Git Journey from Mars to Neon

Matthias Sohn (SAP)
hooks support

JGit

- pre-commit (4.0)
- commit-msg (4.0)
- pre-push (4.2)
Hooks

pre-commit
commit-msg
pre-push
merge strategy
extension point

JGit 4.0

- allows to plugin external merge strategy
- implemented by EMF Compare to provide model merge strategy
EMF Compare provides model merge strategy

Computes the logical model for each version

Compares / merges complete logical model
e4 smart project import wizard

EGit 4.0

- clone repository
- invoke e4 smart project import
- auto-detects projects and their project types

wiki e4 smart import
e4 smart project import
Staging View

EGit

- block commit on errors (4.1)
- compare mode (4.1)
- better support non-workspace files (4.2)
- enable sorting files by status (4.3)
Warn/block commit on errors
Compare Mode in Staging View
Better support non-workspace files
Sorting files by status
Misc Improvements

EGit

- dirty decorator in repositories view
- most git actions enabled on working sets
- configure date format
- branch auto-selection in history view
- enable symlinked .git
- support symlinks in compare editor
dirty decorator in repositories view
enable most

git actions on

working sets
configure date format
Gerrit integration
EGit 4.3

- auto-configure repository cloned from Gerrit
- improved "Fetch from Gerrit" wizard
- "Commit and push" opens "Push to Gerrit" wizard
Gitflow support

EGit

- Automation for gitflow branching strategy and workflow
- Install EGit Gitflow feature if you want to use this
Gitflow in a nutshell

“It forms an elegant mental model that is easy to comprehend and allows team members to develop a shared understanding of the branching and releasing processes.”

- Vincent Driessen

(creator of Gitflow)
Gitflow integration - initialize
Gitflow integration - create feature branch

Please provide a name for the new feature.

PROJECT-123-cool_new_feature

OK  Cancel
Gitflow integration - finish feature
.gitattributes

JGit 4.3

- filter attributes (4.2)
- text attributes
- eol attributes
- macros

fixes most wanted JGit bug (108 votes)
LFS
Large File Storage

JGit, EGit 4.3

- integrate git-lfs extension in client (4.2)
- basic JGit LFS server (file system or S3)
- Gerrit plugins integrating JGit LFS server
Versioning large binaries in Git

large binary files can't be packed by Git efficiently

➔ Git repository growing quickly
➔ gc more expensive and less efficient
➔ slows down transport
➔ Git server load grows
Large File Storage (LFS) extension

- .gitattributes
- slides.pdf
- X.java
- .git
- -- objects
- -- lfs
- git
- git-lfs
- git server
- lfs server
LFS configuration

- **.gitattributes**
  - slides.pdf
  - X.java

- **.gitconfig**
  - [filter "lfs"]
    - clean = git-lfs clean %f
    - smudge = git-lfs smudge %f

- **lfs**
  - clean filter intercepts add
  - smudge filter intercepts checkout

- **which files to store in LFS?**
  - *.pdf filter=lfs diff=lfs merge=lfs -text
store meta data in **objects**
store big file in **lfs objects**

**git add slides.pdf**

- version git-lfs/spec/v1
- id sha256:5891b5b522...
- size 6

`.gitattributes
slides.pdf
X.java

.git
--- objects

slides.pdf
--- lfs

lfs clean filter
git push origin

- .gitattributes
- slides.pdf
- X.java

- .git
  - -- objects
    - -- lfs

push

version git-lfs/spec/v1
id sha256:5891b5b522...
size 6

pre-push hook

- slides.pdf

- git server
- lfs server
git fetch/clone, git checkout

- .gitattributes
- slides.pdf
- X.java

fetch

- version git-lfs/spec/v1
- id sha256:5891b5b5b22...
- size 6

---

-lfs server

---

-lfs

---

- objects

---

-Ifs

---

-Ifs smudge filter

checkout

- downloads large
- object lazily
LFS server with JGit filesystem/S3 storage

EGit

JGit

.gitattributes
slides.pdf
X.java

.git
-- objects

-- lfs

Gerrit

Gerrit plugin

JGit LFS server

LFS storage (filesystem / S3)
Practical workflows with Git LFS

Tim Pettersen (Atlassian)
Lake Anne A
Wednesday - 10:30 to 11:05

The quest for distributed JGit

JGit

RefTree (4.2)

- enable atomic push
- version refs as git objects
- push = commit containing ref updates

Ketch

- enable distributed JGit server
- Raft distributed consensus
- distributed transaction log based on RefTree
RefTree: Versioning branches in git

store refs in git tree objects

push can update many refs -> stored in one RefTree commit

-> enable transactional ref updates when receiving a pack
-> compare single SHA1 to compare repository states
**jgit**
- clone with worktree
- standard refs

**jgit.git**
- bare repository
- refs stored in RefTree

**spy**
- empty, used for introspection

Commit, push

- bootstrap branch

-- RefTree

--- Versions

-- objects

Alternates

- objects

Bootstrap branch symlinked

- objects linked via alternates
Ketch: multi-master git repository

- leader election (Raft)
Ketch: multi-master git repository

- leader election (Raft)
- push arrives on any server
Ketch: multi-master git repository

- leader election (Raft)
- push arrives on any server
- queue proposal to leader
- leader creates new RefTree describing target state
Ketch: multi-master git repository

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- replicate objects and RefTree to majority of servers
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- leader election (Raft)
- push arrives on any server
- queue proposal to leader
- leader creates new RefTree describing target state
- replicate objects and RefTree to majority of servers
- commit transaction
Evaluate the Sessions

Sign in and vote at eclipsecon.org

-1 0 +1