Appendix: Most Widely Used Topologies

1. In Data Centers (AWS, Azure, Meta, Google, etc.)

The Leaf-Spine (Clos) topology is the most widely used in data centers.

It provides predictable 2-hop latency, linear scalability, and supports ECMP routing. It’s ideal for VXLAN, RoCEv2, and Kubernetes-based fabrics.

Every major cloud provider (AWS, Azure, Meta, Google) uses some form of Leaf-Spine fabric.

2. In Supercomputers and HPC Clusters

The Dragonfly topology is dominant in modern large-scale HPC systems.

It provides high bandwidth, low hop count (≤3), and cost-efficient scaling using hierarchical grouping.

Used in Cray Aries, HPE Slingshot, Intel Omni-Path, and InfiniBand HDR/NDR systems.

Examples include Aurora (Argonne), Frontier (ORNL), and Perlmutter (NERSC).

3. Summary Comparison

Environment	Widely Used Topology	Reason
Cloud / Data Center	Leaf-Spine (Clos)	Scalability, predictability, standard Ethernet fabric
HPC / Supercomputing	Dragonfly	Low-latency, high-bandwidth, cost-efficient scaling

Summary: Leaf-Spine dominates cloud-scale data centers, while Dragonfly defines modern supercomputing interconnects.