Memory Balooning.

Memory reclamation thechniquie. Idea is the following. Let say we have several Vms running on one host (ESXi/KVM – both of them have pretty much the same approach). If Vms are running only partially utilizing allocated memory free memory can claimed back to the host, and further to Vms, demanding memory resources. That approach allows to run environment with overprovisioned hosts in terms of memory resources. To enable that functionality 'baloon' driver need to be installed on each of the Vms – it is observing free memory within VM and claiming it back to the host.

Pros of the approach – more efficient resources utilization.
Cons – if baloon driver claimed too much memory back to the host, and VM requested that memory back host's performance will be affected. Balooned memory need to be revoked and returned back to the original VM. In worst case scenario that can be disruptive.

Linux Memory: How to free Buff/Cache memory.

In general there is no needs to do it manually, it's kernel responsibility to handle tha types of the memory. However, it's possible to do manually:

```
 [root@borei ~]# free -h; echo 1 > /proc/sys/vm/drop_caches; free -h;
               total        used        free      shared  buff/cache   available
Mem:            62Gi        42Gi        19Gi       228Mi       1.6Gi        19Gi
Swap:           15Gi        10Gi       5.5Gi
               total        used        free      shared  buff/cache   available
Mem:            62Gi        42Gi        19Gi       252Mi       1.1Gi        19Gi
Swap:           15Gi        10Gi       5.5Gi
```

echo 1 > /proc/sys/vm/drop_caches – to free page cache
echo 2 > /proc/sys/vm/drop_caches – to free dentries and inodes
echo 3 > /proc/sys/vm/drop_caches – to free page cache and dentries and inodes

Limit cache size permanently is more interesting task.

We can encreased cache pressure from default 100 to 200:
sudo sysctl -w vm.vfs_cache_pressure=200
it will make kernel to discard caches more often, and in average it will be consuming less memory for bufferes/caches.
Secondly we can run application within cgroup with limited resources. That approach is used by docker.
RedHat Linux 5 (?) had kernel setting /proc/sys/vm/pagecache – percentage of RAM avaialble for buff/cache.

But in most cases it is recommended not to change cache related settings and let kernel to manage all available memory.

HP/HPe has C7000 Blade Chassis product

D2200sb Blade server support martix:

Supported Servers	Server: Full Height or Half Height	No of D2200sb Storage blades Supported	Pass Thru Card Required	Mezz slot to support 1st Pass Thru Card	Mezz slot to support 2nd Pass Thru Card
BL460c G6	Half	1	No	n/a	n/a
BL460c G7	Half	1	No	n/a	n/a
BL460c Gen8	Half	1	No	n/a	n/a

Source: https://www.dectrader.com/pdf/quickspecs/13714_na/13714_na.html

D2220sb Blade server support martix:

Supported Servers	Server: Full Height or Half Height	No of D2200sb Storage blades Supported	Pass Thru Card Required	Mezz slot to support 1st Pass Thru Card	Mezz slot to support 2nd Pass Thru Card
BL460c Gen8	Half	1	No	n/a	n/a
BL460c Gen9	Half	1	No	n/a	n/a

Source: https://www.hpe.com/psnow/doc/c04111399.html?jumpid=in_lit-psnow-red

Storage/server blade installation

Did some research on how to install storage blade to the chassis – best option to follow the process described in official documentation - https://support.hpe.com/hpesc/public/docDisplay?docId=c03664718&docLocale=en_US

The same about BL460c gen9 - https://support.hpe.com/hpesc/public/docDisplay?docLocale=en_US&docId=emr_na-c04410344

Drives need to be loaded first into the blade enclosure, then blade can be installed in any c7k chassis slot. Interesting thing is the following:

When installing the D2220sb with a half-height server blade, observe the following additional guidelines:
Install the D2220sb in any device bay.

If the D2220sb is installed inan odd-numbered bay, install the partner server blade in the adjacent even-numbered bay to the right.

If the D2220sb is installed in an even-numbered bay, install the partner server blade in the adjacent odd-numbered bay to the left.

RAID 6 configuration requirments (D2200sb/D2220sb):

First of all – RAID 6 (ADG) support on the controller side. Smart Array P410i/P420i controllers are supporting it.
Secondly – RAID 6 uses 2 disks for parity, so at least we should have 4 disks available.

RAID ADG configuration can be found here - https://support.hpe.com/hpesc/public/docDisplay?docId=emr_na-c01135140