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UC3M Specialist in NFV/SDN

Data Center Communications

Unit 1: Introduction to data centers: what is a data center, business model (motivation) of data centers.

Unit 2: Logical topology. Load balancers Storage services: SAN and NAS technologies. Firewalls. Virtualization of network elements: virtual switches, virtual routers. Overlay networks (VXLAN, GRE, etc.).

Unit 3: Physical topology. Relevant metrics and properties Classical topology: Fat tree. Topologies of Clos and leaf and spine (clos folded). Other topologies

Unit 4: Routing and forwarding in data centers. Routing technologies: Spanning tree, BGP (with particularization to data centers). ECMP: technologies, problems, implementation.

Unit 5: Physical infrastructure. Wiring requirements, cabinets, electrical connection, air conditioning. Energy efficiency in Data Centers.

Unit 6: Security in data centers

Unit 7: Transport in data centers. Incast problems, DCTCP

Unit 8: Case studies: FacebookVirtualización de Funciones de Red (NFV) / Network Function