page cache , process map issues

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To: <redhat−list@redhat.com>
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Hi Gurus ,

I need to understand the interaction between the page cache (which is used for file systemn data cache) , and virtual memory map of a process which uses data from the cache.

Where does the pages which are read from the disk is mapped inside a process?

Imagine a simple c program:

```
char *buf;

buf = (char *)malloc(1000);
```

This buf is allocated inside the heap , or in detail it is first reserved (in swap file) ,and on demand , it is allocated (inside the phy.ram)

Then imagine that the code has the following line:

```
*buf = 65 ;
```

So i modifed the contents the buffer.

As far as i know , if the pages which are modified like this , needs to be written to the swap disk in order to be reused again .

So if these pages pageout by the os , they are written to the swap file.

Now consider that ,i start to read data files by using read ,or readv or pread system calls. (readv and pread are the io calls which oracle or other database systems uses on unix)

```
fdes=open("/data/spss/x1.dat",O_RDONLY);

while (fdes)

{

 printf("%d\n",read(fdes, buf,sz));

}
```

I wonder how things happen now.

How the data blocks which are cached inside the page cache mapped to the process?

If the file is read first time by this process , the file must be read from the disk. Then the blocks are cached inside the page cache. The page cache has no backing storage inside the swap file ,

but instead it is directly mapped from the data file itself.

(Is this correct?)

When my process reads data from the disk , then does the page that is inside the page cache copied into the process map ? Or is it shared and no copy takes place?

Kind Regards,

tolga