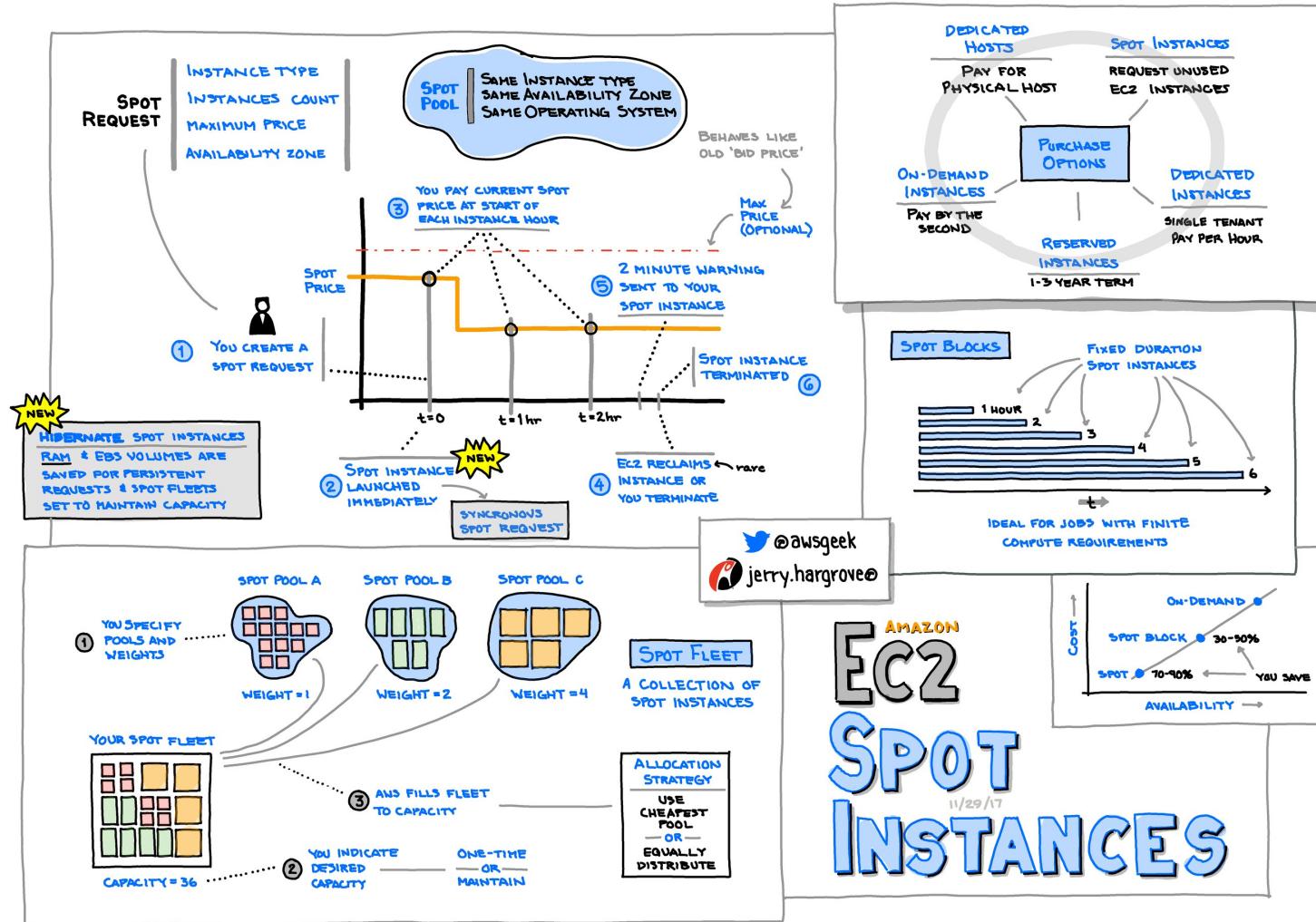
- ★ BAD BOT/SCRAPER
- ★ SQL INJECTION
- ★ CROSS-SITE SCRIPTING
- ★ HTTP FLOOD, SCANNER, PROBE
- ★ IP WHITE/BLACK LIST
- ★ KNOWN ATTACKER

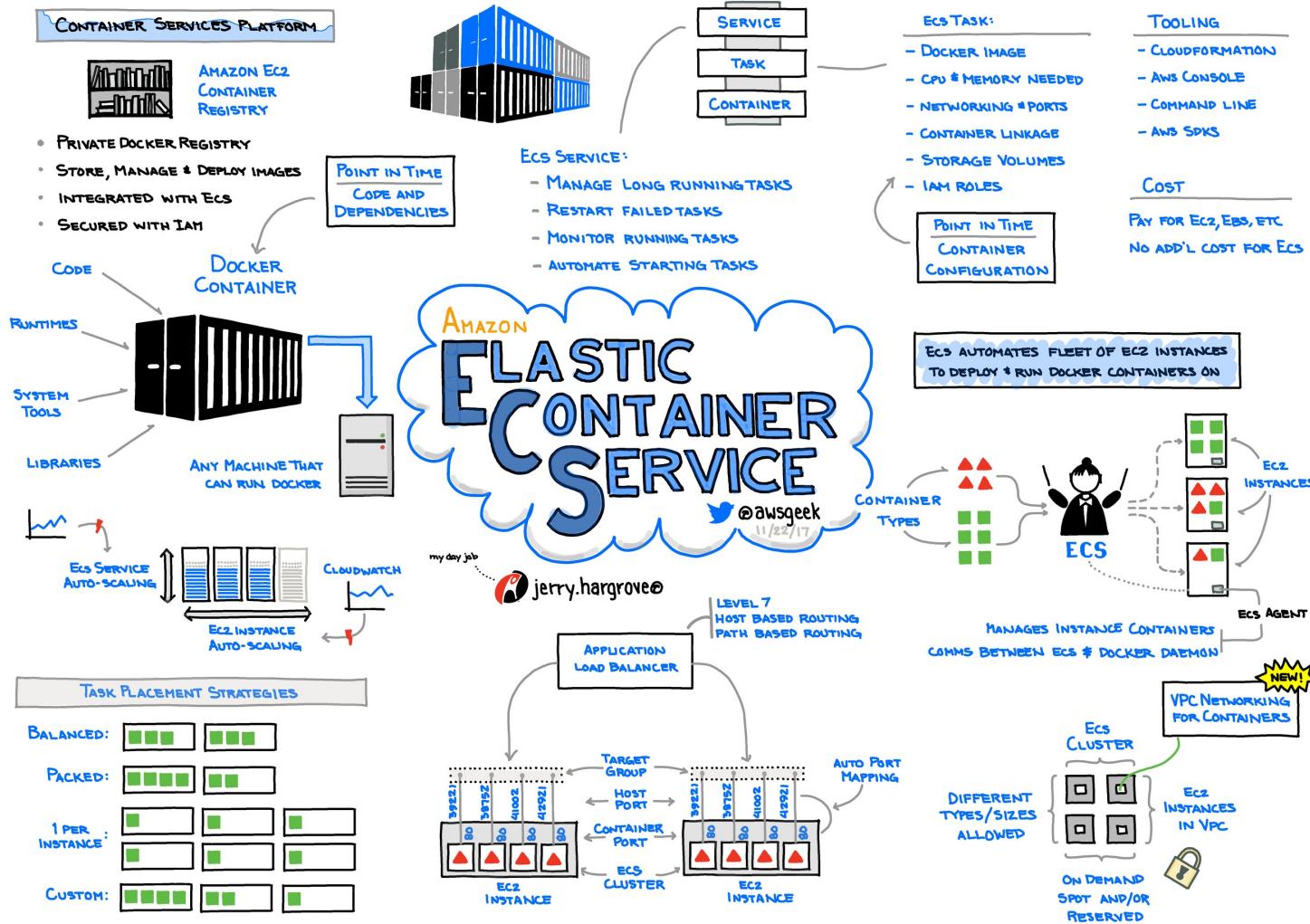
VIA CLOUDFORMATION
NEW OR EXISTING WAF

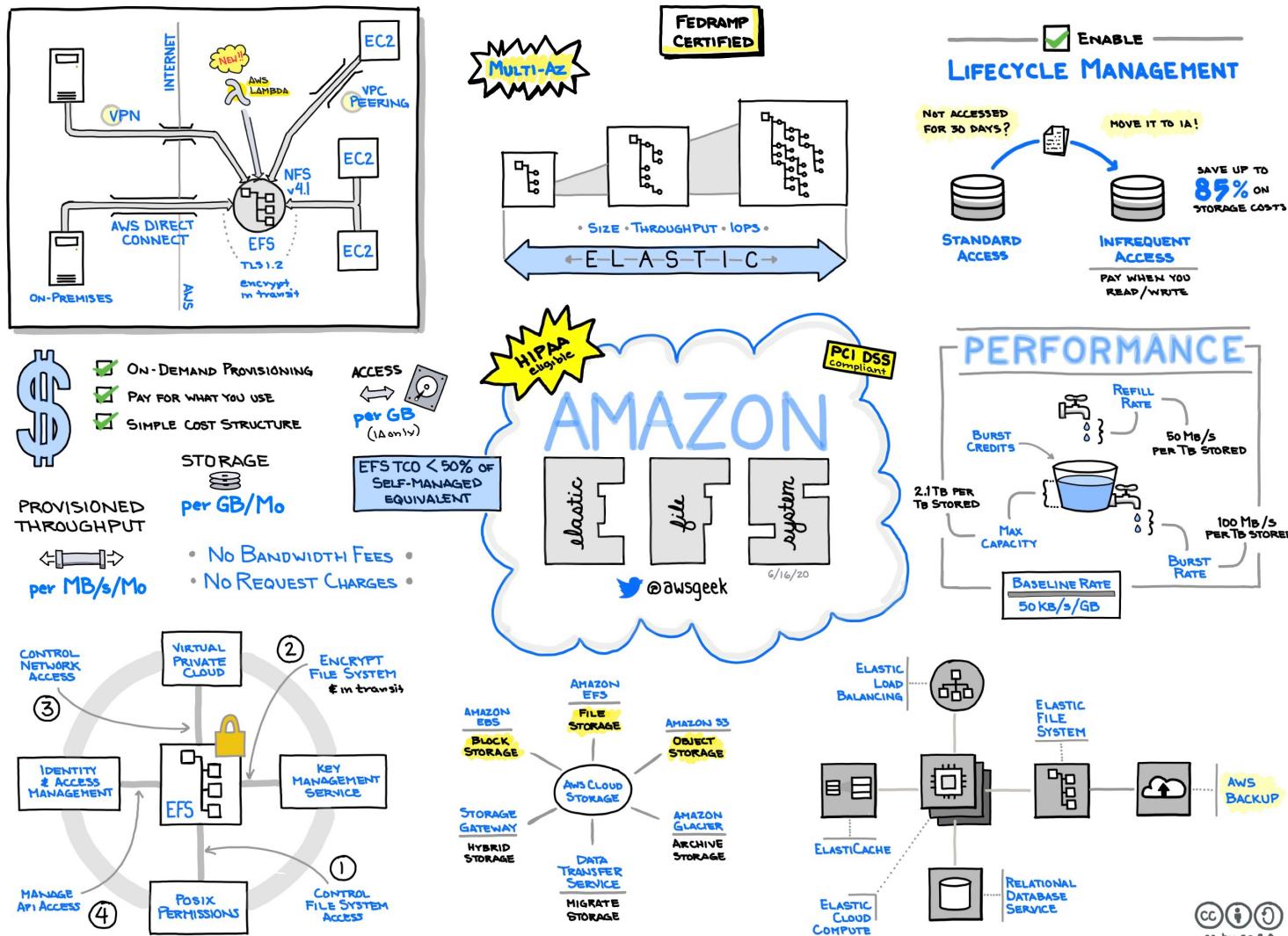




- BEST PRACTICES
- include 1000s of docs
 - min 3 sentences per doc
 - remove docs w/many numbers







Event Driven Apps

SOURCE



DYNAMODB



OR S3

OR MANY OTHER EVENT SOURCES

BUS



EVENTBRIDGE

SINK



LAMBDA

#serverlessforeveryone



@edjgeek

CODE more



SERVE less



AWS

LAMBDA

4/6/2020



@awsgeek



JAVA

GO



PYTHON



POWERSHELL



RUBY



NODE.JS



C#



LAMBDA



CODE



CONFIG

- MEMORY
- TIMEOUT
- IAM ROLE



bring your
BYOC
own code



LAMBDA LAYERS



LAMBDA FUNCTIONS

TIMELINE

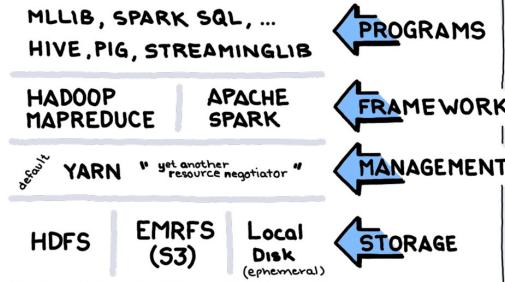
- (a subset of enhancements since launch)
- 2009: BETA LAUNCH
PIG & HIVE
 - 10: CC1/GPU INSTANCES
BOOTSTRAP ACTIONS
 - 11: SPOT INSTANCES
CC2 INSTANCES
 - 12: HBASE
DATA PIPELINE
 - 13: S3 SSE
IMPALA
 - 14: IAM ROLES
HUNK
 - 15: APACHE SPARK
PRIVATE SUBNETS
 - 16: CLOUDFORMATION
FLINK
 - 17: AUTO-SCALING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

Amazon EMR BIG DATA PLATFORM

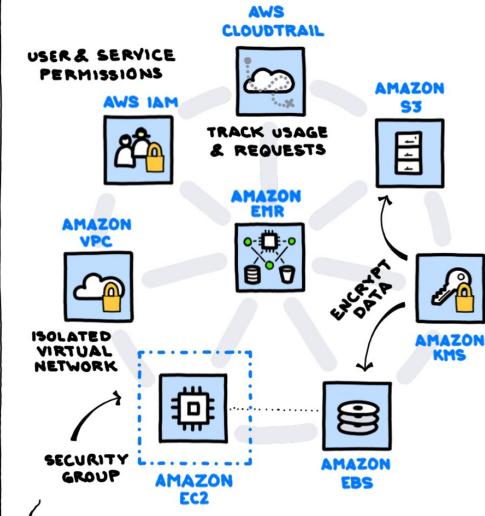
- MACHINE LEARNING
- REALTIME STREAMING
- CLICKSTREAM ANALYSIS
- GENOMICS
- ETL

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

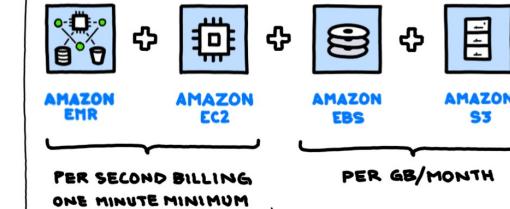
LAYERS



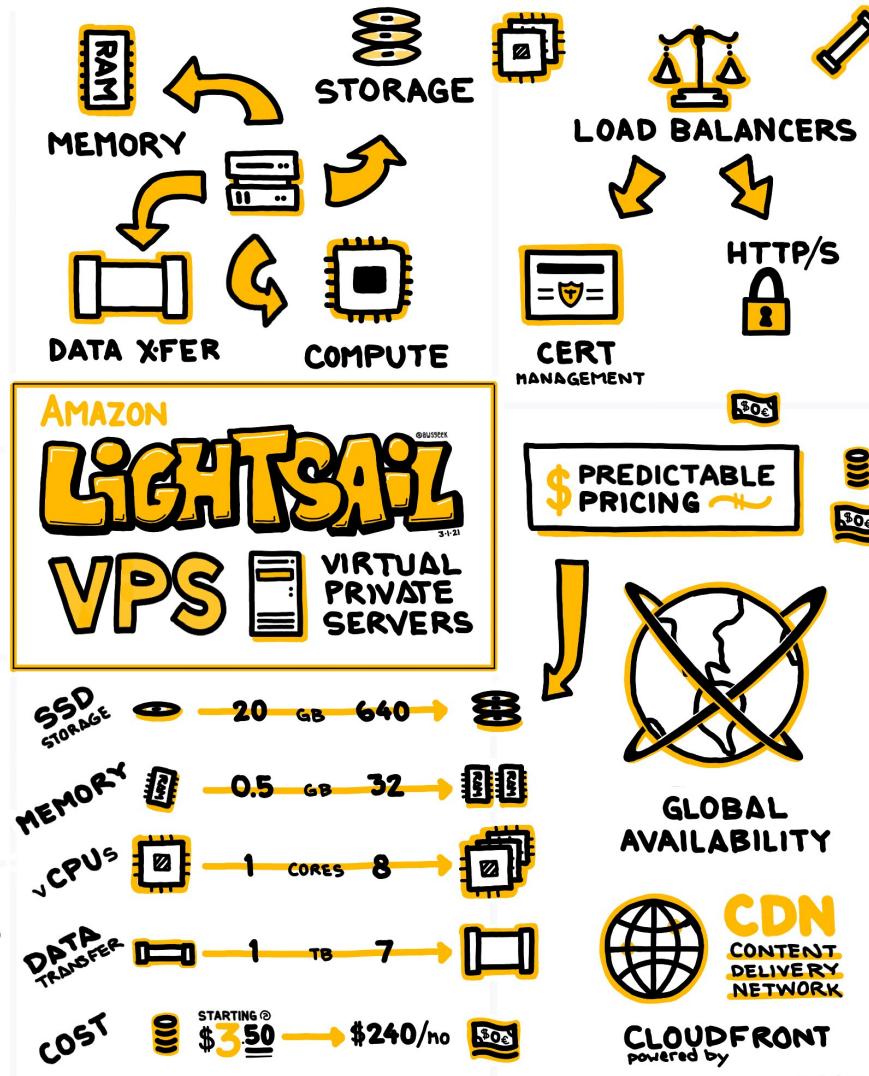
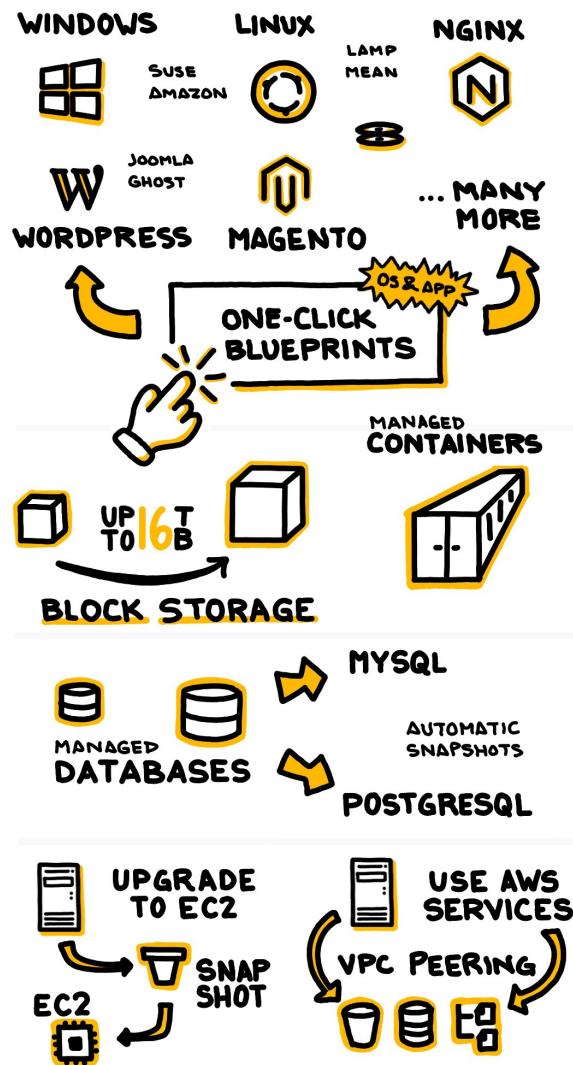
SECURITY

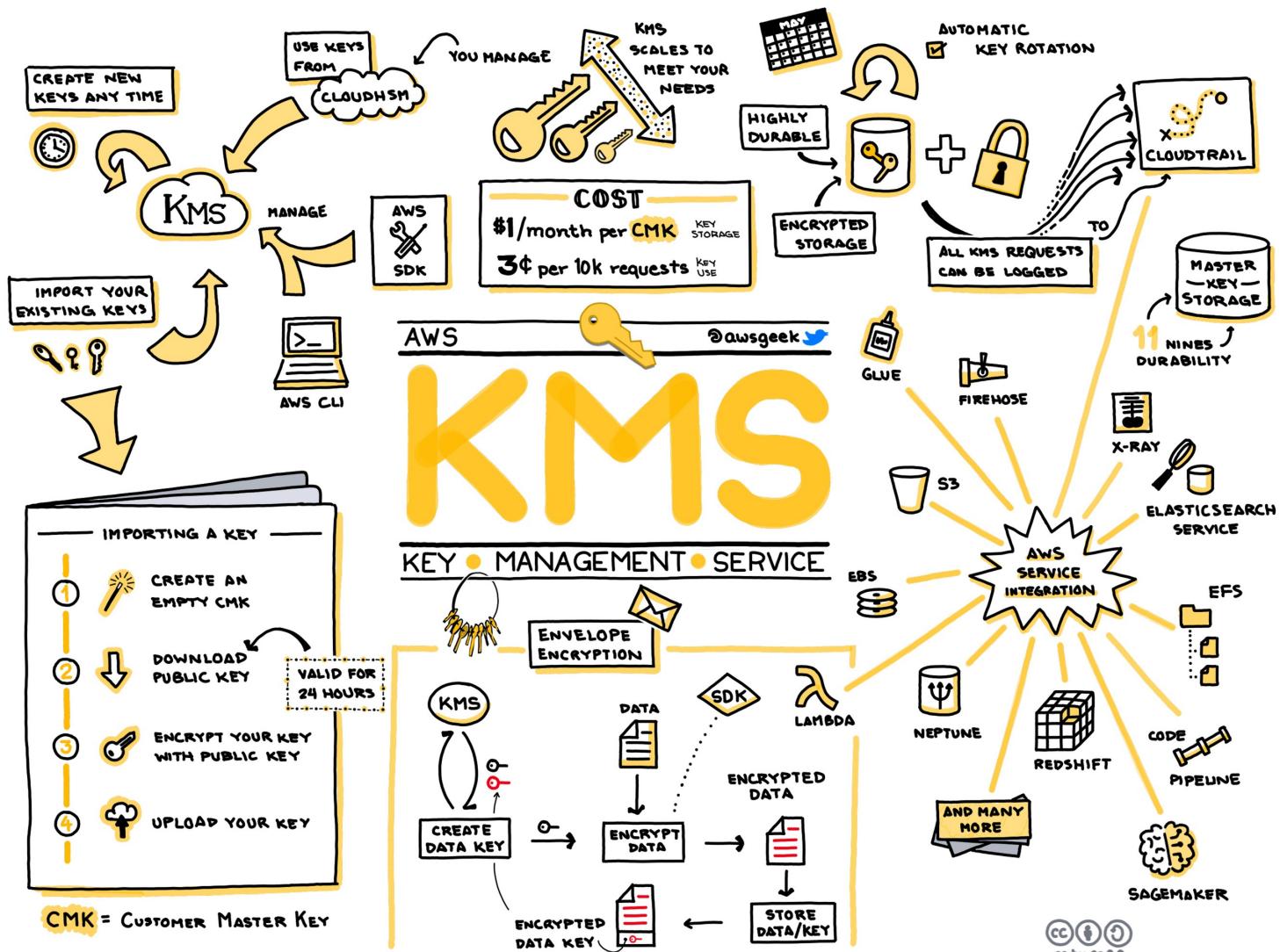


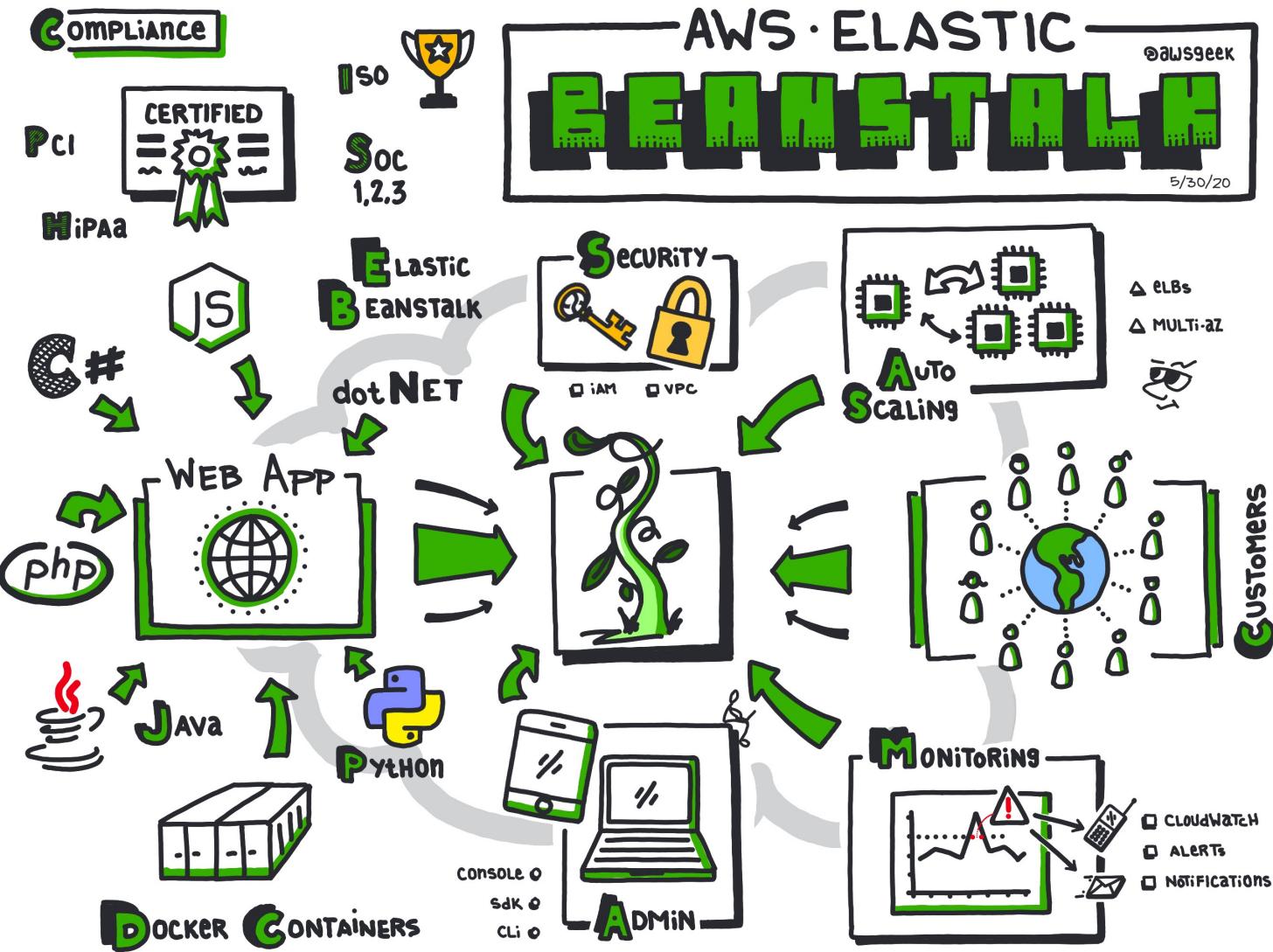
PAY-AS-YOU-GO PRICING ...

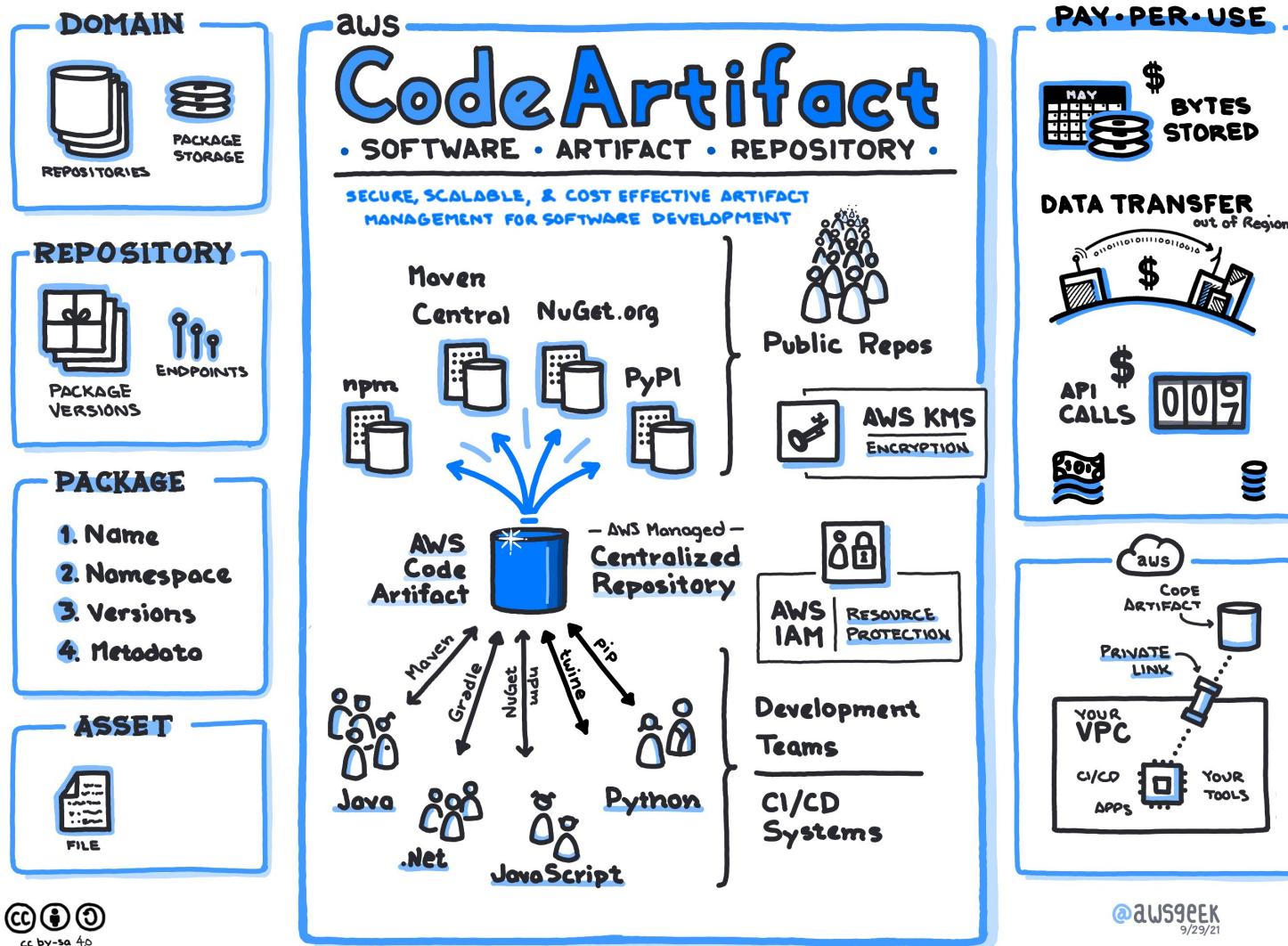


EC2 SPOT for Hadoop Task Nodes up to **90% SAVINGS**

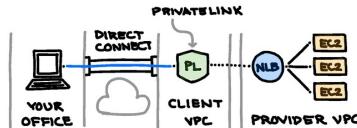








PRIVATERLINK ADDRESSES ARE PRIVATE
NO PUBLIC IP ADDRESSES!!



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'

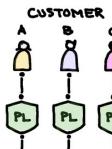
FOR CUSTOMERS & PARTNERS

EXPOSE YOUR SERVICE IN OTHER VPCS

LIFECYCLE EVENTS VIA SNS

FOR AWS SERVICES

BUILDS ON ENDPOINTS: S3, DYNAMO DB
NOW CALLED "GATEWAY ENDPOINTS"
CLOUDWATCH, SNS, SAGEMAKER
KINESIS, CODEBUILD, CONFIG
EC2, API GATEWAY, AWS SERVICE CATALOG
ELB, CLOUDFORMATION
EC2 SYSTEMS MANAGER



HOW TO DIFFERENTIATE TRAFFIC?

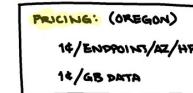
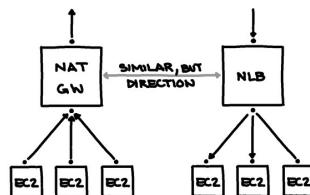
- ① USE ACCOUNTS/PASSWORDS/TOKENS
 - ② USE DIFF LISTENER PORTS ON TARGETS
 - ③ USE PROXY PROTOCOL V2 PREAMBLE
- PREFERRED, BUT REQ'S CODE PATCH

UNDER THE HOOD: AWS HYPERPLANE

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

HYPERPLANE NODES

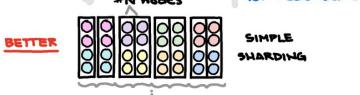
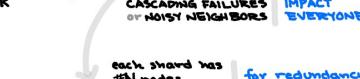
- BASED ON S3 LOAD BALANCER ARCHITECTURE
- HYPERPLANE NODES ARE REALLY EC2 INSTANCES
- USED BY AWS TO MANAGE STATE & ROUTE PACKETS

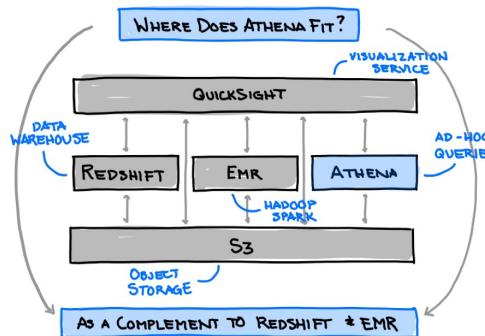


DEALING WITH NOISY NEIGHBORS? SHUFFLE SHARDING.

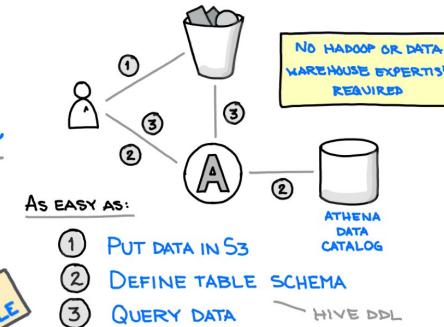
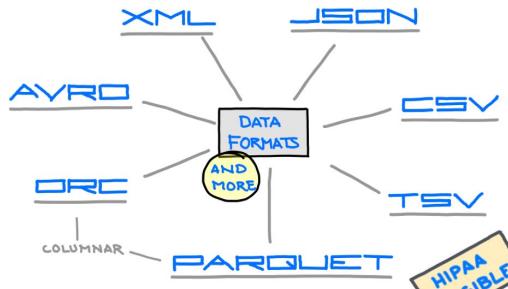
- GIVE EACH CUSTOMER N RANDOM NODES AMONG MANY
- ONLY A SMALL PERCENTAGE WILL OVERLAP
- ISOLATE REALLY NOISY NEIGHBORS

requires fault tolerant client





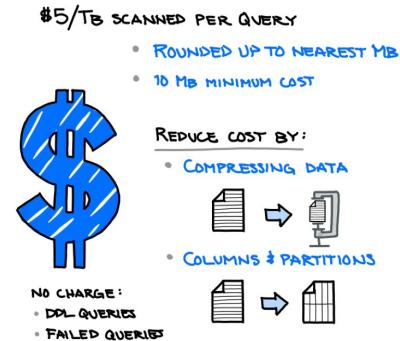
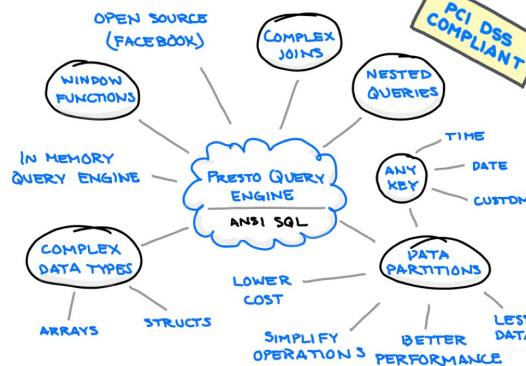
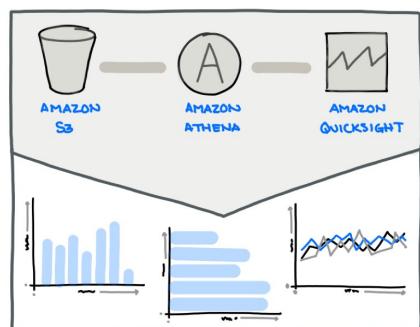
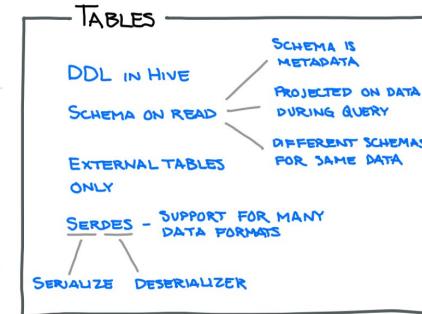
SERVERLESS	HIGHLY AVAILABLE
NO INFRA OR ADMIN	WARM COMPUTE POOLS DATA IN S3 MULTIPLE AZ
CONVENIENT	PERFORMANT AUTO PARALLELIZATION STREAMING RESULTS COMPRESS/COLUMNAR
NO DATA LOADING NATIVE DATA FORMATS NO ETL INVOLVED	

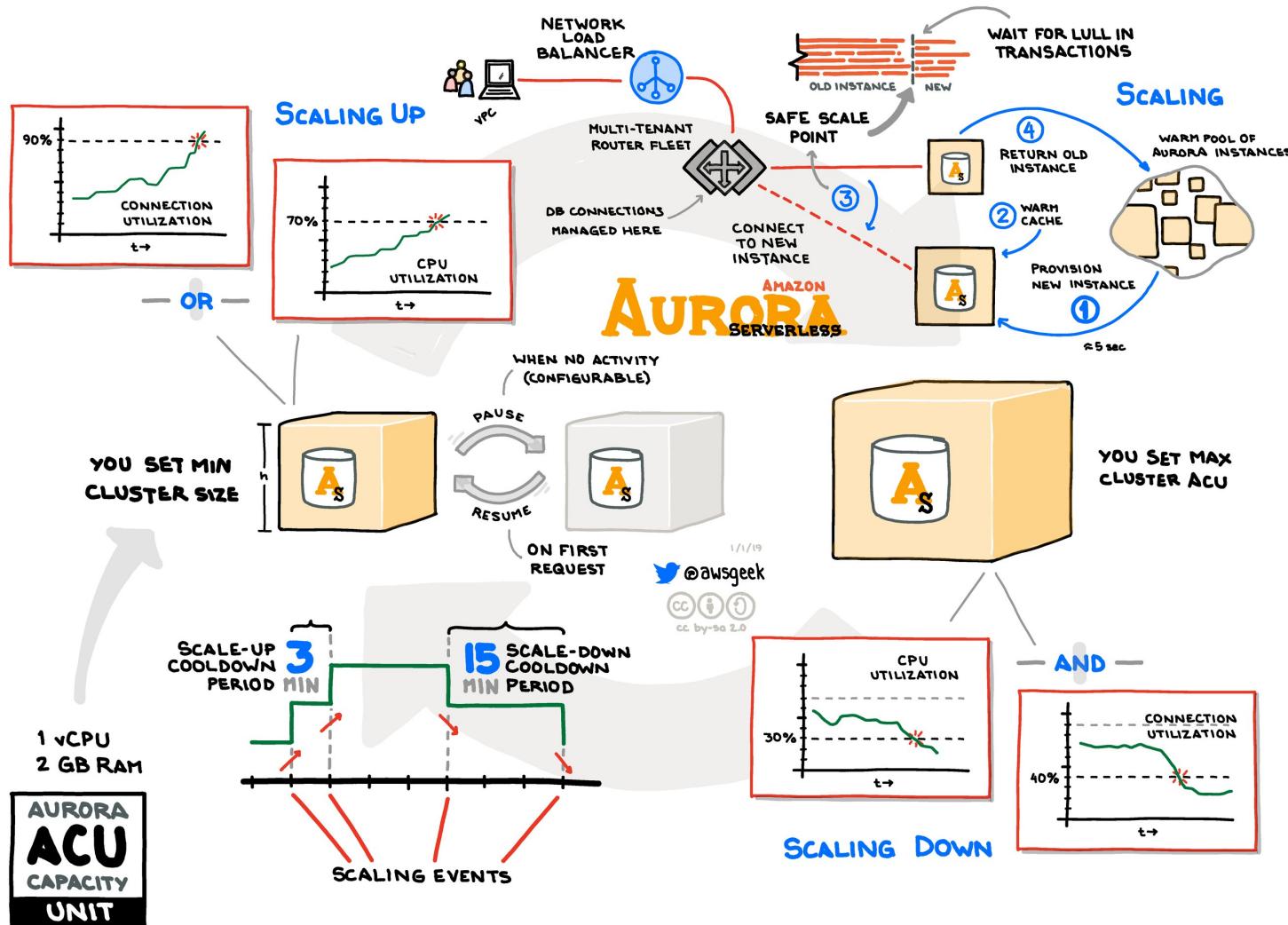


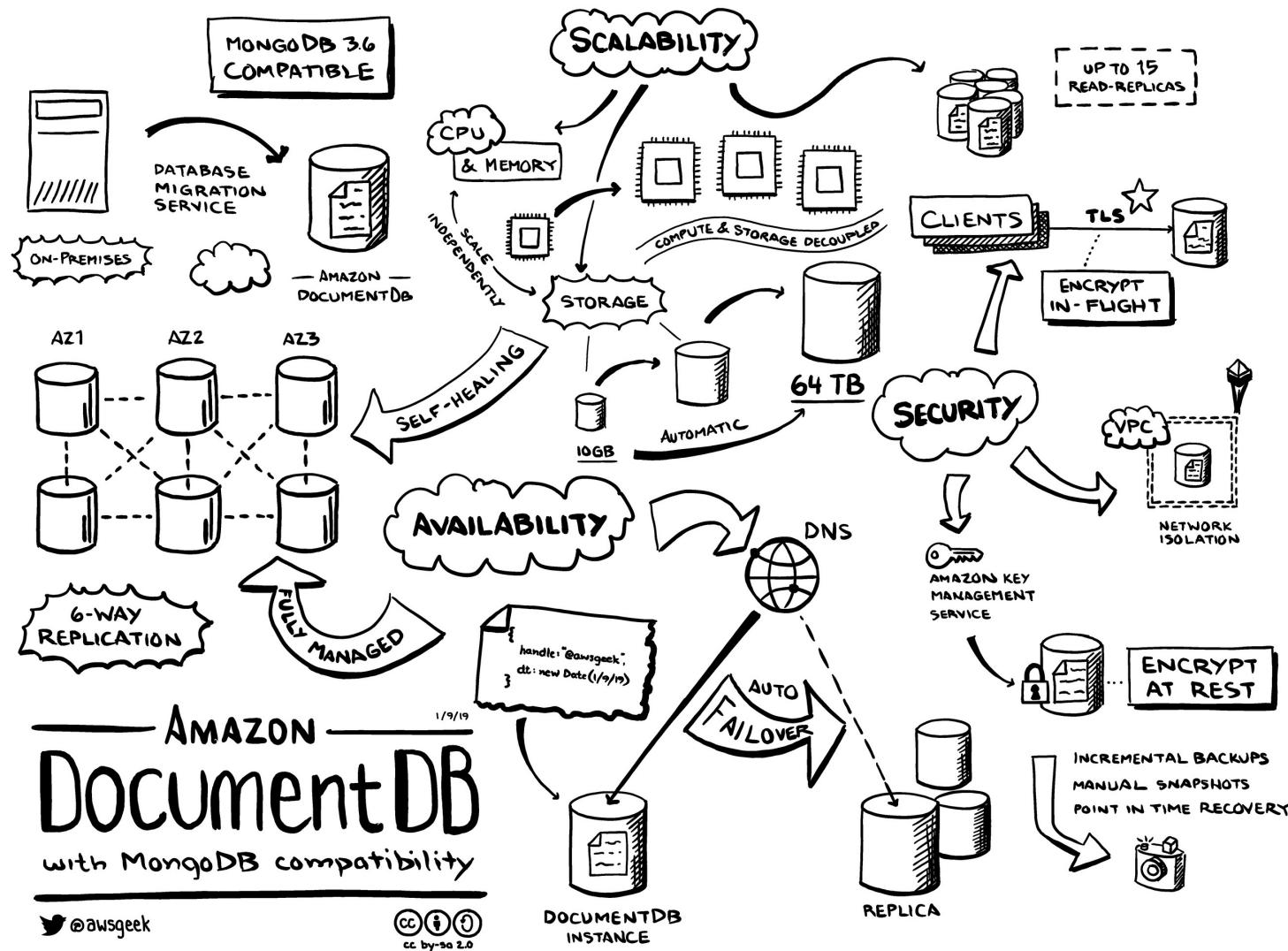
3/16/20 @awsgeek

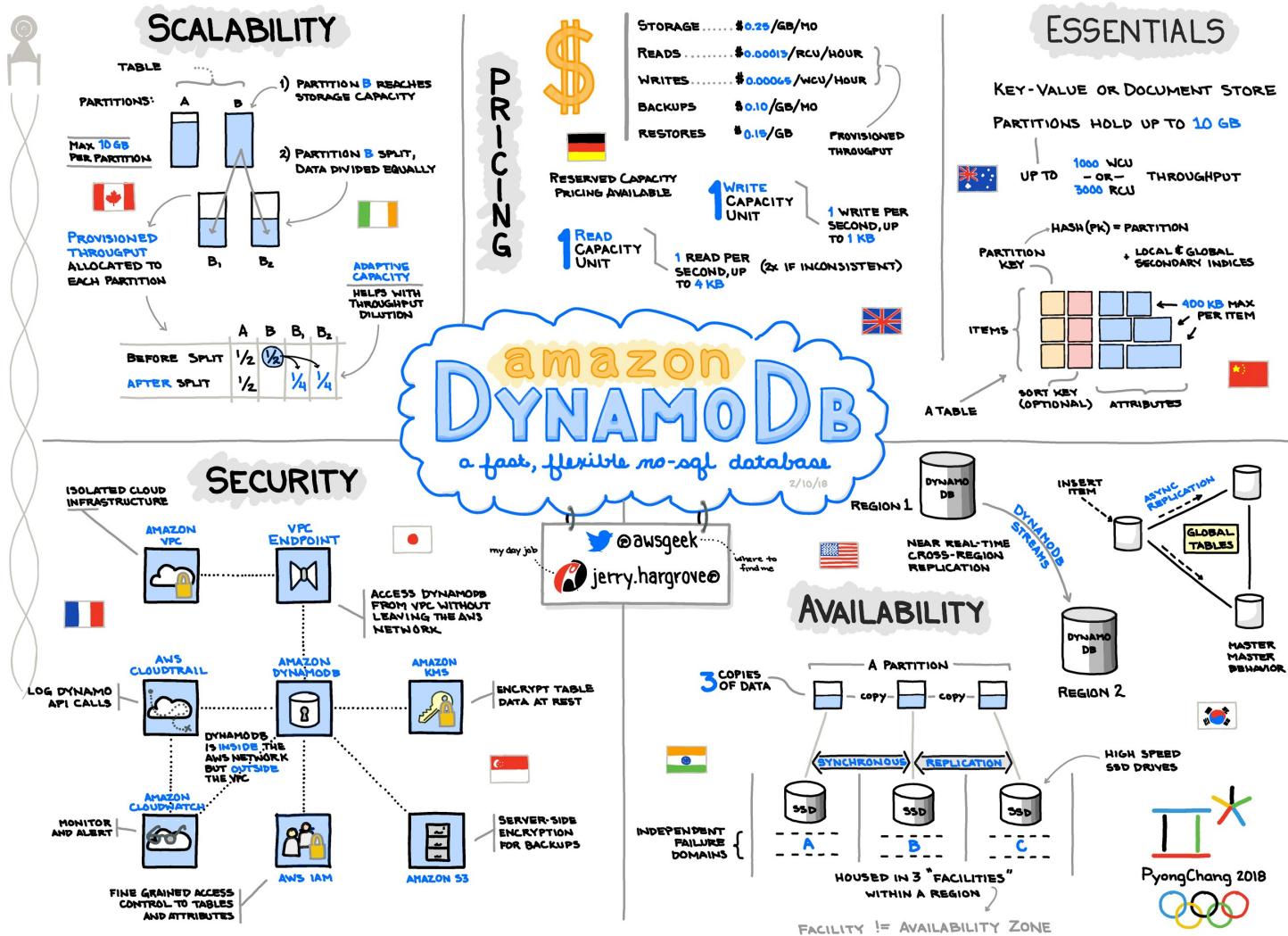
AMAZON athena

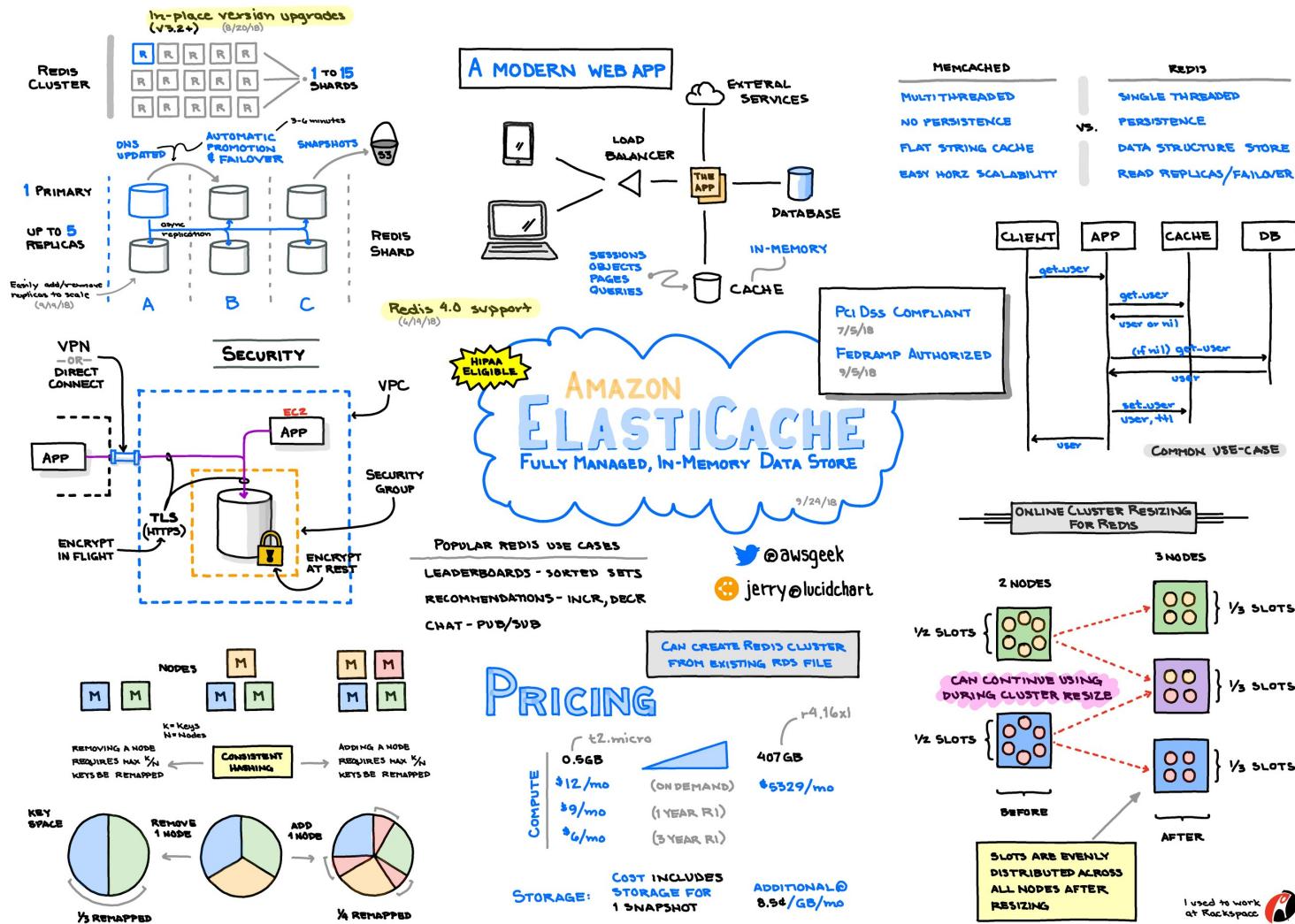
GOAL: MAKE IT EASY TO ANALYZE DATA IN S3











SOCIAL NETWORKING
GROUP FRIENDS WHO LIKE OR DISLIKE SIMILAR THINGS

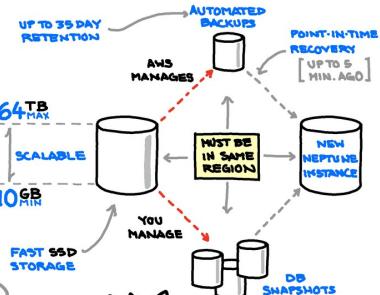
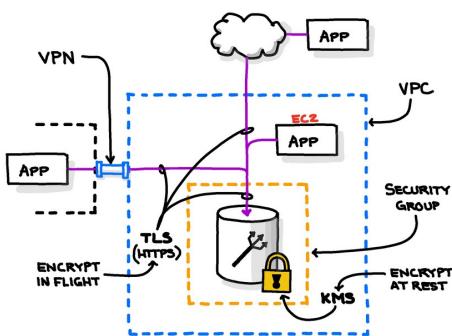
RECOMMENDATION ENGINE
MAKE PURCHASE SUGGESTIONS BASED ON OTHER USERS WITH SIMILAR INTERESTS

FRAUD DETECTION
DETECT CONNECTIONS TO KNOWN FRAUD SCENARIOS

KNOWLEDGE GRAPHS
STORE AND QUERY INTO & RELATIONSHIPS BETWEEN USERS

LIFE SCIENCES
SECURELY STORE AND PROCESS PATIENT & HEALTHCARE DATA

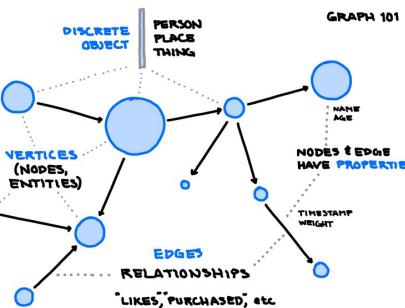
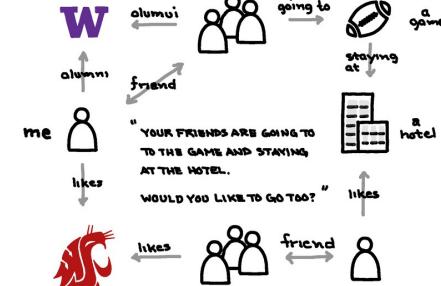
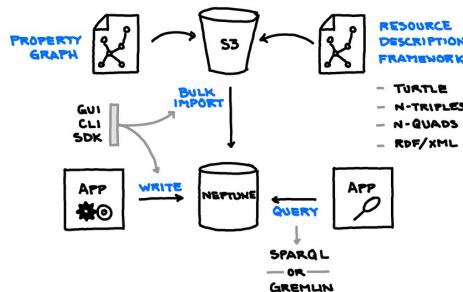
NETWORK/IT OPS
STORE NETWORK TOPOLOGY & DISCOVER RELATIONSHIPS BETWEEN HOSTS



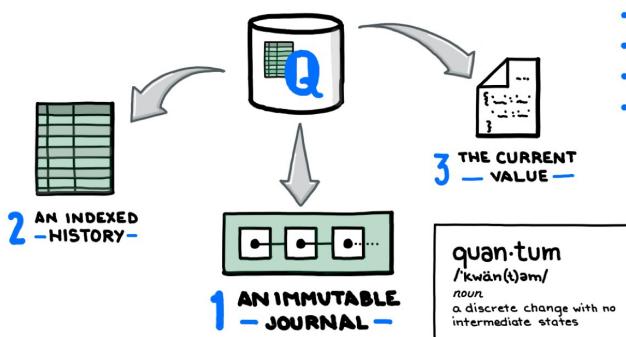
PRICING

ON-DEMAND	PRIMARY - PER HOUR REPLICAS - SAME
STORAGE	104/GB/Mo
BACKUPS	204/MILLION REQUESTS UP TO DB SIZE, FREE 5\$ RATES AFTER
DATA TRANSFER	IN .. FREE OUT .. 24/GB TO OTHER REGION .. 94/GB TO INTERNET
	STARTING AT 35\$/HR FOR R4.LG

per 16 KB read per 4 KB write



WHAT IS A QUANTUM LEDGER DB?



DATABASE

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

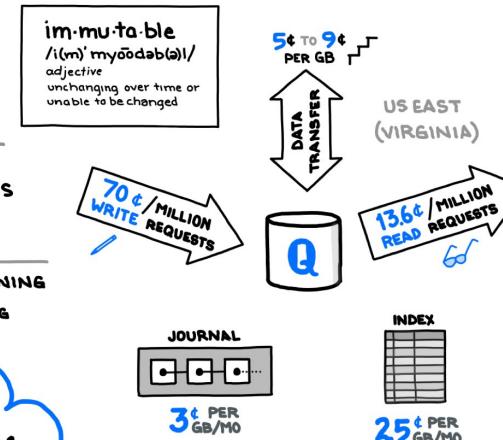
STREAMING

- NEAR REAL TIME
- KINESIS DATA STREAMS

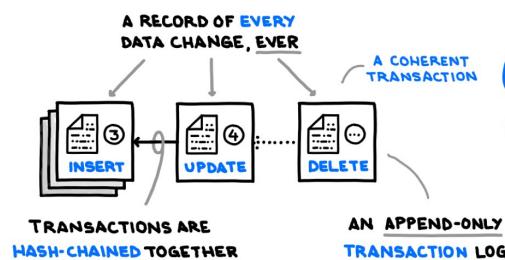
SERVERLESS

- NO NODE PROVISIONING
- NO IO PROVISIONING

How Much Does QLDB Cost?



WHAT IS AN IMMUTABLE JOURNAL?



AMAZON QUANTUM LEDGER DATABASE

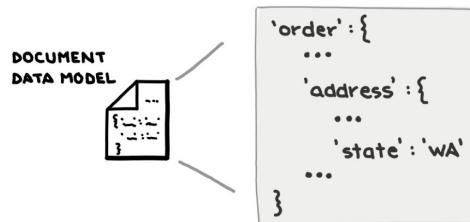
5/20/20

@awsgeek

WHAT IS HASH CHAINING?



How is Data Stored/Queried?



FOR SYSTEM OF RECORD APPS

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

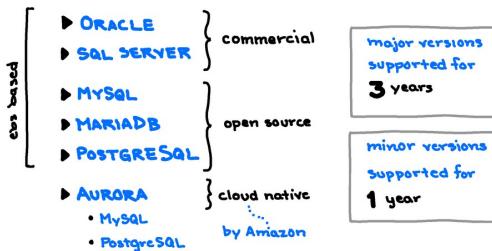
CHANGES IMMEDIATELY DETECTABLE



TRANSACTIONS RECORDS ARE CRYPTOGRAPHICALLY VERIFIABLE



ENGINES



PRICING

COSTS: (Oregon)

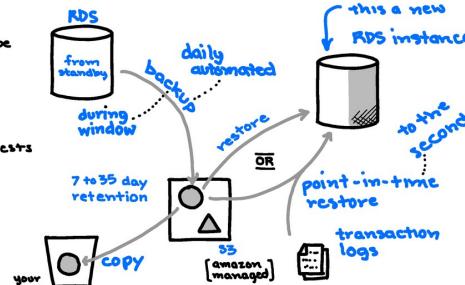
DB INSTANCE HOURS per engine/instance type
billed hourly, round up

STORAGE GP2 ... 11.5¢/GB/Mo
101 ... 12.5¢/GB/Mo + 10¢/10/Mo
Magnetic ... 10¢/GB/Mo + 10¢/1M Requests

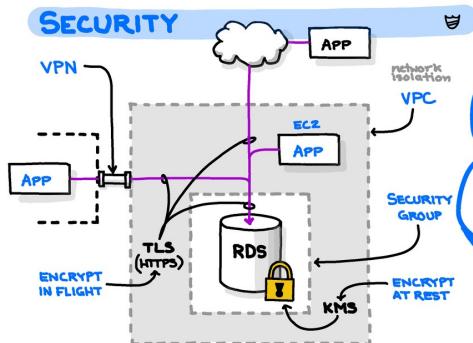
BACKUP STORAGE 100% of DB size free
9.5¢/GB/Mo after

DATA TRANSFER varies by destination

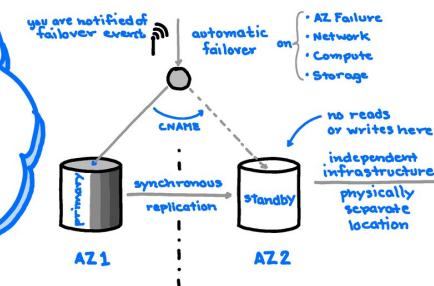
BACKUPS



SECURITY



MULTI-AZ



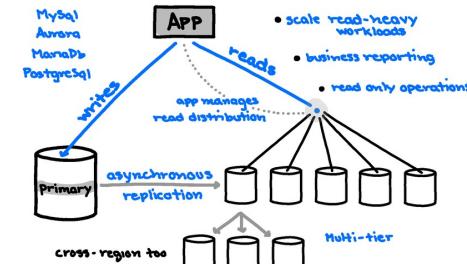
STORAGE

GP2 General Purpose SSD 16TB Max iops scale with capacity

IOP1 Provisioned IOPS SSD 16TB Max 30K IOPS Elastic volume scaling for all types... #downtime

Magnetic Legacy 1TB Max

READ REPLICAS



INSTANCES

SMALL WORKLOADS

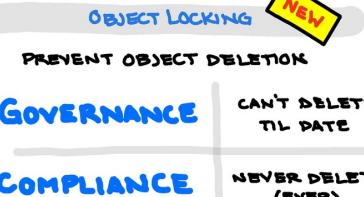
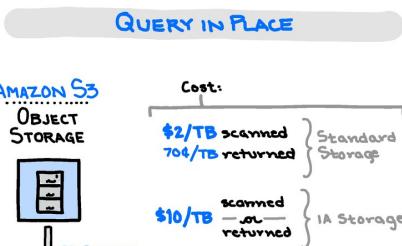
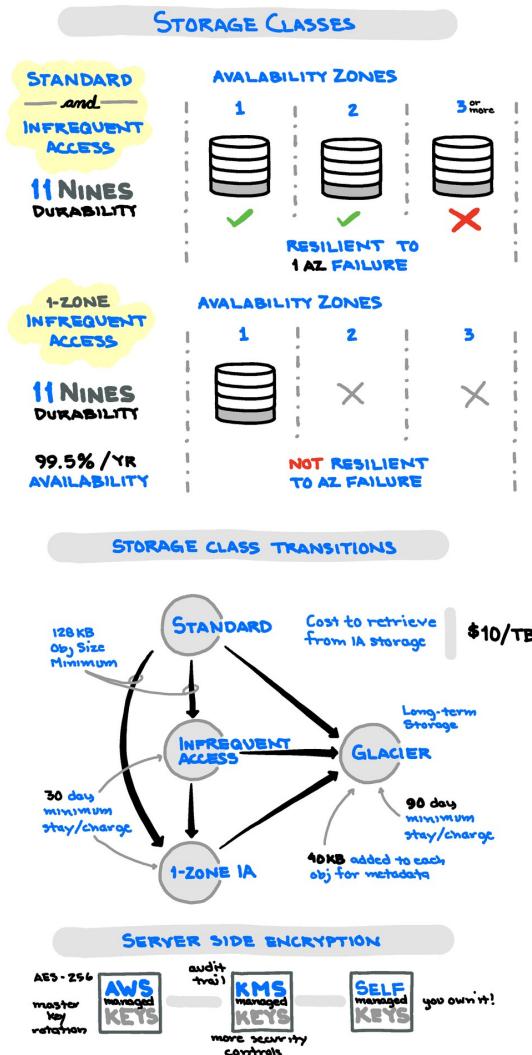
T2 burst 1 vCPU 1 GB RAM 8 vCPU 32 GB RAM

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



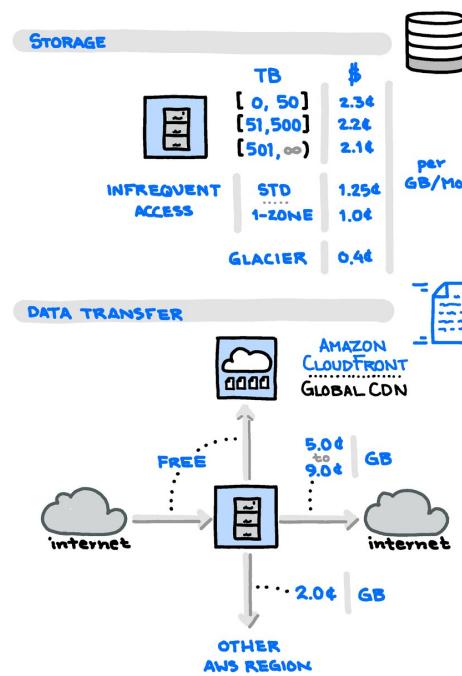
✉️ jerry@lucidchart 🐦 @awsgeek

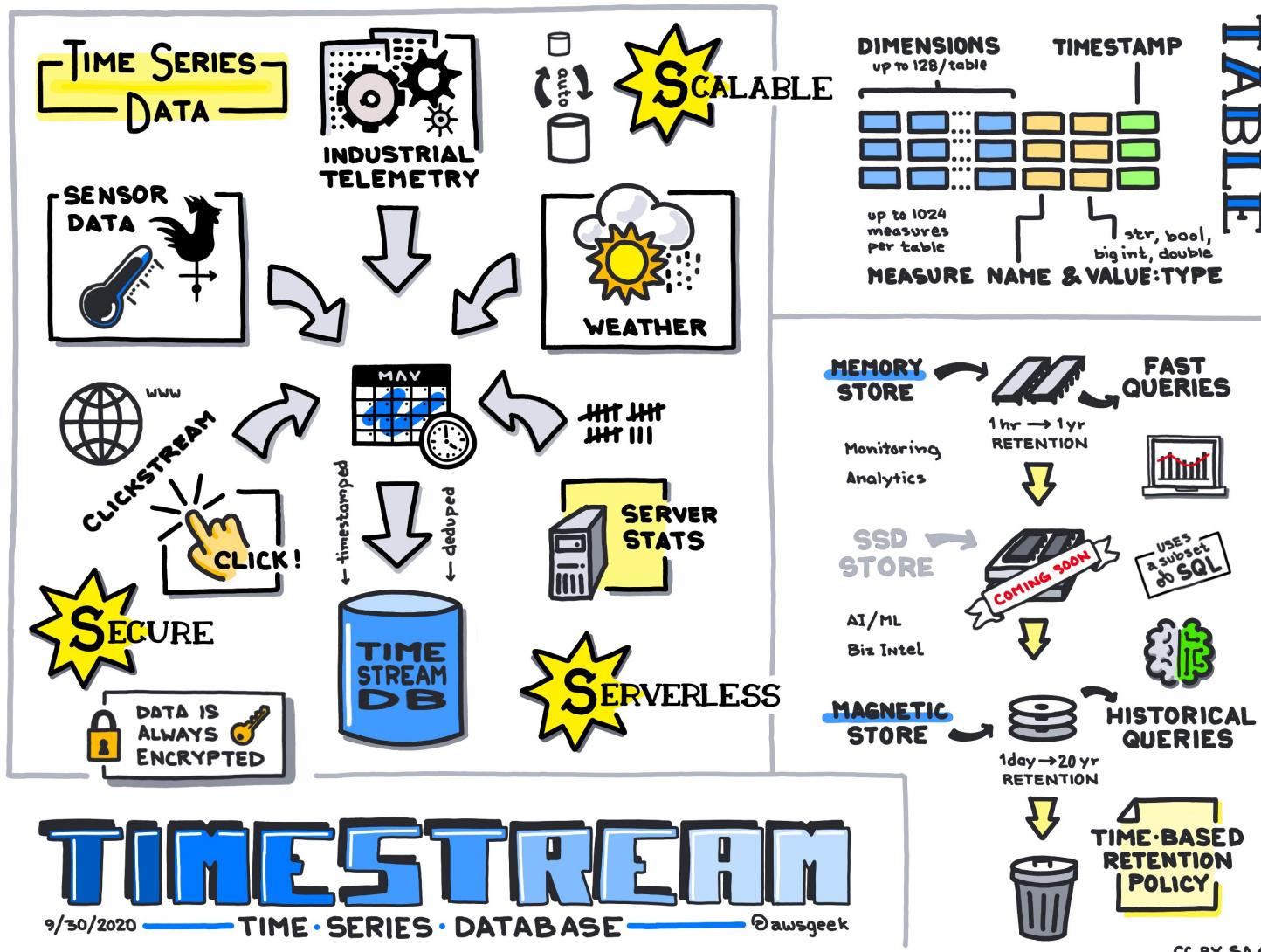
[all pricing from US West (Oregon)]

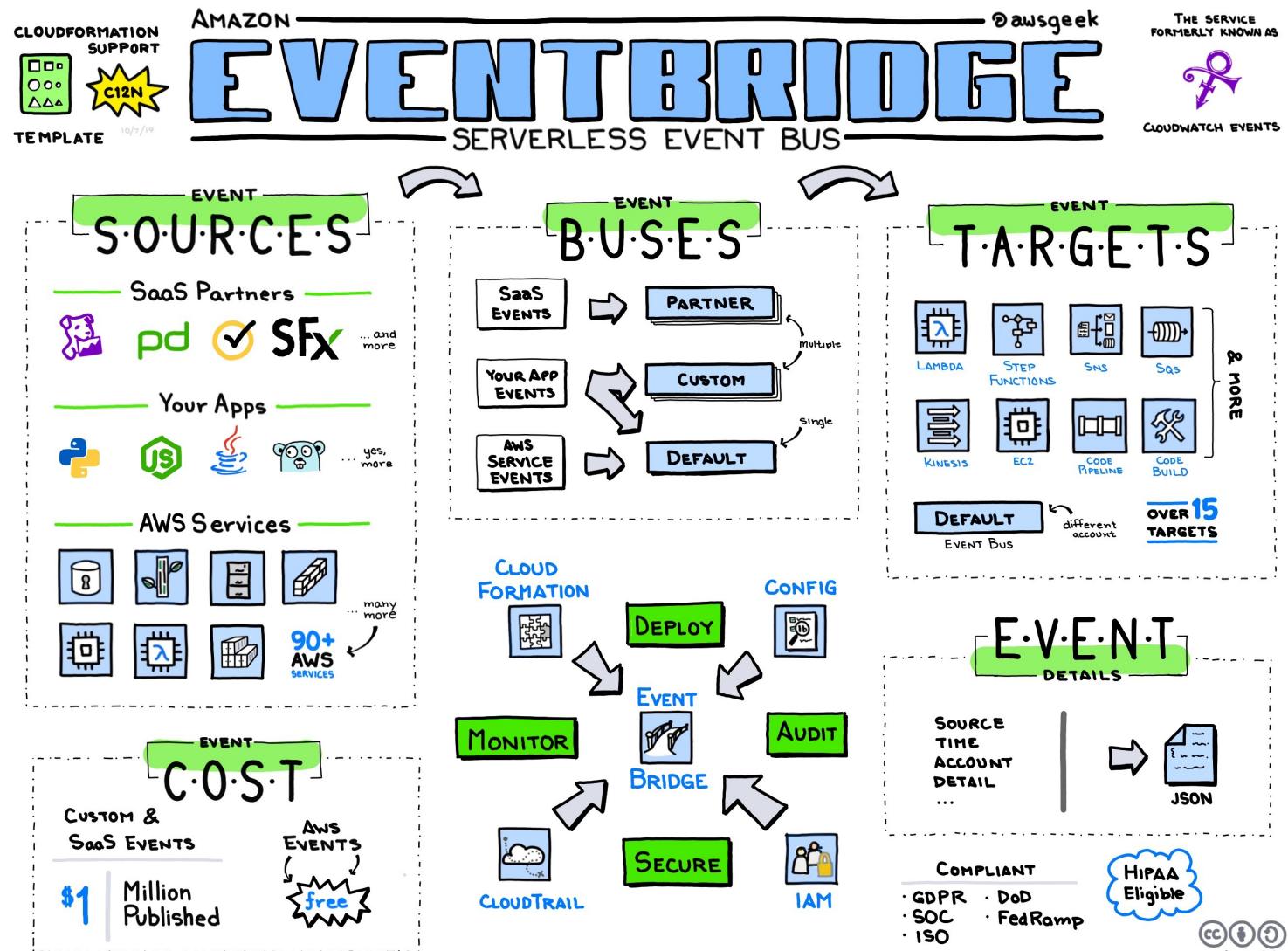
REQUESTS (\$USD per 1000,000 requests)

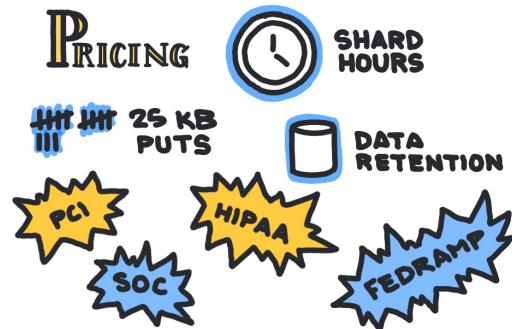
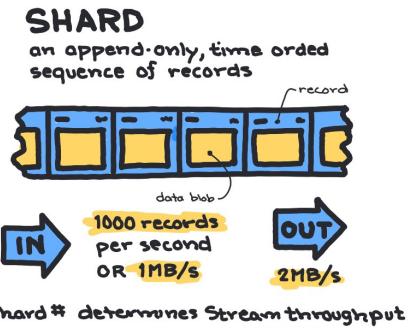
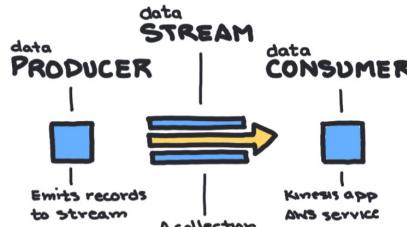
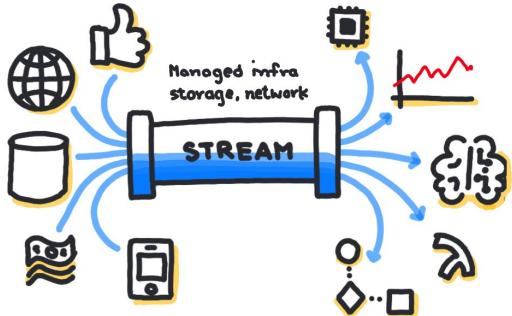
API CALLS

	GET	POST	PUT	COPY	LIST	SELECT	other
Standard	0.4	5.0	5.0	5.0	5.0	0.4	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	1.0



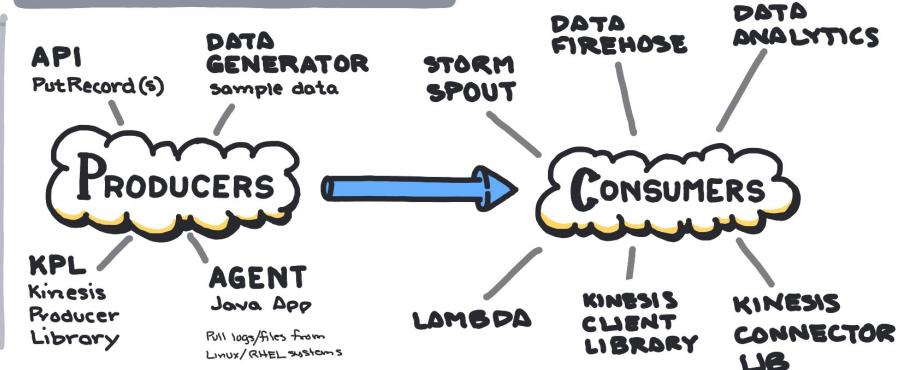
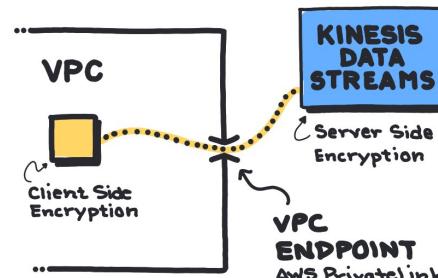
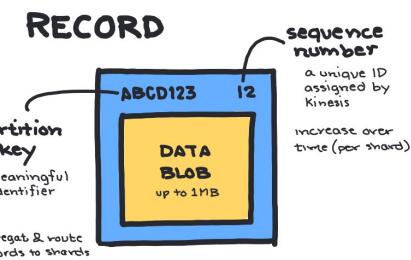


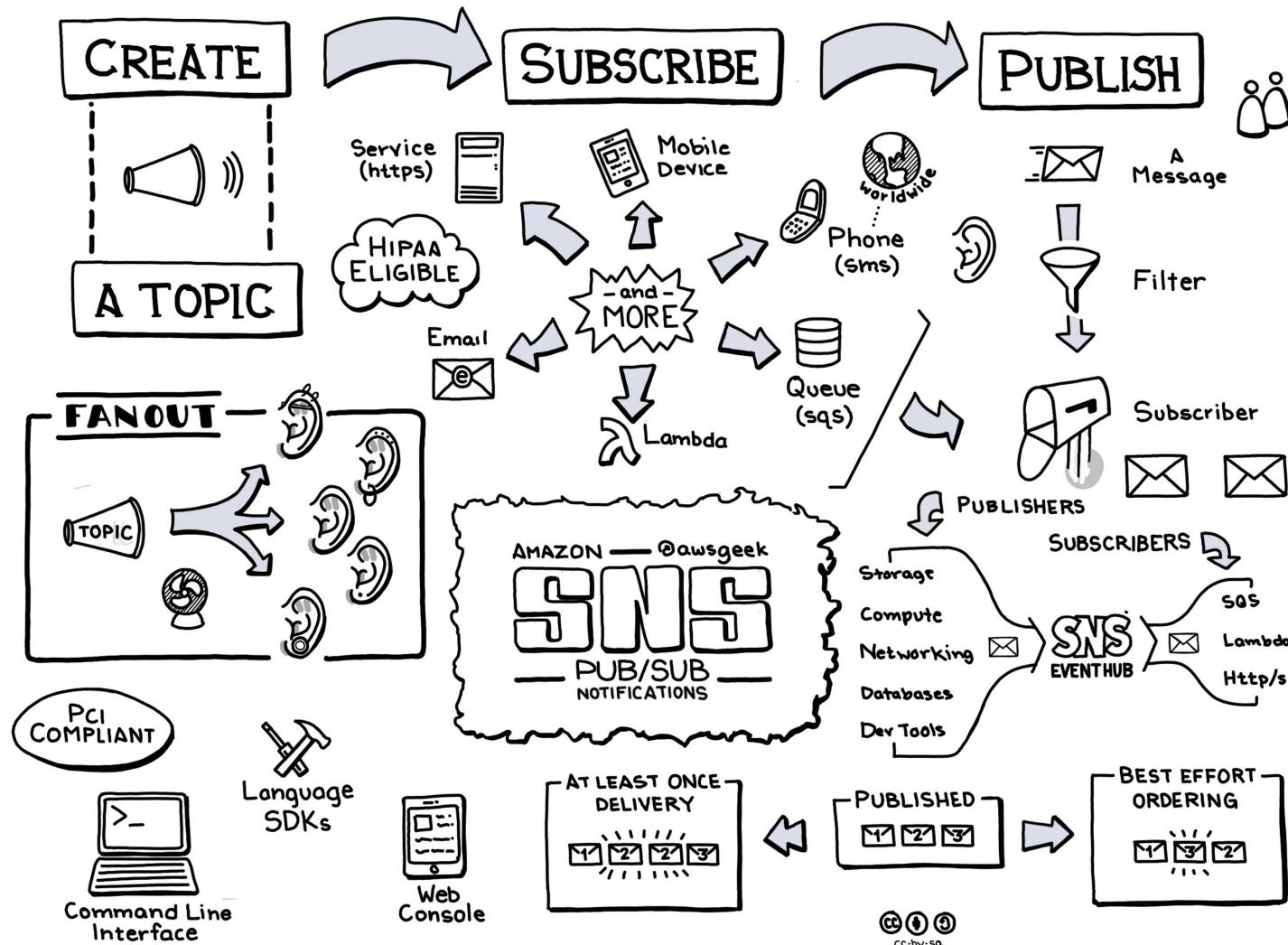




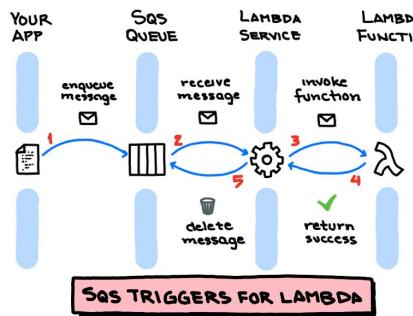
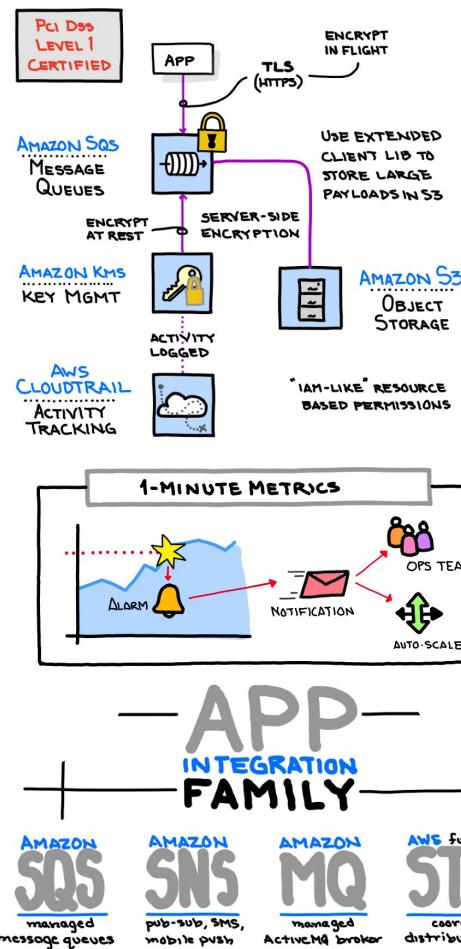
DATA KINESIS STREAMS

STREAM • DATA • AT • SCALE





Security



Pricing

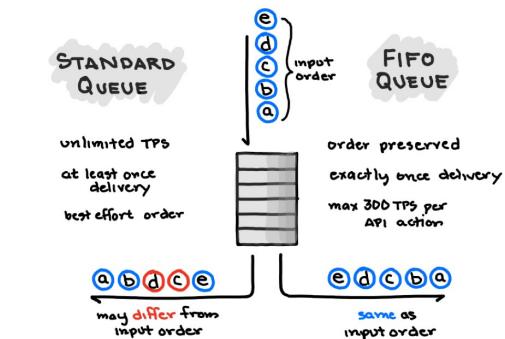
Standard 40¢ per MM requests
FIFO 50¢ per MM requests

each 64K chunk of payload counts as 1 request

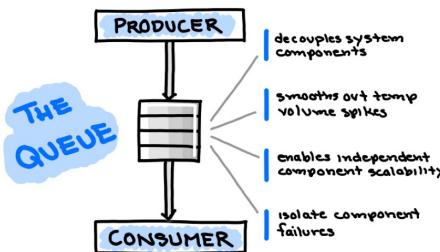
additional costs for S3 & KMS

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

data transfer starts at 90¢/GB



Limits



MESSAGE RETENTION PERIOD

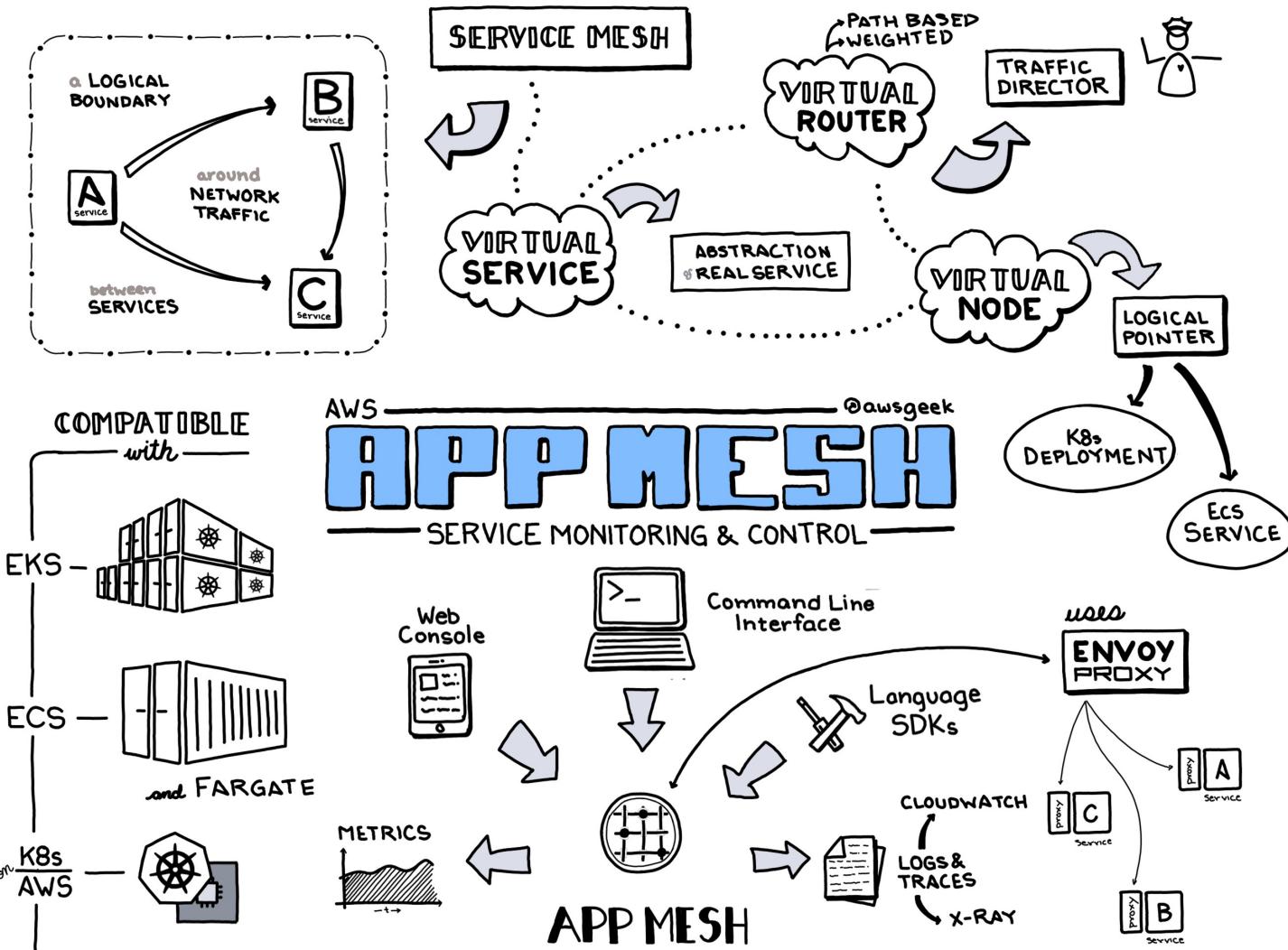
MIN: 1 MIN MAX: 14 DAYS

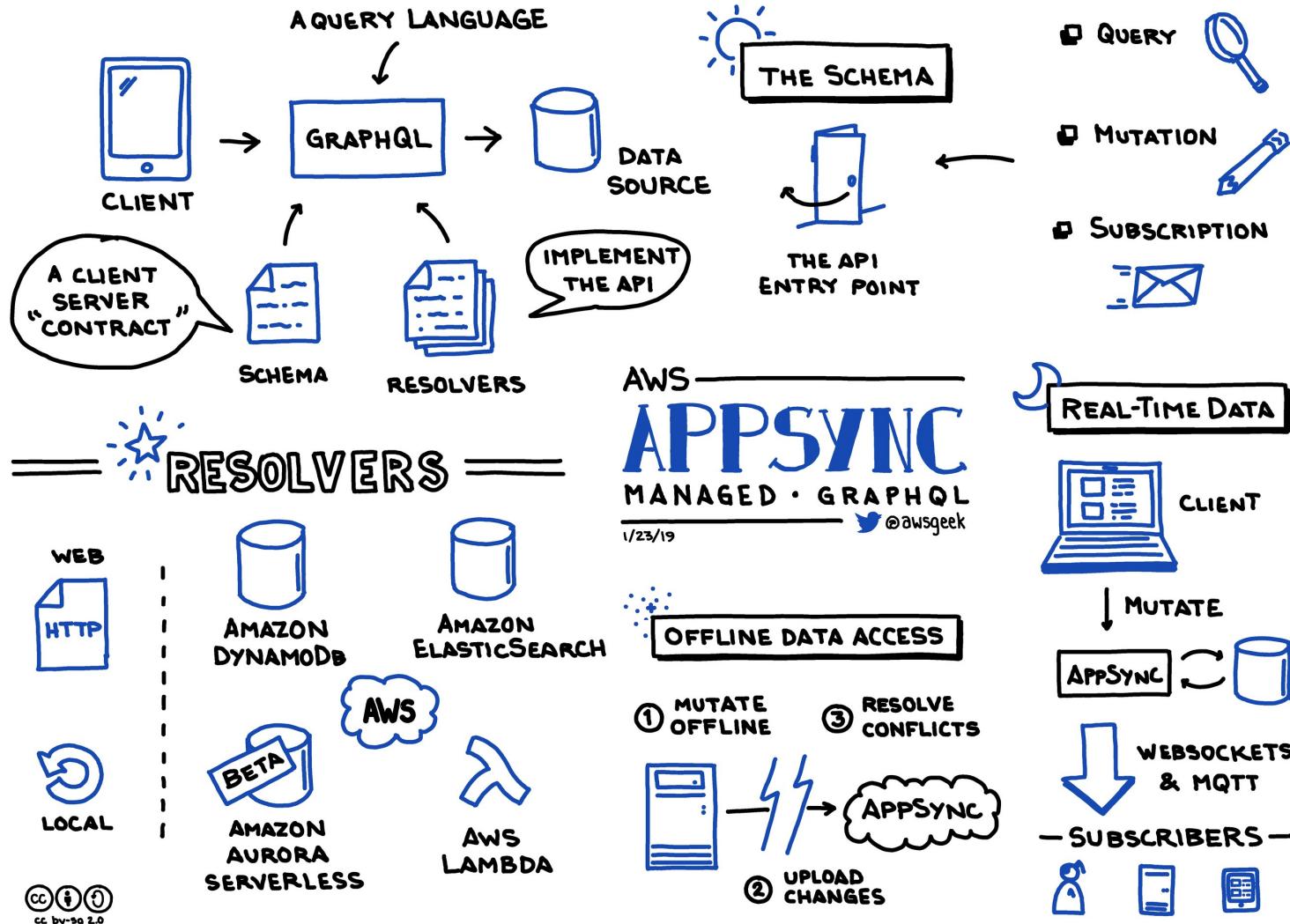
MAXIMUM MESSAGE SIZE

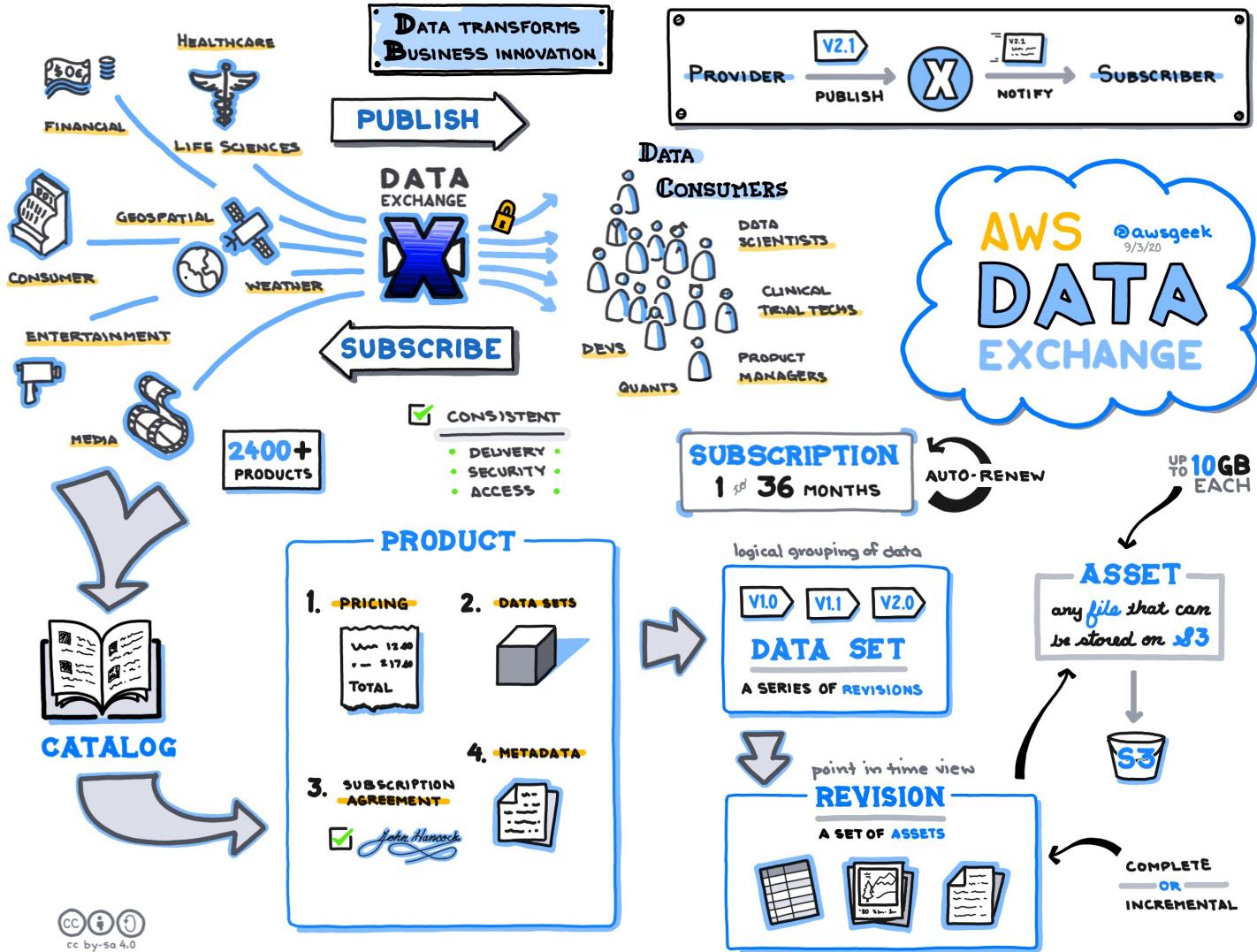
MIN: 1 KB MAX: 256 KB

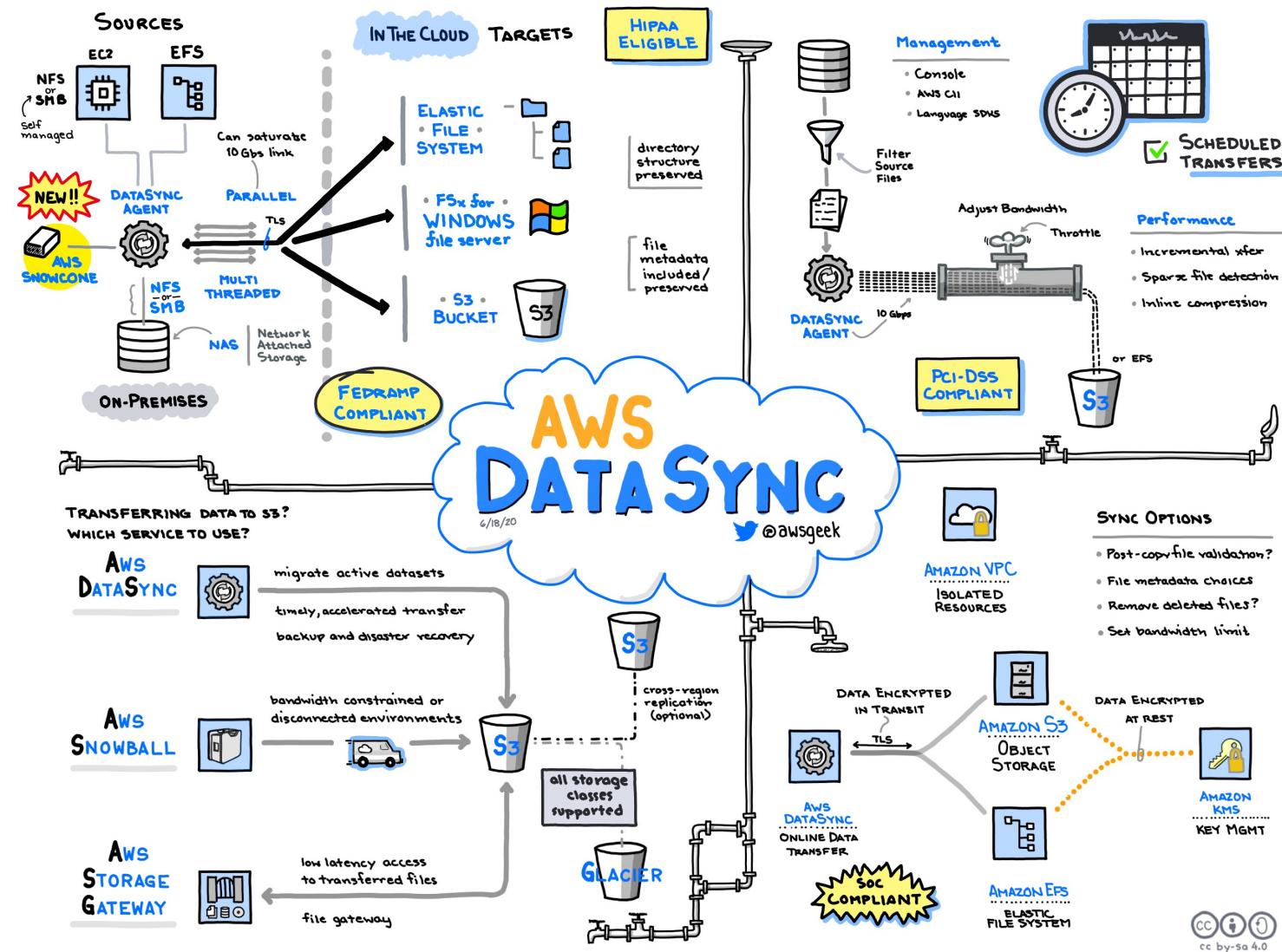
MAXIMUM INFLIGHT MESSAGES

STD: 120K FIFO: 20K



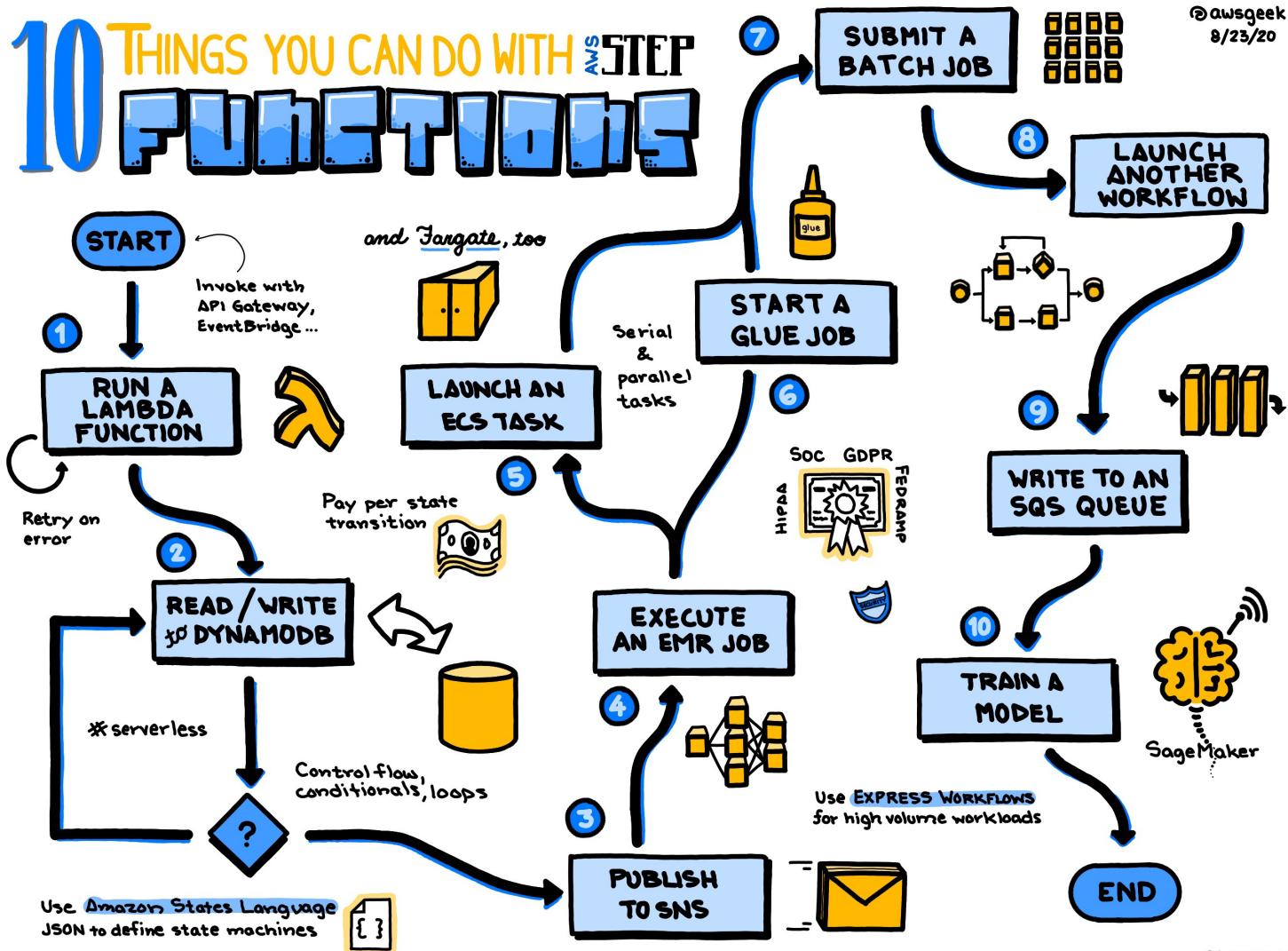






10 THINGS YOU CAN DO WITH AWS STEP FUNCTIONS

@awsgeek
8/23/20



1 INGEST

ELB
CloudTrail S3
CloudFront Kinesis
DynamoDB

MySQL

Postgres

SQL Server

MariaDB

Oracle



OR



On Premises

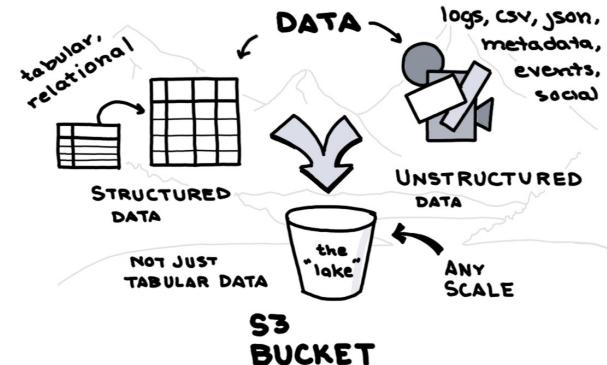


AWS GLUE
ETL Jobs

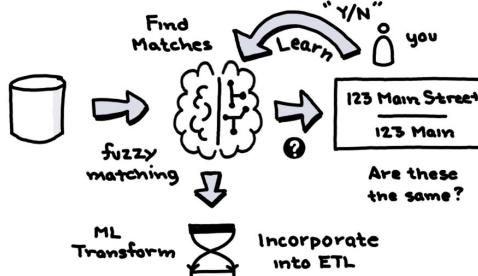
DB

AWS LAKE FORMATION

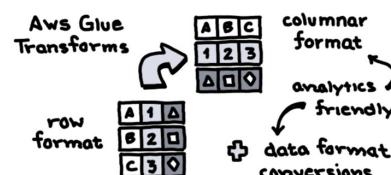
DATA LAKE SERVICE



2 CLEAN



3 TRANSFORM

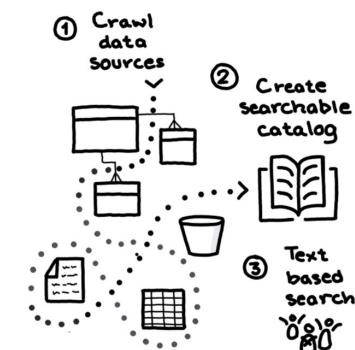


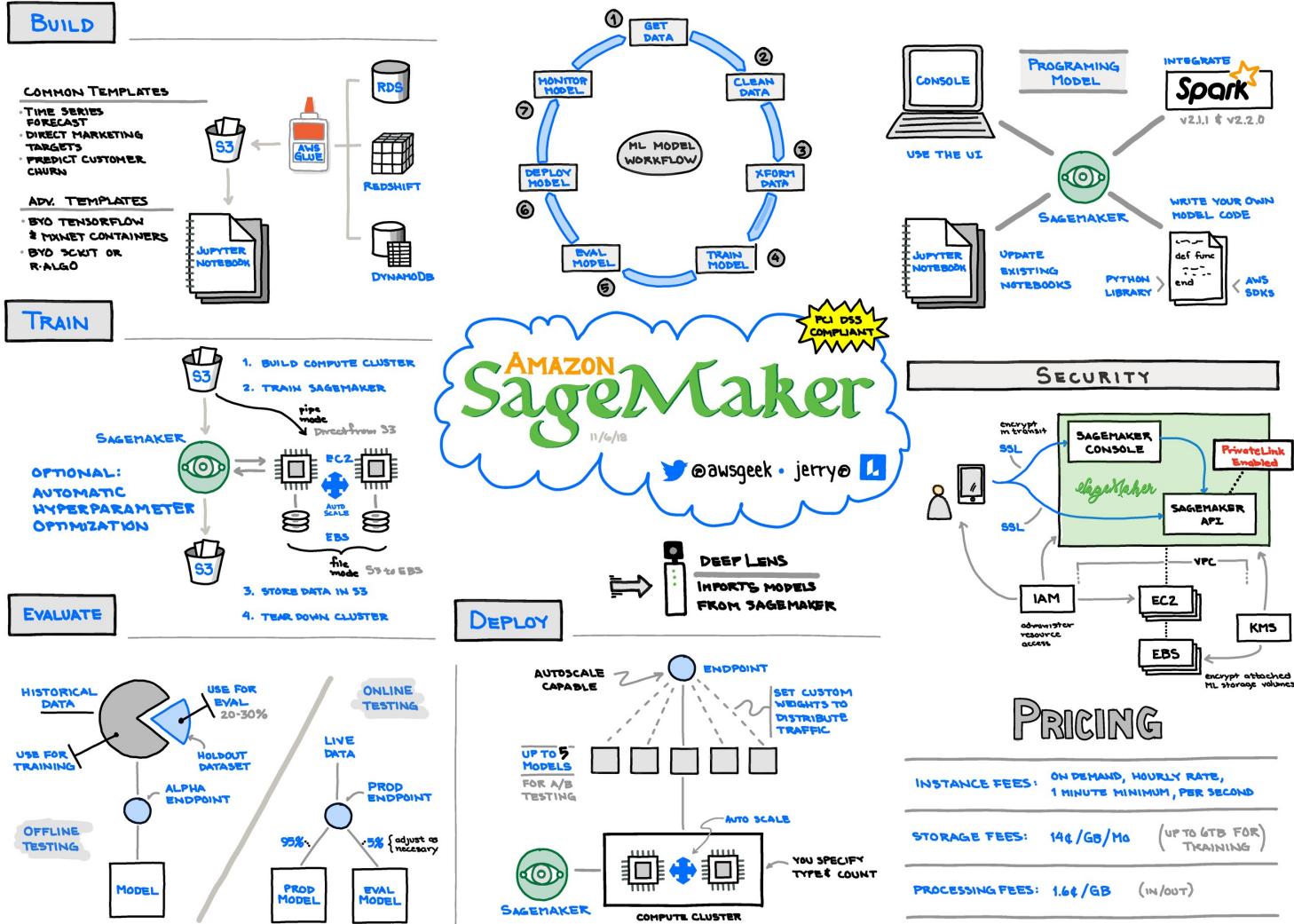
cc by-sa 2.0

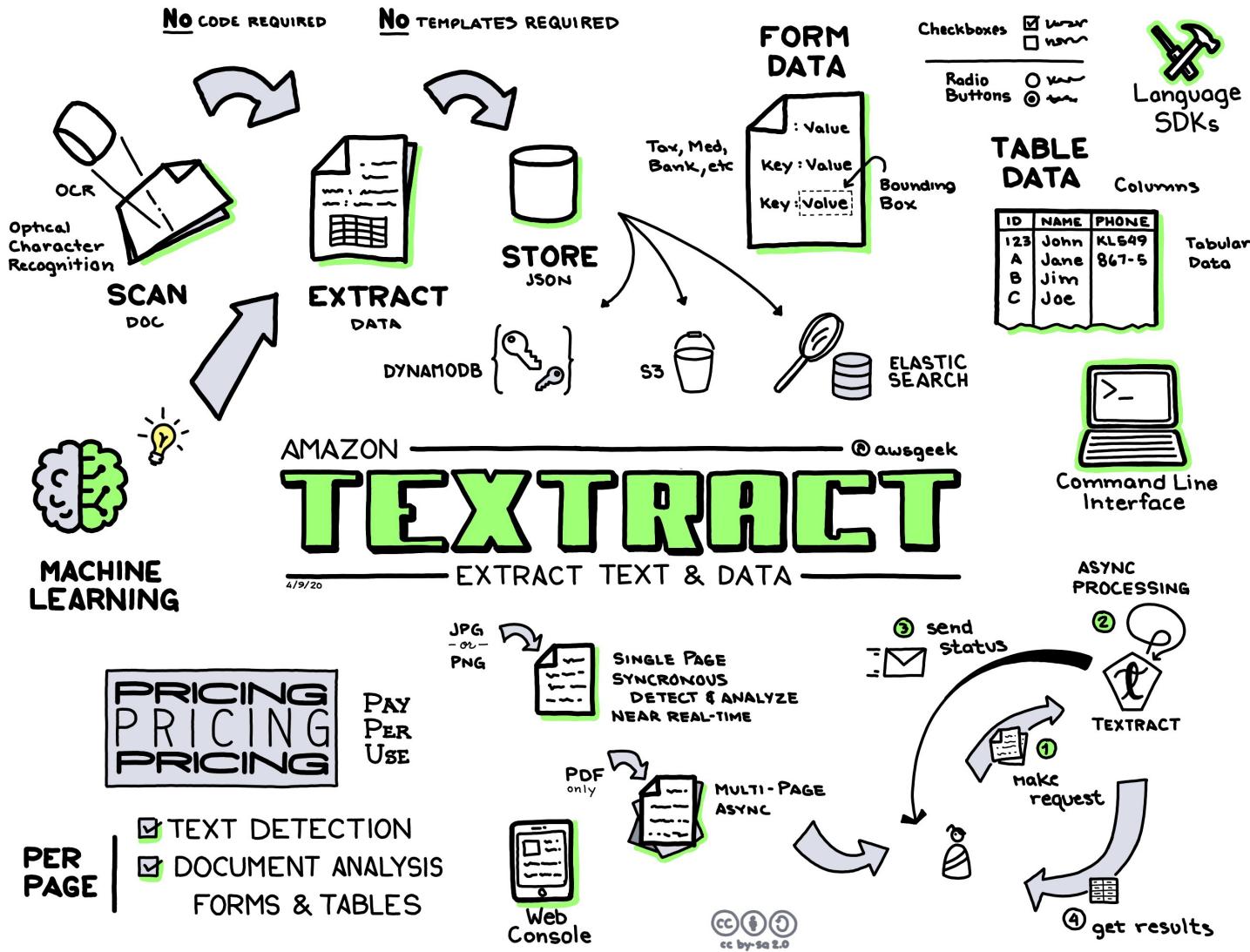
5 SECURE

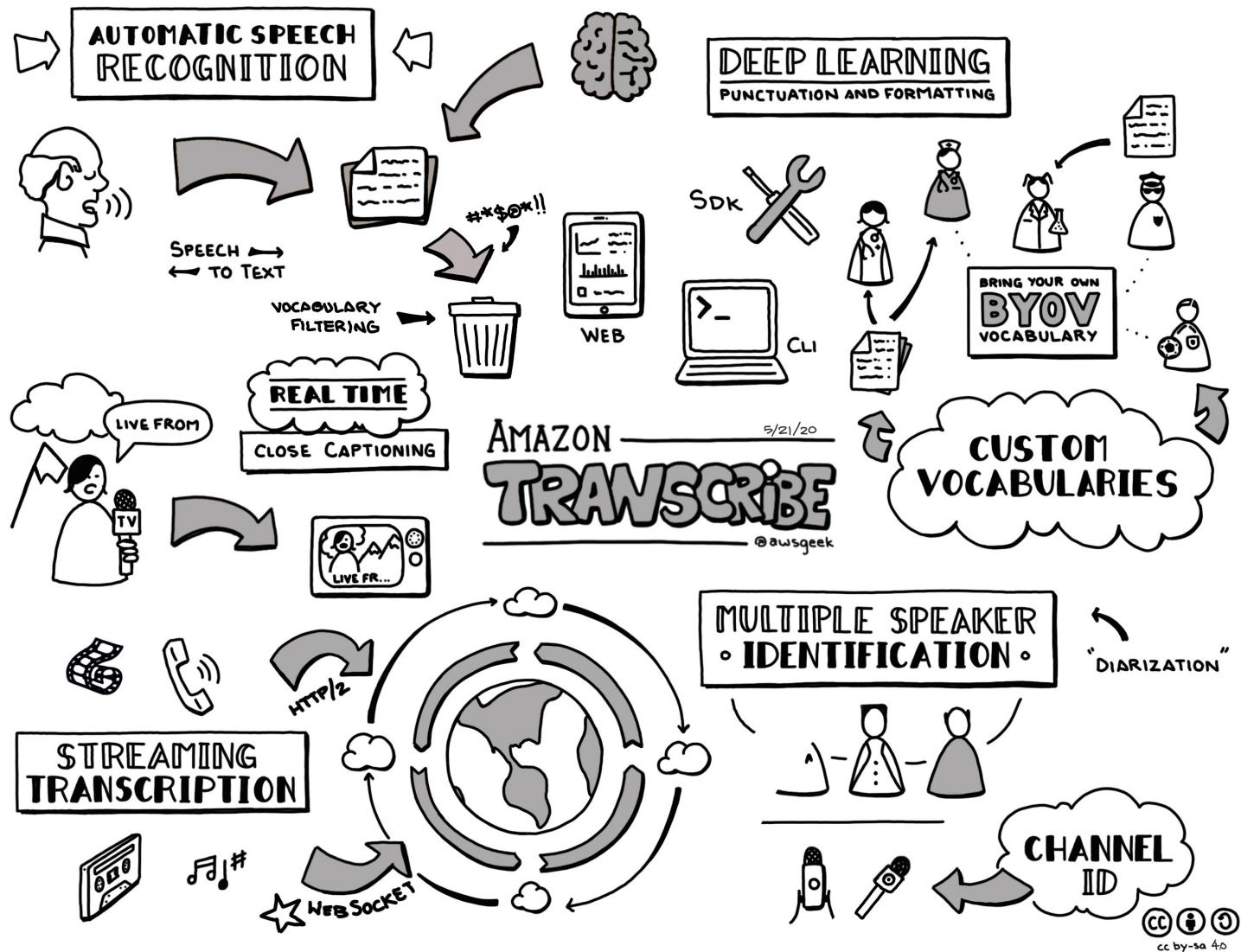


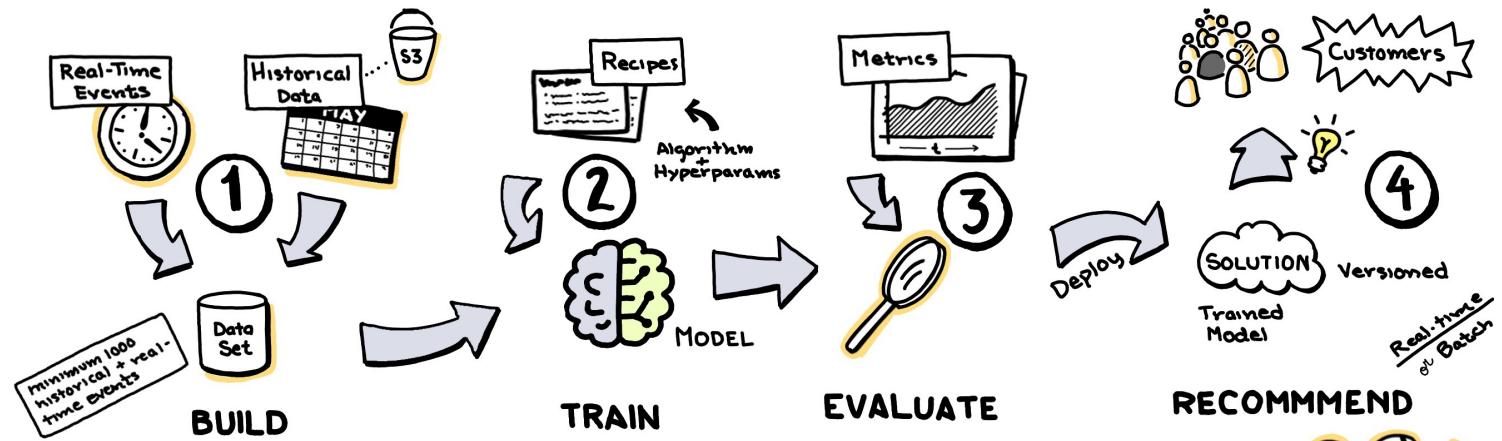
4 CATALOG



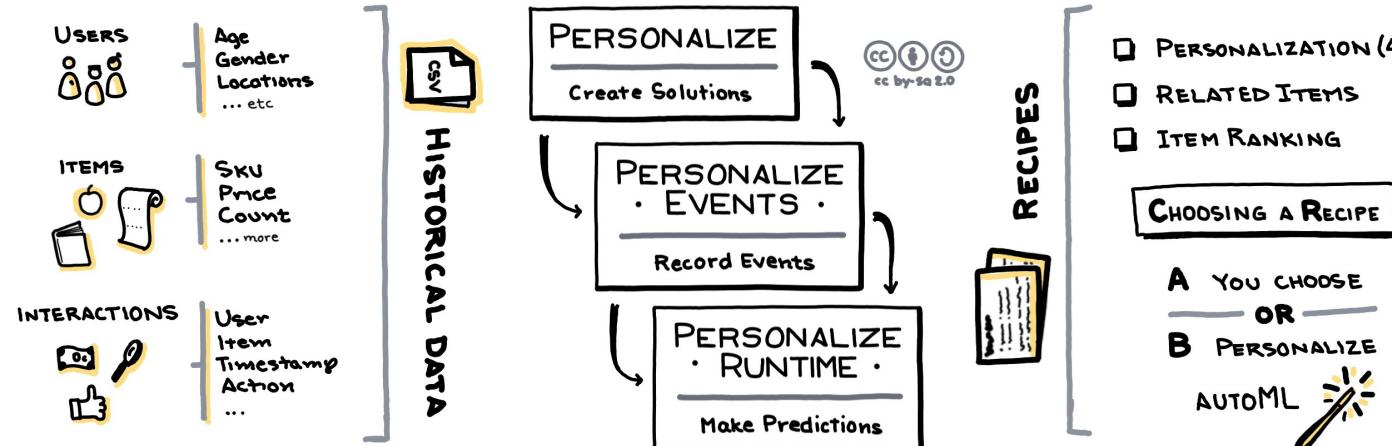


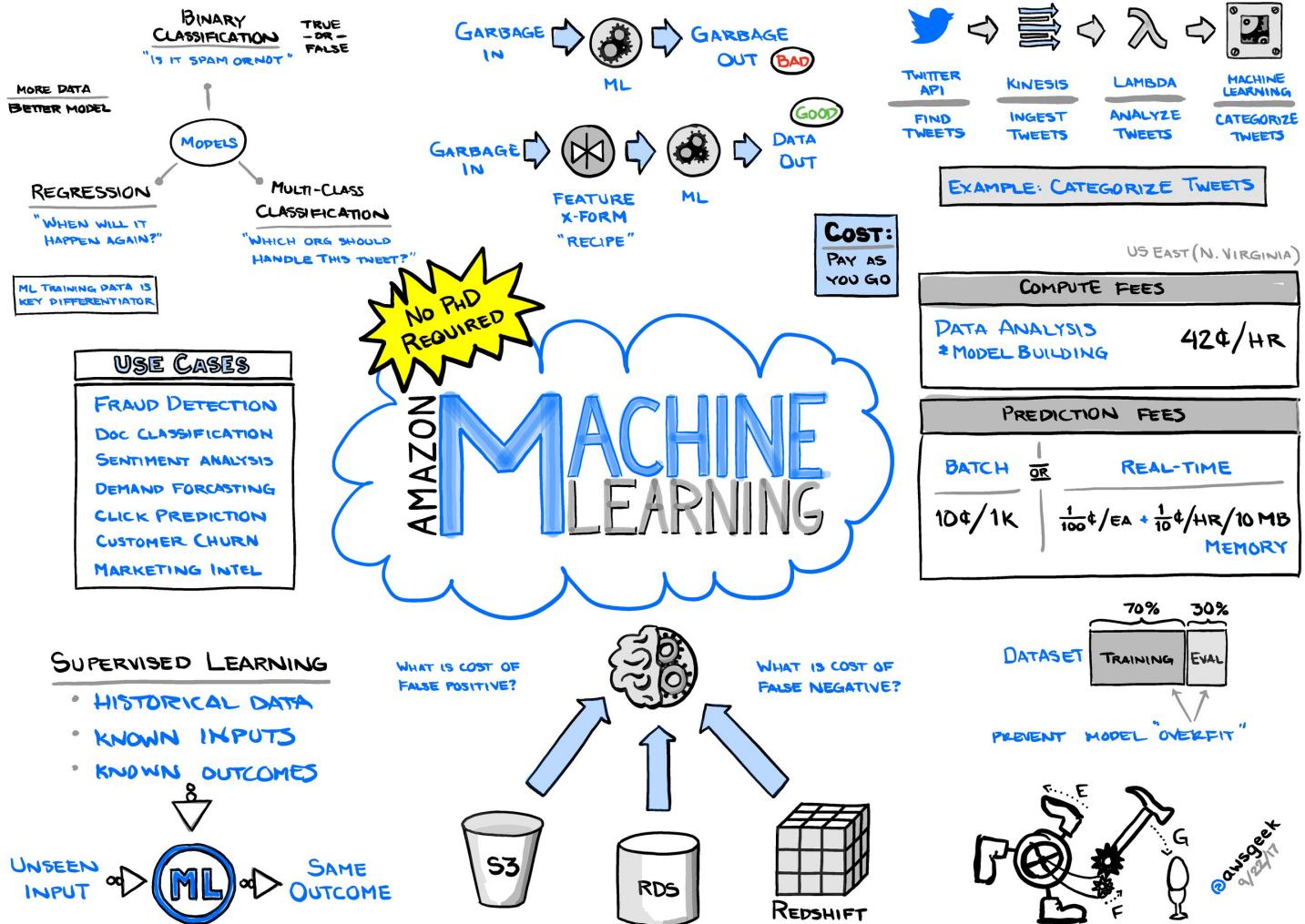


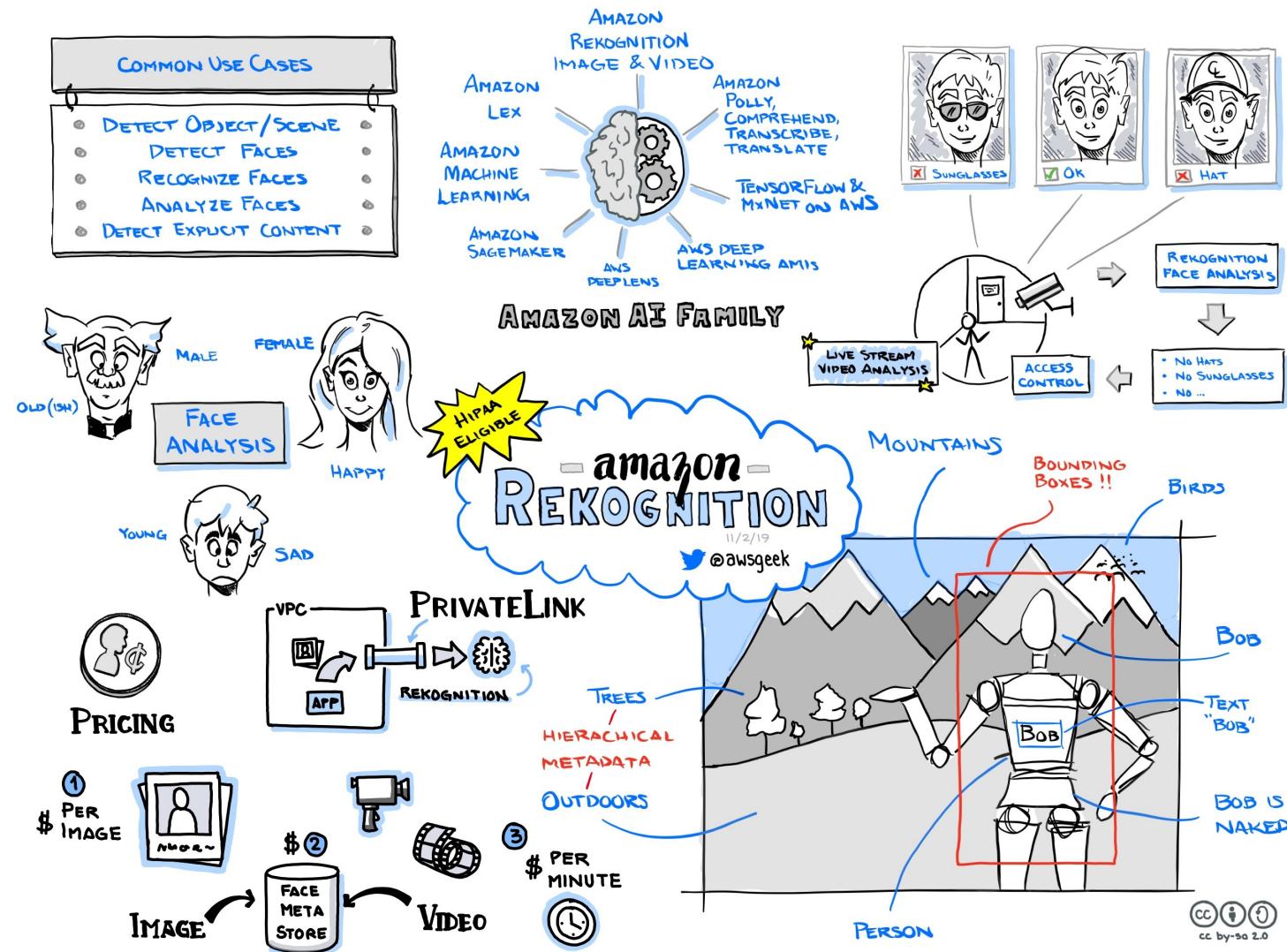


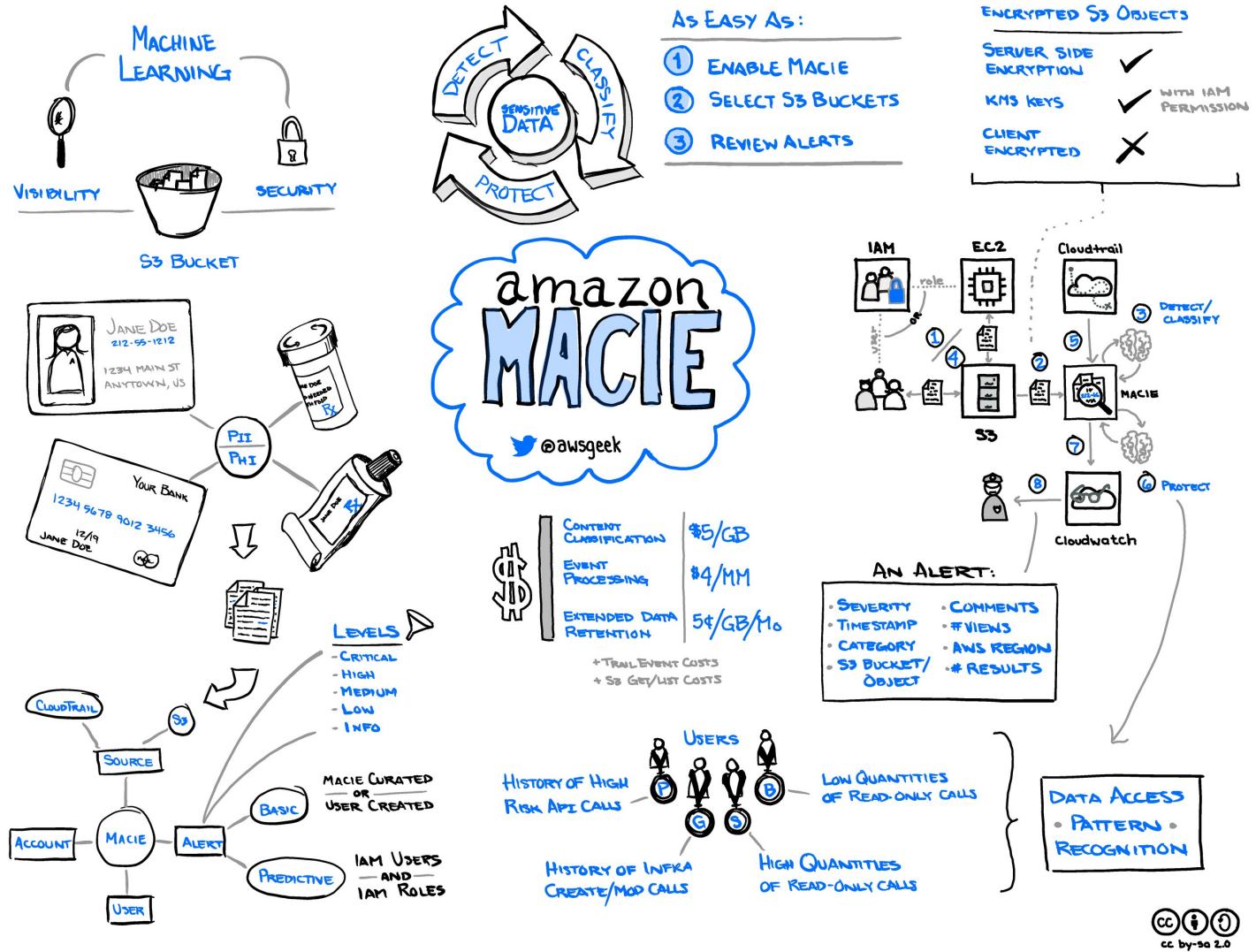


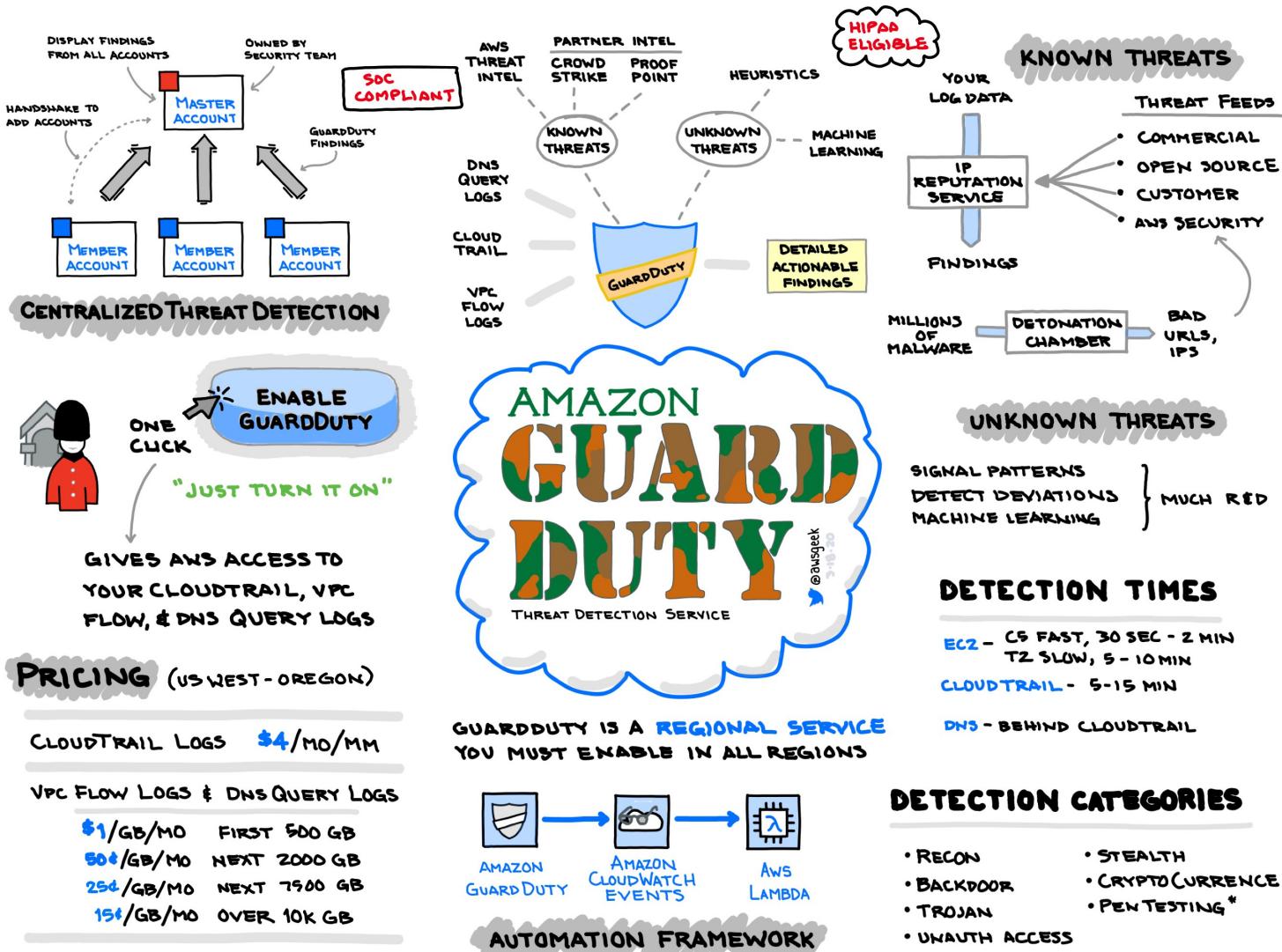
AMAZON MACHINE LEARNING **PERSONALIZE** REAL-TIME RECOMMENDATIONS @awsgeek 3/30/20

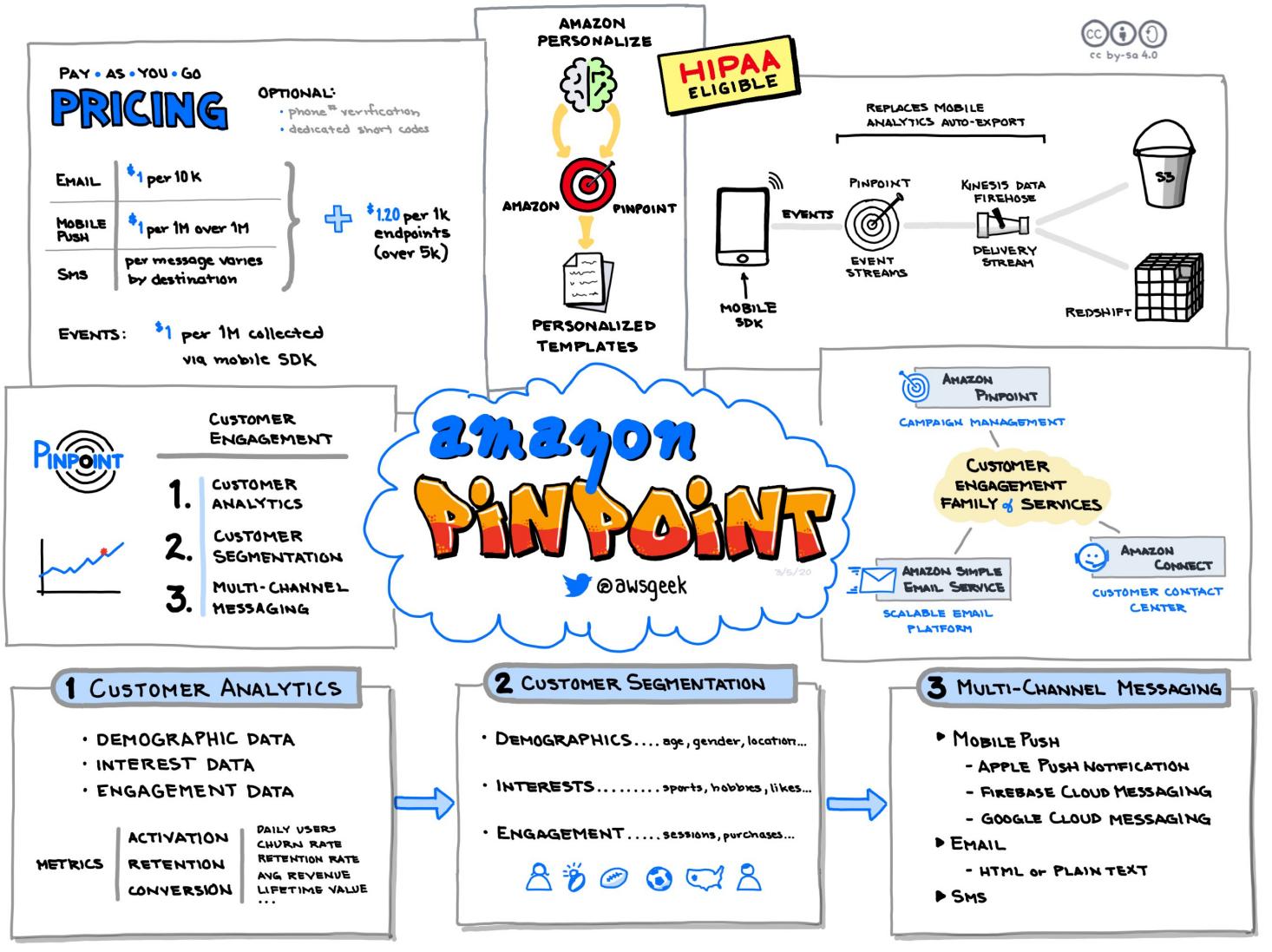










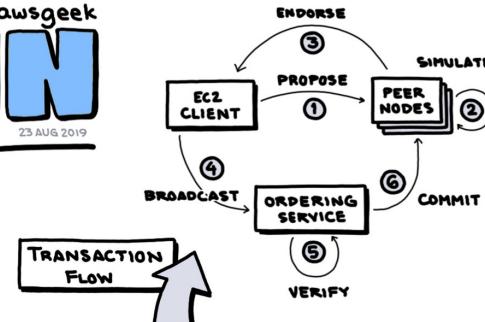
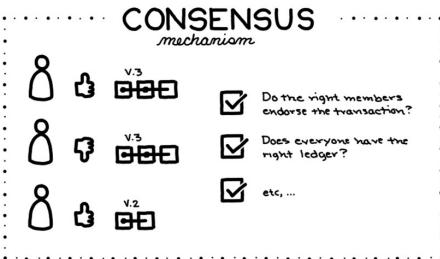
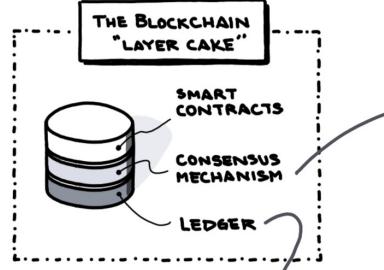


AMAZON MANAGED BLOCKCHAIN

Scalable Blockchain Networks

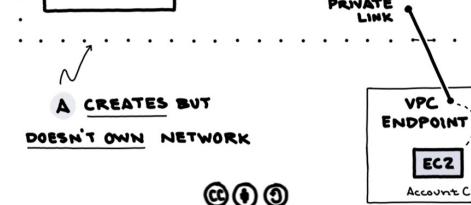
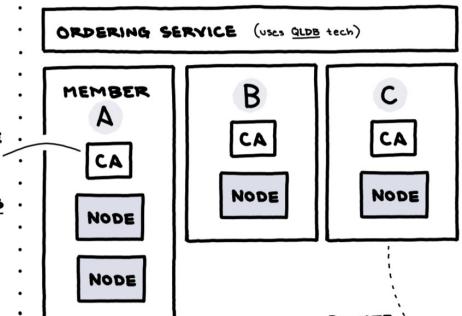
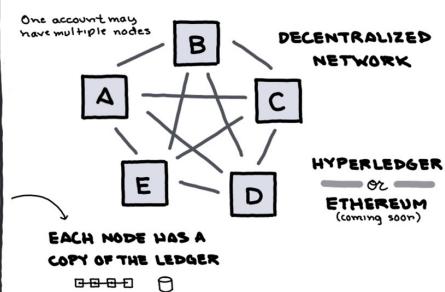
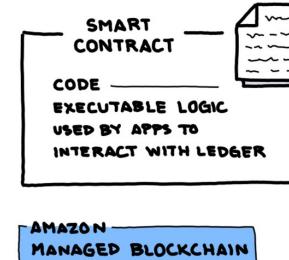
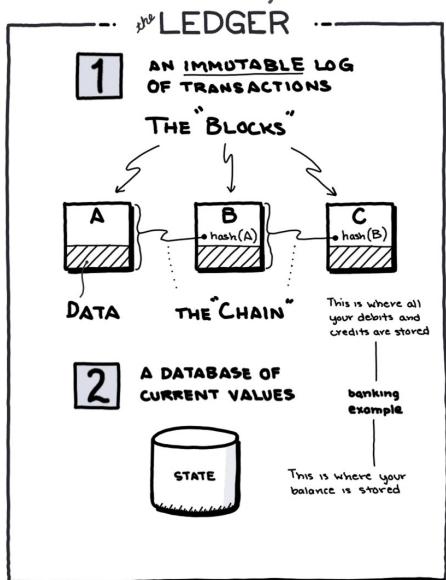
23 AUG 2019

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HYPERLEDGER FABRIC

NETWORK



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Thanks



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Curated By:  him431