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LAN vs WAN - The Benefits Of Each Network Type

Local Area Networks (LANs) and Wide Area Networks (WANs) have much in common, but the differences are enough to make them two separate acronyms in speech and in practice. Each one has its benefits and downsides, and these advantages and disadvantages can affect an organization's productivity significantly. So what exactly is the difference between a LAN connection and a WAN connection?

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Local Area Networks (LANs)

Advantages	Disadvantages
• Speed • Cost • Ease of Setup	• Limited to Small Area

LAN connections can only operate in a local area which is usually not any bigger then a house, or a floor in an office building. Typically a LAN will consist of only a handful of clients, but can have upwards of a hundred.

One of the major advantages with LANs are the speeds they can reach. With a LAN, it isn't uncommon to see technology ready for 1Gbps (1 gigabit per second). **Example:** If you were to download all 3 816 000 English articles off of Wikipedia it would take just over 13 hours to do so, where as a WAN would take 16 days to do the same. A LAN can operate up to 30x faster then a WAN

Another advantage to having a LAN connection is the cost. It is relatively cheap to have as it tends to require less hassle to set up and less advanced infrastructure to keep it running. This is mainly due to the technological components of a LAN, which brings me to the next difference.

A LAN connection tends to require some relatively simple things to set it up. All you need is some Ethernet cables, a network switch, and you are good to go. Alternatively, you can also see LANs being done over Wi-Fi, or you can use Wi-Fi in conjunction with standard Ethernet connections to create a LAN available to all kinds of devices, whether it be a smartphone or a desktop computer.

The major disadvantage with a LAN is inherent in its name. "Local" Area Networks are only good as far as you can reach an Ethernet cable or Wi-Fi signal. Simply put, you cannot buy an Ethernet cable that will reach throughout an entire building, and a Wi-Fi connection rapidly deteiorates as you get further then a few dozen meters away.

Wide Area Networks (WANs)

Advantages	Disadvantages
- Allow for much larger and more intricate network - Can cover near infinite geographical distance	- Cost - Speed - Ease of Use

A WAN connection should truly only occur in large environments. WAN connections are available from house to house, city to city, and country to country. In fact, just by reading this you know you have access to a very popular WAN, the Internet. But what separates a WAN like the internet from a LAN?

Due to it's typically massive size, WAN's are almost always slower then a LAN. The further the distance, the slower the network.

One of the big disadvantages to having a WAN is the cost it can incur. Having a private WAN can be expensive. The reason that WANs cost a lot tends to be because of the technology required to connect two remote places, which brings me to the explanation of the technology behind a WAN.

A WAN connection is generally harder to set up, and there are many creative ways to do so. One very common way is renting a line from an internet service provider and using their network (that's already connecting the nation and the world) and connecting your point A and B. Another way to do a WAN is connecting the devices with various wireless technologies, like cellphone towers or satellites. As you can imagine, all these are much harder to create than setting up a LAN and almost always demand high level professional setup and maintenance.

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Advanced networks can have LANs within LANs, LANs within WANs, WANs within WANs, and those can have their own sub networks, and those their own, and those their own. Let the professionals at Packetworks take over your next Networking project, to ensure it is down efficiently and effectively. A fast network allows for rapid transit of information, which leads to increased productivity, and increased customer satisfaction.

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