Eco4Cloud Smart Ballooning - Product Overview

A spin-off from Italy's National Research Council (CNR)

BENEFITS

CapEx savings
Smart Ballooning yields over 15% of CapEx reduction by decreasing memory demands of virtualization platform

Resources optimization
By using servers more efficiently, a significant % of resources are released and made available for other purposes

Higher quality of service
Smart Ballooning prevents performance degradation due to memory ballooning hitting an entire ESX host, by proactively ballooning only overcommitted VMs

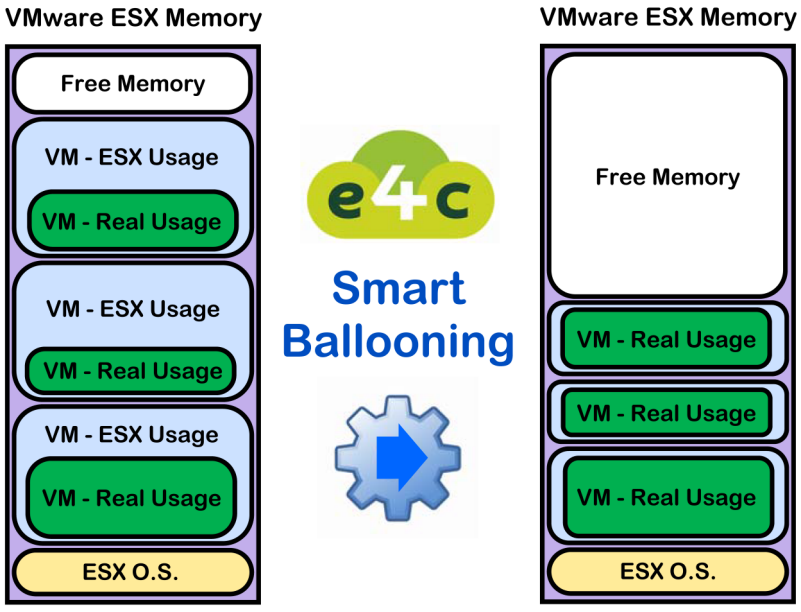
CONTEXT — Virtualization comes with some key benefits. One of them is virtual machines isolation, which is very useful for security and risk management. A drawback of virtual machines isolation is that the guest operating system is not aware that it is running inside a virtual machine and is not aware of the states of other virtual machines on the same host. When the hypervisor runs multiple virtual machines and the total amount of the free host memory gets low, none of the virtual machines will release guest physical memory since the guest operating system cannot detect the host's memory shortage.

Smart Ballooning is a solution designed by Eco4Cloud for virtual machines memory management for the *VMware virtualization platform*. Smart Ballooning enables the release of memory which is actually not used by VMs and make it available to ESX, which will possibly allocate it to other VMs in demand.

Smart Ballooning is inspired by a VMware memory reclamation tecnique, called "ballooning", allowing the release of consumed memory. For memory reclamation and balloning in-depth analysis, the document Understanding Memory Resource Management in VMware® ESX™ Server will be enlightening.

The solution's been developed leveraging the native memory ballooning mechanism, and consists of a series of tasks that -under specific conditions- force the platform to activate the memory ballooning selectively, i.e. only on the virtual machines where this memory reclamation tecnique is most productive, and with no impact on performance.

BENEFITS — Field results show that over 15% of RAM memory can be gained back, with full transparency for the virtual machines. Since memory is the most typical bottleneck resource in virtualized environment, this can lead to significant CapEx avoidance/deferral.



More on Smart Ballooning: http://www.eco4cloud.com/smart-ballooning