PMC IPC Requirement

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# Requirement

## Precondition

### Low cost

Customer has low cost RC CPU with weak computing power

Customer needs EP CPU to offload specific task from EP

## Feature

### Large capacity disk array on EP

SOC has 24 port

### RAID support on EP

SOC contains SW RAID stack with HW acceleration

### Application on EP

SOC can offload CPU usage from host CPU

# Use case

## Management terminal

### Command line access

Operation

* General system configuration, RAID configuration and customer application maintain process.
  + Such as ssh/telnet, serial console or PCIe tunneled console.

Solution

* Use PMC\_VNET to redirect console session to host

## Load/store data from/to disk

### Direct block device access

Operation

* Customer accesses EP block device transparently.
  + Such as write/read sector to/from /dev/md0, format disk /dev/sdb.

Solution

* Use PMC\_VNET to serve iSCSI service in EP to host

### File system access

Operation

* Customer do filesystem level access.
  + Such as store file "example.txt" from RC to EP's "/path/to/user\_data\_dir/", and the EP directory is mounted from /dev/sdb5 with ext4 filesystem.

Solution

* Use PMC\_VNET to serve NFS/SMB service in EP to host
* Use PMC\_VNET to forward the data and store in EP file system

### File object access

Operation

* Customer RC OSD client sends data object to EP OSD server.
  + User will have its own OSD application.

Solution

* Not implement

### Cluster filesystem access

Operation

Solution

* Not implement

# Implement Option

## Base

### PMC\_IPC\_DMA (Picked)

PMC provides IPC API between RC and EP thru BDMA, customer use IPC at will

### PMC\_IPC\_MPI

PMC provides IPC API between RC and EP thru MPI liked interface which moves IOMB thru MSGU and moves data thru BDMA, customer use IPC at will

### PMC\_IPC\_PCI

The IPC API between RC and EP thru direct PCI access, implemented by PMC or customer

## Extend

### PMC\_VNET (Picked)

PMC provides /dev/pmc\_vnet\* RC network interface, which use PMC\_IPC\_DMA or PMC\_IPC\_PCI as link layer

### PMC\_VTTYS

PMC provides /dev/pmc\_vttyS\* RC serial interface, which use PMC\_IPC\_DMA or PMC\_IPC\_PCI as link layer