I/O TRACE USING

BLOCK TRACE

Getting Started with I/O Trace Implementation Using BlockTrace

Objectives

In this tutorial, you will learn how to install a blocktrace and how to captures all activity in the storage stack in the Linux kernel's block layer from the OS perspective.

Tutorial Action	Time Required
Step 1: Install Blocktrace in your Linux machine You will learn how to setup a **BlockTrace** tool and captures all activity in the storage stack in the Linux kernel's block layer from the OS perspective	3 minutes (approx)
Step 2: Install "seekwatcher" and get output image/movie. You will learn how to setup seekwatcher to visualize block I/O patterns.	1 minute
Step 3: Run Blocktrace and Create a file using "dd" that will do disk access In this step you will learn how to make a disk access	1 minute
Step 4: Run Blkparse and Seekwatcher to visualize the block I/O pattern Lastly,	15 minutes

Prerequisites

The following prerequisites are expected for successful completion of this tutorial:

- An SSH client (Windows users: download PuTTY from here: http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html)
- A basic knowledge of Linux

Architecture level

The following diagram illustrates the the level at which blktrace captures the IO workload. Blktrace captures events up to the driver level and operates one level higher than a bus trace does.

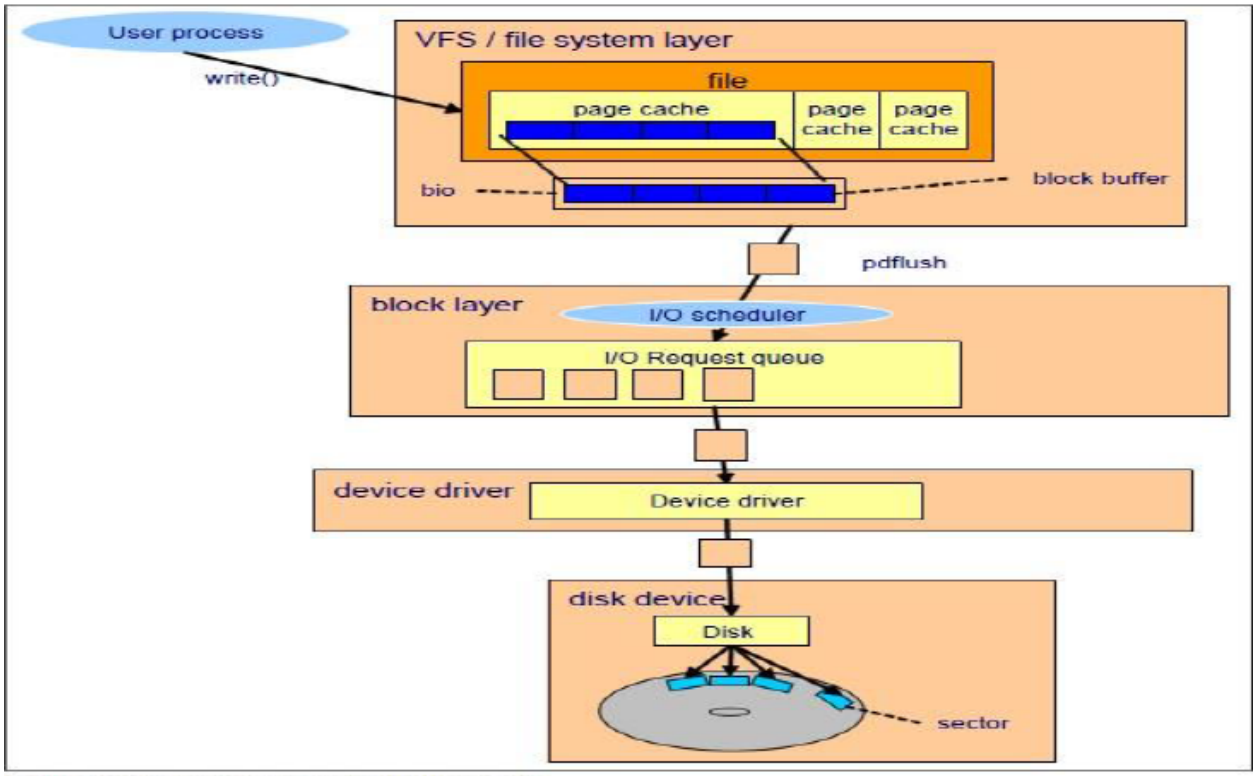
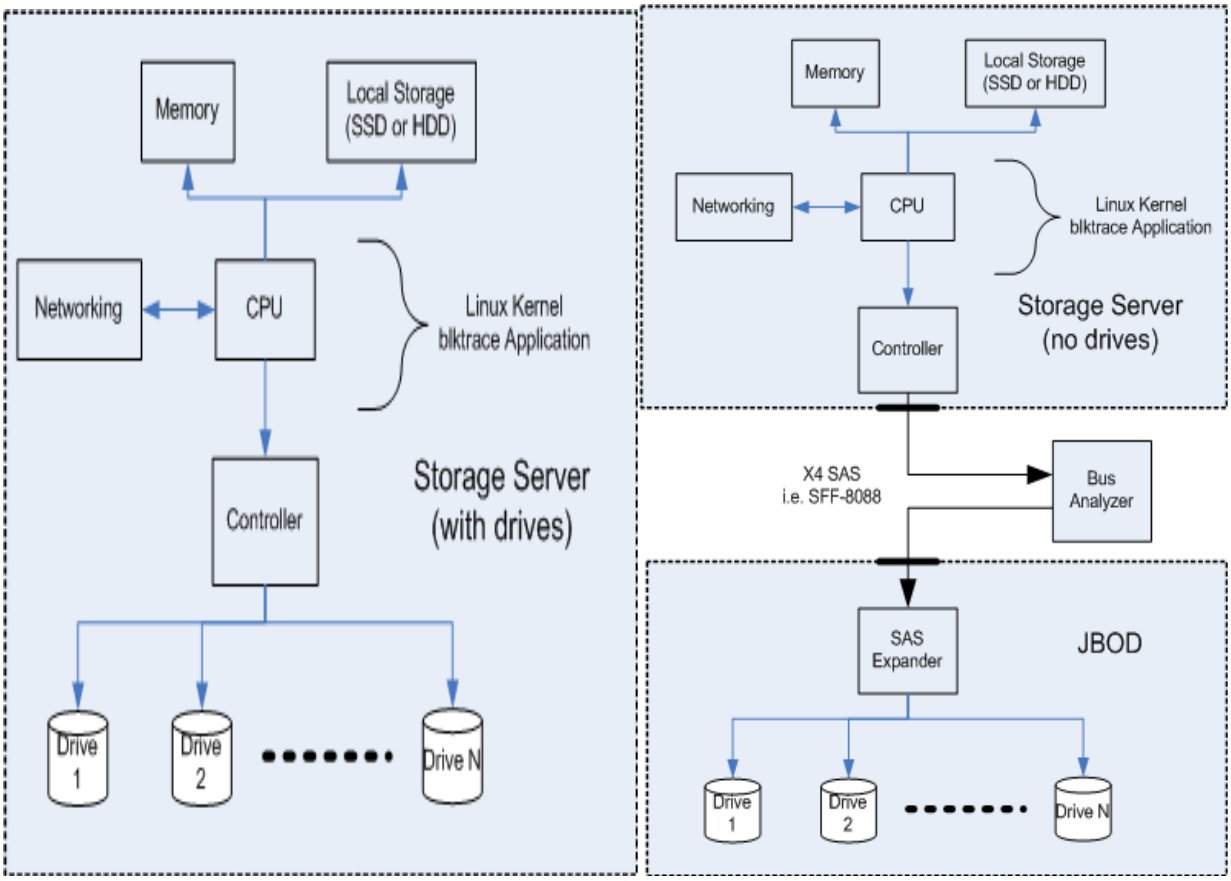


Figure 1-18 I/O subsystem architecture

It can provide a valuable way to test multi-drive workload, because the trace occurs at the logical layer prior to the physical layer. By tracing the logical layer all drives can be traced at once, where a bus trace would be limited by drive numbers. Every operating system is logging all the access its doing and so one can get a pretty broad picture of accesses.



Hands-on

Step 1: Install Blocktrace in your Linux machine

In this step, you will –Install Block trace, if not there.

```
root@rack1-1:~# apt-get install blktrace
```

Step 2: Install “seekwatcher” and get output image/movie.

In this step, you will –Install seekwatcher, if not there.

```
root@rack1-1:~# apt-get install seekwatcher
```

Step 3: Run Blocktrace and Create a file using “dd” that will do disk access

```
root@rack1-1:~# blktrace /dev/sda &
root@rack1-1:~# dd if=/dev/zero of=abc.bin bs=1MB count=1000
```

NOTE : kill the blktrace process using process id and then run blockparse

```
root@rack1-1:~# kill (pid)
```

Step 4: Run block parse and seekwatcher to visualize block i/o pattern.

In this step, you will –Use blkparse and seekwatcher to visualize I/O patterns.

Blkparse : In this step you can monitor the drive you want and also pipe the selected output in text file.

```
root@rack1-1:~# blkparse –i sda.blktrace.7 –f “%a,%S,%t\n” | sed –n
‘/[CD]/ p’ > result.txt
```

Seekwatcher : In this step, it will give you .png format image of disk IO, Throughput, Seek Count, IOPs

```
 root@rack1-1:~# seekwatcher --io-graph-marker-size=5 -t
tracenew5.blktrace.8 -o new5-dd1.png --dpi 200
```