



Red Hat's Distribution of Open Fabrics Software

#OFADevWorkshop



Covered topics

- What OFA Software does Red Hat use
- Red Hat's position on the "upstream first" policy of the OFA
- Red Hat's typical OFS update actions on point releases
- A note on version comparisons between OFED and Red Hat in-box software

Our distribution of OFED/OFS



- First, to be clear, we no longer ship OFED. We stopped shipping OFED with the release of Red Hat Enterprise Linux 6.0
- We pull directly from upstream for all packages and for kernel sources
- Our normal product has a strong guarantee of compatibility for the lifetime of the product. This guarantee is counter-productive for RDMA technologies, so we exempt the entire RDMA stack from this guarantee. We make an attempt to provide a stable RDMA API, but it is only a best effort attempt, and is not always possible (OpenMPI updates in particular tend to break the API, with opensm and supporting libraries coming in second)
- This allows us to provide an overall stable platform while also keeping up with RDMA development

Upstream acceptance (kernel)

- The hard requirement that changes go upstream is essential to our ability to deliver quality software.
- Inside Red Hat, we have scaled our kernel development to the point that a single point release update frequently has 10,000+ patches included.
- Our internal workflow is highly dependent on git and we would not be able to scale up to where we have without it. If the changes aren't upstream they would still need to be in a git repo somewhere for us to consume them efficiently.
- Upstream review/acceptance is essential to weeding out questionable solutions.

Upstream acceptance (user space)



- The hard requirement that changes go upstream is essential to our ability to deliver quality software here too.
- Every distributor has their own magic bits for pulling their distro together. One of our bits requires a link to the official upstream source of each package so we can perform a comparison between the code we compile and the official upstream source to guarantee the integrity of our build process.
- Requiring upstream acceptance of changes is also vital to the prevention of API flap and the weeding out of questionable solutions.

OFS updates in point releases

- Generally speaking, Red Hat plans for a complete refresh of the entire RDMA stack with each point release
- This usually runs from the .0 release of a product until the .6 or .7 release
- We then transition to limited updates and target specific bug fixes to stabilize the RDMA stack for long term deployment
- The EL6.6 update was the last full refresh for the EL6 product, it has now transitioned to partial updates and bug fixes for the EL6.7 update

A note on release numbering



- In the past, there was no ability to compare what Red Hat shipped and what OFED shipped
- Now a days, it's much more feasible. You need to see what version of packages ship in a given OFED, and then you need to compare the main OFED version to the Red Hat rdma package version.
- The version of the rdma package details what upstream kernel version is in the current product.
 - Unhelpful form - rdma-1.0-9.el6.noarch.rpm
 - Older form - rdma-3.10-1.el6.noarch.rpm
 - New form - rdma-6.6_3.15-1.el6.noarch.rpm



Thank You



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