Peer to Peer Applications: Napster, Gnutella

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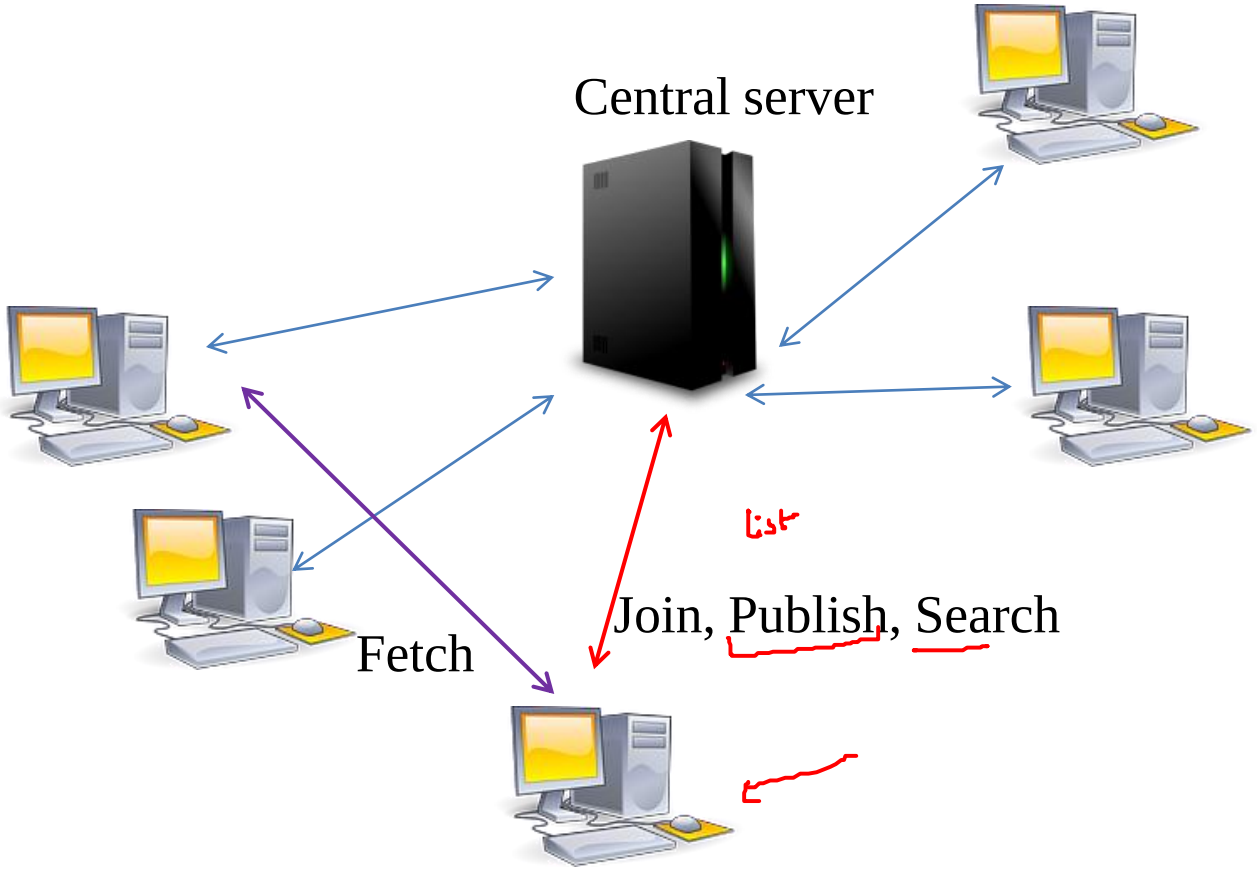
Napster

- Basic Idea: Employ a centralized server (farm). Server maintains “nodes” to “files” mappings
- **Join**: Client contacts central server
- **Publish**: Reports list of available files to central server
  - Server maintains list of <file-name; info, IP-Addr, port> tuples
  - Server stores no files, only clients do

Napster

- **Search**:
  - Client queries the server (send keywords).
  - Server searches list with keyword and returns list of nodes (IP-addr, port) that have the requested file
- **Fetch**:
  - Client pings each host in list for best transfer rate
  - Gets file directly from peer with best rate
- All communication is based on TCP


Central server
Join, Publish, Search
Fetch

Discussion

- Pros:
  - Simple Design
  - Fast and efficient search
  - Global network view
- Cons:
  - Single point of failure
  - Not scalable (server becomes bottleneck)
  - Copyright violation