

Peer-to-peer (P2P) is a decentralized communications model in which each party has the same capabilities and either party can initiate a communication [session](#). Unlike the [client/server](#) model, in which the client makes a service request and the server fulfills the request, the P2P network model allows each [node](#) to function as both a [client](#) and [server](#).

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Download: Overcome Virtual Network Management Challenges

The virtualized network poses challenges to network management systems -- and as more hardware components become virtualized, that challenge becomes even greater. This handbook discusses the steps IT must take to both build and corral their virtualized infrastructure.

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P2P systems can be used to provide anonymized routing of network traffic, massive parallel computing environments, distributed storage and other functions. Most P2P programs are focused on [media sharing](#) and P2P is therefore often associated with [software piracy](#) and [copyright violation](#).

Typically, peer-to-peer applications allow users to control many parameters of operation: how many member connections to seek or allow at one time; whose systems to connect to or avoid; what services to offer; and how many system resources to devote to the network. Some simply connect to some subset of active nodes in the network with little user control, however.

Although uses for the P2P networking topologies have been explored since the days of [ARPANET](#), the advantages of the P2P communications model didn't become obvious to the general public until the late 1990s, when music-sharing P2P applications like [Napster](#) appeared. Napster and its successors -- like [Gnutella](#), and more recently, [BitTorrent](#) -- cut into music and movie industry profits and changed how people thought about acquiring and consuming media.

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[System administrators](#) tend to discourage the use of P2P applications. In addition to tying up [bandwidth](#) and possibly exposing the administrator's organization legally, P2P applications can be used to bypass [firewalls](#) and distribute [malware](#). Networks are often set up to prevent peer-to-peer "side talk" by PCs.