

Platform™

The Power of Sharing

"This effort means that IT resources become more affordable so companies can focus on core competencies instead of worrying about investing hefty sums in IT servers to sharpen their business competitiveness. We are pleased to have the industry on board with us for this project and look forward to their technology leadership and expertise."

Khoong Hock Yun
Assistant Chief Executive
(Infrastructure & Services Development),
Infocomm Development Authority of Singapore

Singapore builds grid service to support business development

Customer

Alatum, National Grid Service
Provider for Infocomm Development
Authority of Singapore (IDA).

Industry

System Integrator Government

Challenges

- Develop Singapore as a Shared Services hub in Asia
- Provide businesses in Singapore with cost-effective access to powerful compute resources

Solution

Virtual Machine Management:
Platform VM Orchestrator™
Platform EGO

HPC cluster provisioning
and workload management:

Platform OCS 5, Platform Symphony
Platform LSF®, and Platform LSF MultiCluster

Virtualisation:

Xen-based virtualization,
Microsoft Hyper-V, VMware

Project Partners:

HP®, Citrix®, Platform™, Red Hat®, Microsoft®

Results

- Enterprises throughout Singapore can access on-demand and pay-as-you-use access to high performance computing capabilities, software, and immense data storage capacity
- Affordable IT resources allow companies to focus on core competencies rather than IT investments in order to increase business competitiveness

Partnering to enable cloud computing

The National Grid Service was conceived by the Infocomm Development Authority of Singapore (IDA) to extend High Performance Computing (HPC), storage and software facilities to all Singapore businesses, especially small and medium sized enterprises (SMEs). The National Grid Service brings together grid service providers and independent software vendors, via consortia formed to provide compute resources on a pay-per-use basis, so that hefty investments for grid capabilities will no longer be needed, and more firms can leverage the grid to develop new, innovative business models and information communication services.

The Alatum consortium (comprising Singapore Computer Systems and Hewlett-Packard together with Platform as a partner) is one of the three National Grid Service Providers appointed by IDA to provide the underlying HPC, grid and private cloud computing infrastructure. The project also includes several major hardware and software vendors, designed to deliver software, computing power and storage as a pay-per-use, on-demand, on-line service to business enterprises and public sector agencies. This ambitious compute system is aligned to support Singapore's growth as a Shared Services hub in Asia. By delivering a vibrant Infrastructure-as-a-Service (IaaS) and Software-as-a-Service (SaaS) ecosystem, Alatum supplies the technology reliability and quality of standards demanded by business users, while freeing enterprises from the expense and hassle of having to install and maintain hardware and software applications locally.

Platform's virtual machine management and HPC management software plays a key role in enabling this cloud project to achieve its main goals:

- Equip enterprises with on-demand and pay-as-you-use access to data center compute resources and software including HPC and business applications
- Make IT resources more affordable so companies can focus on core competencies and competitiveness instead of worrying about investing hefty sums on IT





For more information on IDA's Call-For-Collaboration for Grid Services Provisioning, please visit <http://www.ida.gov.sg/Infrastructure/20070110112154.aspx>

- Provide a platform for SaaS Independent Software Vendors to incubate their services, before commercializing their offerings
- Develop and accelerate the SaaS ecosystem and adoption of grid usage and services by both the private and public sectors

Platform VM Orchestrator (VMO), an automated, policy-driven, virtual environment manager that supports web-based self-service virtual machine lifecycle management, helps power the infrastructure behind the cloud project. Platform is also providing Platform LSF to manage compute or data intensive HPC workload, Platform Open Cluster Stack 5 (OCS) to provision and manage the cluster hardware and Platform Symphony for managing workloads of financial applications. Platform LSF MultiCluster has also been deployed to manage traffic between multiple clusters.

Two offerings: Enterprise and HPC

Alatum provides two core offerings for its customers: an enterprise cloud and a HPC grid built from dual CPU HP Blade Servers comprising a total of 2,400 cores. Enterprise customers will have a choice of accessing either a Microsoft or Linux virtual machine. Platform VMO acts as the virtual machine controller. Platform VMO will have the capability to automatically detect failures and to automatically load balance the virtual machines across the entire computing cluster, by following policies set by the administrator. Platform VMO also provides accounting data on virtual machine utilization which will be used by the billing system.

The enterprise portion of the cloud was initially provisioned with disk images and ftp imaging for the base OS. Platform VMO is used in the enterprise cloud for provisioning the virtual machines and to seamlessly optimize and load balance the virtual machines for high availability across the computing cluster.

Platform OCS 5 was used to provision the hardware for the HPC grid at the outset of the project and is used for ongoing hardware management as well as for future hardware provisioning. Platform OCS 5 is based on the KUSU open source software that was originally developed in Singapore. The HPC grid also provides two options one based on Linux and the other on Microsoft. Platform LSF and Platform Symphony are used for workload management on the Linux side depending on the type of application that the user is running.

Platform VMO and Platform LSF provide the necessary policy-driven dynamic resource management capabilities required to make both the bare-metal and virtualized portions of the National Grid Service Provisioning a success.

Ease of access, simplicity of billing

The system features a single sign on portal, which authenticates and authorizes all users. Whenever users log on and use services, the event is recorded by the billing system. Users can view their up-to-date usage and services purchased from the portal. Billing information is provided by Platform VMO for data on virtual machine utilization and Perf for core utilization on the HPC side.

The infrastructure can also SaaS-enable any Windows desktop application into a service that that can be metered and charged on a monthly basis. This system uses a remote terminal with app-streaming technology that can present a virtual desktop to any user, which can be automatically provisioned and de-provisioned with any software required from the software library.

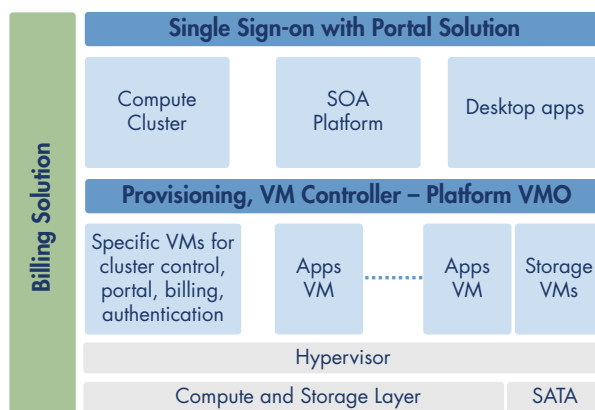


Figure 1: A view of the infrastructure and the elements supplied by each partner

Platform™

Platform Computing is the leader in grid and cloud computing software that dynamically connects IT resources to workload demand according to business policies. Over 2,000 of the world's largest organizations rely on our solutions to improve IT productivity and reduce data center costs. Platform has strategic relationships with Cray, Dell™, HP, IBM®, Intel®, Microsoft®, Red Hat®, and SAS®. Building on 16 years of market leadership, Platform continues to help data centers be more efficient, responsive and dynamic. Visit www.platform.com.

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