Subject: [RFC] Default child of a cgroup Posted by Srivatsa Vaddagiri on Thu, 31 Jan 2008 02:40:49 GMT View Forum Message <> Reply to Message

Hi,

As we were implementing multiple-hierarchy support for CPU controller, we hit some oddities in its implementation, partly related to current cgroups implementation. Peter and I have been debating on the exact solution and I thought of bringing that discussion to lkml.

Consider the cgroup filesystem structure for managing cpu resource.

```
# mount -t cgroup -ocpu,cpuacct none /cgroup
# mkdir /cgroup/A
# mkdir /cgroup/B
# mkdir /cgroup/A/a1
will result in:
/cgroup
  |----<tasks>
  |----<cpuacct.usage>
   |----<cpu.shares>
  |----[A]
      |----<tasks>
      |----<cpuacct.usage>
      |----<cpu.shares>
      |---[a1]
          |----<tasks>
          |----<cpuacct.usage>
          |----<cpu.shares>
  l----[B]
      |----<tasks>
      |----<cpuacct.usage>
      |----<cpu.shares>
```

Here are some questions that arise in this picture:

1. What is the relationship of the task-group in A/tasks with the task-group in A/a1/tasks? In otherwords do they form siblings of the same parent A?

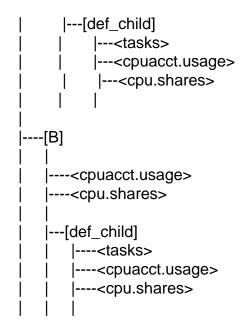
- 2. Somewhat related to the above question, how much resource should the task-group A/a1/tasks get in relation to A/tasks? Is it 1/2 of parent A's share or 1/(1 + N) of parent A's share (where N = number of tasks in A/tasks)?
- 3. What should A/cpuacct.usage reflect? CPU usage of A/tasks? Or CPU usage of all siblings put together? It can reflect only one, in which case user has to manually derive the other component of the statistics.

It seems to me that tasks in A/tasks form what can be called the "default" child group of A, in which case:

4. Modifications to A/cpu.shares should affect the parent or its default child group (A/tasks)?

To avoid these ambiguities, it may be good if cgroup create this "default child group" automatically whenever a cgroup is created? Something like below (not the absence of tasks file in some directories now):

```
/cgroup
  |-----<cpuacct.usage>
   |----<cpu.shares>
   |---[def_child]
      |----<tasks>
      |----<cpuacct.usage>
      |----<cpu.shares>
  |----[A]
      |----<cpuacct.usage>
      |----<cpu.shares>
      |---[def child]
         |----<tasks>
         |----<cpuacct.usage>
         |----<cpu.shares>
      |---[a1]
          |----<cpuacct.usage>
          |----<cpu.shares>
```



Note that user cannot create subdirectories under def_child with this scheme! I am also not sure what impact this will have on other resources like cpusets ..

Thoughts?

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Regards, vatsa

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