

Cloud Computing with Microsoft Azure

www.drmukhan.com

Day 01

Lesson Objectives

Skills Learned

- Describe what is **Cloud Computing**
- Describe terms such as
 - **High Availability**, ✓
 - **Scalability**, ✓
 - **Elasticity**, ✓
 - **Agility**, ✓
 - **Fault Tolerance**, and ✓
 - **Disaster Recovery** ✓

Cloud

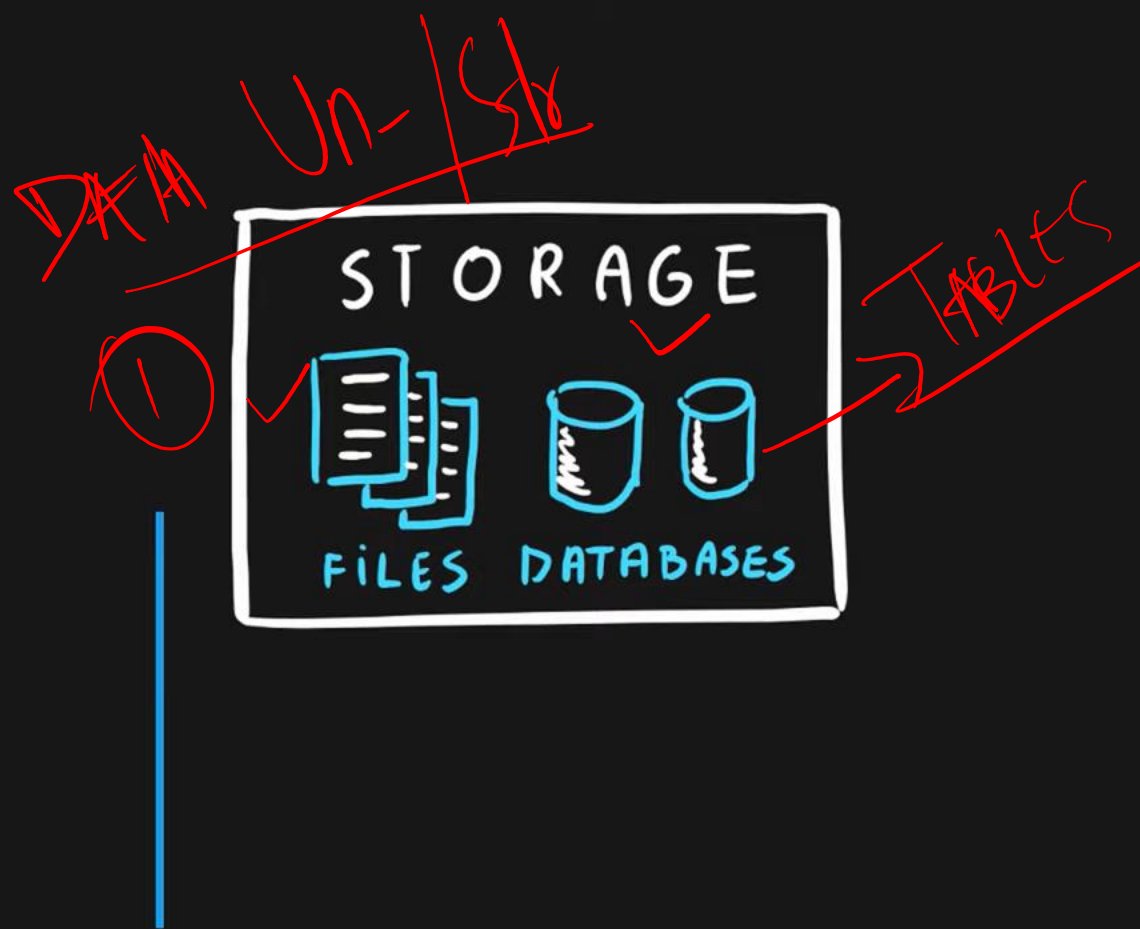
Computing

Delivery model for
services like

Cloud Computing

Delivery model for services like

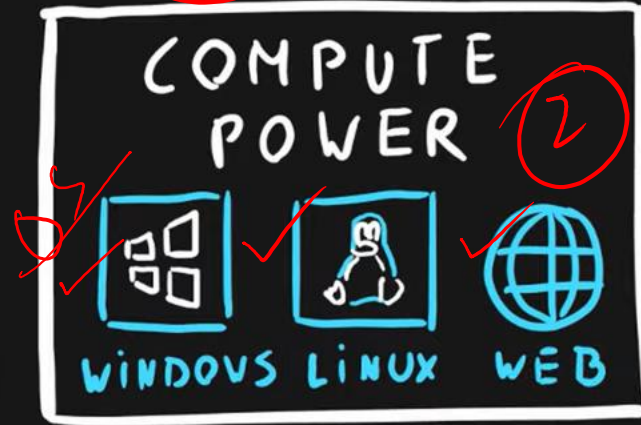
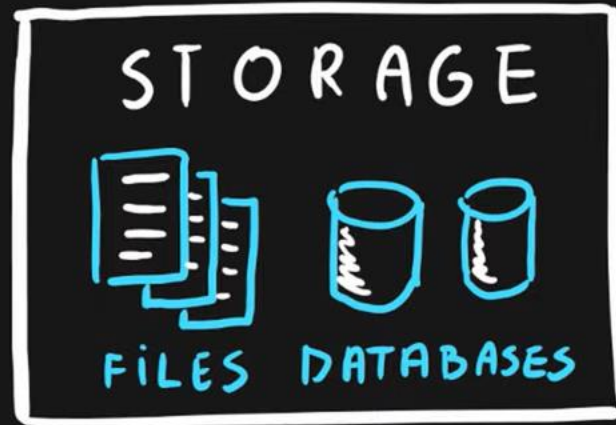
-Storage



Cloud Computing

Delivery model for services like

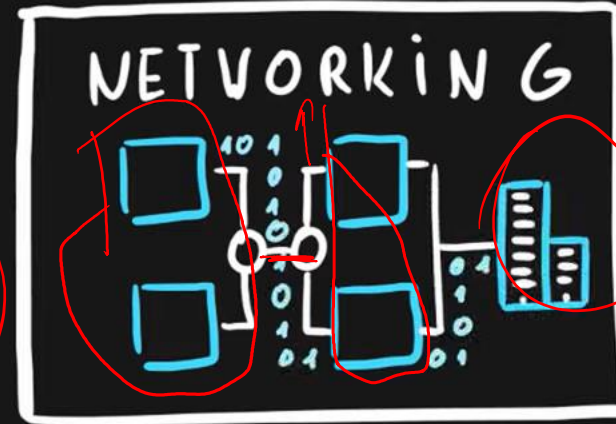
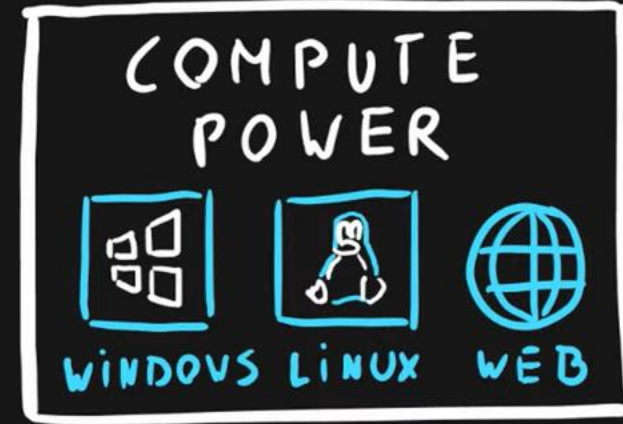
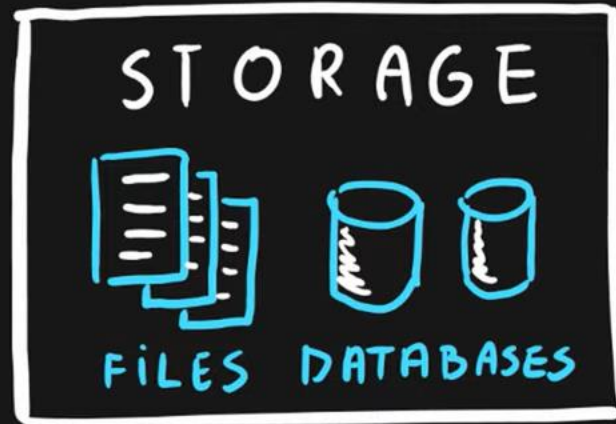
- Storage
- Compute Power



Cloud Computing

Delivery model for services like

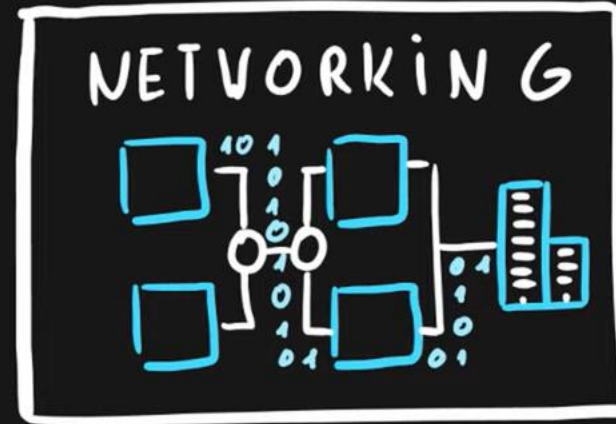
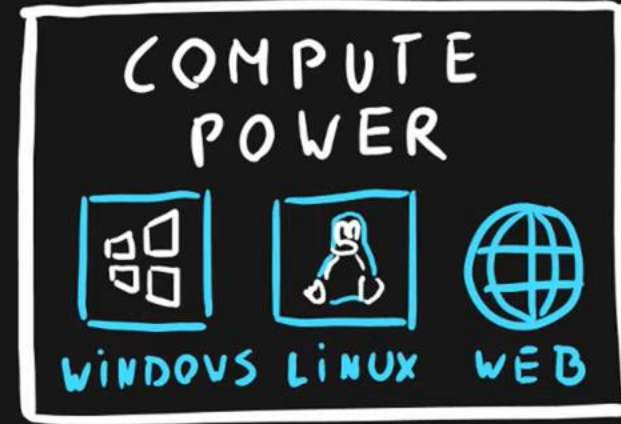
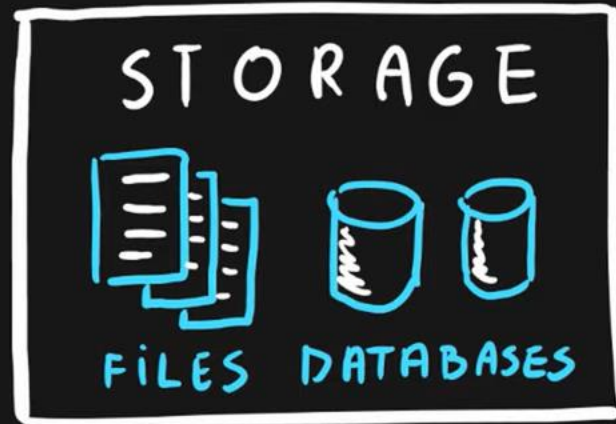
- Storage
- Compute Power
- Networking



Cloud Computing

Delivery model for services like

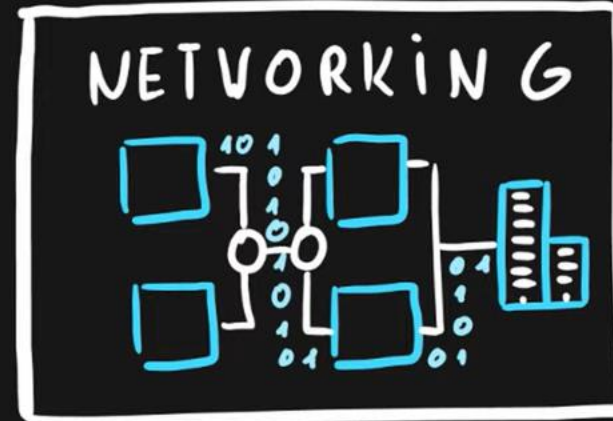
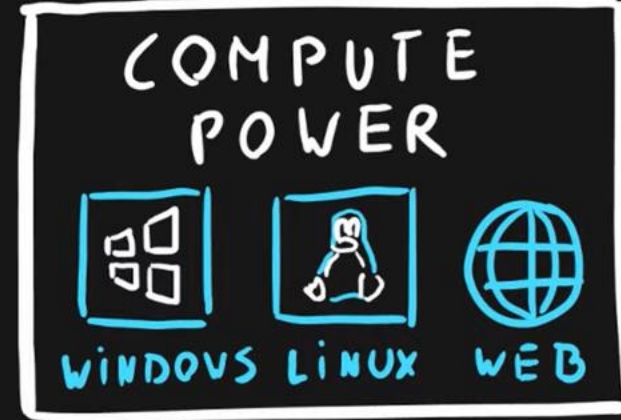
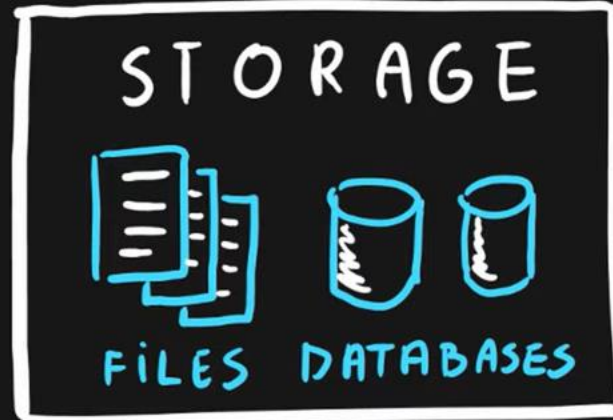
- Storage
- Compute Power
- Networking
- Analytics
- and more services...



Cloud Computing

Delivery model for services like

- Storage
 - Compute Power
 - Networking
 - Analytics
 - and more services...
- over the internet



Cloud

Key Characteristics

Cloud

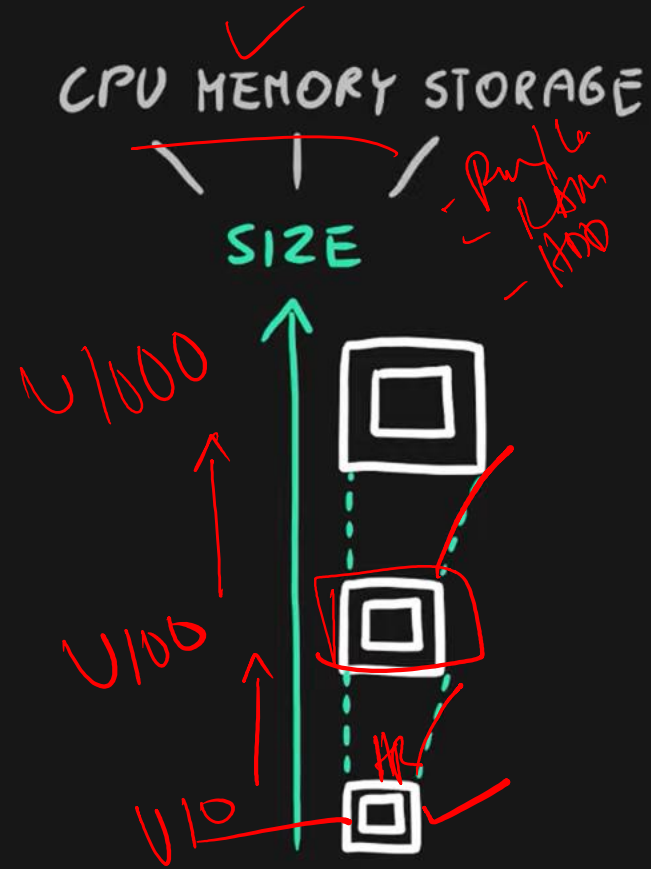
Key Characteristics

- Scalability

Cloud

Key Characteristics

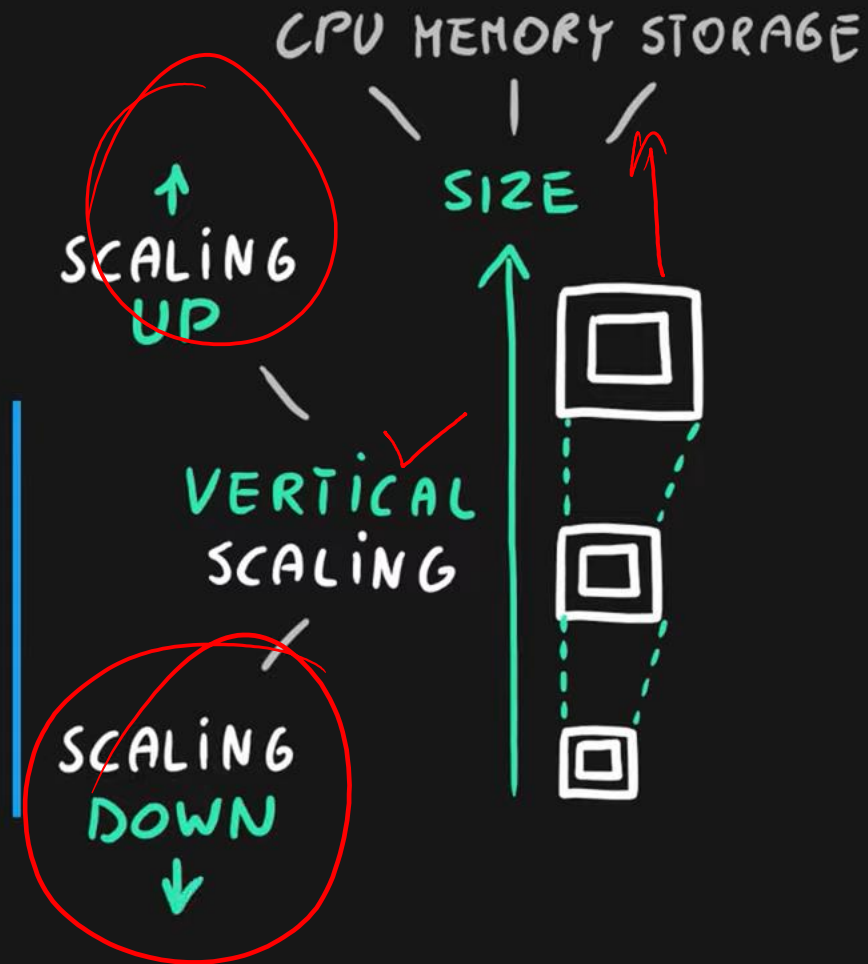
- Scalability



Cloud

Key Characteristics

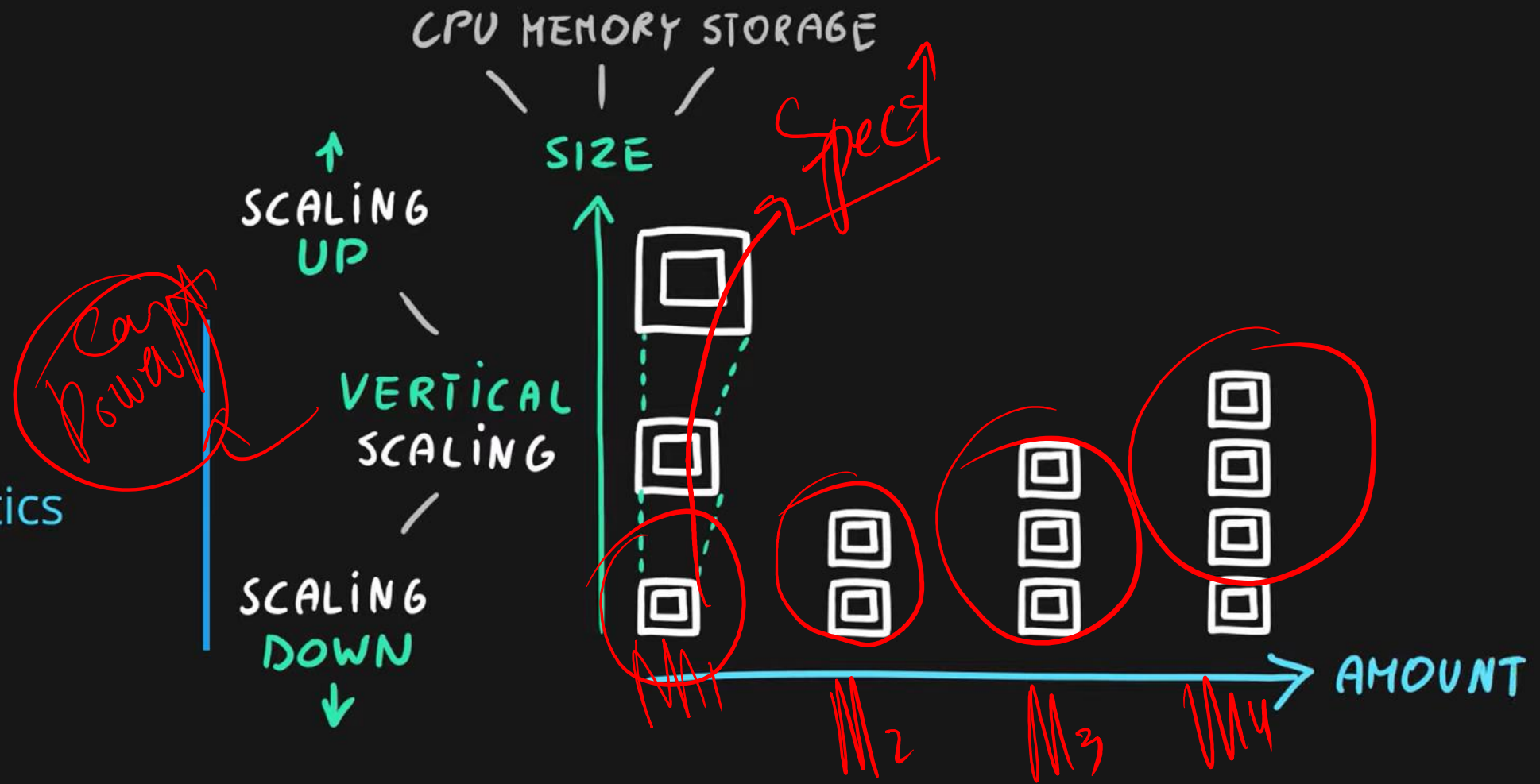
- Scalability



Cloud

Key Characteristics

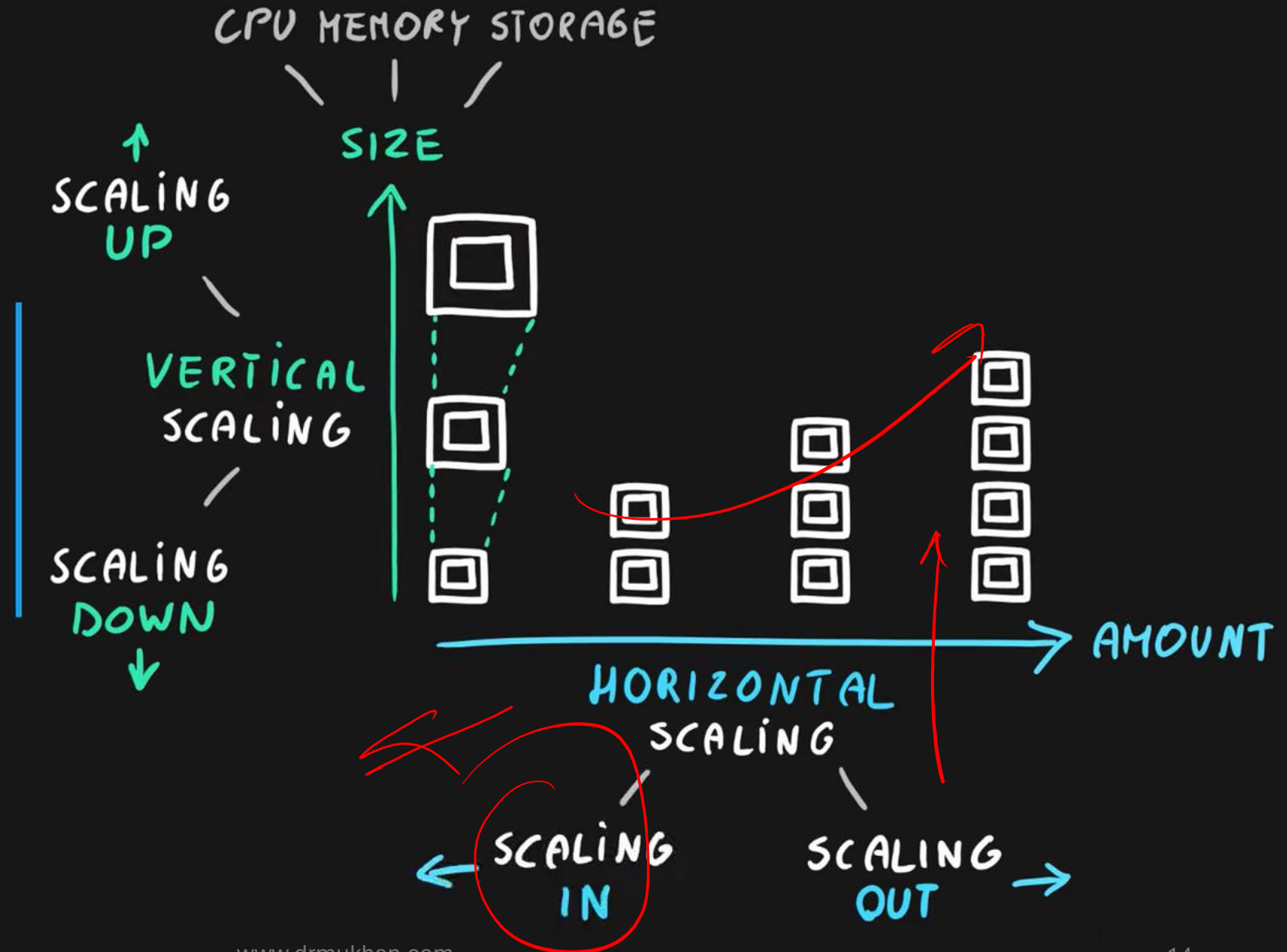
- Scalability



Cloud

Key Characteristics

- Scalability



Cloud

Key Characteristics

- Scalability

Scalability is the ability to scale

Scaling is a process of

- allocating (adding) or
- deallocating (removing)

resources

VS
HS

Cloud

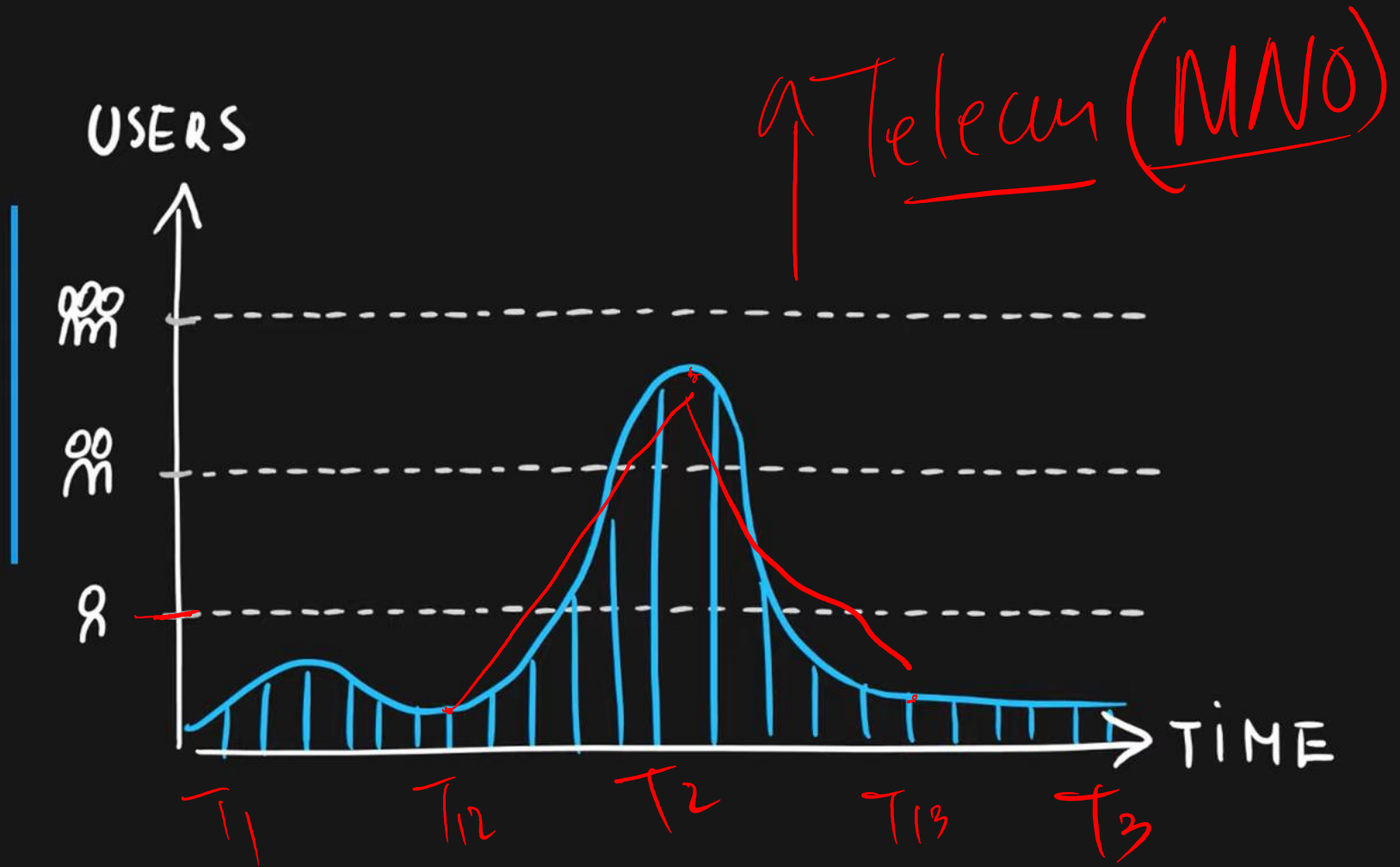
Key Characteristics

- Scalability
- Elasticity

Cloud

Key Characteristics

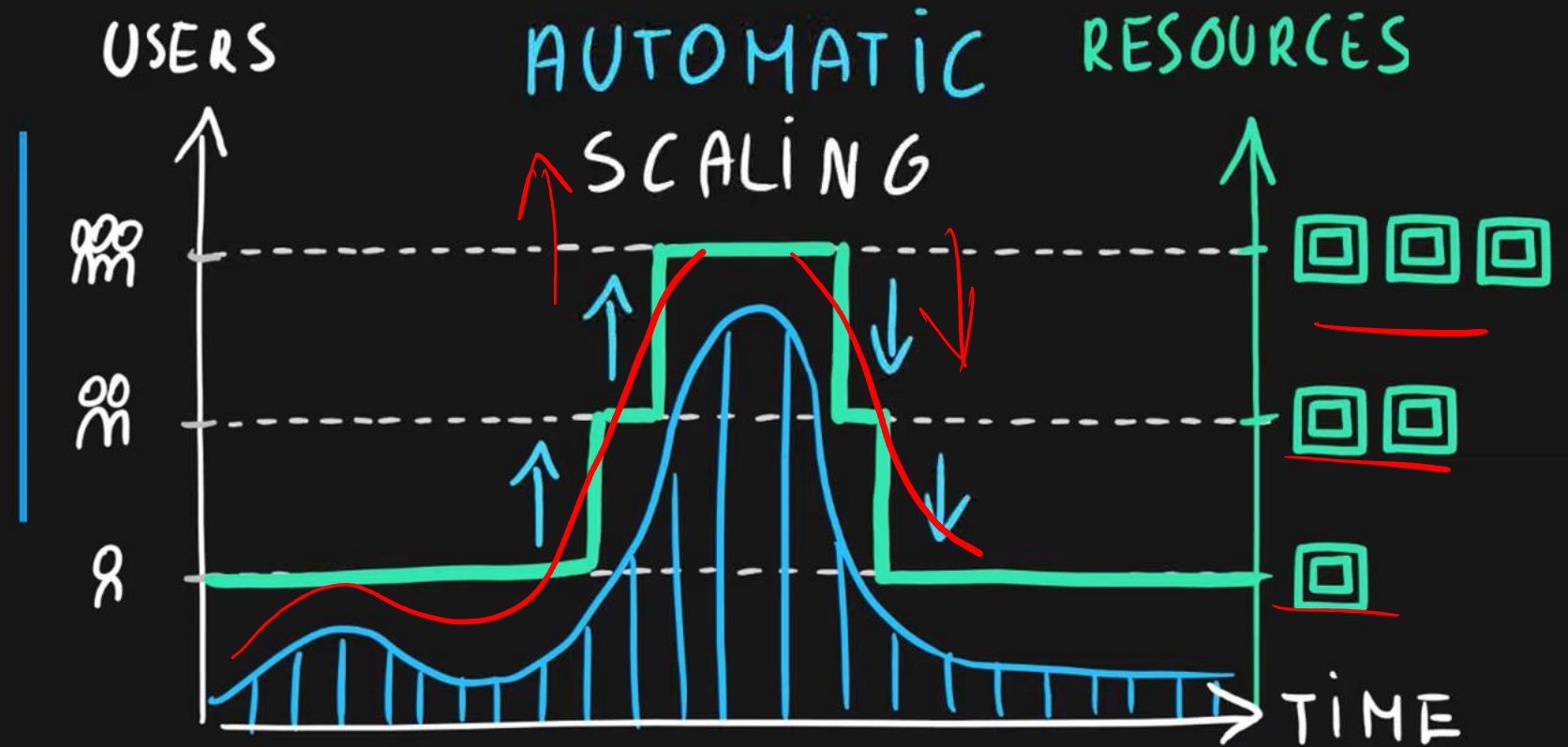
- Scalability
- Elasticity



Cloud

Key Characteristics

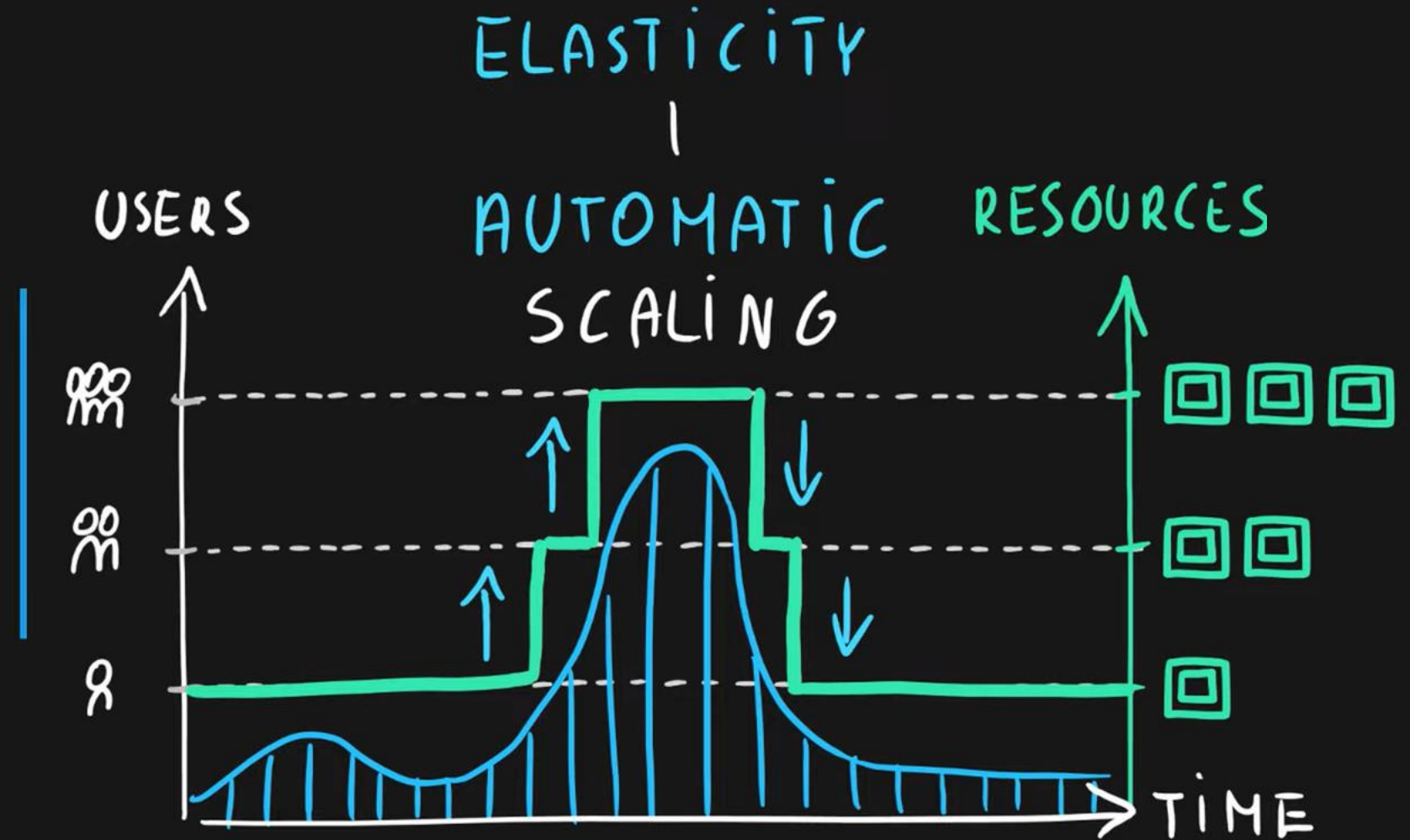
- Scalability
- Elasticity



Cloud

Key Characteristics

- Scalability
- Elasticity

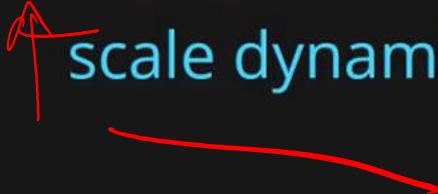


Cloud

Key Characteristics

- Scalability
- Elasticity

Elasticity is the ability to
scale dynamically



Cloud

Key Characteristics

- Scalability
- Elasticity
- Agility



MANUAL



AUTOMATED

~~Elasticity~~

Cloud

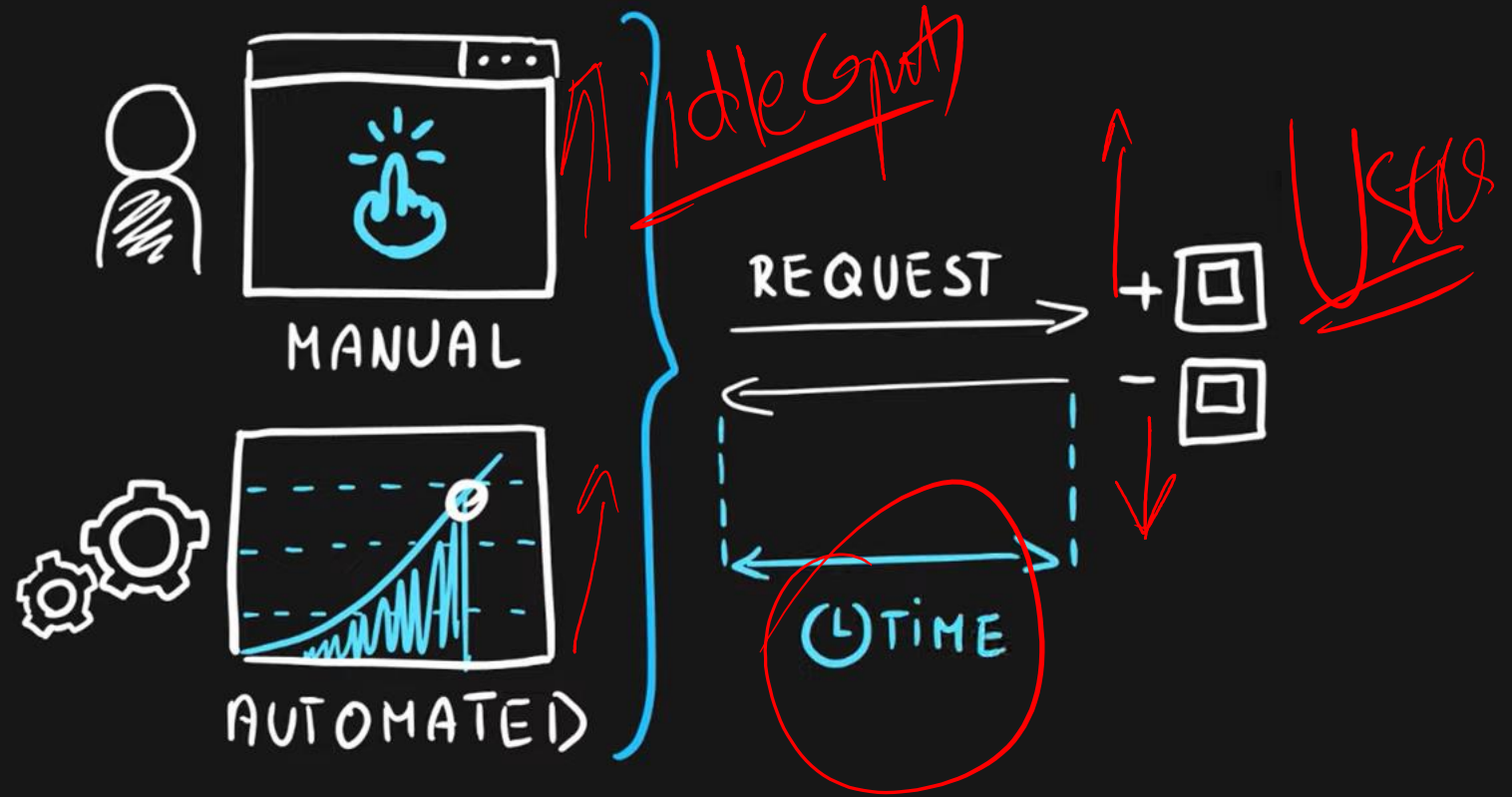
Key Characteristics

- Scalability
- Elasticity
- Agility

Cloud

Key Characteristics

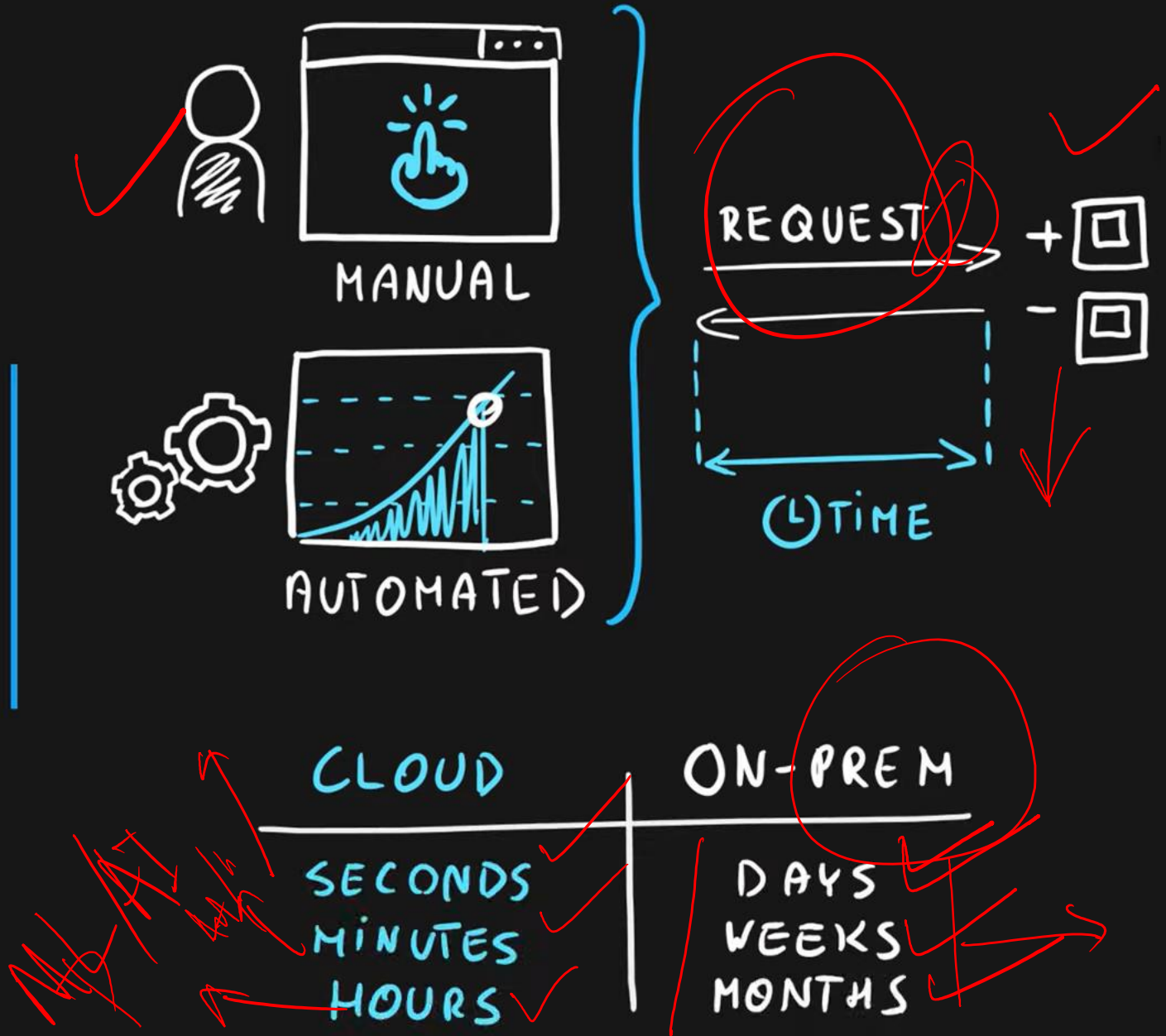
- Scalability
- Elasticity
- Agility



Cloud

Key Characteristics

- Scalability
- Elasticity
- Agility



Cloud

Key Characteristics

- Scalability
- Elasticity
- Agility

Agility is the ability to react quickly

Agility is the ability to
allocate and deallocate (scale)
resources quickly

Cloud

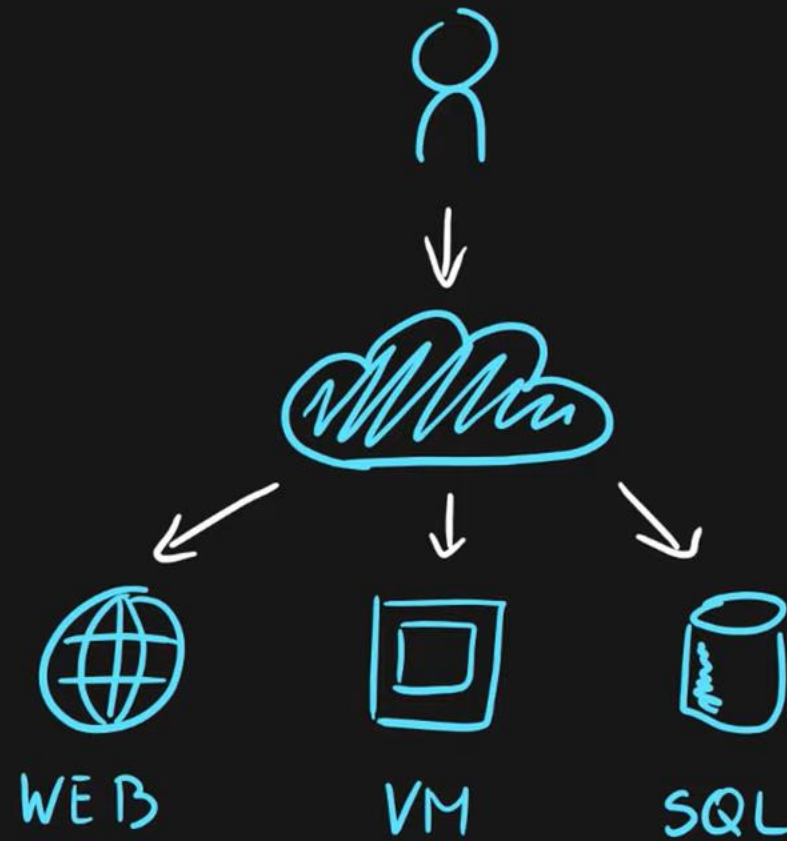
Key Characteristics

- Fault Tolerance

Cloud

Key Characteristics

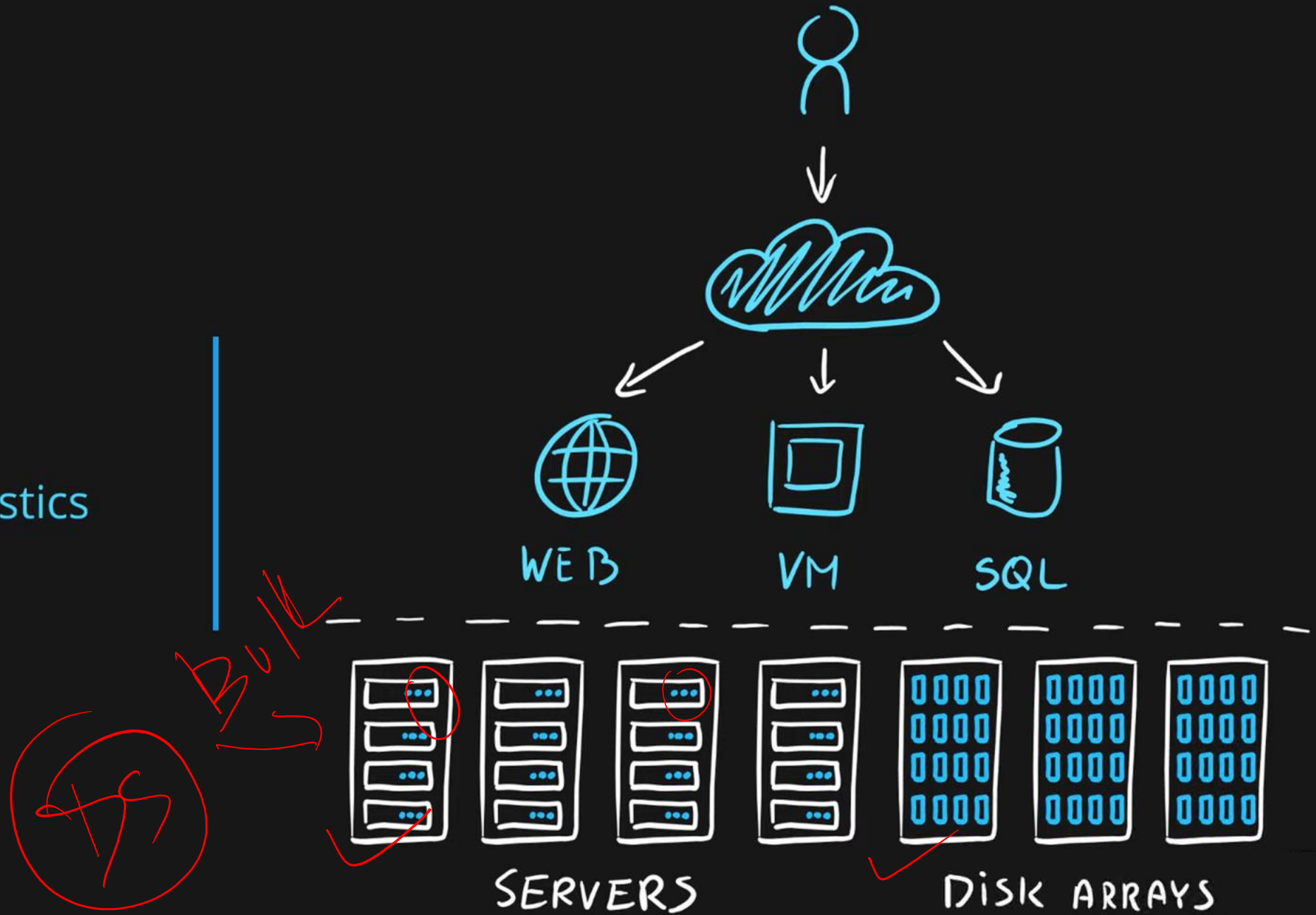
- Fault Tolerance



Cloud

Key Characteristics

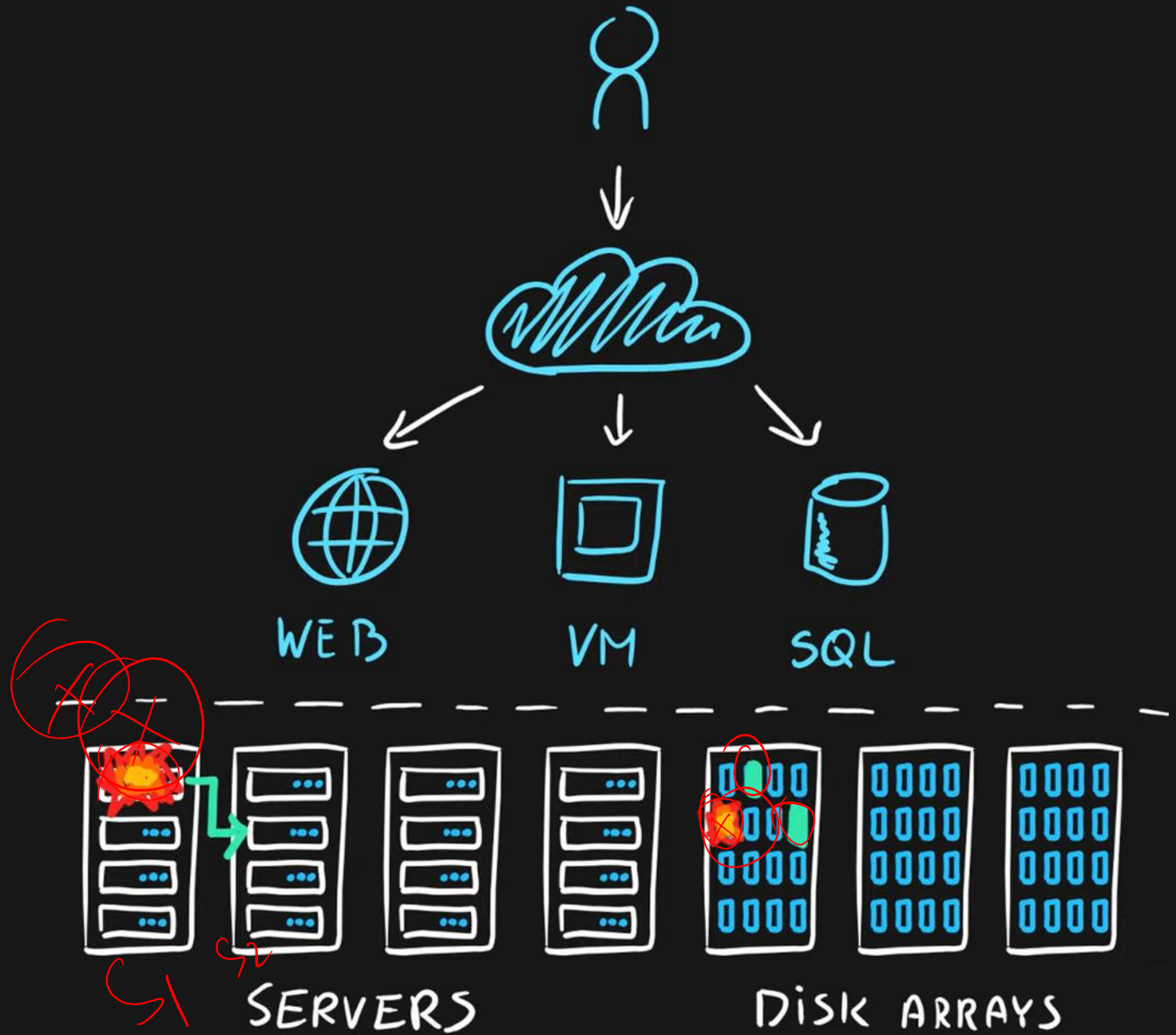
- Fault Tolerance



Cloud

Key Characteristics

- Fault Tolerance ✓



Cloud

Key Characteristics

- Fault Tolerance

Fault tolerance is the ability to remain up and running during component and service failures

Cloud

Key Characteristics

- Fault Tolerance
- Disaster Recovery

Cloud

Key Characteristics

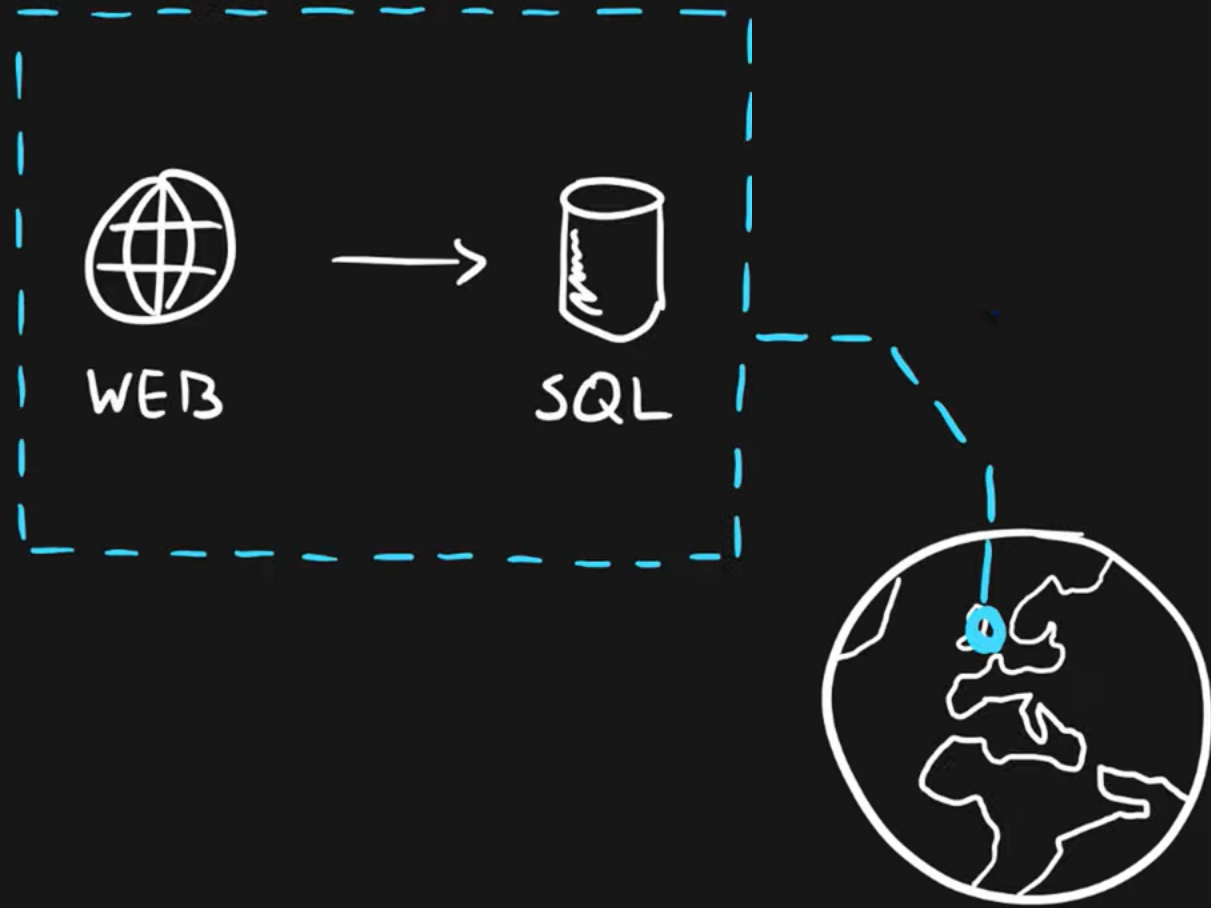
- Fault Tolerance
- Disaster Recovery

Disaster is a serious disruption of services caused by natural or human-induced causes

Cloud

Key Characteristics

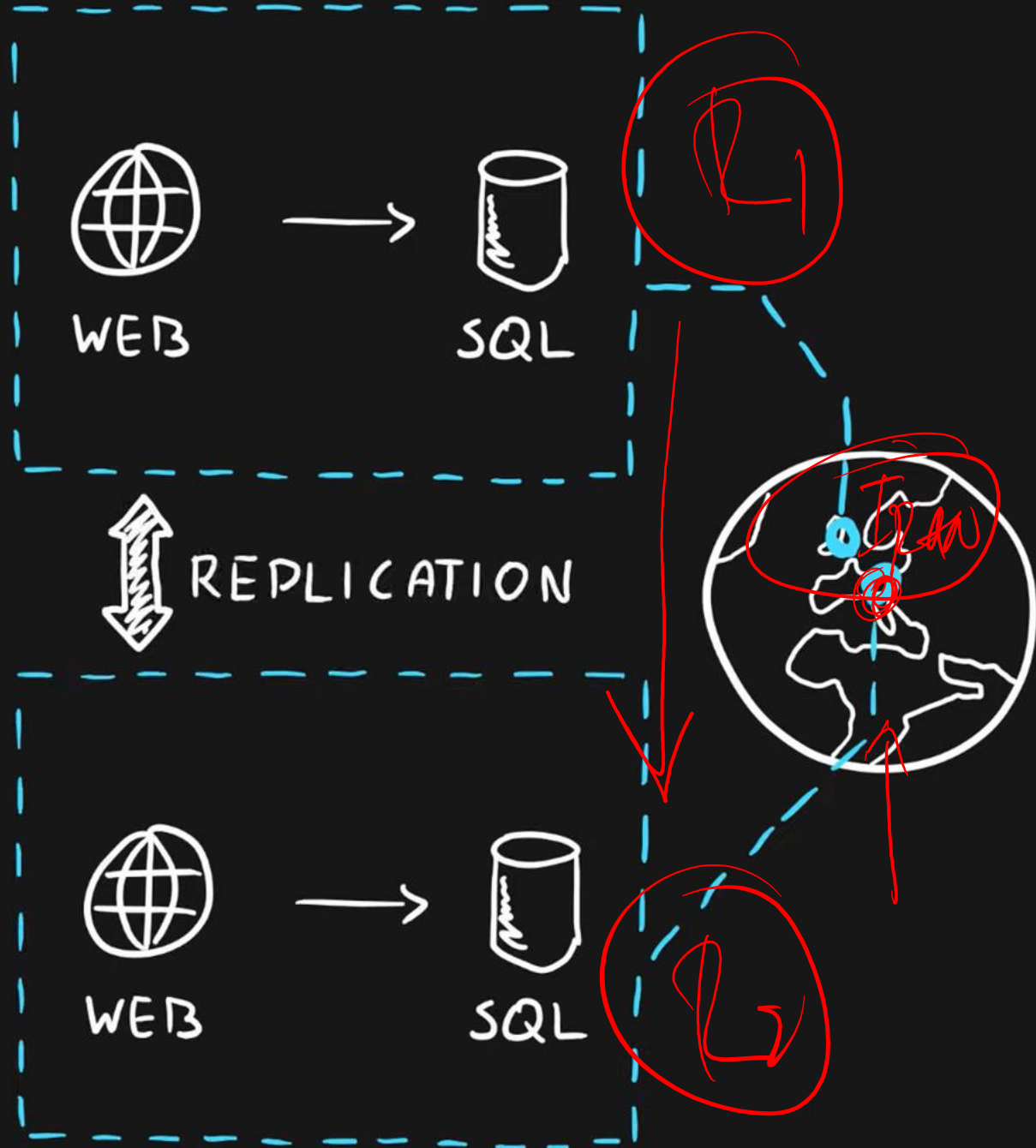
- Fault Tolerance
- Disaster Recovery



Cloud

Key Characteristics

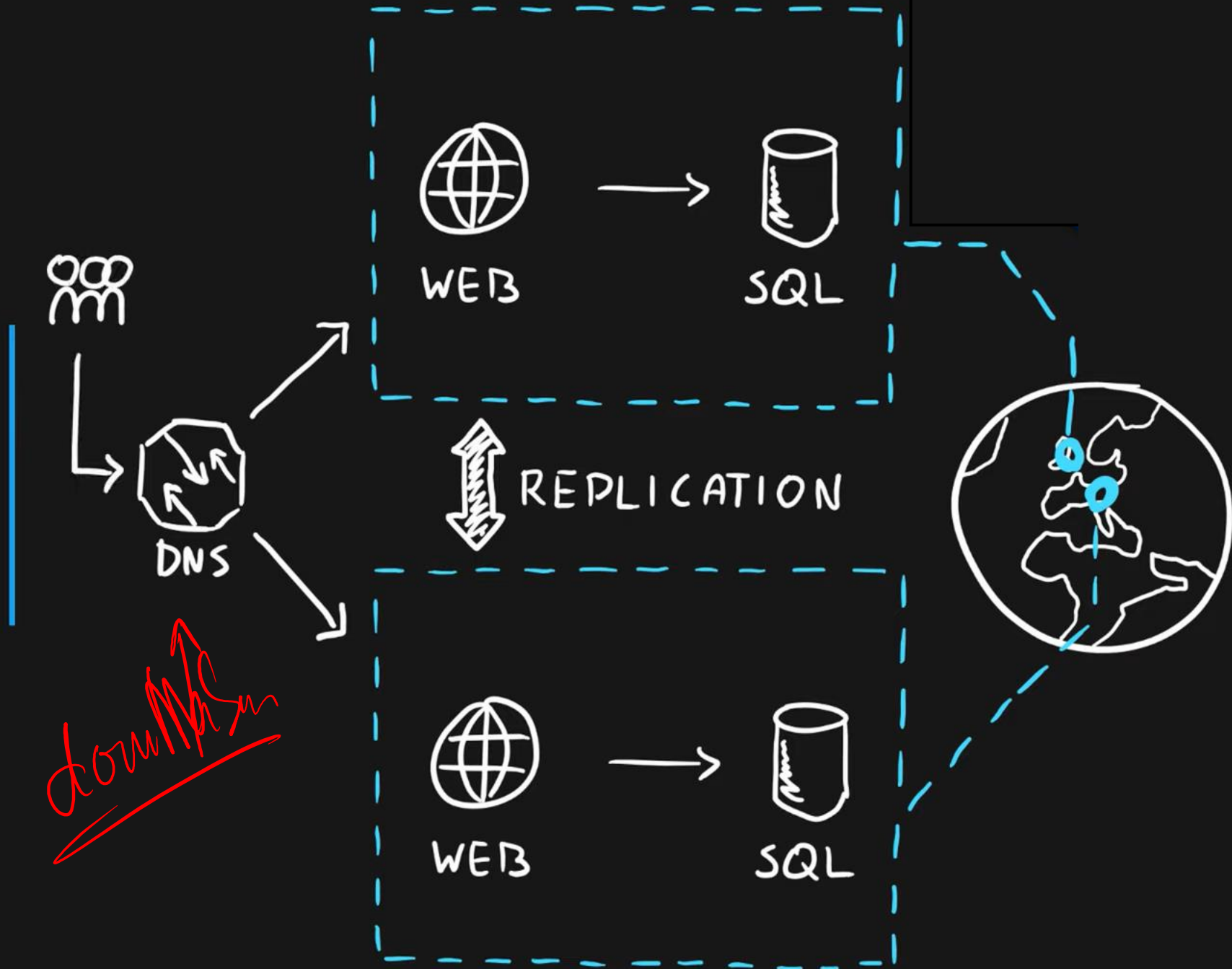
- Fault Tolerance
- Disaster Recovery



Cloud

Key Characteristics

- Fault Tolerance
- Disaster Recovery



Cloud

Key Characteristics

- Fault Tolerance
- Disaster Recovery

Disaster is a serious disruption of services caused by natural or human-induced causes ✓

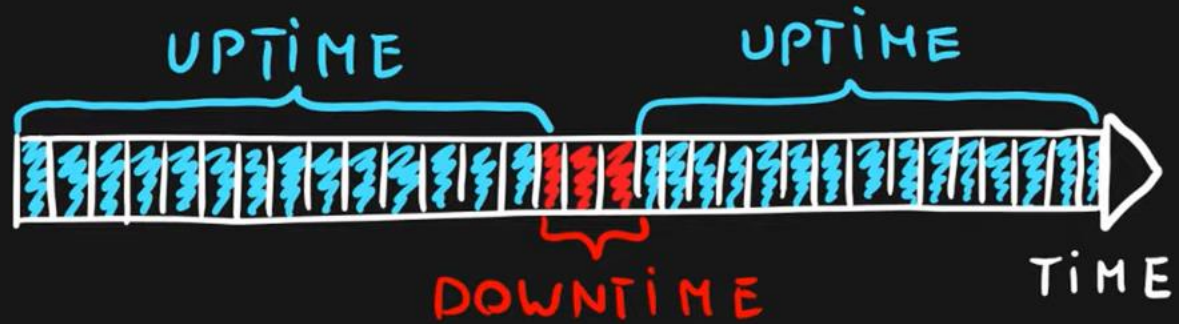
Disaster recovery is the ability to recover from an event that has taken down the service (disaster)

Cloud

Key Characteristics

- Fault Tolerance
- Disaster Recovery
- High Availability

QoT



Cloud

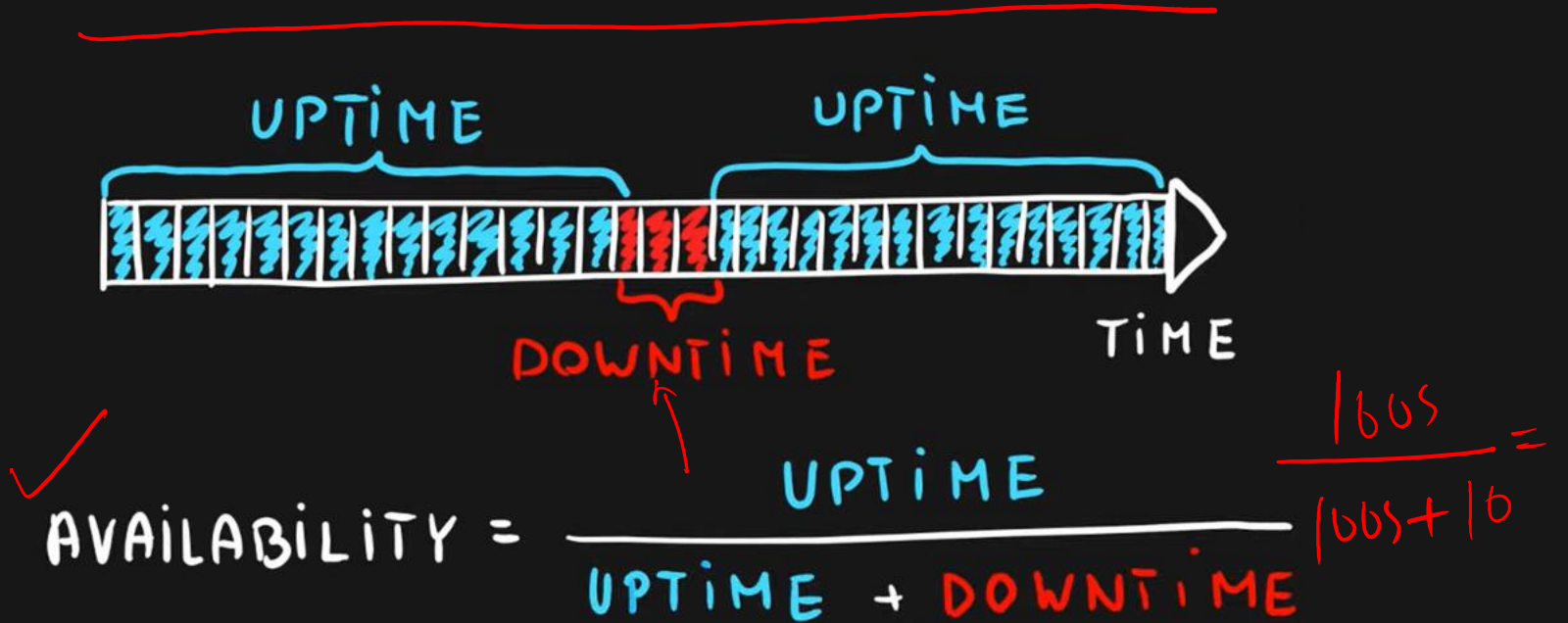
Key Characteristics

- Fault Tolerance
- Disaster Recovery
- High Availability

Cloud

Key Characteristics

- Fault Tolerance
- Disaster Recovery
- High Availability



Cloud

Key Characteristics

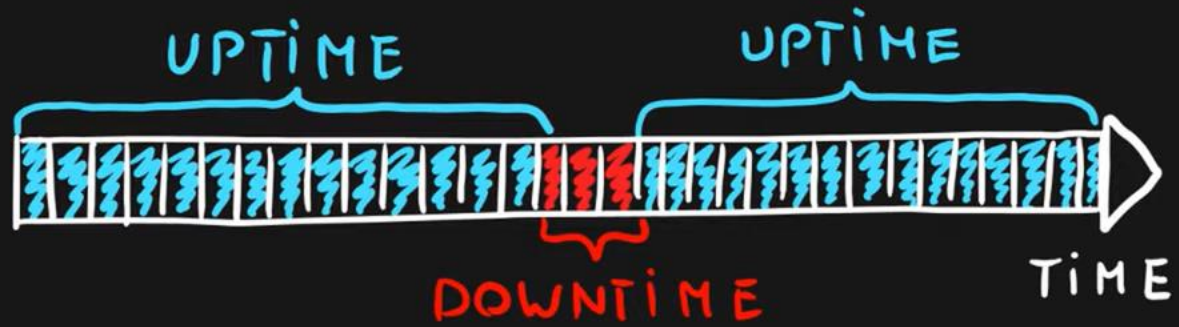
- Fault Tolerance
- Disaster Recovery
- High Availability



$$\text{AVAILABILITY} = \frac{\text{UPTIME}}{\text{UPTIME} + \text{DOWNTIME}}$$

90.9% $\frac{100}{100 + 10}$

AVAILABILITY	YEAR	MONTH	DAY
99%	3.65 DAYS	7.31 HOURS	14.4 MIN



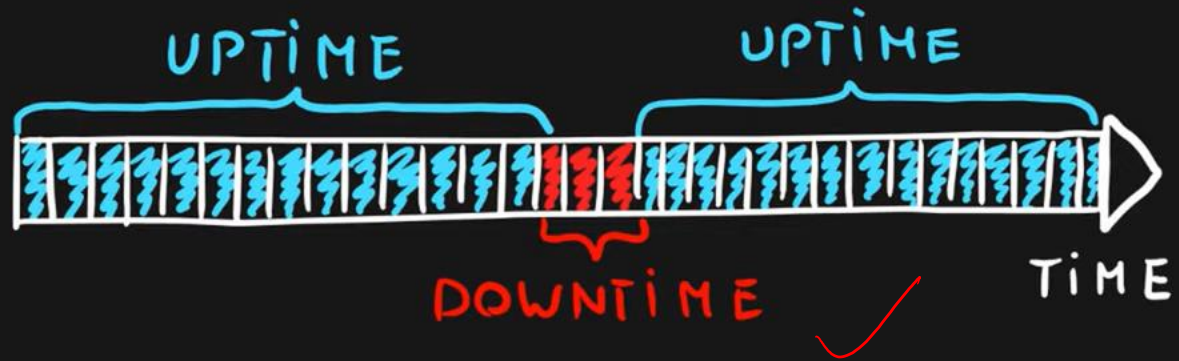
Cloud

Key Characteristics

- Fault Tolerance
- Disaster Recovery
- High Availability

$$\text{AVAILABILITY} = \frac{\text{UPTIME}}{\text{UPTIME} + \text{DOWNTIME}}$$

AVAILABILITY	YEAR	MONTH	DAY
99%	3.65 DAYS	7.31 HOURS	14.4 MIN
99.9%	8.77 HOURS	43.83 MIN	1.44 MIN



Cloud

Key Characteristics

- Fault Tolerance
- Disaster Recovery
- High Availability



$$\text{AVAILABILITY} = \frac{\text{UPTIME}}{\text{UPTIME} + \text{DOWNTIME}}$$

AVAILABILITY	YEAR	MONTH	DAY
99%	3.65 DAYS	7.31 HOURS	14.4 MIN
99.9%	8.77 HOURS	43.83 MIN	1.44 MIN
99.99%	52.60 MIN	4.38 MIN	8.64 SEC

Service-based Network Driven for
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Acad

Cloud

Key Characteristics

- Fault Tolerance
- Disaster Recovery
- High Availability

Availability is a measure of system
uptime for users/services

Cloud

Key Characteristics

- Fault Tolerance
- Disaster Recovery
- High Availability

✓
Availability is a measure of system uptime for users/services

✓
High availability is the ability to keep services running for extended periods of time with very little downtime

THANK YOU!