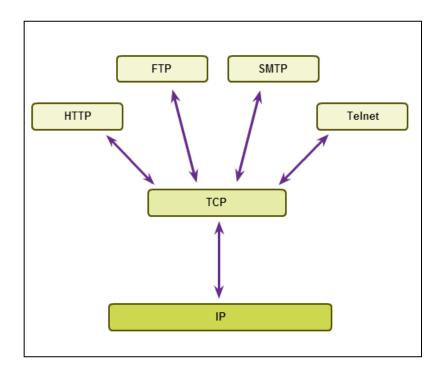
# REDES DE COMPUTADORES

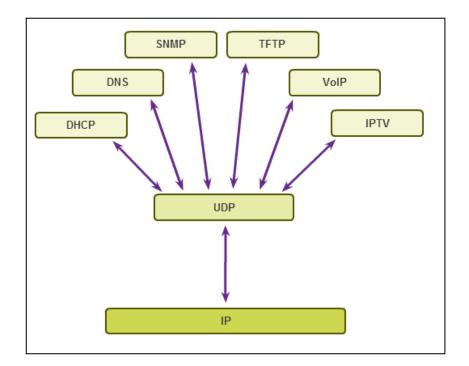
## **Mário Antunes**

mario.antunes@ipleiria.pt

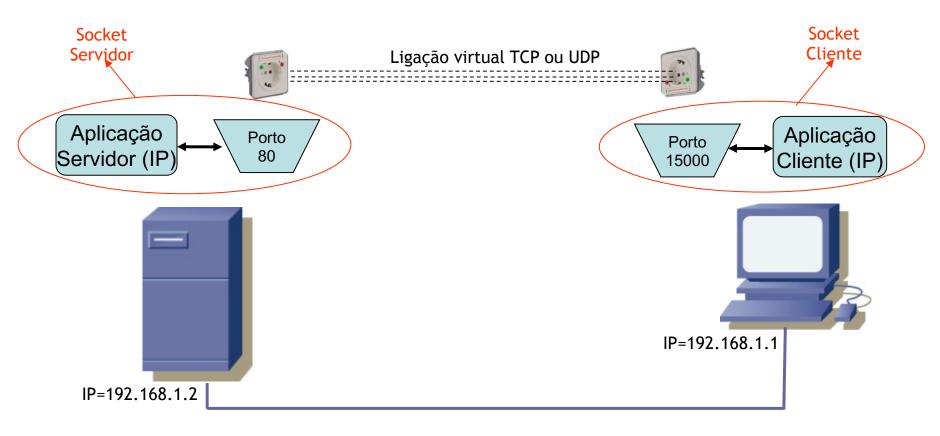
Novembro de 2018

## TCP or UDP



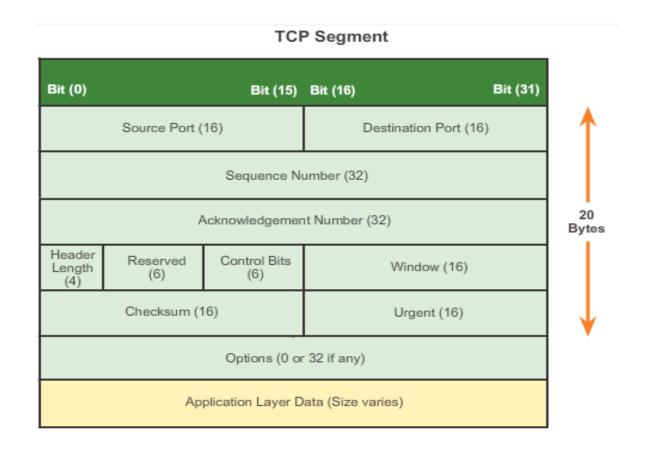


## **Portos**



Ligação = (Socket Cliente, Socket Servidor, Protocolo Transp.)

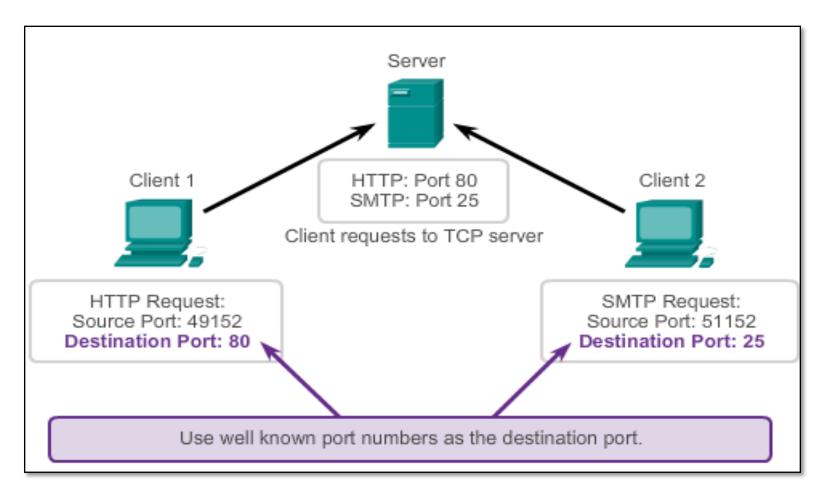
# Estrutura do segmento TCP





## **TCP Server Processes**

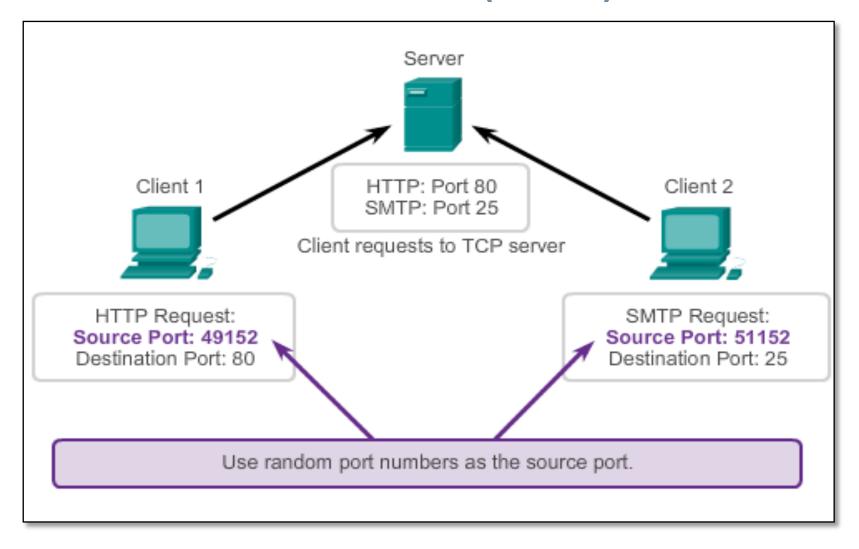
#### Request Destination Ports





#### **TCP Communication**

# **TCP Server Processes (Cont.)**



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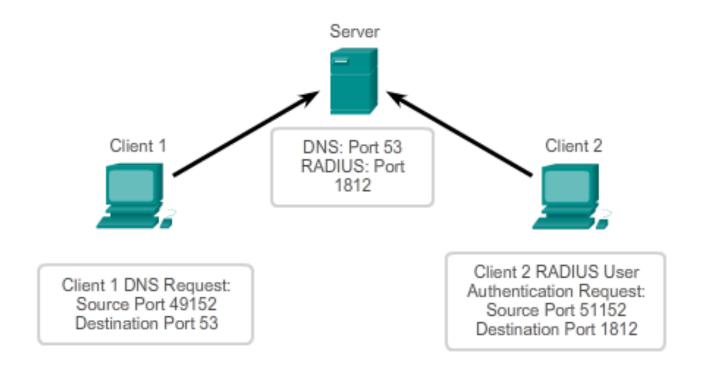
# Estrutura de datagrama UDP

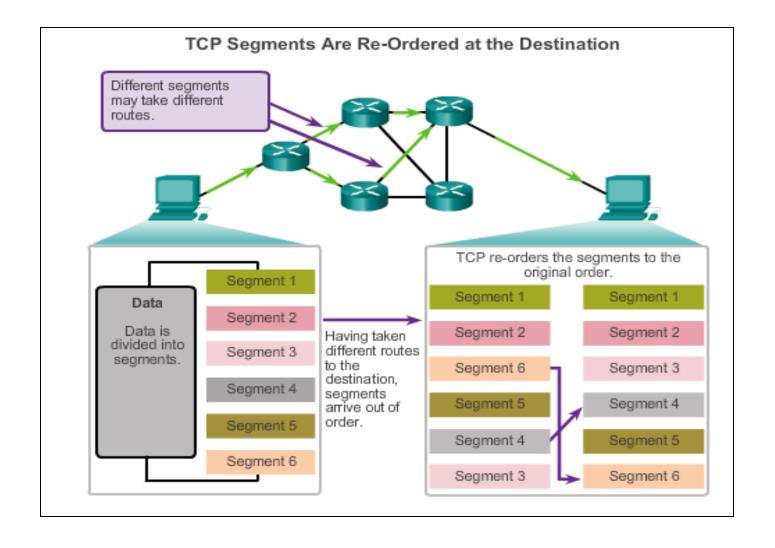
## **UDP Datagram**

Bit (0)	Bit (15)	Bit (16)	Bit (31)
	Source Port (16)	Destination Port (16)	<b>1</b> 8
	Length (16)	Checksum (16)	Bytes
Application Layer Data (Size varies)			

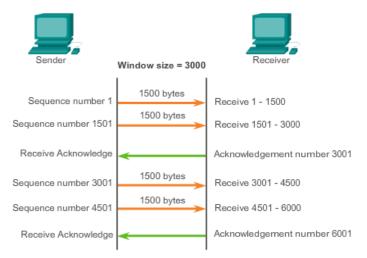
### **UDP Communication**

## **UDP Server and Client Processes**





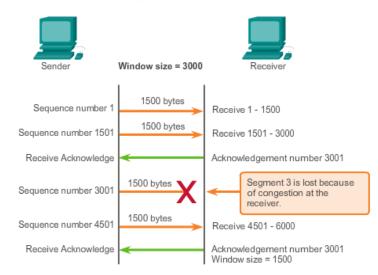
#### TCP Segment Acknowledgement and Window Size



The window size determines the number of bytes sent before an acknowledgment is expected.

The acknowledgementnumber is the number of the next expected byte.

#### TCP Congestion and Flow Control



If segments are lost because of congestion, the receiver will acknowledge the last received sequential segment and reply with a reduced window size.

