

Build Environment at a Small BioTech Company with a Small Software Department

GenVault Specializes in Room Temperature Biosample Storage and Transport

GenVault's Software Department develops Biosample Data and Inventory Software

- 4 Software Engineers
- 1 QA Engineer

Challenges

- Builds turning out differently in various build environments – needed a “canonical” build.
- Build failures not identified promptly.
- Builds not performed with most recent revisions.
- Hard to correlate unit test failures to specific revisions.

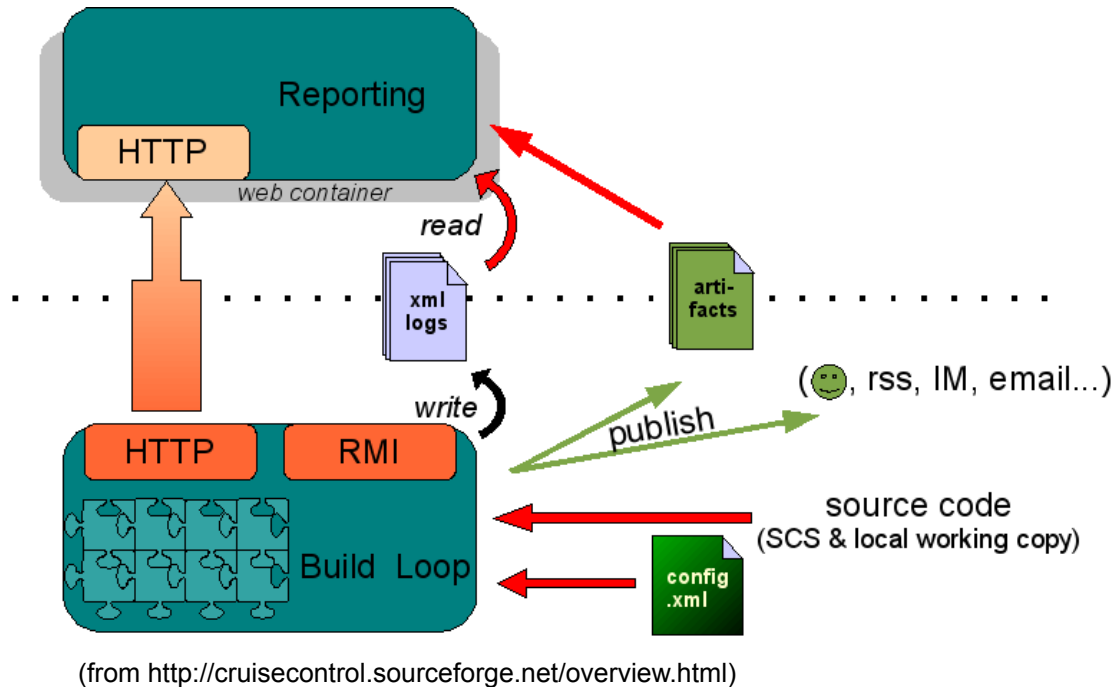
Technology

CruiseControl (<http://cruisecontrol.sourceforge.net/>)

Feature	What it means for us
Java Based, Cross-platform, Open Source, Free as-in Speech and Free as-in Beer	We can run it on multiple build machines with different environments without worrying about license costs
Integrates with many builders (Ant, NAnt, Maven, Phing, Rake, Xcode, or exec native commands)	We can re-use our existing Ant build configuration.
Integrates with <u>lots</u> of Version Control Systems	Works well with our Subversion repository
Integrates with project management and defect tracking systems	Works well with our Trac system

- Easy to access interface and notifications: Web dashboard, email notifications, WebStart dashboard, JMX.
- Extensible, lots of 3rd party extensions.
- Unified, extensible reporting of build process, unit test results, metrics.
- Historical views of builds and metrics.

Technology - Architecture



1. Scheduler
2. Modification Listener
3. Builder
4. Log Merger
5. Publisher

Build Environment

- Build Machine: Linux hosting CruiseControl.
- Source Code Repository: Linux hosting Subversion.
- Development Machines: Mix of Windows and Linux, using Ant scripts for builds (IDE agnostic).

Build Process

1. Check Subversion once per hour for modifications.
2. If modifications are found launch Ant:
 - a) Compile all sources.
 - b) Run all unit tests.
 - c) Run FindBugs.
3. Merge log files.
4. Publish:

If build succeeds:

 - a) Copy Installer to shared directory.
 - b) Send email notification to developers that committed changes.

If build fails:

 - c) Spam everyone in the developer group every 5 minutes until the build is fixed.

Lessons Learned

- All Around Grade: A-
- Documentation on build loop configuration is good.
- Documentation on dashboard application is lacking.
- “Headless” build environment is difficult for GUI functional testing. (use Xvfb)
- Extensibility can be sticky. Uses xsl to merge log files, a little slow at times, have to fiddle with xsl if the reports don't turn out quite right.