

A WebDAV view of the CARNetWeb2 CMS

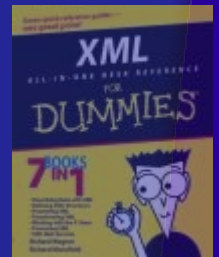
What is... CARNetWeb2 CMS?

- An advanced Web Content Management System (CMS)
- Second generation of the CMS system developed for and with help of CARNet in 2002
- Developed by Faculty of Electrical Engineering and Computing, University of Zagreb
- Release date: December 2005



What is... WebDAV?

- “Web Distributed Access and Versioning”
 - Resembles a network-accessible filesystem (similar to NFS or Samba)
 - Much less advanced
- Uses XML over HTTP to transfer information
 - Firewall friendly (though it misuses the protocol...)
 - Easy to implement
- Somewhat well supported



WebDAV's place in the network stack

IP

TCP

HTTP

WebDAV

(also works over HTTPS)

The *CMS connection*

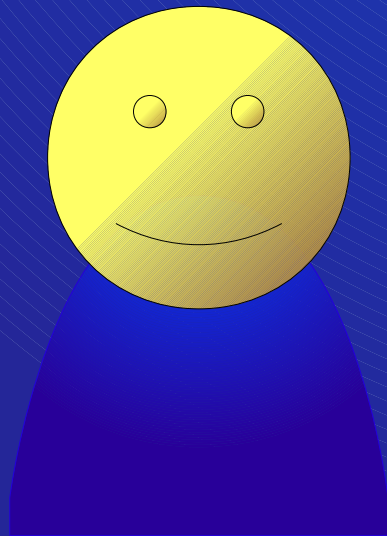
- “*Content Management System*”
- It doesn't say how the content should be managed
- For some purposes, there are better ways than “as a web page”

How people perceive data?

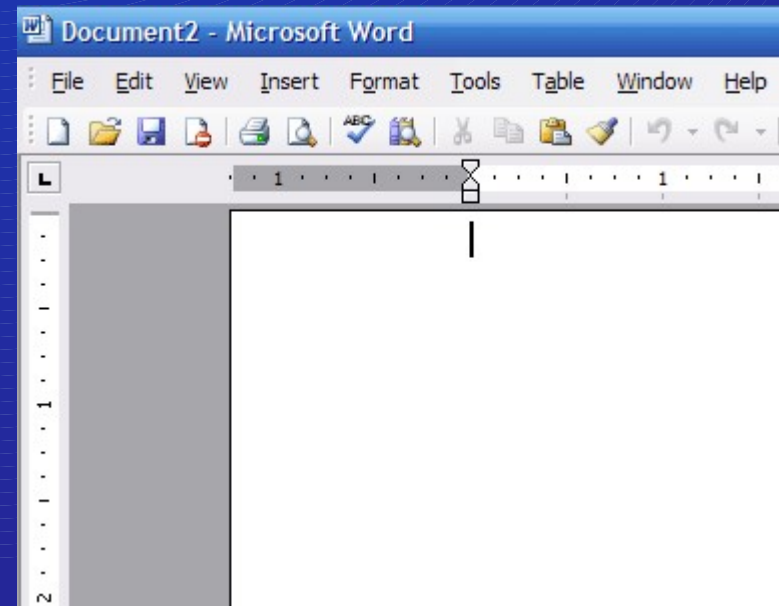
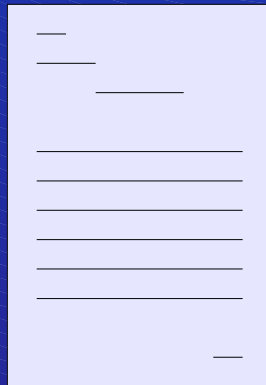
- The old-fashioned way
 - Depends on what they are used to
 - Usually, most of non-IT / non-technical people think of their computer-store data as “The Word Document”
 - More probably, it's “the thing I get when I click on the blue letter **W**”
- In other words: with the help of tools they are used to using
 - Today, it's mostly Microsoft Office...

Users and their documents

- “I want to create a document!”



??



- In short: users like to use familiar tools.

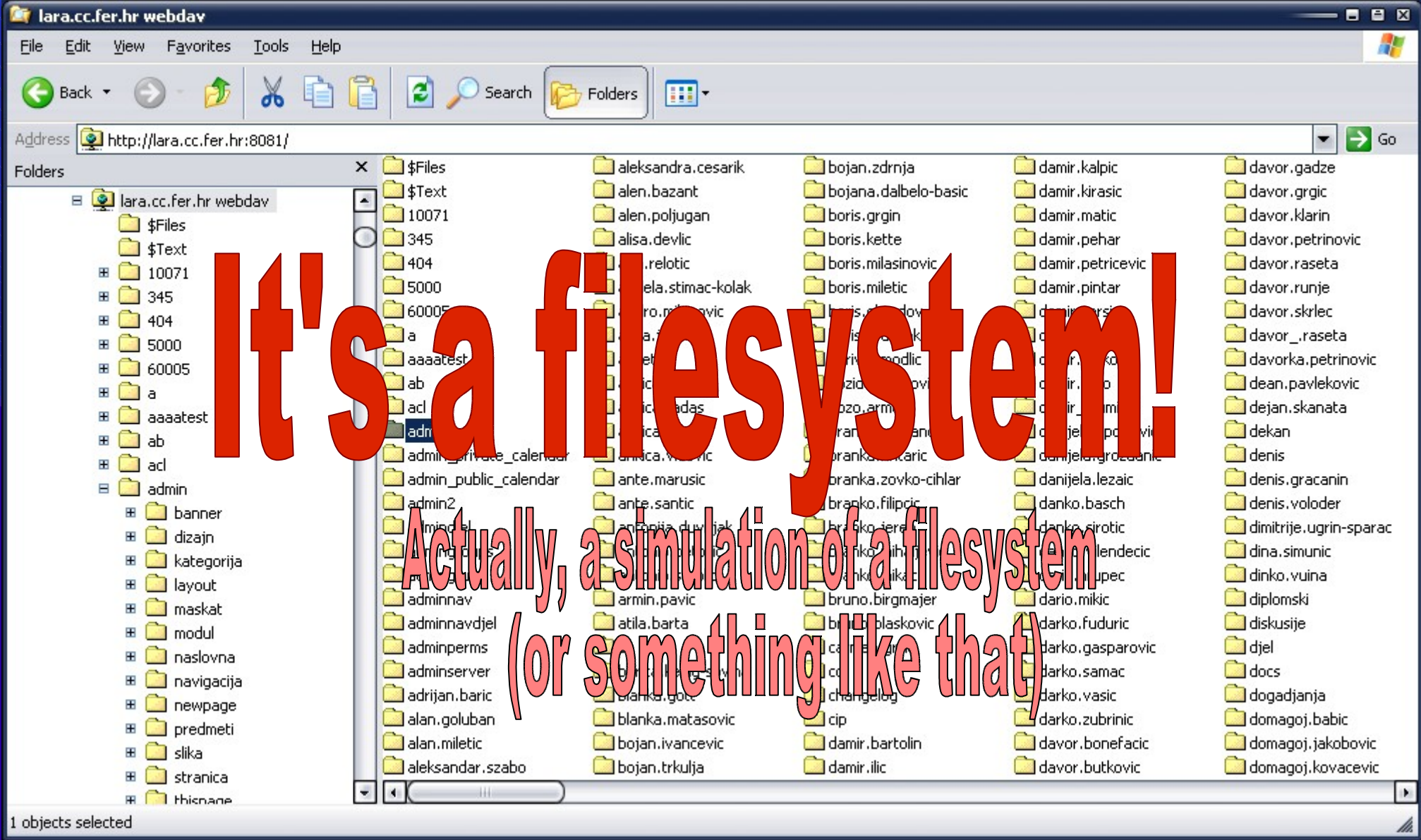
Organising the data

- Two words: “hierarchical filesystems”
 - People have used computer files organised in a hierarchy of directories for more than 30 years – they are used to it
 - Most data-retrieval & presentation mechanisms at least *mimic* some sort of hierarchy
- URL / URI addresses imply hierarchy
 - `http://server/parent_dir/child_dir/some_file.ext`

The idea

- Why not edit content residing in a CMS with “usual tools”, like Word?
- Problem: CMS content is stored in a database, not in the filesystem
 - “The usual tools” can only work with filesystems :(
 - Writing “real” filesystems that interface to the database is tedious and bug-prone
 - Is there another solution?

What does WebDAV *do*?



More about WebDAV

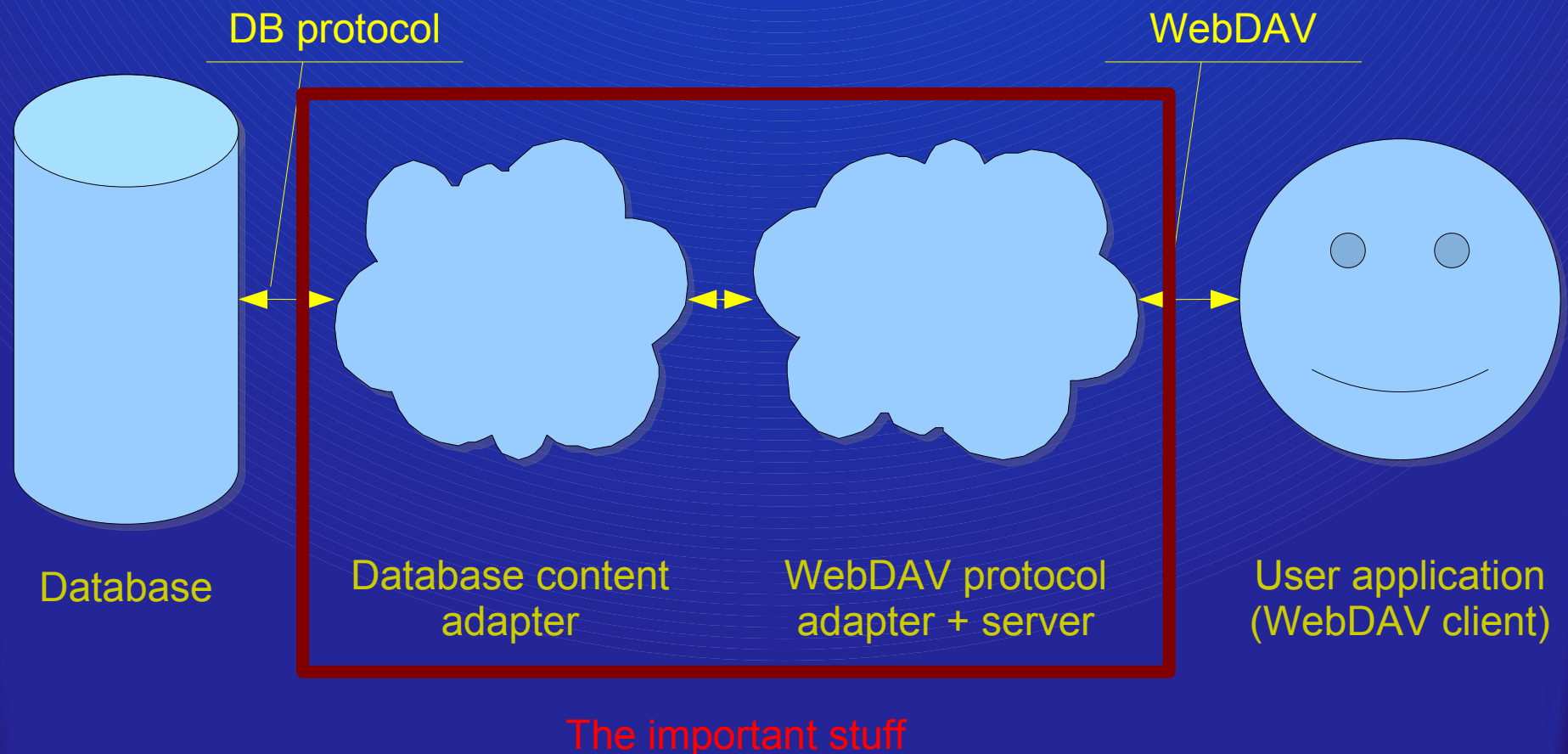
- Uses HTTP or HTTPS for transport, authorization and session management
 - (actually a bit of a kludge)
- Limitations:
 - Stateless protocol (based on HTTP)
 - Only basic file-locking supported
 - Some advanced features are implemented in a proprietary way (e.g. SharePoint)
 - Only basic functionality is widely supported

More about WebDAV

- Benefits:
 - Works over firewalls (even most application-level ones)
 - Well defined Open protocol (RFC 2518, RFC 3253, RFC 3648, RFC 3744)
 - Uses XML to describe & transfer information
 - The core of the protocol is relatively easy to implement
 - Is supported by reasonably many commercial and free applications (mostly web publishing)

The CMS-WebDAV adapter

- A modular approach...



The CMS-WebDAV adapter

1. Database content adapter

- Adapts content from database to present it as a hierarchical filesystem
- To do that, it needs to know exactly how the data is structured in the database
- Thus, there are many database content adaptors: each focuses on one type of CMS data (CMS module)

2. WebDAV protocol adapter

- Formats adapted content data and serves over net.

Protocol example

```
<?xml version="1.0" encoding="utf-8"?>
<multistatus xmlns="DAV:">
<response>
<href>/$Text/Upozorenje.html</href>
<propstat>
<status>HTTP/1.1 200 OK</status>
<prop>
  <getcontentlength>534</getcontentlength>
  <creationdate>2001-12-03T23:39:53Z</creationdate>
  <displayname>Upozorenje.html</displayname>
  <getcontenttype>text/html; charset=iso8859-2</getcontenttype>
  <getlastmodified>Sun, 30 Oct 2005 20:31:10 GMT</getlastmodified>
  <resourcetype/>
</prop>
</response>
```

```
</multistatus>
</response>
<propstat>
  <prop>
    cw2=> select * from xstatic where naslov='Upozorenje' and katid=1;
    id | katid | userid | datum | tip | zi_datum | zi_userid | naslov | tekst | active | ord
    ---+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
    18 | 1 | 2 | 1007422793 | 3 | 1130704270 | 27 | Upozorenje |
  </prop>
  <stat>
    <H1>Po&scaron;tovani posjetitelji</H1>
    <P>Obavjestavamo <U>sve</U><SPAN STYLE="text-decoration: none">
    korisnike ovog weba da se informacije na webu trebaju smatrati
    neslužbenima. Iako <I>web tim</I> ulaže velike napore da se osigura
    točnost svih podataka na sustavu, zbog slobodnog pristupa webu i
    velikog broja aktivnih korisnika ne možemo garantirati točnost
    podataka.</SPAN></P>
  </stat>
</propstat>
(1 row)
```

Current implementation

- Has adapters for basic text data ("static") and file repository
- Uses built-in CMS authorization
- Directly accesses database (PostgreSQL)
- Is written in Python
- Is quite robust

The end-user's side

The screenshot displays a web browser window titled "lara.cc.fer.hr" and a terminal window titled "root@pcap7:/dfs/users/p/pace/public/Other".

Web Browser Window:

- Title: lara.cc.fer.hr
- Address bar: http://lara.cc.fer.hr:8000/
- Content: A directory listing of files and folders. The "Other Places" sidebar on the left shows "Web Folders", "My Documents", "Shared Documents", and "My Network Places".
- Files and Folders: \$text, 10071, 345, 404, 60005, 998, a, aaaatest, ab, adl, admin, admin_priv, admin_pub, admin_djel, admin_group, admin_group, adminnav, adminnavd, adminperm, adminserve, b, cd, changelog, cip, dekan, denis, diskusije, djel, dogadjanja, donacije, dsm, dsm_ng, dvorane, english, finacijskas, forum, denis, diskusije, djel, dogadjanja, donacije, matchmaker, matlab_upgrades, miss, mister, mojfer, prodekani, props, psiholoskosavjetov, radnici, rasip.
- Status: 112 objects

Terminal Window:

```
root@pcap7:/dfs/users/p/pace/public/Other
[root@pcap7 Other]# mount
/dev/hda2 on / type ext3 (rw)
none on /proc type proc (rw)
usbdevfs on /proc/bus/usb type usbdevfs (rw)
/dev/hda1 on /boot type ext3 (rw)
none on /dev/pts type devpts (rw,gid=5,mode=620)
none on /dev/shm type tmpfs (rw)
AFS on /afs type afs (rw)
/dev/davfs0 on /dfs type coda (rw,host=http://dfs.cern.ch/dfs/)
[root@pcap7 Other]# pwd
/dfs/users/p/pace/public/Other
[root@pcap7 Other]# ls -l
total 14449
-rwxr-xr-x 1 root root 13824 Jun 1 2001 95BUGS.DOC
-rwxr-xr-x 1 root root 186368 Dec 13 2001 Digital Music.ppt
-rwxr-xr-x 1 root root 9526876 Dec 12 2001 FarewellCard.cdr
drwxr-xr-x 1 root root 0 Oct 16 21:14 Other
-rwxr-xr-x 1 root root 50176 Jun 15 2001 PowerPointIntro.ppt
-rwxr-xr-x 1 root root 11264 Dec 2 2002 Thumbs.db
-rwxr-xr-x 1 root root 2185216 Oct 10 2002 WebFuture-Advanced.ppt
-rwxr-xr-x 1 root root 2646016 Oct 10 2002 WebFuture.ppt
-rwxr-xr-x 1 root root 174815 Oct 1 2002 aspnet.doc.exe
[root@pcap7 Other]#
```

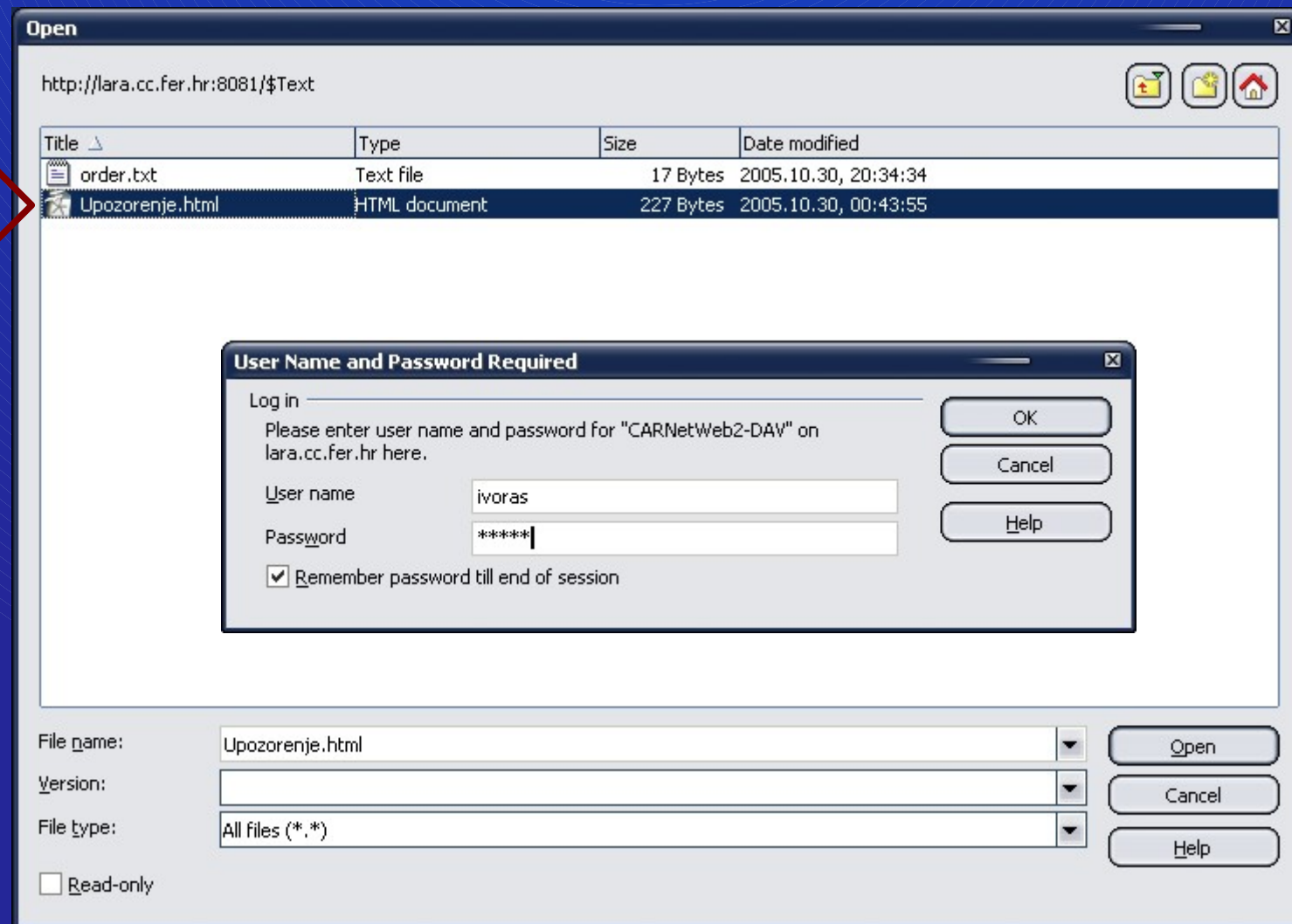

A word about MS Windows' support

- Implemented as an Explorer shell extension
 - Basic operations (copy / move / delete / upload / download) work
 - Opening / editing the document is only supported if the application is MS-WebDAV aware.
 - Currently it appears that only MS Office can do that
 - For other applications, the file is copied into Temporary Internet Files and the copy is passed to the application as read-only
 - MS Office application can access WebDAV directly

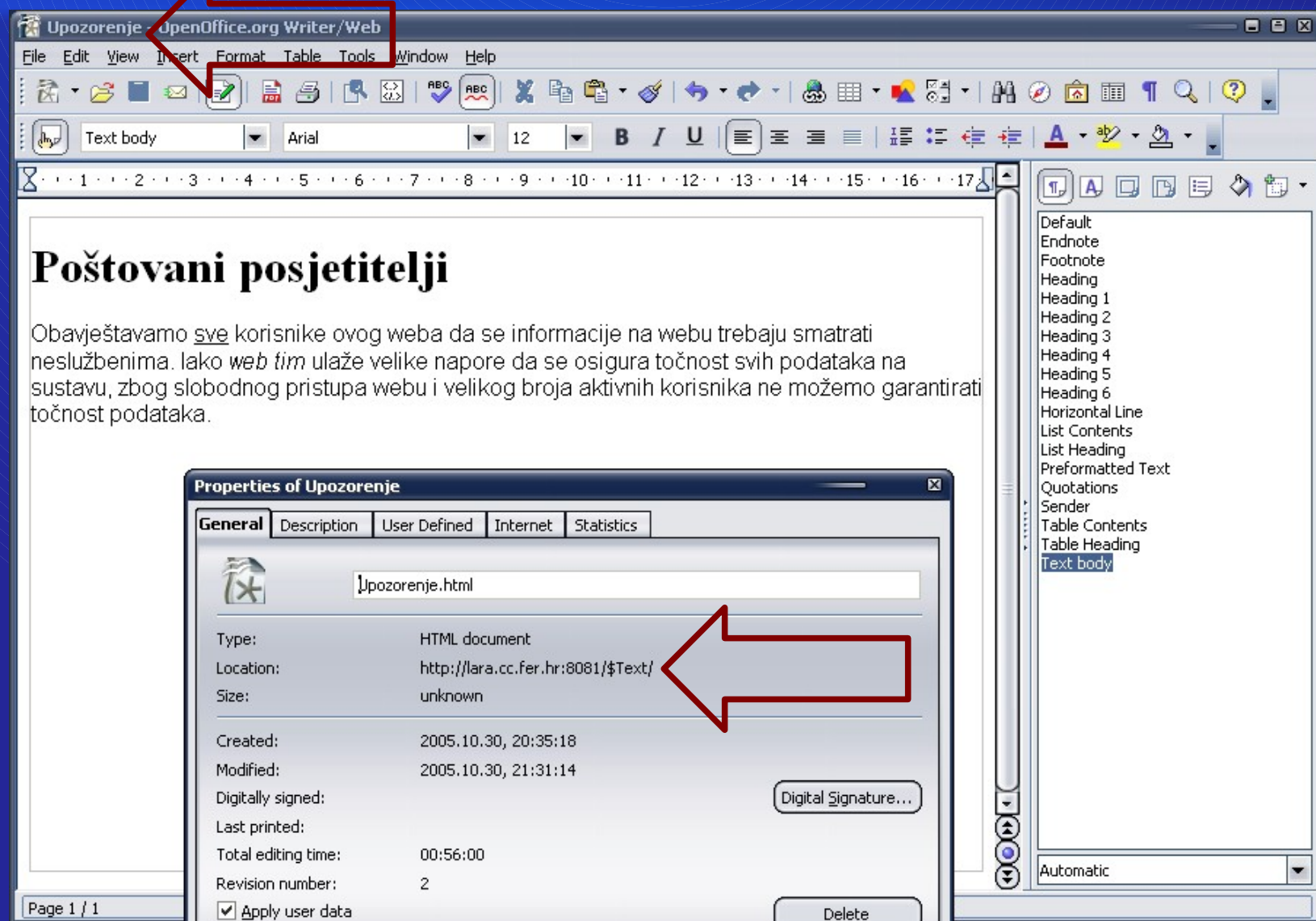
OpenOffice.org support

- The focus of development :)
- Does not cooperate with Windows Explorer
- Can access WebDAV resources directly
 - (“Use Ugly OpenOffice.org Dialogues” option must be enabled in the configuration window)
- Works!
 - Mostly OpenOffice.org 2 tested (while in beta)

OpenOffice.org 2



OpenOffice.org 2



CMS

Više...

plomskih zadataka i predaje diplomskog rada za ak.god. 2004/2005.

Više...

čanost se održala u gotovo potpuno popunjenoj dvorani Auditorium
Branko Vukelić, ministar gospodarstva, rada i poduzetništva RH
niti *zlatne plakete Josip Lončar* **prof.dr.sc. Branku Jerenu** i **prof.dr.sc.**
bno istaknuti profesor **dr.sc. Ivanu Iliću**.
esti.

Više...

informacijama na FERovim službenim stranicama. Od danas je svim
podržani slijedeći formati za preuzimanje informacija: **RSS 2.0**, **RDF 1.0** te
jesti, obavijesti o novim datotekama, forumske diskusije i FER danas/sutra.

Više...

Kalendar

Listopad, 2005.

Po	Ut	Sr	Če	Pe	Su	Ne
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Upozorenje

Poštovani posjetitelji

Obavještavamo sve korisnike ovog weba da se informacije na webu trebaju smatrati neslužbenima. Iako *web tim* ulaže velike napore da se osigura točnost svih podataka na sustavu, zbog slobodnog pristupa webu i velikog broja aktivnih korisnika ne možemo garantirati točnost podataka.

ivoras, 30.10.2005.

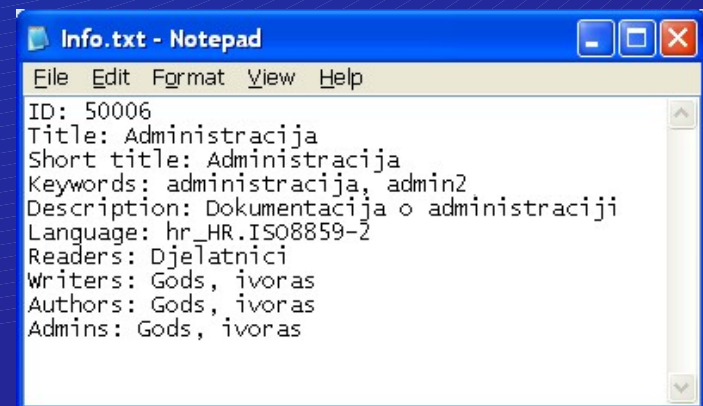
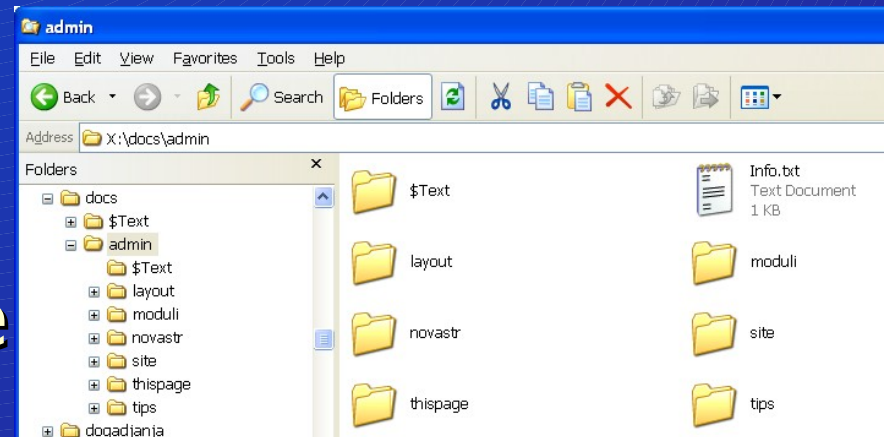
Datoteke

Osnovna mapa

- prezentacija
- Metodika

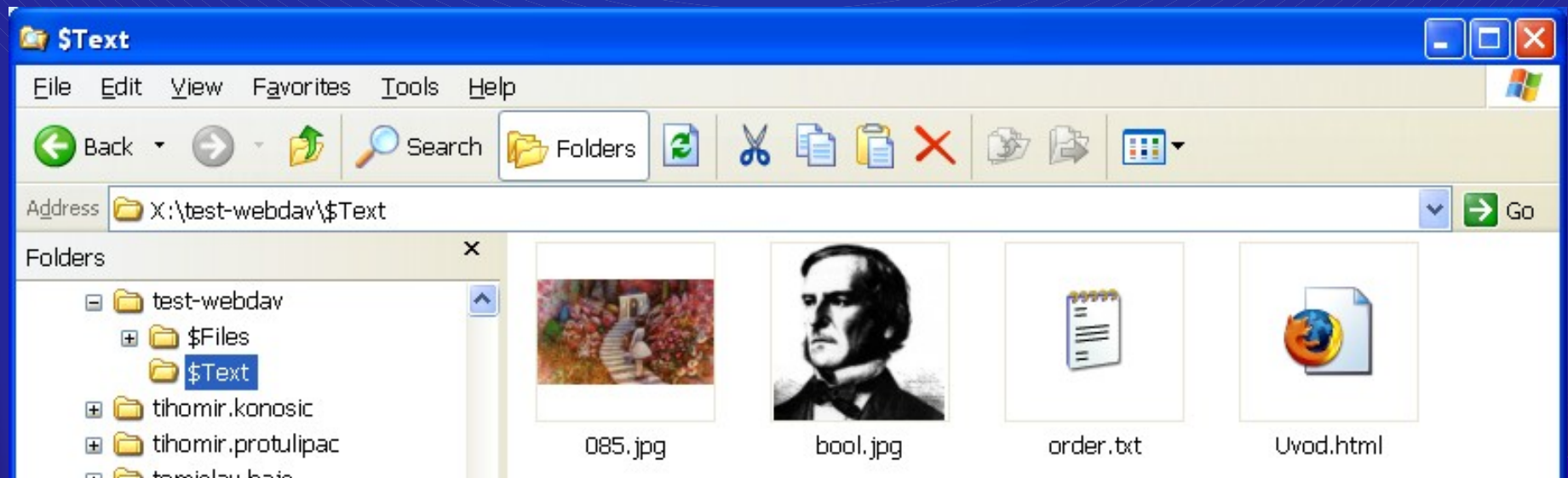
What about metadata?

- Title, creation date, author are handled by WebDAV
- Other things?
 - Order of texts on the page
 - Descriptions of files
 - URLs and descriptions of individual pages
 - Access permissions
- Special files!



Support for images

- Pages in the CMS have pictures attached to them; the pictures are used in articles
- Some parsing and rewriting of HTML is required to “fix up” references



File repository

- Files in CMS's repository are naturally exported via WebDAV

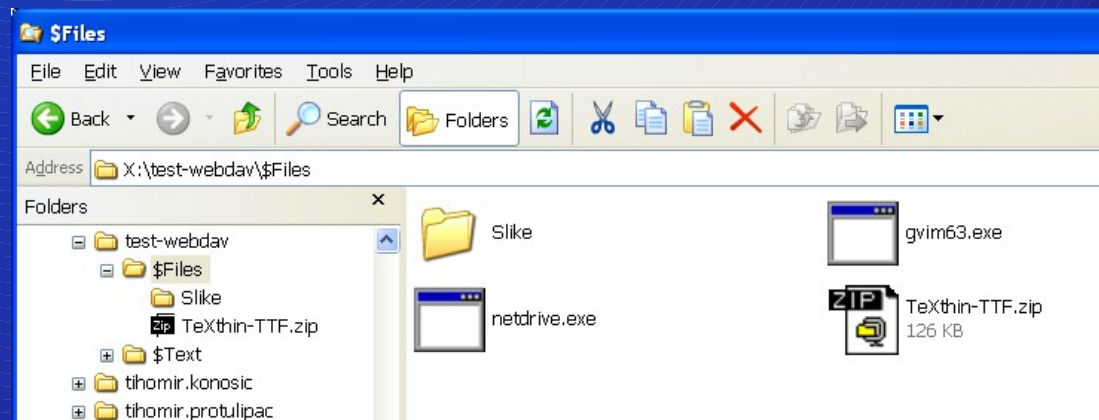
Repozitorij datoteka

Osnovna mapa

Redoslijed	Opis	Velicina	Postavio/la	Nadnevak
▼	VIM za Windowse	4 MB Vidljivo: <input checked="" type="checkbox"/>	ivoras Premjesti: <input type="checkbox"/>	29.04.2005. Uredi Briši
▲ ▼	TeXthin font u TTF obliku	128 KB Vidljivo: <input checked="" type="checkbox"/>	ivoras Premjesti: <input type="checkbox"/>	29.04.2005. Uredi Briši
▲	NetDrive - WebDAV klijent za Windowse - mounta WebDAV i FTP resurse kao diskove	5.76 MB Vidljivo: <input checked="" type="checkbox"/>	ivoras Premjesti: <input type="checkbox"/>	29.04.2005. Uredi Briši

Slike

Redoslijed	Opis	Velicina	Postavio/la	Nadnevak
▼	Mali zeko	118 KB Vidljivo: <input checked="" type="checkbox"/>	ivoras Premjesti: <input type="checkbox"/>	29.04.2005. Uredi Briši
▲ ▼	Thumbs.db.encryptable	0 B Vidljivo: <input checked="" type="checkbox"/>	ivoras Premjesti: <input type="checkbox"/>	Danas! Uredi Briši
▲	Thumbs.db	7 KB Vidljivo: <input checked="" type="checkbox"/>	ivoras Premjesti: <input type="checkbox"/>	Danas! Uredi Briši



- (File properties are also available in special files)

The End

Repozitorij datoteka

Osnovna mapa

Redoslijed	Opis	Veličina	Postavio/la	Nadnevak
▼	VIM za Windowse	4 MB	ivoras	29.04.2005.
		Vidljivo: <input checked="" type="checkbox"/>	Premijeti: <input type="checkbox"/>	Uredi
▲ ▼	TeXthin font u TTF obliku	128 KB	ivoras	29.04.2005.
		Vidljivo: <input checked="" type="checkbox"/>	Premijeti: <input type="checkbox"/>	Uredi
▲	NetDrive - WebDAV klijent za Windowse - mounta WebDAV i FTP resurse kao diskove	5.76 MB	ivoras	29.04.2005.
		Vidljivo: <input checked="" type="checkbox"/>	Premijeti: <input type="checkbox"/>	Uredi

Slike

Redoslijed	Opis	Veličina	Postavio/la	Nadnevak
▼	Mali zeko	118 KB	ivoras	29.04.2005.
		Vidljivo: <input checked="" type="checkbox"/>	Premijeti: <input type="checkbox"/>	Uredi
▲ ▼	Thumbs.db.encryptable	0 B	ivoras	Danas!
		Vidljivo: <input checked="" type="checkbox"/>	Premijeti: <input type="checkbox"/>	Uredi
▲	Thumbs.db	7 KB	ivoras	Danas!
		Vidljivo: <input checked="" type="checkbox"/>	Premijeti: <input type="checkbox"/>	Uredi

\$Files

File Edit View Favorites Tools Help

Back Forward Stop Search Folders

Address X:\test-webdav\Files

Folders

- test-webdav
 - \$Files
 - Slike
 - gvim63.exe
 - TeXthin-TTF.zip 126 KB
 - \$Text
 - thomir.konosic
 - thomir.protulipac

Slike

netdrive.exe

WebDAV

Upozorenje

Poštovani posjetitelji

Obavještavamo sve korisnike ovog weba da se informacije na webu trebaju smatrati neslužbenima. Iako *web tim* ulaže velike napore da se osigura točnost svih podataka na sustavu, zbog slobodnog pristupa webu i velikog broja aktivnih korisnika ne možemo garantirati točnost podataka.

ivoras, 30.10.2005.

Upozorenje - OpenOffice.org Writer/Web

File Edit View Insert Format Table Tools Window Help

Text body Arial 12 B I U

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Thank you for your patience!

Questions?

Contact:
ivan.voras@fer.hr