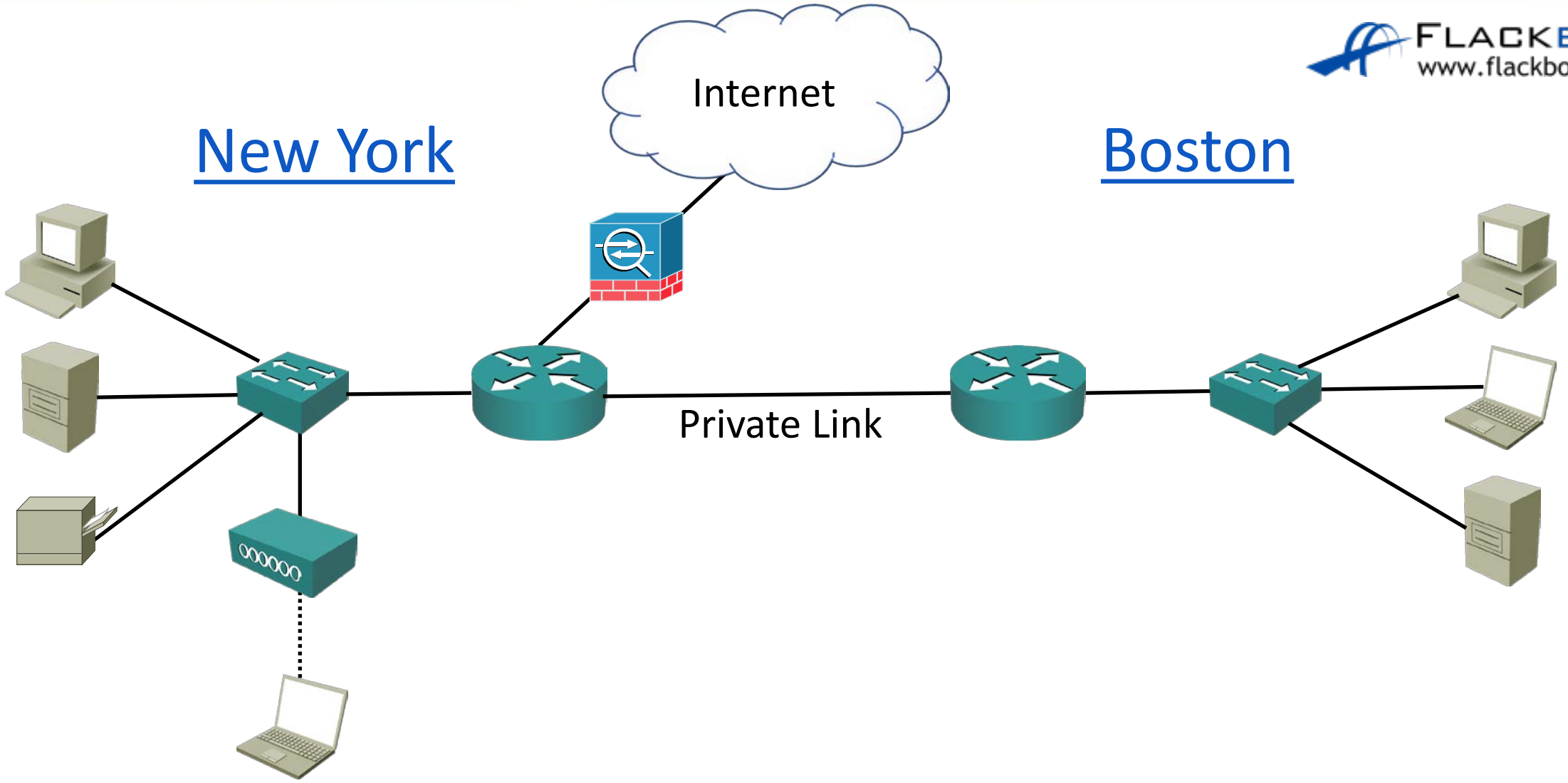
Private vs VPN Connections – Private Networks

- A private network uses links which are dedicated for an individual organisation.
- Local Area Networks are private networks.
- Wide Area Networks can also use physical links which are dedicated for an individual organisation.

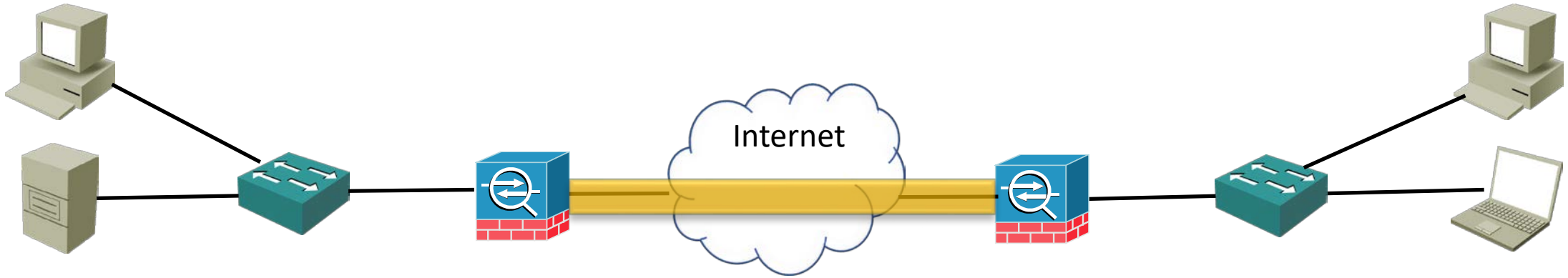
Private Network



VPN Virtual Private Networks

- A **Virtual Private Network** (**VPN**) provides a virtual tunnel between private networks across a shared public network such as the Internet.
- Traffic travelling over the tunnel is encrypted and only readable by the authorised users on both sides.
- Users can share data over the tunnel as if they were connected with a dedicated private link.

VPN Virtual Private Networks

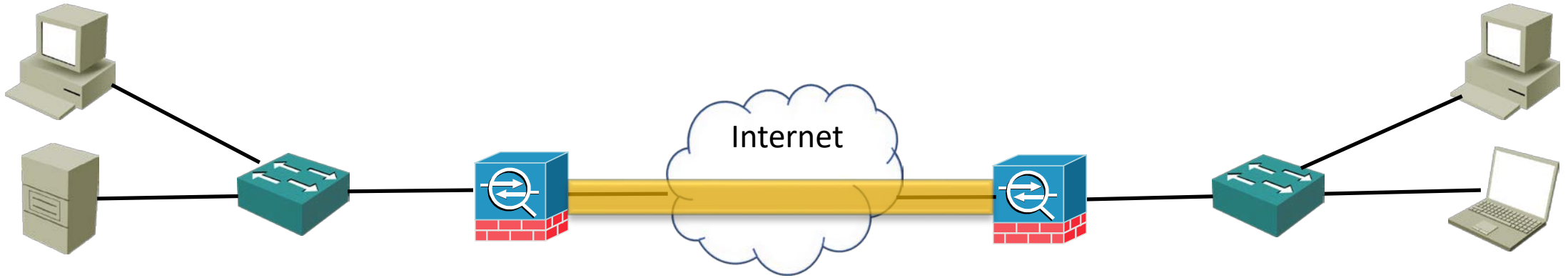


VPN Virtual Private Networks

- VPNs allow an organisation to use the same physical links for connectivity to the Internet and between offices.
- Because they use shared infrastructure, VPN connections are typically less expensive than dedicated physical links.

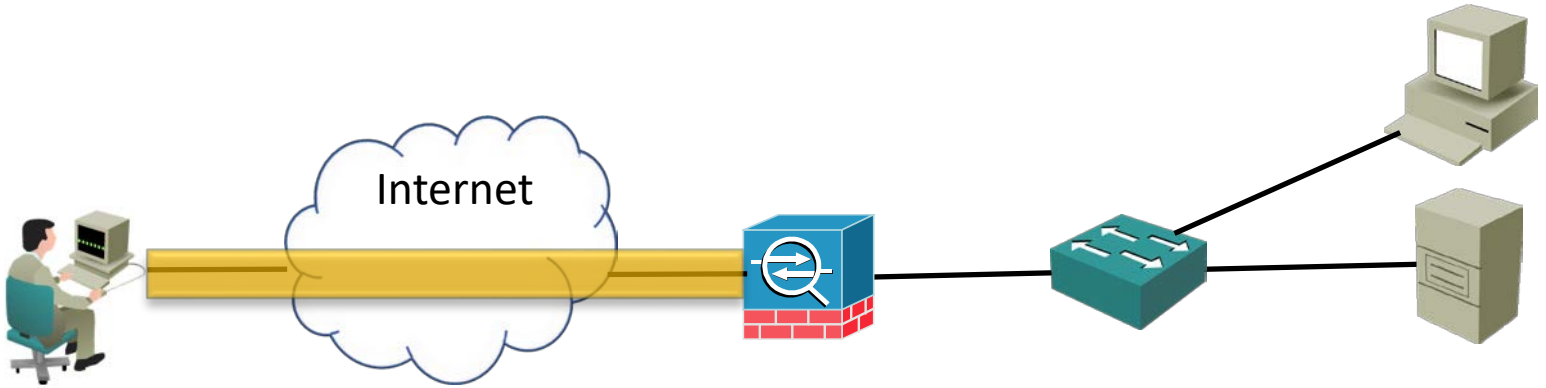
Site-to-Site VPN

- Site to Site VPN connections are terminated on a router or firewall in each office.
- Software does not need to be installed on user desktops.
- IPsec is typically used for encryption.



Remote Access VPN

- Remote Access VPN connections are between a router or firewall in the office and VPN software installed on an individual user's device.
- The user can access the VPN from anywhere with Internet connectivity.
- They usually use SSL (sometimes IPsec) for encryption.



Site-to-Site IPsec VPN Configuration Options

- **IPsec Tunnel:** open standard IPsec tunnel, does not support multicast
- **GRE (Generic Routing Encapsulation) over IPsec tunnel**: adds support for multicast
- **IPsec VTI (Virtual Tunnel Interface):** Cisco proprietary simplified configuration, supports multicast

Site-to-Site IPsec VPN Configuration Options

- **DMVPN (Dynamic Multipoint VPN):** Cisco proprietary. Scalable simple hub and spoke style configuration enables direct full mesh connectivity between all offices
- **FlexVPN:** Cisco proprietary. Very similar to DMVPN, newer technology
- **GETVPN (Group Encrypted Transport VPN):** Cisco proprietary. Scalable centralised policy for VPN over non-public infrastructure eg MPLS.