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MPI Sessions –
Investigate ability of UCX to support extended CIDs

ECP WBS	2.3.1.17 / OMPI-X
Epic/Story	STPR17-86
PI	David Bernholdt, ORNL
Milestone Lead	Howard Pritchard, LANL
Members	ORNL, LANL, LLNL, SNL, UTK

Scope and objectives

- ECP OMPI-X develops a production grade MPI library
- Investigate ability of Open MPI's UCX point to point messaging layer (PML) to support Sessions (extended CIDs)

Better support for multi-component applications

- Different components of an application can specify different levels of thread safety
- Specify different operational characteristics of MPI (e.g. spin polling vs blocking) on a per component basis
- Backward compatibility with apps using MPI_Init

Impact

- **New Way to Use MPI:** better isolation of application components use of MPI (thread support, polling models, more scalable resource requirements specificity etc.)
- **New Application spaces:** only components of application that need to use MPI need do so, potentially expanding range of applications which can use MPI
- Better support for more dynamic process models

Project accomplishment

- Developed a PMIx-based approach to handling extended CIDs, greatly simplifying the modifications required to make a PML usable with MPI Sessions
- Working with OpenPMIx developers to optimize the PMIx-based approach

Deliverables Memo describing results of Sessions/UCX investigation – STPR17-86
Modified UCX PML prototype on Github:https://github.com/hppritcha/ompi/tree/topic/ucx_excid_support

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