

LIGHT UP  
YOUR FUTURE\_

**HARDIS**  
**GROUP**

Agence Nantes / LAB Avril 2016

**GIT**



# GIT en quelques mots

## Logiciel de gestion de version

- Sauvegarde des fichiers projets
- Historique de modification
- Branches et tags

## Décentralisé

- Dépôt local
- Opérations rapides (mode déconnecté)
- Branches & merge au cœur du système
- Clone et partage facilité

## Populaire

- Presque tous les projets open source
- Plateformes GitHub & GitLab très utilisées

# GIT over SVN

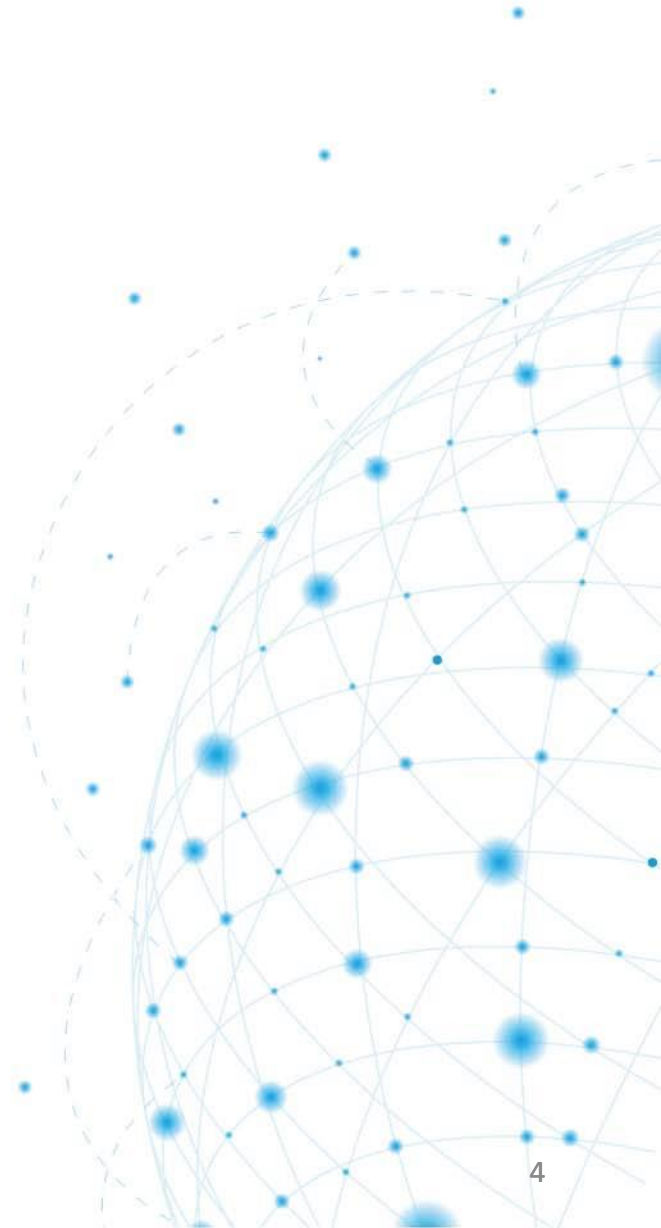
## Un système distribué

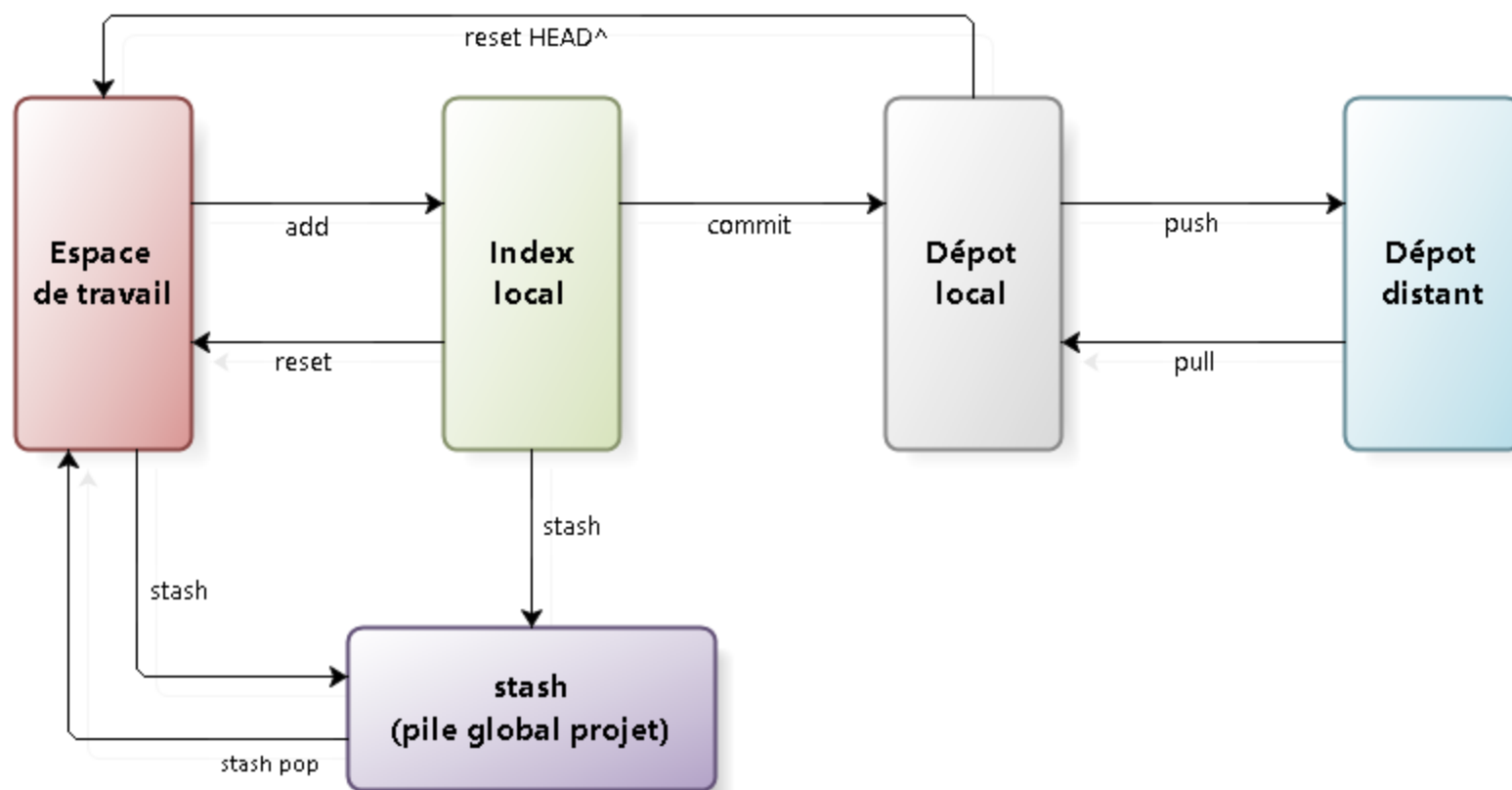
- Vous pouvez avoir un serveur central
  - Tous les avantages de SVN
- Vous pouvez travailler avec autant de serveurs que vous voulez
  - Si le projet d'origine a donné naissance à 15 autres projets, vous pouvez récupérer des bouts de chacun facilement sur le 16<sup>e</sup> projet
- Branching model facile à mettre en oeuvre

## Un système autonome

- Votre machine de développement est son propre serveur GIT
- Si le serveur crash, chaque développeur peut le restaurer intégralement
- Les opérations sont très rapides (en local)
- Vous pouvez travailler sans accès au serveur

# Espaces GIT





# Espaces GIT

## Espace de travail

- Fichiers modifiés
- Fichiers non connus de git
- **En rouge** dans « git status »

```
SPit@PSA41 MINGW64 /d/LabGit (master)
$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will
   be committed)
  (use "git checkout -- <file>..." to discard
   changes in working directory)

        modified:   README.md

Untracked files:
  (use "git add <file>..." to include in what
   will be committed)

        new_file_1
        new_file_2

no changes added to commit (use "git add" and/
or "git commit -a")
```

## Index local

- Fichiers en attente de commit
- Version des fichiers figée au moment du « git add »
- **En vert** dans « git status »

```
SPit@PSA41 MINGW64 /d/LabGit (master)
$ gs
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        modified:   README.md
        new file:   new_file_1
        new file:   new_file_2

Changes not staged for commit:
  (use "git add <file>..." to update what will
   be committed)
  (use "git checkout -- <file>..." to discard
   changes in working directory)

        modified:   README.md
```

# Espaces GIT

## Dépôt local & Dépôt distant

- Les versions de fichiers sont identifiées par un commit
- Un message explicite les modifications par rapport à la version précédente
- Les échanges entre dépôts ne concernent que les versions commitées

```
SPit@PSA41 MINGW64 /d/LabGit (master)
$ git status
On branch master
nothing to commit, working directory clean

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git log
commit c6f07f3b7fff225037313be8a4bebae0e3dd40ae
Author: Sylvain Piteau <Sylvain.Piteau@hardis.fr>
Date: Mon Apr 4 11:53:42 2016 +0200

    Add new files and update readme

commit c9a91ec9a08da93e02a9db1c35a6adaf587de67c
Author: Sylvain Piteau <Sylvain.Piteau@hardis.fr>
Date: Mon Apr 4 11:02:40 2016 +0200

    initial commit
```

# Espaces GIT

## Stash (sauvegarde des changements courants dans la pile)

- « stash » : mise dans la pile
- Fichiers modifiés non commités
- Nouveaux fichiers (si dans l'index)
- « stash pop » : extrait de la pile
- Applique à la branche courante
- Supprime de la pile

```
SPit@PSA41 MINGW64 /d/LabGit (master)
$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working
directory)

        modified:   README.md

no changes added to commit (use "git add" and/or "git commit -a")

SPit@PSA41 MINGW64 /d/LabGit (master)
$ cat README.md
Projet d'exemple pour lab git
Une modification quelconque

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git stash
Saved working directory and index state WIP on master: b13355e in
it README
HEAD is now at b13355e init README

SPit@PSA41 MINGW64 /d/LabGit (master)
$ cat README.md
Projet d'exemple pour lab git

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git stash list
stash@{0}: WIP on master: b13355e init README

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git status
On branch master
nothing to commit, working directory clean
```

```
SPit@PSA41 MINGW64 /d/LabGit (master)
$ git stash pop
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working
directory)

        modified:   README.md

no changes added to commit (use "git add" and/or "git commit -a")
Dropped refs/stash@{0} (d619a9403805c03084d19bae93775500ba693d96)

SPit@PSA41 MINGW64 /d/LabGit (master)
$ cat README.md
Projet d'exemple pour lab git
Une modification quelconque

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working
directory)

        modified:   README.md

no changes added to commit (use "git add" and/or "git commit -a")

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git stash list

SPit@PSA41 MINGW64 /d/LabGit (master)
$
```



# Branching model

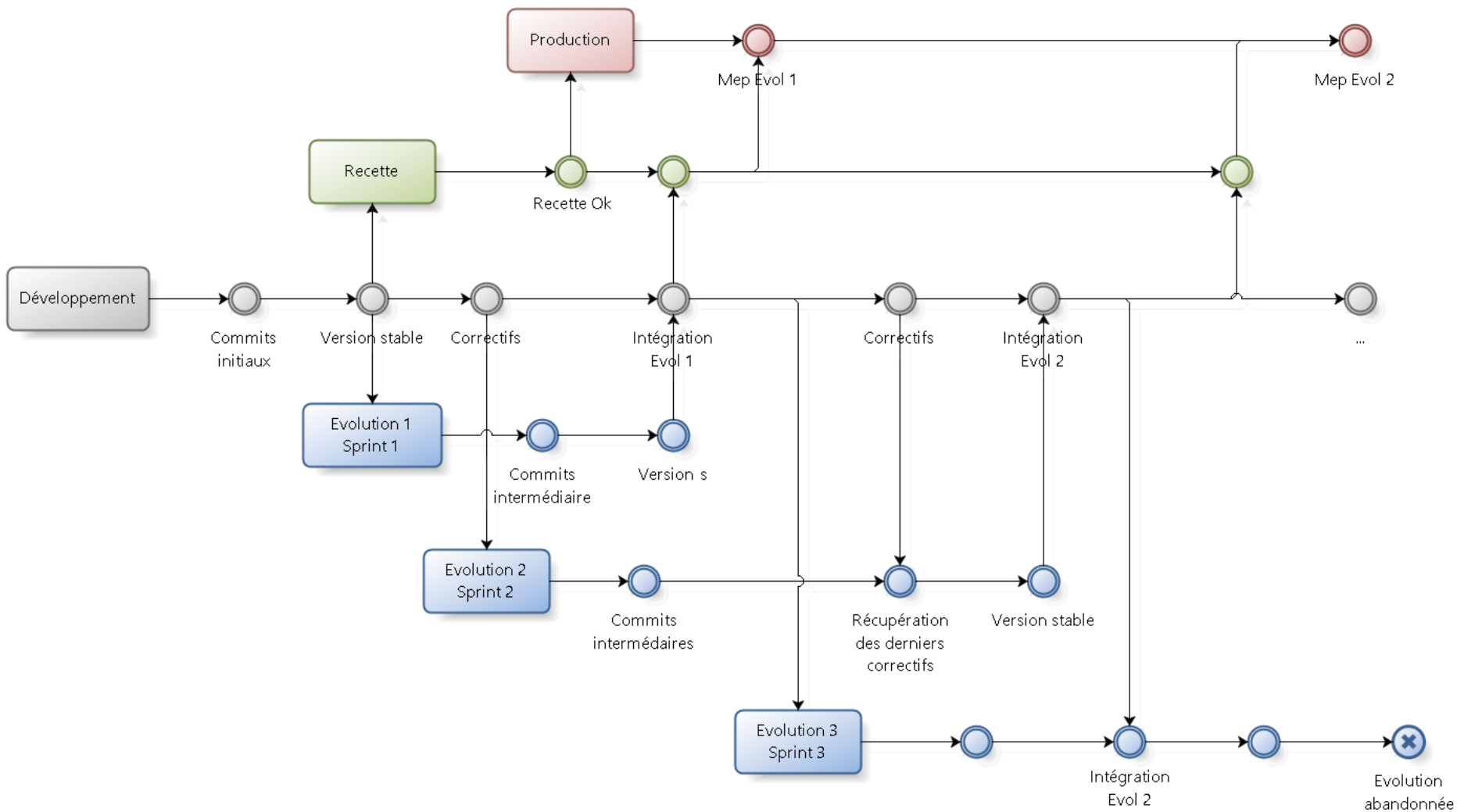


# Branching model

## Mise en place des bonnes pratiques

Le branching model est ce qui fait le lien entre GIT et les processus de l'entreprise :

- Mise en production
- Mise en recette
- Développement d'une évolution
- Correctifs
- ...



# Exemple de mise en place

## Initialisation du dépôt git

```
SPit@PSA41 MINGW64 /d/LabGit
$ echo "# LabGit" >> README.md

SPit@PSA41 MINGW64 /d/LabGit
$ git init
Initialized empty Git repository in D:/LabGit/.git/

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git add README.md
warning: LF will be replaced by CRLF in README.md.
The file will have its original line endings in your working directory.

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git commit -m "Initial commit"
[master (root-commit) 30170d6] Initial commit
warning: LF will be replaced by CRLF in README.md.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)
create mode 100644 README.md

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git remote add origin git@github.com:spiteau-hardis/LabGit.git

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git push -u origin master
Counting objects: 3, done.
Writing objects: 100% (3/3), 225 bytes | 0 bytes/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To git@github.com:spiteau-hardis/LabGit.git
 * [new branch]      master -> master
Branch master set up to track remote branch master from origin.

SPit@PSA41 MINGW64 /d/LabGit (master)
$
```

# Exemple de mise en place

## Création d'une nouvelle branche

```
SPit@PSA41 MINGW64 /d/LabGit (master)
$ git branch update-readme

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git checkout update-readme
Switched to branch 'update-readme'

SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ echo " - 07/04/2016" >> README.md

SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ git add README.md
warning: LF will be replaced by CRLF in README.md.
The file will have its original line endings in your working directory.

SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ git commit -m "Add lab date to readme"
[update-readme warning: LF will be replaced by CRLF in README.md.
The file will have its original line endings in your working directory.
34a43d6] Add lab date to readme
warning: LF will be replaced by CRLF in README.md.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)

SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ git push -u origin update-readme
Warning: Permanently added the RSA host key for IP address '192.30.252.130' to the list of known hosts.
Counting objects: 3, done.
Writing objects: 100% (3/3), 277 bytes | 0 bytes/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To git@github.com:spiteau-hardis/LabGit.git
 * [new branch]      update-readme -> update-readme
Branch update-readme set up to track remote branch update-readme from origin.
```

# Exemple de mise en place

## Mise à jour d'une branche

```
SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ echo " - by Hardis" >> README.md

SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ git add README.md
warning: LF will be replaced by CRLF in README.md.
The file will have its original line endings in your working directory.

SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ git commit -m "Add author to readme"
[update-readme warning: LF will be replaced by CRLF in README.md.
The file will have its original line endings in your working directory.
f13f712] Add author to readme
warning: LF will be replaced by CRLF in README.md.
The file will have its original line endings in your working directory.
1 file changed, 1 insertion(+)

SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ git push
Counting objects: 3, done.
Writing objects: 100% (3/3), 284 bytes | 0 bytes/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To git@github.com:spiteau-hardis/LabGit.git
   34a43d6..f13f712  update-readme -> update-readme

SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ cat README.md
# LabGit
- 07/04/2016
- by Hardis

SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ git status
On branch update-readme
Your branch is up-to-date with 'origin/update-readme'.
nothing to commit, working directory clean
```

# Exemple de mise en place

## Intégrer une branche à la branche principale

```
SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ git pull
Already up-to-date.

SPit@PSA41 MINGW64 /d/LabGit (update-readme)
$ git checkout master
Switched to branch 'master'
Your branch is up-to-date with 'origin/master'.

SPit@PSA41 MINGW64 /d/LabGit (master)
$ cat README.md
# LabGit

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git merge update-readme
Updating 30170d6..f13f712
Fast-forward
 README.md | 2 ++
 1 file changed, 2 insertions(+)

SPit@PSA41 MINGW64 /d/LabGit (master)
$ cat README.md
# LabGit
- 07/04/2016
- by Hardis

SPit@PSA41 MINGW64 /d/LabGit (master)
$ git push
Warning: Permanently added the RSA host key for IP address '192.30.252.128' to the list of known hosts.
Total 0 (delta 0), reused 0 (delta 0)
To git@github.com:spiteau-hardis/LabGit.git
 30170d6..f13f712  master -> master
```

# Exemple de mise en place

## Historique des changements

```
SPit@PSA41 MINGW64 /d/LabGit (master)
$ git log
commit f13f712b56eff6ec74558faf1d525b414428662d
Author: Sylvain Piteau <Sylvain.Piteau@hardis.fr>
Date: Tue Apr 5 17:14:53 2016 +0200

    Add author to readme

commit 34a43d6da8f4eb22d64ea5d7ec2d2f2b51bce050
Author: Sylvain Piteau <Sylvain.Piteau@hardis.fr>
Date: Tue Apr 5 17:12:26 2016 +0200

    Add lab date to readme

commit 30170d64a77f8b855687ea6abd041656dd7cec98
Author: Sylvain Piteau <Sylvain.Piteau@hardis.fr>
Date: Tue Apr 5 16:56:50 2016 +0200

    Initial commit

SPit@PSA41 MINGW64 /d/LabGit (master)
$ |
```



# A quoi servent les branches concrètement ?

Exemple de situation :

- Mise en place d'un nouvel écran (desktop & mobile)
- Données JSON récupérées via web service
- 3 développeurs (desktop, mobile, backend)

Organisation possible :

- Mise en place de 4 branches (evol1, evol1-ws, evol1-front, evol1-mobile)
- Chacun développe sur sa branche
- Quand une branche est stable, on la pousse sur la branche evol1
- Les développeurs front et mobile peuvent intégrer evol1 pour récupérer les derniers web services stables dont ils se servent
- La branche evol1 peut être utilisée pour servir de démo au client à tout moment

# A quoi servent les branches concrètement ?

Exemple de situation multi-activité :

- Développement d'une nouvelle fonctionnalité
- Traitement de bugs à corriger au fil de l'eau
- Un seul développeur

Organisation possible :

- Mise en place de la branche d'évolution
- Correctifs simples directement sur la branche « développement »
- Une branche à part par correctif complexe
- Pas de confusion dans les développements
- Vous avez toujours une branche stable de laquelle repartir (pour une nouvelle correction, une nouvelle évolution, ...)

Pour aller plus loin



# Git, passe la seconde

Vous avez fait un correctif sur une branche et vous voulez ne récupérer que ce commit sur une autre branche ?

- « git cherry-pick »

Vous avez fait des modifications sur un fichier, mais vous ne voulez commit qu'une partie de ce que vous avez fait sur ce fichier ?

- « git add -p »

Vous voulez annuler votre dernier commit ou le modifier ?

- « git reset HEAD^ »
- « git commit --amend »

# Quelques outils

## Client git pour windows

- Git bash (client en ligne de commande)
- TortoiseGit (client graphique)


## Hébergeur de code source

- <https://github.com/> (gratuit pour du code open source)

## Pour mettre en place un serveur git

- GitLab (interface web, celle utilisée par github)

# Quelques outils - GitLab


**GitLab**

GitLab.org / GitLab Community Edition · Files


This project

Project
Activity
Files
Commits
Builds (21)
Graphs
Milestones
Issues (2,946)
Merge Requests (210)
Labels
Forks
Snippets

master
gitlab-ce

Name	Last Update	Last Commit > 92897d76 - Merge branch 'api-filter-milestone' into 'master'	History
app	30 minutes ago	Merge branch 'feature/expose-builds-badge' into 'master'	
bin	3 months ago	Direct sidekiq boot output to log file	
builds	7 months ago	Add missing builds/ folder to fix backup tests	
config	30 minutes ago	Merge branch 'feature/expose-builds-badge' into 'master'	
db	6 days ago	Remove "Congratulations!" tweet button on newly-created project.	
doc	25 minutes ago	Merge branch 'api-filter-milestone' into 'master'	
docker	6 months ago	Fix typo	
features	a day ago	Merge branch 'note-form-design' into 'master'	
fixtures/emojis	8 days ago	Pre-calculate Emoji digests	
lib	25 minutes ago	Merge branch 'api-filter-milestone' into 'master'	
log	4 years ago	init commit	
public	27 days ago	Lets have CSS and logo inline	
scripts	29 days ago	Retry bundler and apt-get	
shared	4 months ago	Make sure everyone has shared/lfs-objects	
spec	25 minutes ago	Merge branch 'api-filter-milestone' into 'master'	
tmp	6 months ago	Remove tmp/.gitkeep	
vendor/assets	13 days ago	Fix broken functionality in sidebar after merge.	

# Quelques outils - GitLab


**GitLab**

GitLab.org / GitLab Community Edition · Commits
This project

Sign in

Commits 26,335
Network
Compare
Branches 196
Tags 285

master
gitlab-ce
Filter by commit message

07 Apr, 2016  
10 commits

Merge branch 'api-filter-milestone' into 'master' ...  
Rémy Coutable authored 17 minutes ago

Merge branch 'feature/expose-builds-badge' into 'master' ...  
Rémy Coutable authored 22 minutes ago

Merge branch 'fix\_14638' into 'master' ...  
Rémy Coutable authored 27 minutes ago

Merge branch 'return-303-for-branch-deletion' into 'master' ...  
Rémy Coutable authored 35 minutes ago

Merge branch 'update-coveralls' into 'master' ...  
Jeroen van Baarsen authored about 2 hours ago

Merge branch 'master' of github.com:gitlabhq/gitlabhq  
Robert Schilling authored about 3 hours ago

Merge branch 'patch-1' into 'master' ...  
Robert Schilling authored about 3 hours ago

Merge branch 'anti-memoizer-mr-fix' into 'master' ...  
Robert Speicher authored about 6 hours ago

Merge branch 'saml-external-groups' into 'master' ...  
Robert Speicher authored about 8 hours ago

Merge branch 'patch/fix-markdown-preview-wikis' into 'master' ...  
Robert Speicher authored about 9 hours ago

06 Apr, 2016  
30 commits

Update coveralls from 0.8.9 to 0.8.13 and simplecov from 0.10.0 to 0.11.2 ...  
Connor Shea authored about 3 hours ago

Return status code 303 after a branch DELETE operation to avoid project deletion ...  
Stan Hu authored about 5 hours ago

23

# Quelques outils - GitLab

GitLab

GitLab.org / GitLab Community Edition · Merge Requests

This project Search

Sign in

Showing 4 changed files with 147 additions and 3 deletions

Inline Side-by-side

View file @afc2980

### CHANGELOG

```

...  ...  @@ -8,6 +8,7 @@ v 8.7.0 (unreleased)
8      8      - Make HTTP(s) label consistent on clone bar (Stan Hu)
9      9      - Expose label description in API (Mariusz Jachimowicz)
10     10     - Allow back dating on issues when created through the API
11     11     + - API: Ability to update a group (Robert Schilling)
12     12     - Fix Error 500 after renaming a project path (Stan Hu)
13     13     - Fix avatar stretching by providing a cropping feature
14     14     - Allow SAML to handle external users based on user's information !3530
...  ...

```

View file @afc2980

### doc/api/groups.md

```

...  ...  @@ -126,6 +126,87 @@ Parameters:
126 126  - `id` (required) - The ID or path of a group
127 127  - `project_id` (required) - The ID of a project
128 128
129 129  +## Update group
130 130  +
131 131  +Updates the project group. Only available to group owners and administrators.
132 132  +
133 133  +```
134 134  +PUT /groups/:id
135 135  +```
136 136  +
137 137  +| Attribute | Type | Required | Description |
138 138  +| ----- | --- | - | - |
139 139  +| `id` | integer | yes | The ID of the group |
140 140  +| `name` | string | no | The name of the group |
141 141  +| `path` | string | no | The path of the group |
142 142  +| `description` | string | no | The description of the group |
143 143  +| `visibility_level` | integer | no | The visibility_level of the group. 0 for private, 10 for internal, 20 for public. |
144 144  +
145 145  +```bash
146 146  +curl -X PUT -H "PRIVATE-TOKEN: 9koXpg98eAheJpv8s5tK" "https://gitlab.example.com/api/v3/groups/5?name=Experimental"
147 147  +
148 148  +```
149 149  +
150 150  +Example response:
151 151  +
152 152  +```json
153 153  +{

```

View file @afc2980

Project

Activity

Files

Commits

Builds (25)

Graphs

Milestones

Issues (2,946)

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Labels

Forks

Snippets



# Questions ?

