– Transport data over unique RDMA network interface cards (RNICs) that are logically bound together to form Link Groups. Link Groups are used for high availability and load balancing needs.

Ports in the IBM Z 10GbE RoCE Express2 feature (also referred to as RNICs) are used as the physical transport layer for RDMA.

- Single root I/O virtualization (SR-IOV) is a Peripheral Component Interconnect® Express (PCIe) standard that define extensions to PCIe specifications. SR-IOV enables sharing of 10GbE RoCE Express2 ports between LPARs in the z14 and z14 ZR1.

For more information about the 10GbE RoCE Express2 feature and SMC-R, see *IBM z14 Technical Guide*, SG24-8451, and *IBM z/OS V2R2 Communications Server TCP/IP Implementation Volume 1*, SG24-8360.

10.4.2 Planning for SMC-R configuration

For an overview of planning considerations, see “Shared Memory Communications - RDMA” on page 22.

10.4.3 Configuring SMC-R

The 10GbE RoCE Express and 10GbE RoCE Express2 features are native PCIe features; therefore, the following HCD and IOCP definition rules differ from a non-native PCIe card, such as OSA Express:

- PCIe Function Identifier (FID) must be defined in HCD or HCM to create IOCP input:
  - FID is a hexadecimal value (three heximal digits, range 000 - FFF), which specifies the PCIe function.
  - It *cannot* be assigned to a channel subsystem, so that any LPAR can be defined to a function.
  - It features a PARTITION parameter that dedicates it to one LPAR or allows reconfiguration among a group of LPARs. A function cannot be defined as *shared*.
  - In z/OS system commands, PCIe FID is represented as PFID.
- If the intended PCIe hardware supports multiple partitions, it has a decimal Virtual Function Identifier (VF=) in the range 1 - *n*, where *n* is the maximum number of partitions that the PCIe feature supports.
- Other parameters that are specific to the PCIe feature. For example, the 10GbE RoCE Express requires a Physical Network Identifier (PNETID=), and the new 10GbE RoCE Express2 feature supports a port identifier (PORT=).
- For function mapping to hardware, assign a Physical Channel Identifier (PCHID=) to identify the hardware feature in a specific PCIe I/O drawer and the slot to be used for the defined function. The following methods can be used:
  - Manually, by using the configurator (eCONFIG) PCHID report.
  - By using the CHPID Mapping tool and the eConfig Configuration Report File (CFR) input.

Note: Unlike CHPIDs, multiple functions can be mapped to the same PCHID. This mapping is conceptually similar to mapping multiple InfiniBand coupling CHPIDs to the same adapter and port.