

T_EX File Server

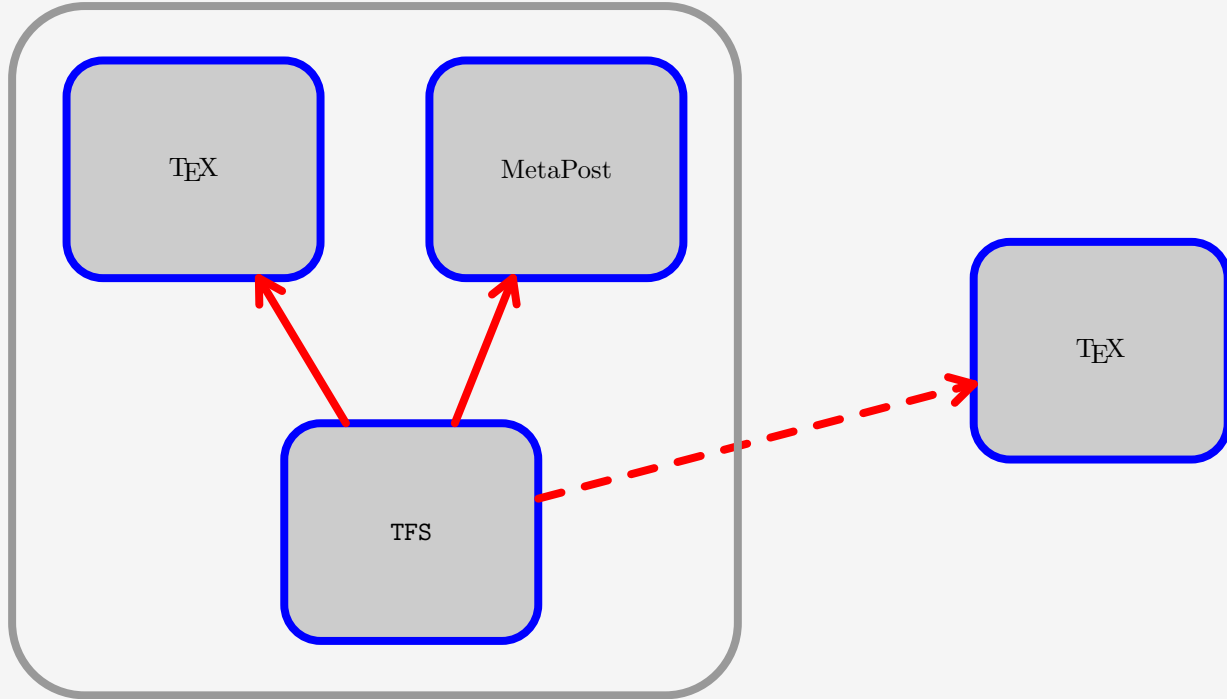
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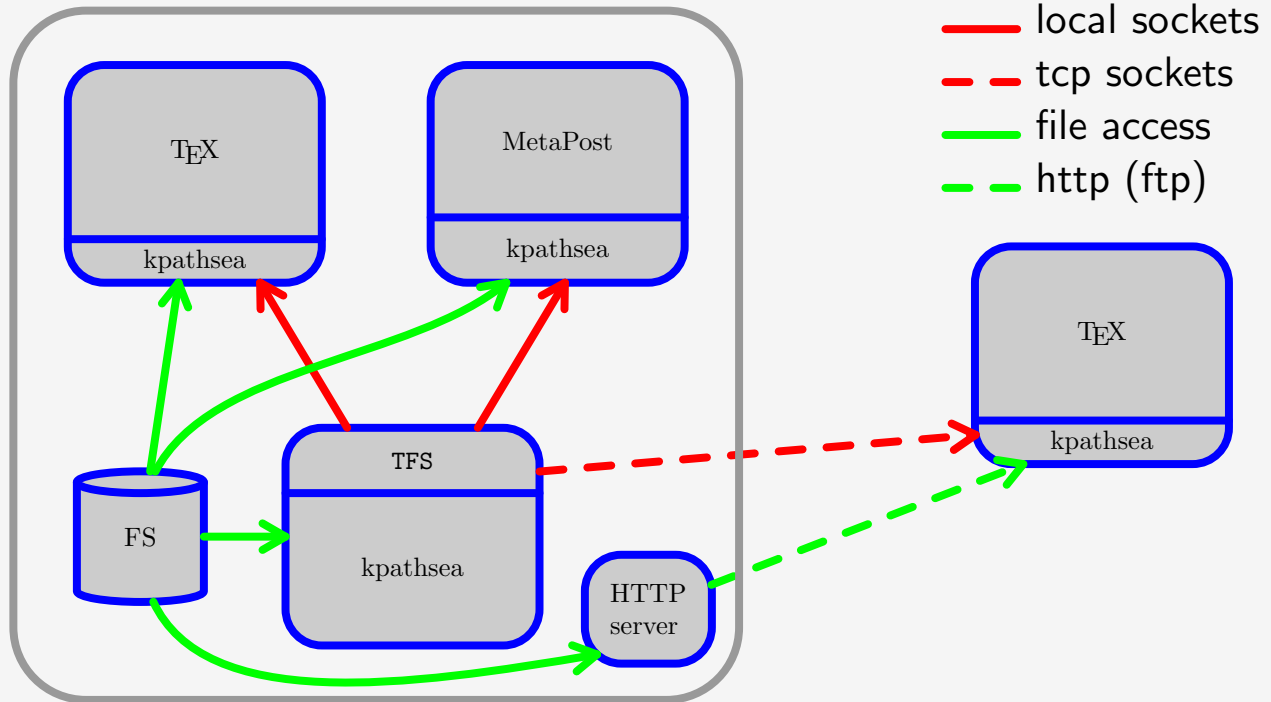
Motivation

- The 1s-R database is read for every run of a program (TEX, METAPOST)
- Each program has its own copy of the 1s-R hash table
- Let's read the 1s-R database only once for all programs
- Let's share the 1s-R hash table

The Idea



File Finding and Transport



Protocol

- **Client requests:**
 - FIND *filename path LF*
 - MAKE *filename path LF*
 - FINDALL *filename path LF*
 - MAKEALL *filename path LF*
- **Server answer:**
 - OK *LF*
file-location LF
file-location LF

....
LF
 - ERR *number mnemo LF*

Configuration

- **Server side:**
 - standard `texmf.cnf`
- **Client side:**
 - TEXMFDBS without the `ls-R`-enabled elements
 - TEXMF with the `ls-R`-enabled elements replaced
 - by: `tcp/hostname=port/path`
 - or: `unix/=port/path`

Implementation Size

- **Server:** simple C++ program on top of kpathsea
 - `tfs.h`: 101 lines of code
 - `tfs.C`: 371 lines of code
 - **total:** **472 lines of code**
- **Client:** small change to kpathsea
 - `remote.h`: 15 lines of code
 - `remote.c`: 264 lines of code
 - changes to `pathsearch.h`: 5 lines of code
 - changes to `pathsearch.c`: 15 lines of code
 - **total:** **299 lines of code**

Efficiency Formula

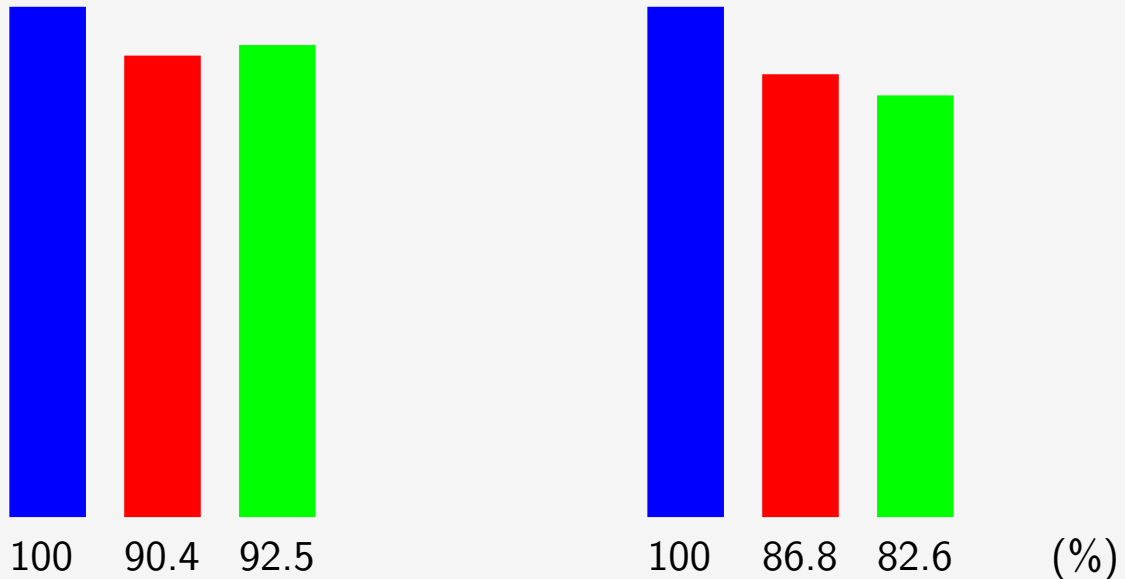
$$\text{Time}_{\text{tfs}} = \text{Time}_{\text{old}} - x + n \times y$$

- x = time of reading 1s-R databases
- y = overhead of socket communication for one query
- n = number of queries during processing

First Performance Measurements

Simple presentation

A lot of METAPOST calls



Normal, TCP sockets, UNIX sockets

Plans

- Implementing of HTTP/FTP transport
- Turning prototype into a ready-made software
- Windows port
- Providing support for flexible distributed configuration

Conclusion

- Saving time
- Saving resources
- Potential reduce of local installation
- Network transparency
- More flexible setup

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