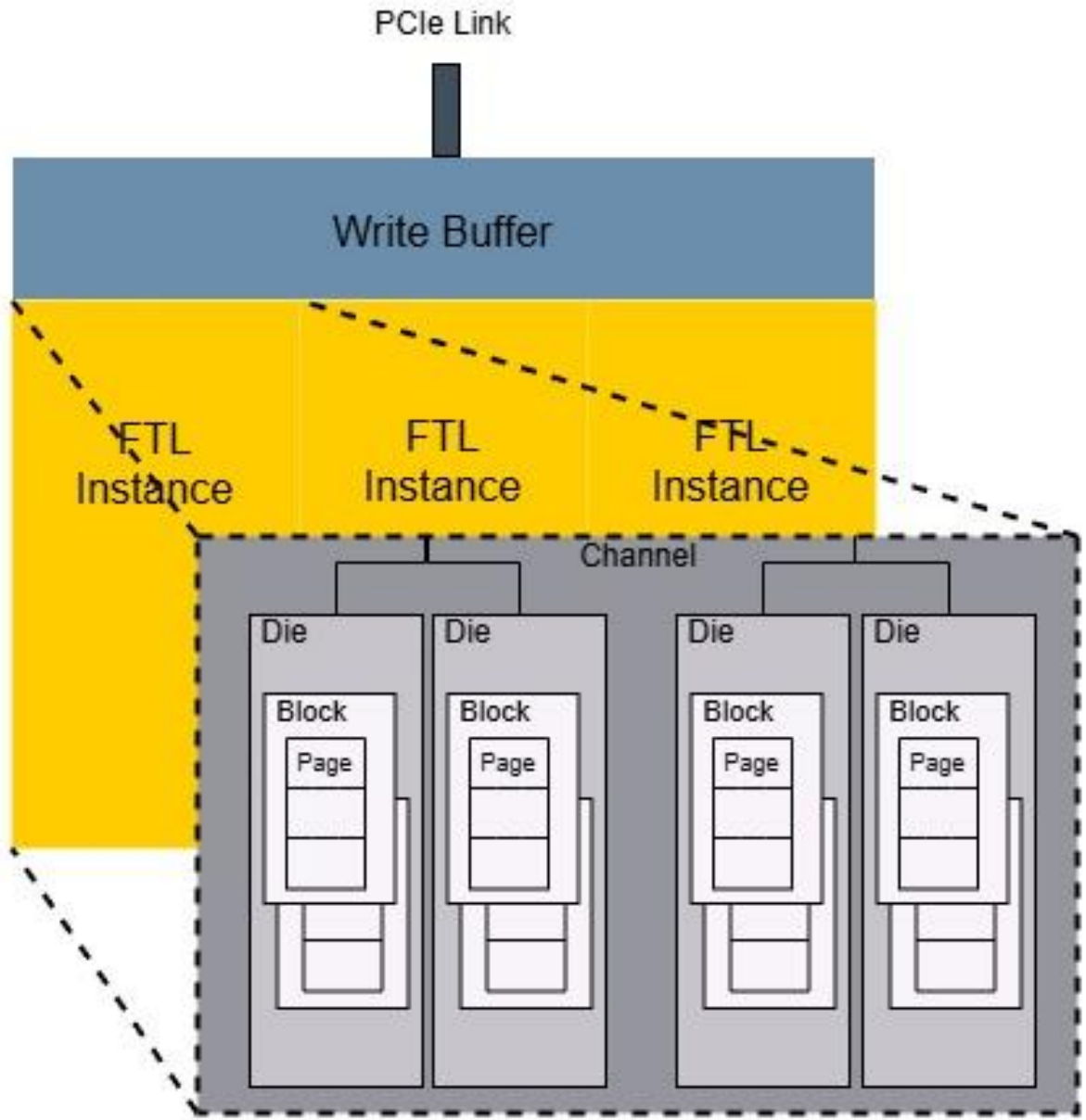
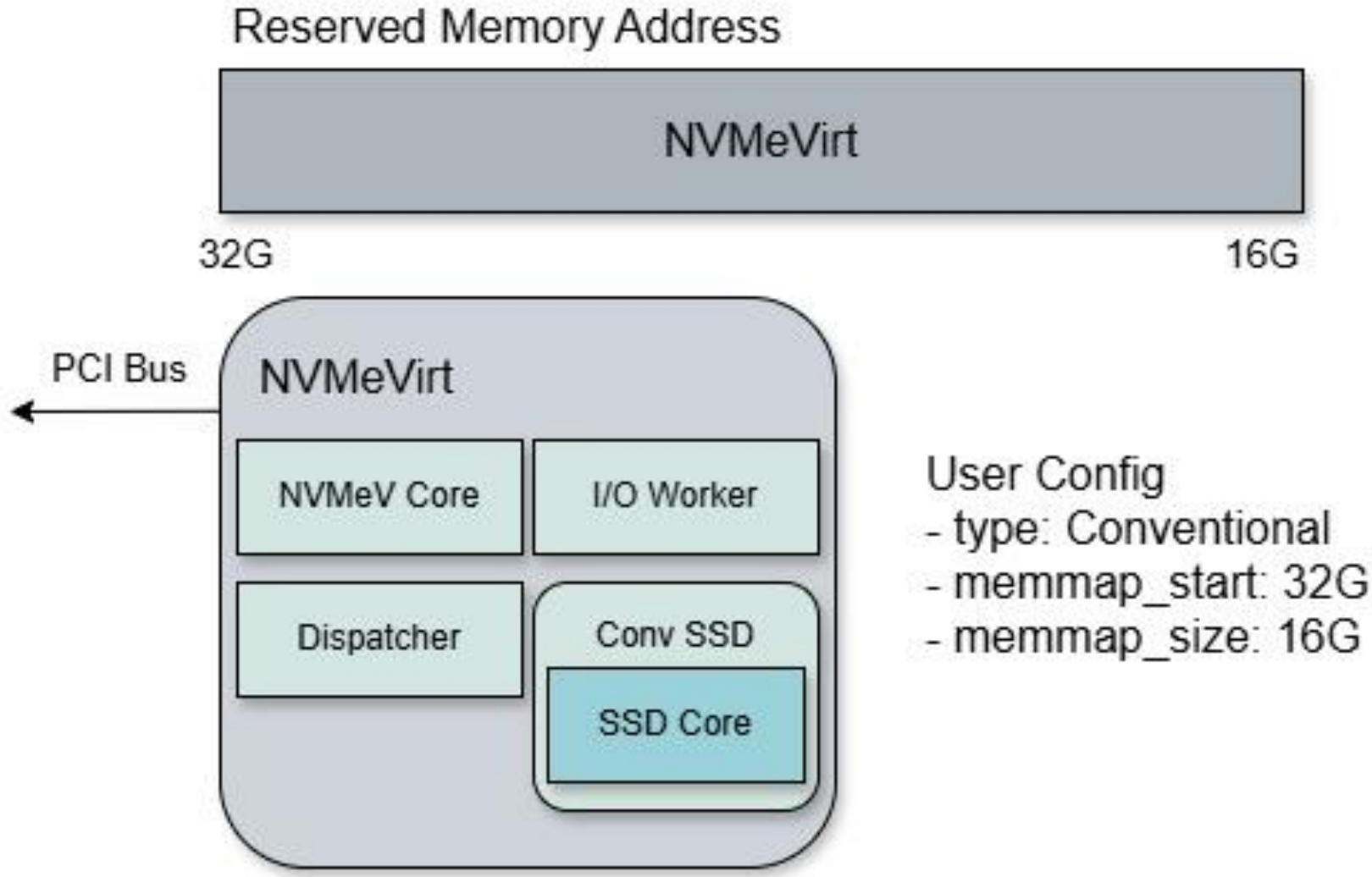
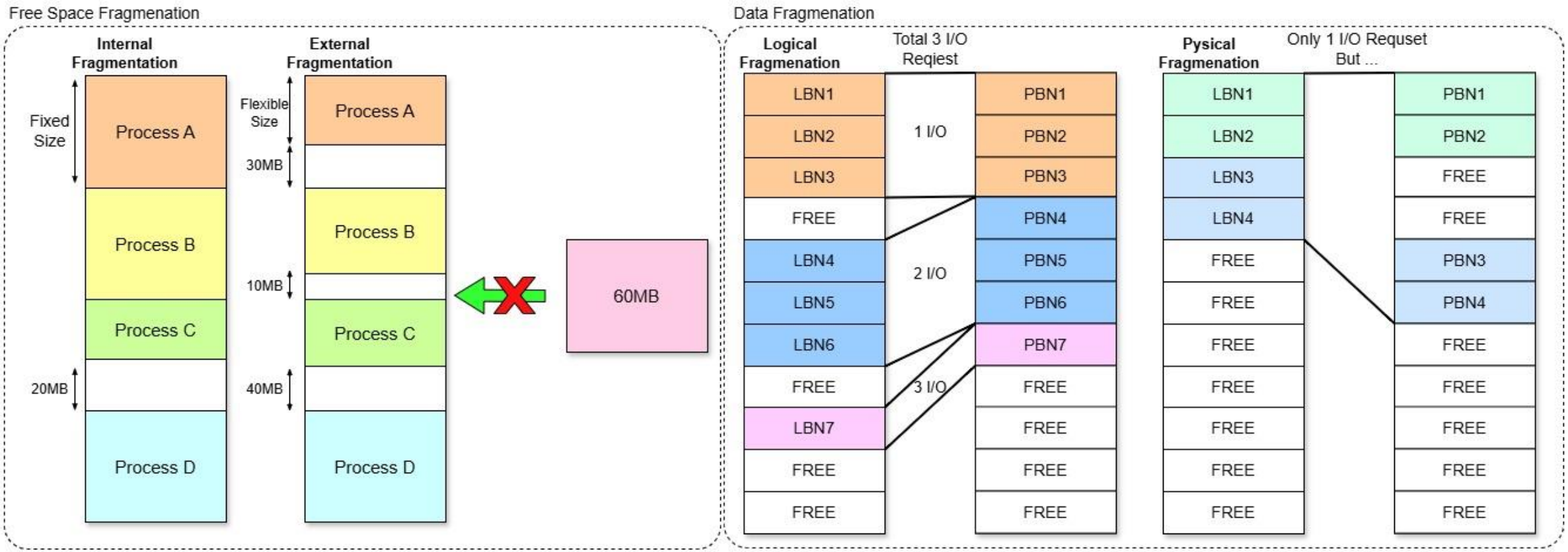
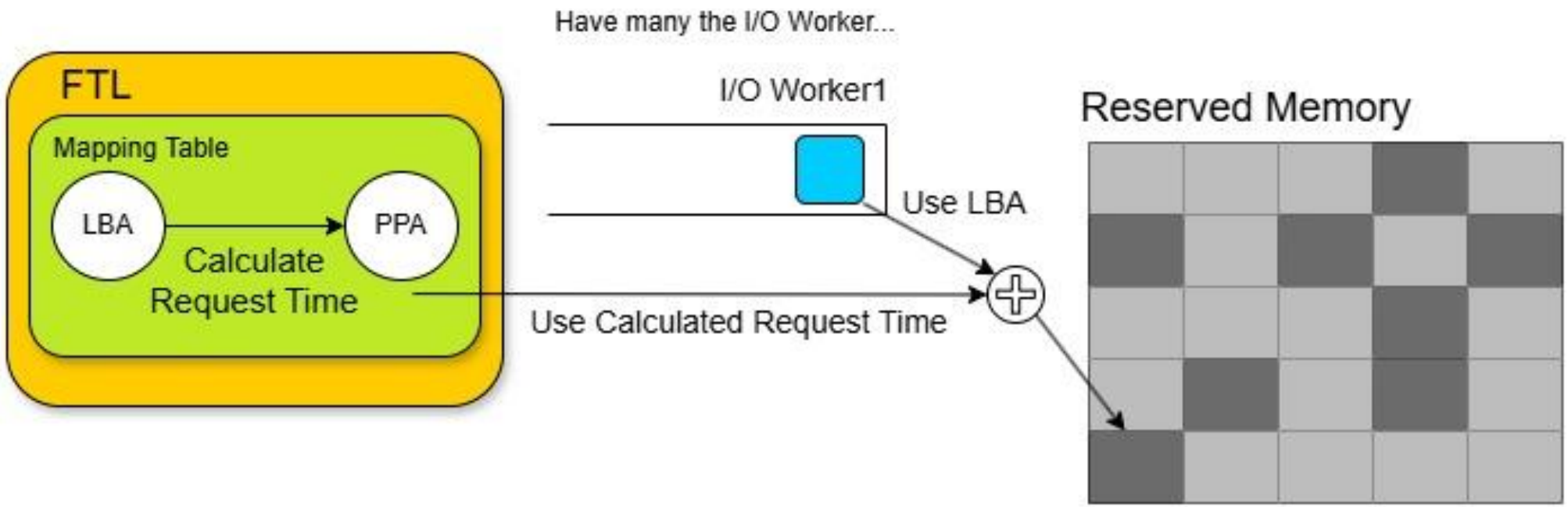
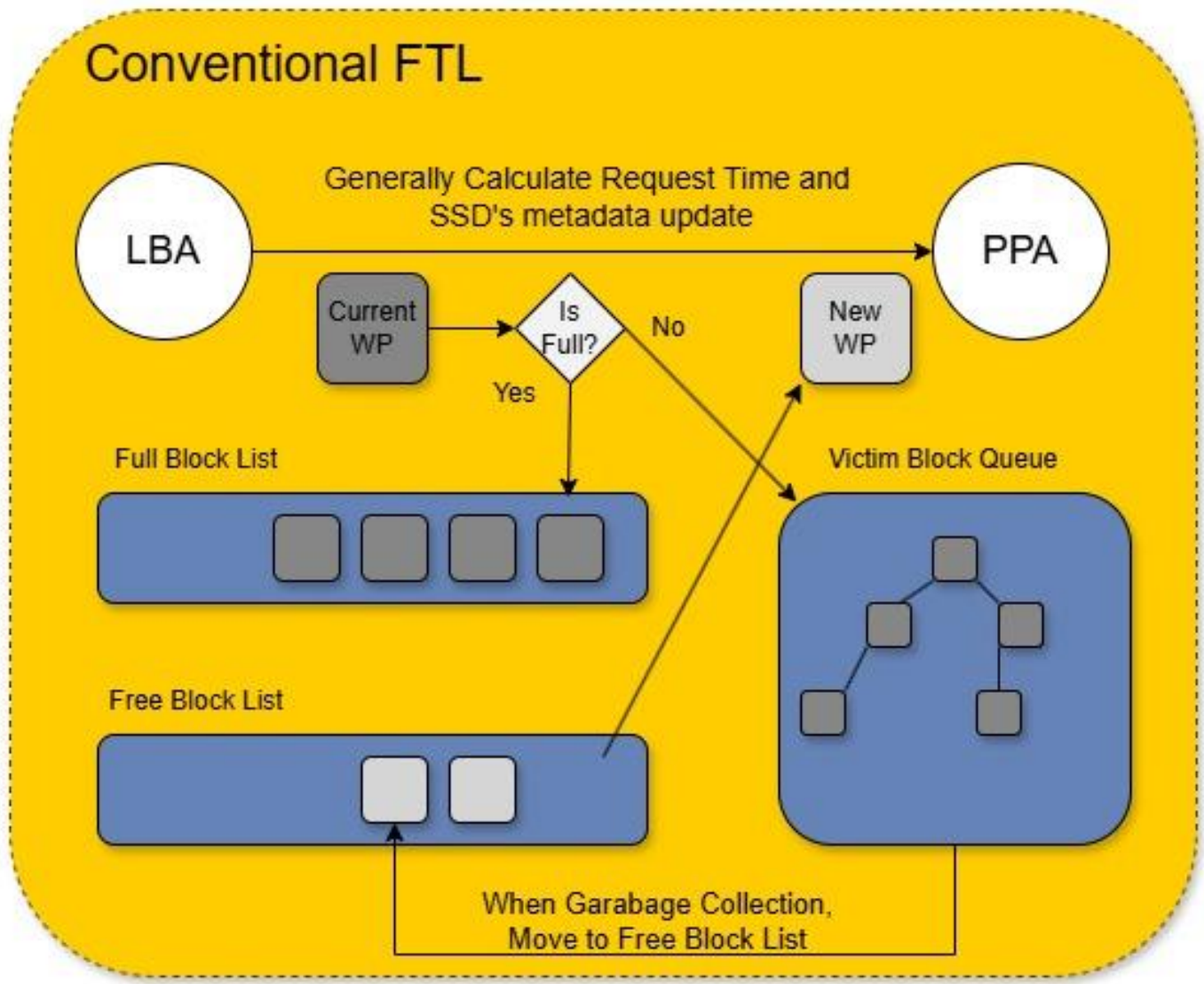

PCIe Link
Write Buffer
FTL Instance
FTL Instance
FTL Instance
Channel
Die
Die
Die
Die
Block
Block
Block
Block
Page
Page
Page
Page


Reserved Memory Address
NVMeVirt
32G
16G
PCI Bus
NVMeVirt
NVMeV Core
I/O Worker
Dispatcher
Conv SSD
SSD Core
User Config
- type: Conventional
- memmap_start: 32G
- memmap_size: 16G


Free Space Fragmenation
Internal Fragmentation
Fixed Size
Process A
Process B
Process C
20MB
Process D
External Fragmentation
Flexible Size
Process A
30MB
Process B
10MB
Process C
40MB
Process D
60MB
Data Fragmenation
Logical Fragmenation
Total 3 I/O Reqiest
LBN1
LBN2
LBN3
FREE
LBN4
LBN5
LBN6
FREE
LBN7
FREE
FREE
1 I/O
2 I/O
3 I/O
PBN1
PBN2
PBN3
PBN4
PBN5
PBN6
PBN7
FREE
FREE
FREE
FREE
Pysical Fragmenation
Only 1 I/O Requset But ...
LBN1
LBN2
LBN3
LBN4
FREE
FREE
FREE
FREE
FREE
FREE
FREE
PBN1
PBN2
FREE
FREE
PBN3
PBN4
FREE
FREE
FREE
FREE
FREE


Have many the I/O Worker...
FTL
Mapping Table
LBA
PPA
Calculate
Request Time
I/O Worker1
Use LBA
Use Calculated Request Time
Reserved Memory


Conventional FTL
LBA
Generally Calculate Request Time and
SSD's metadata update
PPA
Current
WP
Is
Full?
No
New
WP
Yes
Full Block List
Victim Block Queue
Free Block List
When Garabage Collection,
Move to Free Block List