The Future of Peer-to-peer Computing

Summary:

P2P computing represent the next revolution in the computing age, it dramatically change business communication, exchange data over the internet. It has own many advantages to make efficient performance. In a P2P system, computers can act as both clients and servers. Their roles in any tasks will be determined according to what is most appropriate for the system at the time. This approach minimizes the workload on servers and maximizes overall network performance. It can allow user collective power in the network and can help organizations tackle the kind of large computational jobs they could not handle before. However, it also has some problem. In the article give two examples, the Napster Model, the limitation is it can only share downloaded files and participants cannot share other resources. The reason Napster Model doesn’t fit in the P2P category because it keeps a central database of users. Ultimately, the attention that the site has garnered may have hurt P2P community. In CPU power sharing, the weakness are: Security, participants must completely trust the research organization before they download the programs. Motivation, participants do not revive any tangible benefit from participating in this type of project. Performance efficiency, it is extremely difficult to maintain the system and perform tasks like upgrading the programs on the participants’ computers. In power server model, we need to update the server machine one-by-one. If we have a large number of servers, this maintenance is very time consuming. To make P2P performance efficiency, we need build a computing infrastructure to realize the full benefits of P2P application.

Critique:

Strength:

- With peer-to-peer computing, the server is removed from the equation, allowing computers- and more specifically, so users able to share files and other data directly, without going through a central server.
- Peer-to-peer computing would allow peer networks to work together dynamically using intelligent agents.
- P2P-based collaborative environments, built using Web Services, would be very flexible no need of a central server.
- All enterprises would be able to use web services in P2P applications for several B2B related tasks.
Weakness:

- P2P application eliminates central servers and creates a loose, dynamic network of peers. So as the network size increases and becomes more distributed, it may be affect poor and slow connections.
- If they run as open systems, say for business-to-business integration the security risks are much higher.
- Maintenance of such applications is much more difficult since it is extremely tough to identify, replicate, and fix application or network related problems.

Question:

1. How does new Napster model avoid free copying of copyrighted material problem?
2. How do we build a computing infrastructure to support P2P?
3. Once a computer has been opened up to P2P traffic, other users can gain access to the entire computer with a minimum of difficulty. How can we deal with the security issue?

Reference