

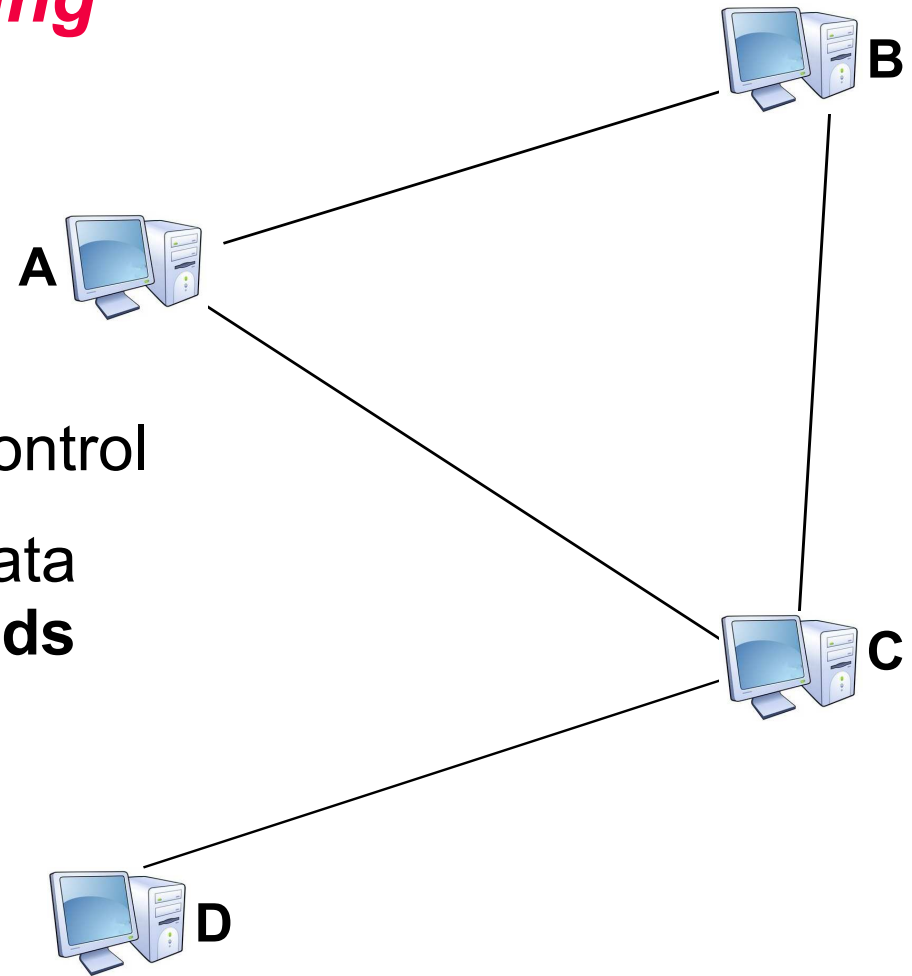
U-P2P: Linking and navigating data in a P2P file-sharing system

Alan Davoust
Babak Esfandiari

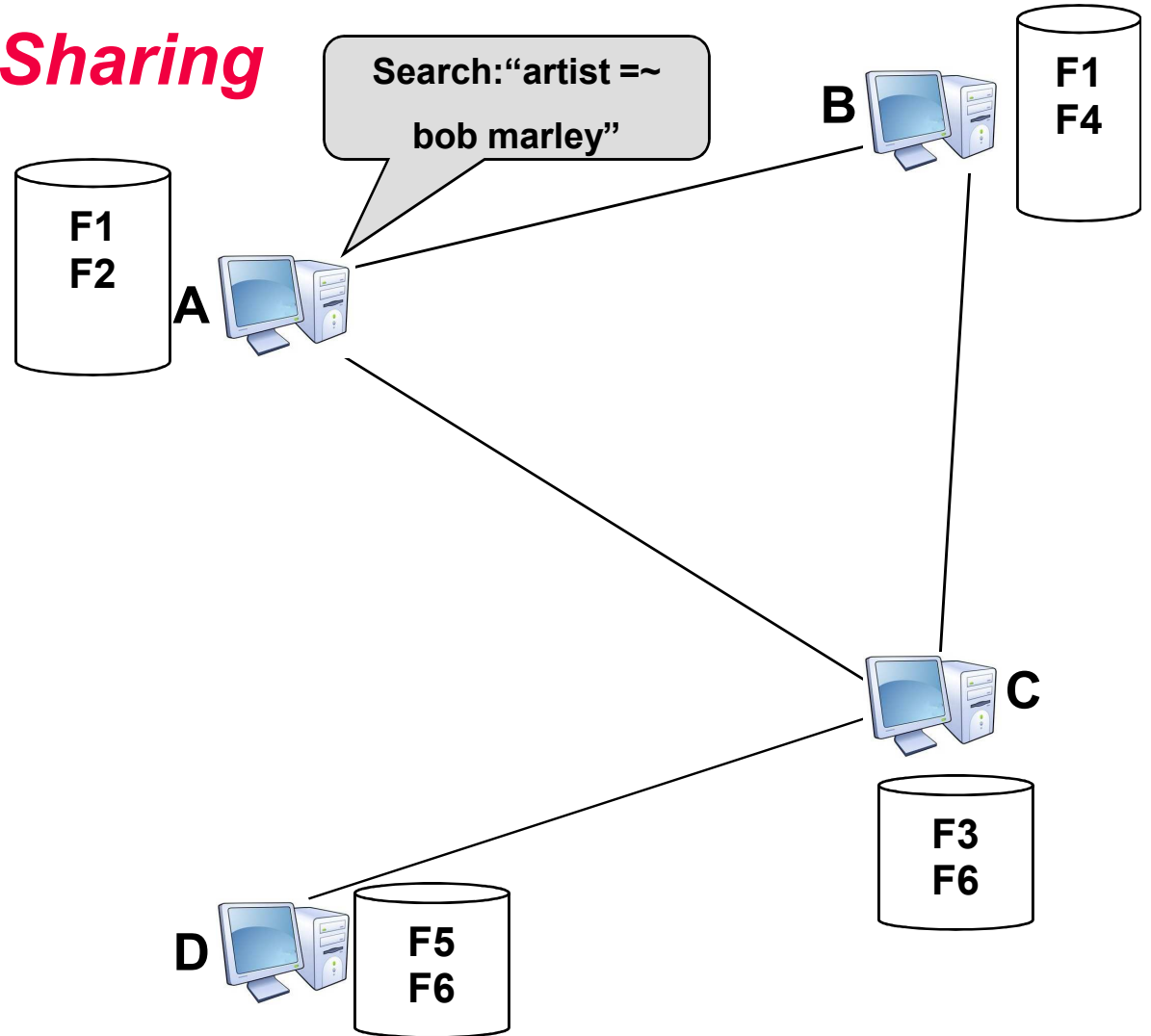
Dept. of Systems & Computer Engineering
Carleton University, Ottawa, Canada

P2P File-Sharing

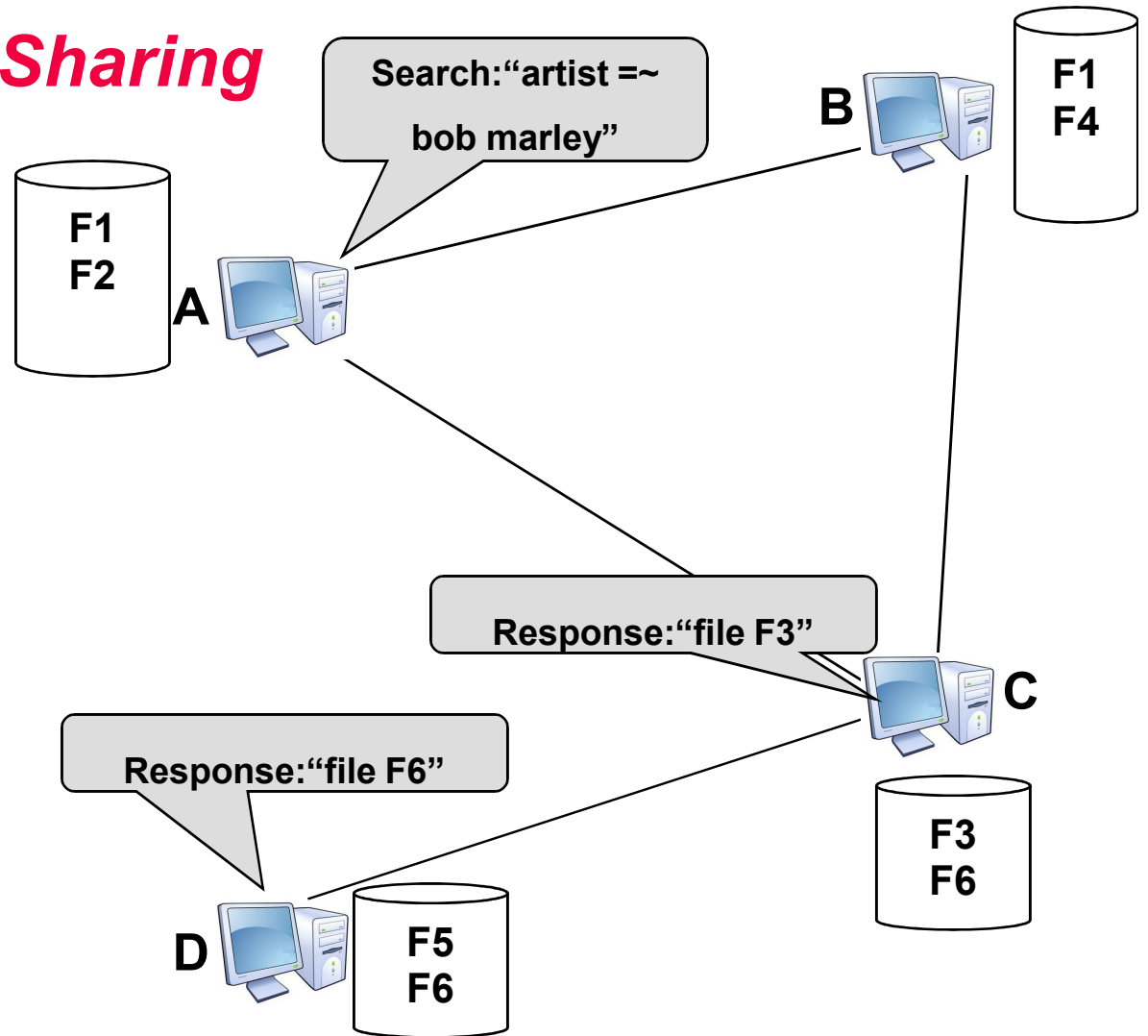
- Unstructured
- Dynamic
- Decentralized control
- Replication of data through **downloads**



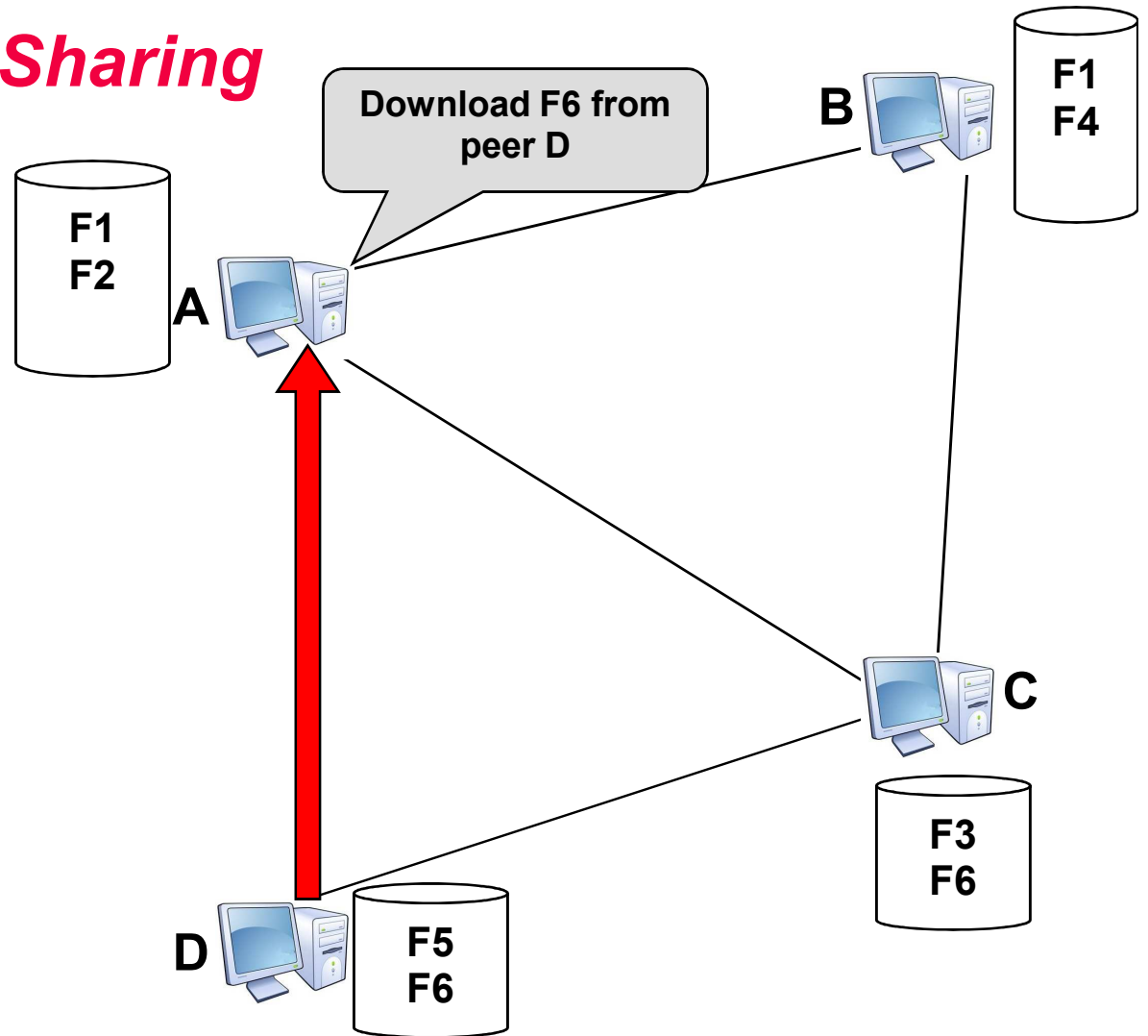
P2P File-Sharing



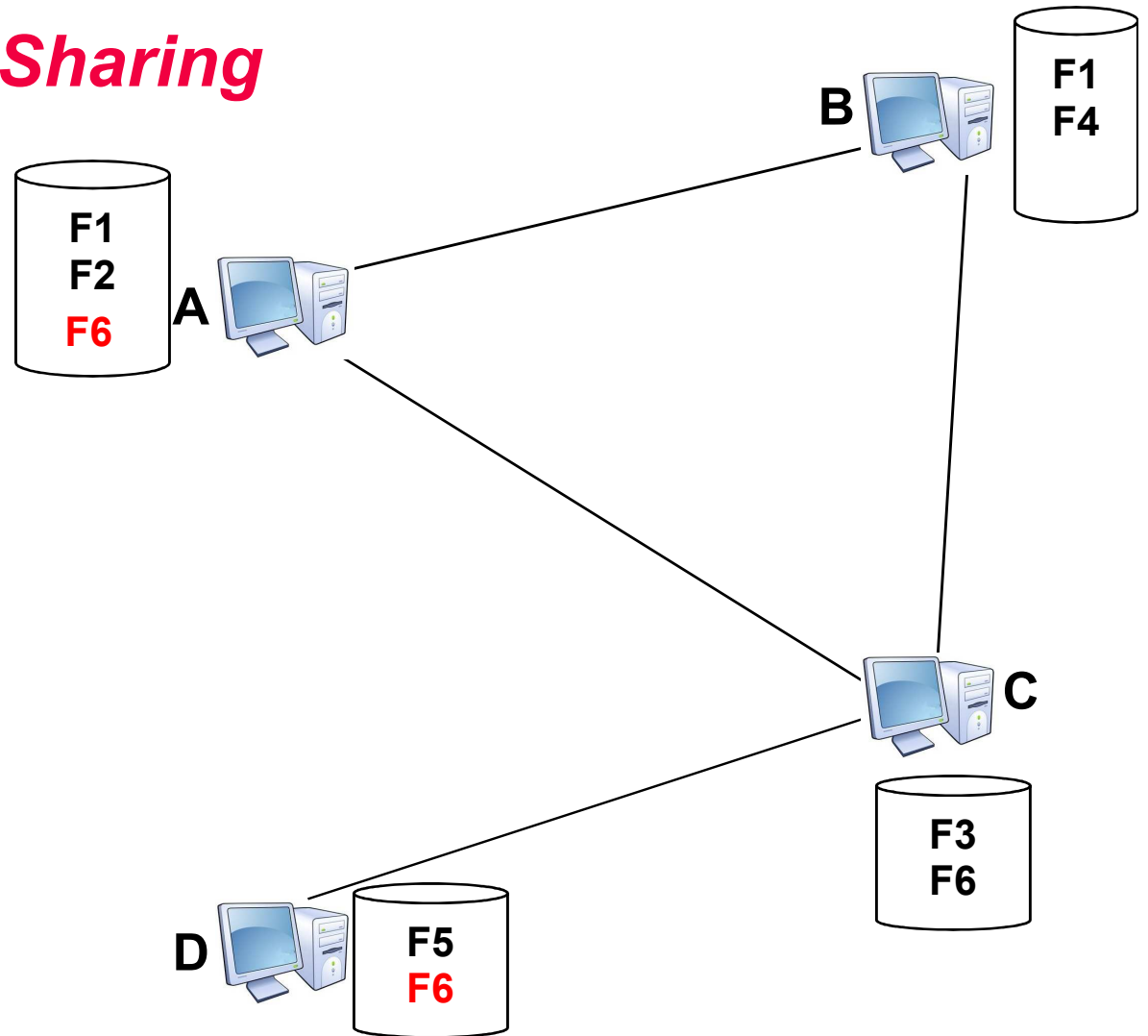
P2P File-Sharing



P2P File-Sharing



P2P File-Sharing



U-P2P Communities

- Operations :
publish, delete, search, download



Metadata filtering

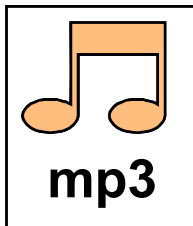
artist
title
album
genre
bitrate
...



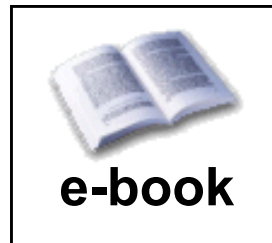
U-P2P Communities

- custom schema and presentation

artist
title
album
genre
bitrate
...



author
title
year
language



```
play
├── title
├── personae
│   └── persona
├── Act
│   └── scene
│       └── line...
```



[Demo]

U-P2P `Root' Community

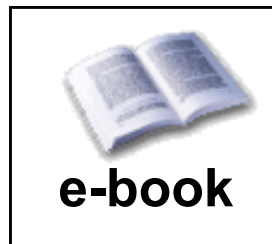
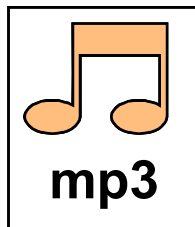
- The community of communities
- supports *publish, delete, search, download*

artist
title
album
genre
bitrate
...

author
title
year
language

Play/
//persona
Speaker/
Line
...

name
schema
protocol
search terms
presentation



U-P2P
Root
Community

Linking Related data items

@article
title
author
year
booktitle
...

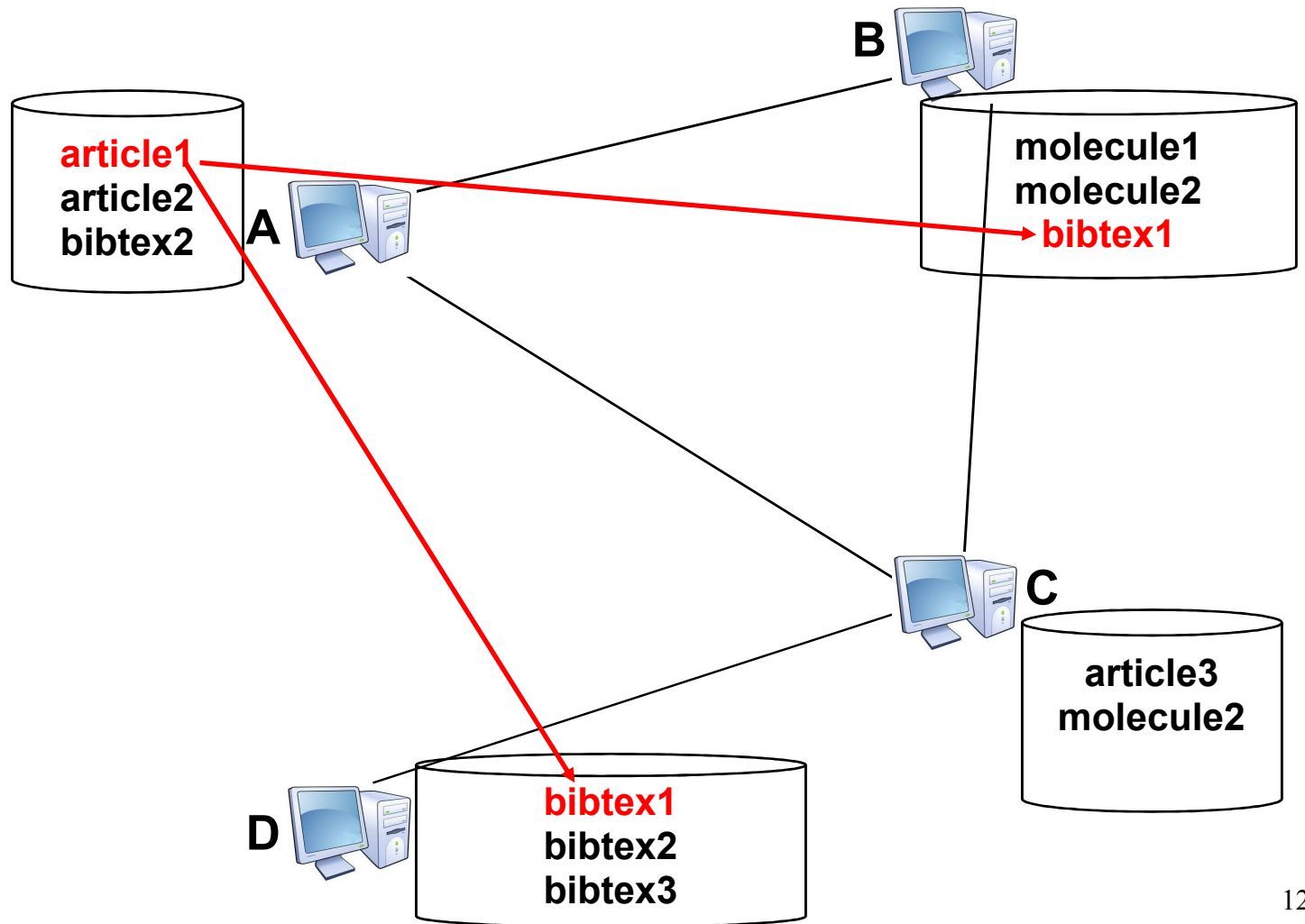
BIBTEX
Bibster

title
bibtex
[pdf]



e-paper

Links in U-P2P



U-P2P URI scheme

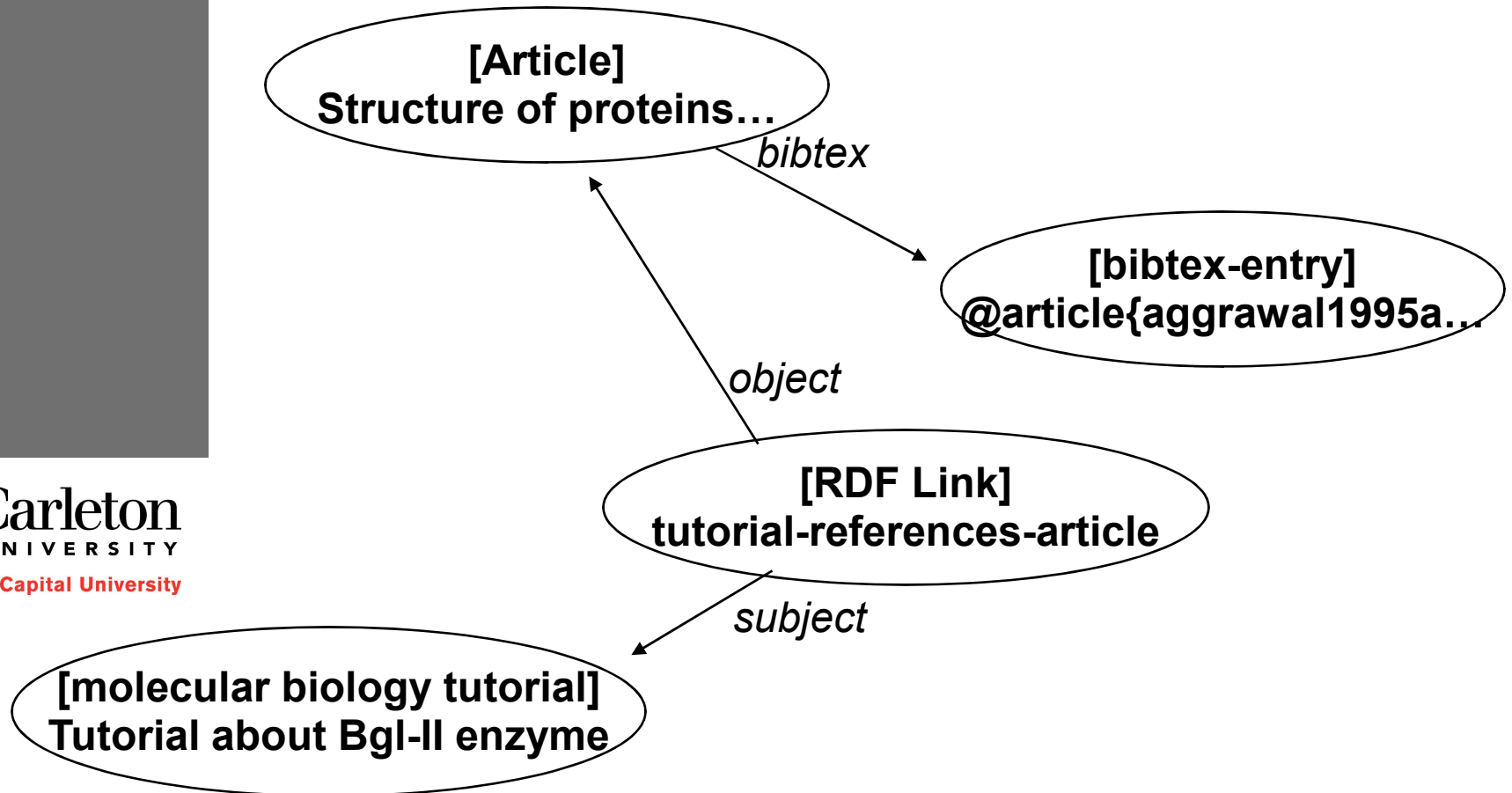
- all data items have **unique id**
- all data items are shared in a **community**

- URI syntax:

up2p:[community id] / [document id]

[Demo]

Graph of linked data items



Navigating the graph

Based on elementary U-P2P operations:

publish, delete, search, download

Navigation :

- dereference URI “up2p:**ABCD/1234**”:

= search community [**ABCD**] with filter [id=**1234**]

- reverse navigation from document “up2p:**ABCD/1234**”:

⇒ *Community specific*

Example:

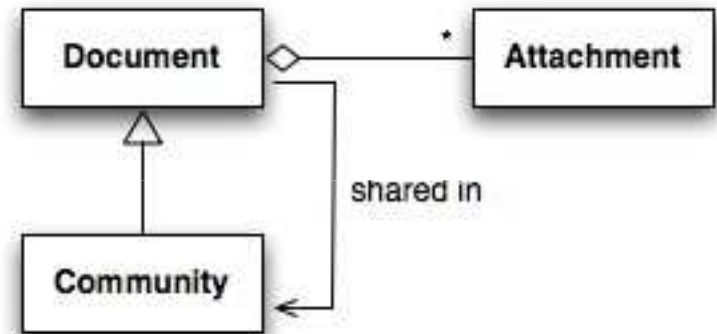
- search *Papers* for *bibtex*=“up2p:**ABCD/1234**”

- search *RDF statements* for

subject=“up2p:**ABCD/1234**”

Summary

- P2P file-sharing infrastructure
- complex data items
- concept of community
- links and navigation
- Interesting properties:



- Emergence of popular data ?
- distributed contribution *a la* Web 2.0
- distributed storage



Additional material

Future work [in progress !]

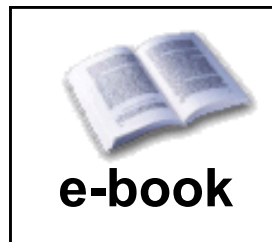
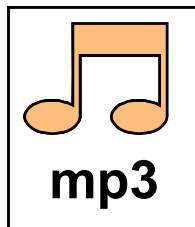
A community of “Canned queries”

artist
title
album
genre
bitrate
...

author
title
year
language

name
schema
protocol
search terms
presentation

Name
presentation
applies to
logic program



U-P2P
Root
Community

U-P2P
Canned queries

Future work [in progress !]

Navigation through canned queries

