

# Verzovací systém Subversion

Ladislav Prskavec  
[ladislav@prskavec.net](mailto:ladislav@prskavec.net)  
<http://blog.prskavec.net>  
Twitter: @abtris

# Obsah

## Den 1

- Verzovací systémy
- Instalace serveru
- Instalace klienta
- Administrace serveru
- Práce s klientem
- Migrace
- Doporučené postupy
- Integrace Subversion

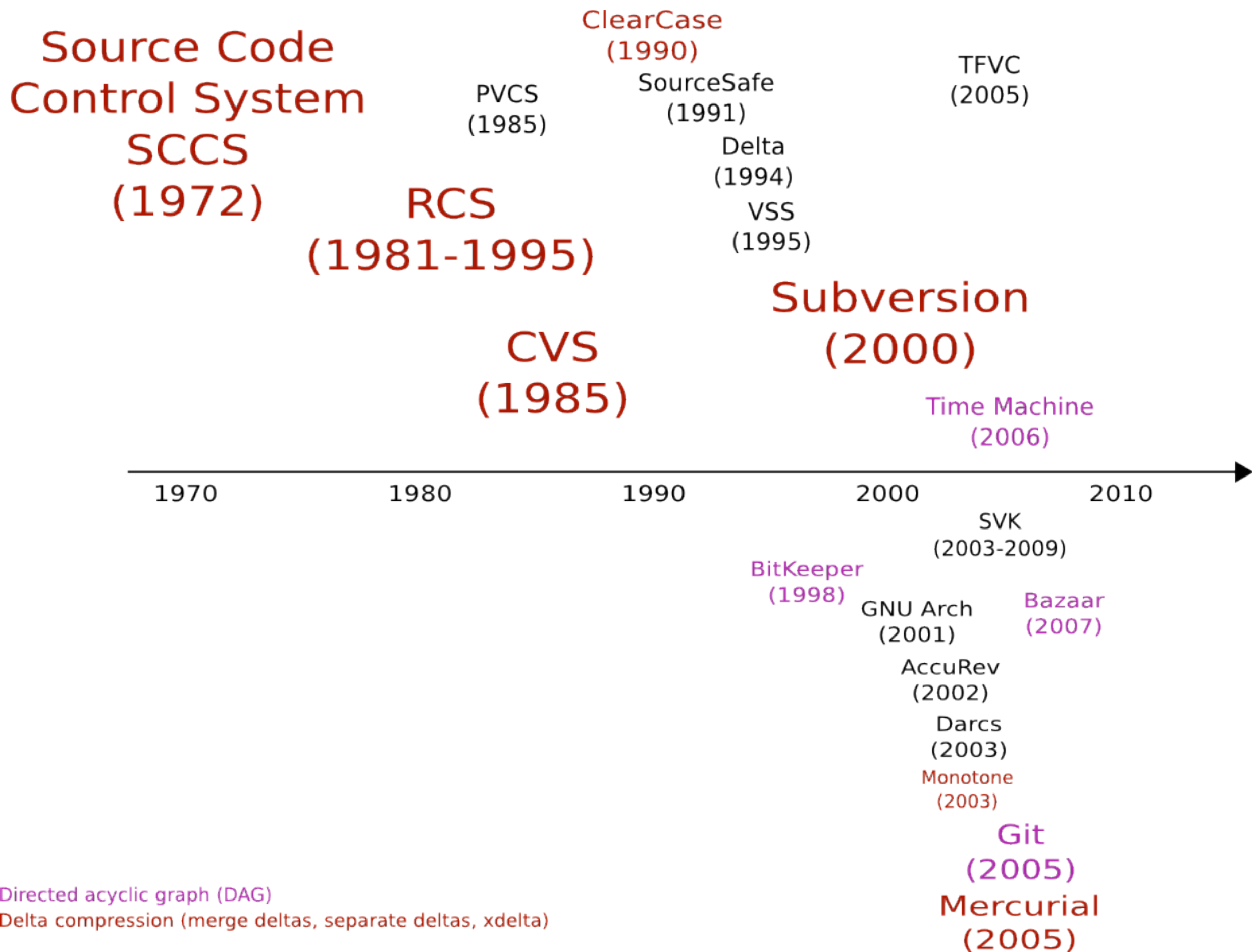
## Den 2

- Instalace Apache + SVN
- Hooks prakticky
- Backup a recovery
- XML log
- Synchronizace repository
- LDAP auth (optional)

# Verzovací systémy

- Historie verzovacích systémů
- Základní pojmy
- Architektura systému
- Úvod do systému Subversion



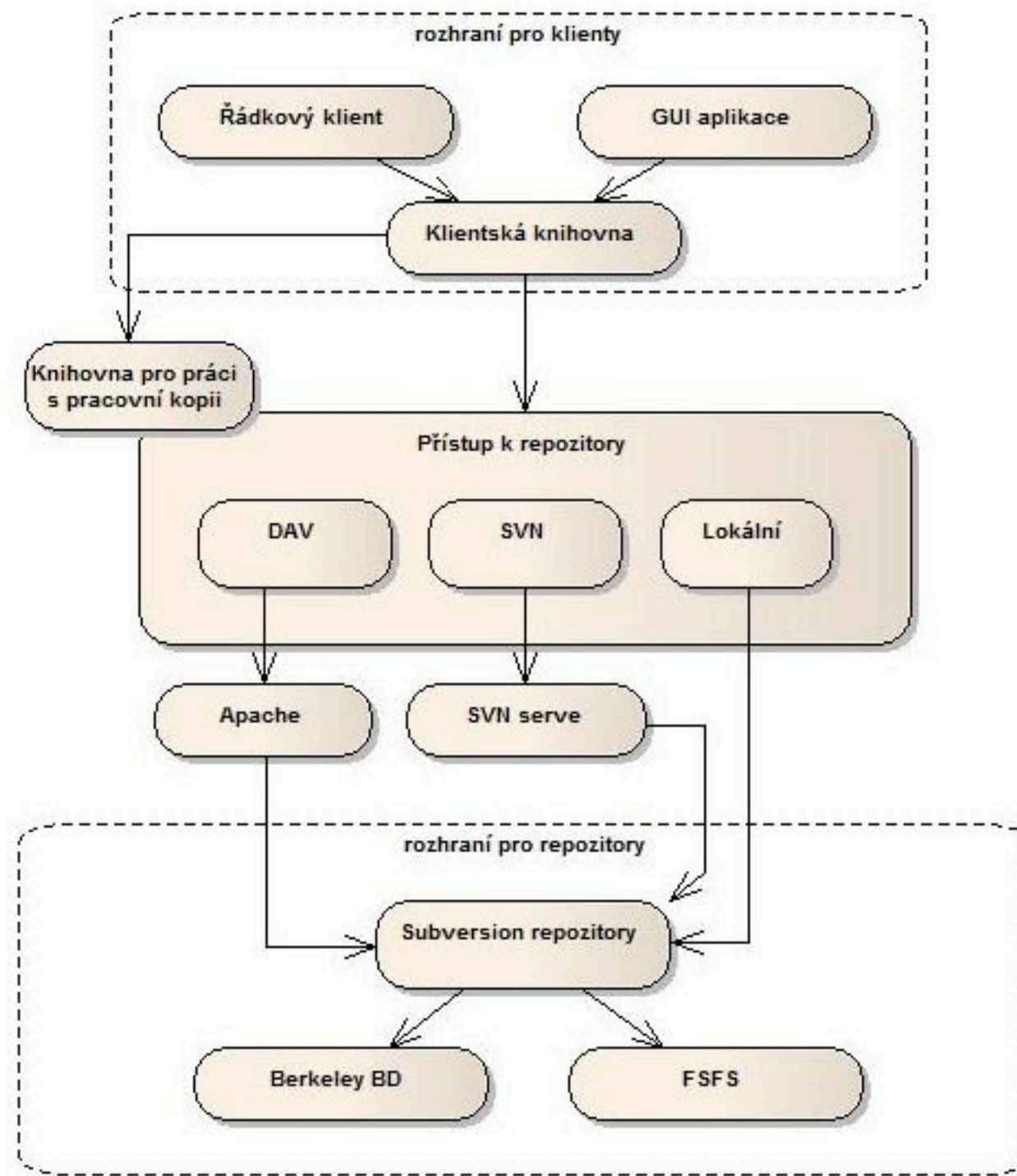


# Verze Subversion

- 1.5 a nižší - není již podporována
- **1.6.17 - aktuální stable verze (doporučuji)**
- 1.7.0-alpha1 - aktuálně alfa verze
  - Working Copy Metadata Storage Improvements (client)
  - Improved HTTP protocol usage (client and server)
  - New remote dumpfile tool: svnrdump (client) ¶
  - New feature: svn patch (client) ¶

# Základní pojmy

- Repository (repozitář, centrální úložiště)
- Branch (větev)
- Revision (revize)
- Pracovní kopie (working copy)
- Commit
- Konflikt



# Architektura



# Instalace klient & server



# Debian, Ubuntu

> apt-get install subversion

# Fedora, RedHat, CentOS

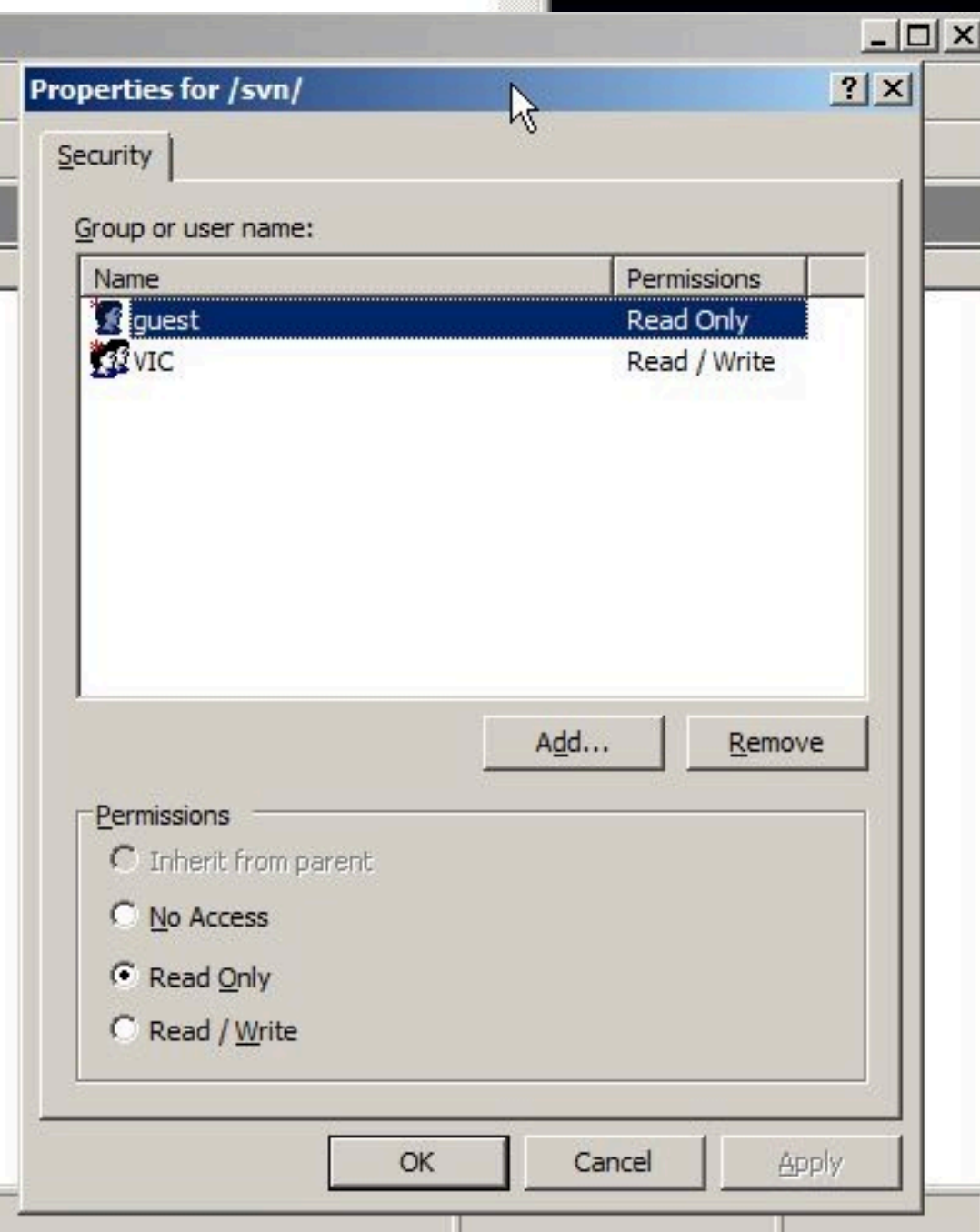
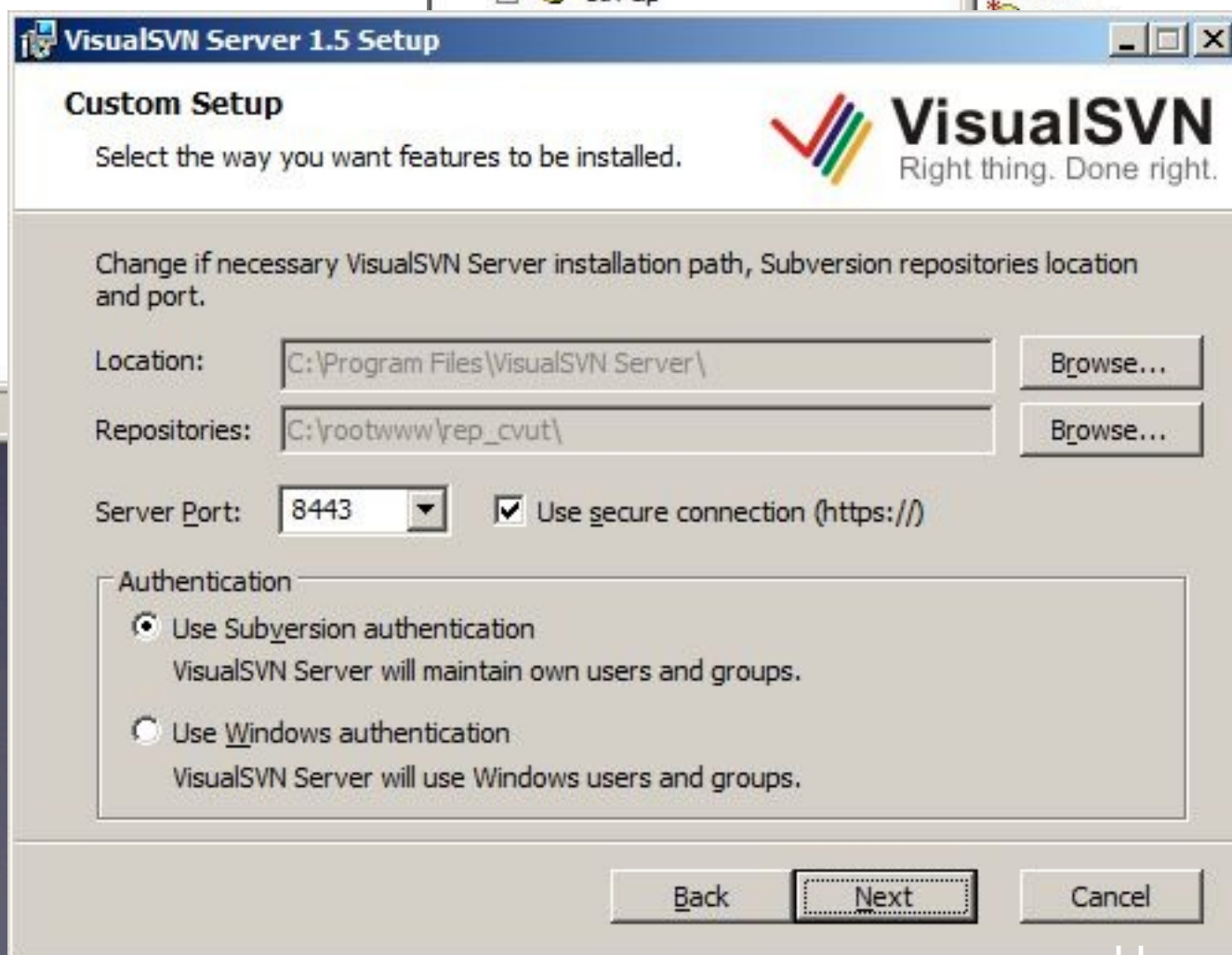
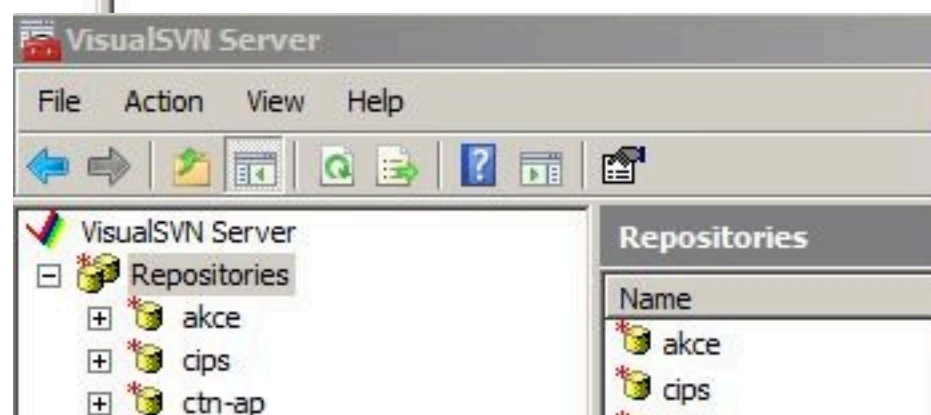
> yum install subversion

# Mac OS X

> port install subversion

# Windows server (VisualSVNServer)







# Windows client (TortoiseSVN)

Log Messages - C:\rootwww\wc\_cvut\akce

From: 1. 4.2008 To: 1. 7.2008

Revision	Actions	Author	Date	Ticket:	Me
270		xprskave	8:54:15, 1. července 2008		Ad
269		xprskave	15:14:49, 27. června 2008		Víc
268		xprskave	13:02:44, 27. června 2008		Fur
267		xprskave	11:16:07, 27. června 2008		SVI
266		xprskave	14:32:38, 26. června 2008		Up
265		xprskave	13:50:53, 26. června 2008		Phi
264		xprskave	16:25:51, 5. června 2008		Ad

https://localhost:8443/svn/akce - Repository Browser

URL: https://localhost:8443/svn/akce/trunk

https://localhost:8443/svn/akce

branches

r10

r15

tags

R2008

trunk

img

inc

libs

libs2

styl

templates

tests

upload

File

img

inc

libs

libs2

styl

templates

tests

upload

.htaccess

add.php

addevent.php

addgroup.php

adduser.php

auth.php

build.properties

build.xml

edituser.php

filter.php

CHANGELOG

convert.php

213

xprskave

18. 4. 2008

265

xprskave

26. 6. 2008

270

xprskave

1. 7. 2008 8

174

abtris

1. 4. 2008 1

89

abtris

80 bytes 30. 11. 2007

259

xprskave

1,01 KB 28. 5. 2008

260

xprskave

5,89 KB 3. 6. 2008 8

258

xprskave

1,10 KB 28. 5. 2008

258

xprskave

2,52 KB 28. 5. 2008

265

xprskave

1017 bytes 26. 6. 2008

268

xprskave

269 bytes 27. 6. 2008

270

xprskave

2,98 KB 1. 7. 2008 8

258

xprskave

2,68 KB 28. 5. 2008

258

xprskave

978 bytes 28. 5. 2008

270

xprskave

64,1 KB 1. 7. 2008 8

258

xprskave

2,73 KB 28. 5. 2008

OK

Cancel

Help

OK

Help

Showing 100

☒ Hide unre

☒ Stop on c

☐ Include m

Show

Ticket: 1

Úpravy 1

Action

Modified

Modified

Hint: Press F5 to refresh the selected subtree and Ctrl-F5 to load all children too



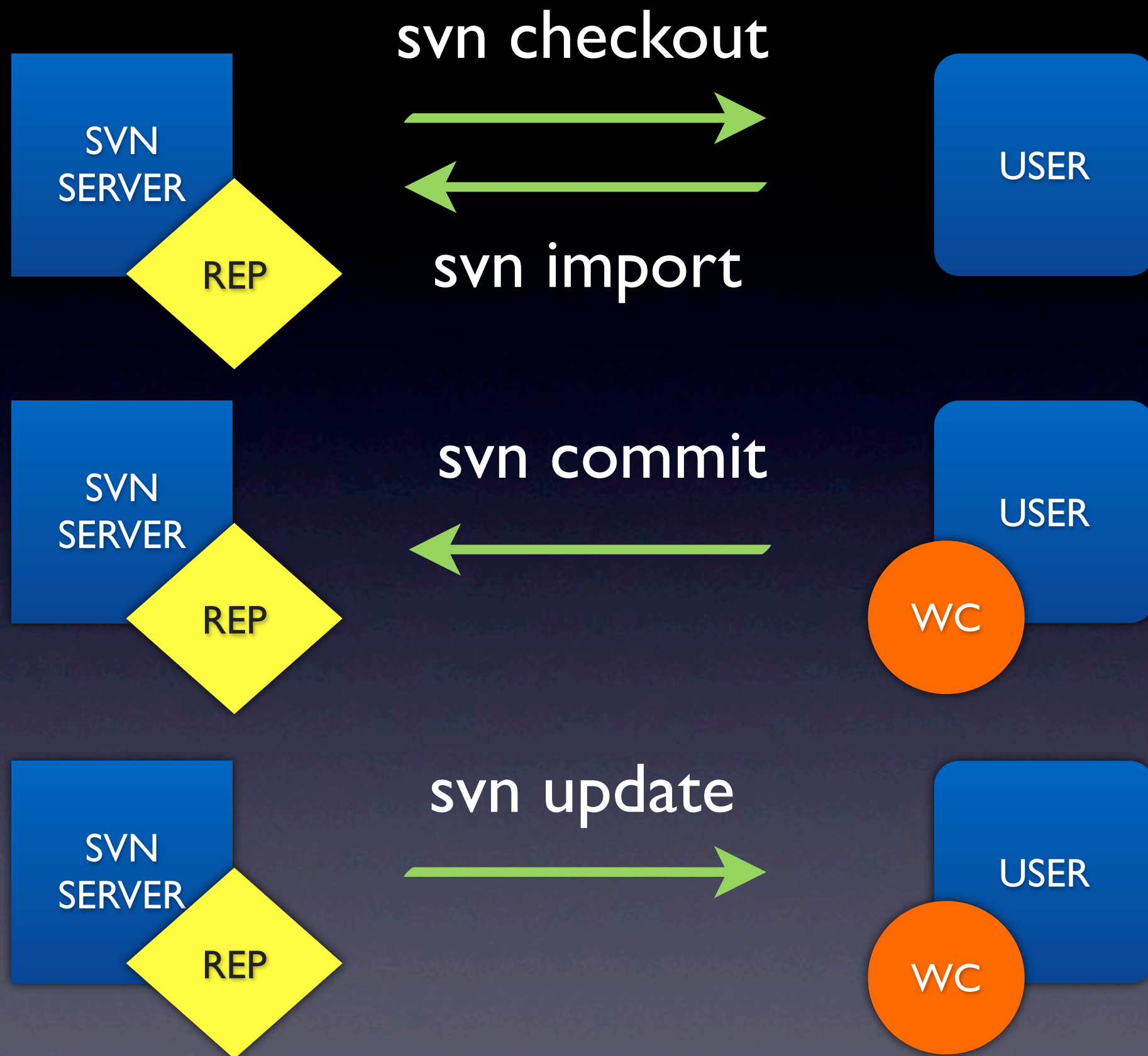
# DEMO



# Práce s klientem

# Úvod do systému Subversion

- svn checkout
- svn update
- svn commit
- svn log
- svn merge
- svn copy





# Diff & Patch

svn diff

soubor



hunk

změny



```
Index: README
```

```
=====
```

```
--- README      (revision 3)
```

```
+++ README      (working copy)
```

```
@@ -1,3 +1,2 @@
```

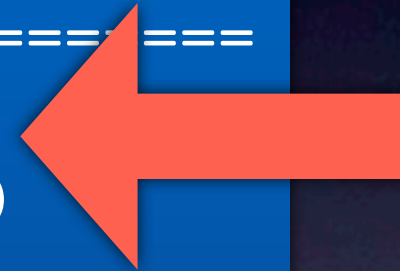
```
# README
```

```
-Pepa: neco jineho dela
```

```
-Eva: Udela neco
```

```
+Eva: Udela neco zase
```

revize



svn patch - v Subversion 1.7

# Revize

Číslo

0-XXXXXX

Datum

{2009-06-18 10:00}

Keyword

HEAD  
BASE  
COMMITTED  
PREV

# SVN URL

http://host/path

https://host/path

svn://host/path

svn+ssh://host/path

file:///path

file://localhost/path



# DEMO

# Vytvoření repository

```
cd /tmp  
mkdir wc repos  
svnadmin create /tmp/repos/test  
cd wc  
mkdir trunk tags branches  
svn import file:///tmp/repos/test
```

# URL = file:///tmp/repos/test

```
svn cat URL
svn list URL
svn copy URL
svn log URL
svn move URL
svn mkdir URL
svn info URL
svn delete URL
```

```
.
|-- README.txt
|-- conf
|   |-- authz
|   |-- passwd
|   `-- svnserve.conf
-- db
|   |-- current
|   |-- format
|   |-- fs-type
|   `-- fsfs.conf
...
|   |-- revprops
|   |-- revs
-- format
-- hooks
|   |-- post-commit.tmpl
|   |-- post-lock.tmpl
|   |-- post-revprop-change.tmpl
|   |-- post-unlock.tmpl
|   |-- pre-commit.tmpl
|   |-- pre-lock.tmpl
|   |-- pre-revprop-change.tmpl
|   |-- pre-unlock.tmpl
|   `-- start-commit.tmpl
`-- locks
    |-- db-logs.lock
    `-- db.lock
```

REP



# DEMO

# Subversion Properties

`svn:keywords`

`svn:author`

`svn:mime-type`

`svn:date`

`svn:log`

`svn:needs-lock`

`svn:mergeinfo`

`svn:eol-style`

`svn propdel`

`svn proplist`

`svn propedit`

`svn propset`

`svn propget`

příkazy pro práci s properties

# svn:ignore

```
svn propset svn:ignore -F .cvsignore .
```

```
svn status --no-ignore
```



# svn:keywords

- Date
- Revision
- Author
- HeadUrl
- Id

```
$Id: calc.c 148 2002-07-28 21:30:43Z sally $
```

# svn:externals

- Externí knihovny

před 1.5

```
$ svn propget svn:externals calc  
third-party/sounds http://sounds.red-bean.com/repos  
third-party/skins http://skins.red-bean.com/repositories/skinproj  
third-party/skins/toolkit -r21 http://svn.red-bean.com/repos/skin-maker
```

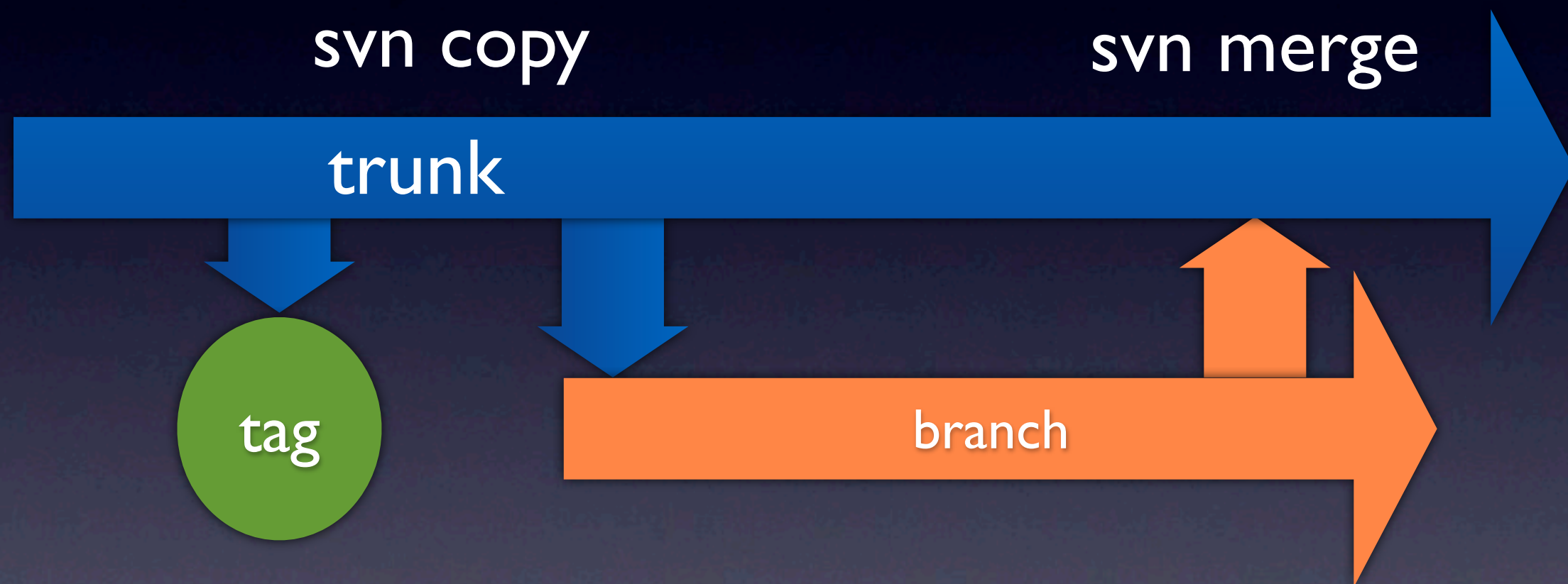
```
/svn/Shared/trunk/lib external/lib  
/svn/Shared/trunk/lib-tools external/lib-tools
```

Konfigurace  
pro 1.5 a výše

```
svn co $1 trunk  
svn propset svn:externals -F $2 trunk/  
cd trunk  
svn commit -m "Update svn:externals"  
cd ..  
svn propget svn:externals trunk/  
rm -Rf trunk/
```

externals.sh

# Větve a tagy



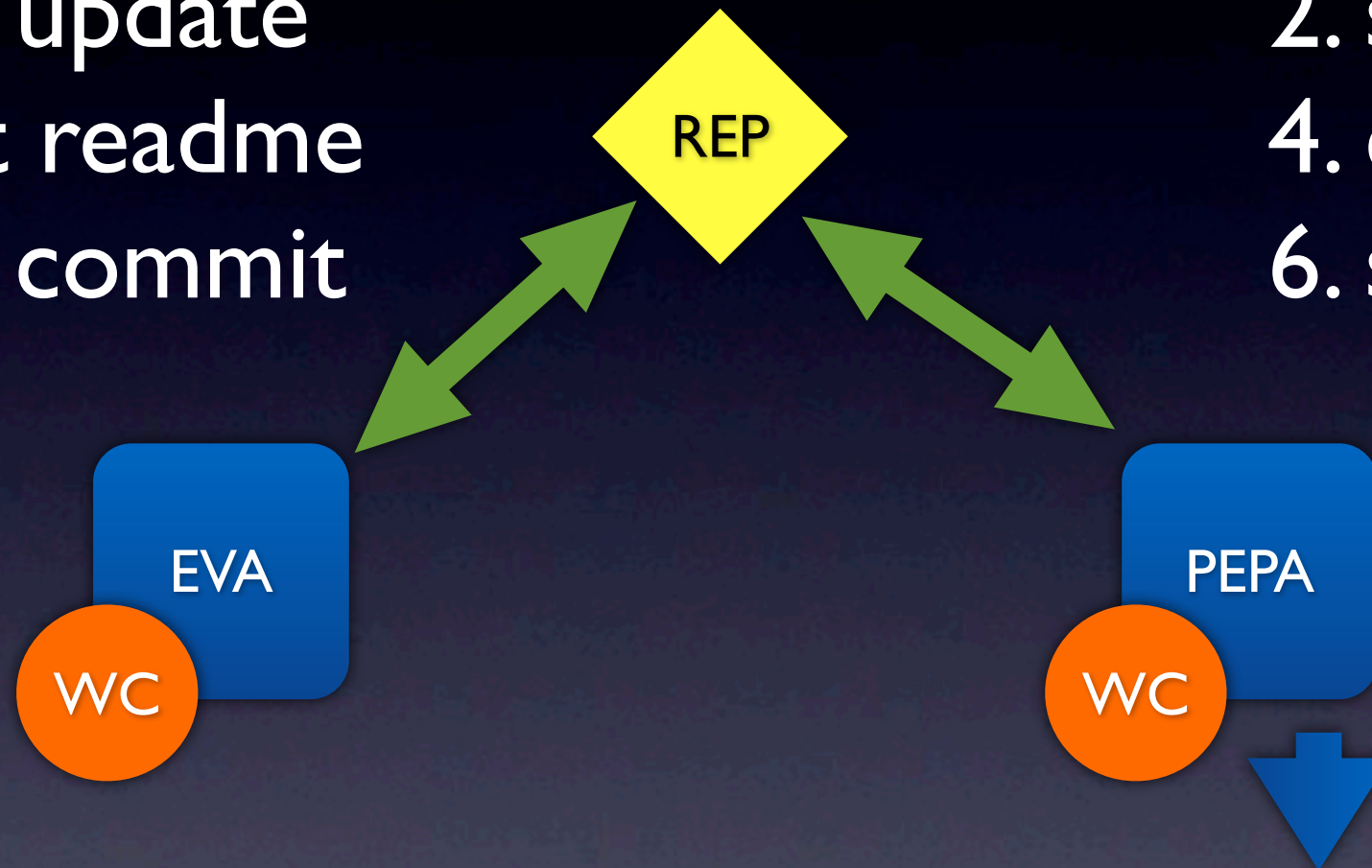


# DEMO

# Vznik konfliktu

1. svn update  
3. edit readme  
5. svn commit

2. svn update  
4. edit readme  
6. svn commit



```
Sending          README
svn: Commit failed (details follow):
svn: File '/README' is out of date
```

# Řešení konfliktu

PEPA

WC

## 7. svn update

Conflict discovered in 'README'.

Select: (p) postpone, (df) diff-full, (e) edit,  
(mc) mine-conflict, (tc) theirs-conflict,  
(s) show all options: e

## 8. edit

```
# README
<<<<<<< .mine
Pepa: neco jineho dela
=====
Eva: Udela neco
>>>>>>> .r2
```

## 10. commit

## 9. resolved

Select: (p) postpone, (df) diff-full, (e) edit, (r) resolved,  
(mc) mine-conflict, (tc) theirs-conflict,  
(s) show all options: r



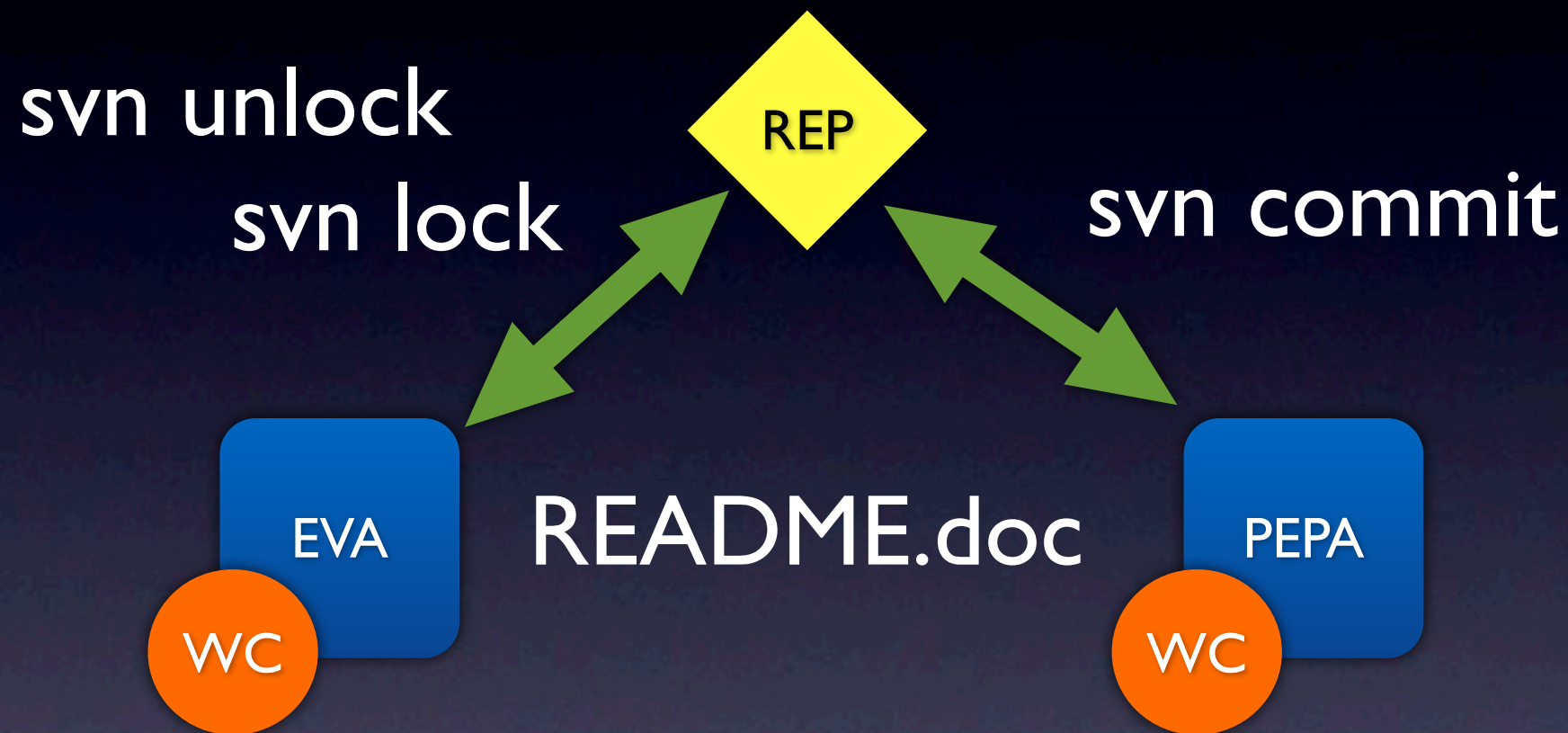
# Řešení konfliktů

Select: (p) postpone, (df) diff-full, (e) edit, (r) resolved,  
(mc) mine-conflict, (tc) theirs-conflict,  
(s) show all options: s

- |                       |  |
|-----------------------|--|
| (e) edit              | - change merged file in an editor                          |
| (df) diff-full        | - show all changes made to merged file                     |
| (r) resolved          | - accept merged version of file                            |
| (dc) display-conflict | - show all conflicts (ignoring merged version)             |
| (mc) mine-conflict    | - accept my version for all conflicts (same)               |
| (tc) theirs-conflict  | - accept their version for all conflicts (same)            |
| (mf) mine-full        | - accept my version of entire file<br>(even non-conflicts) |
| (tf) theirs-full      | - accept their version of entire file (same)               |
| (p) postpone          | - mark the conflict to be resolved later                   |
| (l) launch            | - launch external tool to resolve conflict                 |
| (s) show all          | - show this list   |

# DEMO

# Zamykání souborů



```
Transmitting file data .svn: Commit failed (details follow):  
svn: User root does not own lock on path '/README' (currently  
locked by prskavecl)
```

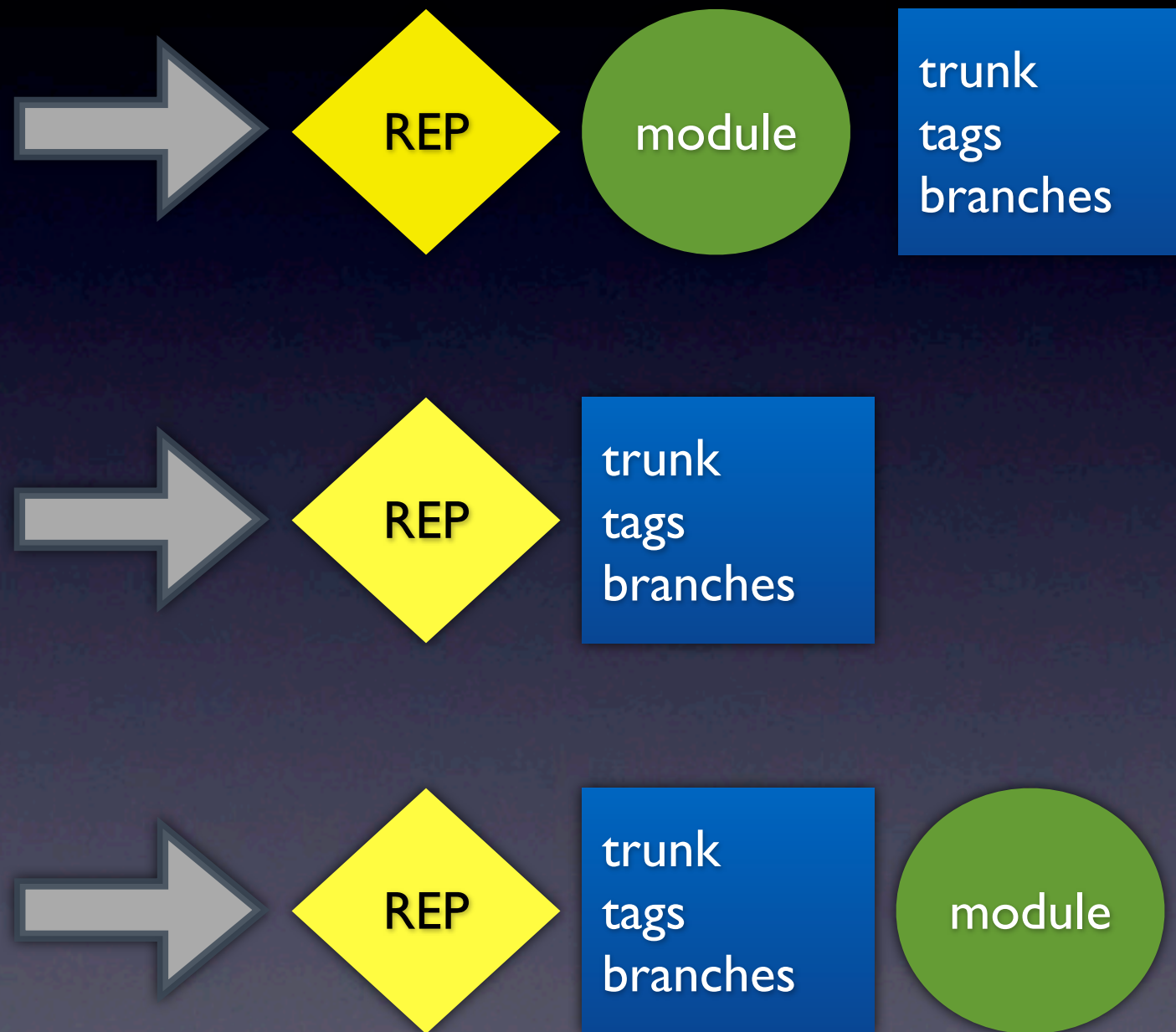


# Další příkazy

- *svn blame* - zjistíte kdo provedl poslední změnu
- *svn export* - zdrojové kódy bez .svn adresářů, lze dostat stav pro určitou revizi
- *svn cleanup* - vyčištění pracovní kopie
- *svn log* - úkazka (užitečný xml formát)

# Administrace serveru

# Struktura repository





# Repository UUID

- Kontrola uuid
  - svnlook uuid path
- Vytvoření nového uuid
  - svnadmin setuuid path
- Vytvoření repository se starým uuid
  - svnadmin setuuid path uuid

# Práce s svnadmin

- svnadmin create
- svnadmin dump
- svnadmin load
- svnadmin verify
- svnadmin hotcopy
- svnadmin pack
- svnadmin upgrade
- svnadmin lslock
- svnadmin rmlock
- svnadmin lstxns
- svnadmin rmtxns
- svnadmin setlog

# Hooks



lock, unlock, revprop-change, commit



# Práva pro přístup

- auth\_access file

```
[groups]
admins = pepa
devs = jara, pepa, iva
[/]
* = r

[sandbox:/]
@devs = rw

[production:/]
@adminins = rw
```

# Napojení na LDAP

- na úrovni Apache nebo PAM

```
<Location /svn/>
  DAV svn
  SVNParentPath /srv/svn
  SVNListParentPath on
#  SVNPathAuthz Off
  AuthBasicProvider ldap-alias
  AuthType Basic
  #on pro skupiny, off pro users
  AuthzLDAPAuthoritative off
  AuthName "Subversion repos over AD"
  AuthzSVNAccessFile /etc/opt/CollabNet_Subversion/conf/extra/.authz_access
  Require valid-user
  Satisfy any
</Location>
```

# Napojení na LDAP II

- Active Directory

```
<AuthnProviderAlias ldap ldap-alias>  
  AuthLDAPURL "ldap://host.ad.firma.cz:389/OU=FIRMA  
Users,DC=ad,DC=firma,DC=cz?sAMAccountName?sub?(objectClass=*)" NONE  
  AuthLDAPBindDN "alm@ad.firma.cz"  
  AuthLDAPBindPassword dfadsfsdfdsfds  
</AuthnProviderAlias>
```



# Migrate repository

- Uložení repository do souboru
  - `svnadmin dump repos >file`
- Nahrání repository ze souboru
  - `svnadmin load repos < file`
- Kontrola integrity repository
  - `svnadmin verify`

# DEMO

# Mirror pomocí svnsync

- Subversion 1.6.3 a více (funkce od 1.4)
- Inicializace
  - svnsync init
- Synchronizace
  - svnsync synchronize



# DEMO

# Migrace z jiného verzovacího systému

# Migrace

- snapshots
- s historií
- CVS, Git, jiné



# Snapshot z CVS

```
module_name = $1
module_name_svn = $2
cvs checkout ${module_name}
find . -depth -name 'CVS' -exec rm -rf '{}' \; -print
cd $module_name
svn import http://svn.server.cz/svn/${module_name_svn}/trunk \
  -m "Import from CVS"
cd ..
```

# Historie z CVS

- CVS to svn/git/hg/bzr
- cvs2svn.py - <http://cvs2svn.tigris.org/>
- Python 2.4 a vyšší

```
cvs2svn --svnrepos NEW_SVNREP CVSREPO
```

```
cvs2svn --dumpfile DUMPFILe CVSREPOS
```

# Z Gitu do SVN

- Vytvoření prázdného SVN repository
- Clonování Git repository
  - `git svn clone svn://path/to/repo/project --stdlayout`
  - `git remote add origin git://uri/to/git/repo/project.git`
  - `git fetch origin`
  - `git checkout -b old_master origin/master`
  - `git rebase --onto master --root`
  - `git svn dcommit`



# Doporučené postupy

# svnmerge.py

- Merge tracking support (i před 1.5)
- Development, release branches
- List revisions available for merging (revision numbers, logs, or diffs).
- Bidirectional merges

# Kdy zamykat a kdy ne!

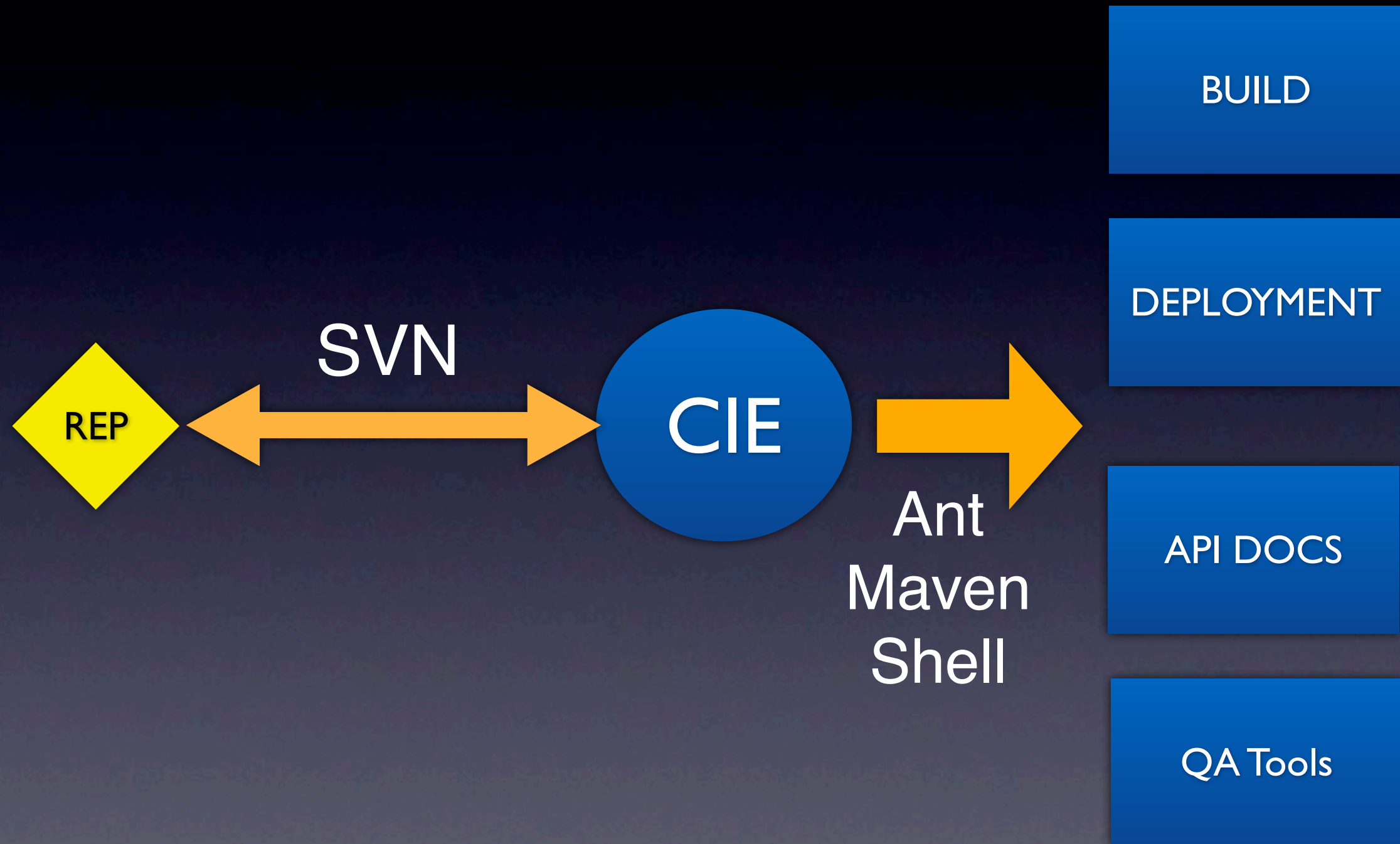
- binární soubory
- skladiště dokumentů
- pro programátory není většinou nutné



# Jak pracovat s commity

- message
- četnost
- pre-commit hook (kontrola syntaxe)
- post-commit hook (emaily)

# Continuous integration



# Integrace Subversion



# IDE Integrate

- Eclipse
  - Subversive, Subclipse
- Netbeans
- Komodo IDE
- JetBrains IDEA platform
- Visual Studio

# Další nástroje

- Webové rozhraní
  - ViewVC, ...
- Commit monitor
- StatSVN
- Generování changelogů pomocí svn2cl