



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



## BENEFITS

### Energy saving

Power consumption reduced between 30% and 60%

### Cost saving

Thanks to reduced power consumption, reduced cooling requirements, lighter administration burden

### Reduced carbon footprint

Reduction between 30% and 60%, which helps to obtain Energy Savings Certificates

### Resources optimization

By using servers more efficiently, a large % of resources can be released and devoted to other purposes

### Advanced monitoring tool

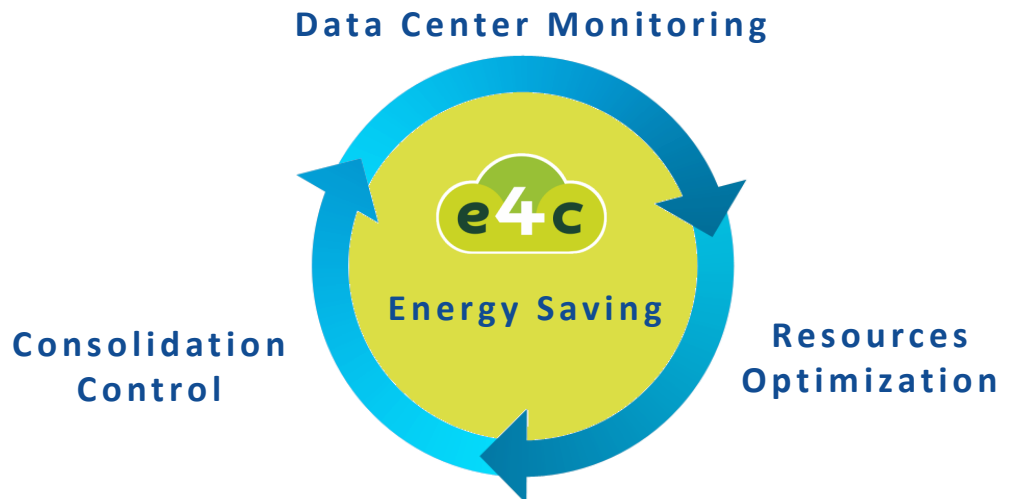
Web-based graphical reports on utilization of servers, workload distribution, power consumption

### Higher quality of service

Workload Consolidation prevents performance degradation and denial of service events

# Workload Consolidation - Software Overview

Eco4Cloud Workload Consolidation is a software platform which minimizes the energy consumption of virtualized data centers by dynamically consolidating Virtual Machines (VM) on the minimum number of physical resources.



## REDUCTION OF DATA CENTER ENERGY BILL

By consolidating the maximum number of VMs on the minimum number of physical servers, the non-utilized servers can be set to hibernate, hence eliminating their respective energy consumption

## CONSOLIDATION AND EFFICIENCY

The solutions/techniques commonly available today are semi-manual, extremely complex, poorly adaptive and not scalable. E4C's innovative statistical algorithm and self-organizing/adaptive consolidation process help achieve utilization figures up to 90%

## CAPACITY PLANNING

Optimal occupancy of physical resources and adaptive optimization of inherently variable workloads

## MEET DC SLAs – reliability, availability, performance

Thanks to the insights and real-time monitoring analytics of critical system parameters provided by E4C, data center Managers can proactively/predictively prevent SLA violations, mitigate risks and increase overall data center reliability

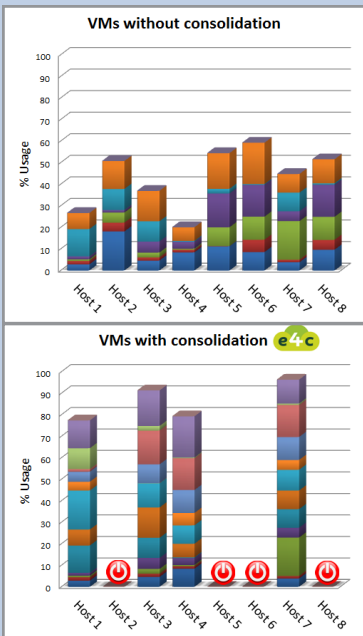
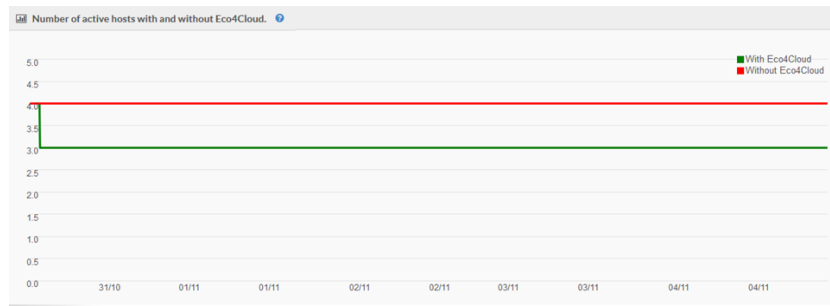
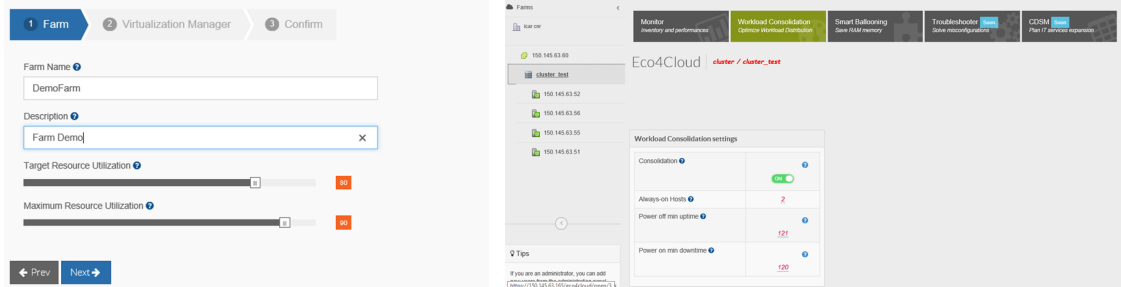
## SCALABILITY

Thanks to its adaptive/self-organized distributed algorithm, E4C is very efficient for the very complex ( $\alpha^n$ ,  $n$  = number of VMs) consolidation problem, and converges to optimal state regardless of DC size in just a few hours. This is a great advantage as energy and cost savings are proportional to the data center size

More on Workload Consolidation: <http://www.eco4cloud.com/workload-consolidation>



# Workload Consolidation - Features



- Consolidation of max number of VMs on min number of physical servers, and dynamic adaptation based on the data center workload
- Support of most common virtualization platforms: VMWare Vsphere, Microsoft HyperV, KVM, Citrix XenServer
- Easily downloaded and installed as a virtual appliance with console access from any web browser
- Continuous monitoring of the data center to improve energy saving and prevent SLA violations
- Web-based configuration wizard and graphical reports on servers utilization, workload distribution, power consumption
- Option to define custom rules for VMs allocation and migrations, and shut-down/hibernate policies
- Operations on VMs (e.g. assignments, migrations) executed through the primitives (i.e. APIs) of the underlying virtualization platform, inheriting its security and reliability levels
- Opportunity to set and toggle between manual/semi-automatic/automatic modes at any time

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