# Associative Way of Data Storage

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# Overview

**File system** – defines a way to organize, store and name of content



Widespread hierarchical approach:

- The directory tree

- Unique file paths

# Relevance

- An exponential growth of the information content

- Low cost of data storage

- Hierarchical content storage systems have a lot of disadvantages

➡ Twenty years ago: how to **save** file?

➡ Nowadays: how to **find** file?

# Hierarchical Approach Disadvantages

- User freedom restriction

- Information redundancy

- Files search complexity

- Necessity to plan the directories structure in advance
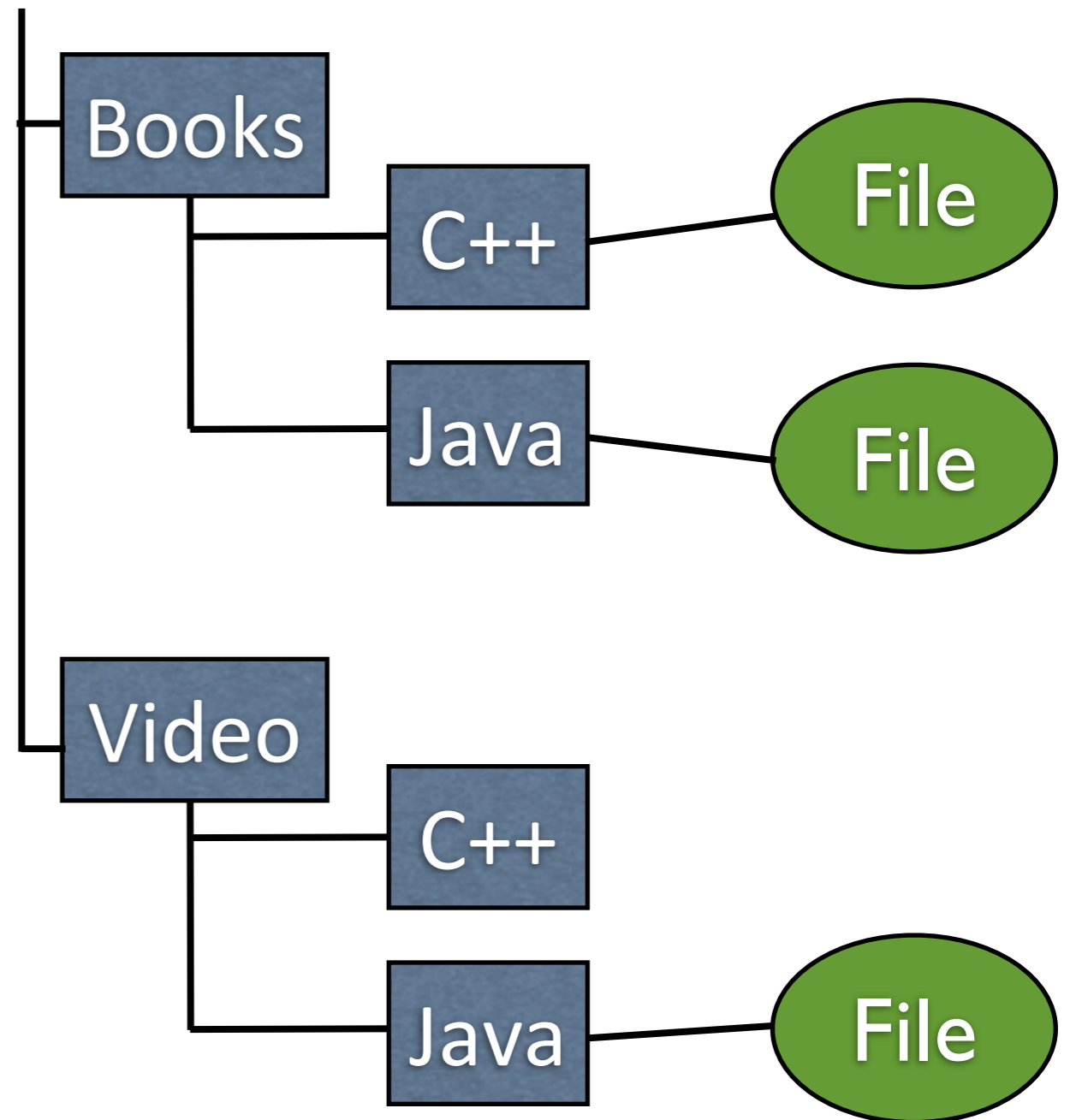
# Associative Way

- Tags instead of directories

- Directory tree becomes graph of tags

- Allows to remove artificially created limitations of the hierarchical method

| Books | Video | C++ | Java |

File

File

File

C++ book

Java book

Java video
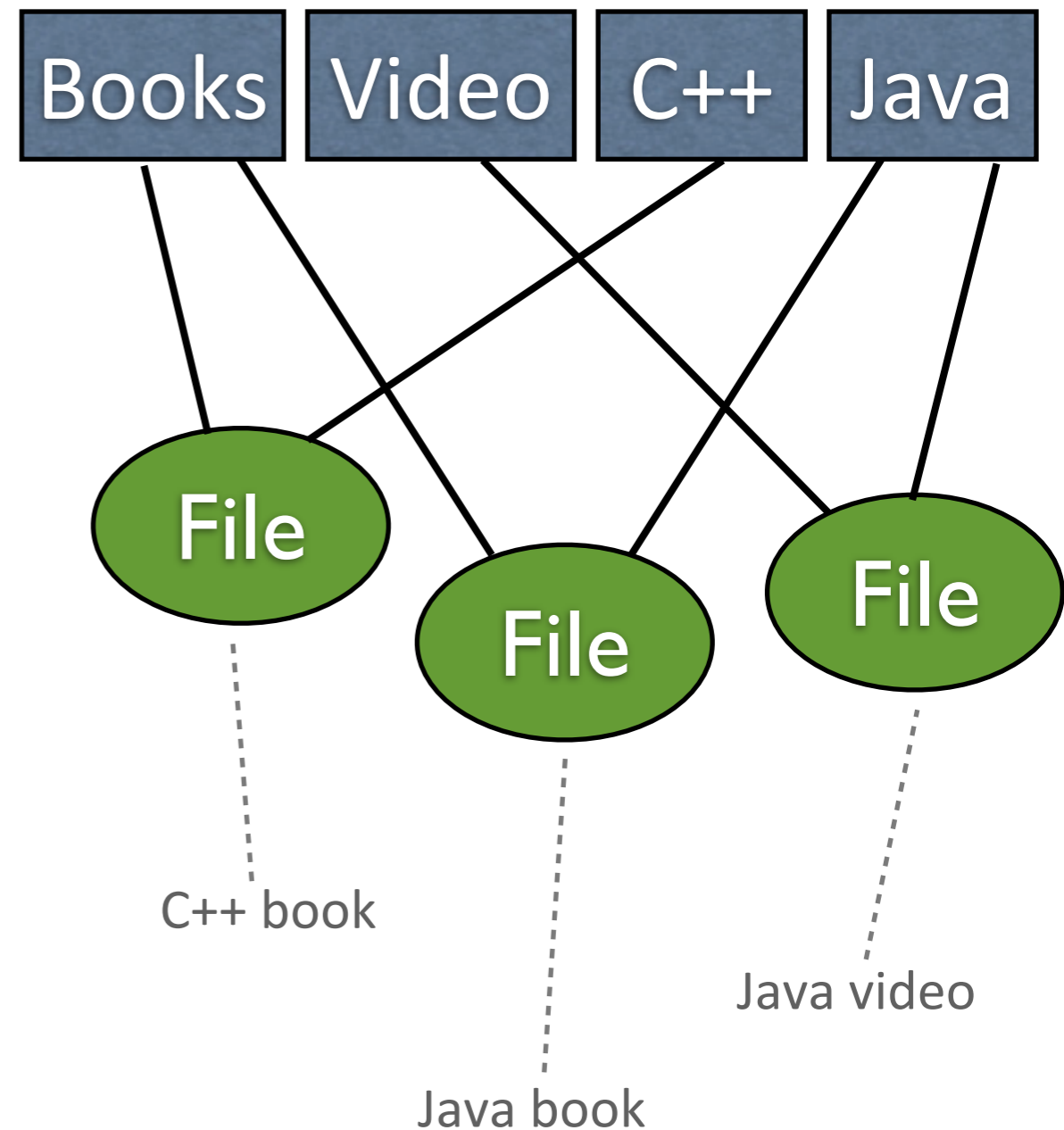
# Examples

- Picasa – photos
- Google Mail – letters
- Evernote – notes

- Associative way used by different services to store photos, letters, notes and other media content

- It's necessary to summarize existed solutions and use associative way to store all types files

# Existed Solutions

- Elyse (Windows, Mac OS)

  - simple file manager, working with hierarchical file systems

- TaggedFS (Linux) and XTagFS (Mac OS)

  - file systems building on FUSE (Filesystem in Userspace), working over hierarchical file systems

# Associative Way Issues

- Violation of compatibility with existing programs – necessity to rewrite source code of existed programs

- Increased performance requirements

- The complexity of organization multi-user access if you want to give access for the sets of files

# My project

- Remote file storage service

- Files and tags management

- API for third-party applications

- Web-based file manager

- Multi-user access to files and the files sets with different access rights

# Conclusion

- Associative way allows to remove artificially created limitations of the hierarchical method and do files search easier and more comfortable

- But this way has some own issues

- These issues can be solved via web-oriented storage system implementation

- See the prototype at FRUCT13