1 Introduction

Two years ago we started a project of digital preservation (digiBESS, www.digibess.it) committed by Bess (Social Science Electronic Library of Piemonte). The project grown up completely open-source, CNR-Ceris has deployed the software and server platforms of the repository in a virtualized and redundant infrastructure, the only software that wasn't open-source at the beginning of the project was the hypervisor component until the adoption of KVM (Kernel-based Virtual Machine).

KVM is an open source full virtualization solution for Linux on x86 hardware containing virtualization extensions (Intel VT or AMD-V). It consists of a loadable kernel module, kvm.ko, that provides the core virtualization infrastructure and a processor specific module, kvm-intel.ko or kvm-amd.ko. The KVM host can run multiple virtual machines and it supports most production operating systems.

To manage network infrastructure underlining KVM framework we used Open vSwitch. Open vSwitch is a production quality, multilayer virtual switch licensed under the open source Apache 2.0 license. It is designed to enable massive network automation through programmatic extension, while still supporting standard management interfaces and protocols.

Soon we adopted KVM solution for all servers at CNR Ceris IT Office which provides network services to CNR Piedmont users. Currently we have about 30 virtualized machines providing network services as web and application servers, user backup, long term archive, e-mail. To manage virtual machine backups and storage we use our open source active/passive two-nodes cluster solution connected by iSCSI protocol to KVM hosts.