Linux Futures Panel

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Bob Woodruff, Betsy Zeller, Doug Ledford,
Sven-Thorsten Dietrich, Tziport Koren

Agenda

- OpenFabrics Linux Development Processes
- Integration into Linux Distributions
  - Red Hat
  - Novell
- Developer Questions and Discussion
- Update from 2008 Process discussion
- Questions from the Audience

OFA Linux Development Process

- Typical open source development model
  - code is developed and submitted to general@lists.openfabrics.org
    - If patch is for an existing component it is sent to the list and the component maintainer. The maintainer list is available at http://www.openfabrics.org/txt/woody/maintainers.txt
    - If the code is a new component, the author becomes the maintainer.
    - For kernel code, once the code is accepted by the community, it is queued in Roland Dreier's git tree for submission upstream to Linus/kernel.org.
    - For user-space code, the code maintainer includes the patch in their git tree and gets released in their next release package, which is posted on the downloads page of the website. http://www.openfabrics.org/download_linux.htm

OFA Linux Development Process

- How to get changes made to the Open Fabrics Linux code.
  1. Do it your self.
     - The fastest way to get a change is to do the work yourself and send a patch to the maintainer.
  2. Pay someone to do it.
     - If you want a change but do not want to or do not have the technical skills to do it yourself, you can always hire a Linux expert to do the work for you.
  3. Ask the maintainer or your favorite OFA hardware vendor for a change and maybe they will do it for you, because you are a customer and you buy their hardware.

OFA Linux Development Process

- Once a component is released, it is picked up by the EWG for inclusion in the next OFED release.
- The Linux distributors also pull the new user-space packages and kernel code into their releases, either from an OFED release or the downloads page.

Integration into Linux Distributions

- Red Hat
  - In Red Hat Enterprise Linux (RHEL) and fully supported since RHEL 4 Update 6 and RHEL 5 GA.
  - Not an exact copy of OFED, we take some OFED things, leave out things that aren't ready for mainstream use, and take some things directly from the upstream maintainers.
  - Will continue updates for RHEL 4 only one more time (RHEL4 Update 8).
  - RHEL 5 and RHEL 6 will have more up to date code.

Integration into Linux Distributions

- Novell: OFED Support
  - Fully supported in:
    - SLES 10 and SLERT 10 (v. 1.3)
    - SLES 11: (v. 1.4)
    - SLERT 11 (v. 1.4 and v. 1.5)
  - Available in OpenSUSE 11.1 (1.4)
    - Free of charge at http://download.opensuse.org

Integration into Linux Distributions

- Novell: OFED Integration and Maintenance
  - OFED has Suse-internal package maintainer
  - OFED major releases integrated:
    - New product releases
    - Service packs
  - Bug Fixes and Minor updates:
    - Via Novell Customer Center Update Channel
  - Additional / Partner-supported hardware
    - Packaging / Integration via Suse build service
    - Product-level integration on next major update

Integration into Linux Distributions

- Novell: OFED Package break-down
  - Kernel Modules (ofed-kmp)
    - Hardware driver modules
    - Network Subsystem updates with OFED support
  - User-space
    - Including configuration and udev rules
  - Documentation

Integration into Linux Distributions

- Novell: OFED Roadmap
  - OFED 1.5 support:
    - SLERT 11 / LLDC (pending OFED release)
    - OpenSUSE 11.2 (Q4/2009)
  - Novell Linux Solutions Group (LSG)
    - Advanced OFED R&D and Integration:
    - Virtualization
    - HPC / Low-Latency Data Center

Integration into Linux Distributions

- Novell: Suse Build Service
  - Add-on Product development
  - Testing and Evaluation Releases
  - Partner-Supported packages
  - Build and package code for major distros
    - RedHat, Suse, Debian, Mandriva
  - Build for any distro-supported architecture

Developer Questions/Discussion

- What if a developer realizes right after an OFED release has been incorporated into a distro that they have a Horrible Bug - is there some way they can contact the distro vendor to get a fix in, especially if it is HW specific?
- How much do the distro producers care about warnings in the code when it is compiled?
- What has to be true before we could say "no more OFED releases – OFA packages only go out through the distros"?
- How does the install via a distro differ from the install via OFED installation?
- Are there security issues related to OFED code in distros?

Red Hat Responses

- Bug right after release: Contact <dledford@redhat.com> or <fenlason@redhat.com> for MPI related issues.
- Do I care about warnings in code compilation? Yes. A lot. And on all arches.
- What needs done to day “No more OFED”? This is both an EWG and user created problem, no one can solve it but them.
- Install via distro: Our install of OFED/OFA packages will always be via our normal install methods. Package selection via interactive install, package selection via kickstart install, or package installation post install using the preferred update mechanism (up2date, yum, etc.)

Red Hat Responses

- Are there security issues with OFED in distros?
  - More than security issues, but yes.
  - The world is not JUST HPC
  - Before OFED code is acceptable for use in a general distribution, it must first and foremost not negatively impact non-HPC use cases
  - Security must be maintained, especially for IB interconnected, yet world reachable servers
  - Installing any OFED code can not require security measures to be turned off or worked around

Progress from Sonoma ’08

- IB developers now aim to get SW into kernel first.
- Warnings greatly reduced, also resulting in potential bugs found
- Interoperability “pre-test” event was run on OFED 1.4 RC2, allowing vendors to make bug fixes before GA
- Identified and published list of libraries which might “change without notice”
- For OFED 1.3.1, met goal of minimum disruption, and not changing kernel in a point release. Same in progress for OFED 1.4.1
- Evaluating and tracking buglist carefully and in detail. Community members are improving at tracking their bugs. Still need to
- Published list of what each vendor plans to test

Progress from Sonoma '08

- Schedule (including RCs and freeze dates) have been clearly communicated, and are published on website.
- Release contents have been clearly communicated, and are published on website.
- SLES 11 incorporated the released version of OFED 1.4.
- RedHat 5 U3 included OFED 1.3.1 plus a few additional bug fixes.

Still Improving from Sonoma '08

- Get community "on-board" with feature freeze date. Large changes still coming in late for some features. However, on the plus side, process enabled changing a new feature to "optional" because it wasn't quite ready.
- Allow only specific bug fixes in last period (last 3-4 weeks) of release.
- (From SC 2008 BOF) Provide better documentation with OFED.
- Evaluating impact of changes and features to existing protocols, and to HW vendors
- Review of copyrights and licenses
- Getting rid of compile warnings

Thank You