Memory *cannot* be shared between system images. It is possible to dynamically reallocate storage resources for z/Architecture LPARs that run operating systems that support dynamic storage reconfiguration (DSR). This process is supported by z/OS and z/VM. z/VM, in turn, virtualizes this support to its guests. For more information, see 3.7.5, "LPAR dynamic storage reconfiguration" on page 106.

Operating systems that run as guests of z/VM can use the z/VM capability of implementing virtual memory to guest virtual machines. The z/VM dedicated real storage can be shared between guest operating systems.

The z14 ZR1 storage allocation and usage possibilities, depending on the image mode, are listed in Table 3-6.

Table 3-6 Main storage definition and usage possibilities

Image mode	Architecture mode (addressability)	Maximum main storage	
		Architecture	z14 ZR1 definition
z/Architecture (General)	z/Architecture (64-bit)	16 EB	4 TB
Coupling facility	CFCC (64-bit)	1.5 TB	1 TB
Linux only	z/Architecture (64-bit)	16 EB	2 TB
z/VM	z/Architecture (64-bit)	16 EB	2 TB
SSC[a]	z/Architecture (64-bit)	16 EB	2 TB

a. Secure Service Container

The following modes are provided:

- z/Architecture mode

  In z/Architecture (General, formerly ESA/390 or ESA/390-TPF) mode, storage addressing is 64-bit, which allows for virtual addresses up to 16 exabytes (16 EB). The 64-bit architecture theoretically allows a maximum of 16 EB to be used as main storage. However, the current main storage limit for LPARs is 8 TB for z14 ZR1. The operating system that runs in z/Architecture mode must support the real storage. Currently, z/OS supports up to 4 TB[7] of real storage (z/OS V2R1 and later releases).

- CF mode

  In CF mode, storage addressing is 64 bit for a CF image that runs at CFCC Level 12 or later. This configuration allows for an addressing range up to 16 EB. However, the current z14 ZR1 definition limit for CF LPARs is 1 TB of storage. The following CFCC levels are supported in a Sysplex with IBM z14 ZR1:

  – CFCC Level 23, available on z14 (Driver level 36)
  – CFCC Level 22, available on z14 ZR1 (Driver level 32)
  – CFCC Level 21, available on z13 and z13s (Driver Level 27)
  – CFCC Level 20, available for z13 servers with Driver Level 22

  Restriction: z14 ZR1 does not support direct coupling connectivity to zEC12/zBC12 systems.

  For more information, see 3.9.1, "Coupling Facility Control Code" on page 110.

[7] 1 TB for z/OS V1R13.