Project Details: NAeG/14-15/00033

Project id -	NAeG/14-15/00033
Name of The Project	KUSHAL the Efficient, Do MORE with LESS a Server Virtualization & Desktop Virtualization (VDI) Initiative at RINL, Visakhapatnam Steel Plant.
Category of Award Applying for	Innovative Use of ICT by Central Government PSUs
Date of Launch	04-03-2013
Summary/Objective of the project	KUSHAL - the Efficient, Do MORE with LESS a Server Virtualization & Desktop Virtualization (VDI) Initiative at RINL, Visakhapatnam Steel Plant. OBJECTIVES 1)Consolidate legacy servers and convert them into virtual machines (VMs) on a 3-node High-Availability (HA) Cluster using VMware Vsphere -5 virtualization platform with VSA (Virtual Storage Appliance) configured to use the servers internal hard disks for the common cluster storage. 2)To provide Virtual Desktops with different O/S, IDEs and development platforms pre-configured for IT Lab, Training Environment, Test Environment using VMware View to implement VDI Virtual Desktop Infrastructure. 3)To address the issue of many small yet critical & aging servers running in planned shutdown of a cluster node, the VMs are migrated to the remaining two running nodes of the cluster. 24X7 mode due for replacement. 4)To implement cost-effective virtualization environment. 5)To address the issue of H/W scalability that is not possible in the existing H/W machine to meet the growing response needs due to increased user base. 6)Need to Protect Investment in existing legacy systems (o/s & other licensing) 7)Need for instant provisioning of a VM for new projects. 8)Need for Maximizing UPTIME of all application & services. IMPLEMENTATION DETAILS Three mid-range servers are configured in a Cluster hosting VMware Vsphere-5 capable of High Availability and Live Migration. The Common storage required for the cluster is configured using the VMware Vsphere Storage Appliance (VSA) that integrates the internal disks of servers into a common storage. VMware convertor tools are used to convert physical server to VM. VMware Vcenter is used for management and Administration. In case of breakdown / planned shutdown of a cluster node, the VMs are migrated to the remaining two running nodes of the cluster. Two mid-range servers are configured with VMware View to implement VDI. Benefits Derived This project dealt with many challenges at a time while introducing a new technology to harness techno-economic benefits. 10 nos. of servers implemented on various hardware and software platforms are brought on to virtualization platform without touching application configurations and in a manner which is totally transparent to the end users. The VDI part of the project has been very helpful in developing full-fledged Virtual Lab, Virtual Testing Environment, and Virtual Training Environments. Customer Delight Customer Services Improvement Server Virtualization: 24X7 availability of services is ensured with High Availability & Live Migration features. H/W resources can be dynamically scaled to meet the user response needs Improved Response Time for the customers H/W maintenance can be carried out without affecting the customer services More efficient & reliable backup / recovery mechanism Easy to Monitor & Manage Various Server templates can be kept ready to deploy Customer Services Improvement VDI (Virtual Desktop Infrastructure): 24X7 availability of desktop anywhere / anytime Ease of desktop H/W configuration Improved Response Time Zero data loss is ensured as desktop image is stored in the server Quick Desktop provision for training candidates and S/W testers Simple Management and Monitoring READY-TO-DEPLOY Desktop templates Migration features. H/W resources can be dynamically scaled to meet the user response needs Improved Response Time for the customers H/W maintenance can be carried out without affecting the customer services More efficient & reliable backup / recovery mechanism Easy to Monitor & Manage Various Server templates can be kept ready to deploy Customer Services Improvement VDI (Virtual Desktop Infrastructure): 24X7 availability of desktop anywhere / anytime Ease of desktop H/W configuration Improved Response Time Zero data loss is ensured as desktop image is stored in the server
Beneficiary of the project	The Virtualization initiative taken up at RINL has benefited to various stake holders like: End User of Application / Service, IT Department internal Customer (Project Manager / Application Developer), Server Administration Team, H/W Maintenance Team, Virtual Desktop User, RINL Management etc. End User of Application / Service 24X7 availability of services (High Availability & Live Migration features). Improved Response Time for users as H/W resources can be dynamically scaled to address peak demand. IT Department Internal Customer (Project Manager/Application Developer)

	Immediate provisioning of the server H/W on demand as READY-TO-DEPLOY server templates are kept ready. Dynamic scaling of H/W resources possible for addressing the peak load for certain applications. Freedom from requesting the end user for the planned shutdown time window for preventive maintenance activity. Server Administration Team Virtual environment created with High Availability and Live Migration features is very easy to monitor and manage with the easy-to-use management tool available at administrators disposal. More efficient & reliable backup / recovery mechanism Addressing peak demands for the applications have become possible now by increasing the VM H/W resources. Convertor tool allows transparent and seamless way of converting a running physical server into a VM image with the click of the button. With server templates ready new server deployment takes a few minutes. H/W Maintenance Team Server H/W is available for preventive maintenance by shifting the VMs from that node to another node on the cluster, so no waiting for the down time window. No dead-line tension to complete the maintenance Virtual Desktop User 24X7 availability of desktop anywhere / anytime Ease of desktop H/W configuration Improved Response Time Zero data loss is ensured as desktop image is stored in the server RINL Management Financially Economical Solution Easy management and maintenance
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Supporting documents:-	Award Specific Form Self Certification by the Project Head