

SPACE OPERATIONS SYMPOSIUM (B6)
New Operations Concepts (2)

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VIRTU, AN OPEN VIRTUALIZATION FRAMEWORK TO TEST GROUND SYSTEMS

Abstract

While virtualization techniques have been around for some time the IT massification only occurred recently with the advent of low cost multi-core processors and a wider Operating System's support. This technology developments change completely the panorama of the Hardware/OS installation when it comes to deploying machines. Nonetheless, new bottlenecks arise in installation and configuration of application stacks where IT industry will spend most of time and money to assure automatic machine deployment. By anticipating this automation issues the European Space Agency (ESA), in a joint consultancy with the EVOLVE, has been developing for the last 2 year a custom solution to automate deployment of since no product were identified. Now, EVOLVE is re-structuring the solution into the VIRTU product in partnership with ESA and HP Labs which constitutes a viable solution to the issues of this new age in computer availability. VIRTU, a virtualization technology The VIRTU tool aims to manage and configure application stacks on a virtualized environment. The solution handles problems such as network, environment and application configurations with an open, simple and yet potential standard for dealing with issues of this nature. The development generalizes the configuration of customer applications based on open standards and tools and support cross virtualization environments, namely VMware and Xen hypervisors. The tool allows configuring a set of customer applications based on specific plug-ins to edit those configurations. Then, it allows creating Virtual Machines with the preconfigured application stacks. The Virtual Machines can be deployed automatically following a predefined order and rules. The user can connect to the Virtual Machines and run their applications remotely from the tool or using a third party remote connection. VIRTU use cases This tool targets mainly the use cases of testing and developing applications in complex distributed environment as well as the server infrastructure consolidation. Already in test at the European Space Agency (ESA) Operation Center on ground systems infrastructure division responsible maintaining the Mission Control Systems and simulators and it is now being considered its usage on the missions. The product is also being prepared to other customers such as the European Organization for Nuclear Research (CERN) and Telecom Data Centers. The use cases are driven by the need of reducing costs on system deployment and configuration. Open Source, a business decision VIRTU will be distributed under a dual-licensing model: open-source and commercial. The open-source package will be free-to-use and our main goal with it is to develop a widespread user community and enable its adoption as a standard for virtual machine application stack deployment. By supplying our product free of costs to the open source community, we expect to develop a community that in return will provide us with free testing, free enhancements and most importantly free marketing. While maintaining the solution in open source assure a wider dissemination and acceptance, private source will assure the competitive advantages where customers wishing to use commercially, alter or bundle our product must purchase it through our commercial license. The final business solution follows a balance between open source and closed source software. In the open source business model this is known as Quid-Pro-Quo.