Source and Version Control

TFS 2017

Types of Version Controls

TFVC

- Centralized Repository
- Gets only one version at a time
- Check-in is to the server directly

git

- Distributed repository
- Clones all versions in the repository
- Local commits

Version Control : git

- Clone: Gets the entire repository from shared location (Team Project) to local machine
- Commit: Stores a new version in local repository
- Push: Sends the committed changes from local repository to remote repository, creates a representation of remote (remote – origin)

Version Control - git

- Fetch: Bring the changes pushed by others in the team from shared repository to remote – origin
- Pull: Fetch and them merge those changes in the local repository

Version Control - git

- Stash: Store changes to repository without committing those, for use in future.
- Stage: Add changes to commits
- Unstage: Remove changes form committed code.

Version Control - git

- Undo: Delete uncommitted changes and set the file back to state as it was after last commit
- Revert: Delete committed and pushed changes and set the file back to state as it was after last commit
- Reset: Delete uncommitted changes of all files in a branch and set all files back to state as it were after last commit

Version Control - git

- Branch: Create a local isolated copy of the code for working in parallel
- Merge: Add changes created in one branch to another branch without history
- Rebase: Add changes created in one branch to another branch with history

Git Settings

- Global Settings
- Repository Settings
- .gitignore
- .gitattributes

TFVC Operations

- Get Latest, Get Specific Version
- Check-out, Lock
- Check-in, Shelve
- Move, Delete
- Branch, Merge
- Label
- Annotate

Workspace

Definition

- Object that stores metadata of files checked out or received with get operation

Administration

- Add, Edit and Remove

Advanced

- Location
  - Local
  - Server
- Permission
  - Private (Single Developer)
  - Public (Team Collaboration)

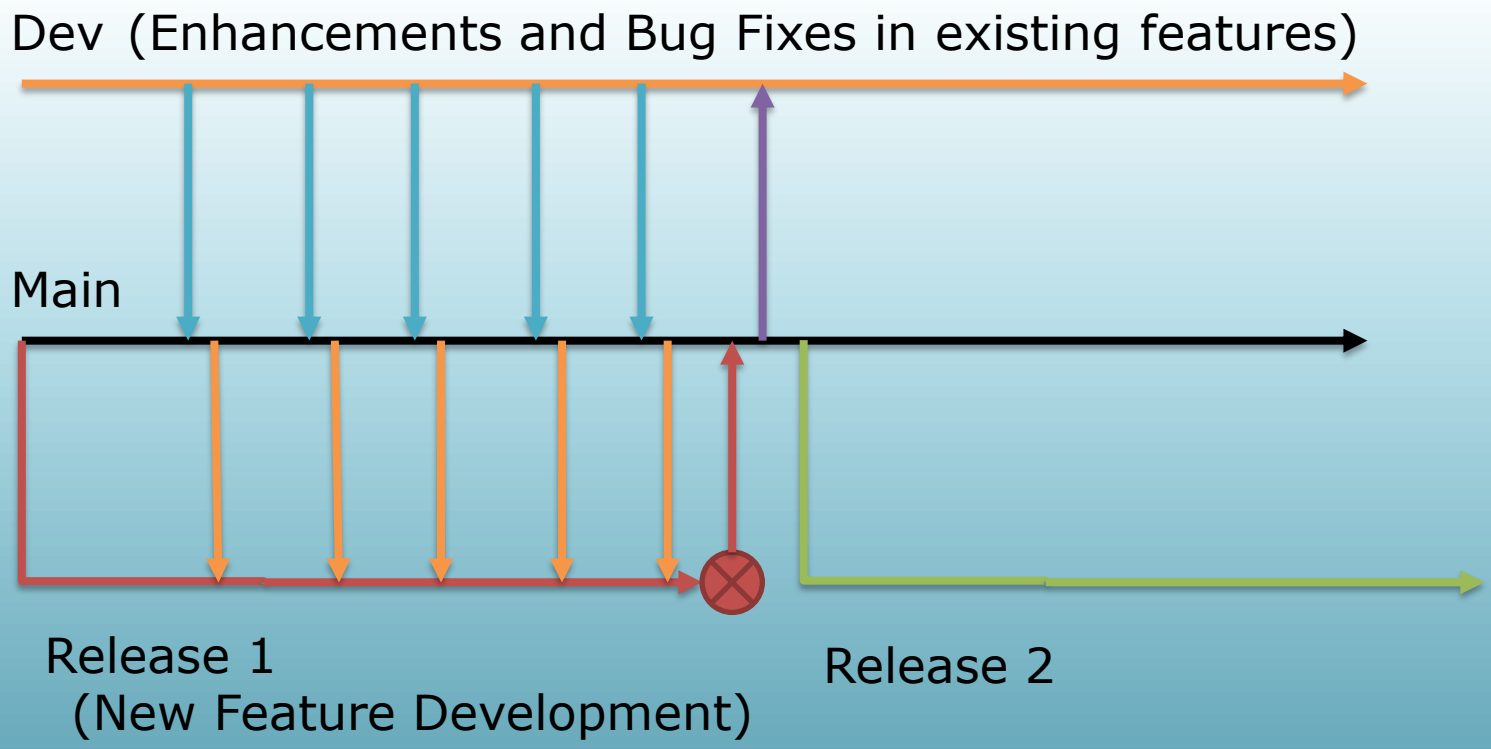
Features

- Get files on the client
  - Check-out – Multiple / Exclusive, Lock
  - Get Latest
  - Get Specific Version based upon ChangeSet Number, Label, Date, Workspace
- Send files back to server
  - Check-in

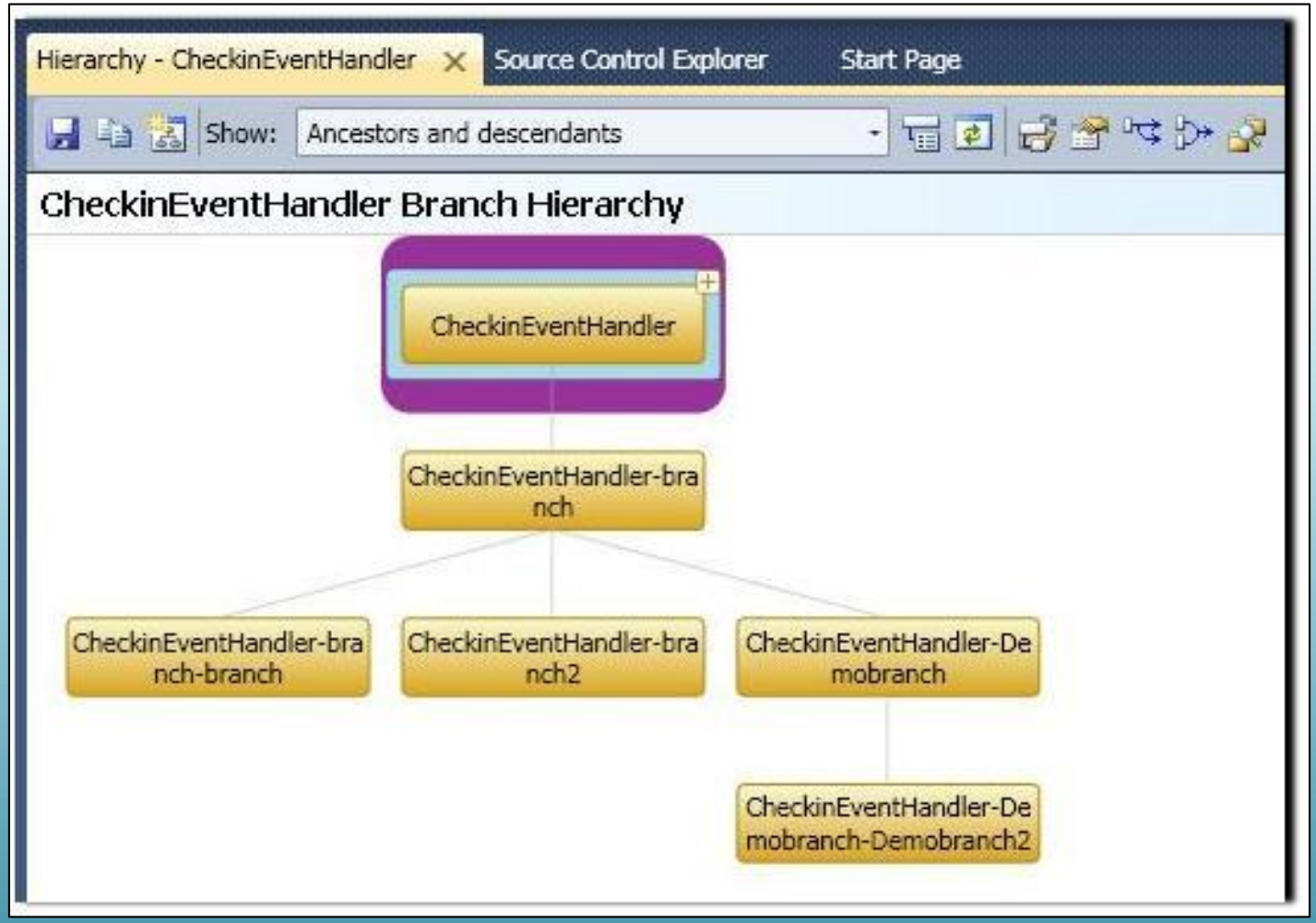
Features

- Parallel Working
  - Branching / Merging
  - Multiple Check-out

Branching Strategy



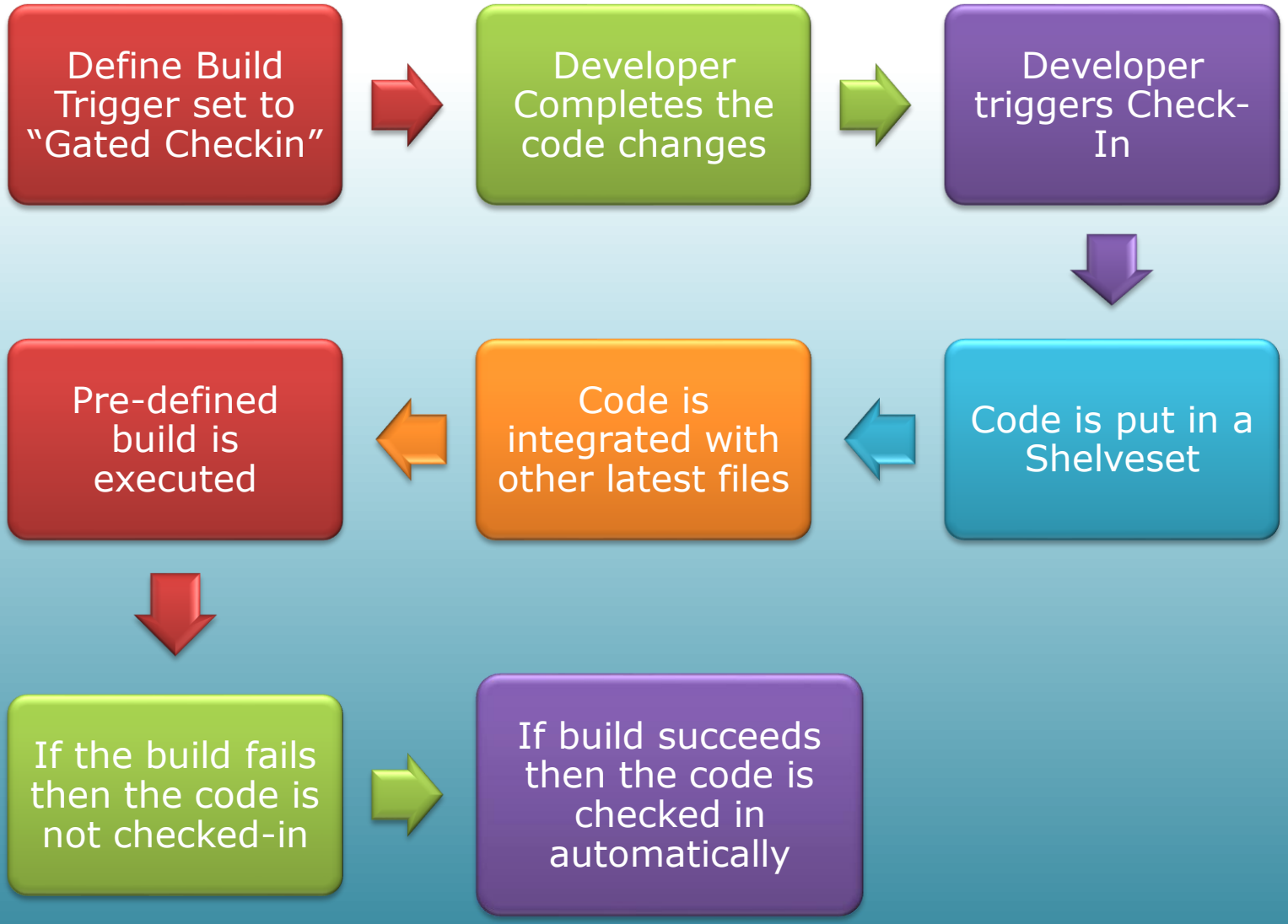
Branch Structure Visualization



Unique Features

- Shelving
- Check-in policies
- Gated Check-in
- Branch Structure Visualization

Gated Check-in



TFVS vs Git

TFVC	Git
Centralized	Distributed
workspace	clone
Branching & Merging	Heavy on branching & merging
Check-out file	Check-out branch
	Sync

Controlling Access to Version Control

- TFVC – Through Source Control Explorer or Web Access
- Each object (Repository, branch, folder or file) has its own ACL (Access Control List)
- ACL contains the names of the Users and Groups and the permission that it has
- Permissions are in line with operations of version control e.g. Edit, Check-in, Label, Branch etc.

Controlling Access to Version Control

- GIT – From Web access only
- Securable are Repository and Branch only.

Command Line Tools

- Tf.exe – Command Line tool to access TFVC repository for operations.
- Beyond normal operations provide special options like Destroy (Purge from database) any object, Delete workspaces of other users etc.
- Git command window (Git Bash on Git for Windows) – Can be used for all operations that are possible from Team Explorer

MSSCCI Provider

- Provides access to TFS 2017 version control from Visual Studio that are older than VS 2013
- Needs
  - Old Visual Studio with Team Explorer
  - Team Explorer 2013 / VS 2013
  - MSSCCI Provider

TFS Sidekicks

- TFS Sidekicks is a suite of tools for TFS administrators and advanced users providing GUI for administrative and advanced version control tasks in multi-user TFS environments.
- **Version 2.4** of Team Foundation Sidekicks includes
  - Users View Sidekick, Permission Sidekick,
  - Code Review Sidekick, Shelveset Sidekick, Labels Sidekick, History Sidekick, Workspace Sidekick, Status Sidekick
- Does not provide support to VS 2017 out of box. Some old NuGet packages of VS 2015 are required to be added (Version 14.95.3).