Topics

- Overview
- VPN features
- Top VPN products
- How to install VPN
- Other useful sites
- Questions
Overview

Definition

• **Virtual Private Network** - a private network that is built over a public infrastructure. Security mechanisms, such as encryption, allow VPN users to securely access a network from different locations via a public telecommunications network, most frequently the Internet.

[technopedia.com](http://technopedia.com)
Overview

Background requirements
• Connect to other networks
• Private secure communications
• Quality of service (QoS)
Overview

Early options
- Build custom network
- Leased line – ISDN 128Kbps
  - Secure, reliable
  - Expensive, distance consideration
- Microwave
- Satellite
Overview

VPN Usage
• Access a business network while travelling
• Access your home network while travelling
• Hide your browsing activity from your local network and ISP
• Access geo-Blocked websites
• Bypass Internet censorship
• Transfer sensitive files
Overview

Advantages

• Cost for infrastructure
• Scalability
• Off-load support costs
Overview

Disadvantages
• Public network issues
• ISP for Quality of Service and control
• Compatibility between vendors and equipment
Overview

Considerations
- Home country
- Logging
- Protocol choices
- Security/privacy

- Performance
- Cost
- Pricing
Overview

How personal VPN works

Using a VPN is like having a PO box on the Internet – an address that no one can trace back to you.

1. Using a VPN is like having a PO box on the internet - an address that no one can trace back to you.
How personal VPN works

Instead of giving out its real IP address when you click on a website, your computer gives one of ours.
Overview

How personal VPN works

The website’s data is delivered to our address – and then we forward it to you instantly and securely.
Overview

How personal VPN works

The result? You appear to be wherever our server is located, allowing you to access the Internet like a local, wherever you are in the world.

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Overview

How personal VPN works

And snoopers and hackers online can’t trace your activity back to your real address and find out who or where you are.

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IP security (IPSec) is used to secure communications over the Internet. IPSec traffic can use either transport mode or tunneling to encrypt data traffic. The difference is that transport mode encrypts only the message within the data packet (also known as the payload) while tunneling encrypts the entire data packet. IPSec is often referred to as a "security overlay" because of its use as a security layer for other protocols.
Secure Sockets Layer (SSL) and Transport Layer Security (TLS) use cryptography to secure communications over the Internet. Both protocols use a "handshake" method of authentication that involves a negotiation of network parameters between the client and server machines. To successfully initiate a connection, an authentication process involving certificates is used. Certificates are cryptographic keys that are stored on both the server and client.
VPN Protocols/Features

Point-To-Point Tunneling Protocol (PPTP) is another tunneling protocol used to connect a remote client to a private server over the Internet. PPTP is one of the most widely used VPN protocols because of its straightforward configuration and maintenance and also because it is included with the Windows operating system.
Layer 2 Tunneling Protocol (L2TP) is a protocol used to tunnel data communications traffic between two sites over the Internet. L2TP is often used in tandem with IPSec (which acts as a security layer) to secure the transfer of L2TP data packets over the Internet. Unlike PPTP, a VPN implementation using L2TP/IPSec requires a shared key or the use of certificates.
Top VPN products

The best VPN service 2019

The 5 best VPNs for Android

Recommended VPNs 2019
# Top VPN products

<table>
<thead>
<tr>
<th>VRPN Product</th>
<th>Rating</th>
<th>Full Review Link</th>
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</thead>
<tbody>
<tr>
<td>ExpressVPN</td>
<td>★★★★★</td>
<td>Read full review</td>
</tr>
<tr>
<td>NordVPN</td>
<td>★★★★★</td>
<td>Read full review</td>
</tr>
<tr>
<td>IPVanish VPN</td>
<td>★★★★★</td>
<td>Read full review</td>
</tr>
<tr>
<td>Hotspot Shield</td>
<td>★★★★★</td>
<td>Read full review</td>
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## PRICING

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<thead>
<tr>
<th>Plan Length</th>
<th>Pricing</th>
<th>Link</th>
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<tbody>
<tr>
<td>12 months</td>
<td>$6.67/mth</td>
<td>View at Express VPN</td>
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<tr>
<td>36 months</td>
<td>$2.99/mth</td>
<td>View at NordVPN</td>
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<td>12 months</td>
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<td>View at IPVanish VPN</td>
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<tr>
<td>24 months</td>
<td>$2.99/mth</td>
<td>View at Hotspot Shield</td>
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3/21/2019

www.grandcomputers.org
# Top VPN products

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<tr>
<td>ExpressVPN</td>
<td>Privacy and unblocking</td>
<td>Balance of options and ease of use</td>
<td>Torrenting and P2P traffic</td>
<td>Browsing Privately</td>
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<tr>
<td>NordVPN</td>
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### BEST FOR

**Privacy and unblocking**

**Balance of options and ease of use**

**Torrenting and P2P traffic**

**Browsing Privately**

### COMPATIBLE DEVICES

- Android
- Apple
- Linux
- Windows
- Xbox
- PlayStation
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- Windows
## Top VPN products

<table>
<thead>
<tr>
<th>VPN</th>
<th>Works With</th>
<th>Number of Locations</th>
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</thead>
<tbody>
<tr>
<td>ExpressVPN</td>
<td>f, N, iPlayer</td>
<td>94</td>
</tr>
<tr>
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<td>f, N, YouTube</td>
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<td>IPVanishVPN</td>
<td>f, N, YouTube</td>
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<tr>
<td>Hotspot Shield</td>
<td>f, N, iPlayer</td>
<td>79</td>
</tr>
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Top VPN products

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<tr>
<th></th>
<th>SIMULTANEous CONNECTIONS</th>
<th>P2P TRAFFIC</th>
<th>UNLIMITED BANDWIDTH</th>
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<tbody>
<tr>
<td>ExpressVPN</td>
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<td>✔</td>
<td>✔</td>
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<tr>
<td>NordVPN</td>
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<td>IPVanish</td>
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<td>✔</td>
</tr>
<tr>
<td>Hotspot Shield</td>
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<td>✗</td>
<td>✔</td>
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How to install VPN

How to set up a VPN in Windows
How to Set Up a VPN on Mac
How to configure VPN access on your iPhone or iPad
Here’s how to set up a VPN on your Chromebook
How to install a VPN on Amazon Fire Stick & Fire TV
How to set up the ExpressVPN Router
What Is a VPN Connection and How Does It Work?

What Is A VPN?

How VPN Works

What is a VPN? And what can you do with it?

What is a VPN? How it works and why you should get one

The 5 best VPNs for Android

Recommended VPNs 2019
Next Meeting

Google Fi

Thursday, April 18, 2019
3:30-5:00pm
Computer Club Classroom
Chaparral Center
Discussion