TeamCity

Optimizing Build Management and Continuous Integration

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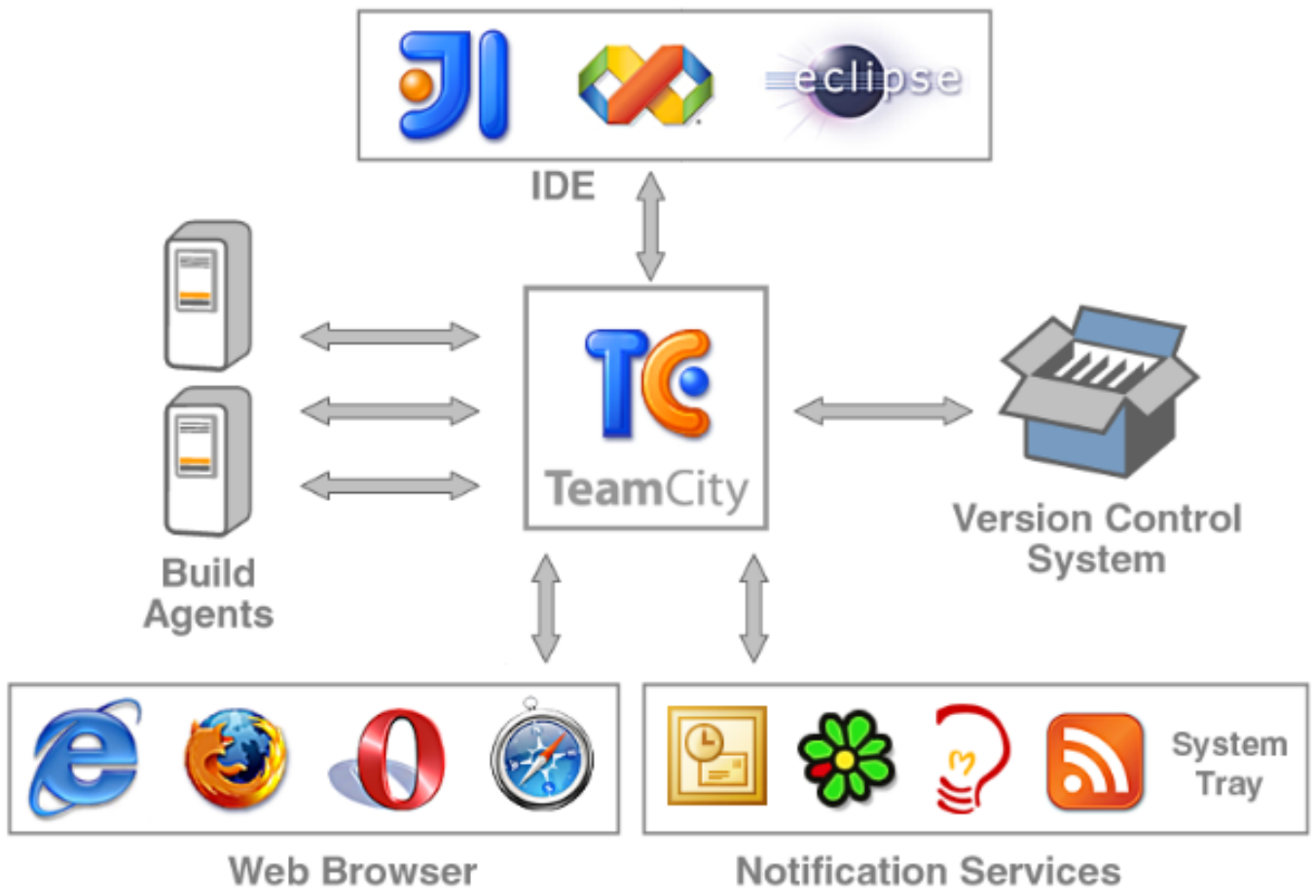
TeamCity Facts

- around for 3 years, preparing version 5.0
- developer-oriented
- wide tools support
- web UI and IDE plugins
- FREE and commercial editions

Architecture



Build Grid

- Single server (storing settings, users)
- Many agents with different environments
- Ability to run several builds in parallel
- Choosing agent for a build based on agent's properties

Common problems

- Broken code in version control
- Notifications spam
- Build failure investigation is not easy
- Code quality degrades over time
- Complex/multipart builds

Broken Code: problem

- forgot to check-in a file modified locally
- tests run in my environment but fail on another OS
- 5 o’clock check-in

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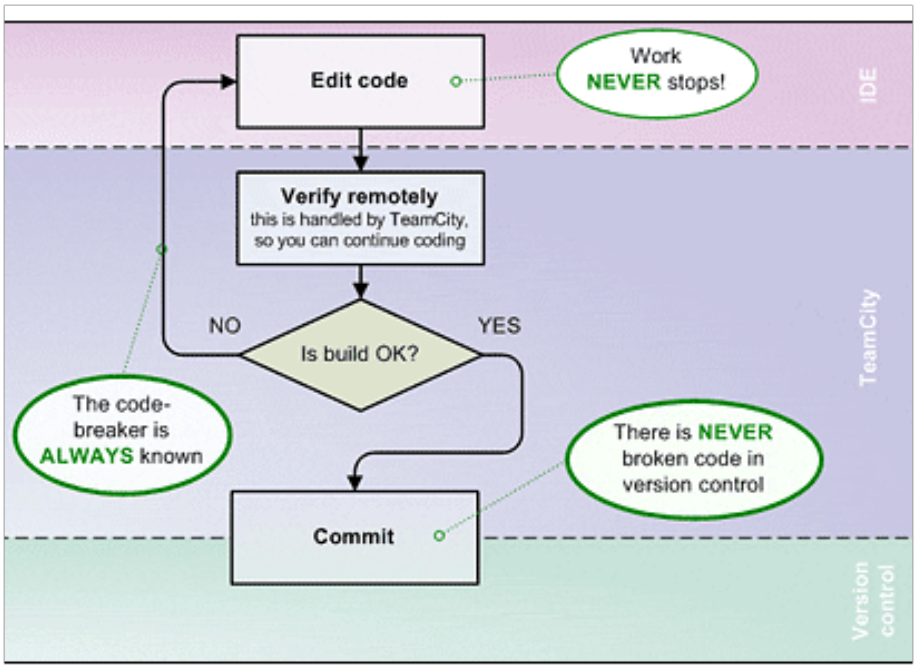
Broken Code: solution

- Pre-tested commit



Notification spam: problem

- Excessive notifications
  - Build failure caused by other developer's changes
  - A test that is not fixed for several days
- Problem investigation requires significant time

Notification spam: solution

- Customize notification rules to your needs
- Personalized notifications (when MY changes failed the build)
- Notify only when NEW failures occur
- Notify as soon as a first test fails
- Customizable notification templates

Hard to investigate the failure reason: problem

- Find changes that might have caused the failure
- Let the responsible developer know
- Drill down into test failure details

Hard to investigate the failure reason: solution

- Who broke it:
  - Display changes included into the build
  - Test “new” status, build that had it failed for the first time
  - Test runs history
- Assign responsibility
- Investigate the failure:
  - View test details in web
  - Jump to the test in IDE

Code quality degrades: problem

- Manual task: discipline required
- Requires time to run analysis tools
- Everyone should do it

Code quality degrades: solution

- Run code analysis on the server, display the results in IDE and in the web for the whole team
- Inspections
- Duplicate code
- Code coverage

Multipart and inter-dependent builds: problem

- Separate build for a library in a project
- Need different OS'es for packaging/testing
- Run parts of a build in parallel

Multipart and inter-dependent builds: solution

- Artifact dependencies
- Snapshot dependencies (same sources)
- Dependency triggers

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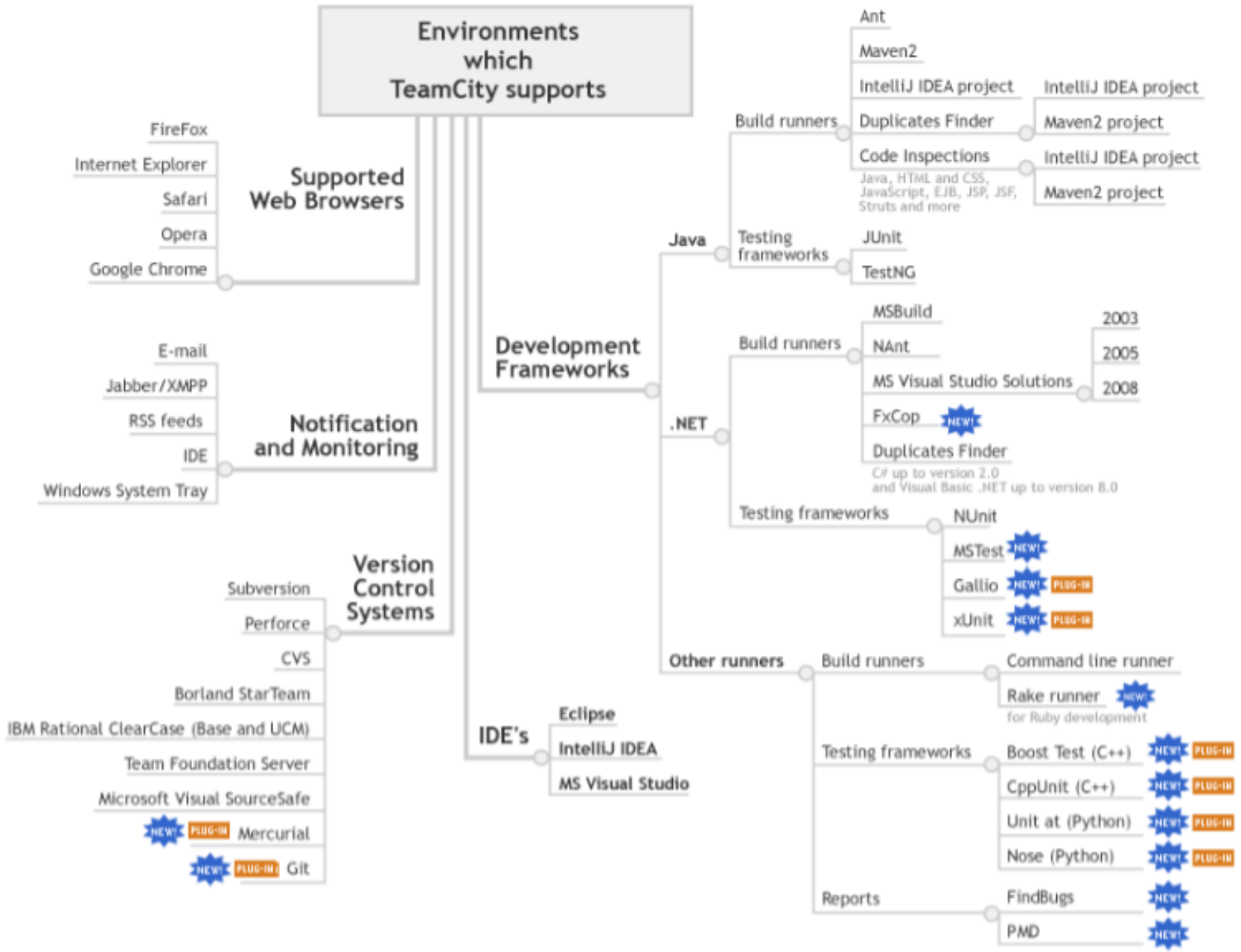
Environments which TeamCity supports
Supported Web Browsers
FireFox
Internet Explorer
Safari
Opera
Google Chrome
Notification and Monitoring
E-mail
Jabber/XMPP
RSS feeds
IDE
Windows System Tray
Version Control Systems
Subversion
Perforce
CVS
Borland StarTeam
IBM Rational ClearCase (Base and UCM)
Team Foundation Server
Microsoft Visual SourceSafe
NEW! PLUG-IN Mercurial
NEW! PLUG-IN Git
Development Frameworks
Java
Build runners
Ant
Maven2
IntelliJ IDEA project
Duplicates Finder
IntelliJ IDEA project
Maven2 project
Code Inspections
IntelliJ IDEA project
Maven2 project
Java, HTML and CSS, JavaScript, EJB, JSP, JSF, Struts and more
Testing frameworks
JUnit
TestNG
.NET
Build runners
MSBuild
NAnt
MS Visual Studio Solutions
2003
2005
2008
FxCop NEW!
Duplicates Finder
C# up to version 2.0 and Visual Basic .NET up to version 8.0
Testing frameworks
NUnit
MSTest NEW!
Gallio NEW! PLUG-IN
xUnit NEW! PLUG-IN
Other runners
Build runners
Command line runner
Rake runner NEW!
for Ruby development
Testing frameworks
Boost Test (C++) NEW! PLUG-IN
CppUnit (C++) NEW! PLUG-IN
Unit at (Python) NEW! PLUG-IN
Nose (Python) NEW! PLUG-IN
Reports
FindBugs NEW!
PMD NEW!
IDE's
Eclipse
IntelliJ IDEA
MS Visual Studio

Extensions

- Configuration extensions:
  - Report tabs
  - Service messages
- Java plugins using open API

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What's new in upcoming 5.0

- Build Configuration templates
- Improved Maven integration
- Responsibility per individual test
- EC2 dynamic agents support
- TeamCity data backup from web UI
- Many UI improvements

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Free Professional Edition Limitations

	Professional	Enterprise
Build Configurations Limit	20	unlimited
Users Limit	20	unlimited
User Roles	global admin, developer, guest	per-project, customizable
Authentication schemes	internal user list	internal, LDAP, NT domain, customizable
Agents included	3	3
Server price	FREE	$1999
Agent price	$299	$299

More information

- Demo server: http://teamcity.jetbrains.com
- Early access program
- Developers blog
- Forums

Thank you!

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