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Virtio based communication between RC<->EP and between HOSTS connected to NTB

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Existing Linux endpoint only supports pci-epf-test for communication between RootComplex and EndPoint systems (Both running Linux). While pci-epf-test is good enough for "testing" communication between RootComplex and Endpoint, additional development based on pci-epf-test was required for implementing any real use-cases.

This paper proposes to use existing Virtio infrastructure in Kernel used for
1. Communication between HOST and GUEST systems in Virtualization context
2. Communication between different cores in an SoC
to be used for RC<->EP communication and for communication between HOSTS connected to NTB.

Using the proposed mechanism, existing Virtio based drivers like rpmsg, net, scsi, blk etc.. could be made to be used for RootComplex and Endpoint communication.

The same mechanism can also be extended to be used for communication between HOSTS connected to NTB. Here instead of existing ntb_transport, virtio transport should be used.

The first RFC [1] posted garnered quite a bit of interest among the community and various approaches for designing it was discussed.

In this paper, Kishon will provide high-level view of how virtio could be used for RC<->EP communication and also discuss the various design approaches, with pros and cons of each approach and accelerate getting the community alignment of the overall design.

[1] -> http://lore.kernel.org/r/20200702082143.25259-1-kishon@ti.com

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Primary author: Mr I, Kishon Vijay Abraham

Presenter: Mr I, Kishon Vijay Abraham

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