



# PATHWAY TO A MORE SUSTAINABLE PLANET

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# THE PROBLEM WITH GETTING TO WORK

A national commitment to encourage more cloud commuting will grow our economy and global competitiveness, increase our national security and significantly reduce our carbon emissions. While technology is already moving us toward cloud commuting, getting more people there sooner will also reduce our energy needs while unburdening our tired and congested infrastructure. .

The average commute to work in the US is 25.4 minutes (and growing), or 50.8 minutes per day, according to the Oak Ridge National Laboratory. That equals over two hundred hours per person, per year, getting to and from work. Now multiply that by one hundred million, the number of people making the trek.

But today many of us no longer need to commute into the office every day in order to effectively do our jobs. Indeed, with current technology, some of us never need to head into the office at all. Since today's technologies allow for meetings with anyone anywhere, it's time we ask ourselves why so many people suffer the burden and drudgery of commuting to work unnecessarily.

While technology is already moving us in this direction, getting

there sooner could offer a low-cost opportunity to reduce our energy needs and carbon emissions while easing the burden on our tired and congested infrastructure. And when considering other equally significant benefits commute-reducing policies would offer—fewer auto accidents, happier and more productive workers—it's time we bring our workplace into the new millennium. It is time to move from cloud computing to cloud commuting.

However, few people have the spare room to work comfortably, or even the basic technology necessary, to replace what the onsite workplace offers. Even in NYC, nearly three million homes are without broadband. Furthermore, precedent and inertia constrain many employers to the status quo because change is unnerving and stressful.

If we are willing to forego our outdated, industrial-revolution-era labor practices, the solution to these obstacles is available and affordable. What's missing is simply our willingness and creativity to develop a plan of action, a coordinated effort and policy guidelines for employer and employee.

## COMMUTING IS A WASTE OF OUR TIME

More than a full month out of

our work year in the US is dedicated to getting there, usually by car, and alone. If we assigned an arbitrary lost-productivity value of, say, \$20 per hour for every commuter, we'd be squandering four hundred billion dollars a year just getting back and forth to work. Add the cost of a vehicle, its maintenance, insurance, fuel and parking. Add the cost of wear and tear on our highways and roads, and the cost of our public transportation infrastructure, essentially underutilized except during rush hour. Commuting to work costs America upwards of a trillion dollars a year.

Although only a quarter of driving time in the US is commuting to work, arriving there on time is an accident waiting to happen. Car accidents kill over 30,000 people every year, and if we include injuries, the number of people affected by accidents climbs exponentially.

## THE TECHNOLOGY IS HERE

For thirty years we've waited for the paperless office. It has finally arrived in the form of the cloud. The lesson we should derive from Yahoo's CEO, Marissa Mayer, pulling her employees back into the office in early 2013 is not that telecommuting didn't work, but that Yahoo couldn't do it alone. We need a national commitment and



#### CLOUD COMMUTER BUILDINGS

*Building cloud commuter facilities could happen almost overnight, as much of the technology is already in place.*

participation along the entire sales channel, from vendors to customers. We need broad-based cloud collaboration with a national aim of growing our economy, increasing our competitiveness, ensuring security and most significantly, climate change mitigation.

While today many organizations allow for occasional work-at-home on an as-needed basis, only 3% allow all or most of their employees to work at least some time at home on a regular basis. [2014 National Study of Employers by Families and Work Institute].

We've made great progress building greener, more efficient workplaces. The fact is, however, that we now use more energy commuting to work than our work buildings use for things such as heating, cooling, and lighting.

### A NEW KIND OF CLOUD WORK FACILITY

Despite numerous studies demonstrating increased productivity, as opposed to decreased, for telecommuting workers, management's inherent distrust of employees who don't "punch in" stands as an obstacle to more

cloud commuting. And while some employees may have sufficient space and technology in their homes, most do not. Further, for many tasks, an office environment is more productive and efficient.

The solution is to plan and build a new kind of space, a multi-tenant, shared work facility that is located much closer to employees' homes. Imagine a building with convertible, multi-use work areas, technologically equipped, purposefully built for cloud collaboration with sister facilities in distant locations; a community building, where neighbor encounters neighbor, while working for different em-



ployers based in different parts of the country.

Throughout America, commercial properties stand vacant, well-suited for cloud collaboration retrofits. Repurposing forsaken local libraries, or abandoned big-box stores, into a cloud-community building, could revitalize areas where local employment is scarce.

What is needed is a profitable model for developers to build or retrofit a pool of cloud-community buildings, with secure technology, that can universally communicate with each other, making multi-person conferences as easy as using a telephone. And, to assure we're not jumping out of the pan and into the fire, cloud-community buildings must be triple net zero—energy, waste and water—lest we risk pulling workers from efficient, high performance buildings into inefficient ones, negating the green benefit. Lastly, the design must enable multiple employers to profitably share spaces without security breaches or concerns for intellectual property loss.

## A BETTER SYSTEM FOR EVERYONE

The technology already exists to transform any “come-to-my-office” request into a mouse click, allowing managers and workers to easily, instantly and more efficiently connect with anyone on their teams. Some jobs could easily move into cloud-community build-

ings right now. For those that can't, management needs to rethink or reinvent work tasks to fit into this new model and benefit from the increased efficiency cloud-commuting employees would offer them. When companies can hire someone from anywhere in the world, they harness virtually unlimited qualified talent to be more responsive to customers.

And cheerful employees make for more satisfied customers. The frustrated, and often unavailable, airline counter assistant could offer better service via a video conference, happy she works just walking distance from her home and family. Students could show up for class together inside a virtual room with an offsite teacher, who visually paces back and forth in front of them, providing the opportunity to those with knowledge to teach anyone with interest. It may be decades before many of our doctor visits can be replaced by teleconference, but technology is moving us in that direction. How much easier would it be to create an office daycare center when office workers are also neighbors? What opportunities would such facilities create for seasoned professionals and astute startups?

While manufacturing by its nature requires a physical presence, today's manufacturing is often electronically controlled and remotely managed. And as more robots toil away at low-level tasks, we'll need less people heading into work to

turn wrenches but more people to design and manage the technology. It follows that remotely controlled robotic avatars could stand in for office workers where physical hands and eyes are required. NASA's Mars Exploration Rover, Opportunity, has been successful on the job for the last ten years working a hundred million miles away from Earth. Why not a room of robot managers, each controlling robots in a different state?

Besides, technology is already revolutionizing how we make things, which will further reduce commuting in the manufacturing sector of our economy. Soon, some goods will be manufactured locally, as 3D printers replace stuff now made in factories. Even our clothes may be more commonly made in America again. Why not order your jeans and watch the CAD-CAM weave, cut and assemble them in front of you at your local retailer? If the energy supplied to the robotic machinery is renewable, your Levi's could cost less than having your jeans shipped from Bangladesh.

## OUR INFRASTRUCTURE NEEDS HELP

China spends 9% of GDP on infrastructure, and Europe about 5%, while the US spends 2.4%. But investing in more technology instead of more roads may be a better bet for America. In 2008 the National Surface Transportation Policy and Revenue Study Commission estimated that America needed

## U.S. TRANSPORTATION ENERGY USE ACCOUNTS FOR 28% OF TOTAL U.S. ENERGY USE.

to spend at least \$255 billion per year over the next half-century to keep the transportation system in good repair and make the needed upgrades. And the Census Bureau expects the US population to grow by 40% over the next four decades, therefore transit demands will increase as well.

While we need to quickly overhaul and modernize our infrastructure, as our national population grows, are still more highways for still longer commutes the best investment for this century? Of course, glitches in the cloud will cause frustrations. But the glitches we are experiencing on our crumbling bridges, crawling trains, outdated airports, and pockmarked roads are life-threatening. And unlike fixing roads, fixing technology is an investment in knowledge and our future.

Building technology is already America's strength. Let's leapfrog fifty years to where we are heading anyway. Let's stop expanding the blight our transportation infrastructure inflicts upon our planet. Let's create urban environments that nurture innovation. Let's lower the US debt and deficit by outsourcing to Detroit

rather than to Delhi. Let's rethink our antiquated notion that roads are the fastest route to Rome.

### A BETTER WAY TO LIVE

Today, with longer work hours and two-parent (or single parent) workers, long commutes are especially costly to families as well as to communities. More work-near-home opportunities would strengthen and revitalize local businesses, especially for economically depressed areas where lucrative but distant employment doesn't mean moving away. If more of our workforce were permitted to work from anywhere, how many would choose to live somewhere more to their liking? Workers could opt to live in a different community setting, for example, or in a lower-cost housing area, or perhaps near an ill parent.

When companies distribute their human resources throughout the country they increase their hiring options. And if they close up shop, entire communities aren't devastated, which increases the odds laid-off employees will find new work, especially if the entire community is already strengthened by many other gainfully employed cloud commuters.

And today, with everyone rushing home from work, how can we ever return to the era of fresh, home-cooked eating everyone agrees is best, but nearly impossible to find time to achieve? Local working would encourage fresh, local grocery shopping, which in turn, would support local farming.

### SECURITY IN AN INSECURE WORLD

With the world population on target to increase to nine billion people by 2050, urbanization has created urgent mobility challenges. In the fastest growing cities—especially in Africa, Asia and Latin America—car ownership easily outpaces infrastructure. Neighboring Mexico City adds two cars for every person it adds to its population; India adds three. Avoiding the worst traffic is how people choose where to live and work, even over better employment opportunities, according to a recent study of 900 cities. In China, Beijing implemented a one-day-a-week driving restriction to take twenty percent of cars off the road. However, 47.8 percent didn't follow the rules, led by those who traveled during peak hours or for work trips.

If traffic is frustrating citizens and stifling opportunity, is traffic also destabilizing nations before they can fully benefit from global economic prosperity? Is traffic driving developing countries in the wrong direction?

And cloud commuting can miti-

gate our own national security risks. For many Americans, the savage Kamikaze attack on the World Trade Center was more than we could bear. The loss was magnified for companies whose workers were concentrated in the Twin Towers—few as devastatingly as Cantor Fitzgerald. Catastrophic weather events that temporarily put entire regions out of business are growing more common. Even an epidemic flu disrupts business. However, when an organization can broadly distribute human resources throughout an extended region, a single tragedy is more manageable.

## MORE PRODUCTIVITY WITHOUT MORE COST

While distributing the nation's human resources helps insulate employers from unpredictable turbulence, cloud commuting also increases efficiency, diminishing the benefit of hiring from low-wage countries. Numerous studies demonstrate an increase in worker productivity for organizations by their telecommuting employees. And national aggregate productivity could increase with an array of cloud-community facilities across the US, promising less time squandered in traffic, faster job placements from wider search nets, lower costs for start-ups, fewer concentrated disruptions, faster collaboration, faster scaling, faster buys, and faster sells.

Increasing the US federal excise

tax on gasoline (unchanged since 1993 at 18.4 cents a gallon) to make up for the lost revenue from less driving, or implementing congestion charges the way London and Stockholm have, may be more palatable once earning a living requires less driving. A carrot and stick approach would offer some of that revenue back to companies who reduce their total employee commuting time in the form of tax offsets while also calculating the total carbon of their commuting employees. Simple awareness of carbon-heavy commutes—or a price on carbon—will incentivize companies to insist workers avoid unnecessary commutes.

And those companies who allow more employees to work near home should enjoy an immediate PR benefit. After all, when companies show off sustainability efforts they often do so by comparing those efforts to the numbers of “cars taken off the road.” Why not an initiative that actually takes cars off the road?

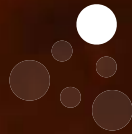
## A GRATEFUL PLANET

As beneficial as most CO2 emission-reduction schemes are, they are often also “inconvenient,” and contentious. Utility companies' energy rebates are paid for with rate increases. The federal Investment Tax Credit reduces America's tax revenues. Payments tied to energy-saving technologies need a speedy return on investment. With cloud commuting, on the

other hand, the consequential byproduct is increased employee happiness—and it's why the cloud-commuting initiative will succeed. It's grassroots-ready. Who will not want to walk into their boss' office and suggest, “I'd like to participate in the Cloud-Commuter Initiative and work near my home”?

Building pioneering cloud-commuter facilities could happen overnight, as much of the technology is already in place. What is needed is a national action plan to inspire public-private partnership investment in a new kind of cloud-building infrastructure, and consistent management policy guidelines for employers accustomed to the old ways.

Though it's unproductive, expensive and profligate, commuting to work has become all too routine. Cloud commuting can no longer be reserved for employees with special circumstances, but rather must become a standard business practice—indeed a best practice. The extraordinary opportunities afforded us by a network of cloud communities across the nation are both too vast and too profound to ignore.



## PR FOR PLANET EARTH™

*Every organization  
must harness their capacity to  
improve our planet and society.*

Right now, we need to make unprecedented changes to ensure a sustainable and equitable society. Limiting global warming requires rapid and far-reaching transitions in land, energy, industry, buildings, transport and cities. Every extra bit of warming matters to reduce irreversible harm to our ecosystems.

We encourage organizations to grow sustainably and act responsibly by raising awareness for clear, specific solutions that offer an efficient use of natural resources, demonstrate social responsibility and foster a peaceful, earth-friendly economy.

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