Benefits of the Build: A Case Study in Continuous Integration

Summary

Agile processes such as XP and RUP advocate continuous integration, where shorter iterations produce an incremental and functional growth of the system. The fundamental component of any Continuous Integration strategy is an automated and repeatable build. In addition to ensuring your application is always in a functional state, a robust build strategy enables a number of other important lifecycle activities.

In this session, we'll explore the important characteristics of Continuous Integration, including the development of an automated and repeatable build, and numerous other utilities that enrich the build process. We will also explore the important long term benefits of Continuous Integration by examining it's use on a real world project. Multiple examples using CruiseControl, Ant, and other third party utilities will be shown, and tales from a project experienced with Continuous Integration will be shared.

Audience

Benefits of the Build will benefit **software developers, architects, project managers** and **business analysts**. Developers and Architects will learn ways to develop a rich automated and repeatable build process using open source utilities. All attendees will gain fresh insight into the benefits of an automated and repeatable build. These benefits include promoting agility, tightening the feedback loop between IT and clients, and generating project metrics that can be used to objectively and subjectively gauge development progress and system stability.

Content Outline (90 minutes)

1. **Introduction (15 minutes)**
   Goal: Review Continous Integration and it's benefits. Discuss the attributes of an automated and repeatable build process.
   Topics Include:
   - Continuous Integration
   - Automated and Repeatable Build
   - Standard Environment
   - Micro Personal Development Process
   - Defects
   - Impediments
2. **Developing an Automated and Repeatable Build (40 minutes)**
   Goal: Develop an automated and repeatable build for an existing system. Introduce two open source utilities that help in setting up the build process.
   Topics Include:
   - Checkout and Compile
   - Automated Testing
   - Application Bundling
   - Generating metrics
   - Deployment
   - CruiseControl and Ant
3. **Positive Affects (35 minutes)**

Goal: Explore the positive side affects of an automated and repeatable build process. This discussion is drawn from the experiences of a 50 person project team employing a Continuous Integration strategy.

Topics Include:

- Project Consistency
- Tight Feedback Loop
- Fully Functional Product
- Dependency Enforcement
- Agile and Iterative
- Case Study

Presenter Background

Kirk is the Senior Technology Strategist at TeamSoft, Inc. (http://www.teamsoftinc.com), where he leads based on his firm belief in the pragmatic use of technology. In addition to his work on enterprise development projects, Kirk shares his experiences through courseware development and teaching, writing, and speaking at seminars and conferences. Kirk has provided training and mentoring to thousands of software professionals, teaching courses on object-oriented development, Java, software architecture, software process, and UML.

Kirk is the author of Java Design: Objects, UML, and Process, and the founder of www.extensiblejava.com, a growing resource of design pattern heuristics that emphasize greater component modularity in large scale enterprise software projects. He is a frequent contributor to The Agile Journal, where he writes The Agile Developer column. He is also the creator of JarAnalyzer and AssAnalyzer, utilities for identifying and managing the physical dependencies between Java .jar files and .Net dll assemblies, respectively. files. His personal website is www.kirkk.com, his blog is http://techdistrict.kirkk.com, and his planet is http://planet.kirkk.com.

Tutorial History

This tutorial is based on two real world projects that adopted a Continuous Integration strategy whose foundation was built on an automated and repeatable build. The March 2005 issue of Software Development magazine featured an article with the same named that was based on the material in this presentation. In addition to the documented advantages of Continuous Integration, a number of other unanticipated benefits were realized that enabled the team to work in a much more agile manner. These benefits are discussed throughout the presentation. This session was presented at SD Best Practices, SD Expo, Architecture & Design World, and the NoFluffJustStuff Java Software Symposium Tour.

Presenter Contact Information

Kirk Knoernschild
email: pragkirk@kirkk.com