



High-accuracy Manufacturing and Metrology Solutions

**Version Code Control for LabVIEW Teams**

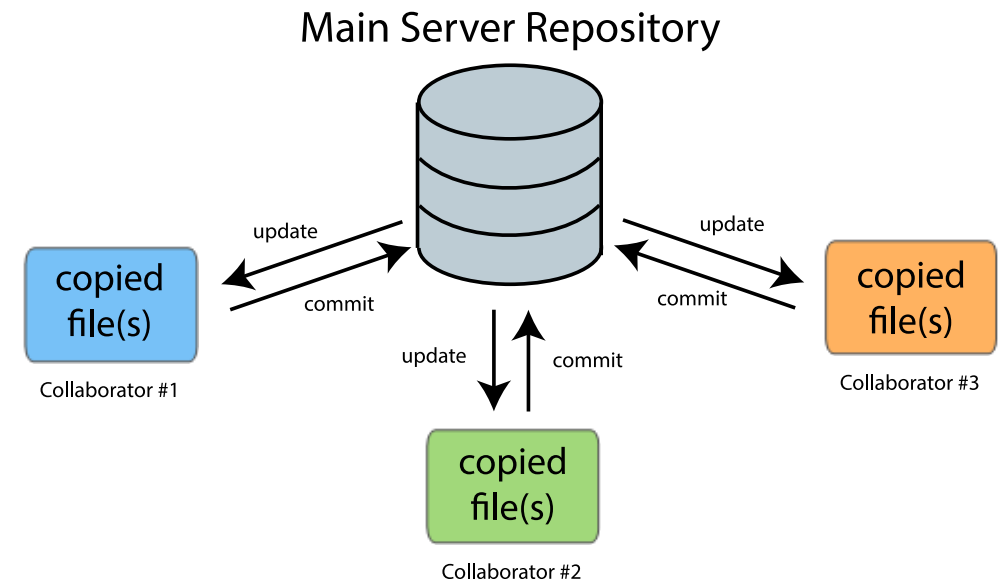
# Agenda

- Overview of Viska Systems
- What is Version Control?
- Distributed vs Centralised Version Control Systems
- Comparison of different VCS tools
- Comparison of different cloud based VCS services
- Storing code on different systems – how do we share code with our customers?
- LabVIEW integration with VCS Tools
- Designing code for Version Control
- Using Submodules

# What is Version Control?

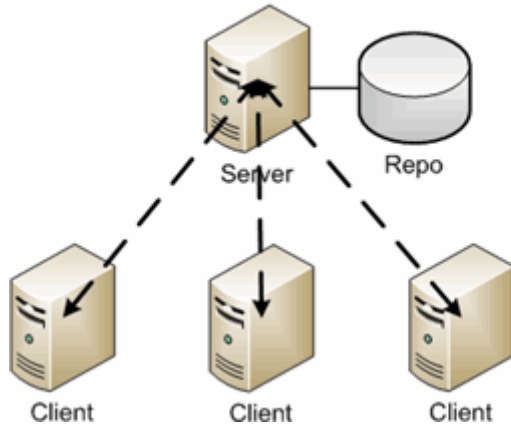
- Software Tool
  - Provides access to previous versions of your files
  - Allows multiple team members to work on the same project at once

## Centralized Version Control

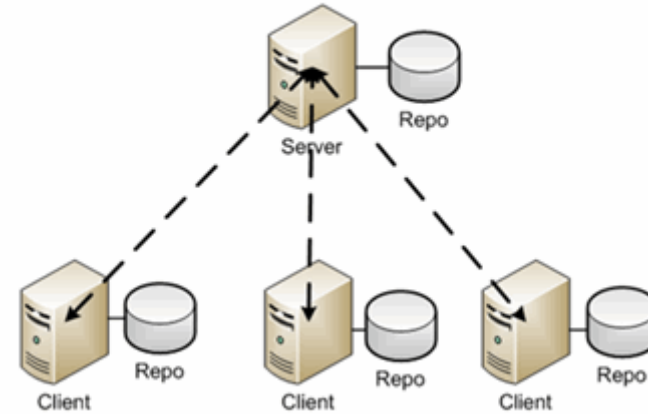


# Distributed or Centralised VCS?

## Traditional

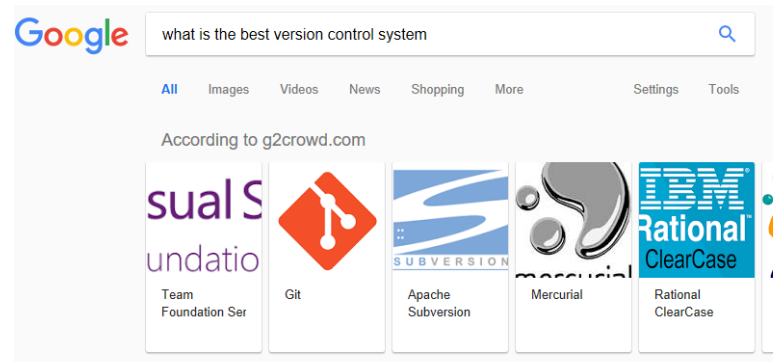


## Distributed



- Subversion, CVS, Perforce, etc
  - Repository lives on server
  - Need server connection for any actions
- Git, Mercurial, etc
  - Local Copy of repo
  - Only need connection when pushing/updating

# Which tool should I use?



## Best Version Control Systems in 2018 | G2 Crowd

<https://www.g2crowd.com> > ... > Source Code Management Software

Top Software. Microsoft Team Foundation Server. (68) Microsoft Team Foundation Server. (68) Git. (180) Git. (180) Helix VCS. (66) Helix VCS. (66) Subversion. (50) Subversion. (50) Mercurial. (27) Mercurial. (27) Rational ClearCase. (19) Rational ClearCase. (19) CVS. (8) CVS. (8) Kln. (5) Kln. (5)

## What is the best version control system? - Quora

<https://www.quora.com/What-is-the-best-version-control-system>

Oct 10, 2014 - Finding developers who already are familiar with Git might be easier than for other version control systems. However, it would be dishonest for me to say that Git is the best version control system. As was mentioned earlier, all modern version control systems, Git, SVN, Mercurial, Perforce... has their pros and cons.

**What is the best (not by popularity) version control ...** 2 answers 26 Jun 2017

**What is the most used version control system?** 3 answers 19 Feb 2017

**What is the best open source version control system?** 3 answers 15 Mar 2015

**What is the best version control system -SVN or GIT or ...** 3 answers 28 Oct 2013

More results from [www.quora.com](http://www.quora.com)

## 14 Best version control systems as of 2018 - Slant

<https://www.slant.co/topics/370/~best-version-control-systems>

Jun 11, 2018 - Sharing code and projects in an open source world is a must and trying to working with multiple Source Code Control systems does not help ...

## 2018 Version Control Software Comparison: SVN, Git, Mercurial

<https://bit20.com/2018/08/01/2018-version-control-software-comparison-svn-git-mercurial/>

# Chose the tool that suits your team/ workflow

# Which tool should I use?

## Subversion



- Centralised VCS
- Used a lot in enterprise environments
- File access control
- Exclusive File Locks
- More difficult to Branch / Merge

## Git



- Decentralised VCS
- Primary VCS of open source community
- No File access control
- No Exclusive File Locks
- Branching / Merging easier

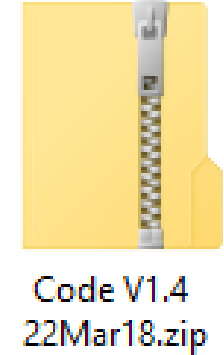
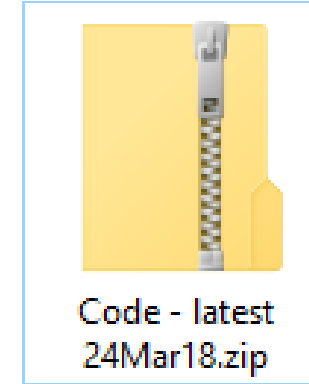
# Which cloud service?



	AWS	Azure	Bitbucket	Github
Service type	Preconfigured/ Self configuration	Self configuration	Preconfigured	Preconfigured
Free Trial/ Users	Up to 5 Users	12 months	Up to 5 Users	Repositories will be public
VCS	Git/ Free to chose	Free to chose	Git	Git
Integration with other services	★★	★★	★★★★★★	★★★★★★

# How do I share my code?

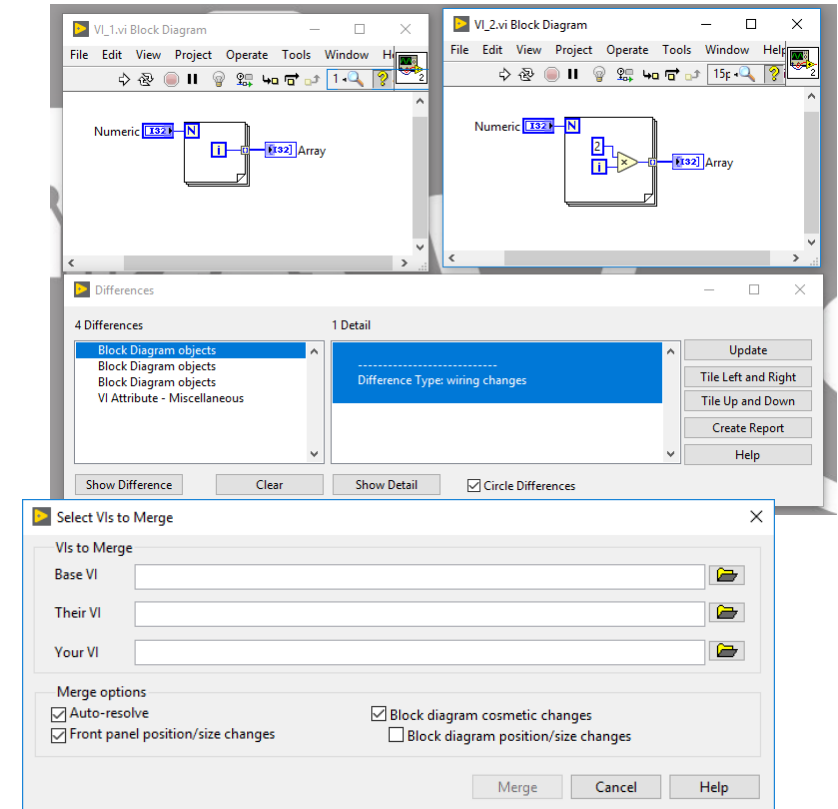
- Zip files
  - Lock down files on source server
  - Ensure you are using a clear tagging convention
  - Label the zip with the tag
- Preferably changes should only be made at one end to reduce merging
  - Clear communications between parties helps to minimize this



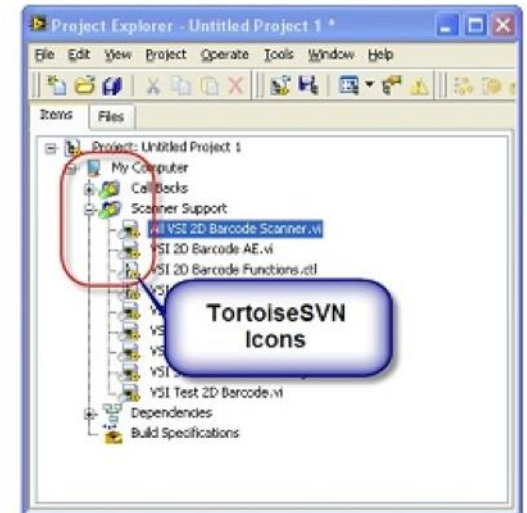
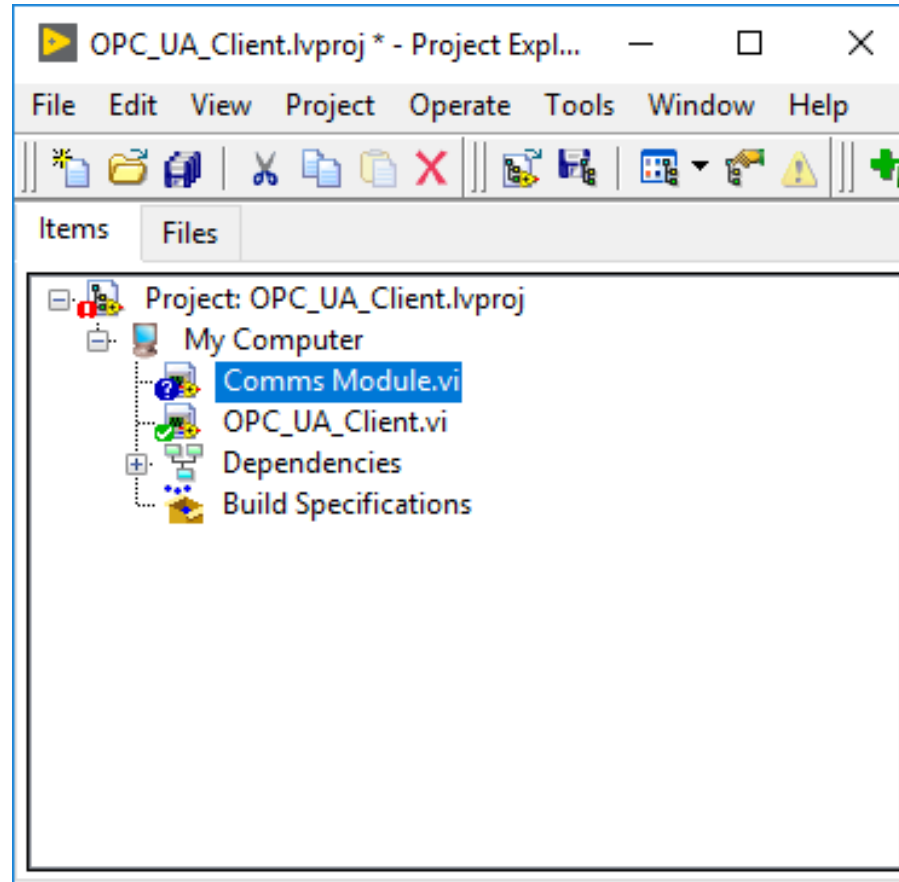


# How does LabVIEW integrate with VCS tools?

- Compare
  - Tools > Compare > Compare Vis...
  - Compares 2 Vis
  - Configure which differences to highlight
- Merge
  - Tools > Merge > Merge Vis...
  - Merge the difference between VIs

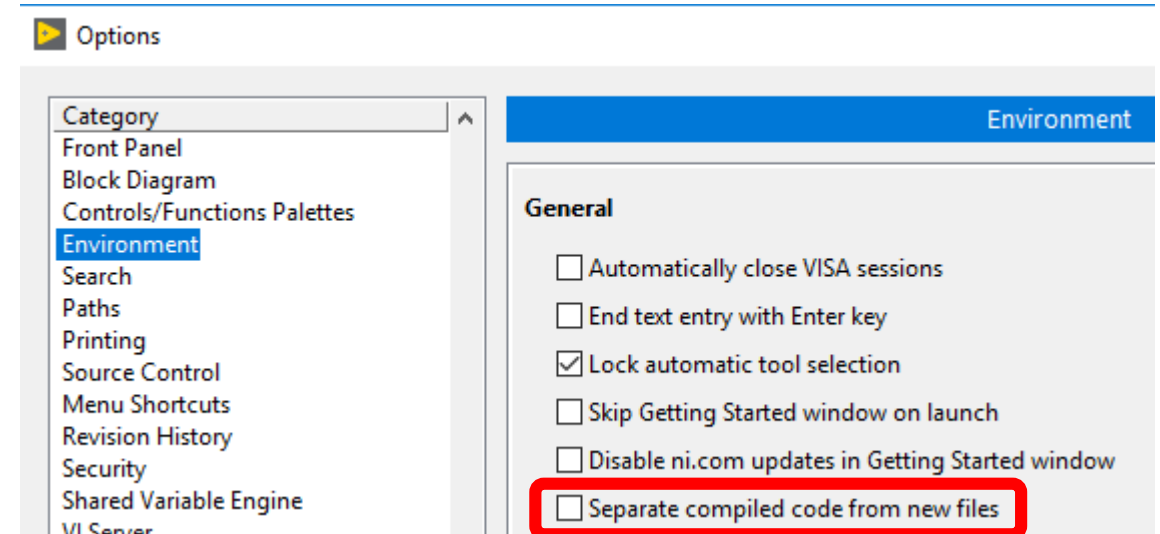


# How does LabVIEW integrate with VCS tools?



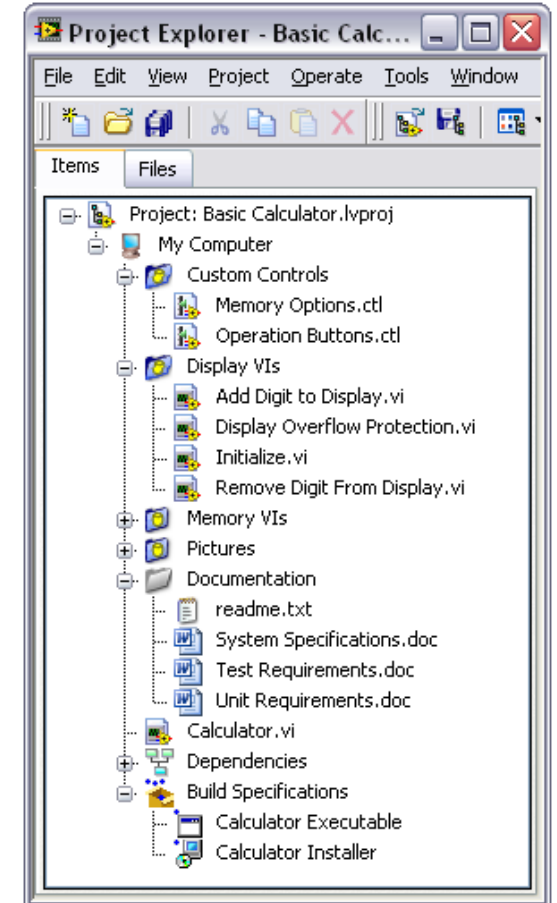
# Caveats with LabVIEW

- LabVIEW Stores Vis by default as source code and compiled code in the one file
  - SubVI changes result in callers being modified
  - LabVIEW Option to separate compiled code from new files
  - Needs to be used by all who edit the files



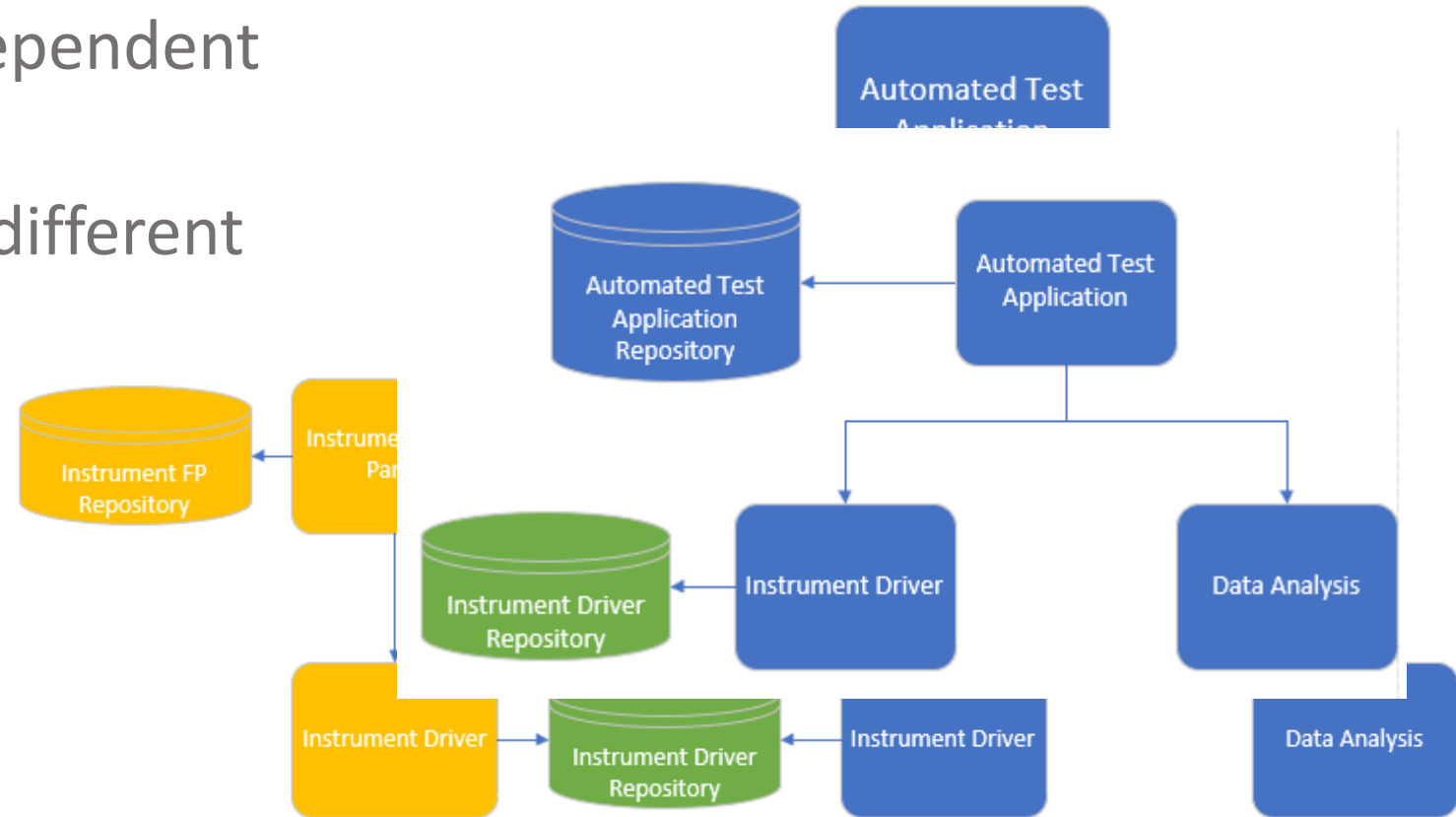
# Code design for Version Control

- Modular Code
- Use folders to organize your code
- Include dependencies within the Project Folder



# Submodules

- Can be used to hold independent modules
- Can be used in multiple different projects





# Conclusion

Centralised vs Distributed Version Control

Various Tools available

Cloud Services available

How LabVIEW integrates with Version Control Tools

Good code design

Submodules



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Questions?