A Note on Assertions

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MPI Assertions

- Previous proposal by Dick Treuman
  - Seems to be stuck somehow
  - Very inflexible (basically a fixed set of assertions at the beginning)
  - Puts the burden on us to decide **which** assertions to standardize
    - + weird discussions about bit vectors ☺

Another Viewpoint

- ## We have MPI_Info objects
  - ### They're very flexible and allow for vendor-specific extensions
    - #### Test before standardizing
    - #### Good example: graph topologies

- ## Usage of MPI_Info is inflexible
  - ### Some functions have info arguments, some don't, seems rather random ☹

Info vs. Assertions

- Info arguments can be used to assert usage of MPI as long as:
    - They can safely be ignored !
    - i.e., they don't affect correctness if ignored
    - BUT: they may affect correctness if used wrongly (e.g., "no_locks")

- Usually used for performance
    - Similar to main motivation for assertions

A proposal

- Allow to attach new info values to MPI objects (comm, win, ddt, …)
- E.g., attach info to a comm
  - MPI_Info_attach(MPI_Comm comm, MPI_Info info)
  - Possible info objects for communicators include:
    - no_any_tag, no_any_source, no_concurrent_access, …
  - Can easily be extended!

Questions/Discussion?

- What do you think?
  - Straw vote: "Should this be fleshed out as a concrete proposal to be presented at the next meeting?"
    - Yes
    - No
    - Abstain