Subject: [ANNOUNCE] OpenVZ patch for 2.6.16 and beta SUSE10.1 kernels
Posted by Kirill Korotaev on Mon, 27 Mar 2006 10:01:00 GMT
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OpenVZ team is happy to announce the release of its virtualization
solution based on 2.6.16 and beta SUSE10.1 kernels.

As in previous releases, OpenVZ 2.6.16 kernel patch includes:
- virtualization
- fine grained resource management (user beancounters)
- 2 level disk quota

Coming soon new features (!):
- virtualized AppArmor
- dynamic virtual CPU adding/remove to/from VPS

More information about OpenVZ project is available at http://openvz.org/

Fine grained broken-out patch set can be found at
 http://download.openvz.org/kernel/broken-out/2.6.16-026test0 05.1/
or at GIT repository at http://git.openvz.org/

About OpenVZ software
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OpenVZ is a kernel virtualization solution which can be considered as a
natural step in the OS kernel evolution: after multiuser and
multitasking functionality there comes an OpenVZ feature of having
multiple environments.

Virtualization lets you divide a system into separate isolated
execution environments (called VPSs - Virtual Private Servers). From the
point of view of the VPS owner (root), it looks like a stand-alone
server. Each VPS has its own filesystem tree, process tree (starting
from init as in a real system) and so on. The single-kernel approach
makes it possible to virtualize with very little overhead, if any.

OpenVZ in-kernel modifications can be divided into several components:

1. Virtualization and isolation.
Many Linux kernel subsystems are virtualized, so each VPS has its own:
- process tree (featuring virtualized pids, so that the init pid is 1);
- filesystems (including virtualized /proc and /sys);
- network (virtual network device, its own ip addresses,
  set of netfilter and routing rules);
- devices (if needed, any VPS can be granted access to real devices
  like network interfaces, serial ports, disk partitions, etc);
- IPC objects.
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2. Resource Management.
This subsystem enables multiple VPSs to coexist, providing managed resource sharing and limiting.
- User Beancounters is a set of per-VPS resource counters, limits, and guarantees (kernel memory, network buffers, phys pages, etc.).
- Two-level disk quota (first-level: per-VPS quota; second-level: ordinary user/group quota inside a VPS)

Resource management is what makes OpenVZ different from other solutions of this kind (like Linux VServer or FreeBSD jails). There are a few resources that can be abused from inside a VPS (such as files, IPC objects, ...) leading to a DoS attack. User Beancounters prevent such abuses.

As virtualization solution OpenVZ makes it possible to do the same things for which people use UML, Xen, QEmu or VMware, but there are differences:
(a) there is no ability to run other operating systems (although different Linux distros can happily coexist);
(b) performance loss is negligible due to absense of any kind of emulation;
(c) resource utilization is much better.

Thanks,
OpenVZ team.
