Other Miscellaneous Notable Changes

Chapel Team, Cray Inc.

Chapel version 1.10

October 2nd, 2014

COMPUTE | STORE | ANALYZE

Safe Harbor Statement

This presentation may contain forward-looking statements that are based on our current expectations. Forward looking statements may include statements about our financial guidance and expected operating results, our opportunities and future potential, our product development and new product introduction plans, our ability to expand and penetrate our addressable markets and other statements that are not historical facts. These statements are only predictions and actual results may materially vary from those projected. Please refer to Cray's documents filed with the SEC from time to time concerning factors that could affect the Company and these forward-looking statements.

Outline

- Change in License/Contributor's Agreement
- Notable Process Improvements
- Documentation Improvements
- Notable Bug Fixes
- Major Commits by non-Cray Contributors
- Notable Test System Improvements
- Notable Performance Testing Improvements

Change in License/Contributor's Agreement

Background:

- Chapel has traditionally used a BSD license
- Contributors have had to sign a Cray-custom agreement
  - rationale: legally protect the code base (BSD has no standard agreement)
  - effect: required users to review non-standard form; some balked completely

This Effort:

- Changed license and contributor agreement to Apache 2.0
  - similarly permissive license to BSD, but legally stronger
  - comes with a bundled contributor's agreement (individual and organization)

Impact:

- Requires developers under the previous agreement to renew
- We've now received contributor agreements from some developers who had previously been unable to sign them

Notable Process Improvements

- Migrated from SVN/SourceForge to Git/GitHub
- Converted testing from crontabs to Jenkins
- Began using Travis for pre-commit sanity checks
- Began using Coverity scan to catch code quality issues
- Started tracking tasks in Pivotal
- Created/Owned a Chapel project in OpenHUB
- Added a script to help build multiple CHPL* configurations
- Added copyrights to sources in git
  - previously, tacked them on at time-of-release

Documentation Improvements

- **Added new READMEs for**
  - associative domain/array set operations
  - querying an array's local sublocale
  - using auxiliary I/O capabilities and curl
  - the current set of supported file/directory library routines
  - using Chapel with KNC
- **Several other improvements and updates to the language specification and READMEs**

Notable Bug Fixes

- Fixed a bug in constructors for nested records
- Fixed a bug with uint(32) literals > max(int(32))
- Fixed a bug in supporting uppercase binary/hex literals
  - e.g., 0B01101101, or 0XBABE1055
- Fixed a bug relating to 'ref' intents and varargs functions
- Fixed a bug in which param bool sizes were not preserved
- Fixed a bug relating to shared 'noinit' declarations
- Added a missing overload of writef()
- Fixed a race in member() for associative domains
- Fixed some bugs in the GMP module

Major Commits by non-Cray Contributors

- **Some of the aforementioned file/directory utilities**
- **Optimization to cache remote data, including…**
  - …draft memory consistency interfaces
  - …draft non-blocking communication interface
  - …remote prefetch capability (currently aimed at developers)
- **Partial instantiation support in function resolution**
  - resulted in compile-time improvements
- **readstring() routine for reading bytes into a string**
- **Improved I/O failure messages**
- **Refactoring of task-local data into a structure**
- **Fixes to Coverity/Clang Static Analyzer complaints**

Notable Test System Improvements

- Added the ability to create C-based tests
- Added the ability for .execopts files to redirect stdin
- Automatically squash internal module line#s for .bad files
- Log top CPU consumers when tests time out
- Added the notion of a /tmp directory for testing
- Changed memory leaks accounting to include strings
- Improved the ability to have config-specific .good files

Notable Performance Testing Improvements

- Added the ability to use various external timers
- Embedded enabled graph sets in the graph page's URL
  - simplifies sharing suites of graphs across users
- Removed duplicate checkboxes from the set of graphs
- Fixed the support for annotating multiple graph series
- Run just one trial for tests with higher-than-default timeout
- Fixed a bug in which data from multiple trials was lost

Legal Disclaimer

Information in this document is provided in connection with Cray Inc. products. No license, express or implied, to any intellectual property rights is granted by this document.

Cray Inc. may make changes to specifications and product descriptions at any time, without notice.

All products, dates and figures specified are preliminary based on current expectations, and are subject to change without notice.

Cray hardware and software products may contain design defects or errors known as errata, which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Cray uses codenames internally to identify products that are in development and not yet publically announced for release. Customers and other third parties are not authorized by Cray Inc. to use codenames in advertising, promotion or marketing and any use of Cray Inc. internal codenames is at the sole risk of the user.

Performance tests and ratings are measured using specific systems and/or components and reflect the approximate performance of Cray Inc. products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance.

The following are trademarks of Cray Inc. and are registered in the United States and other countries: CRAY and design, SONEXION, URIKA, and YARCDATA. The following are trademarks of Cray Inc.: ACE, APPRENTICE2, CHAPEL, CLUSTER CONNECT, CRAYPAT, CRAYPORT, ECOPHLEX, LIBSCI, NODEKARE, THREADSTORM. The following system family marks, and associated model number marks, are trademarks of Cray Inc.: CS, CX, XC, XE, XK, XMT, and XT. The registered trademark LINUX is used pursuant to a sublicense from LMI, the exclusive licensee of Linus Torvalds, owner of the mark on a worldwide basis. Other trademarks used in this document are the property of their respective owners.


CRAY
CHAPEL
CRAY
THE SUPERCOMPUTER COMPANY
http://chapel.cray.com
chapel_info@cray.com
http://sourceforge.net/projects/chapel/