



SOFTWARE ARCHITECTURE 2022-2023

# Fallacies of distributed computing



Pablo Argallero Fernández

UO283216

Adrián Vega Sánchez

UO282365

Sara Fernández Arias

UO269546



# L . Peter Deustch

60 years on the tech industry (Started at 14)

Former member of sun microsystems. (Oracle)

Participated in SmallTalk Developement

Participated in the developement of Just In Time Compilation

Currently retired

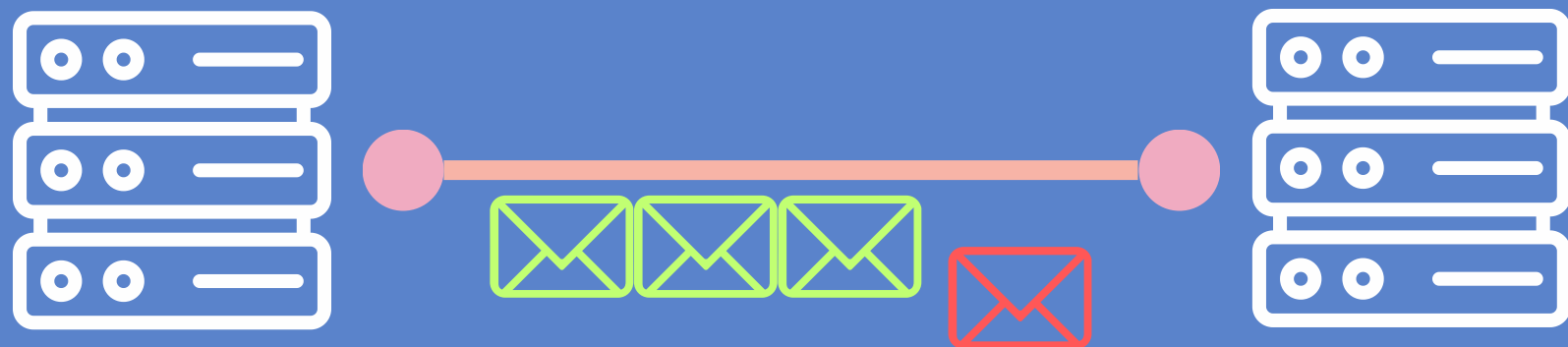
Loves music & contributed to MusicXML

# 1. The network is reliable



"No error will occur while communicating in a distributed network"

## Packet loss



Solved in low layers of network protocols and hardware components.  
Application may not handle them.

## Connection lost / downfall



Application must handle outages and inform the user.

## 2. Latency is zero



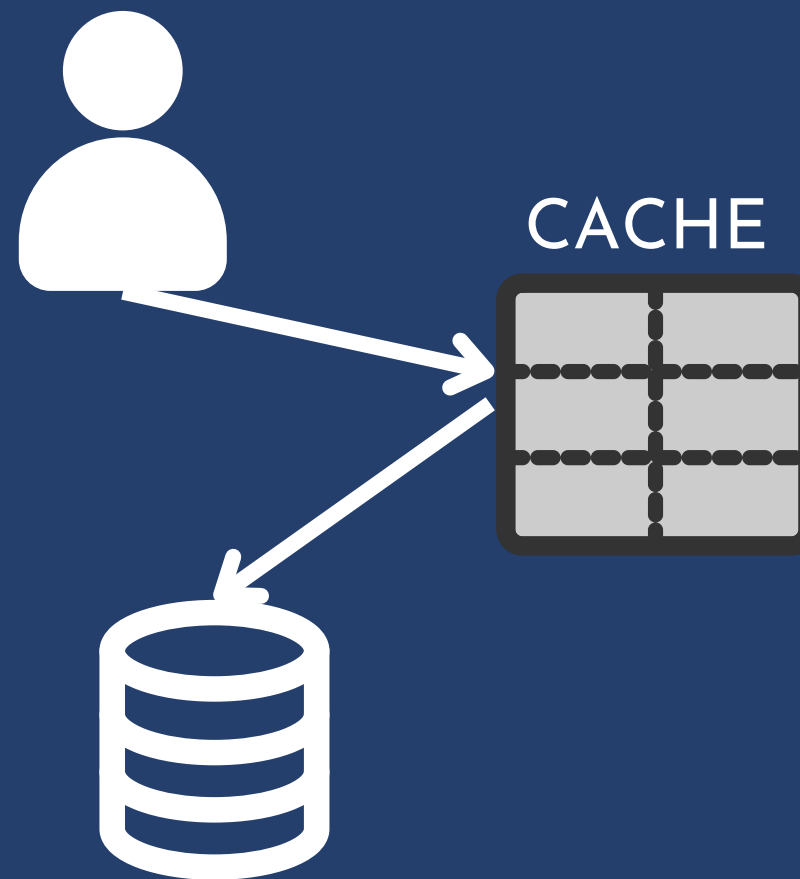
"All requests will be solved in no time"

How do we solve it?

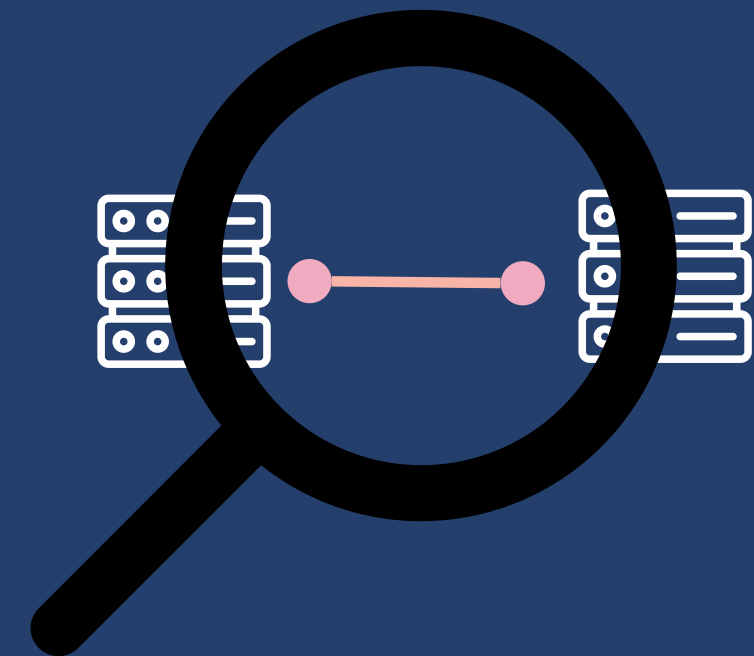
Async execution



Chaching

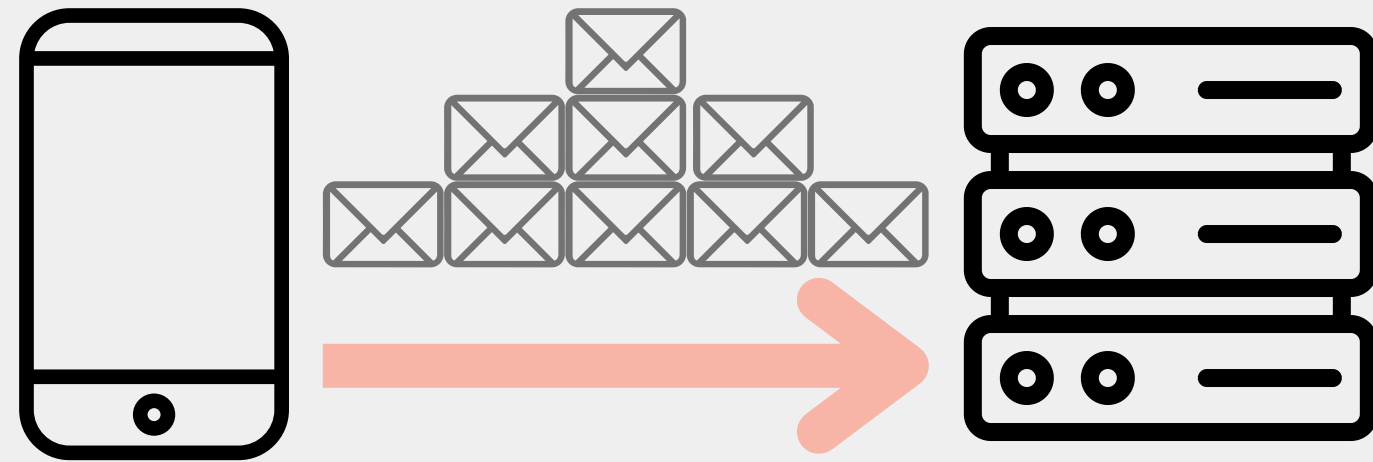


Analyse trafic



Find bottlenecks

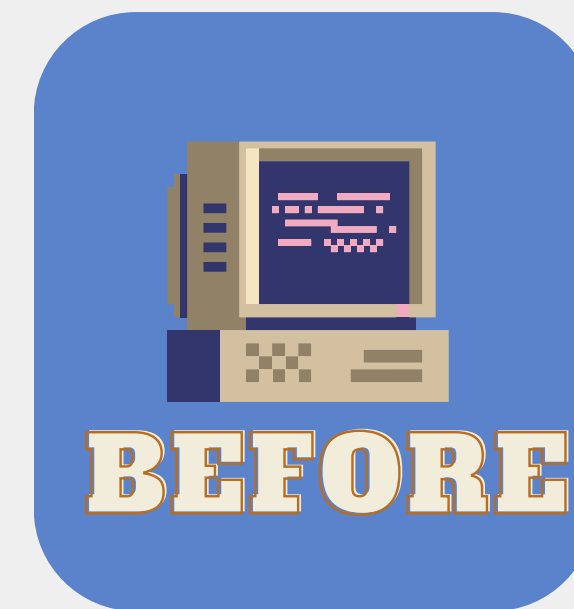
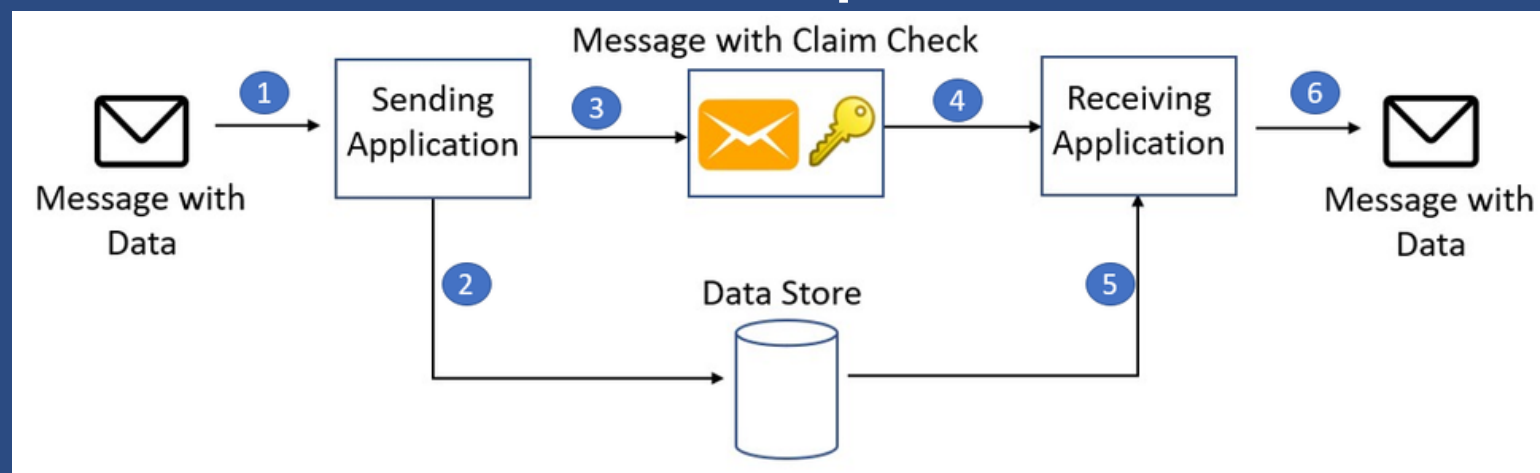
### 3. Bandwidth is infinite $\infty$



"With today's technology, bandwidth is practically unlimited, so I can transfer as much data as I need without any problems."

#### Sidestepping

##### Claim check pattern



vs.



# 4-The network is secure.

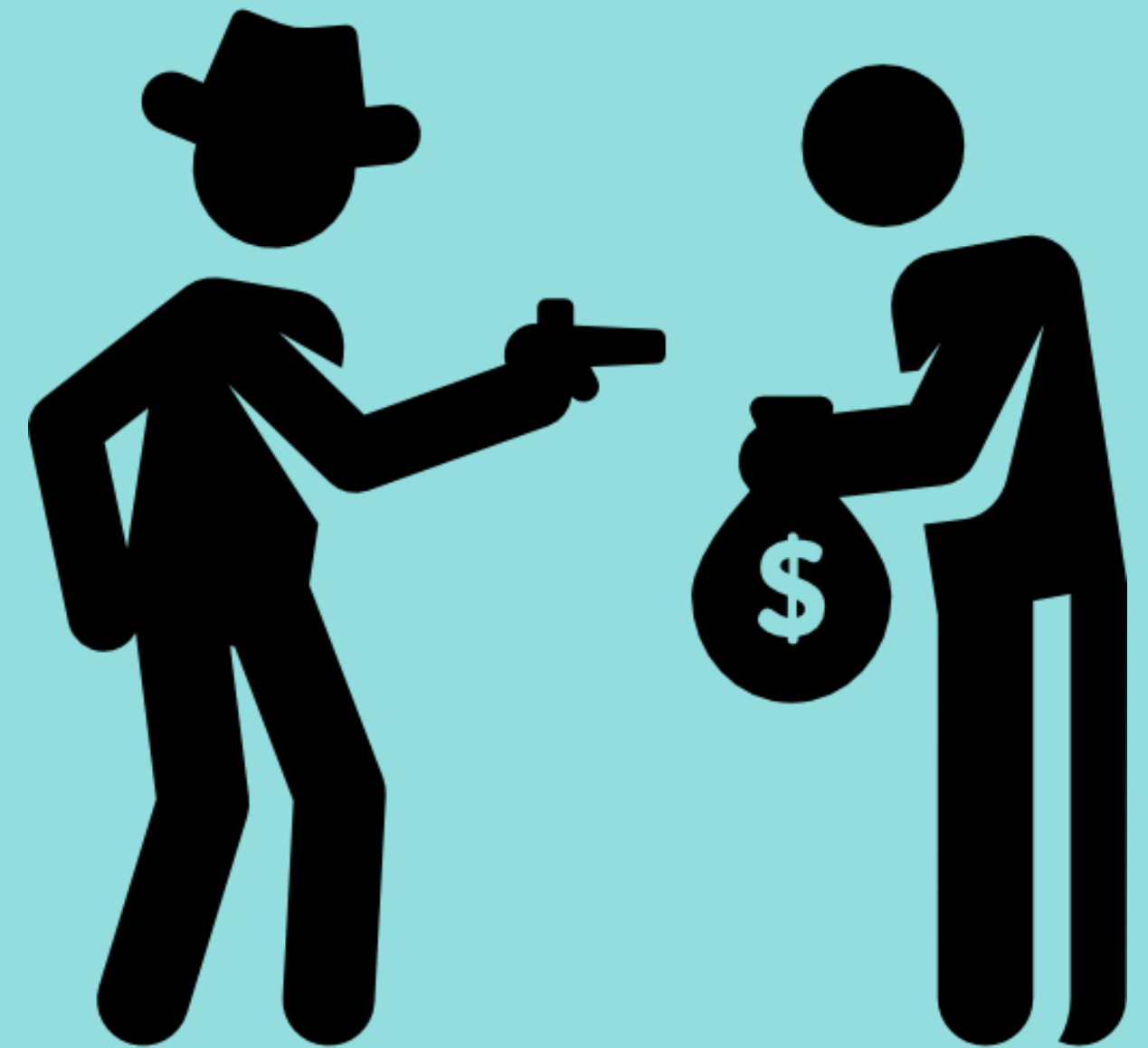
MALWARE IS EVERYWHERE AND MORE  
SOPHISTICATED.



# The greater the value the greater the threats.

The relationship between these concepts is crucial, and makes the security being much more difficult to ensure than before.

Also new threats are being used.



# Solutions

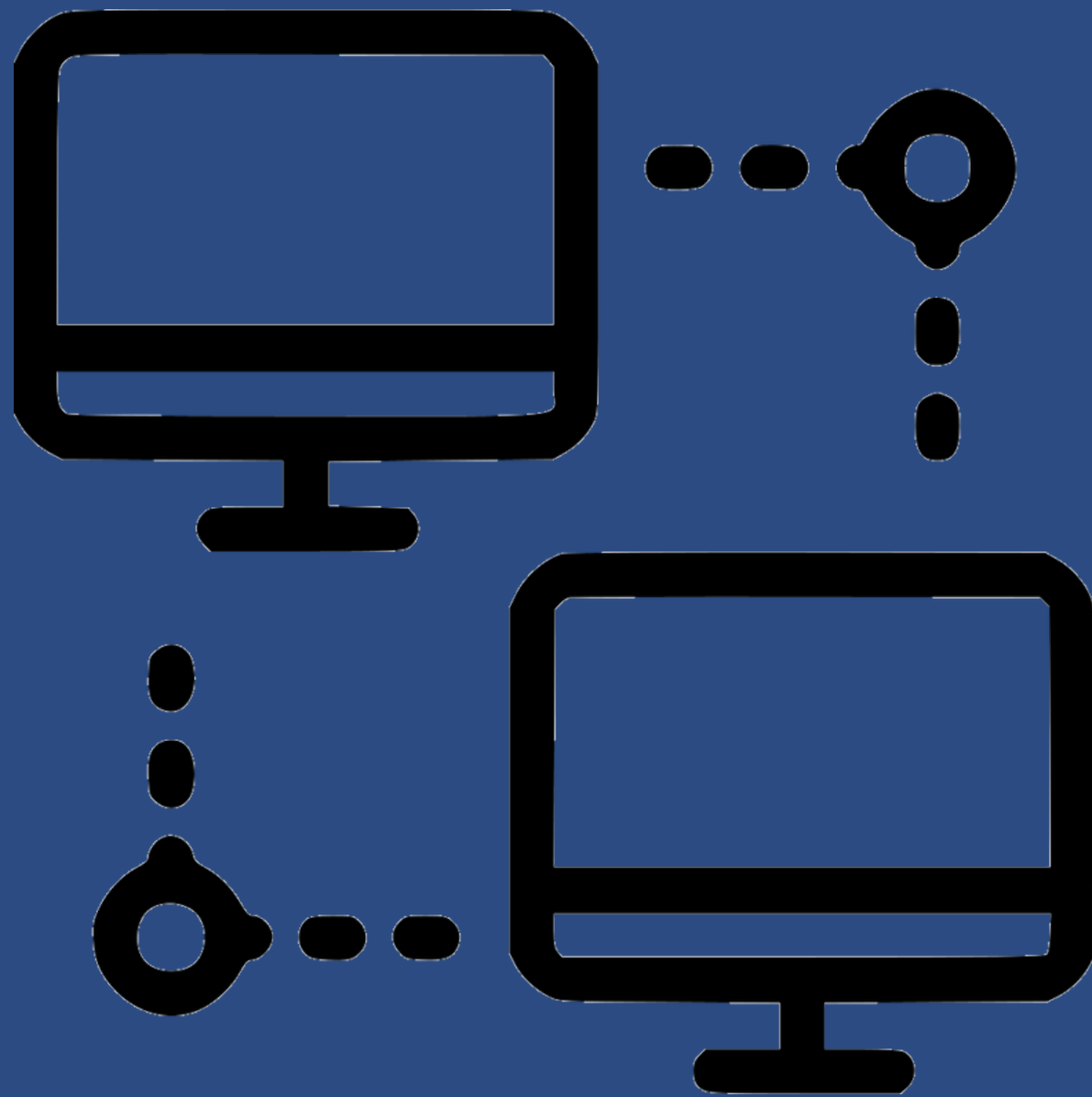
Hop to hop encryption widely used.  
Appearance of HTTPS.





# 5. Topology never changes

MOST OF THE CONNECTIONS FROM MOBILE  
DEVICES.



# 6. There is one administrator

THE ADMINISTRATION SHOULD RELY ON  
STANDARDS



# Companies fight each other

They want you to depend on their software.





# 7-Transport Cost is zero

NOWADAYS, BANDWIDTH AND CAPACITY COSTS  
ARE THE ISSUE.

Upfront costs : power , cabling, servers, staff...  
costs delegated to cloud providers = Hidden costs

How we use those services is what matters.

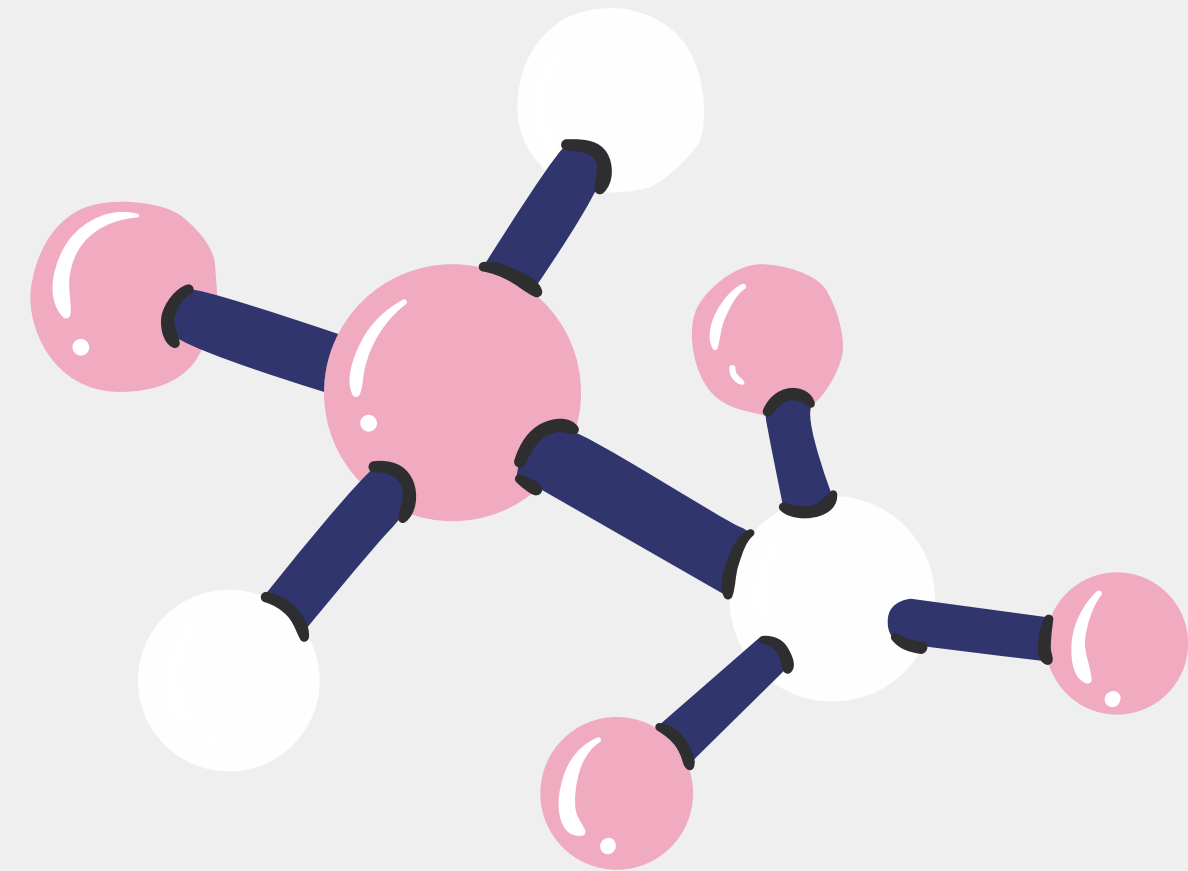
# 8. The network is homogeneous

## Standardization is key for operation

Heterogeneous environments = Different semantic models

how is any of this related to networking?

So ... has anything improved?



***9-We should all trust each other***





**THANKS FOR  
YOUR  
ATTENTION**

**Any questions?**

