

Tools to Migrate and Store DAOS containers on POSIX filesystems

DAOS User Group

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Moving data in and out of DAOS

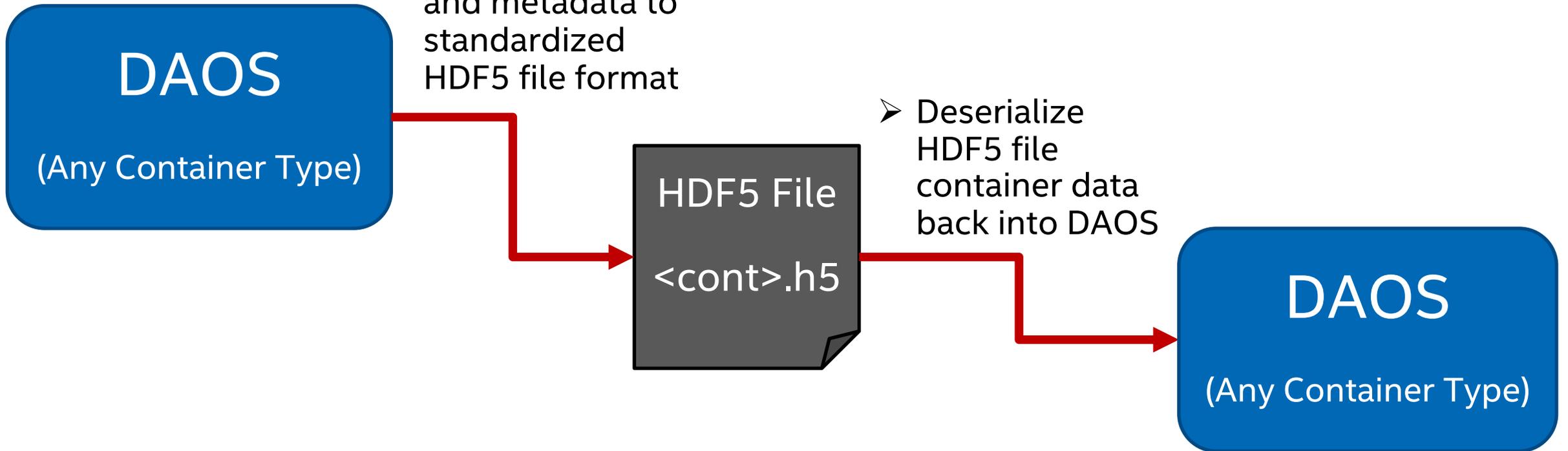


- POSIX files and directories are copied to and from DAOS POSIX Containers

Serializing data to a POSIX Filesystem

- Serialize DAOS Container data and metadata to standardized HDF5 file format

- Deserialize HDF5 file container data back into DAOS



Parallel Tools

- [mpiFileUtils](#) **with DAOS backend**
 - Set of MPI file utilities implemented outside of DAOS codebase
 - Requires MPI
 - Requires installing mpiFileUtils
 - Requires HDF5 for serialization and deserialization tools

mpiFileUtils

- **dcp**
 - Copy data
- **drm**
 - Remove data
- **dcmp**
 - Compare data
- **dsync**
 - Sync operation, copies only difference between source and destination
- **daos-serialize**
 - Serialize a DAOS container to a POSIX filesystem
- **daos-deserialize**
 - Deserialize a DAOS container from a POSIX filesystem back into DAOS

mpiFileUtils Examples

- **dcp**

```
$ mpirun -np 3 dcp /lustrefs/$USER/source daos://pool_label/cont_label
```

- **daos-serialize**

```
$ mpirun -np 3 daos-serialize -o serialized-cont daos://pool_label/cont_label
```

- **daos-deserialize**

```
$ mpirun -np 3 daos-deserialize --pool pool_label serialized-cont
```

- **A complete list of examples for parallel tools can be found at [mpiFileUtils examples](#)**

Serial Tools

- **DAOS utilities**

- daos filesystem copy
- Provided with DAOS RPMs
- Works by iterating over files and copies one at a time
- No current support for serialization and deserialization

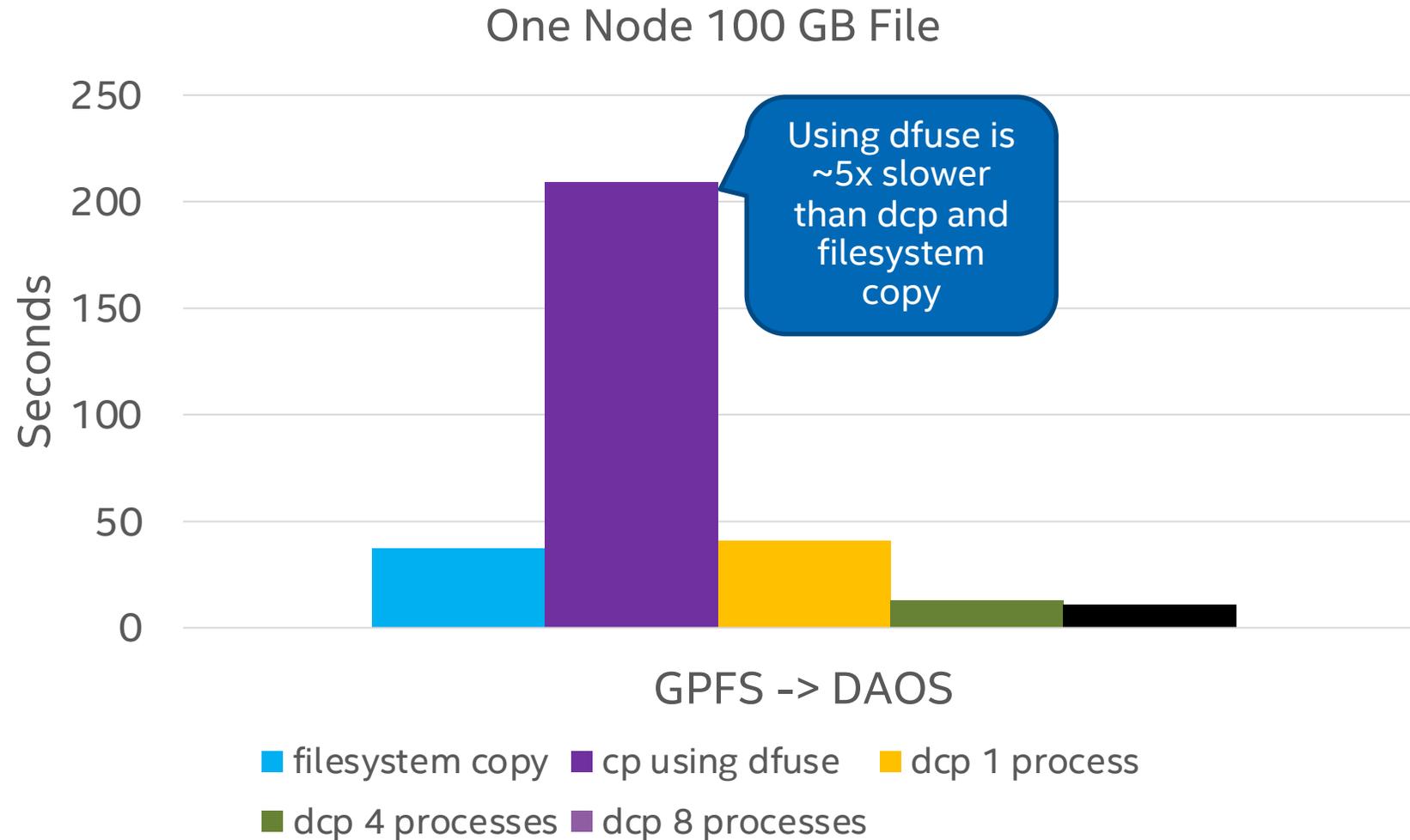
DAOS Utility Examples

- **daos filesystem copy**

```
$ daos filesystem copy -src /lustrefs/$USER/source -dst daos://pool_label/cont_label
```

- **A complete list of examples for DAOS utilities can be found at [Data Mover](#)**

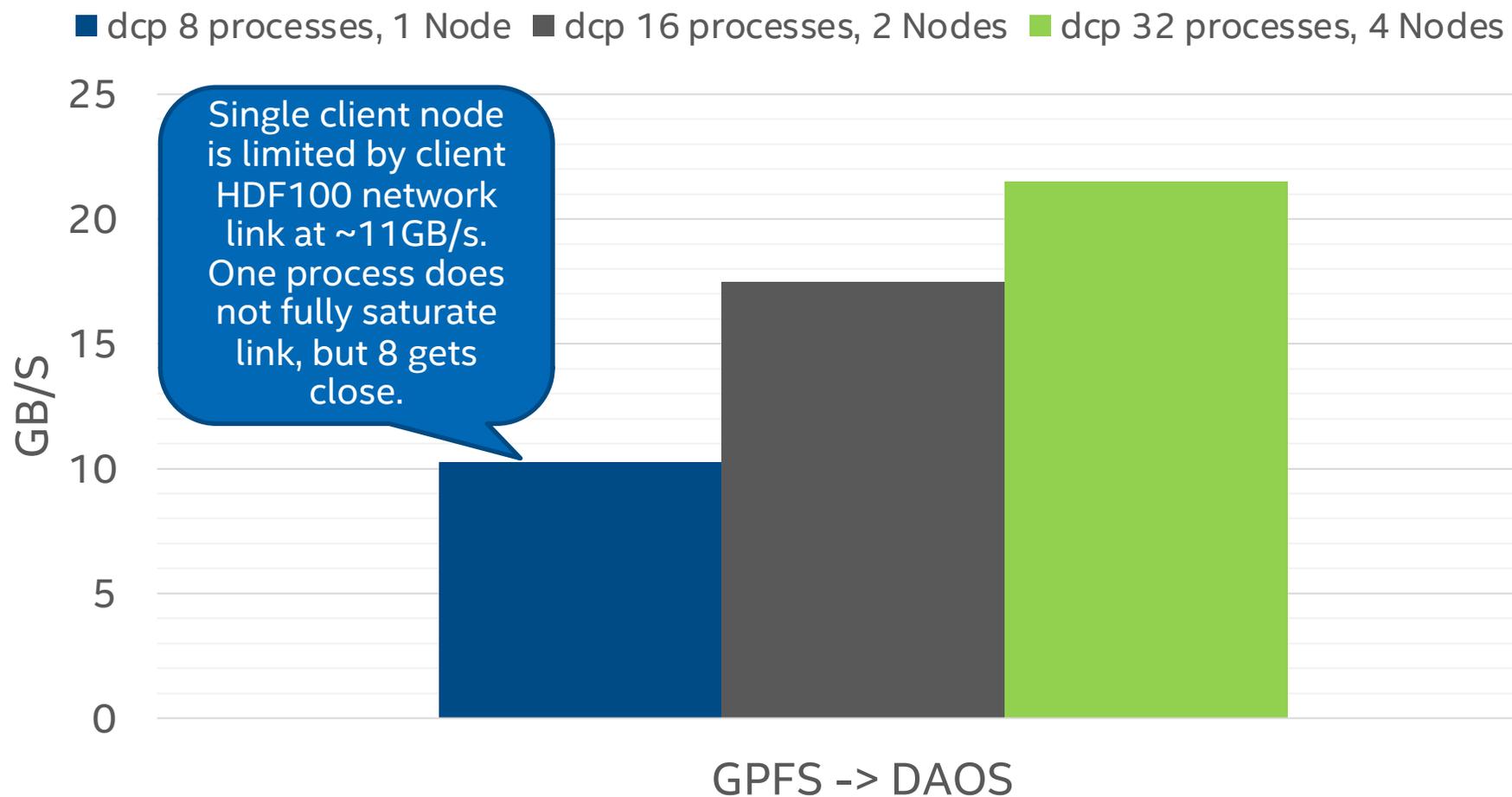
Performance Data GPFS



Performance Data GPFS

Max BW 28 GB/s (1x DAOS Server)

Multiple Nodes 1TB File



Links & Documentation

[Data Mover](#)

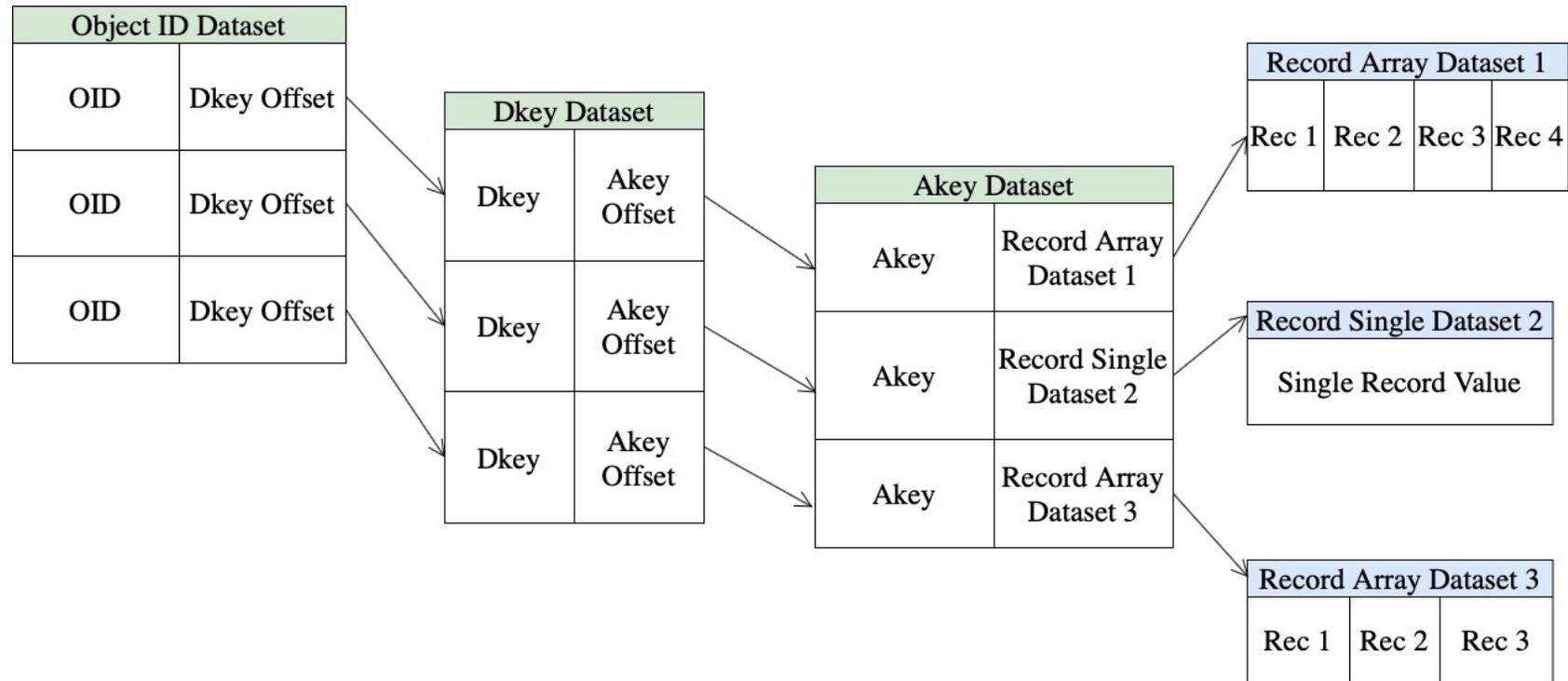
[mpiFileUtils Repository](#)

[How to build mpiFileUtils with DAOS Support](#)

[Examples](#)

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Container Serialization Format



Container Serialization Format

- HDF5 datasets created after serialization
 - OID dataset contains Object ID and offset into dkey dataset
 - Dkey dataset contains dkey value and offset into akey dataset
 - Akey dataset contains akey value and a dataset id that gives location of the record dataset
 - Number of record datasets should match the number of akeys