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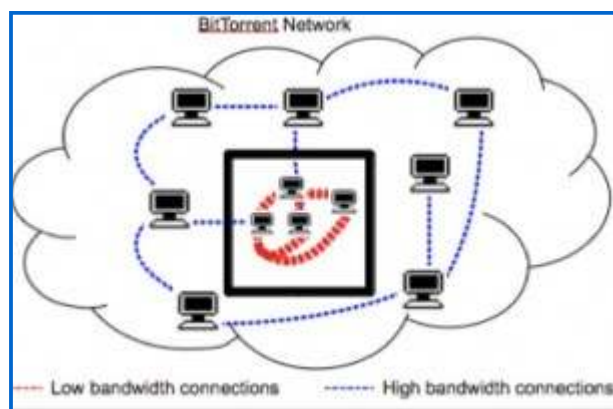- Cleantech
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BitMate Brings BitTorrent to the Developing World

By Janko Roettgers Feb. 28, 2011, 11:30am PT No Comments

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Pakistan-based researchers have developed a new BitTorrent client called BitMate that works over dial-up connections, making it possible to share and download torrents in developing countries where few people have access to broadband. BitMate is based on the popular Vuze BitTorrent client, with a few key changes to the way the application interacts with the network.

"In developing countries, BitTorrent is almost unusable on the typically low-bandwidth dialup connections," the researchers behind BitMate write on their website. And no, we're not just talking about the fact that it's impossible to download a Blu-ray rip over a 56k connection. The problem for dial-up users is that BitTorrent is designed to be based on fair and equal exchange of data. If you

upload a lot, you're also rewarded with high download speeds. That helps to bring overall download speeds up since it forces clients not to be selfish — but the flip side is that users with very slow connections simply get shut out.

To change that, the team came up with the idea to cluster low-bandwidth clients: Users on dial-up networks don't even try to upload data to someone with a fast cable connection and instead simply send those bits to each other. They're also much more selective in their downloading behavior, thus avoiding duplicate downloads and other unnecessary downloads from high-bandwidth peers. And finally, they avoid cross-ISP traffic, which can be another big bottleneck in countries with a less-developed Internet infrastructure.

BitMate is the result of two years of development, I was told by the project's lead Umar Saif, who is an associate professor at the Lahore University of Management Sciences. Saif told me via email that his team has seen download performance improvements of up to 70 percent during the eight months of testing that preceded this week's release.

The BitMate client is part of Saif's work with the Dritte initiative, a project that aims to spur development through technology. "BitMate… provides a level playing field for the Internet users in the developing-world," he explained, adding: "If you give people a means to efficiently access data, you'd be surprised what they can do with it!"

However, the research that goes into projects like BitMate could also help us to advance technologies in the developed world. Muneeb Ali, a PhD student at Princeton University who has been involved with Dritte since its early days, told me via email:

> "Most of the research in developing regions involves working with greater constraints like unreliable power, slow connectivity, limited computational resources, and so on. The research done in these constrained environments can certainly benefit other areas, where a subset of these constraints exist."

In other words: Be it mobile networks or near-field communications, we often face challenges when we try to bring existing applications to new environments. Taking a good look at the core design principles and assumptions that come with these technologies could help to make them work in these new environments without breaking them for the rest of us.

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