VHPC 2007: Workshop on Virtualization/Xen in High-Performance Cluster and Grid Computing
(Foreword)

Virtual machine monitors (VMMs) are now integrated with a variety of operating systems and are moving out of research labs into scientific, educational and operational usage. Modern hypervisors exhibit a low overhead and allow concurrent execution of large numbers of virtual machines, each strongly encapsulated. VMMs can offer a network-wide abstraction layer of individual machine resources, thereby opening up new models for implementing high-performance computing (HPC) architectures in both cluster and grid environments. This workshop aims to bring together researchers and practitioners active in exploring the application of virtualization in distributed and high-performance cluster and grid computing environments.

Areas that are covered in the workshop series include VMM performance, VMM architecture and implementation, cluster and grid VMM applications, management of VM-based computing resources, hardware support for virtualization, but it is open to a wider range of topics.

As basic virtualization technologies mature, the main focus of research is now techniques for managing virtual machines in large-scale installations. This was reflected in this year's workshop, where five presentations were given on the management of virtualized HPC systems. It was good to see work integrating VMs into existing management systems such as SmartFrog and Quattor. In total ten papers were accepted for this year's workshop, with an acceptance rate of approximately 50%.

An invited talk by Greg Law of Solarflare described their implementation of high-performance I/O for guest VMs which was developed to support for their 10-Gbit Ethernet card. The model presented allows for direct, secure, low-latency access to network hardware from guest VMs. This addresses a significant limitation of Xen in an HPC environment, and would potentially allow many virtual cluster nodes to operate using the full potential of the underlying network hardware.

The Chairs would like to thank the Euro-Par organizers, the members of the Program Committee along with the speakers and attendees, whose interaction created a stimulating environment. Thanks also to Greg Law for accepting our invitation to speak at the workshop, and to the conference for their financial support which made this possible. XHPC/VHPC is planning to continue the successful co-location with Euro-Par in 2008.

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