

Verzovací systém Subversion

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Obsah

Den 1

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

Den 2

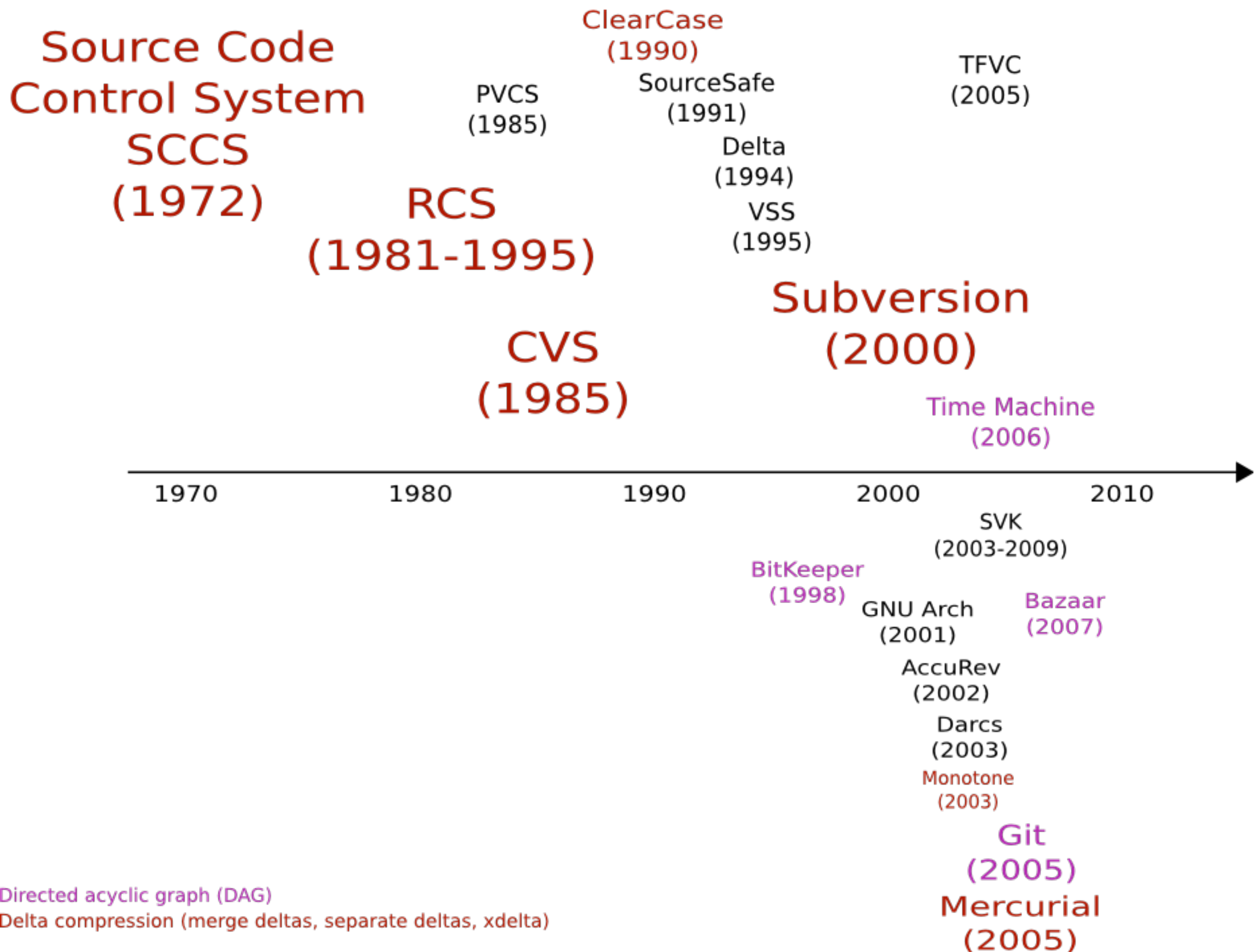
- Instalace Apache + SVN
- Hooks prakticky
- Backup a recovery
- XML log
- Synchronizace repository
- LDAP auth (optional)

Verzovací systémy

- K čemu potřebujeme verzovací systém
- Historie verzovacích systémů
- Základní pojmy
- Architektura systému
- Úvod do systému Subversion

K čemu potřebujeme verzovací systém

- záloha a obnova
- synchronizace
- undo
- sledování změn (co, kdo)
- sandbox

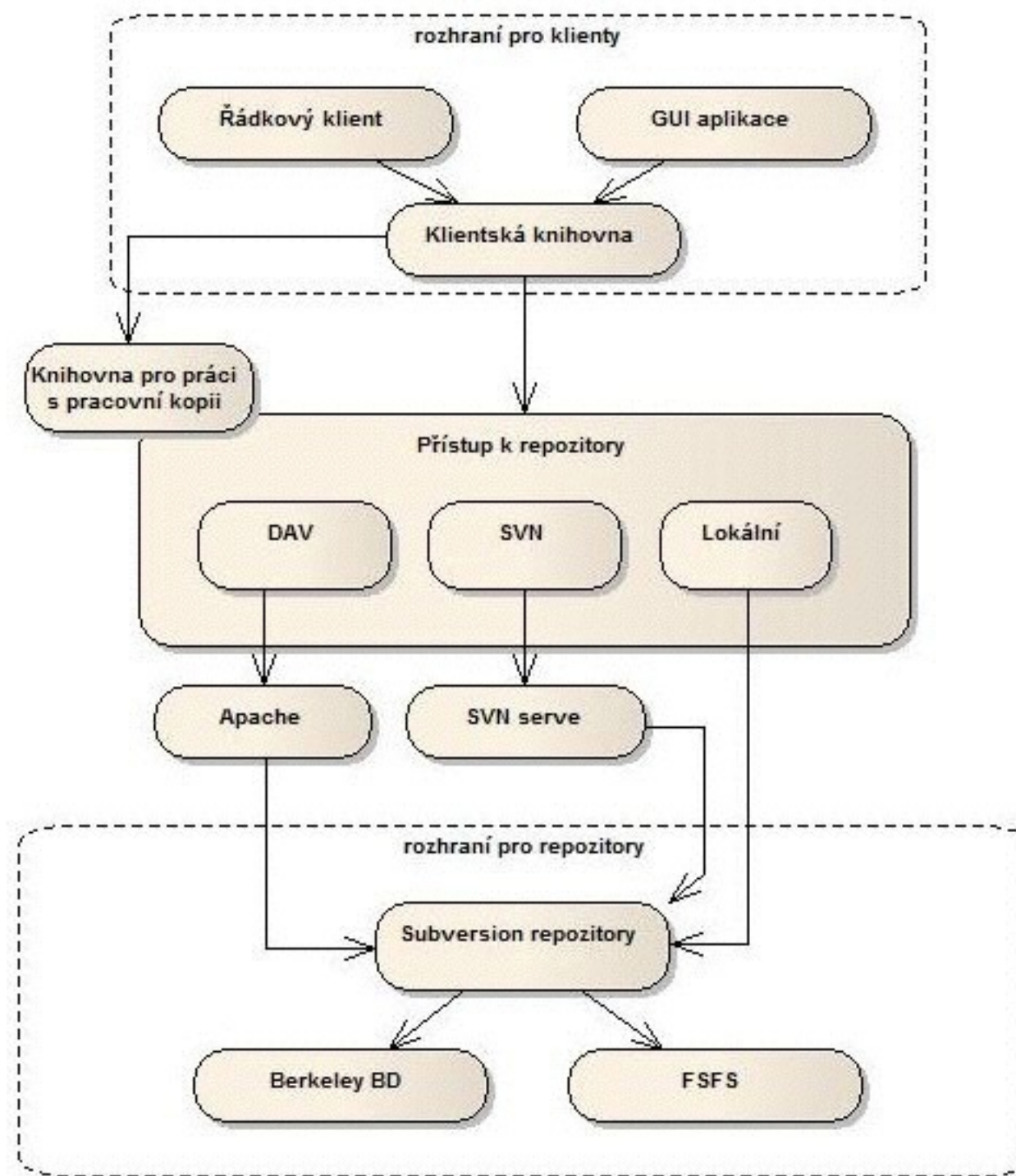


Verze Subversion

- **1.8.5 – aktuální verze (doporučená)**
- 1.7.14 – stable verze (podporovaná)
- 1.6 a nižší – není již podporována

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

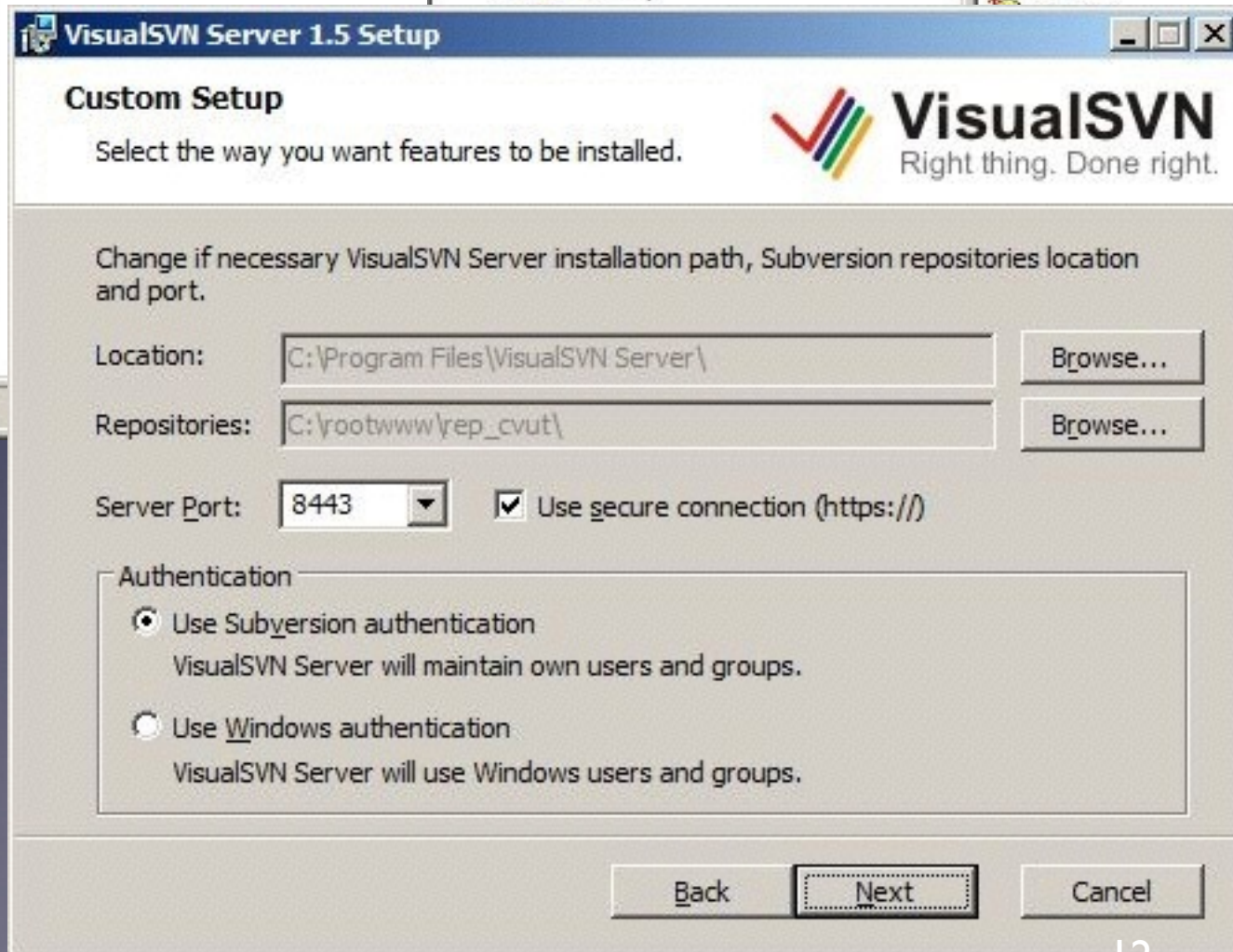
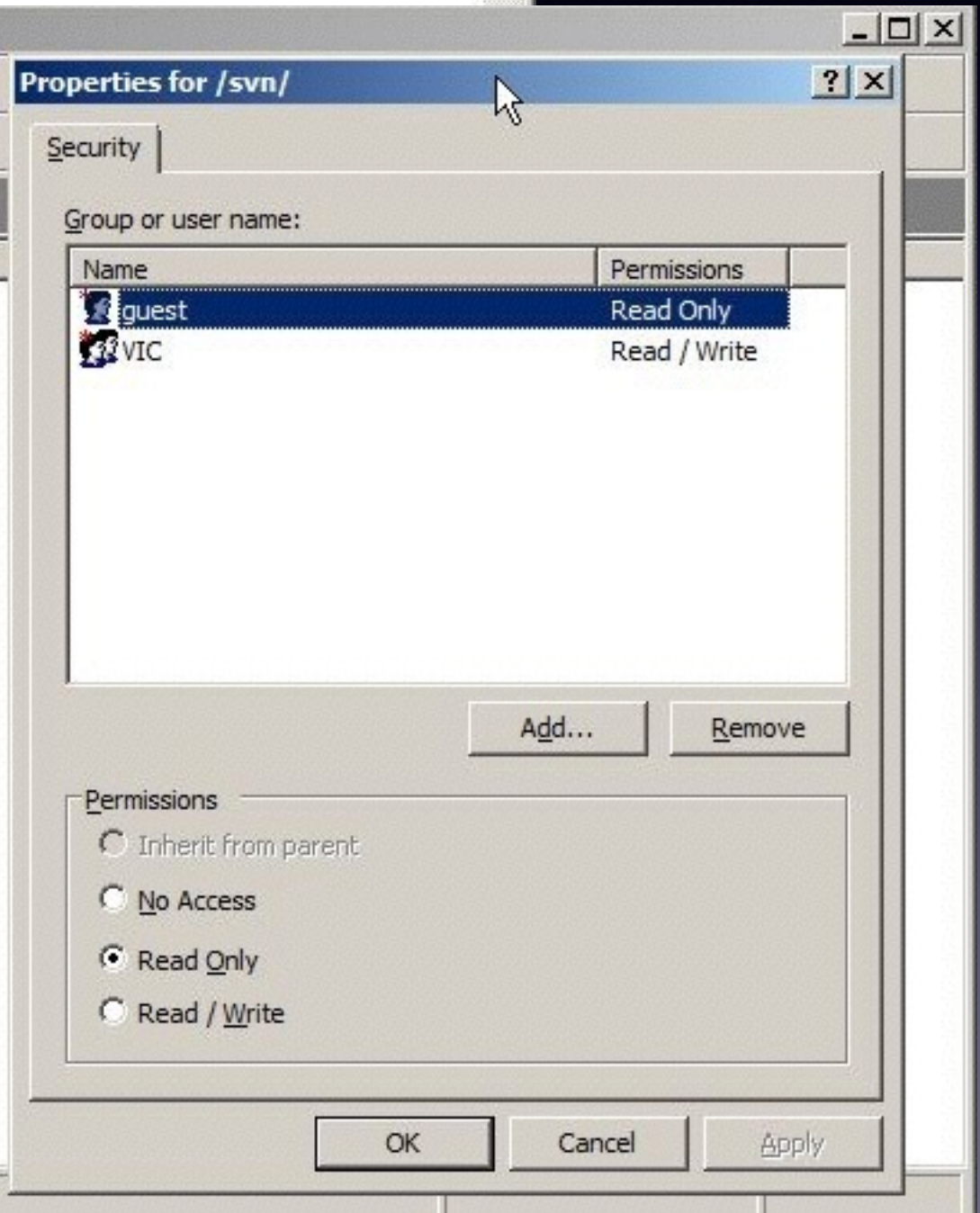
Fedora, RedHat, CentOS

> yum install subversion

Mac OS X

> brew 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

Ticket: 1

Úpravy 13

Action

Modified

Modified

Showing 100

☒ Hide unre
☒ Stop on c
☐ Include m

Show

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

OK

Help

Checkout

Repository

URL of repository:

file:///C:/rep/rep_test

Checkout directory:

C:\wc\test

Checkout Depth

Fully recursive

☐ Omit externals

Revision

☒ HEAD revision

☐ Revision

Show log

OK

Cancel

Help

| | | |
|-----|----------|----------------------|
| 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

Help

Statistics

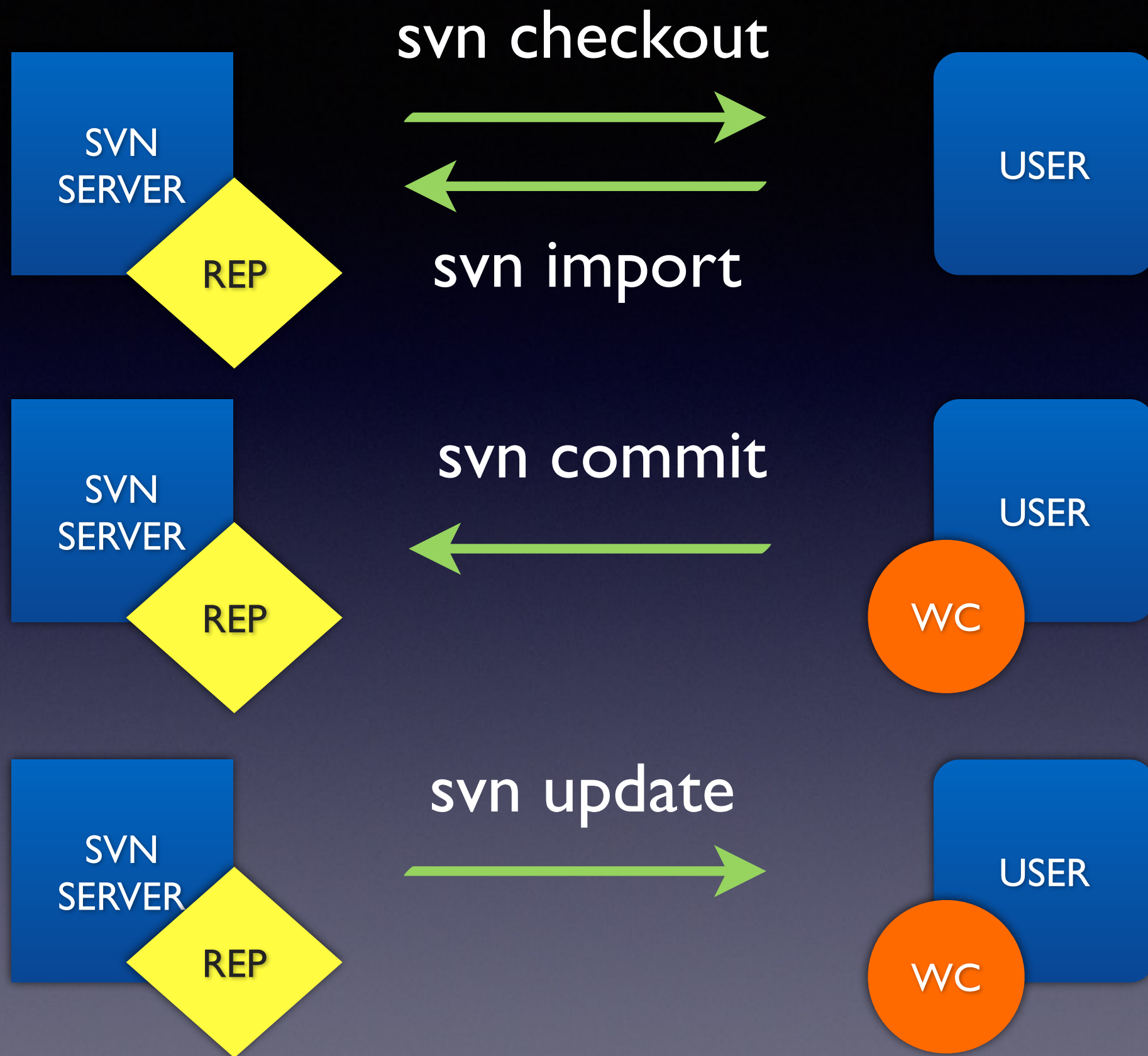
Help

OK

Práce s klientem

Úvod do systému Subversion

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



Diff & Patch

svn diff, svn patch (1.7)

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

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

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

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

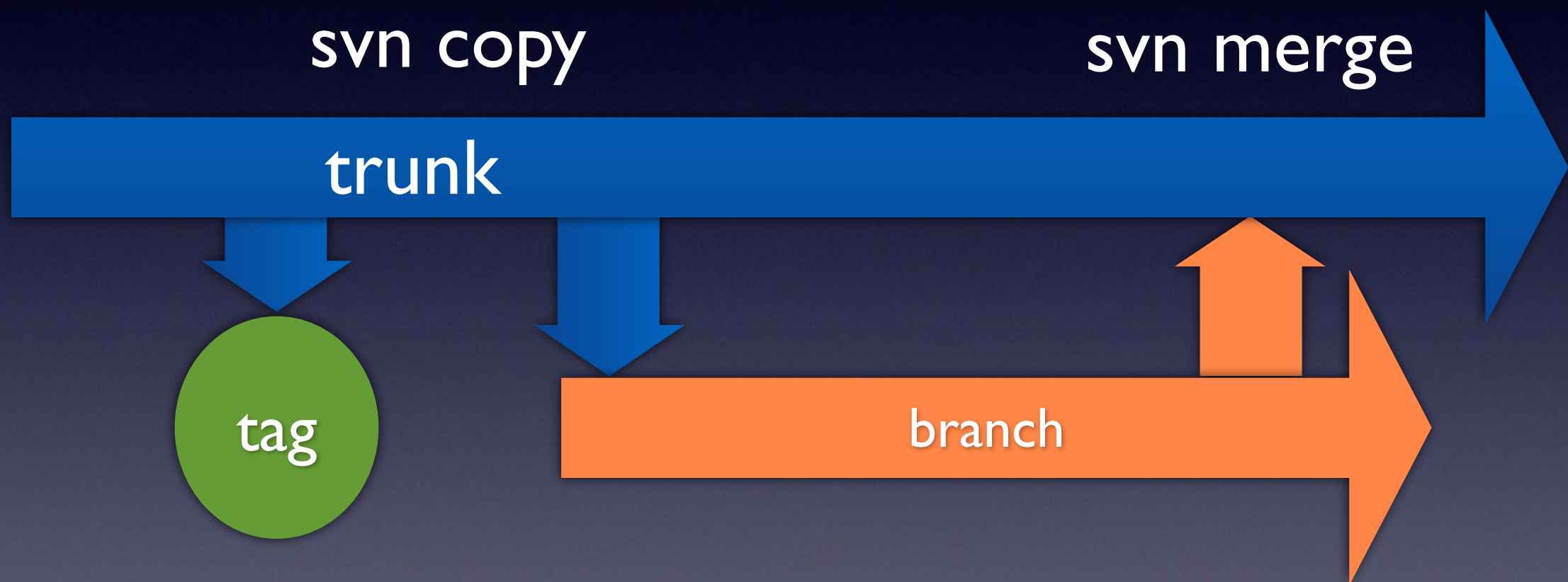
● Externí knihovny

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

```
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

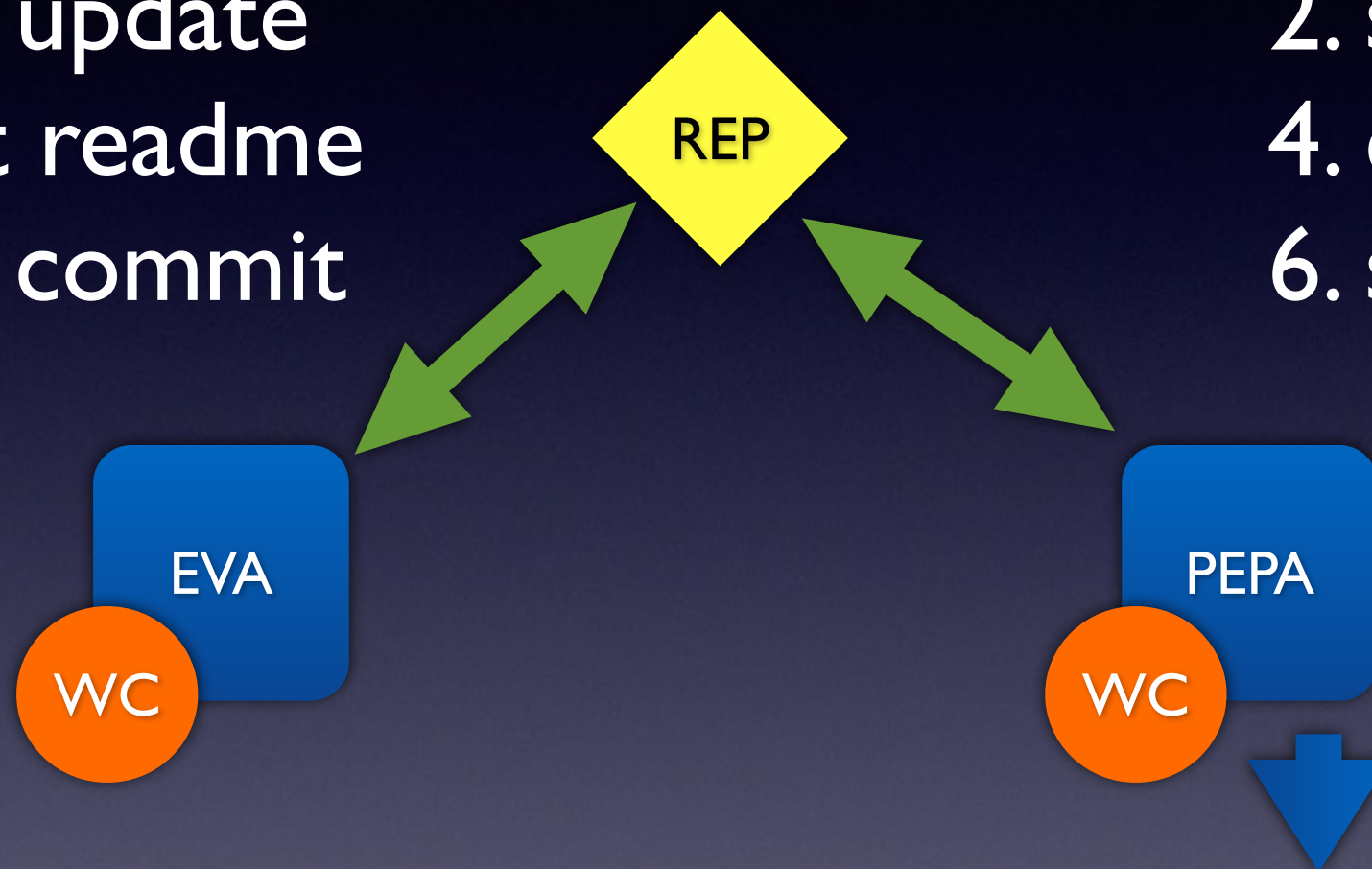
Větve a tagy



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

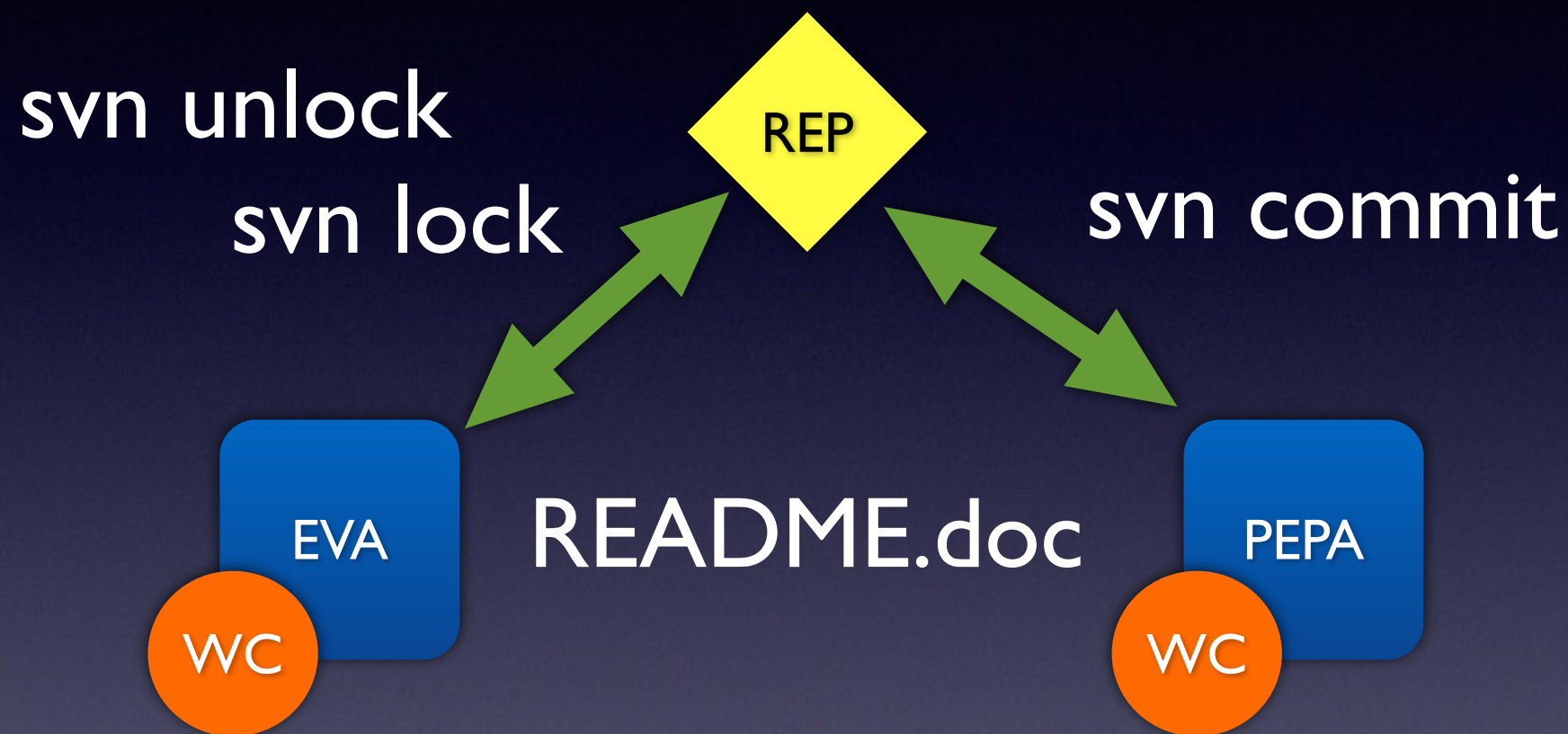
Select: (p) postpone, (df) diff-full, (e) edit, (r) resolved,
(mc) mine-conflict, (tc) theirs-conflict,
(s) show all options: r

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 (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 |

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 revert – zruší všechny lokální změny
- svn log – změny (verbose, xml mod)
- svn changelist – umožňuje dát dohromady změny co k sobě patří

svn changelist

```
$ svn changelist my-changelist mydir/dir1/file1.c mydir/  
dir2/myfile1.h
```

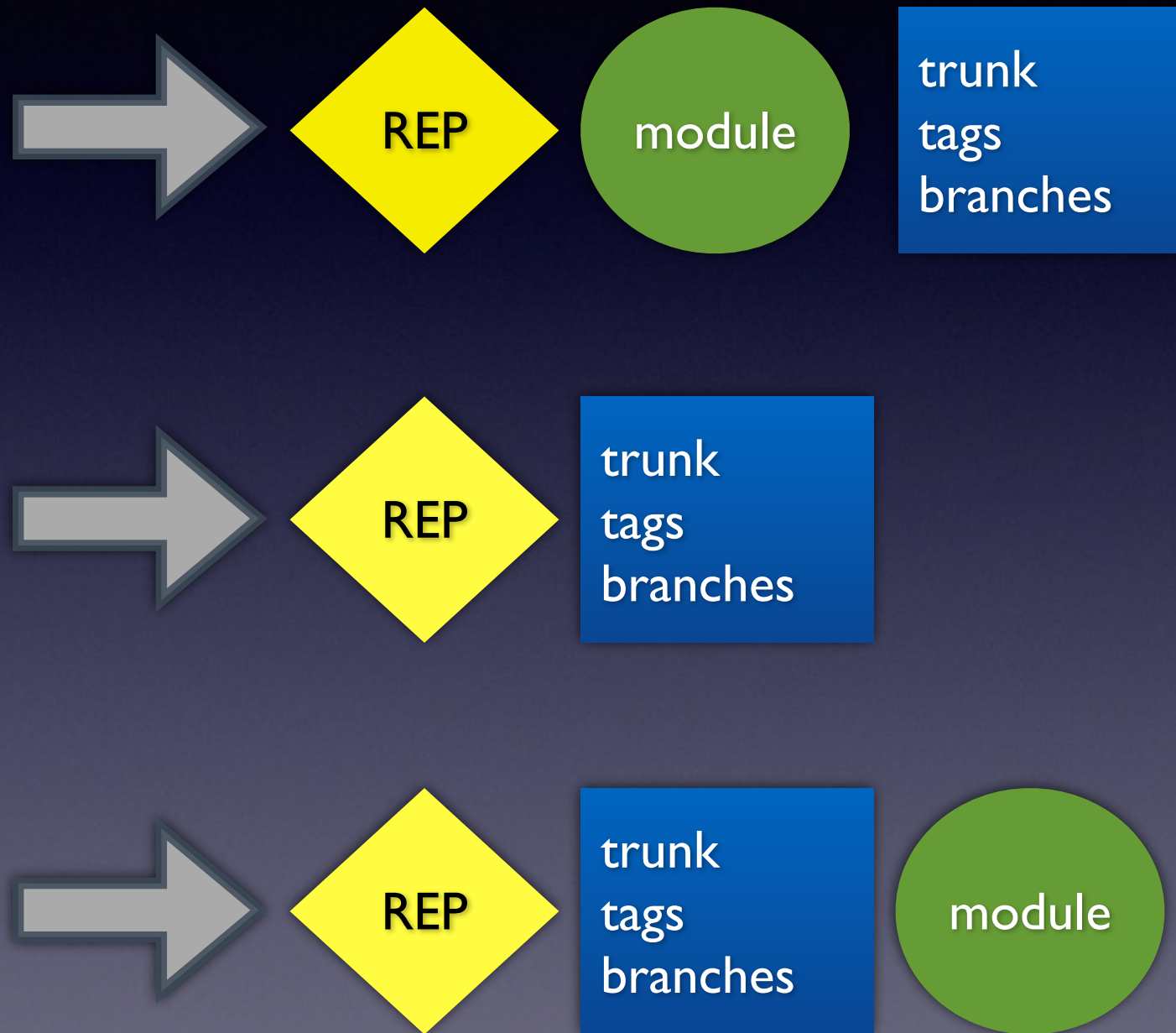
```
$ svn changelist my-changelist mydir/dir3/myfile3.c etc.
```

... (add all the files you want to commit together at
your own rate)

```
$ svn commit -m"log msg" --changelist my-changelist
```


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

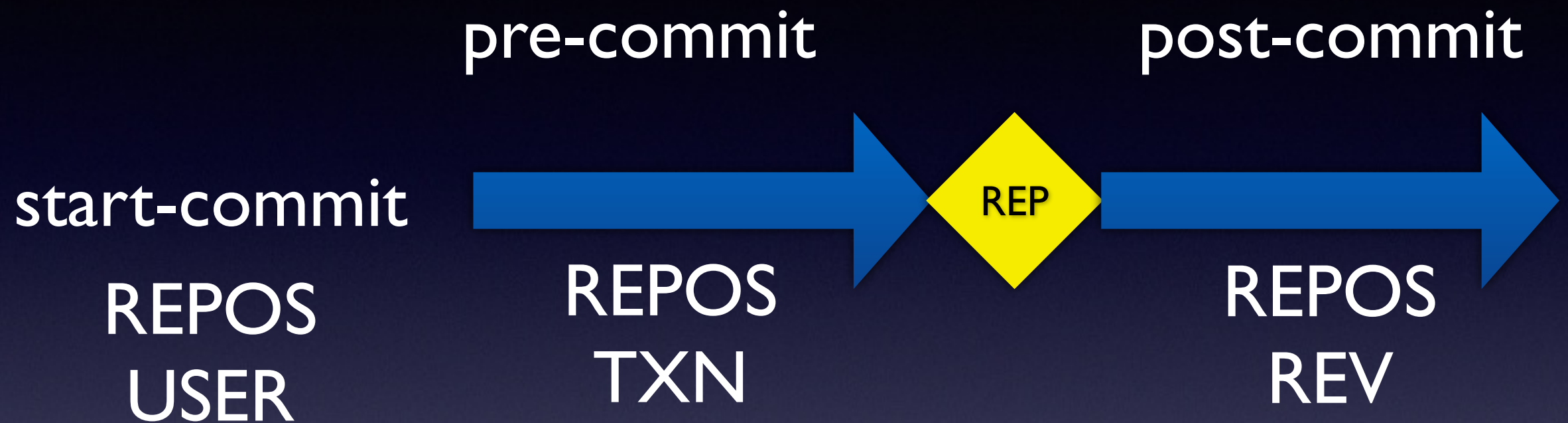
Práce s svnadmin

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

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:/]
@admins = 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 usery
  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`
 - `svnr_dump` (od 1.7)
- Nahrání repository ze souboru
 - `svnadmin load repos < file`
- Kontrola integrity repository
 - `svnadmin verify`

Mirror pomocí svnsync

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

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

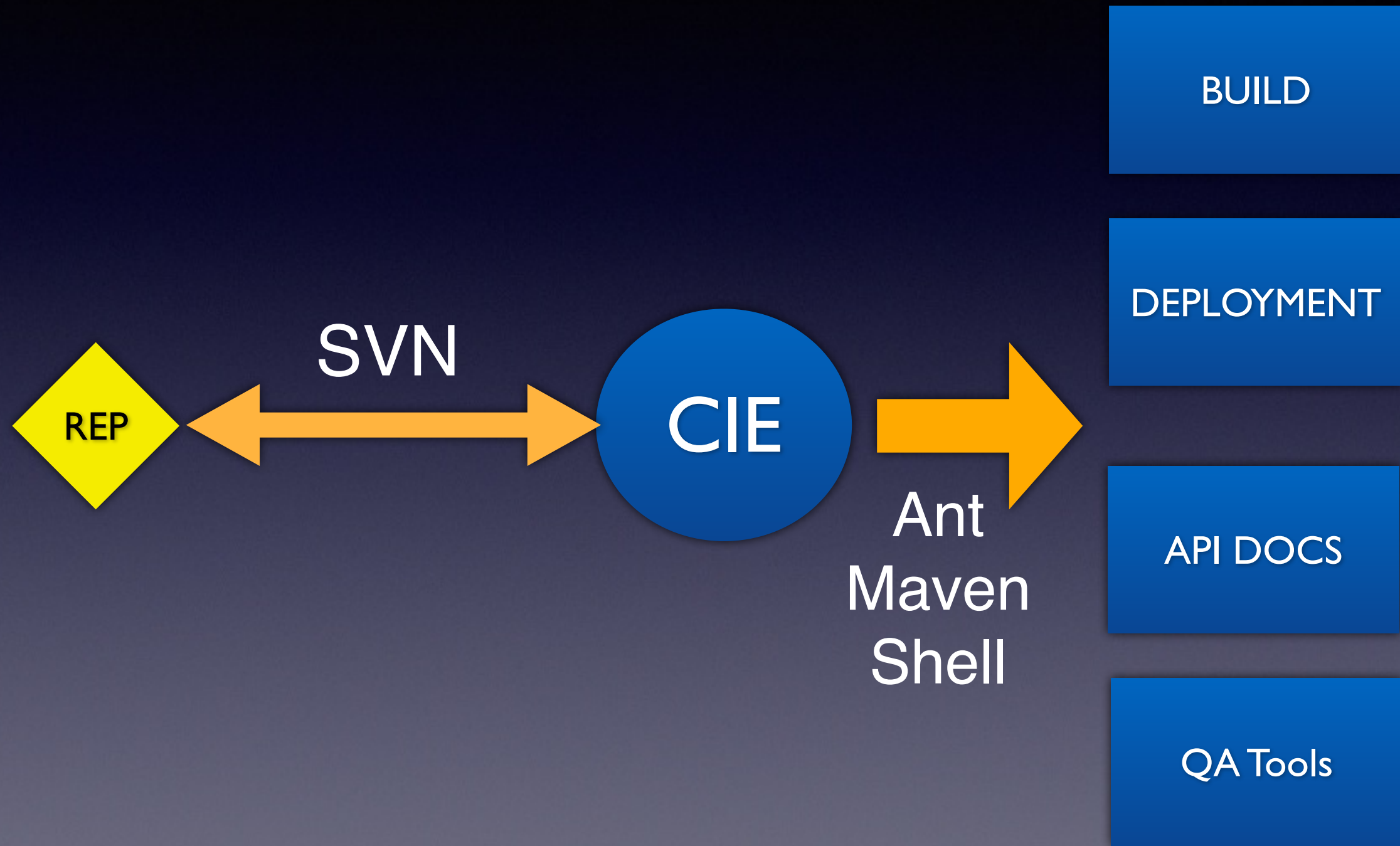
Kdy zamykat a kdy ne!

- 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



IDE Integrace

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

Další nástroje

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