MATH 676

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Finite element methods in scientific computing

Wolfgang Bangerth, Texas A&M University

Lecture 32.55:

Learning to use modern tools, part 5a1:

Version control systems (VCSs)

Subversion – undoing, branching, and merging

Undoing changes

Version control systems store the *history* of the project and each file:

- This allows to *identify* which change broke some functionality

- This allows to *undo* the offending change without throwing away everything that came afterward

...let's see how that works in practice...

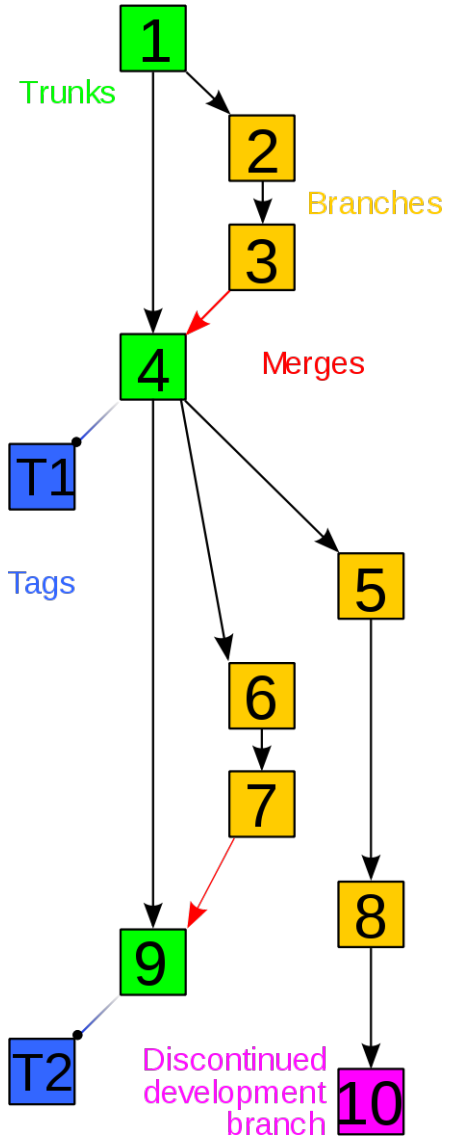
Branching and merging

Using subversion (svn) as an example:

- A branch is simply a copy of the main development directory in the repository
- We can *merge* changes that have been made on mainline to the branch
- We can *merge the branch back* to mainline

Mainline, branches and merges

Mainline, branches, HEAD and tags are often visualized as a growing tree:



Note: In subversion, revisions are sequentially numbered across branches.

Branching and merging

Implementation of branches in the *specific case* of subversion (svn):

- Each repository represents a file system with subdirectories
- "Mainline" is just one particular directory in the repository that everyone agrees is the main development branch (by convention this directory is usually called *trunk/*)
- Creating a branch means copying one directory elsewhere
- svn remembers the origin of each copy
- This allows merging data back (barring conflicts)

Branching and merging

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