

# **DabaweGNU, Inc. Linux at Kape Session**

## **Introduction to Version Control Systems**

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# Version Control System Benefits

- Organize/Audit changes of your source code;
- Work with developers on the same project;
- Capability of having mobile programmers.

# Jargons

**Project** — an application or module

**Repository** — project source code storage;

**Branching** — creating copy of a project for developmental testing purposes;

**Merging** — combining changes of one branch to another branch;

**Working copy** — local/checkout copy of the project source code that a programmer can modify;

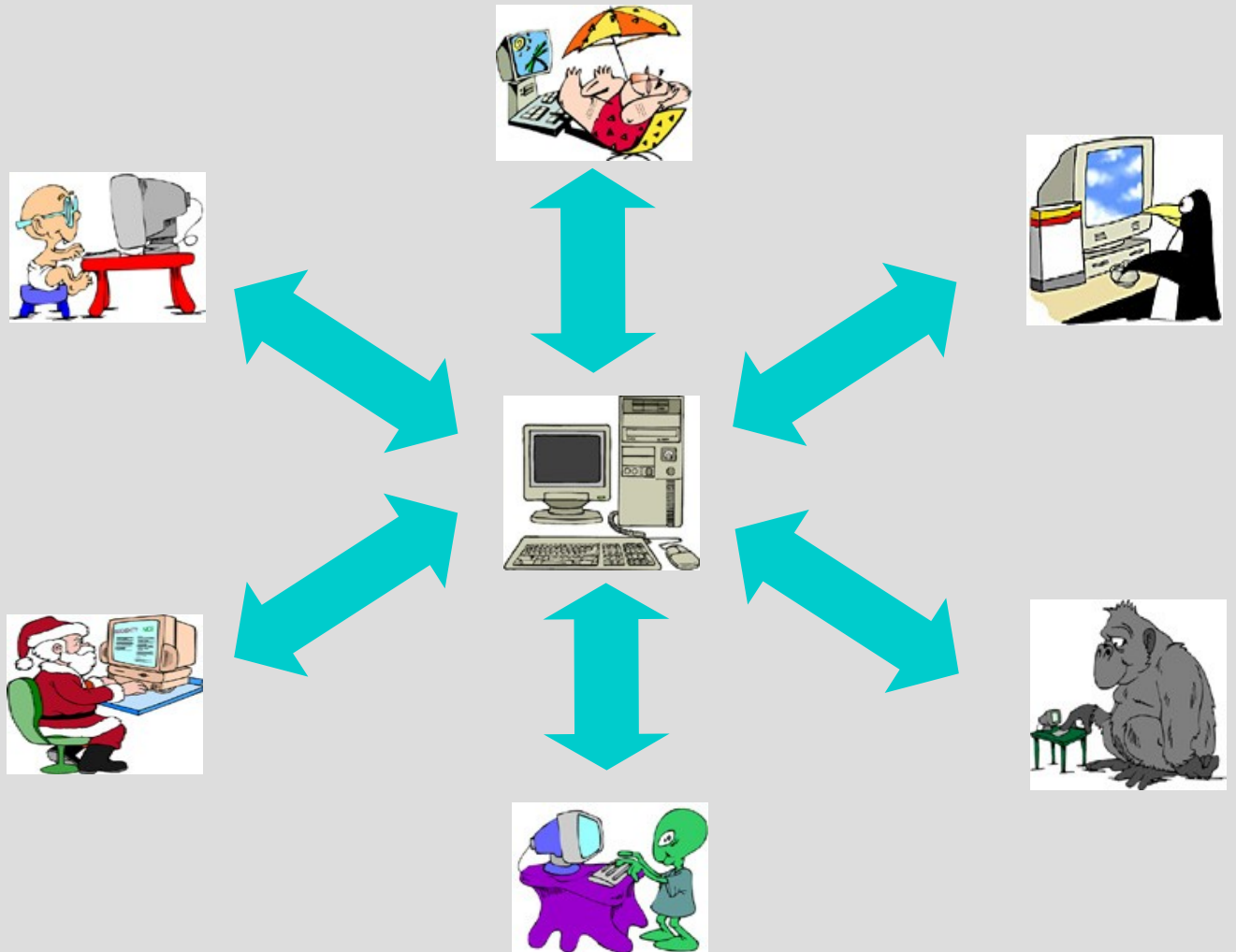
**Version** — (do not confuse this with release version number), this is the snapshot/changeset id;

**Conflict** — made changes of a working copy that is not sync from the central repository.

# Centralized VCS

Access central repositories through:

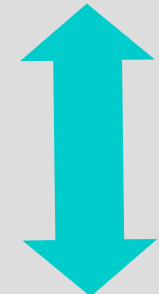
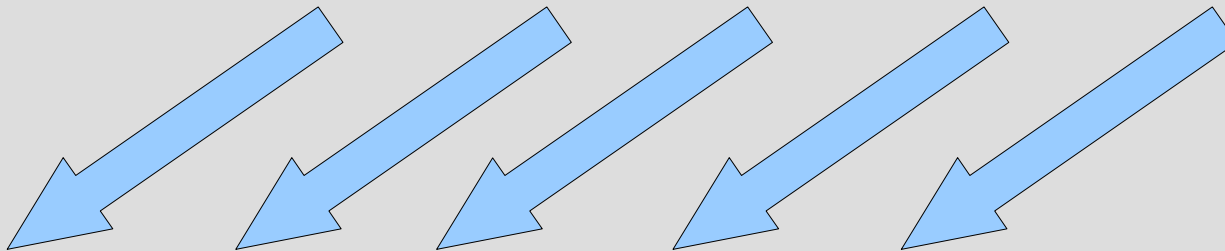
Custom Port  
HTTP/HTTPS  
FTP/SFTP  
SSH/SCP



# Decentralized VCS

Access central repositories through:

Custom Port  
HTTP/HTTPS  
FTP/SFTP  
SSH/SCP



Everybody have their own repository and can branch/merge independently.

# Version Control Systems

## **Centralized Systems :**

RCS – Revision Control System

CVS – Concurrent Versioning System

SVN – Subversion

## **Decentralized Systems:**

Bazaar

Darcs - David's Advance Revision Control System

GIT

SVK

# Subversion

- Centralized Version Control System
- Created to supercede CVS (Concurrent Versioning System)
- Repository can be access via HTTP/s and SVN protocols

<http://www.tigris.org>

Installation in Ubuntu

```
# sudo apt-get install subversion  
# sudo libapache2-svn
```

# Subversion clients

**svn** – command line interface client

**RapidSVN** – graphical client (Win, \*nix)

**TortoiseSVN** – graphical client (Win)

**SubEclipse** – Eclipse subversion plugin

# SVN CLI Client

Project Repository : <http://web.demo.org/svn/repo>

\*import your project to the repository

```
# cd myapp
```

```
# svn import . http://web.demo.org/svn/repo/branches/myname
```

\* checkout the myapp project

```
#svn checkout http://web.demo.org/svn/repo/branches/myname ./app-myname
```

\* knowing the modifications or unversioned files/directories

```
# svn status
```

\* add new files/directories

```
# svn add ./
```

\* commit changes

```
# svn commit ./
```

\* sync local copy from repository

```
# svn update
```

# SVN Through Apache

## \* Creating a repository under Ubuntu

```
# sudo su
# cd /var/www
# mkdir svnrepos
# svnadmin create ./svnrepos/mythesis
# chown www-data.www-data ./svnrepos -R
```

## \* Configure dav\_svn.conf

```
# cd /etc/apache2/mods-enabled
# nano dav_svn.conf
    <Location /svn>
        DAV svn
        SVNParentPath /var/www/svnrepos
    </Location>
# /etc/init.d/apache2 restart
```

## \* Initialize project repository

```
# mkdir tmp
# mkdir tmp/trunk
# mkdir tmp/branches
# mkdir tmp/tags
# cd tmp
# svn import http://web.demo.org/svnrepos/mythesis
```

# Bazaar

- a fork of Bazaar-NG;
- a hybrid between centralized and decentralized vcs;
- Multi-platform (Win, \*nix);
- Sponsored by Canonical, the company behind Ubuntu;
- created in Python and extendable;
- Useable but fairly new.

<http://bazaar-vcs.org>

Installation in Ubuntu:

```
# sudo su
```

```
# apt-get install bazaar
```

# Bazaar clients

bzr – command line interface client

olive – graphical client (still in alpha stage)

# BZR CLI Client

- \* creating a repository
  - # cd myapp
  - # bzr init
- \* adding files/directories for version control
  - # bzr add
- \* checking changes in the working copy
  - # bzr status
- \* versioning changes (to local repository)
  - # bzr commit
- \* merge changes from other developer
  - # bzr merge <http://www.test.com/developer1>
- \* checkout remote repository / creating a branch
  - # bzr branch <http://web.remote.com/repo> localpath
- \* sync from remote repository
  - # bzr pull <http://www.remote.com/repo>
- \* uploading changes to remote repository
  - # bzr push ssh://remotesshpathlogin

# End of Presentation

Happy Hacking :)