**Attendees:**

Paul Grun, Jim Ryan, Divya Kolar, Scott Atchley, Joe Balich, Parks Fields, Chris Beggio, Steve Derenthal, Susan Coulter

**Agenda for 10/31/16**

1. Review last year’s session topics – keep or toss?
2. Integrate new proposals into last year’s topics:
   1. Expand the topic or
   2. Create a new topic
3. Continue brainstorming for new focus areas

Paul’s personal opinion: This year’s workshop should contain a focus on at least three key topics:

1. Continued focus on Consumers of OFS, in addition to the traditional focus on Developers
2. Open Source Community
3. Persistent Memory

ARs

1. Chris B to re-send abstract for a new topic on Data Intensive Computing (done)
2. Paul/Chris/Scott to send a point of contact for UCX to Steve D., who will reach out to see if there is interest in presenting this year (there wasn’t last year).

**Filling in some proposals brainstormed during Oct 7th meeting**

* Open Source Community / Linux Kernel Topics
  + State of the Union of the Open Source Community – a maintainer’s perspective
  + New Developments in the Linux Kernel Community
  + What’s happening in the RDMA subsystem? New drivers,
  + Topics in user land (re-architected user space)
  + Ask Jason about movement of user space code from OFA git hub to rdma-core.git
  + Discussion on this topic deferred until next week (11/7) when the Linux Kernel guys are back from the Plumbers’ Conference this week in Santa Fe.
* Topics in Persistent Memory
  + RDMA Fabrics for Persistent Memory
    - Developments in existing RDMA fabrics (IBA, OPA, iWARP, others?…)
  + APIs for Persistent Memory
  + Application Programming Models for Persistent Memory
* Accelerators, FPGAs, GPUs
  + Direct access into accelerator’s memory space from the fabric
  + How to interact with non-CPUs to either do things, or get things?
  + Plumbing inside the kernel
  + Direct attach and fabric attach accelerator technologies (e.g. NVLink)
  + The programmers’ perspective
  + Steve to test with Thor (Chevron) to see if there is interest in presenting.
  + Scott had previously sent pointers to several sites addressing both coherent and non-coherent access methods, including the CCIX (“see-six”) Consortium.
* Deploying RDMA Technologies
  + Interoperability with different flavors of RDMA
    - For example: OPA relies on IB core, but that creates dependencies.
  + Discussed if this is a one-off problem, or a persistent, industry-wide headache. Consensus is the latter.
  + Considered including this as part of the Management topic, but concluded that it deserves its own topic.
* Data Intensive computing, Data Analytics, Cloud Computing (virtualization and bare-metal provisioning)
  + Storage Connectivity using high-speed/low-latency fabrics
    - E.g. GPFS, Lustre, Ceph, Swift, which may use spinning disk, flash storage media and NVMe.
  + Includes virtualization of hosts, storage devices, networks, network interfaces, possibly using SR-IOV
  + May also include Software-defined Storage, and Software-defined networks, and the convergence of traditional bare-metal, bare-wire, and virtualized cloud and container architectures.
* Security for RDMA Networks
  + May not get any takers, but little risk in putting the invitation out there.
* Message Queuing Technologies (e.g. Rabbit MQ) - Combine this into the Monitoring section?
  + Deployment of AMQP over IB

**Session Topics from Last Year – keep, modify, or toss?**

1. Communications Middleware
   * OpenSHMEM, MPI, UPC++, Gasnet…
2. Distributed Applications Services
   * Data analytics, distributed memory, fabric-attached storage, pub/sub style apps, shared memory…
3. ~~Emerging Technologies~~
   * ~~Byte-addressable memory~~, ~~network function virtualization, NVM, SDN, SDS…~~
   * This topic replaced by new Data Intensive computing, Data Analytics, Cloud Computing topic
4. Network APIs and Software
   * Data storage, data access, ~~NVM APIs,~~ OFI, Open UCX, Verbs Extensions
   * APIs for NVM becomes part of its own topic area devoted to PM/NVM
5. Network Deployments
   * Cloud-based, commercial enterprise, data analytics, gov’t, HPC Virtualized data centers, wide-area distributed computing or storage
6. Management, Monitoring & Configuration
   * Adaptive routing, congestion control, fabric performance monitoring, IB IPoIB, Partitioned networks, QoS, routing between disjoint fabrics, security, subnet configuration, topologies
7. Networking Technology
   * Atomics, Hardware Platforms (x86, ARM, SoCs, embedded), IB Architecture, iWARP, Multicast & collective operations, RoCE, Scalable fabrics (existing and emerging), User-level protocols over RDMA (NFS, RPC, etc), Virtualization and virtualized container support, network function virtualization, SDN, SDS