Telefonica

# IPv6 & Edge Computing: An IoT Opportunity

Carlos Ralli Ucendo @carlosralli Customer Centric Networks Telefónica I+D

#### IPv6 access world roll-out: A Market fact today



Native: 21.11% 6to4/Teredo: 0.00% Total IPv6: 21.11% | 1 jun. 2018



#### IPv6 is mainstream & useful for Internet services too

USA Internet6 capable smartphones surf Facebook services **30-40% faster**.





Paul Saab Software Engineer at Facebook 6d



Yesterday, for the first time, more than 50% (50.75%) of the usage in the United States occured on Facebook over **#IPv6**.



# IPv6 fits well IoT comms requirements



# Rewiring it all leads to a game changer Bringing back easy & efficient Comms ©



#### A full standardized IP(v6)-based stack for IoT





Time (sec)

38.774

31.972

2.660

3.032

3.076

1.104

1.029

CoAP/UDP

32

40

16

17 2

#### IPv6 IoT Example Deployment: UK GOV Public Tender

- One of largest M2M/IoT deals (valued at £1.5bn over a 15-year lifespan)
- Major national infrastructure project that will involve the roll out of 53 million gas and electricity meters across the UK by 2020.
- Comms based on IPv6 cellular m2m + 6LowPAN (IPv6-based wireless mesh solution).
- Telefónica's UK unit, O2, will serve two of the project's three regions.





#### IPv6 IoT Example Deployment: Seville Smartcity





#### IPv6 IoT specific early adopters



#### Smartcities powered by IPv6 Connectivity & Platform.

"Our pioneering, with more than 22 million Silver Spring enabled devices delivered, is connecting utilities to homes and businesses throughout the world. Cities worldwide are looking to modernize their infrastructures".



# A new landscape: (Telcos) Edge Computing

Telefonica Global Innovation – Customer Centric Networks

- OnLife Networks: Telefonica COs as software-defined Datacenters.
- The vision is to build a programmable all-IP (IPv6) network



# A new landscape: (Telcos) Edge Computing (II)



## Edge Computing: IoT use-cases

#### Home IoT Devices

- No on-premise IoT gateways are needed.
- A proxy CoAP at the Edge helps to save battery power.
- The server is 2-5ms from a given fibber customer.



# Edge Computing: IoT use-cases

#### **ML/AI-based IoT Security**

Analysis is made at the Edge so massive data does not cross core network. •



Central Office



# Edge Computing: IoT use-cases

#### Industrial IoT

- Cloud-scale + on-premise-like delay
- Enabler of AR/VR
- Analysis is made at the Edge so massive data does not cross core network.

# MEC Use Cases are ready for commercial deployments



#### **Call for Action / Collaboration**



If you want to work out Edge Computing IPv6 IoT use-cases, let me know!

carlos.ralliucendo at telefonica.com



