A Roadmap to Continuous Integration for ATLAS Software Development

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The ATLAS Software
- 2200 packages with 4 million C++ and 1.4 million python lines
- 1000 developers
- Multi-Stream development (70 branches of nightly releases)
- Infrastructure with web-interfaced tools for code storage (SVN), version management (Tag Collector), nightly building and testing (NICOS, ATN, RTT)

The ATLAS Software Infrastructure Evolution
- Adoption of continuous integration (CI) practices
- Building nightly releases early and often
- Rationalize hardware resource allocation
- Rigorous unit and integration testing
- Use open source tools such as Jenkins, Git, CTest

Current ATLAS Software Infrastructure

Path to Continuous Integration

Continuous Integration (CI):
a software development practice where members of a team integrate their work frequently, usually each person integrates at least daily - leading to multiple integrations per day. Each integration is verified by an automated build (including test) to detect integration errors as quickly as possible (http://www.martinfowler.com/articles/continuousIntegration.html, 2006)

Current Status
- Switch to CMake completed
- CTest support is integrated in software releases, unit tests design in progress
- CPack packaging works, RPM deployment mechanism under development
- ATLAS Jenkins master-slave system works in test mode
- SVN to Git migration procedure developed, Git repository model created
- Evaluation of open source build monitors started