Peñuelas Testbed

OpenNebula Powered
What is Peñuelas?

Peñuelas is one of the largest Telefonica Central Office in the south of Madrid.

A Central Office is a building to which subscriber home and business lines are connected on a local loop.

With the evolution of Telefonica Networks and the increasing virtualización of Telco resources, our switching facilities will look more and more like data centers.

Peñuelas is directly connected to the Telefonica IP Transport Network providing very low latency (<4ms) to the system and services deployed there.
What is Peñuelas?

6G-Sandbox – Testbed – OCP Datacenter

The Open Compute Project (OCP) is an organization that shares designs of data center products and best practices
• Server designs
• Data storage
• Rack designs
• Energy efficient data centers
• Open networking switches
• Servers
Datacenter Physical Infrastructure
Compute Nodes

Inventory
• 3x Intel Relion XO1132g Server OCP
• 4x AMD Altus XO1132g Server OCP
• 1x Tyan Thunder HX

Operating System
• Ubuntu server 22.04 LTS
Networking
3x OCP Celestica D4040 SmallStone XP
- Ports 32x40G QSPF+
- Available breakout 4x10Gb on half ports
- ICOS operating system
1x Switch Ubiquiti USW-48x1G - 2 SPF+ - 2 SPF

Storage
1x JBOB OCP ST7110G2-30A Wiwynn
- Thirty 3.5" hot-plug drive bays (15 per tray):
  - SAS/SATA SSD with 2.5" drive cage
  - SAS HDD (10K rpm)
  - Nearline SAS HDD (7.2K rpm)
  - SATA HDD (7.2K rpm)
Peñuelas Architecture
Deployment Steps

1. Install Physical Infrastructure
2. Install and Configure Compute Nodes
3. Configure Networking Layer
4. Install and Configure Storage Layer
5. Install and Configure OpenNebula
6. Configure Sandbox6G Resources
6G-Sandbox DrawIO

INSERT SUBHEADING
6G-Sandbox Virtual DataCenter Common Services
6G-Sandbox Virtual DataCenter Monitoring

VIRTUAL DATACENTER MONITORING

FW ROUTER VPN

VN - MGMT

VN - MONITORING

VN - COMMON SERVICES
6G-Sandbox Virtual DataCenter Trial Network
6G-Sandbox – Trial Network Example