

An overlay network is a telecommunications network that is built on top of another network and is supported by its infrastructure. An overlay network [decouples](#) network services from the underlying infrastructure by [encapsulating](#) one [packet](#) inside of another packet. After the encapsulated packet has been forwarded to the endpoint, it is de-encapsulated.

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This guide outlines differences in SDN architecture and design, how network virtualization can be used in existing networks, and how hybrid networks can contain both legacy equipment and SDN.

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Most overlay networks run on top of the public Internet, which itself began as an overlay research network running over the infrastructure of the public switched telephone network ([PSTN](#)). Other examples of overlay network deployments include virtual private networks ([VPNs](#)), peer-to-peer ([P2P](#)) networks, content delivery networks ([CDNs](#)), voice over IP ([VoIP](#)) services such as Skype and non-native software-defined networks.

Overlay network protocols include Virtual Extensible LAN ([VXLAN](#)), Network Virtualization using Generic Encapsulation ([NVGRE](#)), stateless transport tunneling (STT), Generic Routing Encapsulation ([GRE](#)) and Network Virtualization Overlays 3 (NVO3).