### 31-bit address space private area
- The portion of the user's private area in each virtual address space that is available to the user's problem programs is called the user region.
- The address space enables privatization to maintain the distinction between the programs and data belonging to each address space.
- The private areas in one user's address space are isolated from the private areas in other address spaces, and this address space isolation provides much of the O2 security.

**Private areas**
- There are two private areas: below the 16 MB line is the private (PVT), and above the 16 MB line is the extended private (EPVT).
- Their size is the complement of the common area's size.
- The virtual addresses in the private area are unique to the programs running in such areas.
- The private area is formed by the following areas:
  - Subpools 229, 230, and 249
  - An area enables privatization storage to be obtained in the requestor's storage protect key.
  - The area is used for control blocks that can be obtained only by authorized programs (such as 2/OS) having appropriate storage protect keys.
  - A subpool is a virtual storage area with the same properties regarding storage key, pageable or fixed, private or common, fetched or not, and so on.
  - When a program GETMAIN virtual storage addresses, it must indicate the subpool.

**Local system queue area (LSQA)**
- This area contains control tables, control blocks and context supervisor associated with the address space, subpool queue elements (SOEs), descriptor queue elements (DOEs), and free queue elements (FQEs).
- It contains management control management blocks that define tasks and programs within the elements (CDEs).

**Note**: LSQA is difficult to calculate because it depends on the number of loaded programs and the size of other subpools in the address space.

### Virtual and real regions
- Virtual and real regions are mutually exclusive; private areas can be assigned to V=R or V=V, but not to both.
- The installation determines the region to which jobs are assigned.
- Usually, V=R should be assigned to regions containing jobs that cannot run in the V=V environment, or that are not ready to adaptability to it.
- Programs that require a one-to-one mapping from virtual to central storage, such as program control interruption (PCI) driven channel programs, are candidates for real regions.

Two significant differences between virtual and real regions are:
- How they affect an installation's central storage requirements.
- How their virtual storage addresses relate to their central storage addresses.

For virtual regions, which are pageable and swapable, the system allocates only as many central storage frames as are needed to store the paged-in portion of the job (plus its LSQA). The processor translates the virtual addresses of programs running in virtual regions to locate their central storage equivalent.

**Programs obtain storage above the bar in chunks of virtual storage called memory objects.** The system allocates memory objects as a number of virtual segments; each segment is a megabyte in size and begins on a megabyte boundary. A memory object can be as large as the memory limits set by your installation and as small as one megabyte (SRV64, SRCP64, and SRS64 services).

### User Region addressing category
- There are two variety of user regions: virtual (or V=V) and real (or V=R).
- Virtual and real regions are mutually exclusive; private areas can be assigned to V=R or V=V, but not to both.
- The installation determines the region to which jobs are assigned.
- Usually, V=R should be assigned to regions containing jobs that cannot run in the V=V environment, or that are not ready to adaptability to it.
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