Eclipse Project Indigo Release Review

Eclipse Project PMC

Highlights

- Shipping two platform releases simultaneously with Indigo: 3.7 and 4.1
- 3.7 new features:
  - New platforms: HP-UX GTK, 64-bit AIX, Red Hat Enterprise Linux 6
  - Touch screen API, Lightweight workspace refresh, Native task tray integration, Install from file, Help system customization, PDE shared license build support
- 4.1 new features:
  - Detached editors, improved drag support, major styling changes, NLS support
- API quality:
  - Both releases binary compatible for compliant plug-ins
  - New API: 175 types, 123 methods
  - Deprecated API: 5 types, 5 methods, 2 fields
  - 18 breaking changes (all caused by move to new version of Apache Lucene)
- End-of-life issues:
  - One bundle removed: `org.eclipse.equinox.p2.metadata.generator`
- 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:
  - 67 active committers in past 9 months
  - Active organizations: Adobe, BestSolution, Eclipse Source, Freescale, IBM, Intel, SAP, Siemens, Sierra Wireless, Sonatype, Soyatec
  - Geographies: Canada, India, Poland, U.K., USA, Switzerland, Germany, Austria, Japan, France
  - Over 135 patches accepted from the community this release

Themes and Plan Items

- Platforms
  - BIDI enhancements
  - Webkit on Windows
  - Transition from Motif to GTK
  - Adopt accessibility API
  - Support for Java 7
- Robustness
  - Build at eclipse.org
  - Help servlet API
  - Resource filter improvements
- Ease of Use
  - Multi-touch support
  - Problems view enhancements
  - Help enhancements

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

Themes and Plan Items

- Deferred plan items:
  - Java SE 7 support (due to delayed Java 7 release, and lack of public specifications)
  - Resource filter improvements

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

New and Noteworthy - Platform

- Lightweight refresh on access
- Showing state in problem view icon
- Support for back/forward mouse buttons
- Job image overlay in task item
- Mac standard window menu items
- Document proxy icons in Cocoa
- GTK on HP-UX
- GTK on AIX + 64-bit AIX
- Derived resource encoding support
- Install software from file
- Install software from another product
- Filtered install history
- Open With context menu in editors
- Shift reverses direction in Find dialog
- New whitespace rendering options
- New 'Open Hyperlink' command
- Branch column in history view
- Author information in compare editor
- Changed SSH home directory on Windows
- Undo support for breakpoints
- Edit with keyboard in Expressions view
- Builder framework enhancements
- Help search refinement
- Extension point for changing help main page
- Remote help styling
- Variables in launch shortcuts
- Support SCM URL format in project sets
- Test framework timeout diagnostics
- Support for changing widget orientation
- Accessible editable text support
- Duplex printing
- Tool shell support on Cocoa
- Default linux browser moved to WebKitGTK
- Wrappable text in buttons
- Cocoa app menu bar support
- Improved date/time widget on Cocoa and GTK
- Cocoa system menu support
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New and Noteworthy – Platform 4.1

- Support for detached editors
- Improved stack dragging
- Editor area styling
- Multi-drag sashes
- NLS support in workbench model

New and Noteworthy - JDT

- Open Java element from clipboard
- More hyperlinks in Java editor
- New quick assists:
  - Introduce new local with cast
  - Join variable declaration
  - Exchange operands
  - Wrap in parentheses
  - Add missing case statements
- Semantic coloring for abstract classes
- Ctrl+drag to Call Hierarchy view
- Navigate to @inheritDoc target
- Navigate to break and continue targets
- Format Java elements in Outline view
- Disable smart indentation on 'Enter'
- New quick assists in properties file editor
- Escaped character hover in properties files
- JUnit Test Suite wizard supports JUnit 4
- Show latest JUnit test in all windows
- Paste URL in JUnit view
- New formatter options:
  - New line after annotation
  - Preserve whitespace before line comment
- New option to include 'assert' in null analysis
- Missing javadoc tags for method type parameters no longer reported by default
- Improved detection of unused variables
- Filtering in Java compiler preferences
- Suppress unavoidable generic type problems
- Compiler detects methods that can be static
- JRE change detection
- New “javadoc” token for @SuppressWarnings
- Open type hierarchy on multiple type containers
- Pinning the Call Hierarchy view
- Configure 'Search In' in Call Hierarchy
- History for breakpoint conditions
- Prompt before deleting breakpoints
- Quick outline shows inherited members for nested types

New and Noteworthy - PDE

- PDE build model API
- Launch configuration changes:
  - Set default workspace location
  - Headless application launching
- Editable source attachments
- Import plug-ins from repository
- Target definition changes:
  - Caching of remote targets
  - Offline p2 target support
  - Target update support
  - Software site collaboration
  - Automatic find source for target
  - Improved target export wizard
- Support for configuration properties in product editor
- Share licenses between features
- Include lists in API Ant tasks
- Consumer usage reports
- API use scan builder
- Consumer reports in launch configurations
- Ant task to report missing use scan references
- Summaries for API tool Ant tasks

3.7 Plug-in Changes from 3.6

Added 3rd Party Plug-ins (4)

- org.apache.lucene.core
- org.eclipse.equinox.p2.publisher.eclipse
- org.eclipse.equinox.p2.transport.ecf
- org.eclipse.equinox.p2.ui.importexport

Removed 3rd Party Plug-ins (1)

- org.eclipse.equinox.p2.metadata.generator

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

Non-Code Aspects

- The 3.7 and 4.1 releases will contain updated User and ISV documentation
- Community is very active
  - Mailing lists, newsgroups, and forums have steady activity
  - Blogs dedicated to Eclipse are active e.g.
    - http://planeteclipse.org
  - Wiki content is growing
    - http://wiki.eclipse.org/index.php/Eclipse_Project
    - E4 wiki: http://wiki.eclipse.org/E4

Non-Code Aspects

- Internationalization
  - Latin1 and Latin2 locales are supported in all operating environments
  - DBCS locales are supported on all platforms
  - BIDI locales supported on all platforms
  - GB18030-1 Chinese codepage standard is supported on Windows, Linux GTK and Mac.
  - Significant BIDI work in 3.7: widget mirroring
- Localization
  - Tested for Localization and participating in Babel Project
  - Localization of modeled UI strings in 4.1
- Accessibility
  - Tested for accessibility
  - Open accessibility bugs: 9 major, 0 critical, 0 blocker
  - New accessibility API in 3.7: accessible text widget

Non-Code Aspects

- Articles, examples, and tutorials
  - New and updated articles and tutorials on eclipse.org
  - Numerous Webinars and Podcasts
  - Some of the new/updated articles and tutorials were provided by the Eclipse community

Platform Quality API

- API quality is a collaborative effort that involves the experience of the developers working on the Eclipse 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 3.6 and 3.7 are checked automatically by API tooling integrated into integration build process.
- The 3.7 migration guide identifies 3 changes:
  - http://dev.eclipse.org/viewcvs/index.cgi/org.eclipse.platform.doc.isv/porting/3.7/incompatibilities.html?view=co
  - http://dev.eclipse.org/viewcvs/index.cgi/org.eclipse.jdt.doc.isv/porting/3.7/incompatibilities.html?view=co
  - For each, a description of the change, what code is affected, and the action that needs to be taken is described.
  - We are not aware of any API compliant plug-ins breaking as a result of these changes.
  - The 3.7 migration guide also describes changes required to adopt mechanisms and APIs that are new in 3.7.
- The PMC is comfortable supporting the API that is in the Eclipse project 3.7
- All new API in 4.1 release is 'x-internal' provisional API

Tool Usability

- Eclipse is a superior IDE for Java tooling and plug-in development
- Many usability enhancements made in 3.7 to continue this tradition
  - Lightweight resource refresh
  - Improved target platform support in PDE
  - Improved quick fix support in Problems view
  - More unused Java code detection
  - Undo support for breakpoint changes
  - Many new quick assists and Java editing shortcuts
  - And many more tooling improvements!

Architectural Issues

- Primary runtime has moved to Java SE 5. Complementary functionality available on Java SE 6 (APT 6, compiler API)
- Reference JREs for development and testing updated to most recent releases
- Completed transition away from Motif – All *nix platforms now on GTK
- 4 new plug-ins, 1 removed plug-in
  - 1 new plug-in due to refactored Lucene bundles
  - 3 new p2 bundles supporting new p2 functionality
  - 1 plug-in removed due to external dependency (org.eclipse.equinox.p2.metadata.generator)
- All breaking changes in Platform due to “leakage” of Lucene API into the Help system API. All such API was deprecated with replacements introduced in 3.6 release to prepare for this change

End of Life Issues

- Dropped Mac Carbon and Motif reference platforms. Continuing to build Carbon this year to smooth transition
- When evolving API the Eclipse Platform will, whenever possible, deprecate the affected API methods and continue to keep them operational.
- Exceptions to this rule are in the 3.7 migration guide.
- A process in place for removing invalid/outdated API
  - Balance need for API stability with API simplicity for clients and maintainability for platform developers
  - Process includes announcing through various channels and waiting two years for community feedback prior to removal
  - A small set of candidates identified for removal in 2012
  - http://wiki.eclipse.org/Eclipse/API_Central/API_Removal_Process

Bugzilla

- Between June 25, 2010 and May 30, 2011 (RC3)
  - More than 6,800 reports were created
  - Over 4,600 were resolved
  - Over 280 were backported to 3.6.x maintenance
- Current state (RC3) is
  - 7 blockers, 98 critical
  - 1 P1, 50 P2
- 3.6 final state was
  - 7 blockers, 40 critical
  - 0 P1, 47 P2

Bugs fixed during 3.7

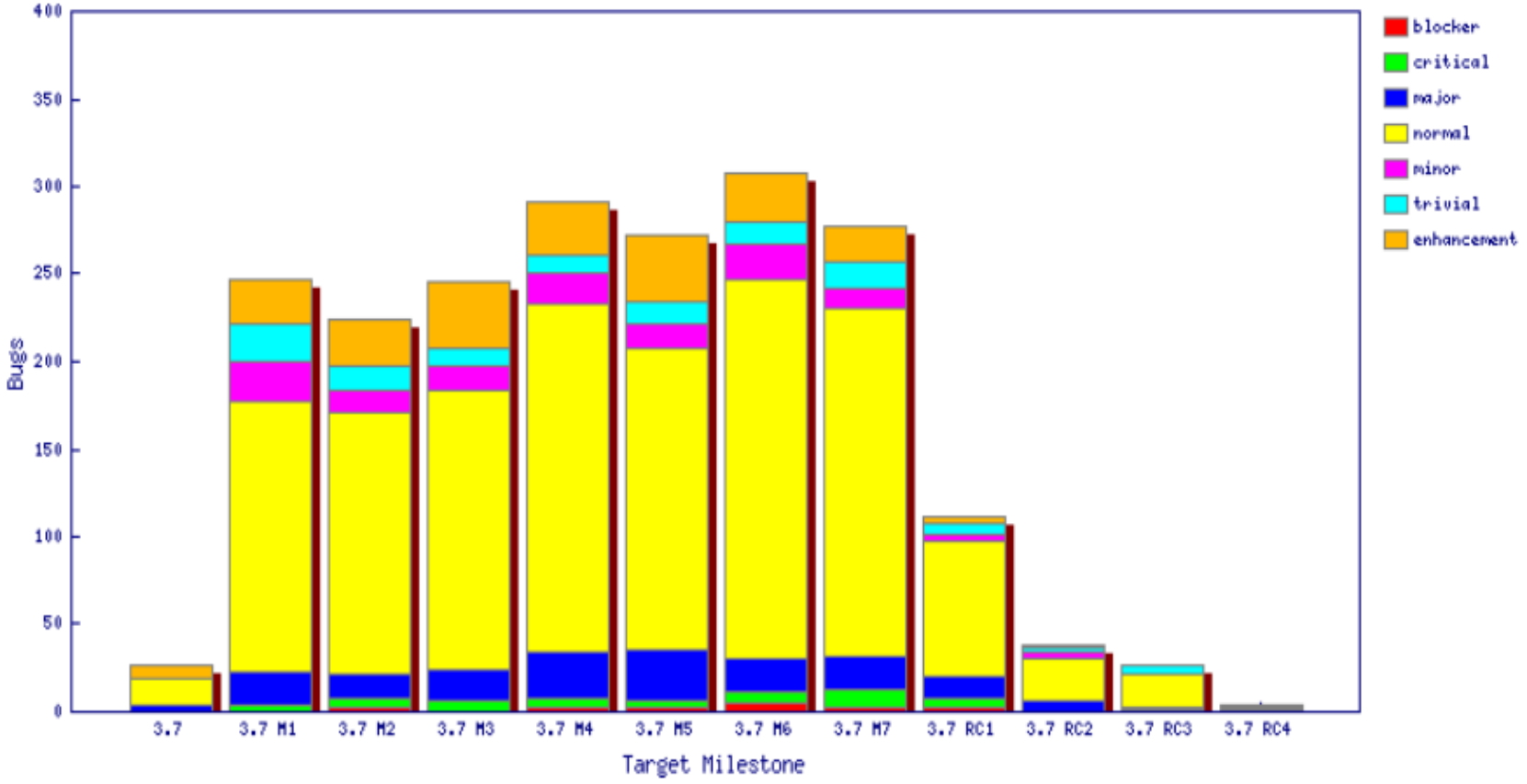
Severity \ Target Milestone	3.7	3.7 M1	3.7 M2	3.7 M3	3.7 M4	3.7 M5	3.7 M6	3.7 M7	3.7 RC1	3.7 RC2	3.7 RC3	3.7 RC4	Total
blocker	.	.	2	.	2	2	5	2	2	.	.	.	15
critical	.	4	6	6	6	4	6	11	6	.	1	1	51
major	4	19	14	18	26	30	20	19	12	6	2	.	170
normal	14	154	149	160	199	172	216	198	77	25	18	1	1383
minor	.	23	12	14	18	14	20	12	4	3	.	.	120
trivial	.	21	15	9	10	12	13	15	7	3	5	1	111
enhancement	8	26	26	38	30	38	28	20	4	1	1	.	220
Total	26	247	224	245	291	272	308	277	112	38	27	3	**2070**

Bugs fixed during 4.1

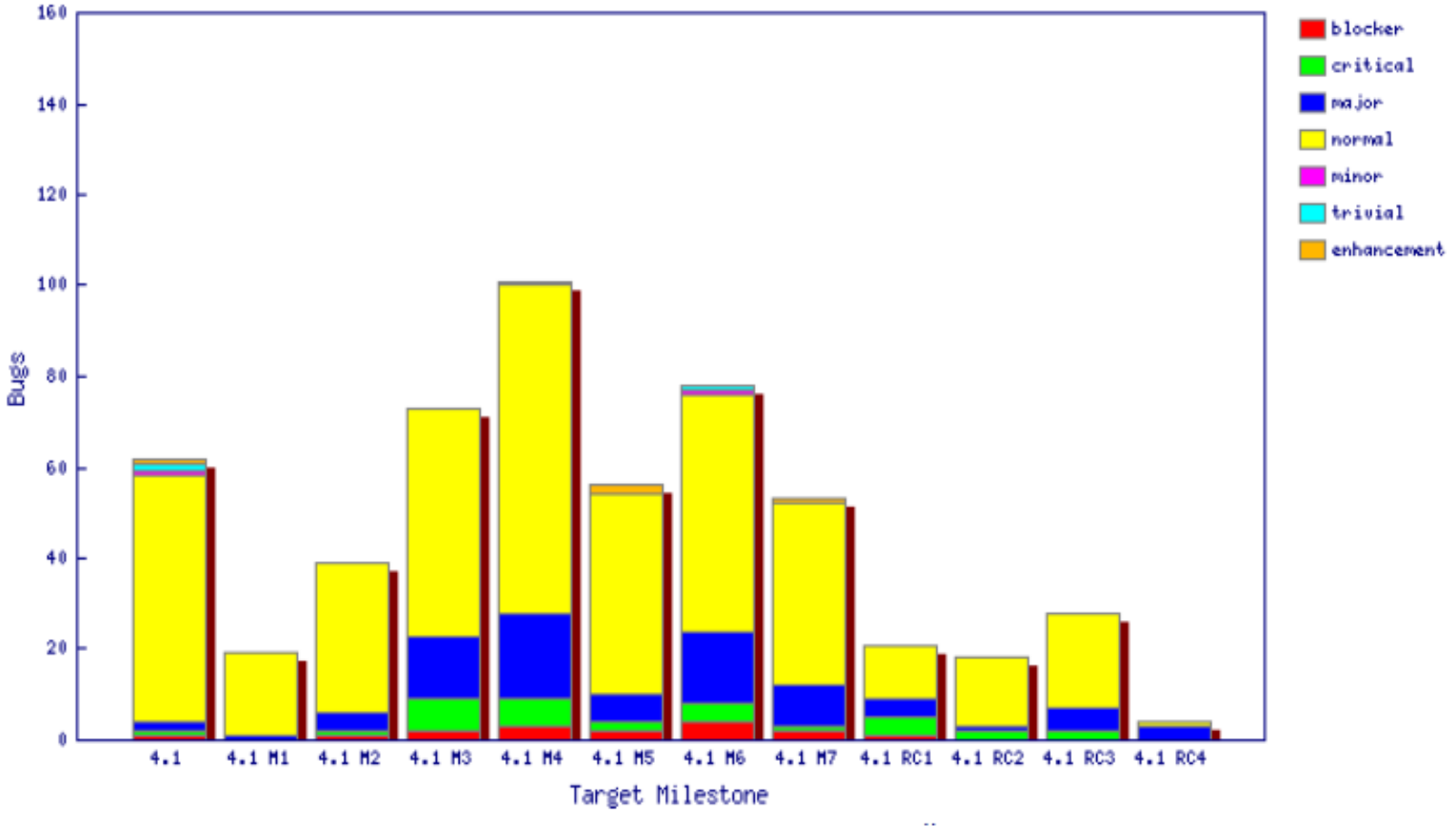
Target Milestone

Severity	4.1	4.1 M1	4.1 M2	4.1 M3	4.1 M4	4.1 M5	4.1 M6	4.1 M7	4.1 RC1	4.1 RC2	4.1 RC3	4.1 RC4	Total
blocker	.	.	1	2	3	2	4	2	1	.	.	.	15
critical	.	.	1	7	6	2	4	1	4	2	2	.	29
major	.	1	4	14	19	6	16	9	4	1	5	2	81
normal	21	18	33	50	72	44	52	40	12	15	21	.	378
minor	.	.	.	.	1	.	1	.	.	.	.	.	2
trivial	1	.	.	.	.	.	1	.	.	.	.	.	2
enhancement	1	.	.	.	.	2	.	1	.	.	.	.	4
Total	23	19	39	73	101	56	78	53	21	18	28	2	**511**

Fixed bugs – 3.7



Fixed bugs – 4.1



Standards

- Annotation Processing APIs
  - com.sun.mirror 1.5
  - javax.annotation.processing 1.6
- Java compiler API
  - javax.tools 1.6
- User Assistance consumes (parses) a small subset of RSS 1.0 to get news from eclipse.org
- JUnit 3.8.2 and JUnit 4.8.2
- J2SE
  - Tools are built against Java SE 5
  - Compiler can generate 1.3, 1.4, 1.5, and 1.6 code
  - Clients can run Java SE 5 or 6
- SWT
  - Win32, GDI, GDI+, OLE, IE, Carbon, Cocoa, Core Graphics, Quick Draw, Safari, ATSUI, X Windows, X/t, GTK, GDK, Pango, cairo, ATK, Mozilla, Uniscribe, OpenGL

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
- Eclipse User Interface Guidelines followed

Schedule

- Milestones every 6 weeks, 6 cycle duration
  - API frozen on March 11 (M6), Feature freeze April 29 (M7)
  - http://www.eclipse.org/projects/project-plan.php?projectid=eclipse#release_milestones
- Tracked schedule
  - All milestones delivered as planned
  - Additional M2a due to compiler bug discovered after M2
- End game (release candidate) milestones for 4 cycles
  - Duration reduced from 2-week to 1-week cycles at RC2
  - No new features or API allowed without proper approvals
  - Development to end on June 3, 2011
  - Increasingly stringent approval, checking, and change notification requirements in this stage
  - http://www.eclipse.org/eclipse/development/plans/freeze_plan_3_7.php

Process

- The Eclipse 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 to the eclipse-dev mailing list
  - Public PMC minutes: http://wiki.eclipse.org/Eclipse/PMC
- Component teams have publicly available milestone plans: http://wiki.eclipse.org/Eclipse/Indigo_Plan
  - Use project's web space on eclipse.org to broadcast component milestone plan items and provide status on each item, per milestone

Community

- Eclipse team members are active in Bugzilla, newsgroups, and mailing lists
- Blogs started by Eclipse committers are evolving
  - http://planeteclipse.org
  - Some teams are using the eclipse-dev IRC channel
  - irc.freenode.net#eclipse-dev
  - irc://irc.freenode.net/#eclipse-e4
  - also see: http://wiki.eclipse.org/index.php/IRC
- The Eclipse team participates in code camps, conference presentations, and tutorials, including
  - EclipseCon, JavaOne, JavaWorld, JAOO, Eclipse Summit Europe, Eclipse Forum Europe, JAX, JAX Asia, JSConf
- The Eclipse team interacts with other open source projects, standards bodies, and other projects on eclipse.org, including
  - OSGi, Apache Ant, JCP, WTP, Apache Harmony, GCJ, GTK

IP Issues

- All significant and third party contributions have been reviewed and approved by Eclipse legal.
- Eclipse Software User Agreement updated to February 1, 2011 version for all delivered features
- About files and license files are complete and correct.
- Draft project logs:
  - http://www.eclipse.org/projects/ip_log.php?projectid=eclipse.platform
  - http://www.eclipse.org/projects/ip_log.php?projectid=eclipse.pde
  - http://www.eclipse.org/projects/ip_log.php?projectid=eclipse.jdt

Future Plans

- Transition to Git source control: summer 2011
- Full Java SE 7 support scheduled for September 2011
  - Either separate download or part of Indigo SR1
- 4.2 release planned for June 2012
  - Further Java 7 support and progress on Java 8 support (depending on available specifications)
  - Focus on making new generation platform fully enterprise ready
  - Documentation and API for 4.x generation features
  - Investigate port to GTK+ 3.0
- 3.8 release also planned for June 2012
  - Focus on stability
  - Some feature work depending on contributor interest