CDT 4.0 Release Review

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The "One Minute Slide"

- New Features: New New Project Wizard, New Project Model, New Project Templates, New code analysis views, Semantic highlighting in editor, Pre-indexing for SDKs, Internal Builder, MinGW integration, GDB Hardware Debugging, Faster, Stronger, Better…

- Quality of APIs: Aged, but still not firm, let alone documented.

- End-of-life issues: None

- IP clearance & licensing: All IP requests completed, use of LPG out of Orbit for new optional parsing features, C99 and UPC.

- Diversity of committers: 16 committers active in last 6 months from QNX, Symbian, Wind River, IBM, Freescale, Nokia, ARM, Intel, Siemens.

New Features

- **New Project Model**
  - Adds concept of build configuration to the core model
  - Allows assignment of tool chains to standard makefile projects

- **New New Project Wizard**
  - Combined previous standard and managed project wizards
  - User selects project types and tool chains

- **New Project Templates**
  - Parameterized templates to help populate new projects
  - Very flexible, template actions written with plug-in

New Features (continued)

- Semantic highlighting amongst other editor improvements
    - Uses parse information to highlight identifiers according to their role
- New code analysis views
    - Include Browser
    - Call Hierarchy
    - Type Hierarchy
- Pre-built Index support for SDKs
- New LPG based parsers for C99 and UPC

New Features (continued)

- MinGW Toolchain Integration

  - Separates out MinGW integration from Cygwin integration

  - Determines MinGW install location to set paths

  - Automated launch configuration setup for MinGW projects

  - Uses internal builder to eliminate need for MSYS or Cygwin

- IBM xlC Toolchain Integration

- GDB Hardware Debugging

  - Customized launcher specific to needs of using gdb for hardware debugging

- Breakpoint Actions

Non-Code Aspects

- Documentation

    - User docs have received some work by Nokia and QNX, however, more improvement will be necessary in future releases

    - ISV Docs remain poor

- Localization/Externalization

    - IBM continuing work on this front, not seen as a priority by others

- Examples

    - None, but the gnu tool integrations come with HelloWorld project templates.

- Tutorials, Articles, Webinars, Web Site

    - Webinar scheduled for July 12

    - Web site is also poor with hardly any content

APIs

- APIs include: CModel (outline/projects view), DOM/Indexing, Language Extensibility, Managed Build, CDI (debug)

- Indexing APIs changed dramatically for 4.0 to the good.

- All other APIs saw small changes

- Lack of documentation makes it difficult to manage APIs

  - What's an API vs. what's not an API

- Not seen as a priority to the committers

  - More focused on making the CDT feature complete

Architectural Issues

- Major improvements to indexing and DOM architecture
  - Required to support pre-built indexes, new indexing views
  - Properly completes new indexing architecture started in 3.1
- Language extensibility APIs made more concrete
  - New LPG based parsers exercise it
- New project model introduces significant change for build integrations
  - Especially Standard Build, but changes also needed for managed build to take advantage of new features
- Debug architecture remains as is
  - Consideration of DSF from DSDP/DD in future release

Tool Usability

- Performance improvements continue as parsing features migrate to use index

    - Especially content assist, also open declaration

- Accuracy of parser based features improving usability of the editor

    - Content assist, open declaration, semantic highlighting

- New New Project Wizard simplifies creation of new projects

    - Don't need to pick build system before launching wizard

- MinGW integration improves project creation and launching by automating discovery of environment

End of Life

- The old new project wizard is gone
    - Some groups were extending it
- The Full Indexer should be deprecated
    - The Fast Indexer is working well and is where almost all the development effort is focused

Bugzilla

- Had 950 bugs open at end of CDT 3.1

- 1270 bugs resolved since CDT 3.1
  - FIXED, INVALID, WONTFIX, WORKSFORME

- Currently at 1110 bugs open (May 30)

Standards

- Parsers support C and C++ language standards
  - C - ISO/IEC 9899:1999
  - C++ - ISO/IEC 14882: 1998
  - Also GCC extensions

UI Usability

- UI has not received much focus as far as usability and compliance to standards.

- IBM is currently working through a number of issues for internationalization and accessibility.
  - Not seen as a priority by other committers

- Improvements made to Platform build and debug toolbars
  - C/C++ do things differently than Java in these areas

Schedule

- There has been no real deviation from the proposed schedule other than the odd slip into the weekend/Monday

- Milestone Schedule:

    - Thursday, Dec. 21, 2006 - Milestone 4 (4.0 M4)

    - Friday, Feb. 16, 2007 - Milestone 5 (4.0 M5) - First public milestone for Europa

    - Friday, Mar. 30, 2007 - Milestone 6 (4.0 M6) - Early preview of new features

    - Friday, Apr. 27, 2007 - Release Candidate 0 (4.0 RC0) - Feature Freeze

    - Friday, May 11, 2007 - RC1 (4.0 M7/RC1) - Feeds into Europa Milestone 7

    - Friday, May 25, 2007 - RC2 (4.0 RC2) - Bug fixes

    - Friday, June 8, 2007 - RC3 (4.0 RC3) - Getting closer

    - Friday, June 22, 2007 - RC4 (4.0 RC4) - Code Freeze

Communities

- Committers
  - 16 committers active in last 6 months from QNX, Symbian, Wind River, IBM, Freescale, Nokia, ARM, Intel, Siemens.
  - One new one on the way, potential for one or two more
- Contributors
  - A handful of very active contributors in bugzillas and mailing list
    - From IBM, Wind River, Nokia, Google, others…
- Committer/Contributor Activities
  - Monthly conference calls
  - Active communication via cdt-dev list and bugzillas
  - CDT Fall Summit in Sept 2006 to prepare for CDT 4.0
  - CDT Project Meeting at EclipseCon 2007

Communities (continued)

- Users
  - Estimated 400,000 CDT users
    - Based on 300,000 downloads of CDT 3.1 and inclusion in Linux distros, and, of course, numerous commercial products…
  - Downloads continue with 55-85 thousand per month
    - Uptake of 4.0 milestone builds has been good with feedback in newsgroup and bugzillas.
  - Newsgroup could be more active
    - Especially from committers…
  - Web site needs massive improvement to help inform users
    - E.g., we have no New & Noteworthy

IP Issues

- The project leadership verifies that:
  - the about files and use licenses are in place as per the Guidelines to Legal Documentation.
  - all contributions (code, documentation, images, etc) has been committed by individuals who are either Members of the Foundation, or have signed the appropriate Committer Agreement. In either case, these are individuals who have signed, and are abiding by, the Eclipse IP Policy.
  - all significant contributions have been reviewed by the Foundation's legal staff. Include references to the IPZilla numbers of all clearances.
  - all non-Committer code contributions, including third-party libraries, have been documented in the release and reviewed by the Foundation's legal staff. Include references to the IPZilla numbers of all clearances.
  - that all Contribution Questionnaires have been completed
  - the "provider" field of each plug-in is set to "Eclipse.org"
  - the "copyright" field of each plug-in is set to the copyright owner (the Eclipse Foundation is *rarely* the copyright owner).
  - that any third-party logos or trademarks included in the distribution (icons, help file logos, etc) have been licensed under the EPL.
  - that any fonts or similar third-party images included in the distribution (e.g. in PDF or EPS files) have been licensed under the EPL.

IP Issues (continued)

- IPzillas for CDT 4.0

  - 1130 – Template Engine (Symbian)

    - Integrated into CDT's New New Project Wizard

  - 1468 – LPG Parser Generator (IBM)

    - Used out of Orbit by C99 and UPC parsers

  - 1535 – Task Tags (Google)

    - To implement things like TODO Tasks in the editor

- Project Log available at:

  - http://www.eclipse.org/cdt/releases/cdt4.0/CDT4_Project_log.html

- These slides available at:

  - http://www.eclipse.org/cdt/releases/cdt4.0/CDT4_Release_Review.html

IP Issues Speak-Up-Now

Project Plan

- Maintenance release, CDT 4.0.1, in late September

    - Likely another one in late Feb

- Next major release as part of Ganymede June '08

    - Release planning to culminate at CDT Fall Summit in September

    - Features under consideration

        - Adoption of DSDP/DD DSF for debugger integrations

            - Migrate default gdb integrations to it
            - CDI remains for those who want it

        - Windows SDK Integration

            - C++, not C#
            - Parser extension, Build, Debug

        - C++ Refactoring