

Occupancy Detection: The Ins And Outs

Arote, Uddhav
uddhava@cse.iitb.ac.in

Palani, Kartik
kartik@cse.iitb.ac.in

Nasir, Nabeel
nabeeln@cse.iitb.ac.in

Chil Prakash, Vivek
vivekcprakash@cse.iitb.ac.in

August 20, 2014

Abstract

Virtualization[1] is the hot topic in the operating systems these days. It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution is best.

The Kernel Virtual Machine, or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

1 Background

Virtualization is the hot topic in the operating systems[2] these days. It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution is best.

The Kernel Virtual Machine, or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

Virtualization is the hot topic in the operating systems these days. It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution is best.

The Kernel Virtual Machine, or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

2 x86 virtualization

Virtualization is the hot topic in the operating systems these days. It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution is best.

The Kernel Virtual Machine, or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

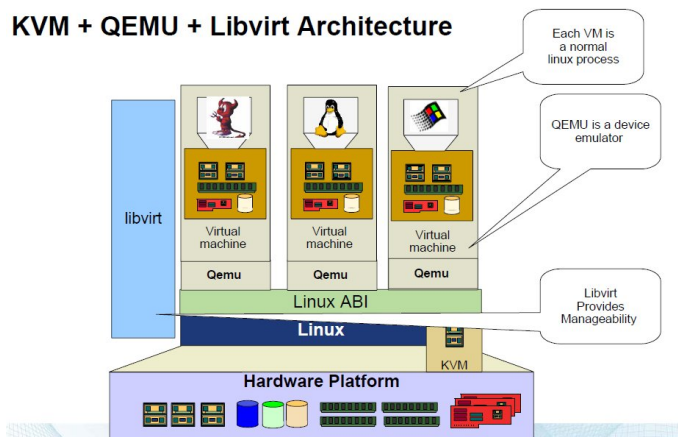


Figure 1: kvm: architecture

Virtualization is the hot topic in the operating systems these days. It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution is best.

The Kernel Virtual Machine, or **kvm** is a new

Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

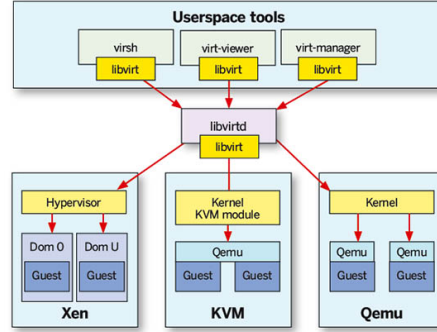


Figure 2: YAkvmA

3 MMU virtualization

Virtualization is the hot topic in the operating systems these days. It is useful in many scenarios: server consolidation¹, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution is best.

The Kernel Virtual Machine, or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

Virtualization is the hot topic in the operating systems these days. It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution is best.

$$\int \frac{d\theta + \pi/2 + \sum_{i=2}^{10} i^2 + i\theta^2 + i/\pi}{1 + \theta^2} = \tan^{-1} \theta + C \quad (2)$$

The Kernel Virtual Machine², or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux. The architecture is show in fig.2

3.1 Shadow Paging

Virtualization is the hot topic in the operating systems these days.

¹Consolidate all servers on one machine

²kvm, is a Linux subsystem

Hello	Hello	Hello						
AAAAA	AAAAA	AAAAA	AAAAA	AAAAA	AAAAA	AAAAA	AAAAA	AAAAA
BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB
AAAAA	AAAAA	AAAAA	AAAAA	AAAAA	AAAAA	AAAAA	AAAAA	AAAAA
BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB

Table 1: Table Name

It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution is best.

The Kernel Virtual Machine, or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

3.2 Direct Mapping

Virtualization is the hot topic in the operating systems these days. It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution[6] is best.

The Kernel Virtual Machine, or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

3.3 Hardware assisted Paging

Virtualization is the hot topic in the operating systems these days. It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution is best.

$$\frac{n!}{k!(n-k)!} = \binom{n}{k}$$

The Kernel Virtual Machine, or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor[4] (or hypervisor) capability to Linux.

4 Types of Virtualization

1. Full Virtualization

- x86

- MMU
- NIC
- IO

2. Para Virtualization

3. Hardware Assisted Virtualization

5 x86 Hardware Virtualization Techniques

x86 hardware is difficult to virtualize because few instructions[5] do not trap when executed in different privilege level. Follow the table 2 on page 4 Virtualization is the hot topic in the operating systems these days. It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still $a+b*\pi+\theta+\sum_{i=2}^{10}\frac{n!}{k!}+\forall+\leq +\geq=10$ cannot decide upon the which distribution is best.

The Kernel Virtual Machine, or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

Virtualization is the hot topic in the operating systems these days. It is useful in many scenarios: server consolidation, virtual test environments, and for Linux enthusiasts who still cannot decide upon the which distribution is best.

The Kernel Virtual Machine, or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

The Kernel Virtual Machine[3], or **kvm** is a new Linux subsystem which leverages these virtualization extensions to add a virtual machine monitor (or hypervisor) capability to Linux.

Virtualization is the hot topic in the operating systems these days [7] [8] [9]. It is useful in many scenarios: server consolidation, virtual test environ-

Hardware	I	II	III
a	1	2	3
b	1	2	3
c	1	2	3
d	1	2	3

Table 2: Virtualization I

ments, and for Linux³ enthusiasts who still cannot decide upon the which distribution is best.

Software	I	II	III	IV	V
a	1	2	3	test	hello
b	1	2	3	test	hello
c	1	2	3	test	hello
d	1	2	3	test	hello

Table 3: Virtualization II

- [6] D A Troy and S H Zweben, *Measuring the Quality of Structured Designs*, Journal of Systems and Software, **2**, 1981, 113–120
- [7] <http://www.google.com>
- [8] <http://www.linux.com>
- [9] <http://www.xenproject.org>

References

- [1] Boney, L., Tewfik, A.H., and Hamdy, K.N., “Digital Watermarks for Audio Signals,” *Proceedings of the Third IEEE International Conference on Multimedia*, pp. 473-480, June 1996.
- [2] Boney, L., Tewfik, A.H., and Hamdy, K.N., “Digital Watermarks for Audio Signals,” *Proceedings of the Third IEEE International Conference on Multimedia*, pp. 473-480, June 1996.
- [3] Boney, L., Tewfik, A.H., and Hamdy, K.N., “Digital Watermarks for Audio Signals,” *Proceedings of the Third IEEE International Conference on Multimedia*, pp. 473-480, June 1996.
- [4] D A Troy and S H Zweben, *Measuring the Quality of Structured Designs*, Journal of Systems and Software, **2**, 1981, 113–120
- [5] D A Troy and S H Zweben, *Measuring the Quality of Structured Designs*, Journal of Systems and Software, **2**, 1981, 113–120

³Linux is best operating system ever