Design document: TurboGears QA initiative

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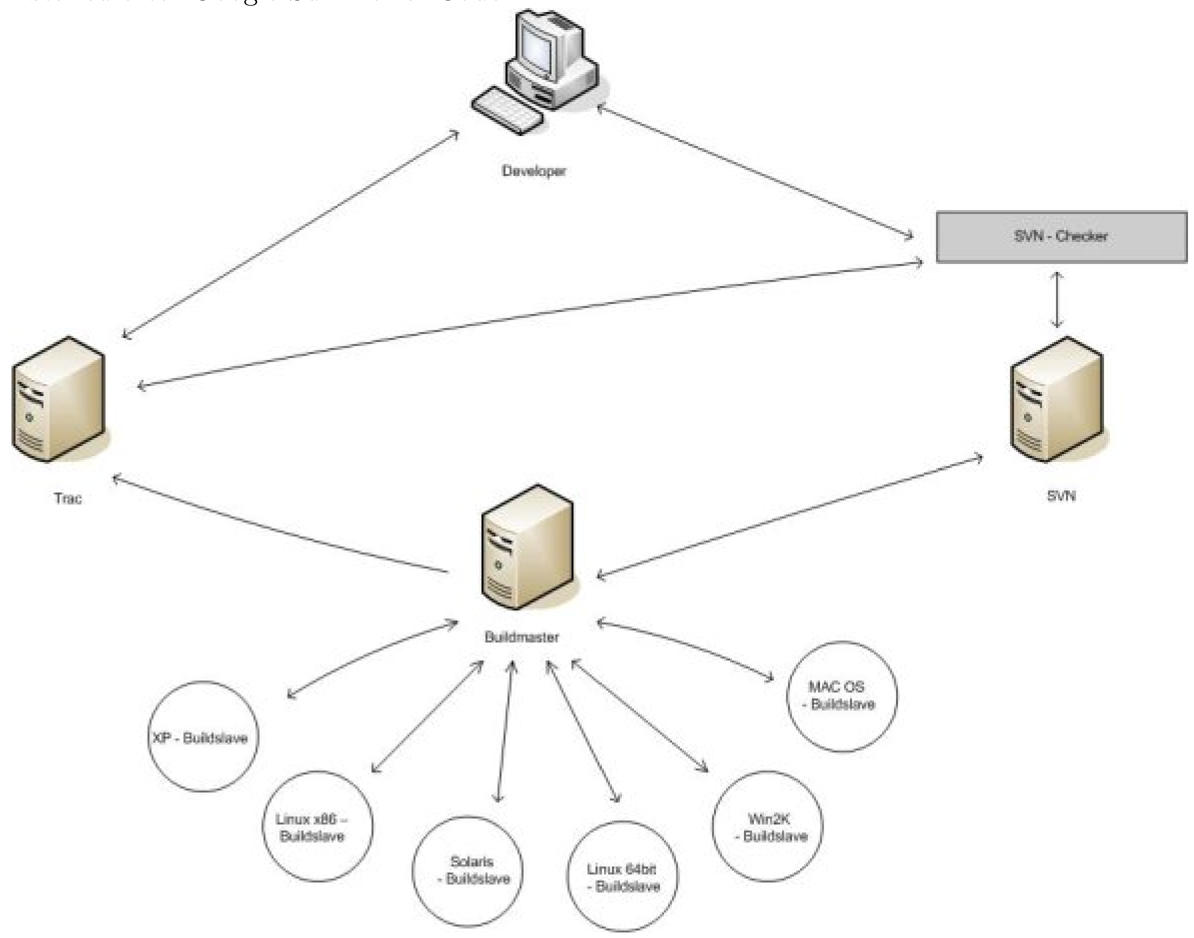
Project description

The goal of the project is to create a system enviroment which automates the core tests and the creation of new TurboGears[2] eggs. It should also create eggs[5] for the dependencies. The second goal was to install SVNChecker[1] and to configure it. This goal was replaced by the creation of a webinterface which should be used to create new build tasks. SVN Checker will be installed after Google Summer of Code.



Test and build environment

To create this test and build environment we use BuildBot[7]. With BuildBot you have one machine, called buildmaster, and a lot of other machines called build slaves. For every supported OS or hardware arcitecture we need three slaves: one for Python 2.3, one for 2.4 and one for 2.5.

Supported OS / architectures

- Buildmaster (24h online)
- Buildslaves (often online)
  - WinXP

- Win2k(3)
- Windows Vista
- Debianx86, Ubuntu64
- Solaris (x86)
- MacOS

OS	**Python2.3**	**Python2.4**	**Python2.5**
Debian x86	X	X	X
Ubuntu x64	X	X	X
Solaris	o	X	X
Windows XP	X	X	X
Windows 2003	X	X	X
Windows Vista	X	X	X

Involved persons

Buildmaster admin: Adds and changes buildtasks

Buildslave admin: Installs all needed depenpencies on the slave to guarantee proper builds

Report manager: Manages trac tickets created by the build master and answer questions of the community according to them.

Developer: Commits source to the repo which activates a build; gets build reports via a special mailing list

Used components

Software

BuildBot

BuildBot creates and manages the bot system.

VirtualEnv

VirtualEnv[3] creates independent python installations to isolate the build enviroment from the rest of the system. So it guarantees proper build results.

Nose

Nose[4] is an unittest framework for python. The unit tests are important to keep the code valid.

Build master

The build master starts the builds and sends the signal to start to its slaves. It also collects the results and presents them via a webinterface[6]. This interface also allows to start builds manually. The build master will be created as a part of this project.

Build slaves

The build slave is the component where the build takes place. It downloads all needed files from SVN (e.g. source or scripts) and distributes the results (uploads created eggs) and publishes build reports in wiki[10].

Build tasks

Creation of binary eggs for all dependencies

This is the way the eggs are created:

1. SVN check out or source download via easy_install
2. Creation of the egg
3. Running of core tests (if aviaible)
4. Upload to TurboGears EggBasket server

Binary eggs will be created for the following dependencies:

- Cheetah
- Webhelper
- Pylons
- RuleDispatch
- simplejson
- pysqlite (Python 2.4)
- PyProtocols
- cElementTree (Python 2.4)

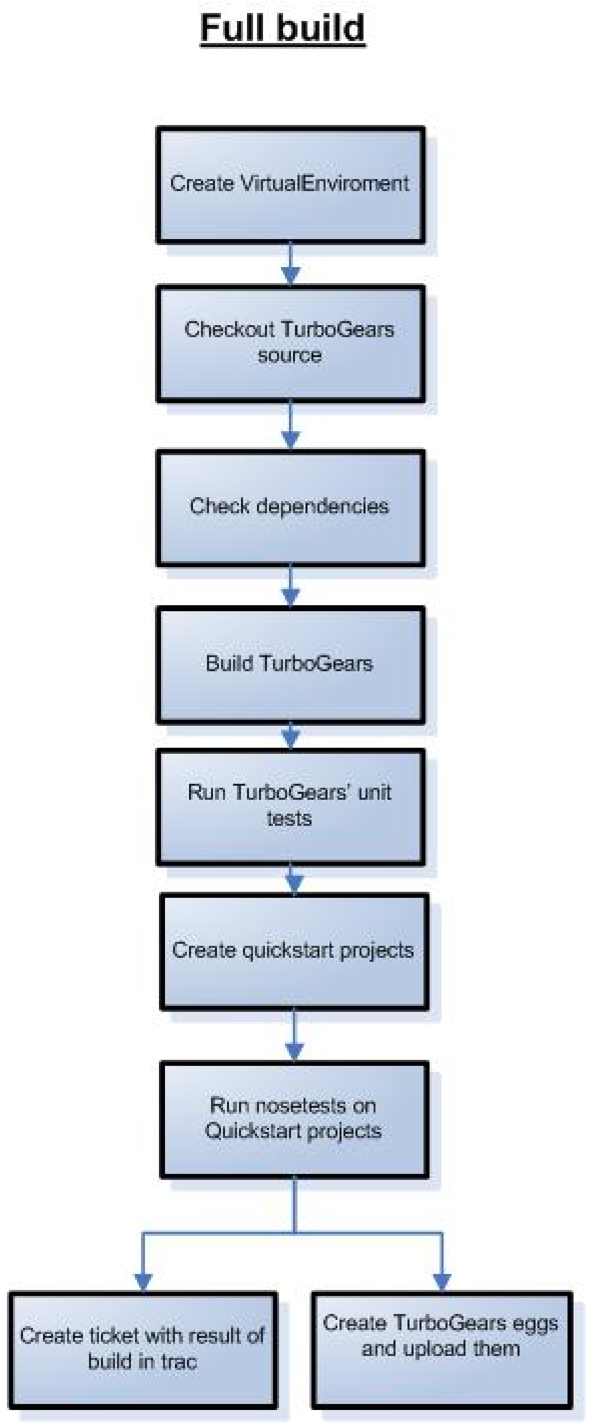
Creation of binary eggs for TG

The build system creates eggs for TG 1.0, 1.1 and 2.0

This is the way the eggs are created:

1. Setting up a virtual environment
2. TG source check out[9]
3. Installation of external dependencies

4. Installation of TG
5. Running unit tests (a failure will stop the build)
6. Creation of all possible quick start projects
7. Running unit test of quickstart projects
8. If unit tests fail, create a trac ticket (if applicable)
9. Creation of the egg and upload to TG server


Full build
Create VirtualEnviroment
Checkout TurboGears source
Check dependencies
Build TurboGears
Run TurboGears' unit tests
Create quickstart projects
Run nosetests on Quickstart projects
Create ticket with result of build in trac
Create TurboGears eggs and upload them

Upload to TG server

The eggs will be uploaded to a TurboGears EggBasket[8] instance.

Nightly build of TurboGears documentation

The BuildBot system should also create the TurboGears documentation.

BuildBot webinterface

The concept of the web interface is described in a different file (svn.turbogears.org/build/notes/bb_config.pdf)

SVNChecker

SVNChecker is a framework which was designed to assist users to create hook scripts for SVN. SVNChecker has a number of predefined classes which allow an easy integration of bug tracking systems or coding style checkers. If a critical test fails, the check in will be rejected.

Functions:

Pylint New code will be checked for correctness and conformance of coding standards.

XMLValidator Validates the xml code.

Interaction with trac (will be added when trac functions are implemented)

minimum log lenght each check-in log has to have a minimum lenght f.e. 15 characters

References

- Project schedule TurboGears QA initiative (`project_schedule.rst`)
- Buildslave documentation (`buildslave.rst`)
- Buildmaster documentation (`buildmaster.rst`)
- Steven's blog: http://stevenmohr.wordpress.com
- Agile Testing: http://agiletesting.blogspot.com

[1] http://www.svnchecker.tigris.org

[2] http://www.turbogears.org

[3] http://pypi.python.org/pypi/virtualenv

[4] http://www.somethingaboutorange.com/mrl/projects/nose/

[5] http://peak.telecommunity.com/DevCenter/setuptools

[6] will be added

[7] http://www.buildbot.net

[8] http://www.chrisarndt.de/projects/eggbasket/

[9] http://svn.turbogears.org/

[10] http://docs.turbogears.org/