



Configuration Management

Objectives

- Explain the concept of a version control system ↗
- Recognize the importance of disciplined configuration management to the successful completion of a software development project
- Understand the model of a client server configuration management system.
- Define repository
- Define local working copy
- Explain the concepts of checking out, committing, and updating.
- Explain the concept of merging code files
- Explain the capabilities of the GForge project management tool.
- Explain the concept of labeling and branching
- Explain how to interface with the GForge system using the TortoiseSVN client.

Definition

- Demonstrations

Homework

- Pretty simple
 - Go to agate.msoe.edu *— Forge System*
 - Request a new account
 - Username:
 - Your MSOE id *o*
 - Password
 - Whatever you want *o*
 - **NOT YOUR MSOE PASSWORD**
 - Email
 - Must be your MSOE e-mail
- #2 Install tortoise SVN on your laptop

What is software configuration management?

- SQA Component assigned to manage changes
- Deals with all issues related to
 - Control of software changes
 - Proper documentation of changes
 - Registering of software versions
 - Storage of software Versions
- Typically requires the usage of a Version Control System (VCS)

Quality Assurance.

Tracking who and why.

Keeping around our code.

SVN, GIT, PVCS.



In the past

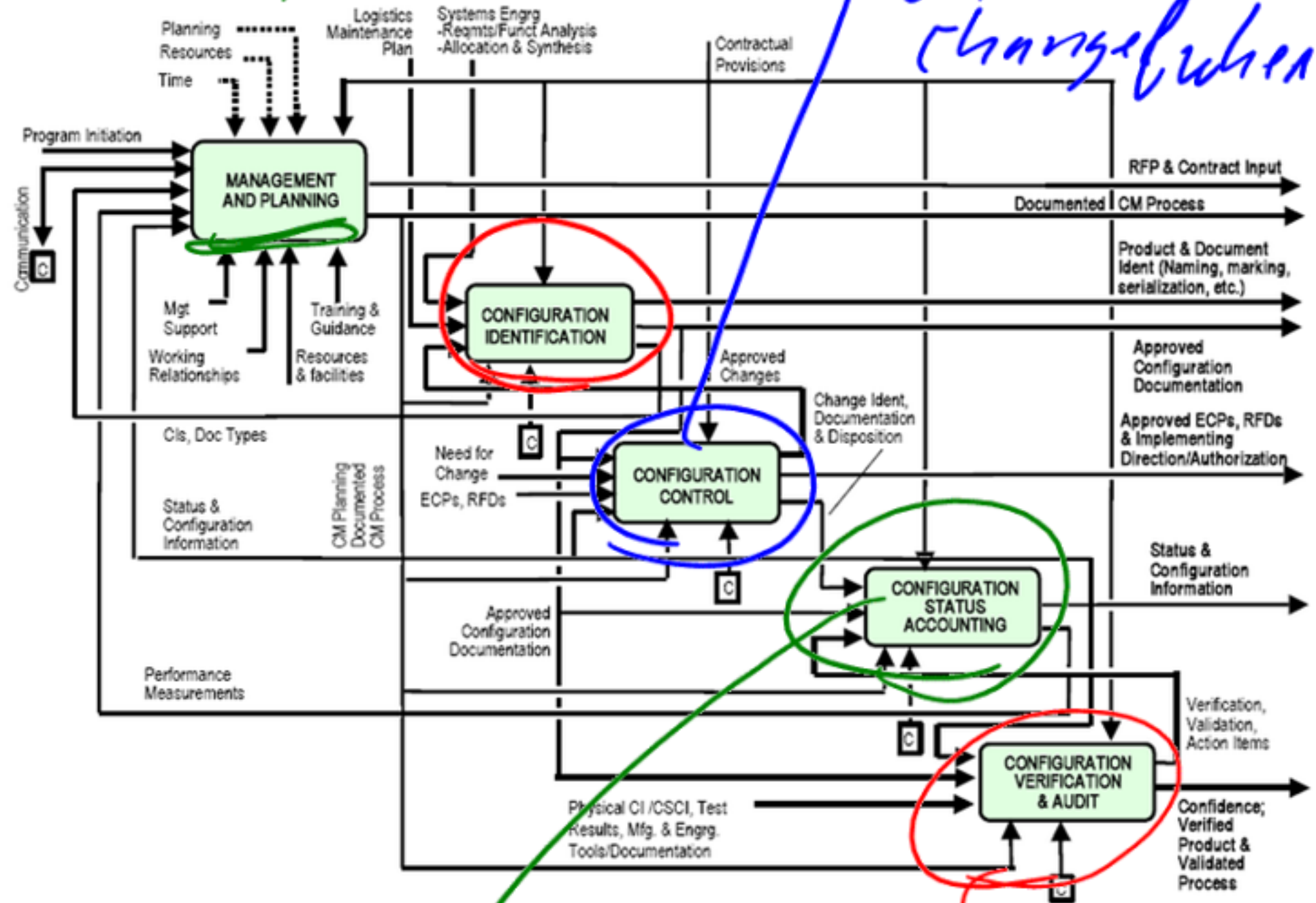


Configuration Management

Today

More Complex

Who can change when.



Reports Audits



*Local Workspaces on your machine.
Copy of the server files.*

Workspaces & Repository

Server

Your Workspace	
Cover.rtf	(ver 1.2)
Chapter 1.txt	(ver 1.32)
Chapter 2.txt	(ver 1.20)
Chapter 3.txt	(ver 1.14)

Repository	
Cover.rtf	(ver 1.2)
Chapter 1.txt	(ver 1.32)
Chapter 2.txt	(ver 1.20)
Chapter 3.txt	(ver 1.15)

Workspace

Workspace

Workspace

Difference.

The Repository

- The repository holds information including dates, labels, branches, versions, etc.
- The repository holds just the changes between versions, saving space.
- Also referred to as the a “depot” or “root”
- Often held on a central server

The “Golden Versions” Live here.
Server..

Subversion

SVN

Network

How to use SVN
Clients

Repository

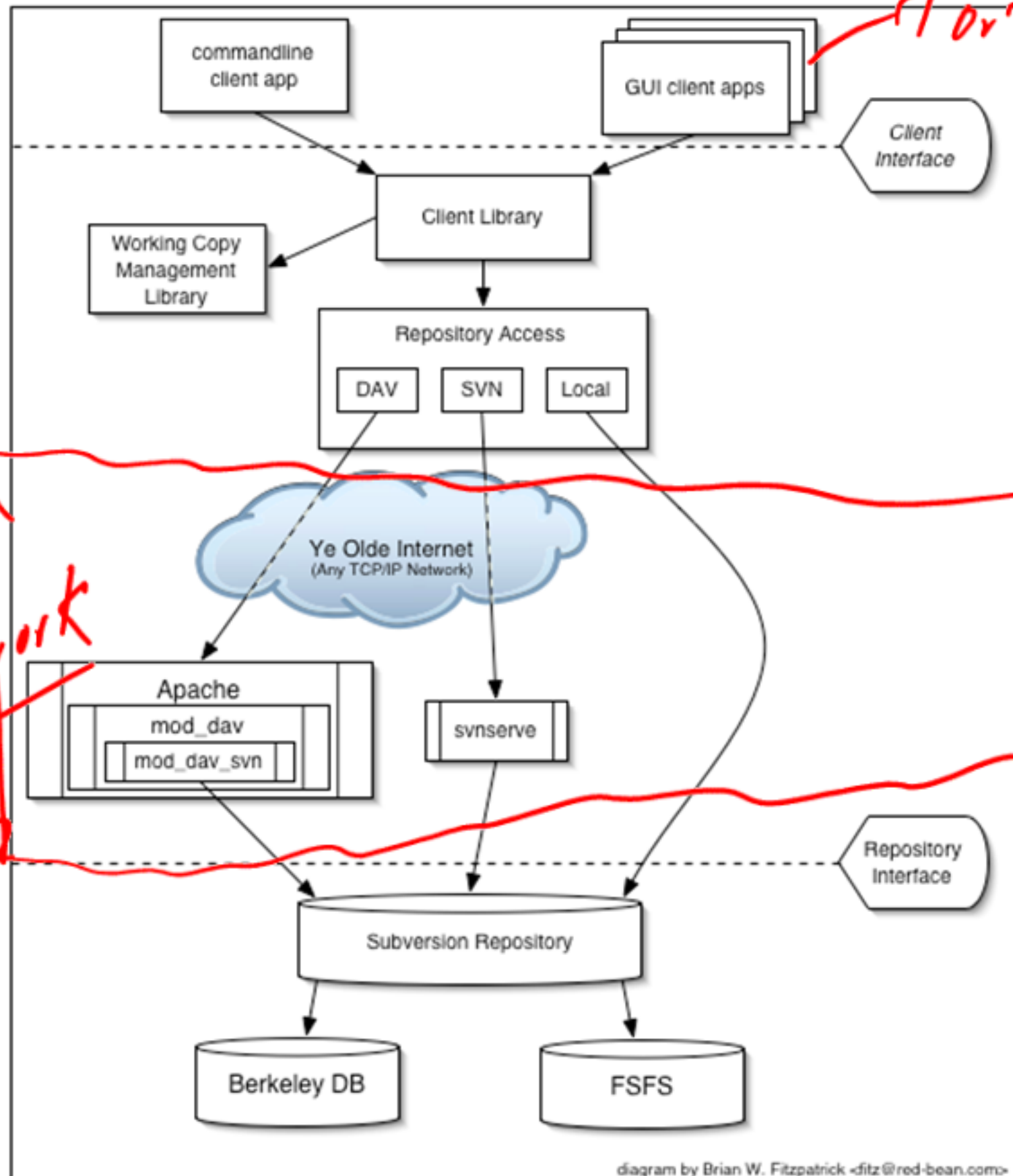


diagram by Brian W. Fitzpatrick <fitz@red-bean.com>

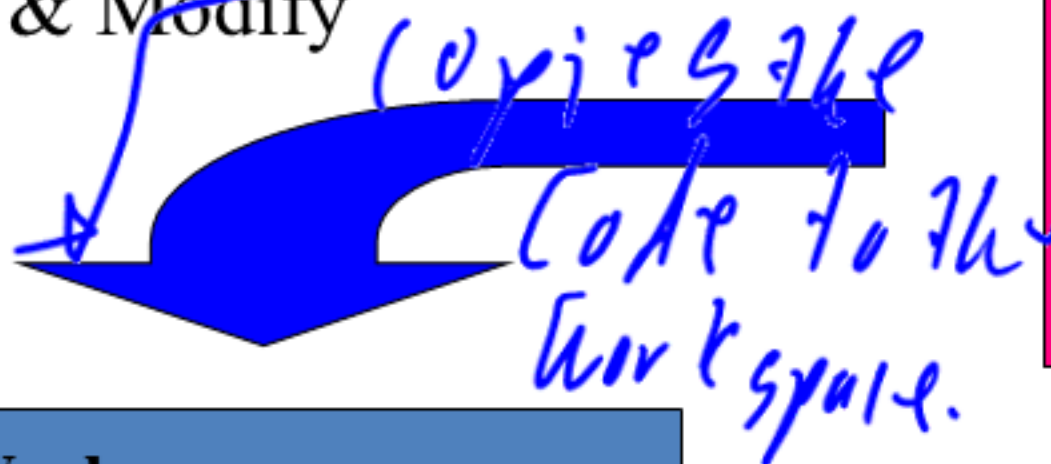


Checkout & Commit

getting a copy from the repository.

Checkout

Checkout & Modify



Repository	
Cover.rtf	(ver 1.2)
Chapter 1.txt	(ver 1.32)
Chapter 2.txt	(ver 1.20)
Chapter 3.txt	(ver 1.14)

Workspace

Cover.rtf	(ver 1.2 - Modified)
Chapter 1.txt	(ver 1.32)
Chapter 2.txt	(ver 1.20 - Modified)
Chapter 3.txt	(ver 1.14)
Chapter 4.txt	(ver 1.1 - New)

Make changes

Commit

Repository	
Cover.rtf	(ver 1.3)
Chapter 1.txt	(ver 1.32)
Chapter 2.txt	(ver 1.21)
Chapter 3.txt	(ver 1.14)
Chapter 4.txt	(ver 1.1)

Place changes in the repository.

Place changes in the repository.

new

Checkout

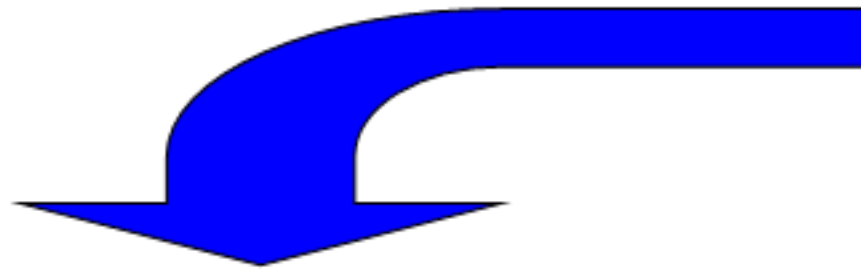
- With checkout commands, one can summon files or sets of files from the repository based on date, tag, branch, or any of a number of other criteria.

Update

Workspace	
Cover.rtf	(ver 1.2)
Chapter 1.txt	(ver 1.35)
Chapter 2.txt	(ver 1.21)
Chapter 3.txt	(ver 1.14)

Repository	
Cover.rtf	(ver 1.4)
Chapter 1.txt	(ver 1.35)
Chapter 2.txt	(ver 1.22)
Chapter 3.txt	(ver 1.18)
Chapter 4.txt	(ver 1.3)

Update

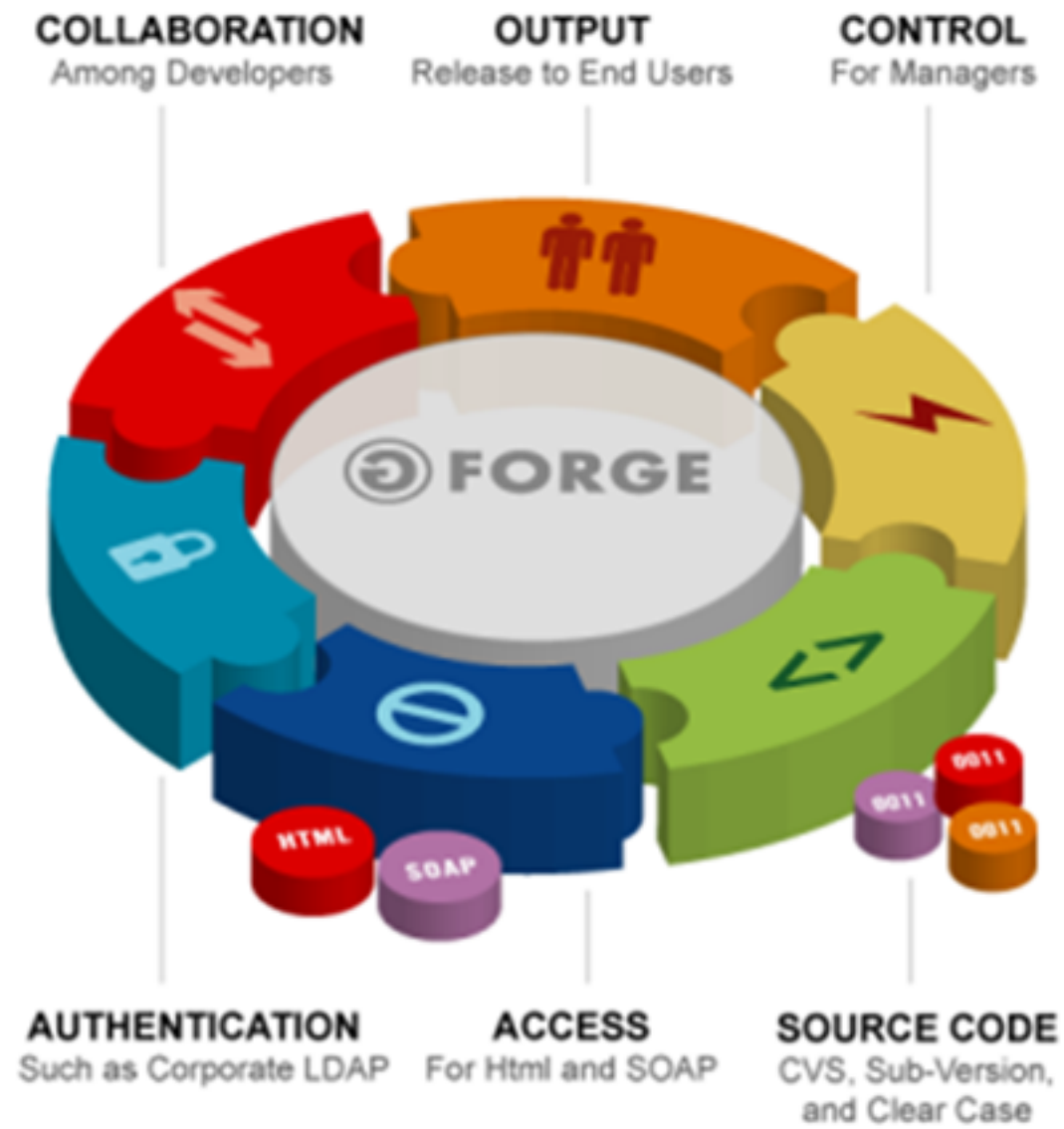


Workspace	
Cover.rtf	(ver 1.4 - Updated)
Chapter 1.txt	(ver 1.35)
Chapter 2.txt	(ver 1.21 - Conflict)
Chapter 3.txt	(ver 1.18)
Chapter 4.txt	(ver 1.3 - New)

Update

- Update commands will automatically bring your workspace up-to-date with the latest (or however you specify) files from the repository.
- Update automatically merges non-exclusive changes between files and initiates conflict resolution if necessary.
- Updates involving conflicts solicit information from the user how they wish to have a conflict resolve.

GForge



(c) 2004, GForge Group, L.L.C.

GForge

- GForge is an online SCM system
 - SCM tools: create and control access to CVS and Subversion
 - Collaborating tool: forums and mailing lists;
 - Access control: over the automatically created repository depending on the role settings of the project
 - File release, document management, news announcements, surveys, task managements, etc.
- Gforge in MSOE
 - http://emerald.msoe.edu/resources/doku.php?id=senior_design:using_gforge:start
 - <http://agate.msoe.edu/gf/?>

Useful tools

- Tortoise SVN
 - SVN Client that allows you to connect to SVN client on Gforge
- Beyond Compare
 - Difference Engine. Allows you to compare the differences between two files and merge them together.
- Tracker
 - Built into Gforge. Allows you to enter bugs and enter tasks.

- Lets do a demo!

For More Information

- Subversion home
 - <http://svn.subversion.com/>
- Subversion handbook
 - <http://subversion.tigris.org/files/documents/15/576/svn-handbook.html>
- Subversion quick reference guide
 - <http://subversion.tigris.org/files/documents/15/177/foo.ps>
- Subversion document folder
 - <http://subversion.tigris.org/servlets/ProjectDocumentList>
- Subversion project status
 - http://subversion.tigris.org/project_status.html
- Subversion source code and binary downloads
 - <http://subversion.tigris.org/servlets/ProjectDocumentList>