Equinox Project 3.5 Release Review

RT Project PMC

Highlights

- 3.5 new features:
  - Implementation of OSGi R4.2 core framework specification and various compendium services specifications
  - Redesigned p2 UI, more robust p2 implementation
- API quality:
  - High. No breaking changes to Equinox API
  - Binary compatible for compliant plug-ins
  - 42 classes or interfaces with new API (either new types, or existing types with new members)
  - 1 deprecated class, 7 deprecated methods
- End-of-life issues:
  - No longer distributing Jetty 6.1, replaced with Jetty 7.1
- IP Clearance and Licenses:
  - All licenses and about files are in place as per the Eclipse Development Process, the Due Diligence Process was followed for all contributions
- Community and Committer Diversity:
  - 33 committers, 17 active in past 9 months
  - Organizations: IBM (10), Individuals (2), Prosyst, EclipseSource, compeople AG, Cloudsmith, WeigleWilczek GmbH (1 each)
  - Geographies: Canada (8), USA (3), Germany (3), Bulgaria (1), Sweden (1), France (1)
  - Commits: IBM (83.4%), EclipseSource (6.3%), Individuals (6%), Prosyst (1.8%), WeigleWilczek Gmbh (1.4%), Cloudsmith (1.1%), Compeople (0.1%)
  - Consumed by all other Eclipse projects

Themes and Plan Items

- Scalability
  - Reduce size and improve performance of framework
  - Improve install time
  - Improve performance of “uses” directive in resolver
- Robustness
  - Improve framework thread safety
  - Improve security tests
  - Improve p2 test coverage
  - Improve robustness of installation
  - Investigate use of alternate HTTP clients for install
  - Improved path and URL support
  - Extensible execution environments
  - WebStart support on latest VMs
  - Pass arguments to a running Eclipse application
  - Improved logging story
  - Support undeploying servlet bridge
  - Improve robustness of download operations
- Consumability
  - Improve security UI
  - API completeness
  - New p2 UI workflows
  - Improve p2 error reporting
  - Improve p2 responsiveness
  - Improved configurability for Jetty HTTP service
  - Simplify addition of repository content
  - Integration of servlet bridge with p2
  - Create p2 API
- The Future
  - OSGi standards participation
  - Update to the latest Jetty release
  - Investigate improvements to the extension registry

http://www.eclipse.org/projects/project-plan.php?projectid=eclipse

Deferred 3.5 Plan Items

- Improve performance of “uses” directive in resolver
- Webstart support on latest VMs
- Pass arguments to a running Eclipse application
- Improve security UI
- API completeness
- Create p2 API
- Integration of servlet bridge with p2
- Investigate improvements to the extension registry

New and Noteworthy

- Enhancements to conditional permission admin service to support RFC 120
- New publisher bundle in p2
- Service registry enhancements to support RFC 126
- Standardized OSGi framework launching support - RFC 132
- Support for composite bundles (nested frameworks, RFC 138
- New core framework API to support OSGi R4.2 framework specification
- New Equinox concurrency provisional API (futures, executors)
- Enhanced DebugOptions to support dynamic debug changes
- New Equinox tracing API for writing trace data to a file or other output
- Declarative services implementation changes to support RFC 134 in OSGi R4.2 spec

3.5 Plug-in Changes from 3.4

Added Plug-ins (7)

- org.eclipse.equinox.concurrent
- org.eclipse.equinox.ds
- org.eclipse.equinox.p2.publisher
- org.eclipse.equinox.p2.repository
- org.eclipse.equinox.p2.repository.tools
- org.eclipse.equinox.p2.ui.sdk.scheduler
- org.eclipse.equinox.util

Removed Plug-ins (0)

- None

Added 3rd Party Plug-ins (6)

- org.apache.commons.codec
- org.apache.commons.httpclient
- org.eclipse.ecf.provider.filetransfer.httpclient
- org.eclipse.ecf.provider.filetransfer.httpclient.ssl
- org.mortbay.jetty.server
- org.mortbay.jetty.util

Removed 3rd Party Plug-ins (1)

- org.mortbay.jetty

Note: 3rd party plug-ins are plug-ins consumed in the Equinox SDK but not produced by the Equinox Project

Non-Code Aspects

- The 3.5 release will contain updated User and ISV documentation
- Community is very active
  - Mailing lists and newsgroups have steady activity
    - Equinox-dev@eclipse.org, p2-dev@eclipse.org
  - Blogs dedicated to Eclipse are active e.g.
    - http://www.planeteclipse.org
  - Wiki content is growing
    - http://wiki.eclipse.org/Equinox
    - http://wiki.eclipse.org/Equinox/p2

Non-Code Aspects

- Internationalization
  - Latin1 and Latin2 locales are supported in all operating environments
  - DBCS locales are supported on all platforms
  - GB18030-1 Chinese codepage standard is supported on Windows, Linux GTK and Mac.
- Localization
  - Tested for Localization and participating in Babel Project
- Accessibility
  - Tested for accessibility, but Equinox has minimal GUI code

Non-Code Aspects

- Articles, examples, and tutorials
  - Numerous Webinars and Podcasts
  - Library of demo code in Equinox incubator
  - Tutorials given at EclipseCon and other conferences

Platform Quality API

- API quality is a collaborative effort that involves the experience of the developers working on the Equinox project, and feedback from consumers.
- API changes and proposed API additions are often broadcast to mailing lists to raise awareness of the changes and encourage discussion and feedback.
- API changes between 3.4 and 3.5 are checked automatically by API tooling integrated into integration build process.
- No breaking API changes in 3.5
- Some org.osgi APIs had breakage as draft implementations evolved along with specification changes in OSGi R4.2
- The PMC is comfortable supporting the API that is in the Equinox project 3.5

3.5 API – Equinox

New

- Updated to OSGi R4 V4.2 APIs and the following implementations have been updated
  - OSGi Core Framework Specification
  - OSGi Compendium Services Specification, including: application container, declarative services, preferences, initial provisioning, http service etc.
- Added provisional API for futures (org.eclipse.equinox.concurrent.future)
- Enhanced trace APIs to allow for dynamic enablement of trace options and more advanced tracing.
- Added platform constants for os390 and zOS operating systems and cocoa windowing system

Deprecated

- The EventListeners class has been deprecated in favor of the CopyOnWriteIdentityMap class for performance improvements and to simplify the implementation of event hooks in OSGi.
- Deprecated methods on ConditionalPermissionUpdate to allow atomic updates of multiple condition rules
- Deprecated PlatformAdmin.getResolver() in favor of createResolver()
- PackagePermission.EXPORT deprecated to allow for more fine-grained package permissions

Tool Usability

- As part of the Runtime project, tooling falls outside the Equinox project mandate
- Some developer tools such as console, command line tools provided
- Work closely with the PDE project which provides tooling for Equinox

Architectural Issues

- Primary runtime is still a 1.4 JRE. Complementary functionalities on Java SE 5 (junit4, APT 5) and Java SE 6 (APT 6, compiler API)
- Minimum execution environment for some bundles moved up from Foundation 1.0 to Foundation 1.1
- Framework execution environment moved up to OSGi minimum 1.2 profile
- 7 new bundles, zero removed bundles

End of Life Issues

- When evolving API the Equinox Project will, whenever possible, deprecate the affected API methods and continue to keep them operational.
- Exceptions to this rule are in the 3.5 migration guide.
- No longer distributing Jetty 5.1, instead shipping Jetty 6.1

Bugzilla

- Between June 25, 2008 and May 30, 2009 (RC3)
  - More than 2,500 reports were created
  - Over 2,200 were resolved
  - Over 800 were resolved without changing code
    - invalid, duplicate, worksforme, etc...
  - Over 80 were backported to 3.4.x maintenance
- Current state (RC3) is
  - 2 blockers, 10 critical
  - 0 P1, 6 P2

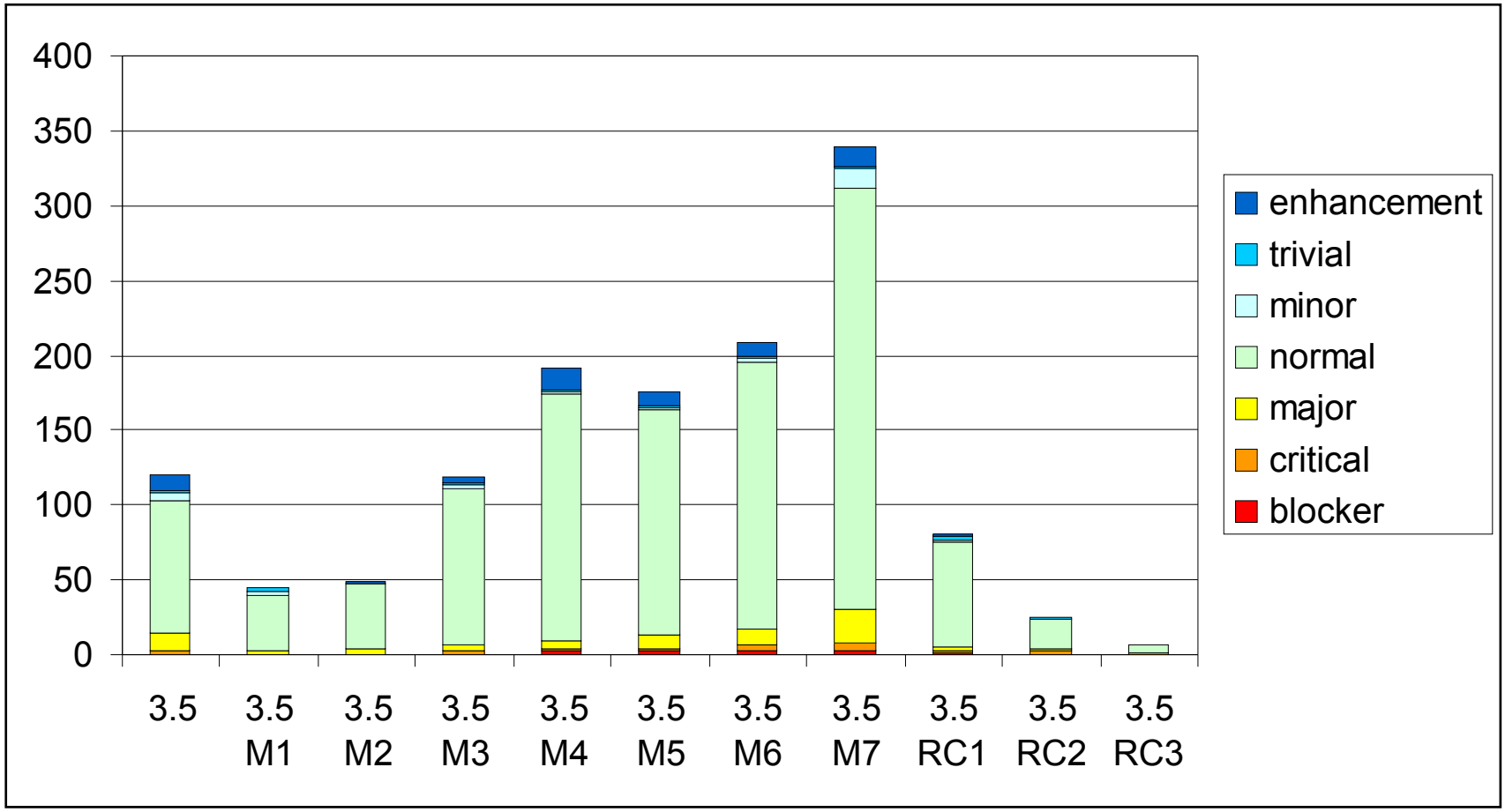
Bug resolution during 3.5

RESOLVED	M1	M2	M3	M4	M5	M6	M7	RC1	RC2	RC3	RC4	3.5	Total
blocker	0	0	0	3	2	2	3	1	0	0	?	0	**11**
critical	0	0	3	1	2	4	5	1	2	1	?	2	**21**
major	3	4	3	5	9	11	22	3	2	0	?	13	**75**
normal	37	43	105	165	151	178	282	70	20	5	?	88	**1145**
minor	2	1	3	2	1	3	13	2	0	0	?	5	**32**
trivial	3	0	1	1	1	1	1	2	1	0	?	1	**12**
enhancement	0	1	4	14	10	10	13	1	0	0	?	11	**64**
Total	**45**	**49**	**119**	**191**	**176**	**209**	**339**	**80**	**25**	**6**	**1**	**120**	**1360**

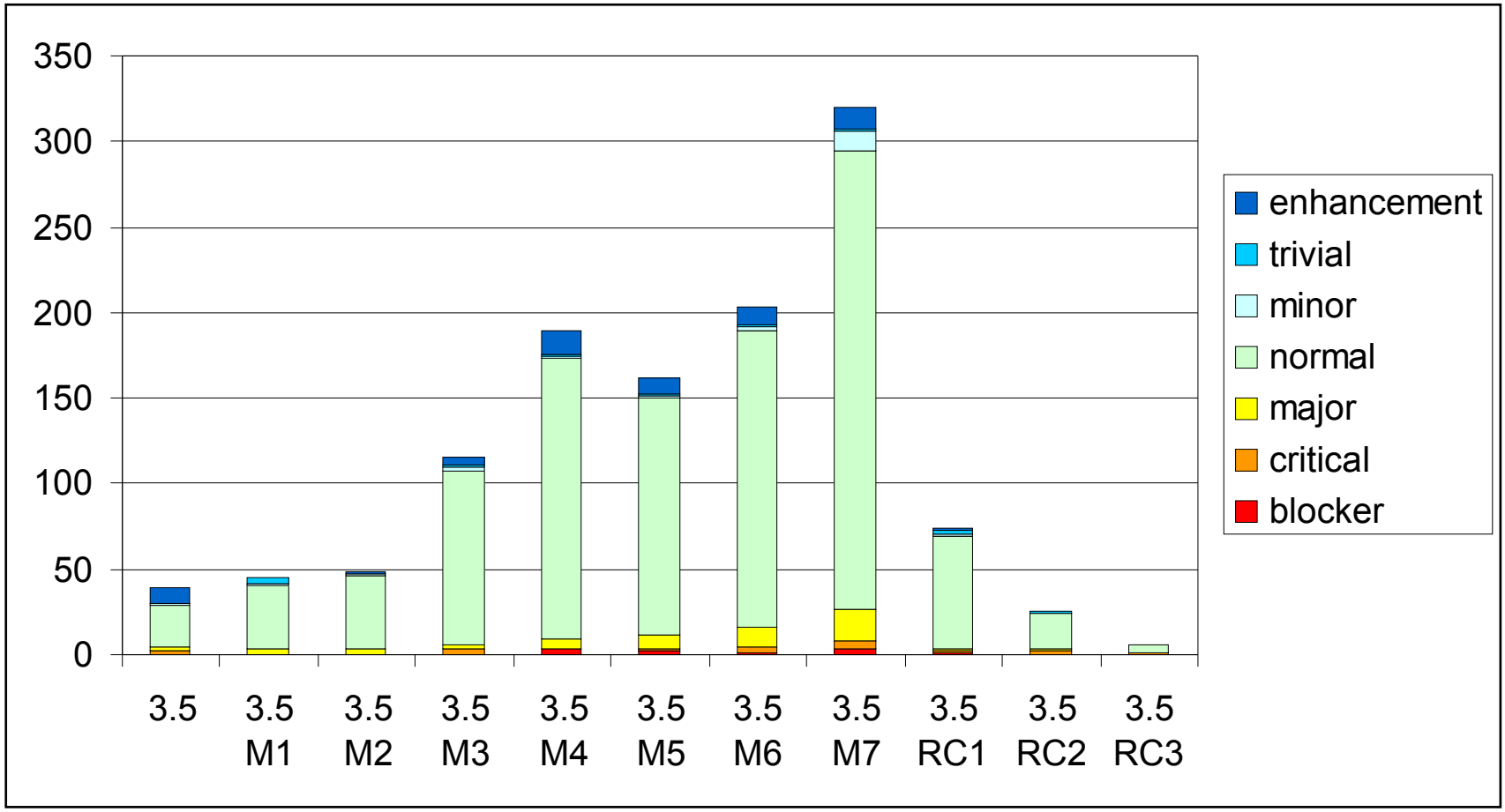
FIXED	M1	M2	M3	M4	M5	M6	M7	RC1	RC2	RC3	RC4	3.5	Total
blocker	0	0	0	3	2	1	3	1	0	0	?	0	**10**
critical	0	0	3	1	1	4	5	1	2	1	?	2	**20**
major	3	4	3	5	8	11	19	2	2	0	?	3	**60**
normal	37	42	102	164	139	173	267	65	20	5	?	24	**1038**
minor	2	1	2	2	1	3	12	2	0	0	?	1	**26**
trivial	3	0	1	1	1	1	1	2	1	0	?	0	**11**
enhancement	0	1	4	14	10	10	13	1	0	0	?	9	**62**
Total	**45**	**48**	**115**	**190**	**162**	**203**	**320**	**74**	**25**	**6**	**?**	**39**	**1227**

Resolved bugs

including fixed, invalid, …



Fixed bugs (only)



Standards

- OSGi
  - Service Platform Core Specification, Release 4.2
  - Elements of the OSGi Service Platform Service Compendium, Release 4.2
  - New implementations of OSGi RFC's in 3.5 release: 120, 126, 132, 134, 138

UI Usability

- Strings are externalized to support translation into other languages.
- Extensive use of mnemonics and shortcut keys in the user interface enhances usability.
- Full Bidirectional support (mirroring) on Windows and Linux GTK, bidirectional text on Mac OS X
- Accessibility support for Windows, Linux GTK and Mac OS X
- We are not aware of any non-compliance with accessibility standards in the user interface

Schedule

- Milestones every 6 weeks, 6 cycle duration
  - API frozen on March 13 (M6), Feature freeze May 1 (M7)
  - Adjusted M5/M6 duration (resp. 7 weeks and 5 weeks) for EclipseCon
  - http://www.eclipse.org/projects/project-plan.php?projectid=rt.equinox#release_milestones
- Tracked schedule
  - All milestones except M5 delivered as promised
    - M5 three days late due to last minute Eclipse Foundation certificate change
- End game (release candidate) milestones for 4 cycles
  - Duration reduced from 2-week to 1-week cycles at RC2 milestone
  - No new features or API allowed without proper approvals
  - Development to end on June 12, 2009
  - Increasingly stringent approval, checking, and change notification requirements in this stage
  - http://www.eclipse.org/equinox/planning/freeze_plan_3.5.php

Process

- The Equinox project is developed using an open, transparent, and inclusive process
- Teams rely on Bugzilla, mailing lists and newsgroups for input
- Weekly planning calls conducted with the PMC and component leads
  - Meeting minutes posted on the Equinox wiki page
- Component teams have publicly available milestone plans on the wiki

Community

- Equinox team members are active in Bugzilla, newsgroups, and mailing lists
- Blogs started by Equinox committers are active
  - http://www.planeteclipse.org
- Some teams are using the equinox-dev IRC channel
  - irc://irc.freenode.net/#equinox-dev
  - also see: http://wiki.eclipse.org/index.php/IRC
- The Equinox team participates in code camps, conference presentations, and tutorials, including
  - EclipseCon, JavaOne, JavaWorld, JAOO, Eclipse Summit Europe, Eclipse Forum Europe, JAX, JAX Asia
- The Equinox team interacts with other open source projects, standards bodies, and other projects on eclipse.org, including
  - OSGi, Apache, JCP

IP Issues

- All significant and third party contributions have been reviewed and approved by Eclipse legal.
- About files and license files are complete and correct.
- Draft IP log:
  - http://www.eclipse.org/projects/ip_log.php?projectid=rt.equinox

Project Plan for Equinox 3.6

- Still in planning stage