Globalism and Localism in Telecommunications
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Communications Beyond Frontiers: Expansion of National Carriers Across Borders

Telegeography and the Explosion of Place: Why the Network That is Bringing the World Together is Pulling it Apart

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If you often feel that the world is simultaneously getting bigger and smaller, coming together and falling apart, you are in good company. This theme has become commonplace in novels and news magazines alike. "All the countries were big, single blobs of color, from one side to the other," muses the young heroine of William Gibson's latest twenty-first-century tale *Virtual Light,* as she looks at a set of vintage maps. "There'd been countries big as anything: Canada, USSR, Brazil. Now there were lots of little ones where those had been... Even California had all been one big state, once." In a similar vein, Henry Louis Gates Jr., the chair of Harvard's African-American Studies Department, wrote in the one-hundred-fiftieth anniversary issue of *Economist* magazine (September 11, 1993): "We live in confusing times... [W]hat communism joined, nationalism has been all too eager to pull asunder. In the industrialized West, though ... never in this century has ... supranational unification seemed closer to realization." "Today, both the forces of fragmentation and the forces of consolidation are abundantly on display," Gates continued. "Just which side is history on, anyway?"

Patrick Glynn, another American scholar, framed the issue this way in *Commentary* magazine: "On every continent, in almost every major nation and in almost every walk of life, the overriding political reality today is that of increasing social separatism and fragmentation ... by ethnic group, race, religion and even (to a less dramatic extent ... gender or sexual orientation)." This clash, observed Glynn, "between ethnic and other types of particularism on the one hand, and, what might be called democratic universalism," on the other, seems to be replacing the left/right and class divisions of the last century; it is becoming "the new dialectic of a new age."

But why is this the "new dialectic" of our time? What is driving the process? Why is the world being divided even as it is being unified? How is it that an increasingly cosmopolitan economic order seems to progress in step with an ever greater insistence upon local identity? Is this phenomenon a passing one, limited to the end of the Cold War? Or are there underlying factors operating on a wider scale, that will make the tension between localism and globalism, between self-determination and economic integration, between nationalism and transnational (human) rights, a much more permanent fixture on the world stage? Any answer to these questions will inevitably be a partial one. But surely the novel role played by information technology and, more specifically, the global telecommunications network -- the largest and most complex machine the world has ever known -- helps to solve this intellectual puzzle.

There are two main reasons for this. First, the network, as we now know it, did not exist a generation ago. What was once, circa 1960, a disparate group of poorly connected national telephone systems has become an integrated web of telecommunications and computer terminals implicating half of humanity.

Thirty years ago, North America and Europe accounted for over 85 percent of the world's 150 million telephone lines. Fax was virtually unheard of, and computer networking was an oxymoron. The sole transatlantic telephone cable could handle but 89 calls, and a handful of tropospheric radio links were the only way for the human voice to cross the Pacific. By contrast, the global network now comprises over 650 million telephone lines and more than 1.2 billion terminals in approximately 180 countries. Today's telephone subscribers can expect to spend a year of their lives on the phone (two years, if they live in North America). The cable and satellite network across the Atlantic can now handle almost a million calls simultaneously. And now almost every aspect of people's work and play touches the network at least once.

The second reason for the important role played by information technology in the tension between globalism and localism is that the global telecommunications network has a uniquely contradictory dynamic. Though the network actually has fewer and fewer moving parts (silicon chips are the order of the day), in the social and economic sphere it works as if powered by a giant array of mechanical pistons. The downstroke of the piston creates a geographical implosion, compressing space and time and bringing economies together. But with the piston's upstroke comes a geographical *ex*plosion, fragmenting shared experiences and values and creating a multiplicity of new places to be cultivated by partisans of one vision or another.

Up and down the pistons go, in country after country, day in and day out, three hundred and sixty-five days a year. And with each cycle, as each new telephone and computer and fax connection is made, the piston simultaneously compresses and explodes the everyday geography of its users. Most chronicles of the communications revolution have focused on the first half of the piston's cycle -- on the downstroke, the geographical implosion. But in many ways, it is the upstroke -- the "power stroke" -- and the geographical explosion of place accompanying it, that is more telling and to which this essay attempts to draw attention.

Whose side is the network on? Both sides: everyone's side and no one's. The network is at once universal and parochial. It affords people great intimacy and yet can make a virtue out of their separateness. It is able to unify and divide, to open new markets even as it razes old ones, to knit together a diaspora across the world while factionalizing a tightly knit community elsewhere. It is at once specialized and nondiscriminatory, public and private, empowering politicians and pornographers, international conservation groups and local mining companies. It respects neither geography nor sovereignty and thus provides a common vehicle for both the centripetal (economic) and centrifugal (social and political) impulses of the day (see figure 1).

The network's routine contraction and expansion of place and the hopes and fears engendered by these changes have important implications for the telecommunications industry as well as for public policy. The network is creating a vast new electronic landscape even as it devalues the physical locations many people have known for generations. Not surprisingly, this process has triggered contrary responses.

As George Gilder has said, "in an age when men can inscribe new words on grains of sand [silicon chips], particular territories are fast losing significance." It is people and ideas that matter, not places and things. Yet "blood and soil" are still paramount in many parts of the world. And there is a strong, often desperate, impulse to defend the land of one's birthright (by force of arms, if necessary) lest this sacred space be polluted by the outside world or washed into an electronic no-man's-land.

Authoritarian regimes are often at the forefront of this reaction. Iranian customs officials, for example, have seized scores of satellite TV dishes smuggled across the border from Turkey. Private possession of satellite antennas, which can receive various foreign TV programs, is forbidden in Iran. China and Malaysia have also sought to restrict satellite TV broadcasts. At the same time, there are growing popular demands to expand and secure the myriad new electronic spaces the network has opened. The network brings new worlds into people's homes. Here, the operative words in many countries are *privacy* and *property rights* -- community values be damned. In short, the global telecommunications network has not led to the end of geography so much as to the rebirth of place. To better understand how we have reached this geographical juncture, a brief historical aside is useful.

1. The Rural Bias

Telecommunications was born into an overwhelmingly rural society. At the time of the telegraph's invention in the 1840s, at least two-thirds of Europe's people lived in the countryside. Similarly, of America's then 20 million inhabitants, only one in seven lived in cities, and rural populations predominated in much of Asia and Africa as well. The frontier, be it west of the Mississippi or east of Aden, was remote. On land, news traveled at horse speed, and intercontinental connections depended on the vagaries of wind and sail. In such an environment, it is little wonder that the telegraph and later the telephone (1876) were hailed as tools of unification. The telegraph would end the tyranny of space. And with transoceanic cables, America would no longer be isolated from Europe, nor Europe from her colonies. There would be instantaneous communications from Vancouver to Bombay. Trade and commerce would flourish and military surprises would become a relic of the past.

Of course, in the ensuing century, economic and political integration proceeded fitfully, at best. Much of the Western world lived through wars and depressions on a scale that led many to turn to isolationism. But, in the 1960s, following the launch of the Russian satellite Sputnik, the popular vision of telecommunications as the great integrator was given new life. Marshall McLuhan, the Canadian communications theorist, was its best-known spokesman. In his book *The Gutenberg Galaxy* (1962) and elsewhere, McLuhan suggested that the widespread availability of satellite communications would create a "global village." We would all be neighbors on the same "electronic common."

It is also worth recalling the words of Arthur C. Clarke, the intellectual father of the communications satellite, at the 1971 signing ceremony establishing INTELSAT, the multinational co-op that owns the world's principal telecommunication satellites: "What the railroads and telegraph did [in the United States] a century ago," Clarke said, "jets and communications satellites are doing now to all the world... For today, gentlemen [there were apparently no women signatories], whether you intend it or not -- whether you wish it or not -- [y]ou have just signed the first draft of the Articles of Federation of the United States of Earth."

Twenty-five years later, however, Clarke's United States of Earth remains elusive. And the global electronic common is still embryonic. The closest proxies, CNN, the satellite distributed news network, and the Internet, the transnational matrix of computer networks, together reach less than 1 or 2 percent of the world's population.

Nor do we live in one electronic village. The telecommunities that are constantly forming and reforming on the network are as likely to share a common set of goals or values as any two households chosen randomly from the world's telephone directories. To be fair, McLuhan's legacy is easily misread. While McLuhan did indeed state that electronic media had contracted the world into "a single large village," he also argued that the "electric age, by involving all men deeply in one another" would lead to a new "tribalism" -- a tribalism that would make impossible Western "literate man's dream of [a] solution to the problem of human differences." In 1990s terms, cyberspace is tribal space, universalist pleas notwithstanding.

With the benefit of hindsight, we also know now that the promise of a global village has proven false for another reason both McLuhan and Clarke discussed -- ever cheaper international communications. Hence, the proliferation of electronic places in the world is largely a matter of economics. As the price of getting on the telecommunications map has fallen, the demand for places has mushroomed. The luxury overseas call of the 1960s has become the routine global chat of the 1990s.

2. A Generational Leap

In January 1961, when President John F. Kennedy took office, a three-minute phone call from the United States to Europe or Asia typically cost $18 -- the equivalent of $90 today. The cost of calling in the other direction usually was much greater. Prices were high, in part, because the supply of international circuits was limited. High-capacity communications satellites were a decade away and, as noted, the only transatlantic telephone cable, completed but four years earlier, had less than one hundred voice paths. (Radio telephone service across the Atlantic began in 1927, and until 1956 this very limited service was the only means by which Europe could talk to America.) The first transpacific telephone cable did not begin service until 1964 and could handle just over 150 calls. However, when President Bill Clinton took office in January 1993 there was sufficient satellite and cable capacity to accommodate at least 800,000 simultaneous telephone calls across the Atlantic. Carrier tariffs for transatlantic calls had fallen to $1.00 to $1.50 a minute in many European states and half that in the United States.

Not surprisingly, these price changes and the expanding base of telephones across the world dramatically changed the electronic landscape. Again, the United States provides an example. In 1960, Americans made just 1.3 million overseas telephone calls, of which almost 80 percent were to Western Europe and the Caribbean. Only five countries -- the United Kingdom, Germany, the Bahamas, Cuba, and Japan -- accounted for 50,000 or more calls annually. By 1990, the United States made approximately 50,000 calls daily to a score of countries, including Korea, Brazil, Taiwan, Colombia, Australia, Italy, and the Dominican Republic. The United Kingdom alone received over 250,000 calls each day.

These statistics point to another fundamental change in our electronic terrain. Thirty years ago a few industrialized countries owned the vast majority of the world's telephones; computer modems were the preserve of Big Science and Big Business, and the fax machine was a poor substitute for telex. Yet, by the early 1990s, electronic mail and fax machines were

consumer staples in many countries, and the number of telephone lines had quadrupled to approximately 600 million. Further, in less than a generation, developing countries from Indonesia to Iran, from Brazil to China, had added more telephones than the world's industrialized countries (excluding the United States) had installed during the telephone's first one hundred years! By comparison, the number of international airline routes, bounded as they are by the need for airports, connecting roads, and the like, has yet to exceed a few thousand. And even that quintessential twentieth-century travel machine, the automobile, found itself hard put to compete with this explosion of new spaces on the network -- until, of course, it gained a phone of its own. Yet this explosion of place on the global network tells only part of the story. Many of the same advances in microelectronics and information processing that made international telephony affordable for millions also dramatically expanded peoples' personal communications space through other media. The Sony Walkman and the videocassette recorder, almost unknown in 1970, now offer a novel electronic environment for tens of millions of people. So too, of course, do cable and satellite TV.

Taken together, the worldwide acceptance of these new electronic communications devices and the cybercompasses that direct them -- the telephone key pad, computer mouse, and TV remote -- have created a vast new geographic overlay. We call it by various names, depending on how we enter and exit or on what we do when we are there: the network, cyberspace, television. But whatever the name, there is little doubt that this virtual geography has a hold on our lives every bit as powerful as that of the places where we live, work, or go to school. Indeed, in many cases, these places have become folded into this new electronic terrain.

With this background in mind, I look in the next section at how the network's simultaneous explosion (the piston's upstroke) and compression of place (the downstroke) is affecting our views on four subjects: immigration, trade, the environment, and community values.

3. Immigration

Immigration is as old as the nation-state. But never before has it been possible for so many immigrants from so many different countries to call home. The upsurge of immigration in the 1980s has thus made the network's contradictory dialectic an everyday fact of life for more and more nations. For example, a June 1993 U.N. population study reported that over 100 million people (2 percent of the world's population) had left their home country since 1980 in search of a better life. There are now more than 20 million legal immigrants in Western Europe, and since 1990 the number has been growing by almost 2.5 million annually. Countries such as Italy, Spain, and Greece, which historically have had a net outflow of immigrants, now have a net influx. In the 1980s, the United States gained approximately 9 million new immigrants. One-third came from Asia, a quarter from Mexico, and another quarter from Latin America and the Caribbean.

While the new immigrants have had a hostile reception in some countries, they have been a boon to telephone carriers. Over the last few years, in both the United States and Europe, most of the fastest-growing telephone routes have been to countries that have seen large-scale emigration. This new market for social calling -- to Guatemala and the Philippines, to Turkey and Tunisia, to South Africa and India -- has boosted demand in a comparatively weak business market. With each call home, immigration has helped the world's major

carriers to build out their networks, to amortize the next generation of undersea cables, and to recognize ever greater economies of scale. Thus, while calling home may be a very personal experience for the participants, from the standpoint of network economics each immigrant's call brings the world closer for everyone.

The global reach of the network has also allowed immigrant communities to turn their very separateness into an asset by leveraging their multinational contacts. Indeed, Joel Kotkin's insightful book *Tribes* argues that the most successful ethnic disaporas today provide a model for advancement in the 1990s: "As the conventional barriers of nation states and regions become less meaningful," writes Kotkin, "it is likely [that] dispersed peoples -- and their worldwide business and cultural networks -- will increasingly shape the economic destiny of mankind."

*Tribes*focuses on the Japanese, the Chinese, the Indians, and the Jews. But Kotkin sees other ethnic communities gaining ground as well, including Armenians, Koreans, and Palestinians, to name but a few. Kotkin also contends that "[t]he power of global tribes derives from their successful coalescing of two principles that many people believe are contradictory: an 'intrinsic tribal' sense of ethnic identity which is historically unique and, secondly, 'the ability to adapt to a cosmopolitan global economy.'" To bridge these two worlds, Kotkin states, the most successful "global tribes" have placed a premium on education as well as on religious or ethical training. Kotkin is only partially right. Education and religion often do help people feel at home abroad. But in our networked world, "tribal" and "cosmopolitan" values are no longer antagonistic. They are complementary. It is the network's very ability to sustain people's sense of separateness, to create a special place for their own way of life while connecting them to the larger world, that is its leitmotiv.

The network's capacity to transform a community's separateness into a global asset can also create problems. As the telephone makes "next door" anywhere in the world, immigrant families may be less likely to look across the street for social and economic support. Similarly, while telephone service may be invaluable in helping immigrants reach out to other local communities for jobs, social assistance, schooling, and child care, it may also unite them with their own nearby electronic neighbors for shopping, entertainment, and charity.

One final point about calling home that has much wider implications: no passport is needed to traverse the global network. Its electronic highways and byways may be messaged by citizen and alien alike. The network thus unites families and factions, it attracts brides and bombers, and it allows doctors to follow their patients abroad as readily as it enables drug dealers to track their cargoes. It is this public openness, affording a kind of universal private asylum in a world still ruled by border guards and immigration quotas, that exemplifies the contradictions at the network's very core.

4. Trade and the Economy

The network's ability to compress the world's geography (the piston's downstroke) is perhaps most evident in the economic sphere. Here too, however, the contrary is true as well. Coca Cola, BMW, General Mills, Levi Strauss, Visa, Intel, Citicorp, Sony: the brand names that we see around the world testify to the critical role that international telecommunications has played in unifying distant markets and facilitating the rise of global corporations. The consumer benefits have been enjoyed by millions. There are also economic costs. Some

companies and communities are able to leverage the network to open up new horizons, while others find their vistas have been foreshortened by the new electronic space they share with people and factories an ocean away.

On the one hand, instant global communications allows companies to sever their ties to nearby markets and to operate on a transnational scale -- matching buyers and sellers, marshaling inventories, coordinating production runs and filling orders ("just-in-time"). These economies of scale and lower transaction costs have led to large economic savings. Yet, on the other hand, the network is a grim reaper. By enabling companies to exploit the differential resources and productivity of one locale vis-à-vis another, the network can impoverish whole communities even as it enriches others.

"Reach out and touch someone," AT&T advertised in the 1980s. But what happens when whole countries reach out and touch one another via faxes and bank wires? Just ask people in the American midwest or any European manufacturing center. When Osaka (home of Nissan) or Ulasan (the Korean home of Hyundai Motors) use these new information pipelines to reach out and touch Detroit or Lyon, the politics of nations are thrown into the balance. Japanese and Korean cars may or may not be superior. But without the means that modern telecommunications and broadcast facilities offer to finance and market these products quickly, their acceptance in foreign markets would probably take decades, not years. And what is true of cars is also true of a host of other products, from textiles to machine tools, foodstuffs to finance.

John Naisbitt first pointed to the role of telecommunications in this restructuring of community and (work)place in his popular 1982 book *Megatrends*. Cheap global communications, Naisbitt wrote, "collapses the information float -- the time it takes information to travel from sender to receiver." The result? Take away the float and many domestic enterprises are left desperately treading water. For absent a life raft of trade barriers, the tempo and cost of production in Indian or Korean workshops and factories immediately become the regulator of commerce a continent away.

Lee Kuan Yew, architect of Singapore's economic miracle, bluntly summed up this process as follows: "Globalization ... widen[s] income difference in each society. America's top 10% will still enjoy the highest incomes in the world. But the wages of its less educated citizen will drop to those of workers in the developing countries with equal or higher educational standards. Telecommuting transfers jobs worldwide."

5. The Environment

The dual character of the global network, at once universal and particular, has had a profound impact on the natural environment. Too often this impact has been masked by the public image of telecommunication as a "green," nonpolluting business. Would that this were true. To be sure, the network itself is a relatively clean machine. It has no smoke stacks, and it saves trainloads of paper and fuel oil every day by offering an alternative to mail and travel. Silicon chips and fiber-optic cables also reduce the need to smelt copper. Similarly, as cellular telephones and new wireless communications devices become more common, there may be a time when the landscape is not blighted by parades of poles and wires.

But that is only part of the story. The network's electronic piston, which, on the downstroke, creates the small "green" world of e-mail and telecommuting, wireless telephony

and paperless transactions, is followed by an electronic upstroke that expands the environmental impact of corporations and consumers as never before. It makes almost every marine habitat, mountainside, jungle canopy, and alpine meadow accessible to the world market. This unprecedented expansion of place -- for fishing, prospecting, logging, grazing, touring, building, and burning -- is anything but benign.

No large-scale manufacturing or industrial development scheme is possible today without a dial tone. Wittingly or not, the network has become one of the most resource-hungry businesses in the world. From the rural real estate agent's cellular phone to the satellite earth station on a Pacific Ocean fishing trawler to the worldwide inventory control network of a European car manufacturer -- the electronic network is now at the center of every environmental issue. After all, the network is the world's largest machine.

Further, just as the network provides industry with access to the most remote parts of the planet, it also connects hundreds of millions of people from subsistence cultures to a world of unbounded consumption. What the North sends down its telephone cables and bounces off its communication satellites, the South soon desires. And so, in barely a generation, with television as its shop window and the telephone as its order taker, the global network has helped convince many of the world's "have-nots" that they would be better off if they could use the panoply of products available to the world's "haves." Needless to say, this vast multiplication of consumer demand will place a huge new burden on the environment for decades.

Still the network's "green" image is not altogether undeserved. Even as the network's explosive reach threatens to shatter the earth's fragile ecosystems, the network's power to let us see the results of technology's growth has planted seeds of hope. Communications satellites have not created a global village, but they have let us see the planet as "spaceship earth" -- a priceless, blue-green biosphere whose parts are interdependent.

Thus, the network has taught us that how people cool their homes, drive their cars, and package their foods in one country has an impact on the health and safety of people a continent away. The network also has provided us with a new set of environmental watchdogs. Today's high-speed computer networks form an integral part of every remote-sensing and meteorological satellite system. And so one half of the network's cycle, the downstroke, which compresses space and time, allows us via satellite images and telemetry to monitor and, hopefully, check the excesses arising from the upstroke of the cycle.

6. Community Values

The network's pistonlike power to make the world one even as it opens up new places for others is not limited to the economic or environmental sphere. This dynamic is evident in the social arena as well. For millennia, geography has provided something of a cultural buffer between the values of city and countryside and between one religious community and the next. Yet in much of the world, the network now threatens to leapfrog this barrier. Telegeography transports every villager's home into the metropolis and settles the atheist next door to the true believer.

To date, television has endured the brunt of the moral backlash loosed by this new electronic geography. Videocassettes are confiscated by border police, satellite channels are denied "landing rights," TV shows with "too much" violence or sex are threatened with advertising boycotts, and broadcast tribunals are created to protect the national culture.

The telecommunications network, however, is fast becoming the next battleground. In its infancy, the telephone only brought foreign voices into our homes and then but fleetingly. The marketplace for clothes, entertainment, banking, and the like remained in the community. So too did the library and the newsstand. But as the network has begun to change from a purveyor of POTS (plain old telephone service) to PANS (pictures and new services), the clash between local and metropolitan values has heightened.

Today, the network has made the life of the city, its markets and its fashions, its vices and its knowledge, a part of the common electronic landscape. This expansion of social space has predictably made many people very uneasy. But others have welcomed the opportunities that new network services are making available and are keen to test the limits of these electronic frontiers. The values of virtual communities are being pitted against the ethics of actual communities. People "on the line" are ranged against those "on the land." And, as often as not, there are also strong differences among the myriad communities that now call "the net" their home just as there are among neighborhoods in the "real" world.

A good illustration of these different communities is provided by the example of the tens of thousands of free phone or 800-number services now available in North America and Europe. The directory for France's teletex service, Minitel, is also instructive. There are electronic neighborhoods for everyone: for psychotherapists, food fanciers, pet owners, language students, financiers, and genealogists. The same is true of the computer world. According to Howard Rheingold in his book *Virtual Community,* in the United States alone there are now 60,000 electronic bulletin board services (BBSs) (which among other features allow users to chat with each other using e-mail). Each BBS, Rheingold notes, supports a dozen to several hundred to even thousands of participants: "There are religious BBSs of every denomination, sex BBSs of every proclivity, political BBSs from all parts of the spectrum, outlaw BBSs, law enforcement BBSs, BBSs for the disabled, for educators, for kids, for cults ... [the] list ... is dozens of pages long. [And] [t]he BBS culture has spread from the United States to Japan, Europe, Central and South America."

Most people are unaware of this wildly varied assortment of new cultures emerging on the network. We may all live in electronic neighborhoods, but the residents of one digital street often know nothing of what the "Boyz in the Hood" are doing on the next one. When they do find out, the result can be outrage. One man's computer game is another's obscenity. One woman's public database is another's national security threat. One community's weekly electronic meeting is another's blasphemy.

Most of the activities on the network are private. Almost all countries have rules against wiretapping or eavesdropping on telephone or computer traffic. And that is one of the network's great attractions: you can travel anonymously -- and leave your passport at home. Many people who would not wish to be seen in an adult bookstore or a bordello, for example, will happily spend a few minutes or a few hours entertaining themselves with pay-per-call sex services. Some nations have tried to control such network based "dial-a-porn" services by requiring the telephone companies to block pay-per-call numbers unless the subscriber requests otherwise. But the network is global. And dial-a-porn services, which are now a multibillion-dollar business, can easily migrate offshore. (Indeed, such services now account for approximately 1.5 percent of all international telephone traffic.) Blocking foreign dial-a-porn services is very difficult; it may mean blocking all telephone traffic with the country housing the offending audio service.

The Network's Digital Dialectic Makes the World More...	
compact	dispersed
integrated	balkanized
centralized	decentralized
manageable	chaotic
prosperous	divided
and Makes One Feel More...	
worldy	unique
intimate	distant
secure	exposed
accessible	alone
informed	confused
connected	displaced

The technical difficulty of enforcing local values in a virtual world is even greater for computer-based services (i.e., the telephone network of tomorrow). For example, Rheingold reports that when a newspaper in Texas drew attention to the fact that a local computer BBS had an archive of pornographic photos, as well as, incidentally, numerous mundane government documents, the "Usenet newsgroup 'alt.sex.pictures' instantly moved to Finland." Network traffic to Finland jumped significantly overnight, writes Rheingold, but there was little local authorities could do.

Of course, ten years from now, when many computers have wireless modems and satellite telephones are a commonplace, the BBS computer itself could be moved around the world at will. Thus, for the guardians of community values, the world has suddenly gotten impossibly large. Global networks have exploded the number of places that must be walled off.

7. Closing Thoughts

How might the telecommunications industry and government respond to the new geographic era we have entered? I have two suggestions. First, the current debate in most countries regarding the future information infrastructure or "infostructure" deserves more candor. As one of America's most beloved practical philosophers, Yogi Berra, has said: "If you don't know where you're going, you might end up somewhere else." Too often, the job creation, new business, economic integration arguments advanced for extending and widening a nation's electronic highways have been accepted at face value. The unwritten premise is that the nation that is able to transmit the most bits per square meter from one locale to another will be the

economic victor in the twenty-first century. Perhaps. But as long as telecommunications networks remain open to all -- citizens and aliens, buyers and sellers -- any local expenditure will also yield substantial benefits to the global community. Or as economists put it, infostructure expenditures have large externalities.

Beyond that, the network dialectic described in this essay strongly suggests that the infostructure of the 1990s will lead us in quite different directions, and simultaneously so. This may be unavoidable. But we need to probe more deeply any claim that tomorrow's electronic highways are a one-way ticket to prosperity and the global common.

My second suggestion is to make sure that public policy and technical decisions about the network, from standards to telephone numbering plans to e-mail gateways to new service offerings, enhance people's own sense of place. In a networked world, it is all too easy to feel displaced -- literally and figuratively -- if one is not connected. That is why access to the network and the terms on which access will be available to future network services (i.e., interactive data and video offerings) are not just telecommunications policy issues but critical social and economic policy matters for society as a whole.

Similarly, the more time people spend in one electronic realm or another, the more they wish to make it their own. One example of this is automatic number identification (ANI), sometimes known as "caller ID." Although the telephone is a very intimate medium, it can be rung randomly by friend and foe alike. Many people resent this invasion of privacy but lack a secretary or voice mail system to protect them, especially at home. ANI and caller ID provide the "electronic doorman" they seek by disclosing the number of the calling party at the same time the telephone rings.

Of course, caller ID also compromises the anonymity of the caller -- but so too does the "peephole" on an apartment door or the return address on an envelope. Conflicts like these between the privacy of the network traveler and the privacy of the host are likely to be increasingly common as people seek to make cyberspace a better place to live. In a world where communication is possible "any place, any time" the response of many people is "please, not here, not now."

Telephone calling cards offer another example. For years, except for their color, calling cards (like credit cards) were anonymous, almost identical plastic rectangles. Lots of people, however, wanted these network tokens to be particular and personal, marked with their own countries and signs. The Japanese responded first, and other countries quickly followed. Tens of thousands of customized calling cards now circulate in the world, and many more are on the way.

Consumer support for the deregulation of telephone equipment provides a final example of the importance of a sense of place. Most people want to own their own phones. And they also want to own their own telephone numbers as they change houses and jobs. In Beijing, for example, when local authorities auctioned off telephone numbers, many thousands of dollars were paid for the rights to use the most auspicious numbers.

8. Conclusion

In closing, I want to share a poem by the Ghanaian writer Atukwei Okai that harks back to a much earlier age:

> Of course we are glad to be born to Universe.
> But we'd love to have our home address somewhere
> Specific directions about our house our home,
> Our little place in a monstrous world.
> Yes we'd like to hand our own address
> Up at the crossroads of this earth
> Lest the gods should one day come looking
> For us in the wrong place.

Tribal space or cyberspace, the human desire for a sense of place runs deep. Global communications networks have led an explosion of place. And the more places there are in the world, the more we seem to search for a secure and enjoyable locale to call home. Governments and carriers that keep this basic human need in mind when grappling with the communications revolution will be the ones most likely to win popular support.

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