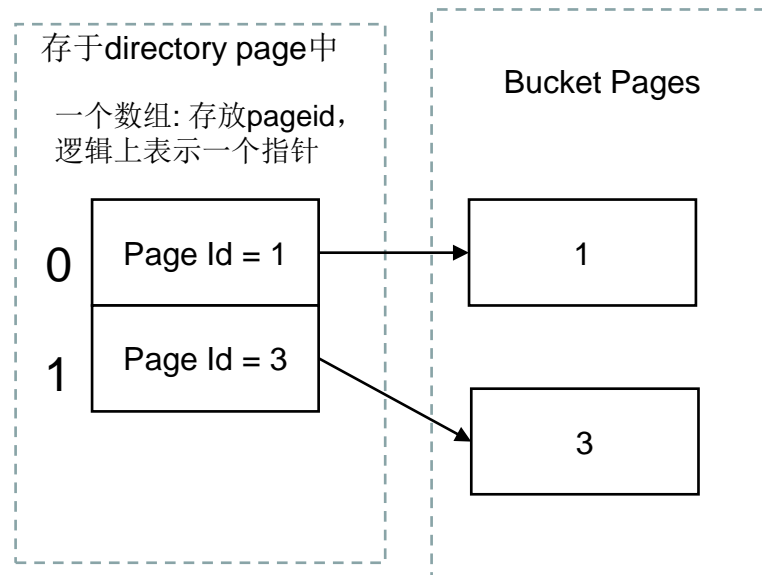
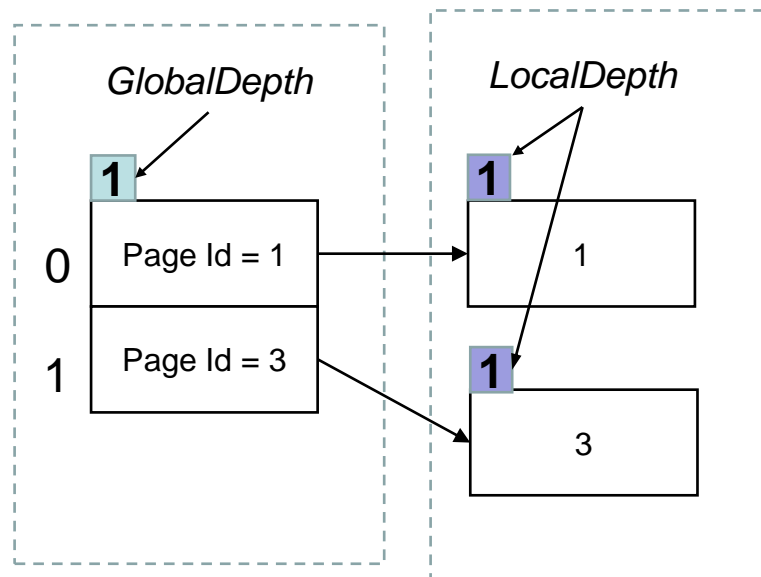
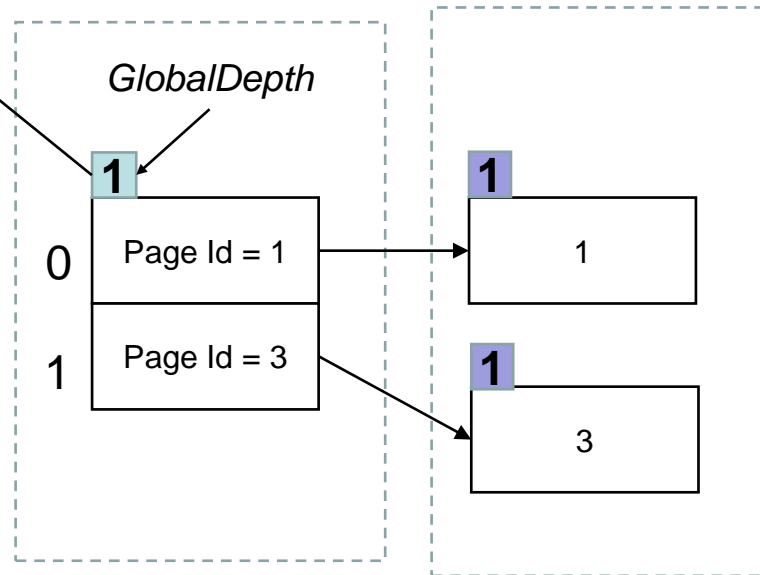


Dynamic Hashing 演示





Mask = $1 \ll \text{GlobalDepth} - 1$
Mask = 0x 00000001



Insert

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000001

{1, "static"}

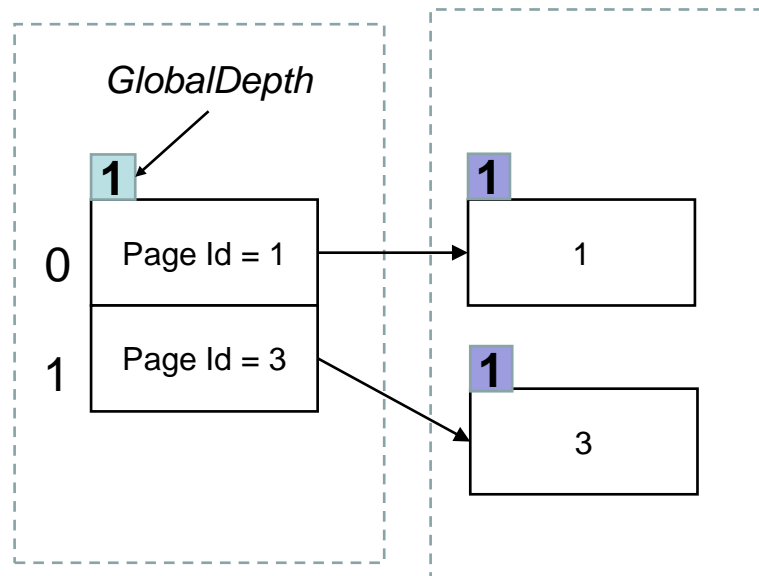
0x 00000001

&

Mask = 0x 00000001



1



Insert

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000001

{1, "static"}

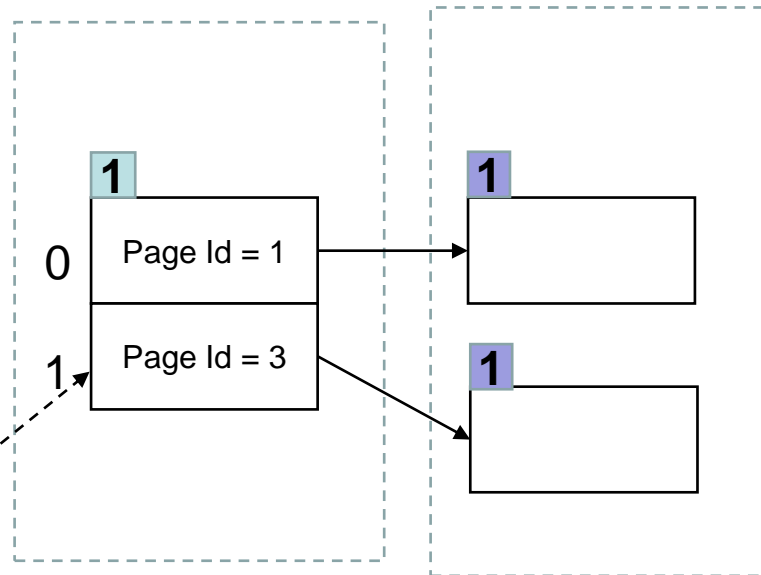
0x 00000001

&

Mask = 0x 00000001



1



Insert

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000001

{1, "static"}

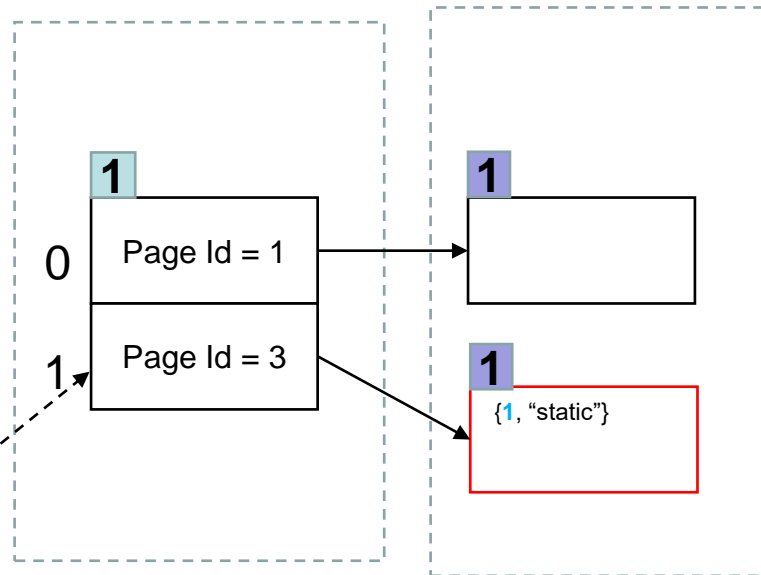
0x 00000001

&

Mask = 0x 00000001



1



Insert

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000001

{2, "dynamic"}

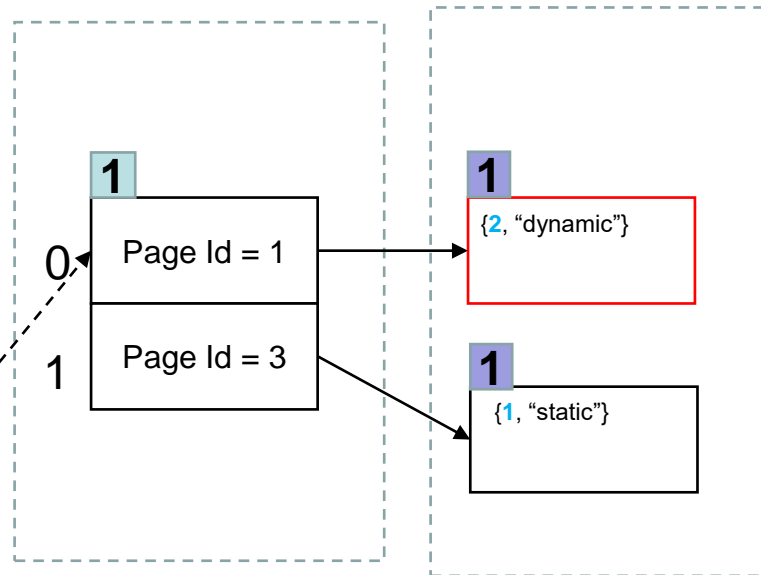
0x 00000010

&

Mask = 0x 00000001

||

0



Insert

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000001

{5, "hashing"}

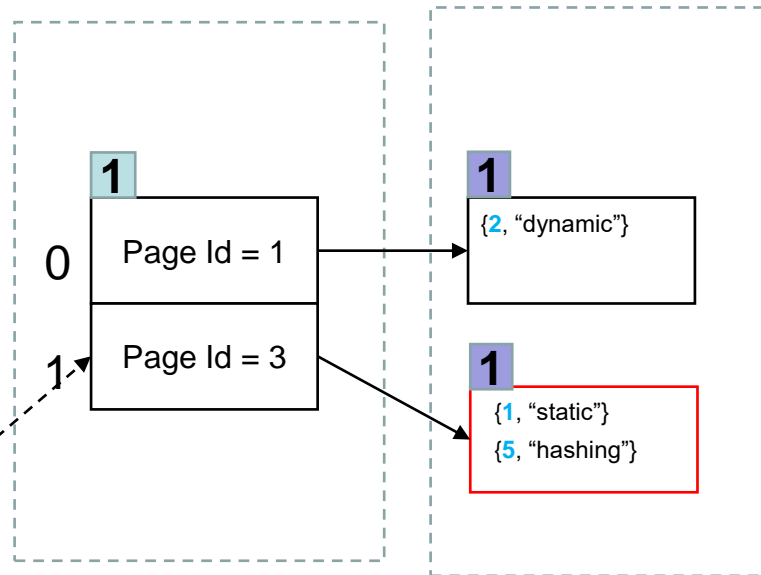
0x 00000101

&

Mask = 0x 00000001



1



Insert

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000001

{6, "full"}

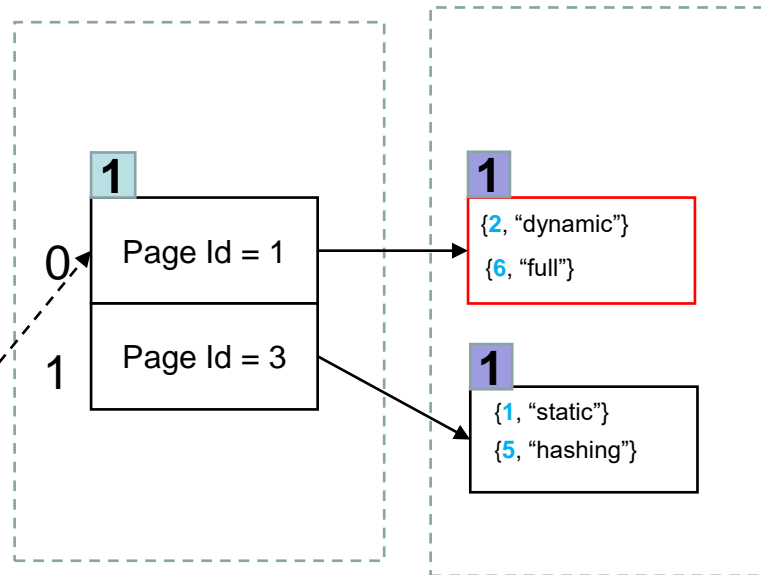
0x 00000110

&

Mask = 0x 00000001

||

0



Insert

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000001

{7, "split"}

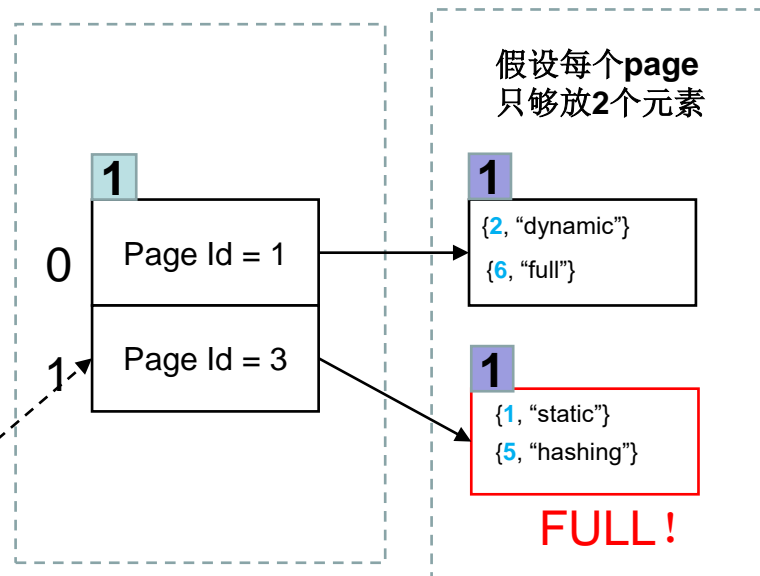
0x 00000111

&

Mask = 0x 00000001

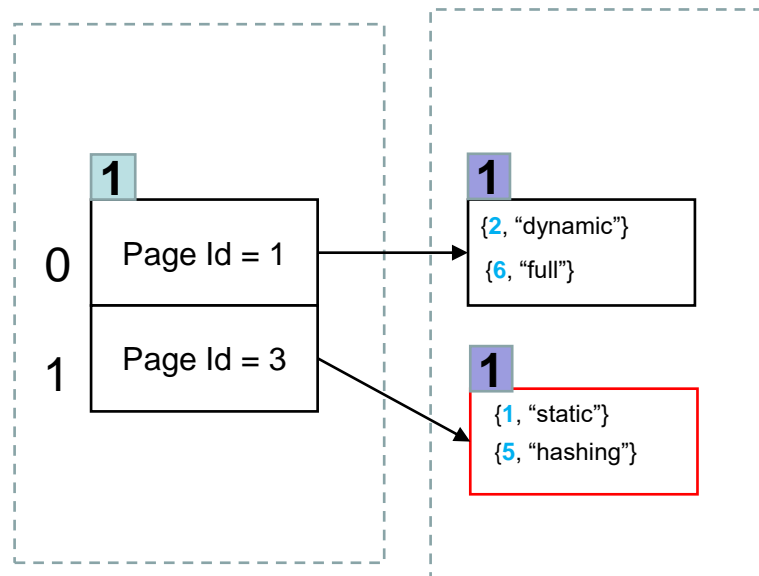


1



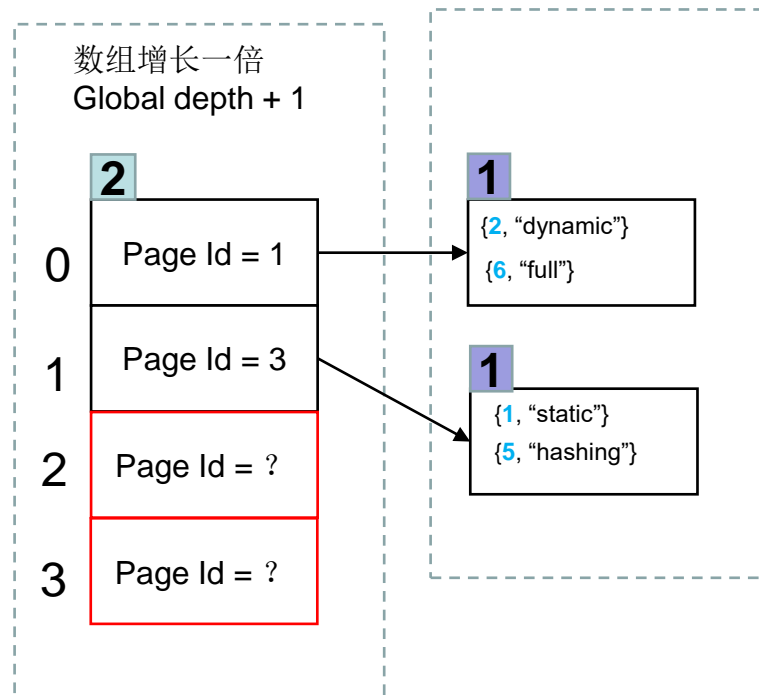
Bucket Split

{7, "split"}



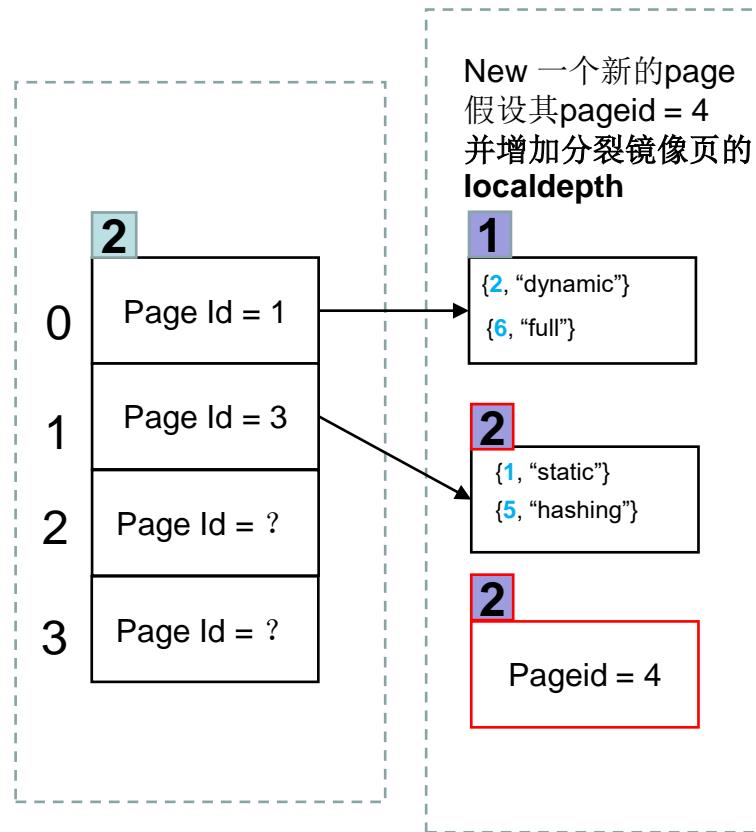
Bucket Split

{7, "split"}



Bucket Split

{7, "split"}

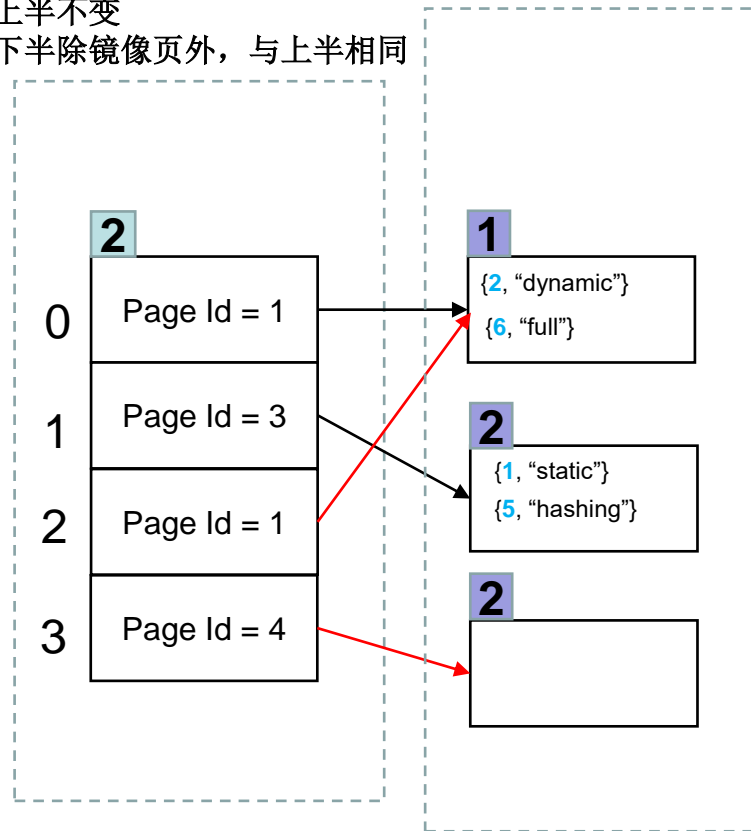


Bucket Split

{7, "split"}

调整指针逻辑指针:

- 上半不变
- 下半除镜像页外, 与上半相同



Rehash

{7, "split"}

Mask = 1 << GlobalDepth - 1

Mask = 0x 00000011

{1, "static"}

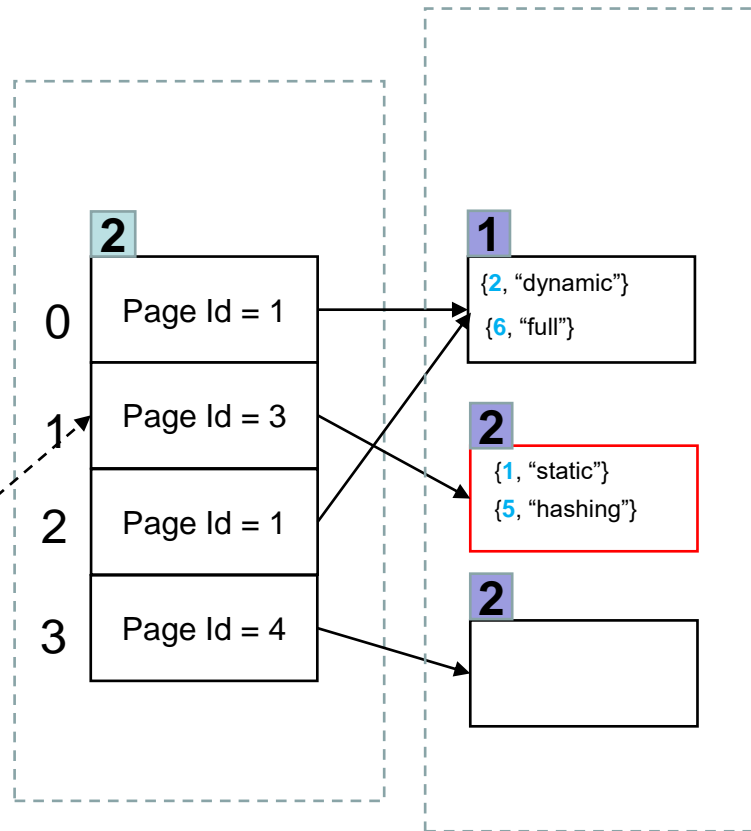
0x 00000001

&

Mask = 0x 00000011

||

1



Rehash

{7, "split"}

Mask = 1 << GlobalDepth - 1

Mask = 0x 00000011

{5, "static"}

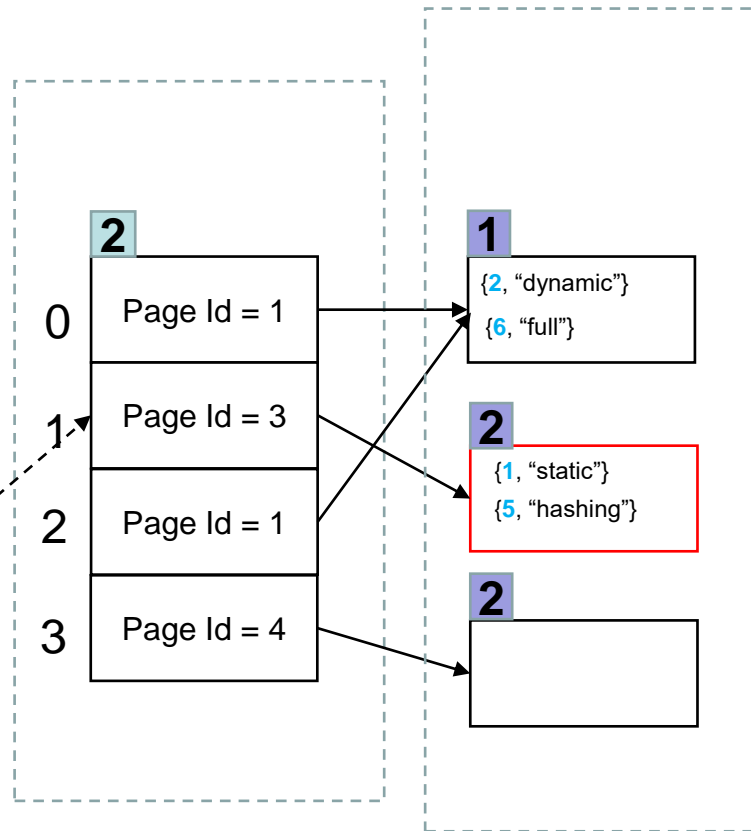
0x 00000101

&

Mask = 0x 00000011

||

1



Insert

{7, "split"}

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000011

{7, "split"}

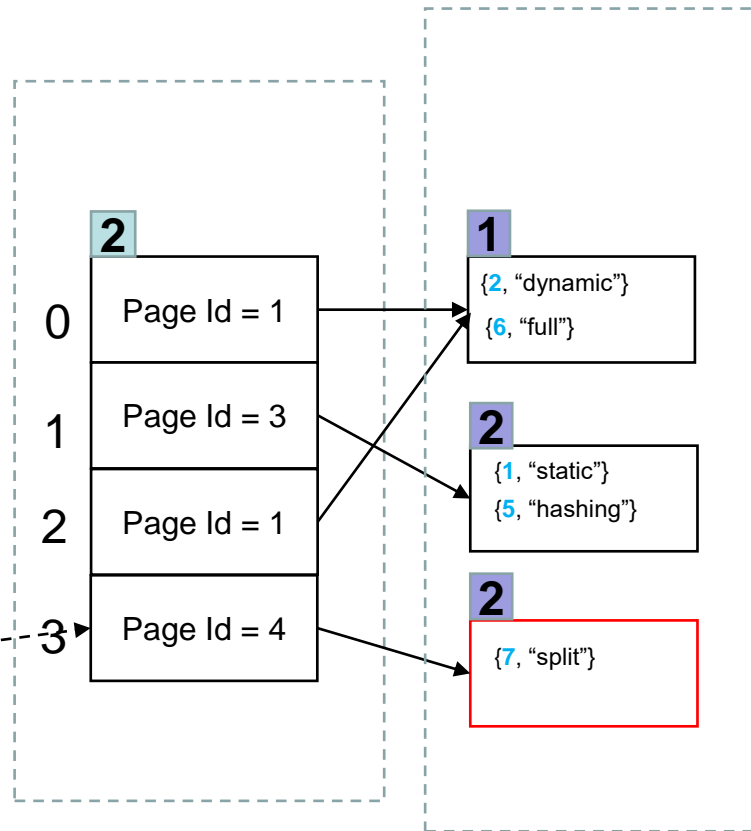
0x 00000111

&

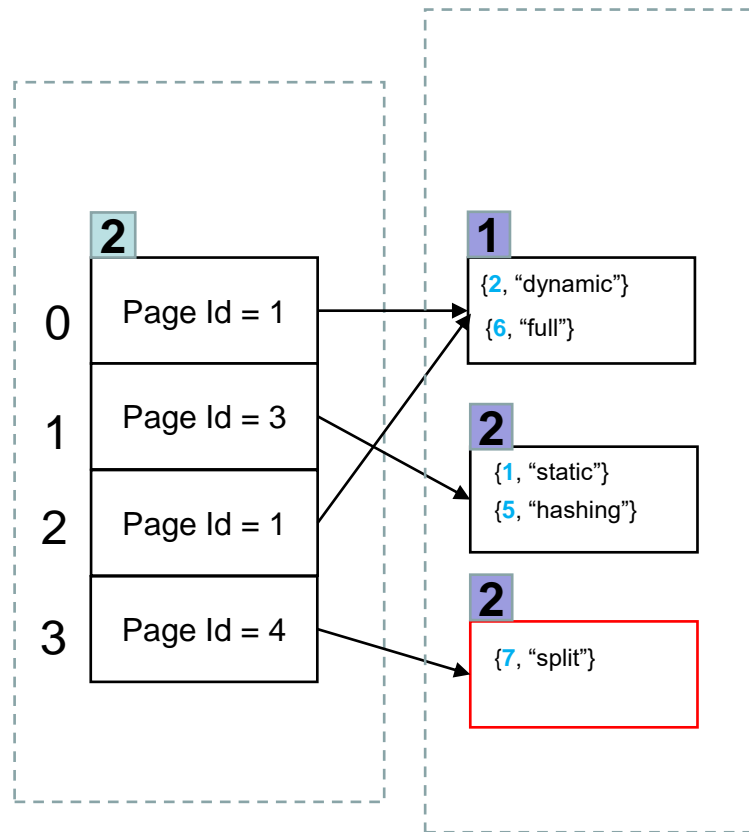
Mask = 0x 00000011

||

3



Local Depth的作用？



控制分裂行为

- 如果 $ld == gd$
 - 增加 **directory** 容量
 - 再分裂 **bucket** 页
- 如果 $ld < gd$
 - 仅仅分裂 **bucket** 页即可

GD > LD时的分裂

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000011

{8, "split2"}

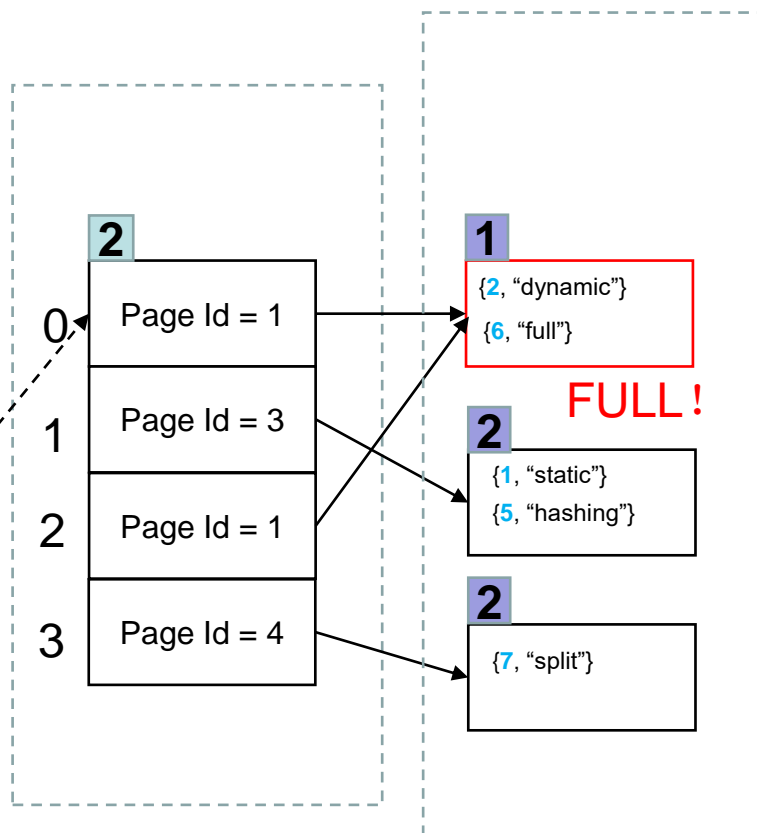
0x 00001000

&

Mask = 0x 00000011

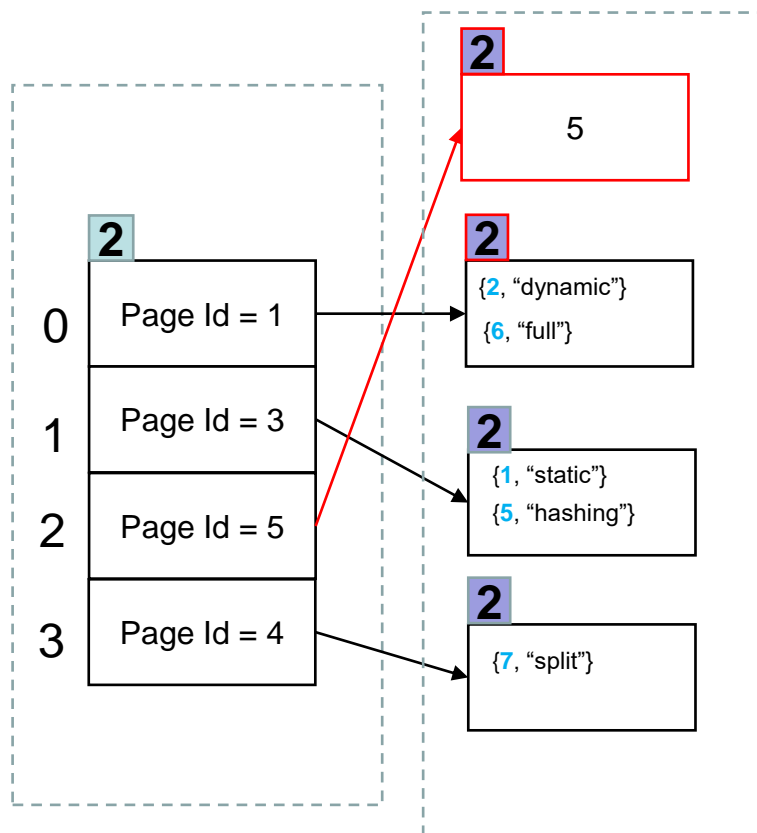
||

0



GD > LD时的分裂

{8, "split2"}



- 如果 $Id == gd$
 - 增加directory容量
 - 再分裂bucket页
- 如果 $Id < gd$
 - 仅仅分裂bucket页即可

接下来的**Rehash**过程没有区别

{8, "split2"}

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000011

{2, "split2"}

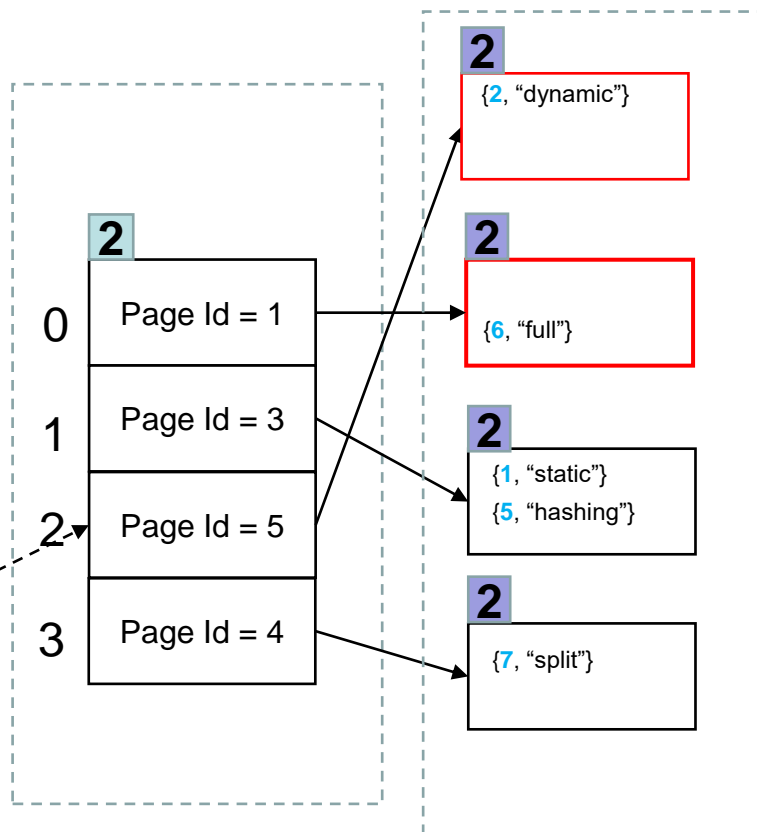
0x 00000010

&

Mask = 0x 00000011

||

2



从一个页移动到另一个页

接下来的**Rehash**过程没有区别

{8, "split2"}

Mask = 1 << GlobalDepth - 1

Mask = 0x 00000011

{6, "split2"}

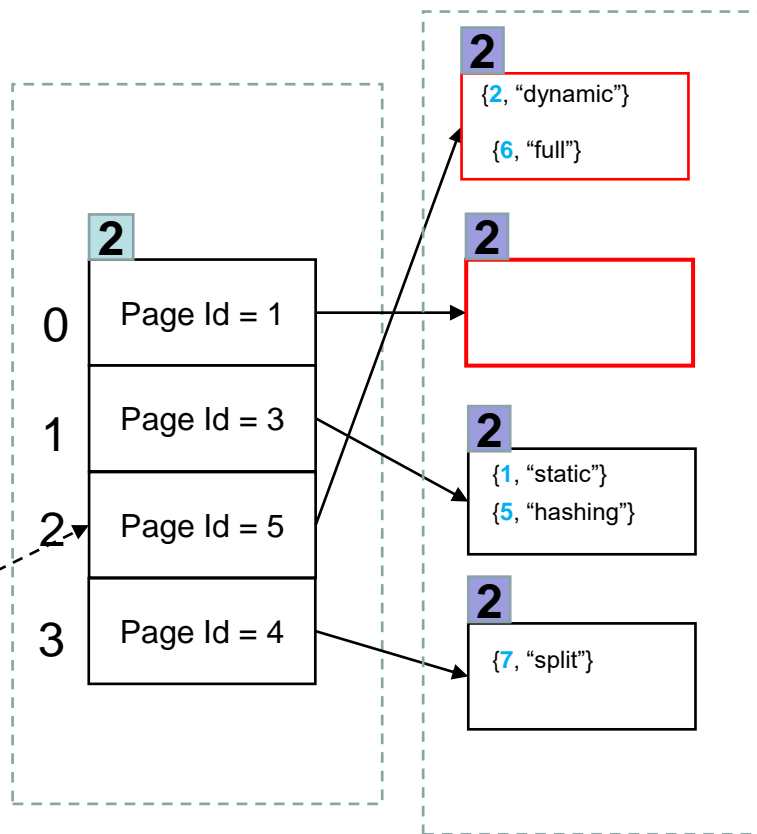
0x 00000110

&

Mask = 0x 00000011

||

2



从一个页移动到另一个页

Insert

{8, "split2"}

Mask = $1 \ll \text{GlobalDepth} - 1$

Mask = 0x 00000011

{8, "split2"}

0x 00001000

&

Mask = 0x 00000011

||

0

