

Motivation: Query the Filesystem like a Database

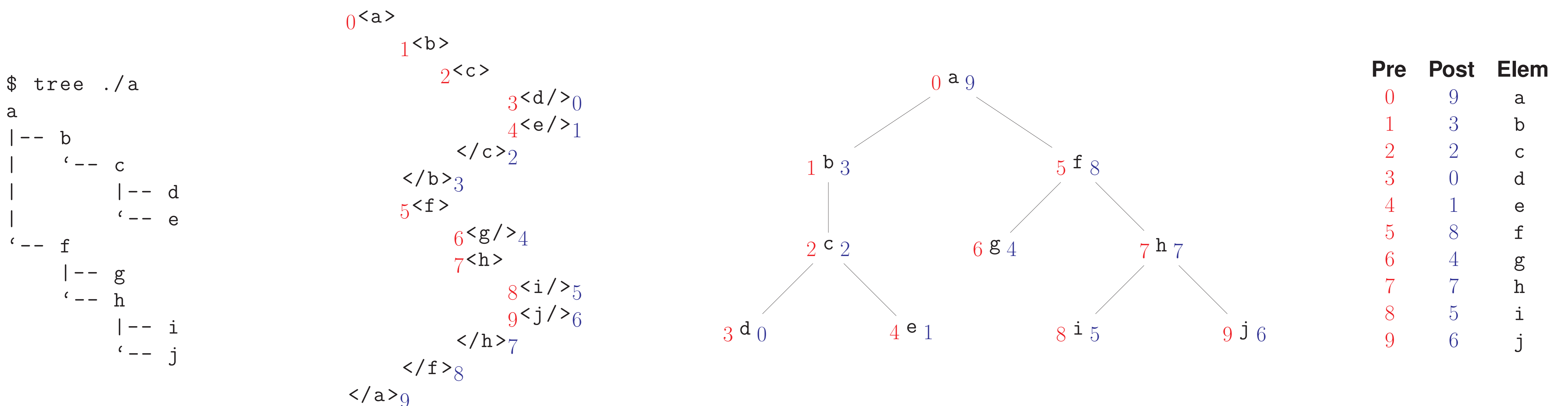
Current situation:

- Amount of **data stored in filesystems** is steadily **growing**
- **Mere storage** as practised by filesystems is **not enough**
- **Searching and finding** is a users' demand (→ Desktop Search)
- Keyword-driven search approach is inherently limited
- Additional support of **database query languages** is preferable

Research Approach:

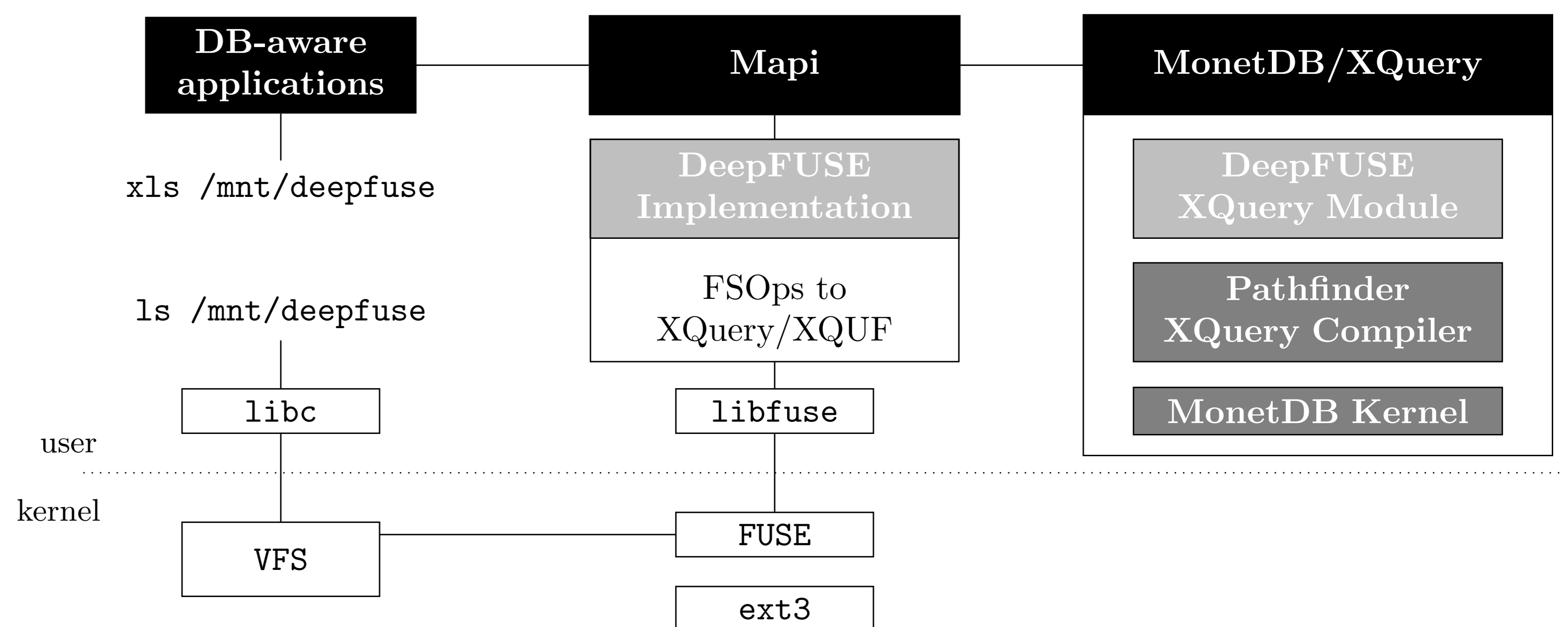
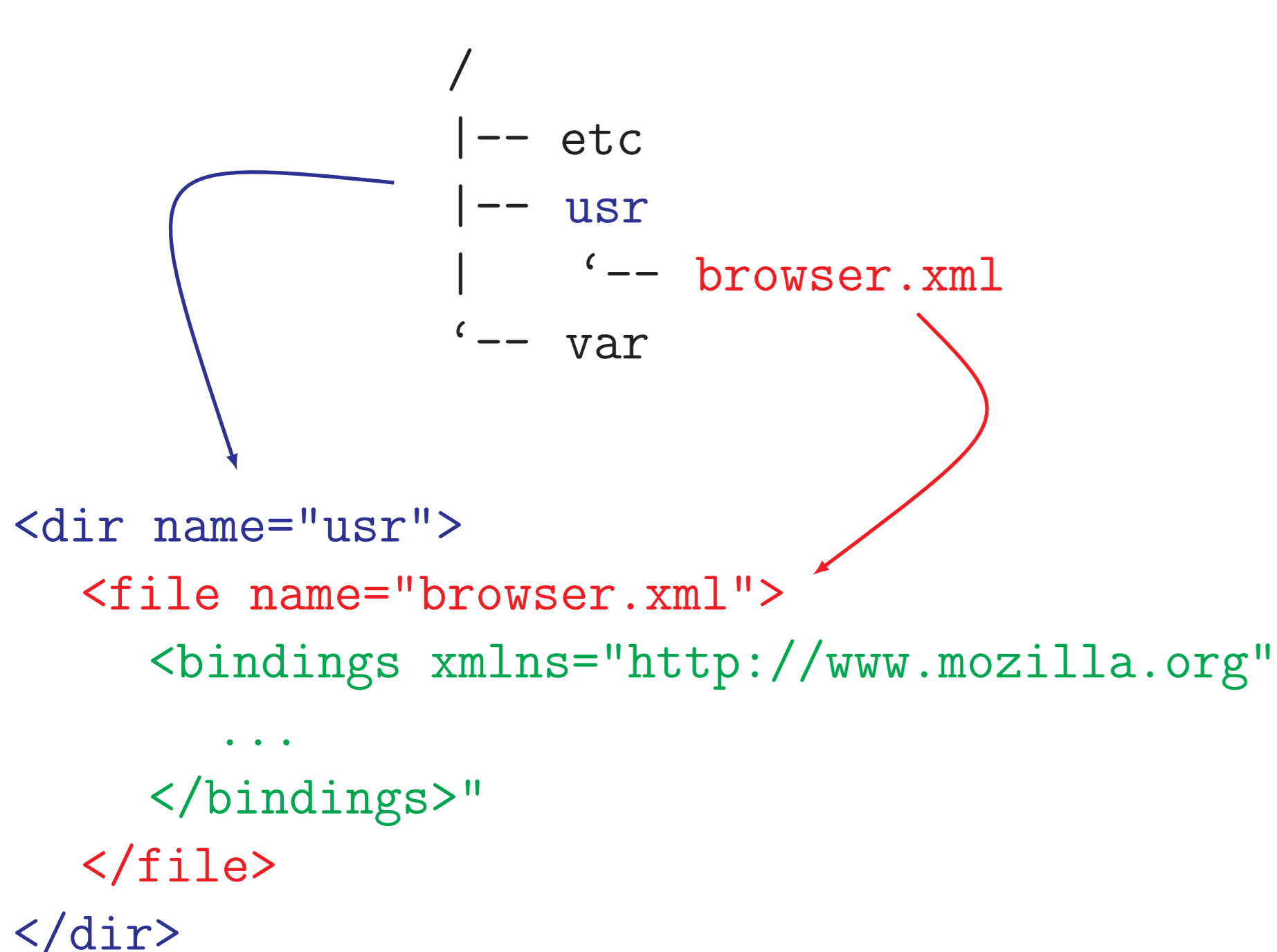
- Several attempts to store the filesystem in a DBMS have failed
- However, RDBMSs have proven to handle vast amounts of data
- XML brought some significant enhancements to (R)DBMS
- Namely, tree-aware storage & query capabilities
- Can we use **tree-awareness** to combine filesystems & DBMSs?

Approach: Leverage Tree-Awareness of Recent Relational DBMSs



Basic concept of storing trees (such as filesystem hierarchies, XML data) in RDBMSs (e.g., MonetDB/XQuery) (Accelerating XPath Location Steps, Grust, SIGMOD 2002 (simplified))

Implementation: Tree-aware DBMS as Filesystem in Userspace



Extend the file hierarchy by file's inherent structure

MonetDB/XQuery mounted as Filesystem in Userspace (FUSE)

Result: Conventional and Database-enhanced Access to Filesystem Data

Publications:

- Holupirek, Scholl, VLDB PhD WS 2008 (submitted)
Implementing Filesystems by Tree-aware DBMSs
- Holupirek, Scholl, GvD 2008 (to appear)
An XML Database as Filesystem in Userspace
- Holupirek, Grün, Scholl, BTW 2007
Melting Pot XML: Bringing Filesystems & DBMSs One Step Closer
- Grün, Holupirek, Scholl, BTW 2007
Visually Exploring and Querying XML with BaseX

Related Project: BaseX and DeepFS

- BaseX provides visual frontend to filesystem data
- XQuery Full-Text for personal information management (PIM)

