



# GOING GREEN?

## Energy Savings and Carbon Efficiencies for Network Access Control

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Using an energy-efficient Network Access Control solution can not only reduce electricity costs but carbon emissions as well. Planet Earth will thank you!

Proactively managing energy consumption is gaining worldwide acceptance as a way to help reduce costs with a satisfying by-product of saving the planet.

Can your budget withstand an additional \$10,000 or more a year in energy costs? Or would those budget dollars be better spent elsewhere?

Your decision on which Network Access Control (NAC) solution to use can impact your energy consumption and carbon emissions more than you may realize. Not only can you secure your network, you can conserve energy at the same time.

“If the cost of energy is going up, then you need to reduce consumption to reduce the total cost to the company.”

**Graham Whitney**  
Climate Change Chairman, IBM

### Data Centers, Servers, and Energy Consumption

The amount of electricity used by servers and other Internet infrastructure has become an important issue in recent years as demands for new Internet services (such as music downloads, video-on-demand, and Internet telephony) have become more widespread. <sup>1</sup> Today's data centers contain an ever increasing number of servers and use an extraordinary amount of electricity (to power and cool) – accounting for as much as 30% of an organization's electrical bill. <sup>2</sup>

According to a recent report from the U.S. Environmental Protection Agency (EPA), data facilities that house larger inventories of electronic equipment to run Websites, monitor Internet traffic, and store and process data can consume more than 40 times the energy of similarly sized office spaces. <sup>3</sup>

The energy consumption of servers within data centers has doubled in the past five years and is expected to nearly double again in the next five years to more than 100 billion kilowatts per hour (kWh), with an estimated cost of about \$7.4 billion annually. <sup>4</sup>

These data centers have become part of our critical national infrastructure and are found in nearly every sector of the economy: government, education, healthcare, financial services, media, manufacturing, transportation, retail, and hospitality. Today's society simply can't function without them.

## Servers, Greenhouse Gases, and Global Warming

The energy used by servers is not only contributing to a rise in electricity costs but also to a rise in carbon emissions, greenhouse gases, and global warming.

Greenhouse gases, such as carbon dioxide, methane, nitrous oxide, and CFCs (chlorofluorocarbons) are gases present in the atmosphere that reduce the loss of heat into space and contribute to a general rise in global temperatures.

We generally think of emissions as coming from vehicles, airplanes, or even farm animals (in the case of methane). But IT equipment accounted for about 2% of the world's carbon emissions last year.<sup>5</sup>

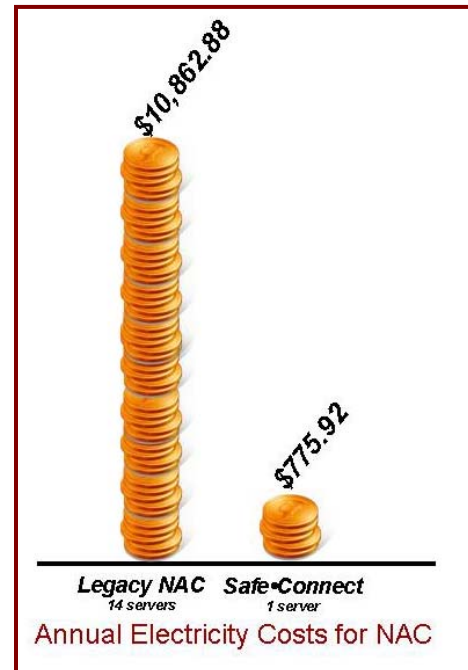
## Legacy NAC Systems

Legacy NAC systems involve a complicated deployment of multiple servers or appliances to manage the security policy compliance of end users.

For example, to support an environment of 10,000 users these Legacy NAC systems usually employ 12 to 16 servers to address scalability and redundancy requirements.

From an energy consumption standpoint, a Legacy NAC system is very expensive – using more than 10,000 kWh a month.

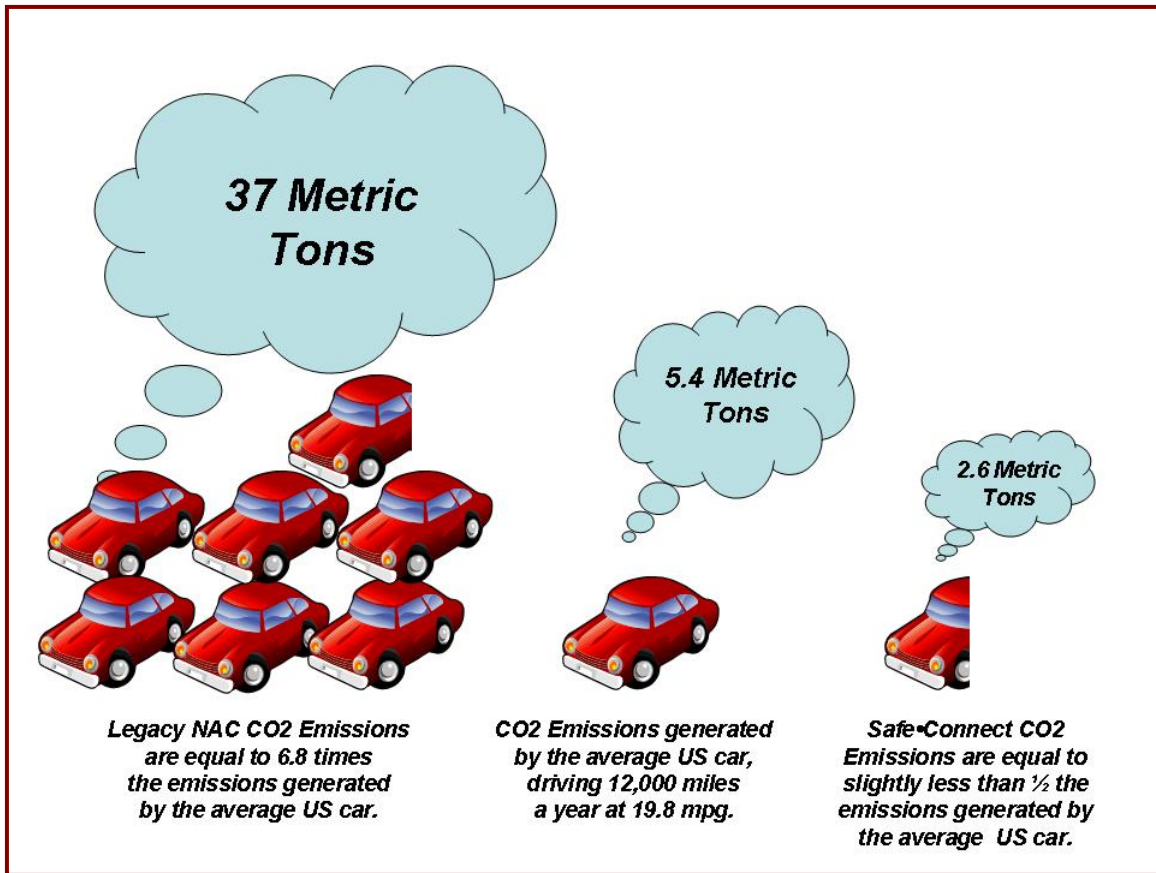
At an average cost of 8.98 cents a kWh, a 14 appliance investment can quickly add up to nearly \$11,000 a year in electricity costs.<sup>6</sup>



Additionally, the energy used to power these same 14 (or more) servers emits at least 37 metric tons of carbon dioxide into the atmosphere – the equivalent of burning 4,079 gallons of gasoline or 97 barrels of oil.

To put these figures in perspective, the average car in the United States drives 12,000 miles a year and gets 19.8 miles to a gallon of gas. This average car produces 5.4 metric tons of carbon emissions a year. Energy required to power Legacy NAC systems generates almost 7 times the emissions given off by a single car per year!<sup>7</sup>

Wouldn't it be a relief to have NAC protection with much lower power requirements and associated costs?



## Safe•Connect NAC Solution

Safe•Connect was specifically designed to scale non-intrusively and cost-effectively to support large networks. The architecture design does not require the use of bandwidth intensive network scanning, which limits scalability in other NAC alternatives and prevents them from delivering continuous (post-admission) security posture validation.

Its vendor-independent, out-of-line approach easily integrates into existing network architecture with no manipulation of switches, no forklift upgrades, and fewer moving parts—which also contributes to its scalability advantage.

Safe•Connect provides continuous endpoint monitoring across wired, wireless, and VPN networks with no performance bottlenecks, maintenance-driven network outages, or as a single point of failure.

As shown in the diagram on page 4, a single server appliance can manage 10,000 end users—making it 5 times more scalable than Legacy NAC systems.

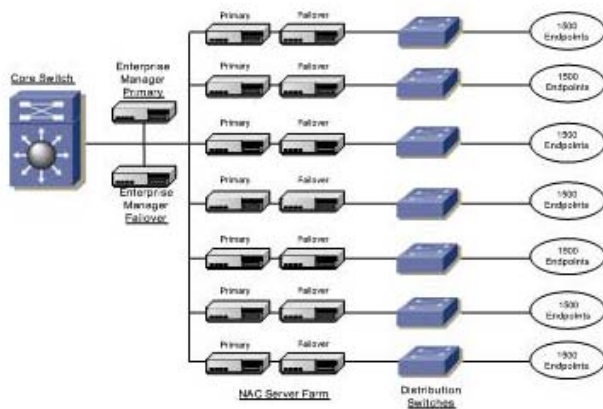
## Scalability Makes the Difference

Impulse Point's Safe•Connect Network Access Control solution requires a much lower expenditure in energy and produces fewer carbon emissions because the solution is scalable.

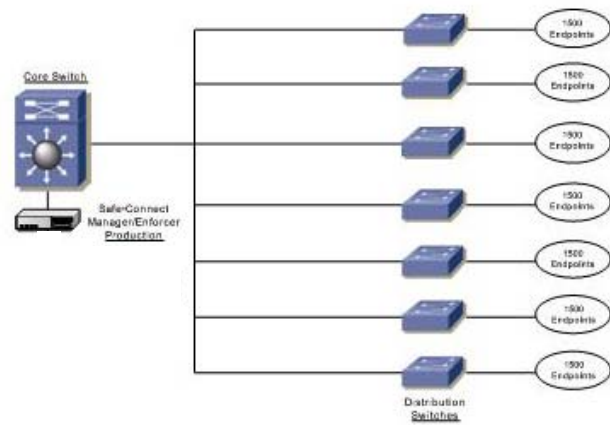
On average, using Safe•Connect to manage 10,000 end users would run just \$775.92 a year in electricity costs, compared to nearly \$11,000 a year for Legacy NAC environments. Safe•Connect also produces correspondingly 92.9% fewer carbon emissions.

That's a huge savings for both your Chief Financial Officer and Planet Earth!

**Legacy Enterprise NAC Solution  
(10K Endpoints)**



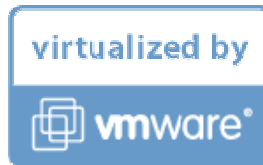
**Safe•Connect OpenNAC Solution  
(10K Endpoints)**



**The Scalability Advantages of the Safe•Connect System Represents a Unique Value Proposition.**

## Virtual Environments

Virtualization is an emerging trend that is changing the computing landscape. The ability to consolidate multiple operating systems and applications on a single server is a key strategy to optimizing management costs and significant energy savings.



Safe•Connect's NAC can be run in a virtual environment, taking advantage of existing equipment and eliminating both direct electrical costs and carbon emissions. Safe•Connect is the only commercially available and VMware certified network access control solution available in the industry today.

## Consider the TOTAL Cost of Ownership

Making the business decision to implement or replace security management solutions can be complicated. The Total Cost of Ownership (TCO) must be considered. This should include manpower and

management requirements, equipment and installation costs, and infrastructure impacts as well as other overhead expenditures...including energy costs.

In addition to leading the NAC industry with the lowest energy consumption rates and carbon emissions, Impulse Point also offers the only fully managed service available for a NAC solution. Installation can be accomplished in hours instead of days. Ease of deployment and maintenance, and reduced risk results in a low total cost of ownership.

The Safe•Connect system is supported by the NAC industry's most comprehensive implementation and support services agreement. The health of the system is monitored from the Impulse Support Center on a 24/7 basis. Impulse Point is responsible for delivering all necessary hardware and software maintenance, problem determination/resolution, remote daily backups, and ongoing feature enhancements.

## Conclusion

Can your budget withstand an additional \$10,000 or more a year in energy costs? Or would those budget dollars be better spent elsewhere?

Impulse Point's Safe•Connect NAC solution can not only help keep your infrastructure secure, allowing only authorized users to access your network and protecting it against viruses and spyware — it can do so in real time with post-admission policy enforcement, quarantine capabilities, and self-remediation.

The Safe•Connect solution, compared with other Legacy systems, is network access control that is scalable and flexible—resulting in reduced energy expenses and reduced CO2 emissions.

Safe•Connect can help you Go Green. Planet Earth will thank you!

## References

1. *Estimating total Power Consumption by Servers in the US and the World*, authored by Jonathan G. Koomey, Ph.D., February 2007.
2. *TerraPass Business Emissions Calculator*, [www.terrapass.com](http://www.terrapass.com)
3. *Report to Congress on Server and Data Center Energy Efficiency*, US Environmental Protection Agency, August 2007
4. *Report to Congress on Server and Data Center Energy Efficiency*, US Environmental Protection Agency, August 2007
5. *Electric Power Monthly, March 2008*, published by the Energy Information Administration, US Department of Energy.
6. *Global IT Sector Needs Strong Kyoto*, authored by Mark Kinver, BBC News, March 2008.
7. *TerraPass*, [www.terrapass.com](http://www.terrapass.com)

## Why Choose Safe•Connect?

Impulse Point's Safe•Connect™ Network Access Control solution will enable an organization to automate and enforce endpoint security policies such as end user authentication, anti-virus, anti-spyware, Microsoft security patches, and P2P file sharing. The result is a more secure, reliable, and predictable IT network infrastructure that is easy and cost-effective to deploy and maintain.

Impulse Point's Safe•Connect offers an OpenNAC approach that presents the following unique endpoint security policy management benefits:

### Scalable Architecture

- Ability to scale non-intrusively and cost effectively to support rapidly expanding end user device community
- Not dependent on centralized network intensive vulnerability scanning that would introduce significant overhead to a high performance network
- Network switch independent isolation/Layer 2 quarantine technology (I-LAN)
- Provides consistent deployment and function across wired, wireless, and VPN networks

### Vendor-Independent OpenNAC Solution

- Works with existing network architecture – no upgrades, changes, continuous manipulation, or maintenance of network switch devices are required
- Network vendor-independent software-based architecture
- Provides continuous “real-time” (post-admission) policy assessment and enforcement
- Broad array of endpoint security policy management modules that cater to the higher education industry, such as the P2P file sharing, Rogue Access Point, and On-demand Broadcast Messaging Modules.

### Low Total Cost of Ownership (TCO)

- Easy to deploy and maintain, which addresses NAC project implementation deadlines
- True “out-of-line” network integration design (fails open) -- no single-point-of-failure, no performance bottlenecks, and no maintenance-driven network availability outages
- Offered as an operationally managed service (includes monitoring, support, maintenance, and version upgrade protection)
- The industry's fastest Return on Investment (ROI)

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