

Future of P2P

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Bio

- P2P measurement expert
 - Initial Kazaa measurements (2001)
 - Largest Bittorrent trace
 - 250,000 computers
 - First leaks :
 - Matrix Revolutions
 - Lord of the Ring III
 - Improve/attack
- P2P team @ Delft
 - Modular architecture
 - Video streaming





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Commercial: read my paper?

- Google: "*bittorrent measurements and analysis*"
- Two years of research (At Delft & MIT)
- Suprnova.org & Bittorrent downloading (June '03)
- 6 pages, 7 figures
- 100,000+ Files
- 200 Gbyte of raw data
 - 36 trackers (Aug '03)
 - 30 Gbyte per month
- Analysis:
 - Download speed
 - Availability
 - Integrity
 - Flashcrowds





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P2P future

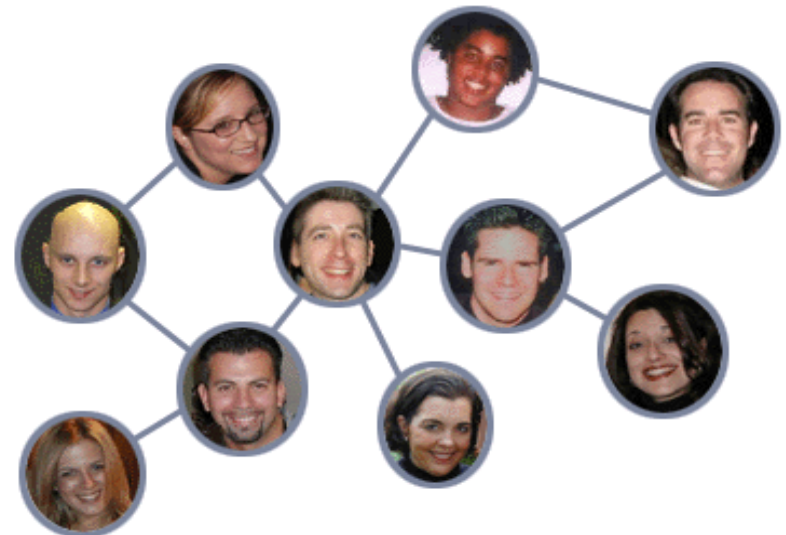
- Interlock File sharing & P2P
- Black scenario
- 24 hours after release on P2P
(Games, Movies, TV shows, music)
- Communication
 - Voice (Skype)
 - Video (Webcam/TV station)
- Cheap information
distribution/storage/manipulation
 - Backups
 - Web services
 - Market for CPU power



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Innovation Driver

- P2P file sharing drives innovation
 - 18 months cycle
 - Near-zero cost technology
 - Free source code
 - Many applications
- Cost efficiency versus Client/Server
 - Efficient pooling of resources
 - No maintenance
 - No intermediaries
 - High reliability
- New technologies
 - Social-aware
 - Electronic trust



Ecosystem & Black scenario

- Technology follows social demand
- 85,000,000 addicted users
- 24 Hours (songs/games/TV shows/movies)
- Restrict File Sharing by restricting freedom
- **Legal/Technical measures are irrelevant**
 - **Insufficient knowledge at content providers**
 - **Not a single operational DRM system**
- Adjust to near-zero cost technology or change attitude (iTunes Music Store)
- Artist to consumer

Near-zero cost technology

- Economically important
- Superior to Client/Server
- Skype (**Communication**)
 - Millions of users
 - Superpeers
 - NAT circumvention/Firewall avoidance
 - Expand to video (Webcam/TV channel)
- Wikipedia.org (**Information**)
 - People collaboration
 - Joined knowledge
 - Expand to Scientific knowledge (E-Journals)
- “unlock the knowledge of humanity”,
Vannevar Bush, 1945



Questions?