

New HDF5 Features Coming in 2020-2021

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Today's topics

- Demo of splitter and mirror VFDs (John Mainzer)
- Demo of VFD SWMR (David Young)
- Sparse data management in HDF5 (Gerd Heber)

Splitter and Mirror VFDs

Introduction and Demo

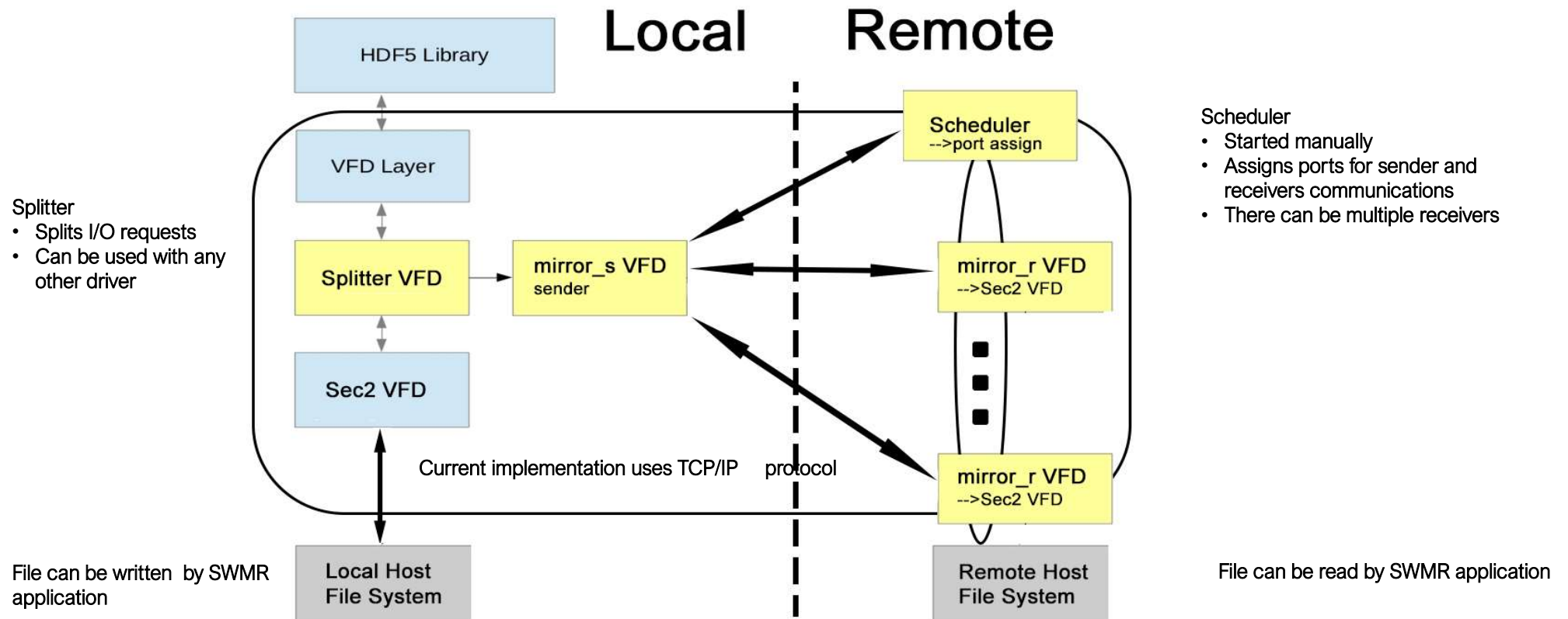
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WebEx: New HDF5 Features Coming in 2020-2021

Splitter and Mirror VFD

- **Problem**
 - Make HDF5 data available on a remote system for reading while creating a file on a local system
- **Status**
 - The feature will be released in the HDF5 1.12. and 1.10 maintenance releases before June 2020
- **Future plans**
 - We will be optimizing the feature for HPC environment

Splitter and Mirror VFDs



VFD SWMR

Introduction and Demo

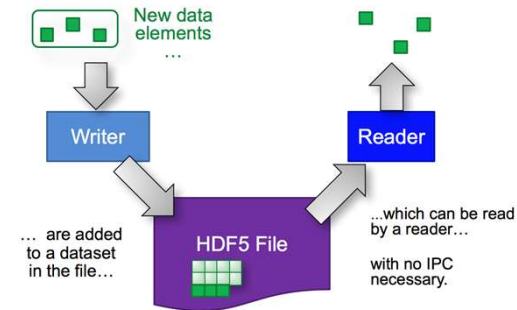
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VFD SWMR

■ Problem

- Address limitations of the current SWMR implementation
 - ▶ Allow *modifications of file structure* (i.e., writer can add or delete groups, datasets, and attributes)
 - ▶ Support VL datatypes
 - ▶ Relax the order in which writer and readers come in
 - ▶ Remove POSIX semantics requirement for write atomicity
 - ▶ NFS support
 - ▶ *Guarantee maximum time from write to availability for read under assumption that FS is fast enough.*
 - ▶ Remove performance penalty for applications and minimize maintenance cost for the feature
 - ▶ Our demo will focus on *limitations* above



VFD SWMR

- **Status**

- We plan to release the feature in 2021 with prototype available for testing during 2020

- **Future plans**

- We plan to remove current implementation if we show performance advantage of VFD SWMR
- Extend VFD SWMR to work with NFS and Cloud

Sparse Data Management in HDF5

Overview of design options

Sparse Data Management in HDF5

- **Problem**

- Provide efficient sparse data management in HDF5 without changes to existing APIs

- **Status**

- We are in design stage and are soliciting feedback from our community

Announcements

- **HDF5 1.12.0-alpha0 is out**

- Please try it out and give us your feedback
- Stay tuned for Webinar announcement “Overview of HDF5 1.12.0 release features”.

- **HDF5 BoF at SC19 on Tuesday, November 19**

- We are inviting you to participate in BoF
 - ▶ Join BoF
 - ▶ Spread a word about BoF
 - ▶ Give a lightning talk (5-7 minutes on how you use HDF5, failure and success stories)

Thank you!

Questions?