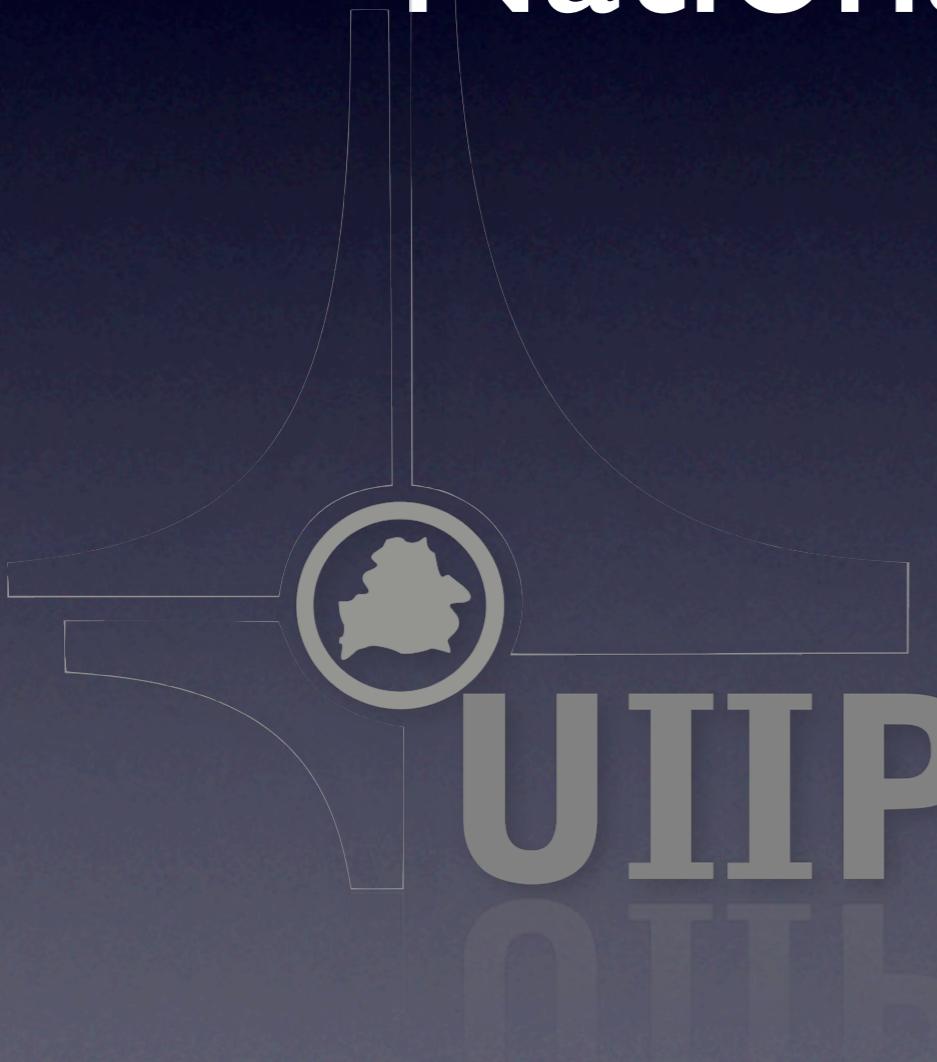


UNICORE-related Projects for Deploying the Belarusian National Grid Network



M.Sc. Andrew Lukoshko

United Institute of Informatics Problems, Belarus

Belarus



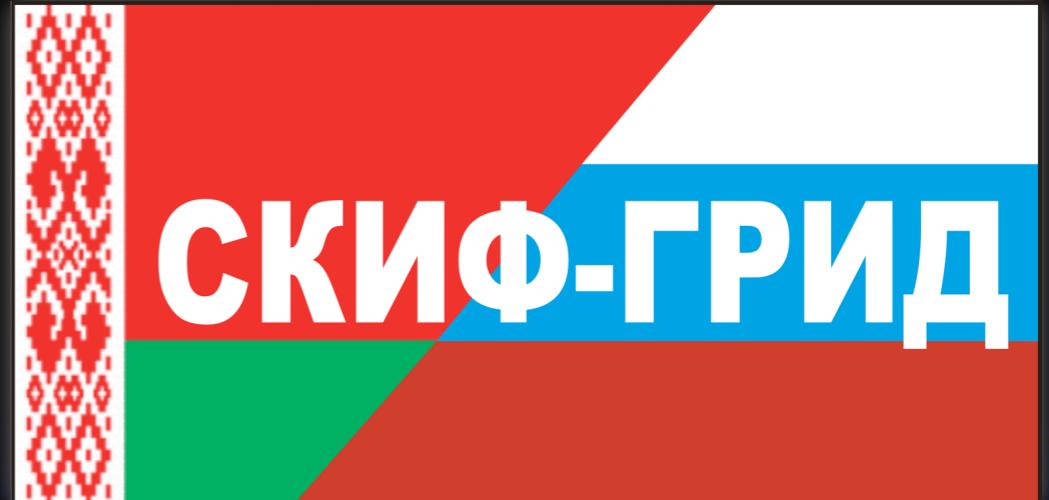
Area: 207,600 km²

Population: 10 million



SKIF-GRID

The Union of Russia and Belarus



Main goals:

- Modernisation of existing supercomputer centers
- National Grid networks building
- Participation in international projects

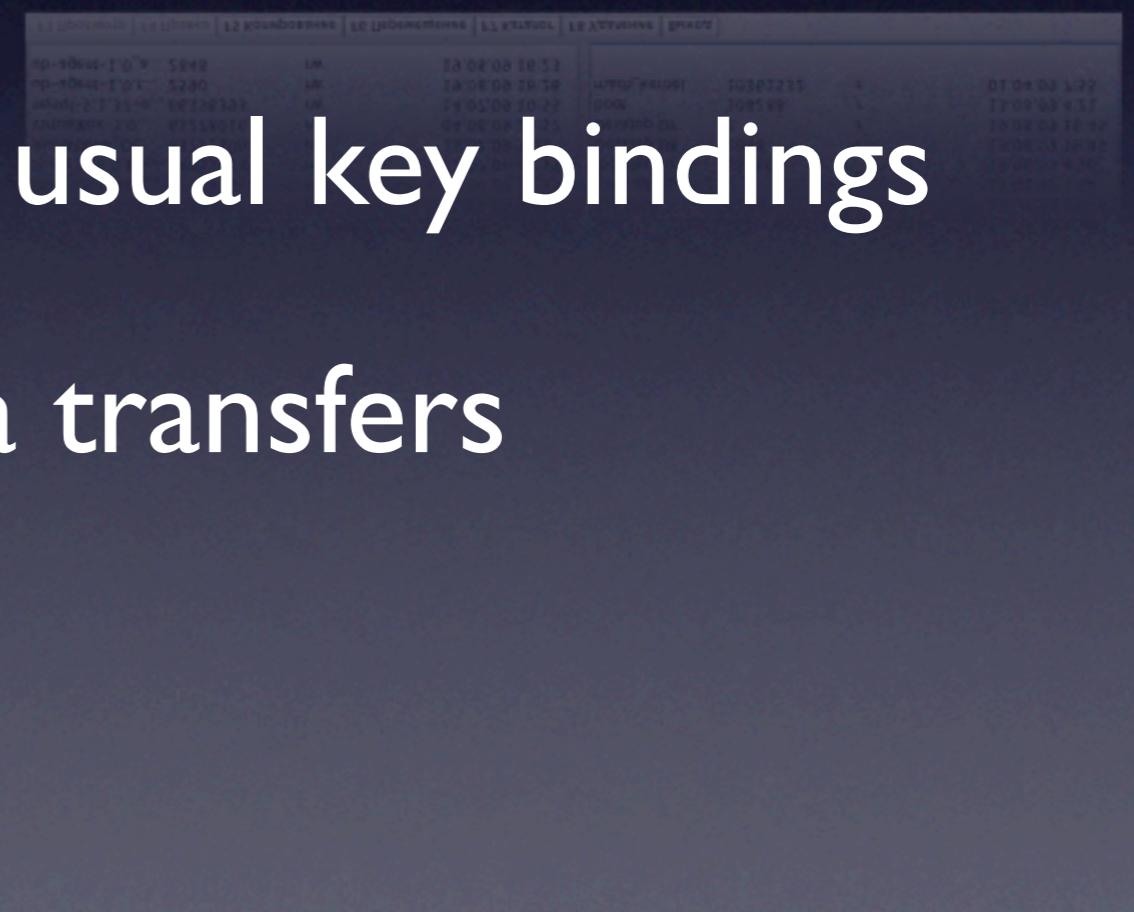
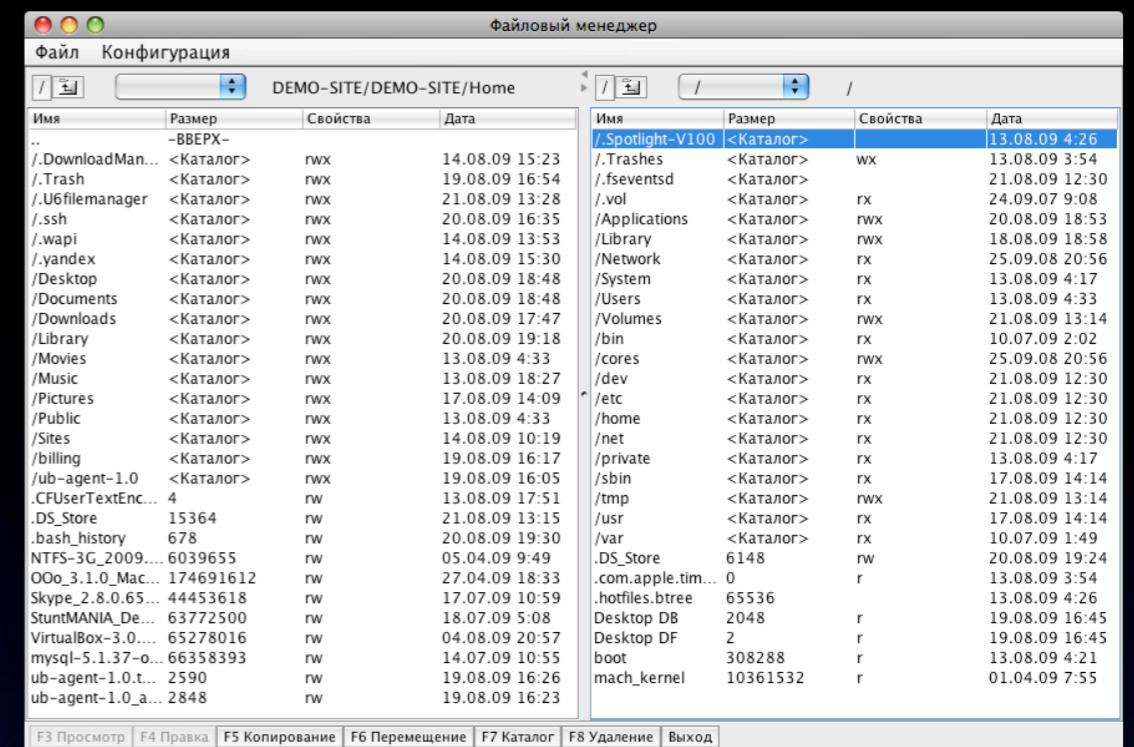
UNICORE

WHY UNICORE ?

- cross-platform
- small
- easy to deploy and administer
- constantly evolved
- accurately maintained

Filemanager

Filemanager



Two-panel design with usual key bindings



Direct site-to-site data transfers

Filemanager

Файловый менеджер

Файл Конфигурация

DEMO-SITE/DEMO-SITE/Home

Имя Размер Свойства Дата

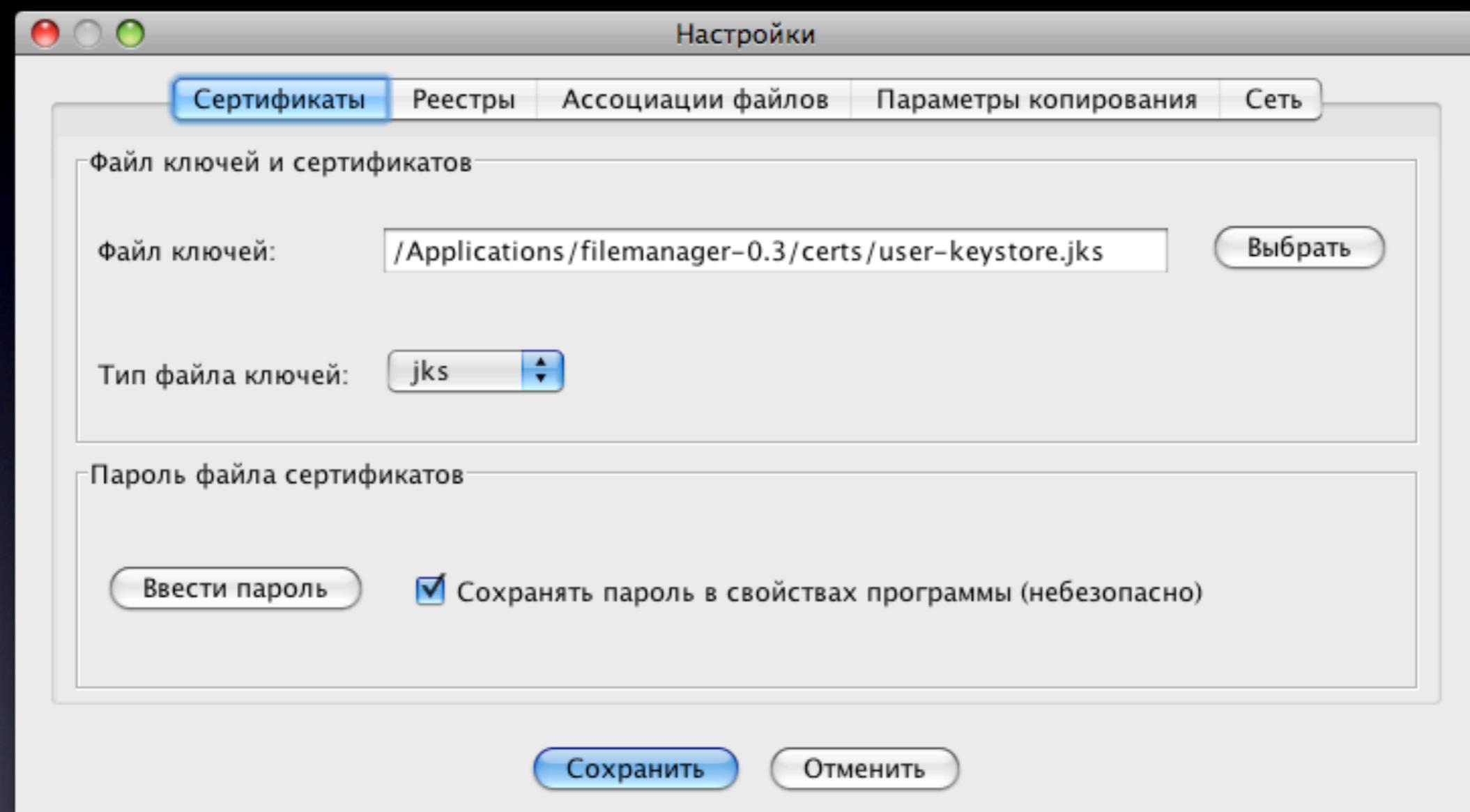
..	-BBEPX-		
./DownloadMan...	<Каталог>	rwx	14.08.09 15:23
/.Trash	<Каталог>	rwx	19.08.09 16:54
/.U6filemanager	<Каталог>	rwx	21.08.09 13:28
/.ssh	<Каталог>	rwx	20.08.09 16:35
/.wapi	<Каталог>	rwx	14.08.09 13:53
/.yandex	<Каталог>	rwx	14.08.09 15:30
/Desktop	<Каталог>	rwx	20.08.09 18:48
/Documents	<Каталог>	rwx	20.08.09 18:48
/Downloads	<Каталог>	rwx	20.08.09 17:47
/Library	<Каталог>	rwx	20.08.09 19:18
/Movies	<Каталог>	rwx	13.08.09 4:33
/Music	<Каталог>	rwx	13.08.09 18:27
/Pictures	<Каталог>	rwx	17.08.09 14:09
/Public	<Каталог>	rwx	13.08.09 4:33
/Sites	<Каталог>	rwx	14.08.09 10:19
/billing	<Каталог>	rwx	19.08.09 16:17
/ub-agent-1.0	<Каталог>	rwx	19.08.09 16:05
.CFUserTextEnc...	4	rw	13.08.09 17:51
.DS_Store	15364	rw	21.08.09 13:15
.bash_history	678	rw	20.08.09 19:30
NTFS-3G_2009....	6039655	rw	05.04.09 9:49
OOo_3.1.0_Mac...	174691612	rw	27.04.09 18:33
Skype_2.8.0.65...	44453618	rw	17.07.09 10:59
StuntMANIA_De...	63772500	rw	18.07.09 5:08
VirtualBox-3.0....	65278016	rw	04.08.09 20:57
mysql-5.1.37-o...	66358393	rw	14.07.09 10:55
ub-agent-1.0.t...	2590	rw	19.08.09 16:26
ub-agent-1.0_a...	2848	rw	19.08.09 16:23

Имя Размер Свойства Дата

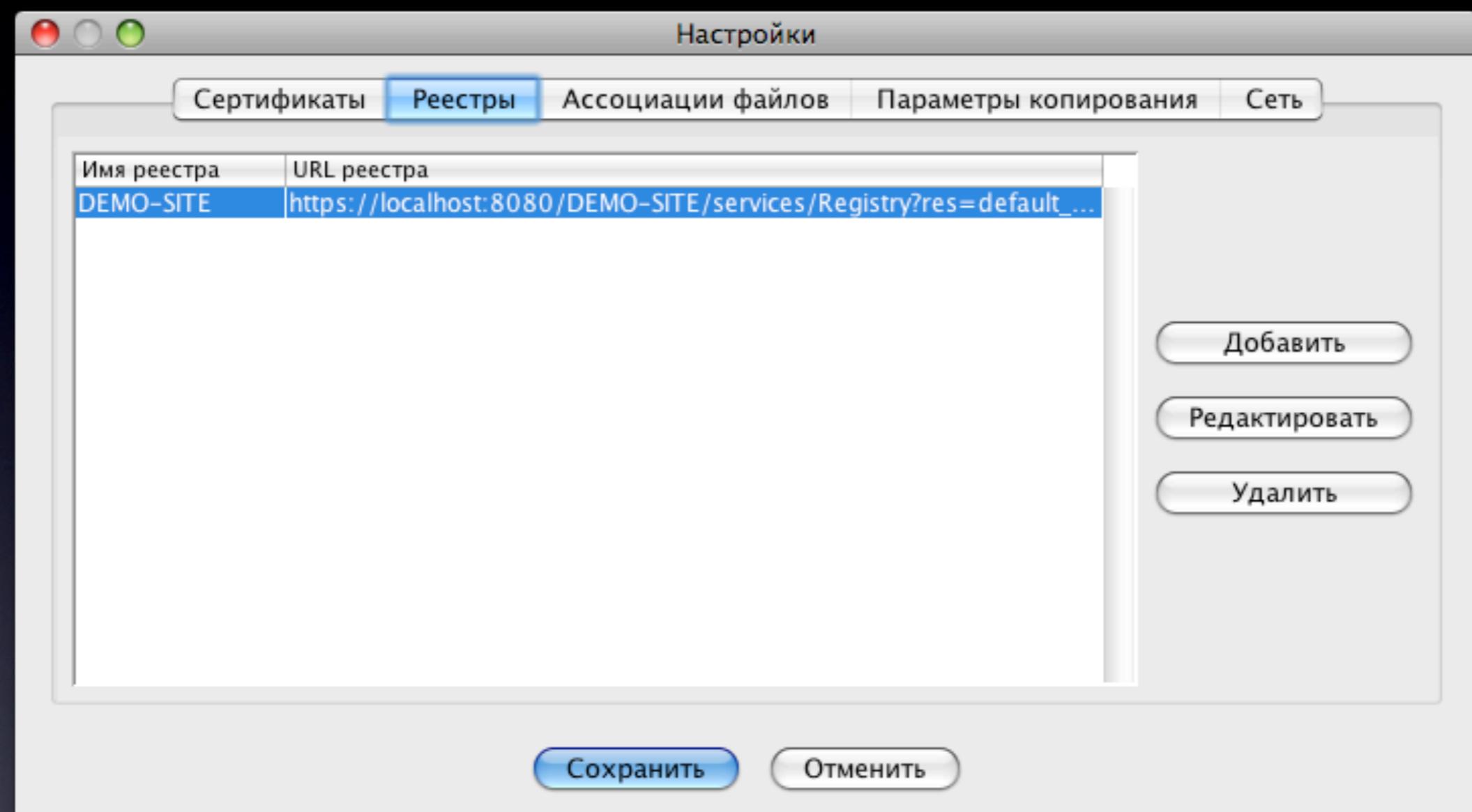
./Spotlight-V100	<Каталог>		13.08.09 4:26
/.Trashes	<Каталог>	wx	13.08.09 3:54
/.fseventsd	<Каталог>		21.08.09 12:30
/.vol	<Каталог>	rx	24.09.07 9:08
/Applications	<Каталог>	rwx	20.08.09 18:53
/Library	<Каталог>	rwx	18.08.09 18:58
/Network	<Каталог>	rx	25.09.08 20:56
/System	<Каталог>	rx	13.08.09 4:17
/Users	<Каталог>	rx	13.08.09 4:33
/Volumes	<Каталог>	rwx	21.08.09 13:14
/bin	<Каталог>	rx	10.07.09 2:02
/cores	<Каталог>	rwx	25.09.08 20:56
/dev	<Каталог>	rx	21.08.09 12:30
/etc	<Каталог>	rx	21.08.09 12:30
/home	<Каталог>	rx	21.08.09 12:30
/net	<Каталог>	rx	21.08.09 12:30
/private	<Каталог>	rx	13.08.09 4:17
/sbin	<Каталог>	rx	17.08.09 14:14
/tmp	<Каталог>	rwx	21.08.09 13:14
/usr	<Каталог>	rx	17.08.09 14:14
/var	<Каталог>	rx	10.07.09 1:49
.DS_Store	6148	rw	20.08.09 19:24
.com.apple.tim...	0	r	13.08.09 3:54
.hotfiles.btree	65536		13.08.09 4:26
Desktop DB	2048	r	19.08.09 16:45
Desktop DF	2	r	19.08.09 16:45
boot	308288	r	13.08.09 4:21
mach_kernel	10361532	r	01.04.09 7:55

F3 Просмотр F4 Правка F5 Копирование F6 Перемещение F7 Каталог F8 Удаление Выход

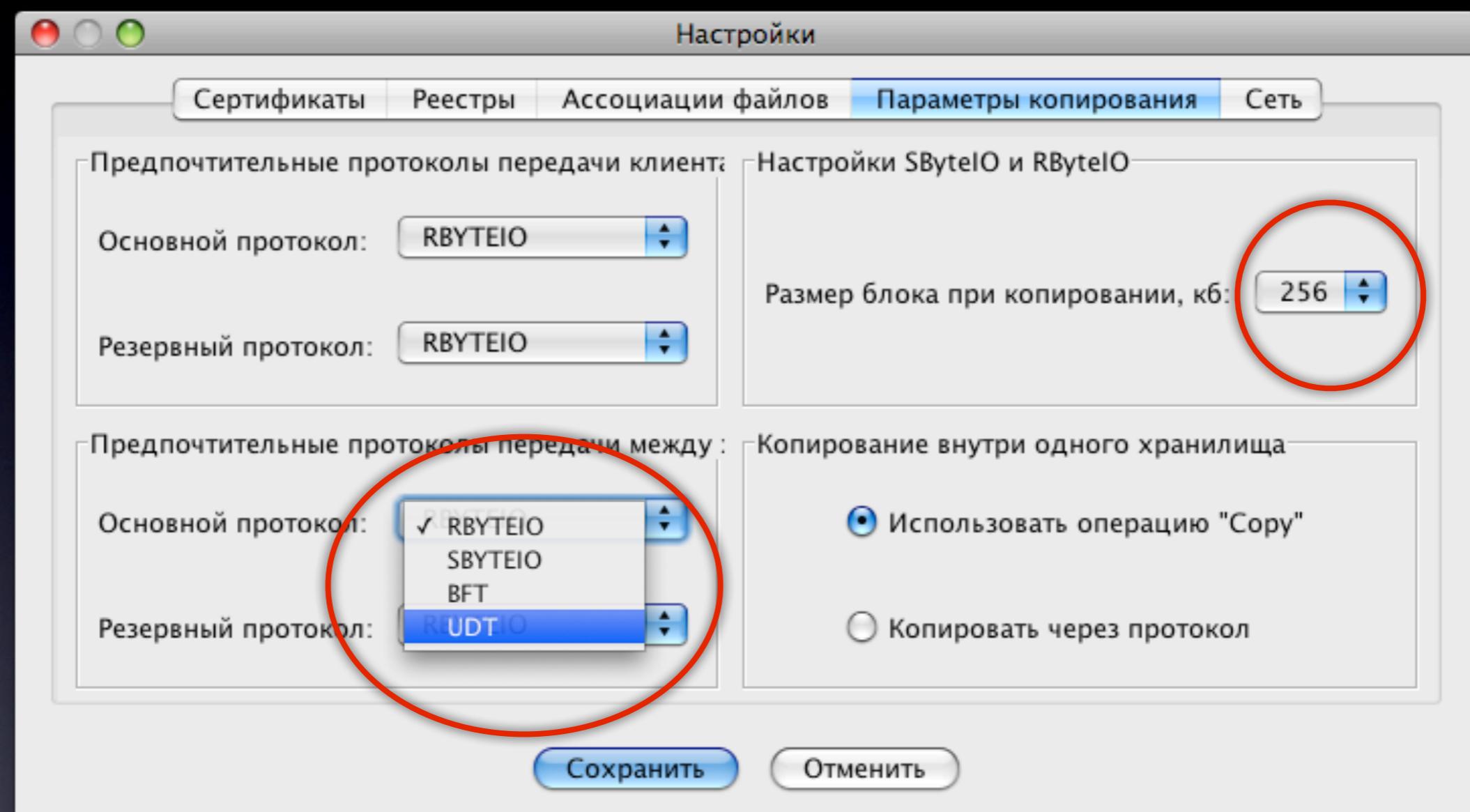
Filemanager



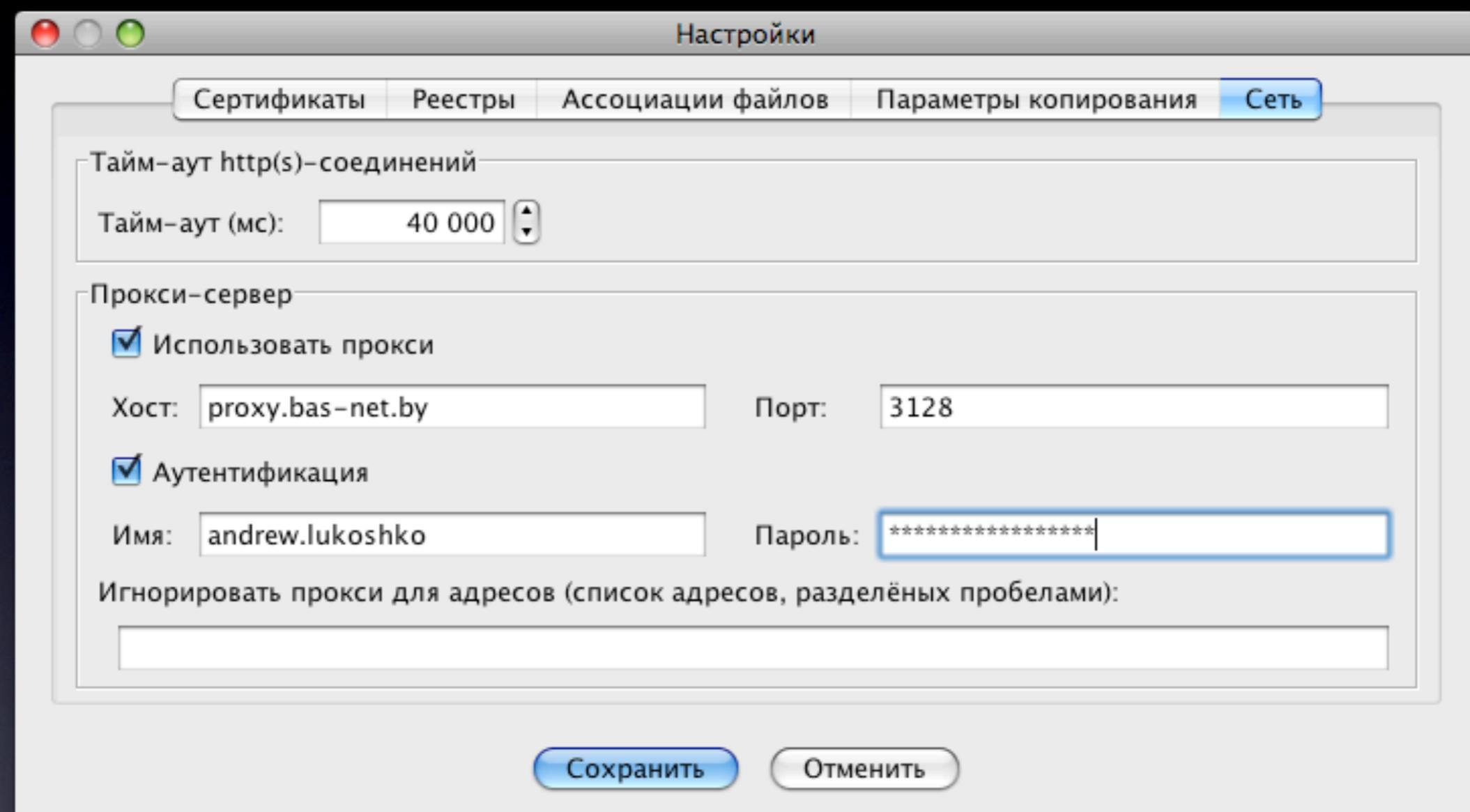
Filemanager



Filemanager

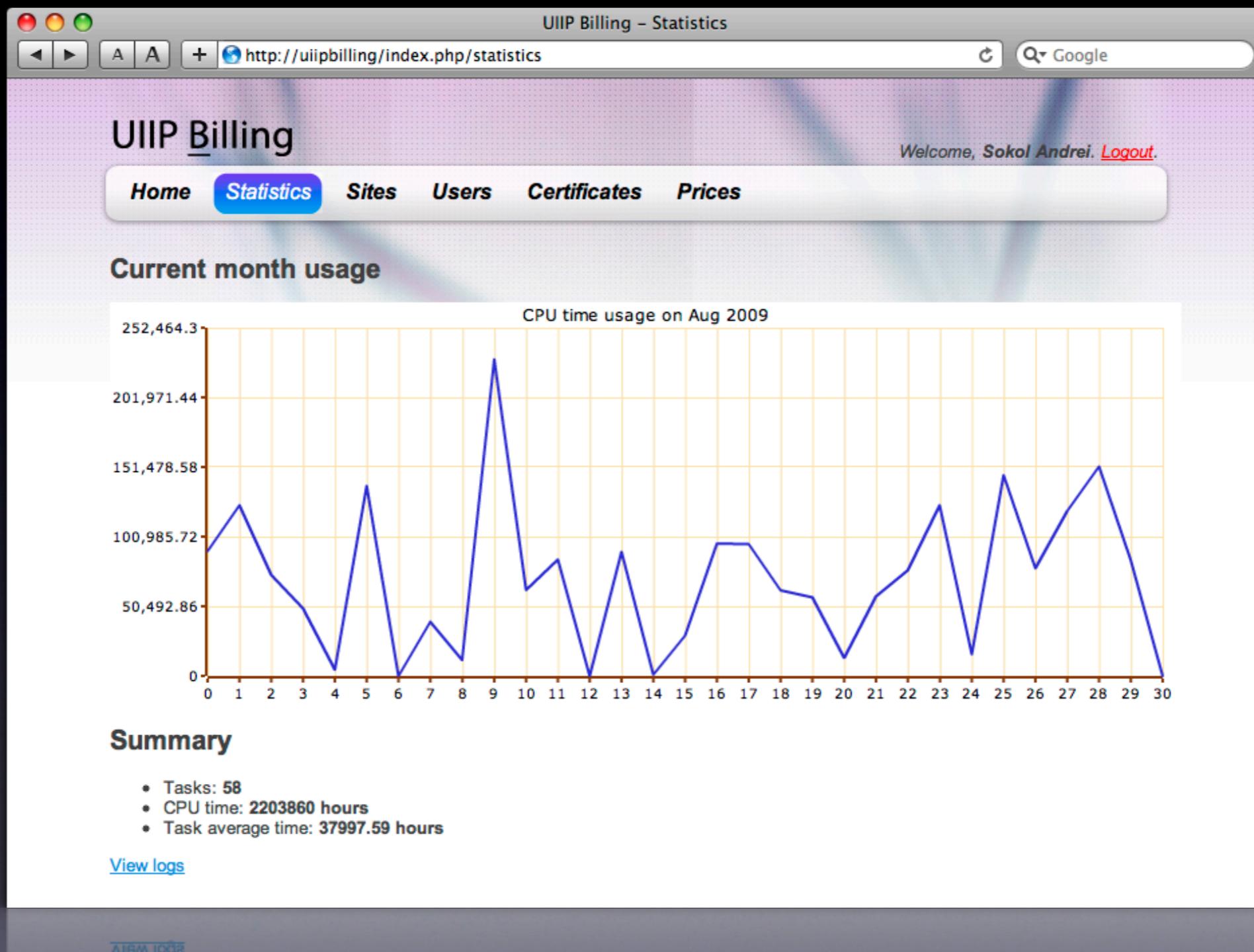


Filemanager



Billing system

Billing system



Billing system



compact and simple



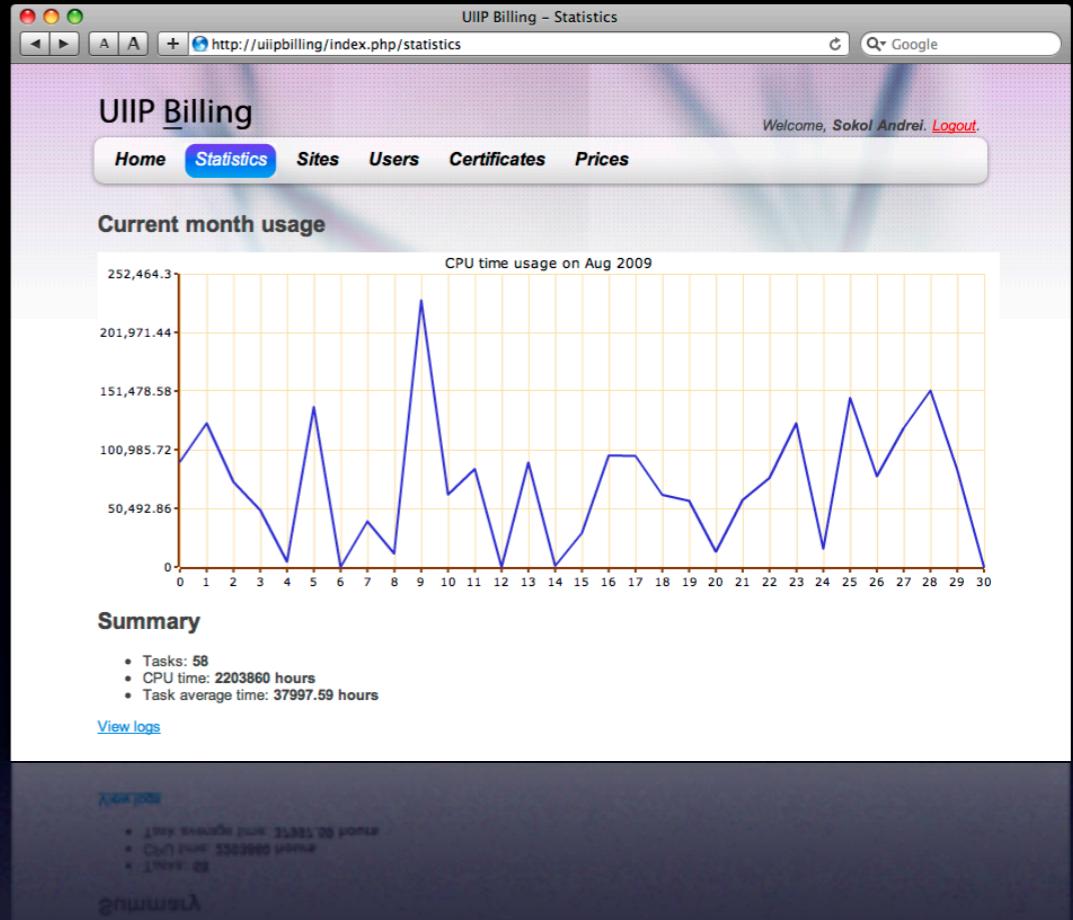
commercial apps' special prices



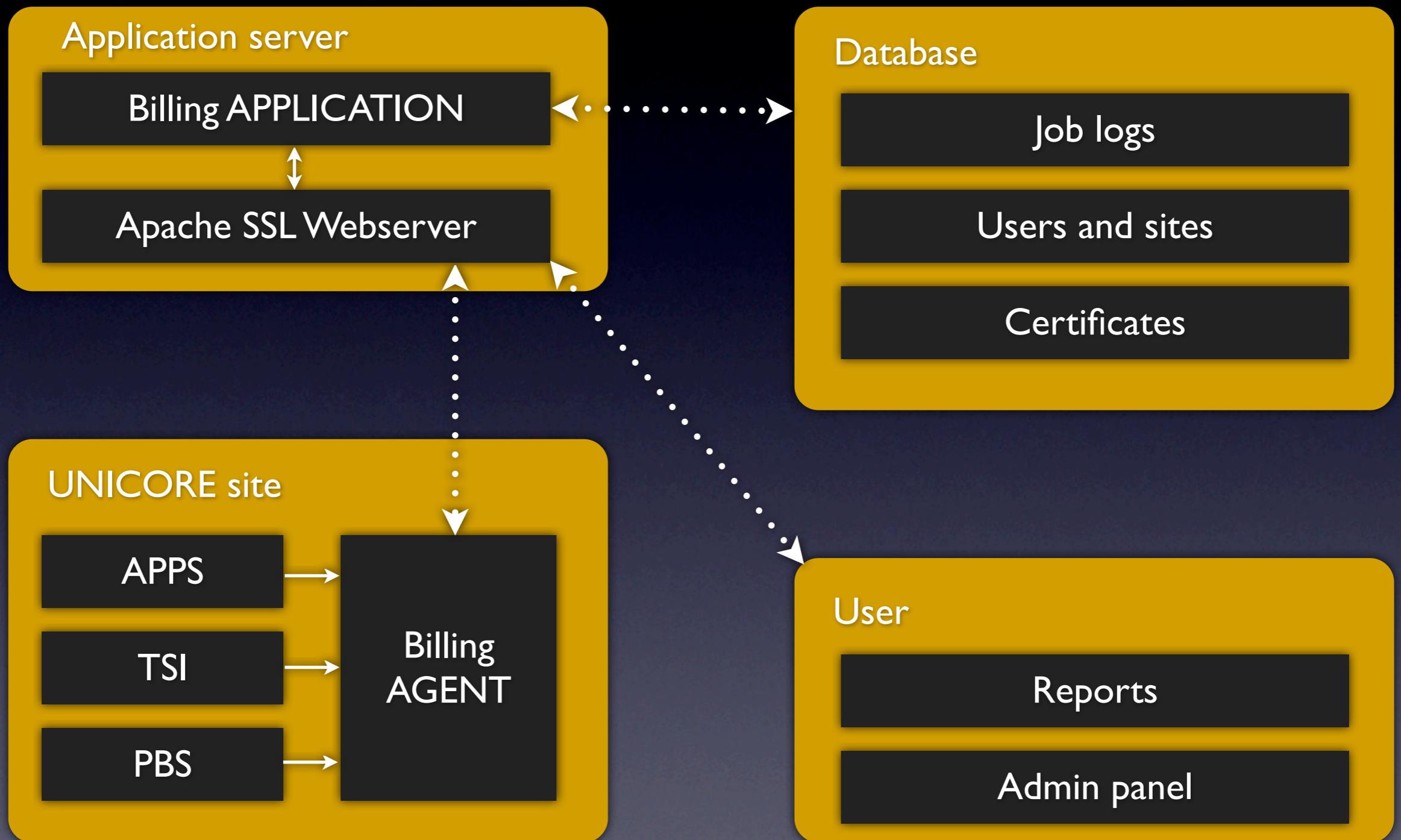
multiple certs support (billing only)



new target systems support with plugins



Billing system



Billing system



Billing system



UIIP Billing – Certificates

A A + http://uiipbilling/index.php/admin/certificates

UIIP Billing

Welcome, Sokol Andrei. [Logout](#).

[Home](#) [Statistics](#) [Sites](#) [Users](#) [Certificates](#) [Prices](#)

[+ Add](#)

Find certificate

User

#	DN	Valid	Added	Actions	Actions
1	/C=BY/ST=Minsk/L=Minsk/O=-/OU=- /CN=*.home.andrew.by/emailAddress=alpha133@gmail.com	✗	2009-05-19 13:50:38	Edit	Delete
8	/C=BY/ST=Minsk/L=Minsk/O=-/OU=- /CN=*.home.andrew.by/emailAddress=alpha133@gmail.com	✓	2009-08-18 01:58:30	Edit	Delete

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Billing system

The screenshot shows a web browser window titled "UIIP Billing - ViewLog Statistics". The URL in the address bar is "http://uiipbilling/index.php/statistics/viewLog". The page header includes the "UIIP Billing" logo, a welcome message "Welcome, Sokol Andrei. [Logout](#)", and a navigation menu with links to Home, Statistics (which is highlighted in blue), Sites, Users, Certificates, and Prices.

The main content area is titled "Jobs log (2009-06)". It features a search/filter section with "By month" dropdown set to "Jul 2009" and a "View logs" button. Below this is a table with the following data:

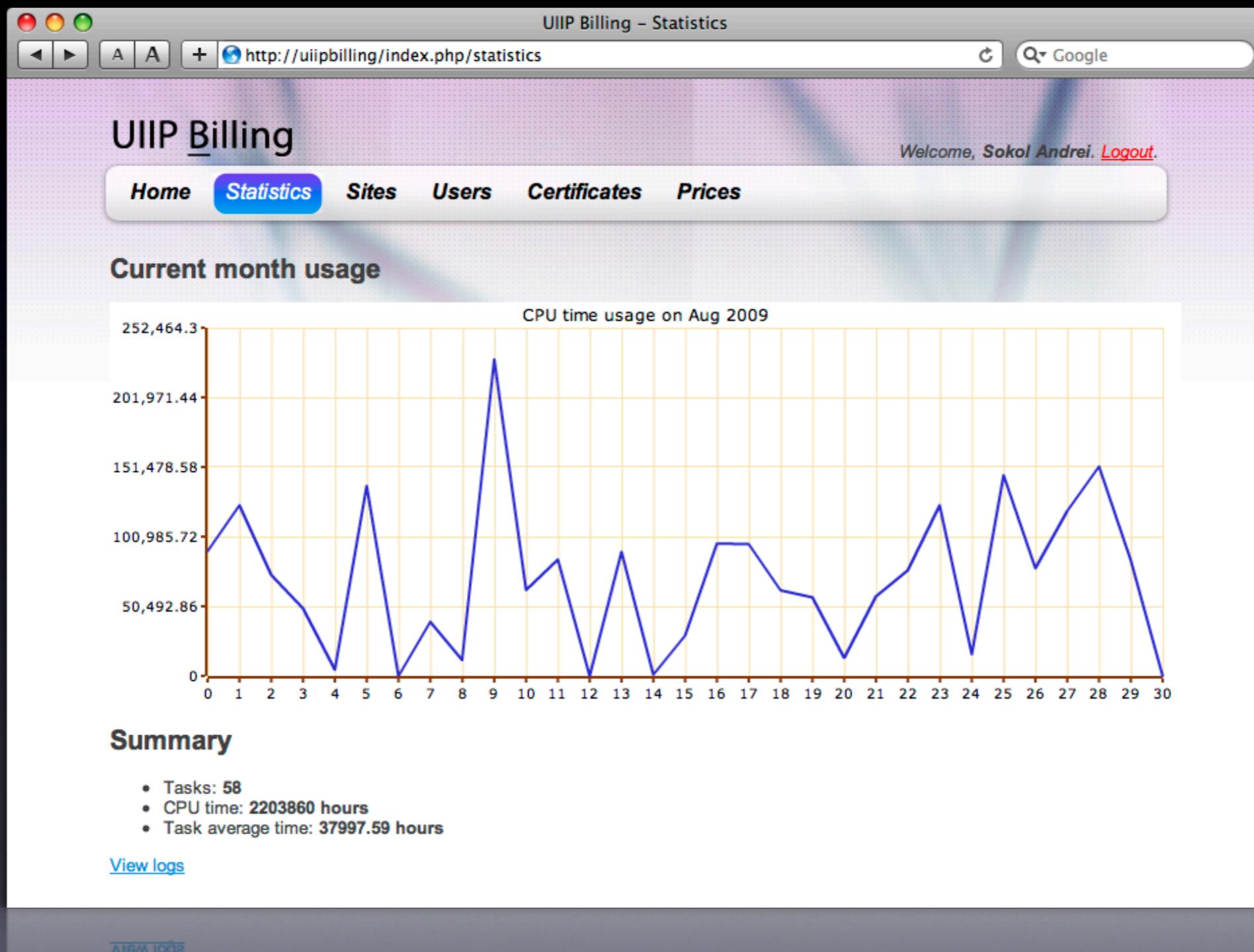
#	Site	Job #	Start time	CPU time	Nodes	Wait time	Price
2	Test site	PBS7345	2009-06-17 14:10:39	84965	4	3:58:55	764685
3	Test site	PBS7704	2009-06-28 10:59:28	31928	4	1:10:14	287352
5	Test site	PBS918	2009-06-07 13:16:09	28404	2	2:38:48	255636
6	Test site	PBS9725	2009-06-05 21:52:39	16023	3	1:28:13	144207
9	Test site	PBS20	2009-06-28 05:27:21	2744	1	3:43:16	24696
10	Test site	PBS6652	2009-06-18 13:01:17	93683	2	2:48:22	843147
11	Test site	PBS7074	2009-06-14 21:47:30	36565	4	3:58:36	329085
14	Test site	PBS541	2009-06-22 21:02:35	26234	4	1:51:45	236106
16	Test site	PBS4180	2009-06-26 11:13:23	95578	2	3:59:24	860202
19	Test site	PBS9048	2009-06-18 04:27:44	56966	2	2:20:30	512694
20	Test site	PBS1951	2009-06-04 20:16:50	21882	1	1:11:50	196938
22	Test site	PBS7597	2009-06-06 16:09:53	43063	4	1:55:52	387567

Summary

- Tasks: 41
- CPU time: 1918794 hours
- Task average time: 46799.85 hours
- Price: 17269146

19

Billing system



Billing system

UIIP Billing – Custom Prices

A A + http://uiipbilling/index.php/admin/prices/custom/id/1 Google

UIIP Billing

Welcome, Sokol Andrei. [Logout](#).

[Home](#) [Statistics](#) [Sites](#) [Users](#) [Certificates](#) [Prices](#)

Custom prices for LS-DYNA

Group-based prices

[+ Add group](#)

#	Group	Price		
34	United Institute of Informatics Problems	Free	Edit	Delete
58	Belarusian State University	3	Edit	Delete

User-based prices

[+ Add user](#)

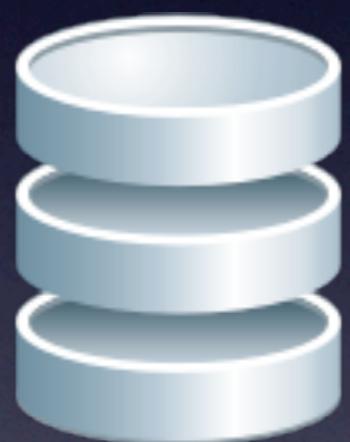
#	User	Price		
21	Ivan Petrov	10	Edit	Delete
43	Andrei Sokol	Free	Edit	Delete
85	Vladimir Putin	Free	Edit	Delete

Operating center

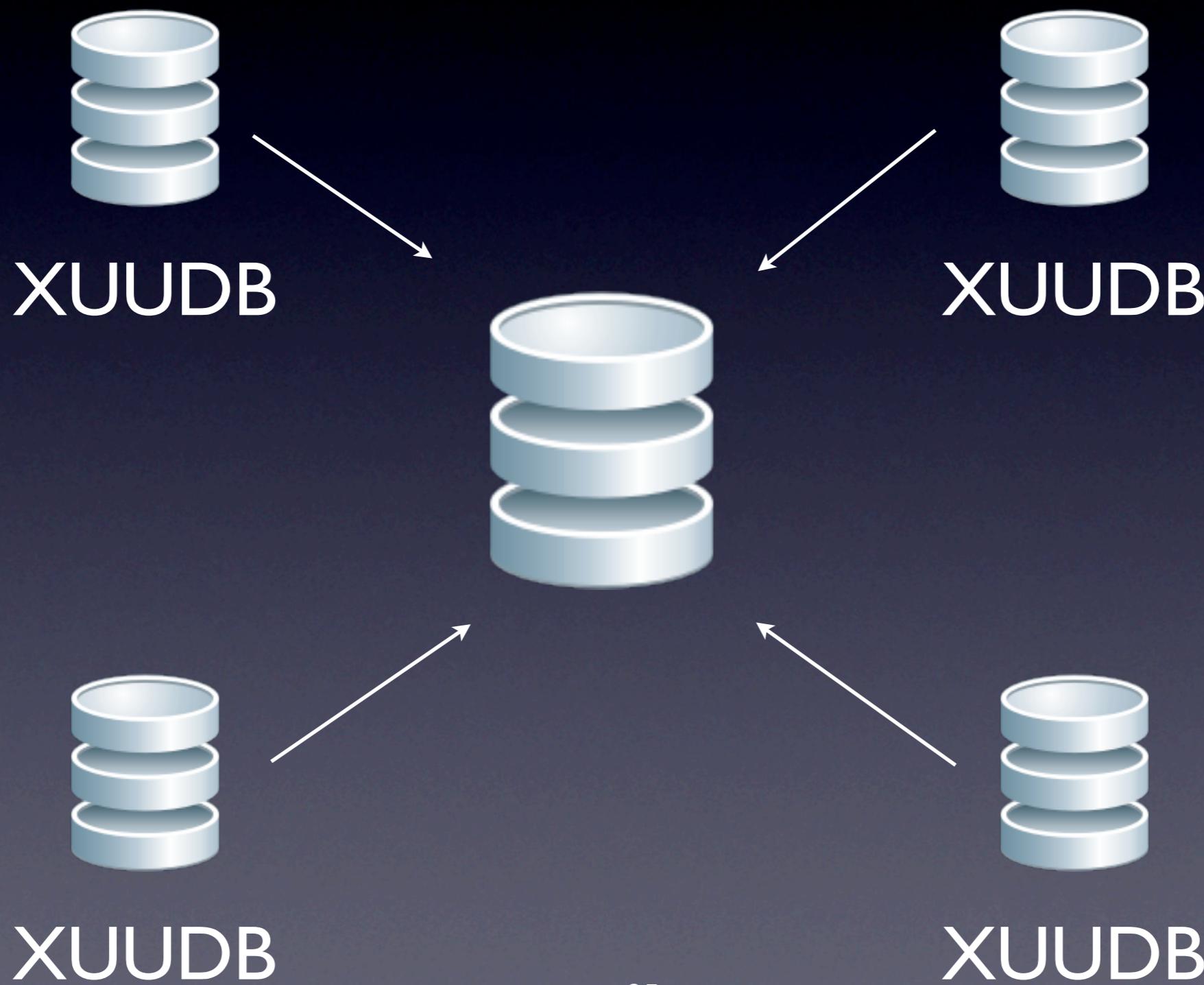
Operating center

- Web-site with rules, procedures, contacts
- FTP (UNICORE distrib, Linux mirrors)
- Monitoring and testing
- Users database, XUUDBs update service

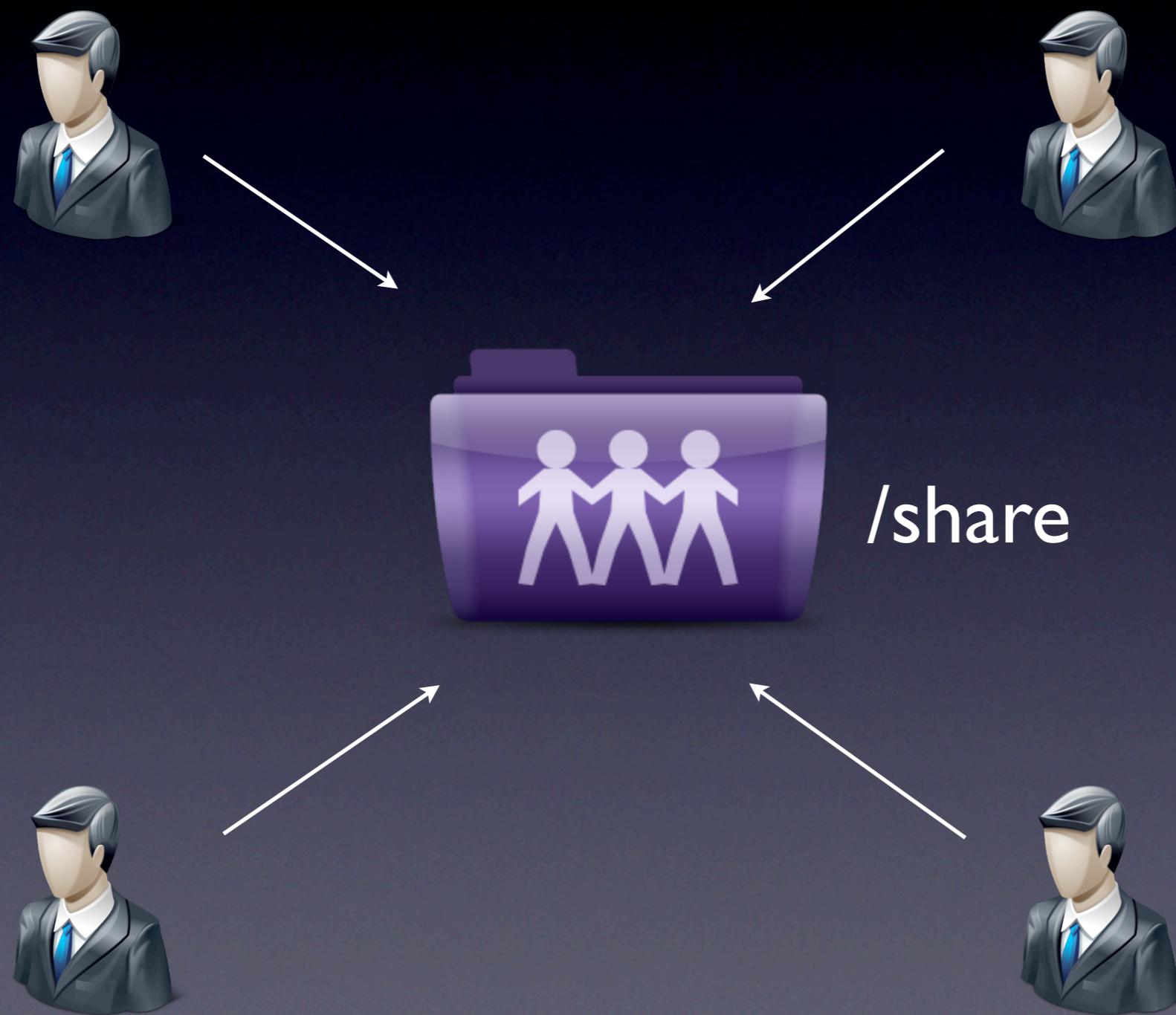
Operating center



Operating center



Operating center

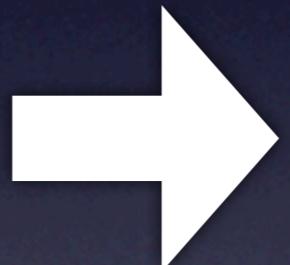


Perl TSI @Windows

Perl TSI @ Windows



Perl TSI



Torque

Cygwin

Distribution

Distribution

- all we need to get clusters and sites
- native packages
- customised CD images
- different tweaks

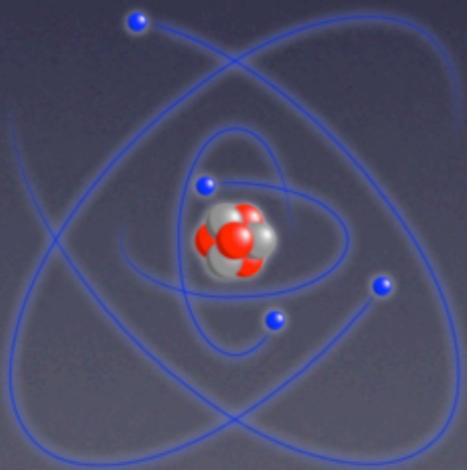
Distribution



Fedora 8 x86_64



Debian 4 x86_64



Scientific 4 x86



Windows XP x86

Distribution (Windows)

User level

UCC

Rich Client

Filemanager

Java

Services level

UNICORE core servers

Java

Cluster level

MPICH

MinGW & MSYS

Billing agent

Monitoring agent

Torque

Distribution (Linux)

User level

UCC

Rich Client

Filemanager

Java

Services level

UNICORE core servers

Java

Cluster level

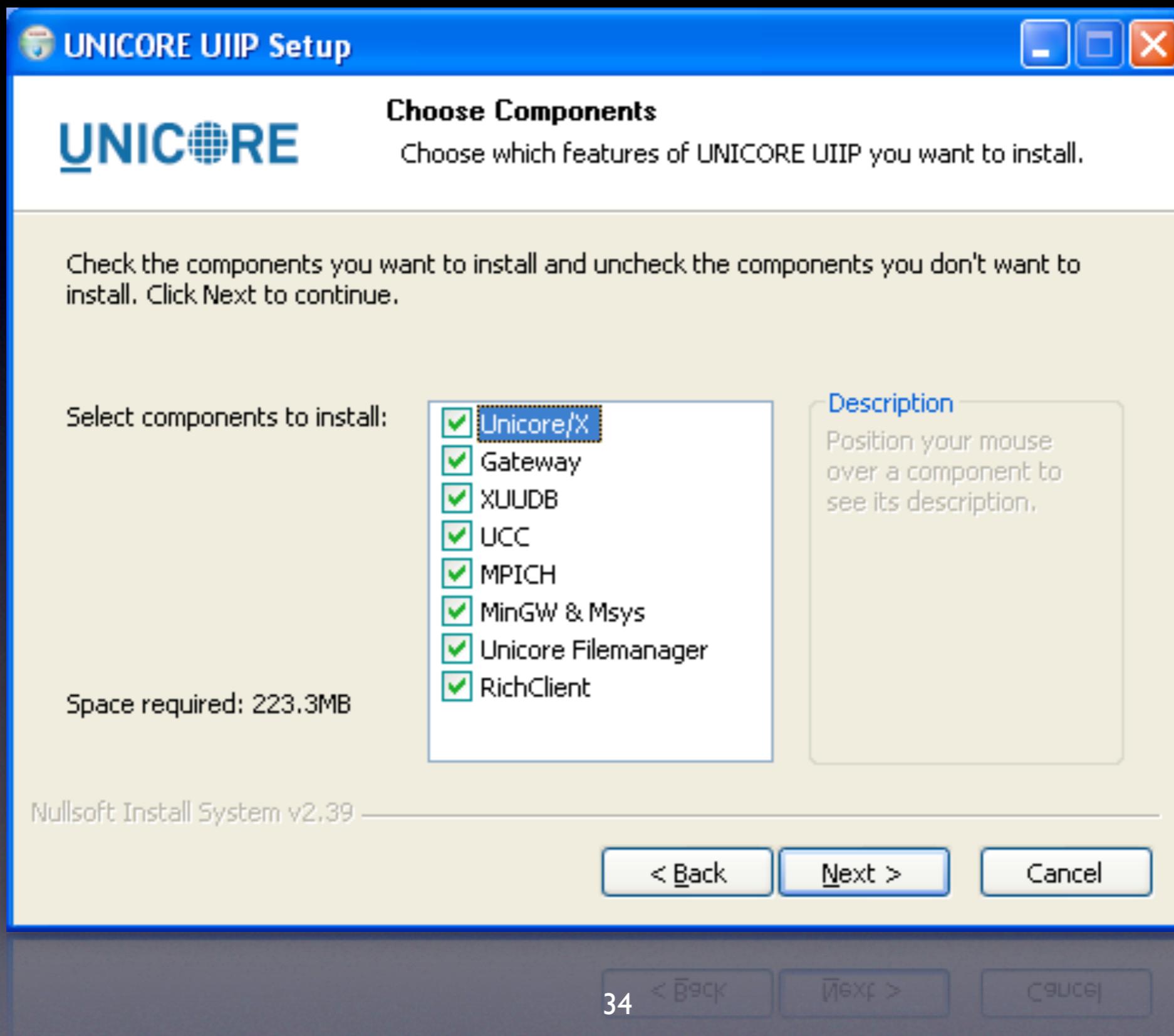
OpenMPI

Billing agent

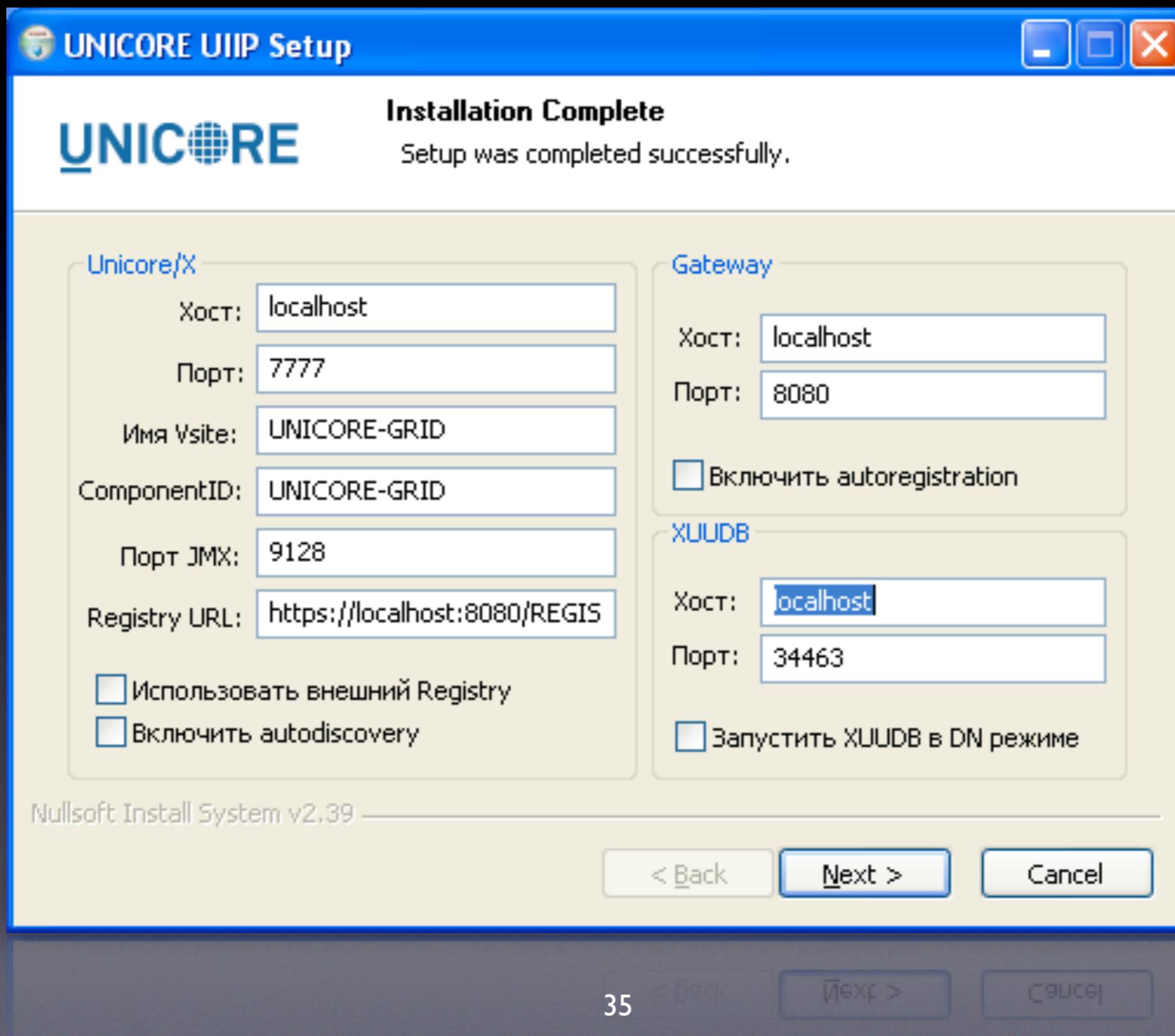
Monitoring agent

Torque

Distribution



Distribution



Distribution

```
C:\WINDOWS\system32\cmd.exe
Parsing config C:\Program Files\UnicoreUiip\xuadb/conf/xuadb_client.conf
Parsing config C:\Program Files\UnicoreUiip\xuadb/conf/logging.properties
Parsing config C:\Program Files\UnicoreUiip\xuadb/conf/client_logging.properties

Parsing config C:\Program Files\UnicoreUiip/adduser.bat
Parsing config C:\Program Files\UnicoreUiip/unicorex/conf/wsrfLite.xml
Parsing config C:\Program Files\UnicoreUiip/unicorex/conf/uas.config
Parsing config C:\Program Files\UnicoreUiip/unicorex/conf/xnjs.xml
Parsing config C:\Program Files\UnicoreUiip/unicorex/conf/simpleidb
Parsing config C:\Program Files\UnicoreUiip/unicorex/conf/simpleuadb
Parsing config C:\Program Files\UnicoreUiip/unicorex/conf/xacml.config
Parsing config C:\Program Files\UnicoreUiip/unicorex/conf/security_policy.xml
Parsing config C:\Program Files\UnicoreUiip/unicorex/conf/logging.properties
Parsing config C:\Program Files\UnicoreUiip/ucc/conf/preferences
Parsing wrapper in C:\Program Files\UnicoreUiip/gateway
Parsing wrapper in C:\Program Files\UnicoreUiip/xuadb
Parsing wrapper in C:\Program Files\UnicoreUiip/unicorex
wrapper | UNICORE 6 Gateway installed.
wrapper | UNICORE/X Server installed.
wrapper | UNICORE 6 XUADB installed.
"Starting UNICORE 6 services..."
The UNICORE 6 XUADB service is starting...
The UNICORE 6 XUADB service was started successfully.

The UNICORE 6 Gateway service is starting..
```

```
Любое использование материалов сайта является прямым нарушением авторских прав.
```

Distribution



Thank you!

<http://uiip.bas-net.by>

<http://grid.by>