

Unified Communications: Use Virtual Collaboration to Improve Environmental Sustainability

A “green IT” strategy is becoming a must for organizations in both public and private sectors. Businesses are beginning to respond to the impacts of climate change and increasing energy costs by taking action to reduce their greenhouse gas emissions.

There are sound business reasons for doing this, ranging from regulatory requirements to increased investor pressure and growing consumer demand for greener products. With energy costs rising, the task has assumed a new urgency. Many of the actions taken to reduce environmental impacts, meanwhile, improve financial performance. Business has to embrace the challenges of climate change and increasing energy costs in a cost-effective and sustainable way — and IT can play a key enabling role in that process.

Many companies are starting to see that measures to cut greenhouse gas emissions are aligned with other business objectives, such as improving productivity and business agility, reducing costs, and enhancing their brands. Such gains meet the competitive demands of global markets and the broad shift toward virtualized teamwork.

Cisco® believes there are several ways in which IT can help organizations improve their environmental performance. These include improvements in energy efficiency that can be achieved from the products and systems deployed internally; using the network as a platform to monitor, measure, and manage electricity consumption; and implementing solutions that empower flexible, collaborative working processes to reduce the need for travel.

This white paper focuses on the potential gains accrued from an approach to innovation and collaboration that is strategically aligned to both the business and environmental agendas in the coming decades. It focuses on practical measures, from remote and mobile working to virtual meetings, and new ways to rethink the use of office space that will allow the business to keep growing in size and profitability without needing to expand physically.

The Importance of Collaboration in 21st Century Business

According to a Cisco sponsored report from the Economist Intelligence Unit¹, the future will belong to those who collaborate effectively. In today's globalized markets, with their distributed corporate functions and complex supply chains, old boundaries — physical, cultural, and organizational — are melting away. Success in this fast-changing environment will depend on the capacity for continual innovation, and an ever-increasing organizational agility.

¹ Collaboration: Transforming The Way Business Works. *Economist Intelligence Unit, April 2007*

Figure 1. Collaboration Resolves Key Business, Technology, and Environmental Imperatives



The business model for the future is global, networked, virtual, and mobile. Every time, everywhere communications support globalized virtual collaboration in many ways. Unified communications enable organizations to innovate in their business processes and team-building, for example; today's challenge is to apply the same innovative spirit to a new set of environmental business imperatives.

Business Benefits and Carbon Benefits

It is easier to measure the financial impact of changes in technology and business processes than to gauge the environmental impact of those changes with any precision. Calculating financial return on investment (ROI) is familiar territory. The same is not true for calculating a carbon reduction ROI. That situation is changing.

As we move to a carbon-constrained world, businesses will need to track their emissions exactly. While Europe is ahead of the rest of the world in developing regulatory frameworks to reduce greenhouse gas emissions, in the United States, too, several states are moving toward regulating greenhouse gas emissions. And in its 2008 budget, the Canadian province of British Columbia announced the first carbon tax in North America.

Such developments are matched by evidence of mounting public scrutiny. In the 2007 Cone Consumer Environmental Survey, 93 percent of Americans agreed that companies should take responsibility for helping to preserve the environment, while 85 percent would consider switching to another company's products if their usual supplier turned out to have a negative social responsibility record.

Cisco Unified Communications and the Value of Collaboration

Cisco regards the need to adopt environmentally positive business practices as central to the business challenges of the future. The "green business" agenda will play a key role in generating a new work and communications model. This agenda is likely to take its place alongside collaboration as the key to driving productivity, agility, and innovation, and the growing emphasis on effective risk-management to ensure business continuity and compliance.

There are three important ways in which unified communications technologies can help organizations move quickly toward fulfilling such needs. They focus on how to reduce business travel, how to enable teleworking and reduce commuting, and how to make better use of office space. All three involve, in different ways, intelligent deployment of collaborative communications, and all three can significantly help reduce carbon emissions.

Every Time, Everywhere, so Everyone's Included

Employees use a mix of voice, video, data, mobility network applications and devices in offices, conference rooms, hotels, airports, warehouses, and vehicles. Cisco Unified Communications allow businesses to collaborate in real time, with the flexibility to make the appropriate form of communication available every time, everywhere, so everyone included using any type of media, device, or operating system.

Unified communications technologies allow employees to conduct virtual interactions that provide a rich and effective collaborative experience. In this way, a newly formed team more quickly becomes agile and productive, without having to travel constantly for meetings. The team might make contact first through a phone call or audio conference, before switching to a richer form of interaction, such as a Web conferencing for collaborating on documents, or a video conference to provide a greater depth of "live" human interaction.

Build Team Trust in the Electronic World

These richer forms of communications provide a more natural environment and so help build trust and empathy. Putting the right visual tools in place and making them easy to use enables culturally diverse teams to bond more quickly. Indeed, research sponsored by Cisco and conducted by occupational psychology expert Pearn-Kandola shows that more than 60 percent of human communication is non-verbal². This underlines the importance of incorporating video into collaboration technologies.

Cisco has simplified the process of incorporating rich-media interactions into business communication by integrating its solutions with commonly used applications. Intuitive interfaces make arranging, attending, and managing meetings easy. Impromptu or scheduled voice, video, and Web-based communications can be set up and attended in a single step from phones, instant messaging and communications clients; from Web browsers and calendars.

Better collaboration is also a central element in Cisco's broader vision of the Human Network. As simple transactional exchanges grow into multidimensional interactions at work, at home, or on the move, technological flexibility will enable teams to perform complex collaborative tasks with ease, wherever they may be physically. The issue now is how to make sure collaboration technologies also serve environmental goals most effectively.

[Cisco Unified Communications](#) solutions unify voice, video, data, and mobile applications on fixed and mobile networks, delivering a media-rich collaboration experience across any type of workspace. These applications use the network as the platform to enhance comparative advantage, accelerating decisions and reducing transaction time. The security, resilience, and scalability of the network enable users to connect everywhere, every time, with everyone included.

² Human Productivity Lab 2006 Pearn-Kandola: *The Psychology of Effective Business Communications in Geographically Dispersed Teams* 2006

Reduce Travel: Make Fewer Business Journeys

Business travel is responsible for a major part of company greenhouse gas emissions. This includes national and international trips for high-level meetings, sales conferences, group training, or live exchanges. Here too technology offers ways to cut down on the need for physical presence, without losing the human contact that remains an essential part of doing business effectively.

There is a significant reduction in greenhouse gas emissions when Telepresence and Unified Communications virtual meeting tools are used as opposed to airline, automobile, or rail travel to attend a meeting. Considering that a commercial flight from Chicago to New York results in an estimated 633 pounds of greenhouse gas emissions³ the environmental benefits can be substantial. Ongoing analyses are being performed to further quantify the environmental benefits of Cisco virtual meeting tools.

Cisco TelePresence is the most immersive of the Cisco Unified Communications virtual meeting options, creating a remarkably lifelike experience among participants thousands of miles apart. It thus enables improved collaboration, while significantly reducing air travel and the associated emissions.

[Cisco TelePresence](#) combines rich audio, high-definition video, and interactivity to deliver a unique in-person experience over an IP network. People look life-sized; every expression, gesture, and nuance is clearly visible, across towns or time zones. With easy setup and attendance and intuitive controls, launching a meeting is as simple as making a phone call. Cisco TelePresence is so close to face-to-face that it really can remove the need to travel.

The Customer Experience

Cisco customers using TelePresence see it as a way to reduce air travel. In the United States, Jim Kittridge, senior VP at Wachovia Securities, says: "It will substantially change the way employees collaborate and communicate across large distances. This gives us the opportunity to stay off airplanes. I can see this changing the way we do business."

A Full Range of Virtual Collaborative Solutions

TelePresence is not the only Cisco solution capable of contributing to major cuts in company travel at every level of the organization. Audio and Web conferencing, desktop video, and traditional room-based video conferencing all have a significant part to play. Users can quickly and easily access the tool that is most appropriate and available.

Cisco Unified MeetingPlace and MeetingPlace Express are rich-media conferencing solutions that make remote meetings natural and effective. They integrate voice, video, and Web conferencing with industry-leading setup and control capabilities to meet varied conferencing needs and deliver an exceptional experience. Deployed on-network, behind the firewall, they are integrated directly into an organization's private voice and data networks and enterprise applications.

The Customer Experience

The U.S. Postal Service, with more than 700,000 employees, uses Cisco Unified MeetingPlace with integrated voice and Web conferencing to reduce the need for travel to frequent training sessions. "We calculate that an effective virtual conferencing solution can reduce annual traveling

³ Estimated using the TRX Airline Carbon Emissions Calculator

costs by \$10 million,” says the USPS’s advanced computing environment program manager, James Shipman.

Reduce Travel: Decrease Commuting

A study of people working from home at least one day a week, by the U.S. Consumer Electronics Association, suggested that telecommuting saves 840 million gallons of gasoline a year and 14 million tons a year of greenhouse gas emissions. The report calculated that the total saving in electricity amounted to 9–14 billion kilowatt hours a year — approximately equivalent to the energy used by one million U.S. households.

Telecommuting has grown rapidly since the 1990s. In 2006, there were an estimated 29 million U.S. teleworkers working from home⁴ at least one day a month, including the employed and self-employed — about twice as many as their European counterparts during that year. The European figure is on track to double by 2010, while the U.S. total could hit 100 million by that date. Governments have long anticipated better air quality and improvements in the transport system from the easing of congestion and emissions.

Cisco Unified Communications enable remote workers to work with the same efficiency as they would in an office by providing a full range of communications tools and giving secure access to company networks. And these same technologies are today contributing, increasingly, to reductions in intra-campus or intra-regional travel, especially for large organizations that are geographically spread across long distances and multiple sites. More remote working also implies the possibility of smaller and fewer office facilities.

[WebEx](#) enables users to hold interactive meetings, make online sales presentations, deliver online training, provide remote support, broadcast events, or set up shared online workspaces to work together on documents. WebEx brings in another dimension of flexibility and responsiveness to team working, by enabling online collaboration “on demand” in a wide range of working environments.

The Customer Experience

WebEx helped the Open Work Services Group at Sun Microsystems deliver on its initiative to enable employees to work from anywhere at any time — reducing costs, increasing productivity, and opening up new opportunities. “Today, more than half of Sun employees no longer have permanent offices,” says Chris Saleh, Program Manager for the Open Work Services Group. “WebEx provided the collaboration tool we needed to bridge distances and geographies, and effectively boost productivity.”

The growth of virtualized contact centers also shows how unified communications bring both business and environmental gains. With agents working remotely from smaller, more localized facilities, or based at home, productivity can be enhanced while the workforce achieves a better work-life balance and car commuting is reduced or eliminated. The need for dedicated contact center real estate is similarly diminished.

Smarter Home Working Means Smart Travel Reduction Policies

Yet the equation between reduced commuting and reduced greenhouse gas emissions is not necessarily straightforward. The environmental impacts of home working depend on specific conditions of climate; on organizational needs and characteristics; on geography, population

⁴ WorldatWork Telework Trendlines for 2006

distribution, travel patterns, public transport, and government policies. Cisco Unified Communications therefore need to be combined with smart travel-reduction policies to ensure they genuinely help reduce carbon emissions, and that the emissions saved by reduced commuting are not outweighed by factors such as higher energy use for home heating and lighting.

The direct business benefits of teleworking include improved performance and staff retention, higher productivity, and less absenteeism. Most employees report positive effects, such as reduced stress, and home workers generally use part or all of the commuting time saved for working. The potentially beneficial environmental effects should now be added to that list, and be considered as a key business benefit in their own right.

Solutions that can help enable effective telecommuting and reduce carbon emissions extend from simple IP telephony, with secure data networking access to corporate resources, right up to unified communications clients that provide access to voice, video, instant messaging, Web conferencing, voice mail, and presence information — and all from a single, multimedia interface, such as Cisco Unified Personal Communicator.

These solutions are equally well suited to teamwork within a flexible office environment, or teams that combine both office-based and remote workers. Telecommuting can thus be simply integrated with a wide range of flexible teamwork practices.

Cisco Unified Personal Communicator is a powerful desktop computer application that integrates the most frequently used communications applications and services. The application features an easy-to-use interface that increases productivity and speeds decision making by showing whether colleagues are available and how they prefer to be reached. It enhances collaboration with access to voice, video, instant messaging, document sharing, voicemail playback, and directories in a single interface.

The Customer Experience

Meridian Energy wanted to create a working environment for its employees where geographic barriers do not exist and carbon emissions are cut by reducing travel. “We wanted telecommunications equipment that would enable our employees to be mobile within the office, reduce the need for travel, and be energy-efficient to run,” says Meridian's CIO, Rob Bolton. “There is an ecologically sustainable development plan in place for Meridian's new Five Star green office building, so any solution had to meet the tough requirements of this.”

Better Use of Office Space

Buildings are estimated to account for no less than half the world's energy consumption, while property operating costs represent the second largest business expense for a typical organization after human resources. The potential to cut both costs and greenhouse gas emissions by reducing office space is substantial.

Both aims can be facilitated partly through building design and management, and partly by new working practices such as home working, hot-desking, and “hotelling.” In a pilot project, Cisco has achieved space savings amounting to 40 percent, while producing greater employee comfort, satisfaction, and productivity.

Cisco Connected Real Estate offers integrated management of building functions over an IP network to maximize energy efficiency within the building, while Cisco Unified Communications collaboration technologies allow staff to access people and data, irrespective of location. In this way, personal “empires” of office space can be transformed into collaborative “team space” in accordance with changing business needs, while reducing the total amount of space required.

Embedded Costs

The economic benefits of using less office space include reduced rental costs and a lower bill for heat, light, and power. In the medium to longer term, a further potential gain is the avoided environmental side-effects of new office construction. On the embedded environmental cost of a new building of 100,000 square feet, a 40 percent space saving translates into 1,500 tons of concrete, 280 tons of steel,⁵ and 2,850 tons of CO2 emissions — an amount equivalent to taking 560 cars off the road for a year, according to Cisco estimates.

Mobility

Reduction of office space often implies a greater mobility among workers, whether they are working at client premises, on the road, or moving from one location to another on a large campus. Provision of workforce mobility can be approached with the same energy-saving objectives as the policy for enhanced collaboration, enabling organizations to combine technologies in a way that achieves better performance against their environmental aims.

A recent study by IDC suggests that by 2011, more than a billion workers worldwide will be mobile — approximately 30 percent of the global workforce. In the United States, 70 percent of all workers are expected to be mobile by then. While mobility is variously defined, the projected increase in these numbers requires careful integration of mobility policies with wider green aims to ensure that more physical movement in the workforce does not push emissions up again⁶.

The Customer Experience

In France, automobile manufacturer Renault is working with Cisco to create a new way of working with greater flexibility and mobility among its workforce, enabling home working and transforming traditional office environments into shared work spaces. The plan will allow Renault to close several office buildings in Paris, saving US\$130 million a year and reducing its carbon footprint.

How Cisco Is Cutting Emissions

Cisco is developing a set of coherent, company-wide environmental policies, so that sustainable business practices can be cost-effectively combined with growth and profitability. This entails a two-fold approach to IT energy policy, concentrating on rapid emissions reduction in current IT operations and on the adoption of solutions to modify business practices in pursuit of sustainability goals.

Today Cisco is reducing its energy consumption through more environmentally focused practices in its internal operations and by promoting energy-saving practices in its travel policies and buildings management. The company is sourcing more “green” energy. Cisco is working to ensure that growth and profitability targets can be fully harmonized with the mounting importance of cutting carbon emissions.

⁵ Davis Langdon City of London Commercial Sector Cost Estimation, December 2004

⁶ Worldwide Mobile Worker Population 2007-2011 Forecast. IDC, December 2007

Cisco also provides solutions that reduce the direct energy consumption attributable to unified communications. For instance, Cisco Integrated Services Routers consolidate disparate devices into a single platform, thereby reducing energy and cooling costs by more than 76 percent. To help customers further improve their environmental profile, Cisco offers practical steps, such as its World Wide Reverse Logistics (WWRL) upgrade trade-in credits program for old equipment, helping ensure that it is safely and responsibly recycled or scrapped.

Among various in-company initiatives designed to reduce greenhouse gas emissions, Cisco has committed to reducing its carbon footprint from air travel by a minimum of 10 percent under its Carbon to Collaboration initiative, and unified communications play a critical role in reaching these objectives. Before arranging travel, all employees are asked to consider the virtual meeting options available to them. Examples of the specific contributions of Cisco Unified Communications to Cisco's environmental effort include the following.

- Cisco TelePresence reduces travel and saves \$80 million

By January 2008, Cisco had installed more than 170 TelePresence units in company offices in more than 20 countries and almost 60 cities worldwide. Average utilisation of all units had increased to almost half of the total time when they are available, based on a 10-hour work day. More than 62,415 meetings – amounting to 78,137 meeting hours – were conducted over TelePresence, and 10,316 of those TelePresence meetings involved participants who were able to collaborate freely while avoiding travel. This saved nearly \$80 million in travel costs alone.

- Cisco Unified MeetingPlace and WebEx used for thousands of meetings daily

In 2007, Cisco conducted nearly 2 million virtual meetings using Cisco Unified MeetingPlace and WebEx, bringing together its employees, partners, and customers. While Cisco does not yet track how many of these virtual meetings displace long-haul and regional travel, the number is certainly in the tens of thousands of miles, if not hundreds of thousands, with a corresponding impact on the company's carbon emissions profile.

- Cisco Connected Workplace trial shows improved energy efficiency.

Cisco has run tests at its San Jose campus to verify that properly designed working environments save space, become more energy-efficient, and save greenhouse gas emissions. Comparing a traditional to a redesigned building, Cisco found an estimated 44 percent improvement in energy efficiency within the redesigned building, a 40 percent cut in its employee space requirements, and a 22 percent drop in per-capita consumption of materials and equipment.

Conclusion

The successful organization of the future will know how to work flexibly and collaboratively, innovating across different time zones and cultures. This means a major shift in individual and organizational behavior, with an integrated set of communications tools to build trust and efficiency quickly between dispersed and multicultural teams.

Cisco Unified Communications provide solutions to enable the changes, and can help you implement them to benefit your business, your staff, and the environment. To discuss how your organization might make best use of next-generation collaboration to transform your business and improve its environmental profile, please contact your Cisco account manager.



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