**e-terra platform Virtualised Solution**

With the goal of providing an ever more effective SCADA/EMS solution to its customers, ALSTOM Grid Automation now offers the well known e-terra platform product suite in a virtualised environment.

The virtualised e-terra platform now offers the same functionalities in an optimised architecture, based on Virtual Machines (VM) technology and compliant with the latest requirements for cyber security and protection of critical infrastructure.

**Why a virtualised platform?**

Virtualisation technologies have evolved over recent years and are now mature enough to allow a fast deployment of our SCADA/EMS solutions, not only for non-production environments like development systems, but also for the real-time operations domain. The performance (CPU, memory and disk space) available in today’s hardware has advanced the notion of virtualisation from concept to reality in the SCADA/EMS world - and the benefits are numerous.

**Ease of deployment**

The standardised deployment associated with virtualisation technology results in reduced delivery times. For example, with a virtualisation environment in the Operations/ Delivery domain, the project team no longer has to wait for computer hardware to be defined, ordered, delivered and set up before they start working on the project. This alone is a very significant reduction in the startup time and duration of a project.

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**Energy Control System**

**Main Site - Primary / Standby - Production System Overview**

*Figure 1: Traditional EMS system architecture*  
*Presents a traditional non-virtualised system*
Ease of maintenance and upgrades

Future upgrades of SCADA/EMS systems based on virtualisation will be faster and easier. Using virtualisation technology provides greater flexibility for upgrades by minimising the migration of customer specific displays and database content - when using virtualisation, both existing and new VM images can be easily used side-by-side during migration without the need for additional hardware.

Reduced Total Cost of Ownership (TCO)

Consolidating approximately 12 to 15 servers down to 3 represents a significant reduction in hardware investment, compared to traditional systems.

Green IT

Today’s virtualisation technologies allow a more efficient use of computing resources. Having consolidated physical servers reduces power consumption and other environmental factors which will contribute to the reduction of your company’s carbon footprint.

Other Benefits of Virtualisation

- Hardware independence
  - Virtual machines can be moved quickly and easily onto different physical hardware as needed
  - Virtual machines are easy to duplicate for testing and development purposes
- New backup schemes
  - Virtual Disk files are like traditional disk images, but easier to backup with standard backup software
- New disaster recovery options
- Tools such as vCenter and UpdateManager streamline the patch/update management process

Primary Site Production & Development Environments - System Overview

Figure 2: Virtualised system drawing

Presents a graphical representation of the technical details of the virtualised configuration.

Alstom Grid has chosen to standardise using VMware, as they are a major provider of virtualisation technologies.
For further information please contact:

Alstom Grid Inc.
10865 Willows Rd. NE, Redmond
WA 98052-2502, USA
Tel: +1 (425) 822 6800
e-mail: generation@alstom.com

Alstom Grid Worldwide Contact Center
www.alstom.com/grid/contactcentre/
Tel: +44 (0) 1785 250 070
www.alstom.com