VALUE PROPOSITION
(SHORT - high level)

For CxO's of enterprises with mid/large-scale highly-virtualized data centers (e.g. private/public/hybrid Cloud deployments) who want to improve the economics of their virtualized data center by reducing the energy bill and increasing the efficiency.

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

This enables the Enterprises to maximize the benefits of virtualization while minimizing the CapEx of acquiring and the OpEx of operating their virtualized data center infrastructure, adding intelligence, actively managing risk and strengthening their Green reputation.

With Eco4Cloud, financial efficiencies and reduced energy consumption are achieved through consolidation, better informed capacity planning, increased utilization of physical assets. Computing platform optimization is achieved through massive scalability, performance monitoring and control, predictive risk management, automatic VM allocation.

VALUE PROPOSITION

(EXTENDED - Business)

For CxO's of enterprises with mid/large-scale highly-virtualized data centers (e.g. private/public/hybrid Cloud deployments) who want to improve the economics of their virtualized data center by reducing the energy bill and increasing the efficiency, Eco4Cloud helps minimizing the energy consumption of virtualized data centers by 20-60%.

This enables the Enterprises to maximize the business agility of virtualization, while minimizing the CapEx of acquiring and the OpEx of operating their virtualized data center infrastructure, adding intelligence, actively managing risk, strengthening their Green reputation and reducing their CO_2 footprint.

With Eco4Cloud, financial efficiencies and reduced energy consumption are achieved through consolidation, better informed capacity and budget planning for the data center, increased utilization of physical assets.

Specific benefits are delivered by Eco4Cloud in the following areas:

- **COMPANY PROFITABILIYTY – CapEx and OpEx Reduction**
  IT is a major cost item for any Company, and data center within IT takes the lion's share. By maximizing the utilization of active servers in the data center CapEx gets immediately reduced, and OpEx –in the form of energy saving- as well. Furthermore, by having less energy consumed power, cooling and sizing gets reduced as well, contributing to indirect additional reductions of OpEx and CapEx respectively.

- **REGULATORY REQUIREMENTS – EPA2007, E-Server2007, ISO14000, EMAS, EnergyStar, CEEDA, EU CoC**
  Under the Environmental Protection Agency's (EPA) Clean Air Act, any source emitting more than 250 tons of a pollutant would be forced to follow certain regulations and potentially be exposed to significant financial penalties and Carbon dioxide production is one aspect of data center operations impacted by recent and pending legislation. EPA2007, E-Server2007, ISO14000, EMAS, EnergyStar, CEEDA, EU CoC are a few examples of green certifications which help Companies go in the right direction.
  E4C helps dramatically reduce the power consumed in a virtualized data center environment and stay compliant.

- **Better informed IT BUDGET PLANNING**
  Thanks to the insights and monitoring analytics provided by E4C, CxO's (primarily CFO's and CIO's) can improve the accuracy of their budget planning, for both CapEx and OpEx.

- **RISK MANAGEMENT of business critical IT infrastructures**
  The data center is nowadays the crucial place in a Company where all applications supporting business processes reside. E4C provides comprehensive, intelligent and automated alerts to potentially dangerous conditions in the virtualized servers helping preventing undesired risks.

- **ENVIRONMENTAL/GREEN CORPORATE REPUTATION**
  Nowadays IT is responsible for approx 3% of the whole energy consumption of the planet. Furthermore, the increasing use of powerful IT services in all public and private service sectors is leading to a growing energy demand for centralized IT equipment in data centers. Business-as-usual would lead to a doubling of energy consumption within a few years thereby also significantly increasing not only the energy costs in data centers but also the environmental impact and CO_2 emissions. E4C helps dramatically reduce the power consumed in a virtualized data center environment and position your Company with a strong Green/Environmental-savvy reputation.

- **COMPELLING ROI**
  A three years analysis of a standard eco4cloud deployment shows an impressing ROI of 111%, and a payback time of 7.1 months in typical scenarios. The analysis is based on a mid-size data center, as per Gartner categorization (Forecast Analysis: Data Centers, Worldwide, 2010-2016). The example data center hosts 300 physical hosts, with a Power Usage Effectiveness of 1.6.

VALUE PROPOSITION

(EXTENDED - Technical)

For CIO's and data center Managers of enterprises with mid/large-scale highly-virtualized data centers (e.g. private/public/hybrid Cloud deployments) who want to improve the economics of their virtualized data center by reducing the energy bill and increasing the efficiency, Eco4Cloud offers a software platform which minimizes the energy consumption of virtualized data centers by dynamically consolidating Virtual Machines (VMs) on the minimum number of physical resources.

This enables the Enterprises to maximize the benefits of virtualization while minimizing the CapEx of acquiring and the OpEx of operating their virtualized data center infrastructure, adding intelligence, actively managing risk and strengthening their Green reputation.

With Eco4Cloud, financial efficiencies and reduced energy consumption are achieved through consolidation of VM's, better informed capacity planning, increased utilization of physical assets. Computing platform optimization is achieved through massive scalability, performance monitoring and control, predictive risk management, automatic VM allocation.

Specific benefits are delivered by Eco4Cloud in the following areas:

- **REDUCTION OF DATA CENTER ENERGY BILL**
  In a virtualized data center, on average only 20-30% of server capacity is utilized.

Eco4Cloud Srl   *VAT number: 03171130778*
Piazza Vermicelli c/o TechNest | 87036 Rende (CS) | Italy
Phone/Fax: +39 0984 494276
www.eco4cloud.com

Still, an idle server consumes 65-70% of the power consumed when it is fully utilized. By consolidating the maximum number of Virtual Machines (VM's) on the minimum number of physical servers, the non-utilized servers are set to hibernate, hence eliminating their energy consumption and reducing up to 60% the overall energy bill. Furthermore, by having less energy consumed by the physical servers, power cooling and sizing gets reduced as well, contributing to indirect additional energy (OpEx) and CapEx reductions respectively.

- **CONSOLIDATION AND EFFICIENCY**
  The solutions/techniques commonly available today are semi-manual, extremely complex, poorly adaptive and not scalable. The VM-consolidation problem requires exponential time if solved with a typical deterministic approach, which translates into sub-optimal consolidation and efficiency figures. E4C's innovative statistical algorithm and self-oganizing/adaptive consolidation process software help achieve figures in excess of 90%

- **CAPACITY PLANNING**
  Thanks to the optimal occupancy of physical resources provided by E4C and to the adaptive optimization of inherently variable workloads, CIOs can improve the budget accuracy and capacity planning for their data centers, hence optimizing their CapEx and OpEx.

- **MEET DC SLAs – Rebiliability, availability, performance**
  Thanks to the insights and real-time monitoring analytics of critical system parameters (e.g. CPU load, memory usage, bandwidth saturation, temperature, storage occupancy) provided by E4C, data center Managers can proactively/predictively prevent SLA violations. E.g. E4C instructs the move of VMs from servers before they get overloaded.
  Furthermore, threshold-triggered dynamic responses via system-alerts and automated tasks help mitigate risks and overall data center reliability.

- **EASE OF DEPLOYMENT & MANAGEMENT – HYPERVISOR AGNOSTIC**
  E4C is extremely easy to customize and offers the option for virtually unlimited customized rules to allocate and migrate VMs. Intuitive graphical reports on utilization of servers, workload distribution and power consumption simplify operations.
  E4C does not interfere with the management of the virtualization platform(s), but rather is an add-on that interoperates with existing DCIM platforms and hypervisors making the data center more efficient.
  E4C is available on multiple virtualization platforms (e.g. Vmware VSphere, Microsoft Hyper-V, KVM), hence ideal for hybrid environments.

- **SCALABILITY**
  Thanks to its adaptive/self-organized distributed algorithm, E4C is very efficient for such a complex (α^n, n = number of VMs) 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.