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Plumbing challenges in Dynamic capacity device

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CXL 3.0 Dynamic capacity is an exciting feature that enables flexible memory pooling across multiple hosts, facilitating dynamic addition and removal of memory allocated to each host from the common pool of memory.

The previous session (Plumbers CXL Uconf 2022) covered the introduction and general use cases of the DCD and served to bring together those interested in the feature.

Initial code is now under review and there is good support for getting a solution upstream in the kernel. It has also been great to see engagement from the wider community with supporting work in fabric management and Dynamic Capacity Device emulation being shared this summer.

This time, we want to touch upon the current architecture and challenges in implementing enhanced DCD flows including aspect such as interleaving, partial use of the extents, memory sharing, handling of asynchronous release and forced release of the memory.

We'd particularly like to generate open discussion on aforementioned features and any foreseen opens in the current architecture. This discussion may also incorporate elements relevant to improved emulation and the flows needed for fabric manager.

Targeted audiences will be developers interested in CXL software, MM, orchestrators, fabric manager and designing the uses cases of memory pooling.

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