MMLAB

Efficient Bandwidth Management Scheme under Multi-torrent Environment

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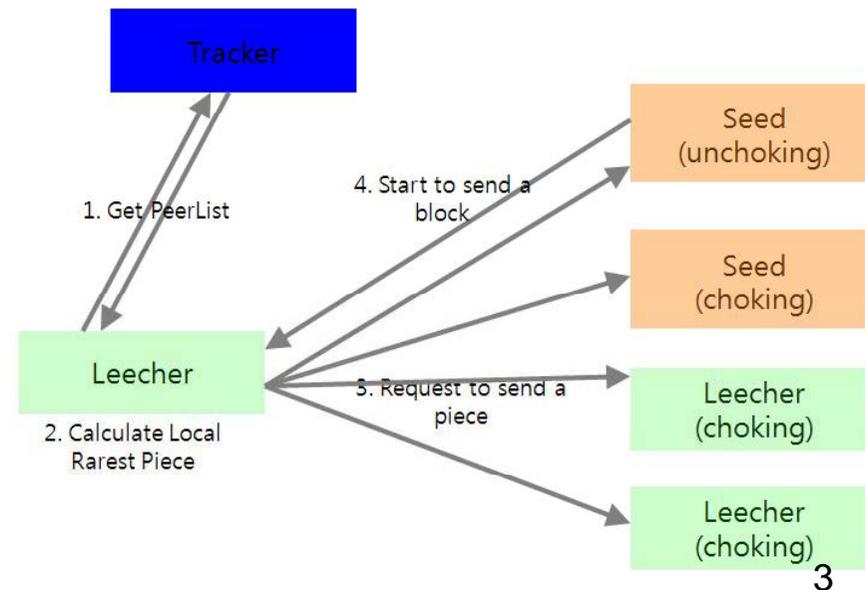- **Demonstration**
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BitTorrent

- **The most famous & widely used P2P application**
  - Efficiently block the free-rider by Tit-for-Tat
  - Delivery Pipelining (file/piece)

- **Major Mechanisms**
  - Piece selection
    - Local rarest first
  - Peer selection
    - Choking algorithm

Multi-torrent Environment

- **Multi-torrent environment**
  - A BitTorrent user can join multiple torrents simultaneously
  - E.g, Online game patch, Drama series, Music album, ...

- **More than 85% of BitTorrent users simultaneously participate in multiple torrents**
  - Guo et al, "Measurement, Analysis, and Modeling of BitTorrent-like Systems", IMC 2005.

- **However, current BitTorrent research mostly focus on single-torrent environment**
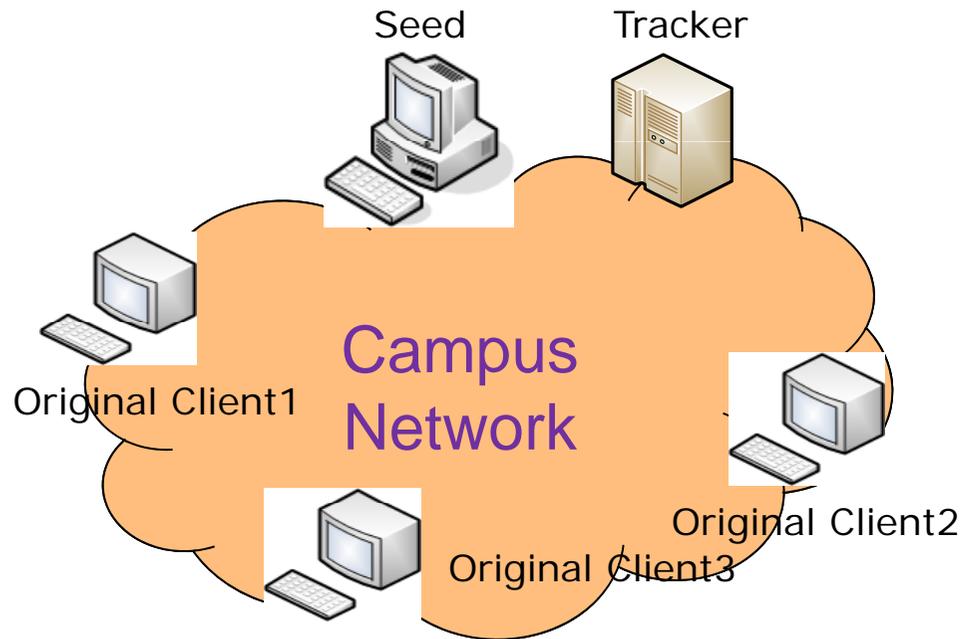 - Need to study multi-torrent environments

Efficient Bandwidth Management Scheme under Multi-torrent Environment

- **Goal**
  - Improve individual user's performance
    - Manage limited physical network bandwidth efficiently
  - Provide incentive to contribute as a seeder
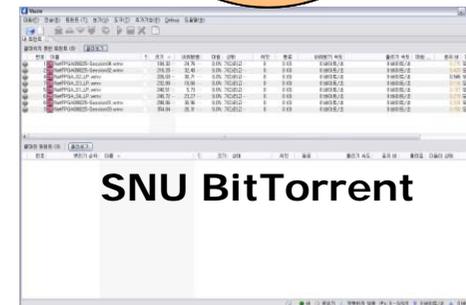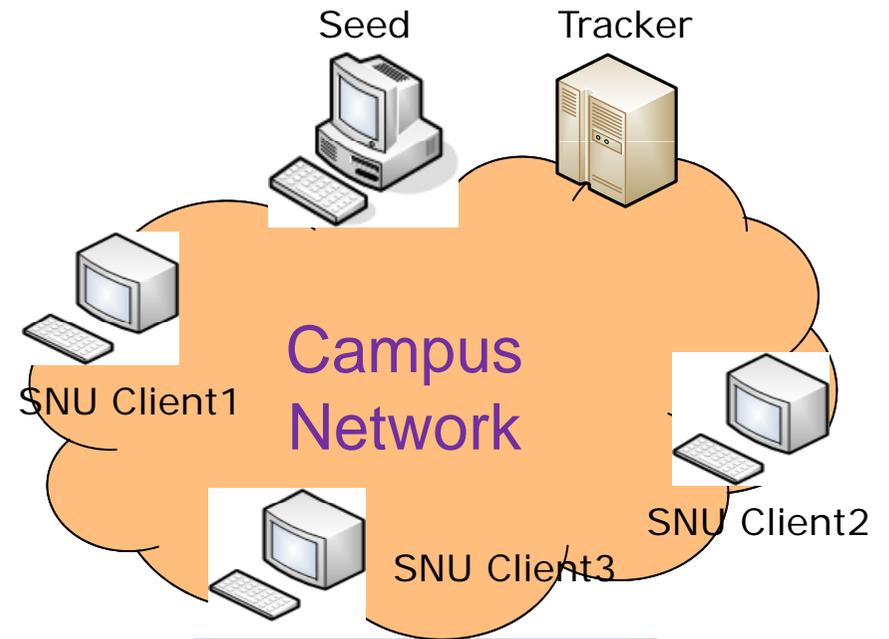   - For overall performance improvement

- **Bandwidth management scheme**
  - Leecher torrent bandwidth management
    - Allocate most bandwidth for leecher torrents
    - Accelerate downloading speed
  - Seeder torrent bandwidth management
    - Allocate more bandwidth to the seeder torrent that user can get more incentive
    - What is incentive?
      - Increasing possibility to be unchoked in its another leecher torrent

Demonstration

[Original BitTorrent Scenario]

[SNU BitTorrent Scenario]

Preliminary Result

Average Downloading Rate & File Finish Time