Contribution ID: **16**   Type: **Presentation**

Contribution to a Dialog Between HPC and Cloud Based File Systems

Wednesday 31 January 2018 12:00 (20 minutes)

IME I/O Acceleration layer is one of the latest efforts of DDN in order to satisfy the never ending needs for performance of the HPC community. We propose to discuss some of the latest advancements of IME product in respect to the larger evolution of Software Defined Storage has it is observed outside of the HPC market.

The arrival of the Flash has pushed existing HPC file systems to their limits. Therefore, IME could be seen as a response to the drastic reduction of storage latency. It could be argued that the only way to adapt from a reduction of latency by about 1000 is a complete design overhaul.

However, a driving force since IME inception has been the emerging requirements observed in the HPC community. The evolution of usages, the needs for more intense data sharing or collaborative access, the necessity of implementing not only file access but work-flows and specificities of HPDA were keys in the design decision of the IME.

Similarly, cloud storage is passing now through a challenging transformation, looking to leverage cloud from a simple storage backup to a backend solution for running traditional applications. The changing paradigm from a sequential access to a large and cheap repository to a latency to a performance sensitive and predictable environment requires evolutions close to HPC storage solutions.

Taking the HPC IO500 as an illustration, we will debate of the relevance of several performance metrics, the way they reveal underlying mechanisms, and how they are correlated to technological orders of magnitudes. We will discuss how these technological parameters impact both metadata management and data payload capability.

Conducting a similar exercise for Cloud based file systems, we will analyze existing similarities, emphasize convergences as well as differentiators between Cloud based FS and HPC oriented storage software.
We will conclude with some possibilities toward shared futures.

Primary author: Dr ACQUAVIVA, Jean-Thomas (DDN Storage)

Presenter: Dr ACQUAVIVA, Jean-Thomas (DDN Storage)

Session Classification: Scalable Storage Backends for Cloud and HPC: Integration