

PART III. THE NETWORKED MARKETPLACE

*A powerful global conversation has begun.
Through the Internet,
people are discovering and inventing new ways
to share relevant knowledge with blinding speed.
As a direct result, markets are getting smarter
—and getting smarter faster than most companies.
— The Cluetrain Manifesto*

Net Pains

*The Web is a mess, as organized as an orgy.*ⁱ
—David Weinberger

The argument

For the Intention Economy to emerge, the Internet needs to support maximized economic activity, driven by copious signals from individual customers and users, and responses to those by vendors. How well that happens depends on how well we understand the Net itself, and its generative properties—and keep those properties alive and well.

Back in the future

One night not long ago my son and I watched “Blade Runner” on Netflix. Our theater screen was a 17” laptop. Our sound system was a \$100 setup from HiFi.com, plugged into the laptop’s headphone jack. The projector was Netflix’ server, streaming to our laptop through a Verizon’s FiOS fiber optic connection and a Wi-Fi base station on the floor above. Here we were, in the year 2011, watching a *future noir* classic about the year 2019 that was shot in 1982. The story was terrific; but it was just as much fun to review the movie’s prophetic hits and misses.

In Blade Runner’s future, Los Angeles has become a grimy dystopia where office buildings the size of mountains rise from a landscape of oil refineries and crowded urban streets. Haze hangs everywhere, especially indoors, where smoking is *pro forma*. Anti-gravity cop cars zip through the sky while blimp-shaped billboards float above streets, displaying video ads for off-world vacations. Except to professional sleuths called “blade runners,” manufactured humans called replicants are indistinguishable from the real thing.

Since most of the future still isn’t here, and since all this stuff isn’t entirely implausible, it was easy to suspend disbelief and enjoy the show. But science fiction from the past runs aground when its guesses are proven wrong in the present; so Blade Runner gave us plenty of goofs to savor too. The most common ones were promotional “product placements”—a movie-funding convention that Blade Runner pioneered. Logos for at least thirty companies appear in the movieⁱⁱ. Some brands, such as Coca-Cola, are still around, but most of the others, including TDK, the Bell System, Atari, Bulova and RCA, have faded or disappeared. (The kid asked, “What’s RCA?”) But the technical goofs stood out more. Computers in the movie still have vacuum-tube displays, and when the lead character (played perfectly by Harrison Ford) needs to make an urgent call, he uses a pay phone. The Internet is nowhere in sight.

Imagine you're back in 1982. Somebody tells you the world in twelve years will adopt a new communications system that nobody owns, everybody can use, and anybody can improve. The system will be all-digital, and will provide ways for anybody to communicate with anybody, anywhere in the world, and to copy and share anything that can be digitized—including mail, print publications, music, radio streams, TV programs and movies—at costs that veer toward zero. Would you believe it? Or would it sound as far-fetched as anti-gravity cars?

How about if you were also told that the same system would end the livelihoods of many journalists and recording artists, undermine media businesses of all kinds, expose millions of diplomatic communications to the world, provide new ways for bad people as well as good to collaborate in secret, and undermine civilization as we know it?

Both forecasts would be true.

My point: the Net is more than a new development, more than a game-changer. It is a new environment for business, culture and human interactions of all kinds. It is also a perfect example of how the miraculous becomes mundane. The Internet is now so common, so ordinary, that we hardly pause to get perspective on how radically it has changed nearly everything it connects. Nor do we pause to contemplate its progress toward (and away from) end states good and bad—or how we may be slowing progress in either or both directions.

So, for a rough measure of progress so far, here are two more family stories, both starring the same son mentioned above.

Story #1. It's 2002, and the kid is seven. As always, he's full of questions. As sometimes happens, I don't have an answer. But this time he comes back with a simple demand:

“Look it up,” he says.

“I can't. I'm driving.”

“Look it up anyway.”

“I need a computer for that.”

“Why?”

Story #2. It's 2007, and we are staying overnight in the house of an old family friend. In a guest bedroom is a small portable 1970's-vintage black-and-white TV. On the front of the TV are a volume control and two tuning dials: one for channels 2-13, the other for 14-83. The kid examines the device for a minute or two and says, “What is this?” I say it's a TV. He points at the two dials and asks, “Then what are *these* for?”

Progress is how the miraculous becomes mundane. The beauty of stars would be legend, Emerson said, if they only showed through the clouds but once every thousand years. What would he have made of commercial aviation, a system by which millions of people fly all over the globe, every day, leaping continents and oceans in just a few hours, while

complaining of bad food and slow service, and shutting their windows to block light from the clouds below so they can watch a third-rate movie with bad sound on a tiny screen?

The Internet is a sky of stars we've made for ourselves (and *of* ourselves), all just a few clicks away. I recently found that Searls.com, which has been hosted at Rackspace.com since that company was a side project by some students in Texas, is actually in Virginia. *Linux Journal's* servers have been in Seattle, Amsterdam, Costa Rica and Texas.ⁱⁱⁱ In Paris last summer my wife had countless live Skype sessions with her company in Los Angeles, many using video, with little apparent delay. No doubt there were costs somewhere. But Skype operates profitably, somehow. So, presumably, do the ISPs in L.A. and Paris. We take these things for granted as well.

These days The Kid no longer relies on parents (or anybody, actually) for answers. He just goes to the Net over a laptop, a smartphone or a tablet, each connected wirelessly. True, these options are still luxuries (or absent) in most of the world, but we can see two vectors of progress in the way one kid takes the Net for granted. One points to the end of centrally controlled media. The other points to what Bob Frankston, co-inventor of software,^{iv} calls *ambient connectivity*.^v

Two roadblocks currently stand athwart progress toward those ends. One is that there is not an agreed-upon understanding of what the Internet is. The other is that phone and cable companies—along with compliant legislators and regulators—insist on maintaining those legacy businesses at all costs, including their own boundless opportunities in a networked world they are best positioned to help create. Both are slowing the Internet's evolution and growth, and the economic benefits that will follow.

What it isn't

Look up "The Internet is" (with the quotes) on Google, and check the results. Here are the top answers, as of the day I'm writing this, in order^{vi}:

- ... terrible (theinternetisterrible.com)
- ... a copy machine (kk.org/thetechnium)
- ... a global system of interconnected computer networks that use the standard Internet Protocol Suite (TCP/IP) (Wikipedia)
- ... for porn (a 2005 video uploaded by Evilhoof and Flayed)
- ... expanding (a 2006 video uploaded by Chocolate Tampon)
- ... shit (theinternetisshit.com)
- ... made of cats (rathergood.com/cats)
- ... affecting traditional journalism (mashable.com)
- ... now sufficiently embedded in society (David Clark)
- ... dead (Prince)
- ... an agreement (Doc Searls and David Weinberger in WorldOfEnds.com)
- ... changing us (Nicholas Carr in his book *The Shallows*)

The answers are all over the place because the Internet is not a *thing*, even though it can support just about *anything*. So, because it can support anything, it is understood in any number of different ways. Like the universe there are no other examples of it, and all our understandings of it are incomplete.

But, being human, we must proceed from what we do understand, starting with its *protocols*. These are agreements among computers and other devices about how data moves between physical networks. The Internet's base protocols are the *Transmission Control Protocol* and the *Internet Protocol* (combined as TCP/IP). These are about as minimal as protocols can be, defining in simple terms how anything can connect to anything else, at any distance, over any available paths.

By TCP/IP's design, the Net has no single purpose—or any purpose at all—other than to move packets of data from any one end to any other end. This pushes toward zero the functional distance between those ends, and minimizes the efforts required to find paths for data between them. While those efforts do have costs, the Internet itself has no interest in those costs. It has no agenda for creating or protecting scarcities, because it is not a business and therefore has no business model. It is as elemental as oxygen or a pine tree. Those have no business models, either, but are highly useful to business. So, thanks to its any-purpose design and absent business model, the Net supports trillions of dollars in business activity, much of which would not exist if the Net were not there.

Yet little in that last paragraph is obvious to most people. Instead what's obvious to people is that they get billed for something called “broadband” or “high speed Internet” by their Internet Service Provider (ISP) which in nearly all cases (at least in North America) is a phone or a cable TV company. Those companies don't define the Net the same way as TCP/IP does, even though they use those protocols. Instead ISPs define the Net as one among three services they sell as a “triple play.” The other two are telephony and cable TV.

Between those very different views, a battle line has been drawn.

Any vs. Only

To simplify things a bit, look at the Net's future as a battleground where *any* and *only* fight it out. On the side of *any* are the Net's protocols. On the side of *only* are governments and businesses with interests in restricting and controlling access to the Net, and thwarting many purposes to which the Net might be put. This battle also happens inside our own heads, because we tend to view the Net both ways. Ironies abound.

For example, the Internet is often called a “network of networks,” yet the Net was designed to transcend the connections it employs, and is therefore not reducible to them. It is not comprised of wiring, and is not a “service,” even though it's called one by ISPs.

So let's look at the sides here. On the *any* side, “net-heads” (yes, they call themselves that) frame their understanding of the Net in terms of its protocols, and those protocols' virtues.

On the *only* side, “bell-heads” (yes, they call themselves that, too) frame their understanding of the Net in terms of wiring infrastructure and billing systems.

To net-heads, the Internet is a vast new virtual space with qualities such as *neutrality* and *generativity*. To maximize economic opportunity and vitality, those virtues need to be maximized—even if phone and cable TV businesses don’t wish to acknowledge or support those virtues.

To bell-heads, the Internet’s “network of networks” is a collection of mostly private properties, with which owners should be free to do what they please. So, if what pleases them is throttling certain kinds of data traffic to maximize QoS (Quality of Service), too bad. They are The Market, which will grow best if they act in their own economic self-interest. Hey, look at all the good they’ve done already. (Want dial-up again, anyone?) And look at the robust competition between cable and phone companies. Isn’t that producing enough economic benefits for everybody?

Since net-heads tend to make social arguments while bell-heads tend to make economic ones, net-heads get positioned on the left and bell-heads on the right. Between the two are boundless technical arguments that aren’t worth getting into here.

I’m a net-head, but one who wants both sides to recognize that the Net’s original design is encompassing and beneficial for economies and societies everywhere. That is, I believe the argument for the Net is the same as the one for gravity, sunlight, the periodic table and pine trees: that it is part of nature itself. What makes the Net different from all those other products of Nature is that humans made the Net for themselves.

The Net’s nature—its essential purpose—is to support everything that uses it, just as the essential purpose of a clock is to tell time. So, while the Net today relies on phone and cable connections, its support-everything purpose should not be subordinated to legacy phone and cable TV businesses. The Internet, in the neutral and generative form defined by its protocols, is a far larger and more interesting market environment than the one defined by the parochial and limited interests of phone and cable companies, both of which are desperately trying to hold on to their legacy businesses, and would be better served by embracing all the opportunities the Internet opens up, for everybody.

We’re going to evolve past those old businesses anyway. Phone and cable company engineers know that, and so do many of the business leaders in those companies, even as they fight to protect their legacy businesses at all costs.

As a pro-business guy, I sympathize with phone and cable companies, which are cursed by the need to maintain margins in existing business while building out infrastructures that obsolete those businesses (at least as we know them). These companies get little credit (especially from net-heads) for their genuine innovations, and for their ability to innovate more. We do need them, whether we like them or not.

Likewise I sympathize with old-school ISPs: the original and surviving Internet Service Providers, who went into the business of doing everything the Internet Protocol encouraged, and dealing in the process with the real-world limits of wiring, spectrum, regulatory complications and political game-playing at every level. These companies never wanted to be in the TV or phone businesses, and they get little (if any) love from either side in business and policy battles.

But mostly I respect the nature of the Net as an environment that is profoundly supportive of everything that depends on it, including every kind of business that requires a data connection to the world. And I don't think letting the carriers (or the governments) run the whole show will get us the fully market-supportive Internet we need.

Opportunity knocking

The worldwide economy has a virtual Internet of its own, in the mesh of protocols by which sellers and buyers do business. This is one reason why business and the Internet get along so well, and why the Web we know today is largely a commercial one.

Realizing that both the Internet and business are protocol-based helps us see how the Net liberates economic activities, and how important it is to free the Net from the single-purpose businesses that own its "last mile." Even phone and cable companies need to see how much business is prevented by subordinating the all-purpose Internet to their single-purpose systems—and how much more opportunity will open up for them if they help build out any-purpose Net infrastructure.

My own perspective on Net-based opportunity is anchored in the summer of 1976. I was still in my twenties, married, the father of two kids, and a former journalist and radio personality living in a small rural enclave outside Chapel Hill, North Carolina. I say *former* because I couldn't get a job in journalism or radio. I had been laid off by one local radio station and turned down by the rest of them. There were no job openings at any of the area newspapers or magazines, and efforts to sell my work to publishers in New York and elsewhere had also failed. I still made a few bucks freelancing, but not enough to support my family. So I fell into working odd jobs. I even worked off rent at my landlord's sawmill. While I eventually did well in other professions, I gave up my ambitions in journalism and radio, simply because opportunities in those fields had run out.

My view toward those opportunities were bounded by geography and employment options in North Carolina—boundaries the Internet later obliterated. I could see that obliteration coming when I first started learning about the Net in the 1980s. I experienced it first hand when Phil Hughes, the publisher of *Linux Journal*, hired me to write for that magazine and a companion publication called *Websmith*, in 1996. That was my first job as a journalist in more than twenty years. In the decade and a half since then, I've continued working as an editor at *Linux Journal*, always following the Net closely, never ceasing to marvel at the casual geekery that made this miraculous thing possible. I've also been exasperated at how we mistake phone and cable company means for the Net's actual ends.

Those ends are endless, because the Net's capacity expands with every new protocol added to the Net's suite of them—and because these protocols are generally compliant with the “end-to-end principle,” which was first described by Jerome H. Saltzer, David P. Reed, and David D. Clark in the 1981 paper *End-to-End Arguments in System Design*.^{vii} Put simply, the end-to-end principle says the intelligence that matters most exists in boundless variety at the ends of a network, rather than with the mediating systems that sit in the middle. Therefore, they said, network protocols should be designed primarily as means for those ends, rather than to serve the parochial interests of intermediary operators, such as phone and cable companies.

In May 1997, David Isenberg, then working for AT&T, self-published a paper titled *The Rise of the Stupid Network*—his own end-to-end argument against AT&T's cherished belief that a network should be smart, in the sense that it needed a big all-knowing, all-doing, all-thinking company like AT&T in the middle, doing the important stuff. David wrote, “Powerful leading indicators of the Stupid Network began arriving when entrepreneurs who had no vested interest in maintaining telephone company assumptions begin to offer profitable, affordable, widely available data services.”^{viii} By then Amazon.com and eBay were two big examples. Now we have Wikipedia, Skype, Google, Twitter, Facebook, LinkedIn, and all of e-commerce.

AT&T was no doubt a smart company, and so was every other phone and cable TV company in the world. But none could begin to contemplate, much less support, any of the new and amazing things that are born and grow on the stupid Internet, every day. Why is it not obvious to everybody that the stupid Internet hosts a whole new world of opportunities?

The simple answer is that we don't understand it. The more complex answer is that we understand it too many different ways.

Frames

We understand everything metaphorically. That is, we think and talk about everything in terms of something else. That something else is a *conceptual metaphor*, or what cognitive linguists also call a *frame*.

For example, the most common frame for time is money. That's why we *save*, *waste*, *lose*, *invest* and *set aside* time. So, think of each frame as a box of words for one subject, that we borrow from when we talk about something else. Thus we borrow the vocabulary of money when we talk about time.

Another example: life. The most common frame for life is travel. Borrowing from the travel frame, we say birth is *arrival*, death is *departure*, choices are *crossroads* and careers are *paths*. We also say we get *stuck in a rut*, *fall of the wagon*, *get lost in the woods*, *take the fast lane*, *cross that bridge when we come to it* and *win the race*.

The irony of metaphors is that they're right while they're wrong. In fact time is not money, and life is not travel. Time is measuring system. Life is a self-sustaining process. But, as living beings, we experience time as something valuable. We experience life as directed motion. So we talk about time in terms of money and life in terms of travel.

This even goes for our moral systems. We say *good is up* and *bad is down* because we walk upright. We say *good is light* and *bad is dark* because we are diurnal: daylight animals. If owls could talk, they might say *good is dark* and *bad is up*.^{ix}

I bring us down this digressive path because there are some concepts—time and life among them—that are so general and encompassing that we will never explain them perfectly, no matter how well we know them from experience. Such is the case with the Internet, which is cursed by being like nothing at all. Or, like everything.

Thus the challenge of defining the Internet always reminds me of an old joke essay question: "Define the universe, and give three examples."

Ending at zero

In *Small Pieces Loosely Joined*, David Weinberger writes,^x

Suppose — just suppose — that the Web is a new world that we are just beginning to inhabit. We're like the earlier European settlers in the United States, living on the edge of the forest... Of course, while the settlers may not have known what the geography of the New World was going to be, they at least knew that there was a geography. The Web, on the other hand, has no geography, no landscape. It has no distance. It has nothing natural in it. It has few rules of behavior and fewer lines of authority. Common Sense doesn't hold there, and uncommon sense hasn't emerged... We don't even know how to talk about a place that has no soil, no boundaries, no near or far.^{xi}

Craig Burton combines these three ideas we've visited so far—*end-to-end*, *stupid* and *a new world*—by describing the Internet as a vast hollow sphere, comprised entirely of ends:

I see the Net as a world we might see as a bubble. A sphere. It's growing larger and larger, and yet inside, every point in that sphere is visible to every other one. That's the architecture of a sphere. Nothing stands between any two points. That's its virtue: it's empty in the middle. The distance between any two points is functionally zero, and not just because they can see each other, but because nothing interferes with operation between any two points. There's a word I like for what's going on here: *terraform*. It's the verb for creating a world. That's what we're making here: a new world.^{xii}

I think of Craig's hollow sphere as a giant three-dimensional zero. Thanks to that zero, I sat in Paris in July 2010, listening to an English language broadcast of the World Cup, from WDNC: the same North Carolina radio station whose transmitter I used to run on weekends in 1974. The cost of this wasn't zero, just like the cost of water from a spigot isn't zero. But the cost was low enough to ignore, and that's a big part of what makes the Internet so appealing and useful.

Back when I worked at WDNC, we were proud that our signal reached dozens of counties in North Carolina and Virginia. It still does, but the station also reaches the whole world over the Internet, without worrying much about anybody extracting tariffs or fees between the station at one end and the listeners at many others. Thanks to the same protocol suite, I can write a blog post anywhere, put it up on a server in Cambridge, Massachusetts, and have it read by countless people all over the world, many of whom have been notified by RSS—Really Simple Syndication—without any of us belonging to any publisher's managed syndicate.

RSS as we know it today was designed and defined by Dave Winer, who also pioneered blogging and podcasting. Today if you look up RSS on Google, you'll get more than twelve billion results^{xiii}. One of Dave's sayings is "Ask not what the Net can do for you; ask what you can do for the Net."^{xiv} (He sometimes substitutes Web for Net. Both make the same point.) The authors of other Internet protocols obey the same command. At this writing Wikipedia lists forty-three protocols in its Internet Protocol Suite entry, and that's not counting "more" in each of its four protocol categories.^{xv}

TCP/IP was proposed in 1974. Some protocols, such as FTP (File Transfer Protocol) are older. Others, such as HTTP (HyperText Transfer Protocol), came along later. Most are as ownerless as a handshake or a dance move. None are encumbered by intellectual property claims, even if intellectual property is involved. Instead the Internet's protocols embody principles abbreviated NEA. They mean,

- Nobody owns it
- Everybody can use it
- Anybody can improve it

While one could argue that the first ideal overstates or misrepresents facts, it isn't an issue. For example, it doesn't matter that somebody owns Ethernet's patents. Those patent-holders decided long ago to set Ethernet free,^{xvi} for zero-cost use and improvement by anybody (exemplifying the other two letters in NEA). One result is that almost nobody outside the networking world remembers IBM's Token Ring, which competed with Ethernet back in the days when both were young and hot. Even today some techies still regard Token Ring as the superior technology. But IBM wanted to sell Token Ring to customers while Ethernet's owners (Xerox, Intel and Digital) and patent-holders (notably Bob Metcalfe, widely considered the father of the protocol) wanted to give it away. The difference was between two prepositions: *with* and *because*. IBM wanted to make money *with* Token Ring while Xerox, Intel and Digital wanted to make money *because* Ethernet

was free. The result was a big win for everybody, including IBM, thanks to Ethernet's free and open nature.

Back in the late 1980s, when Craig Burton was still at Novell, I found out from a friend who worked at National Semiconductor that Novell was actually the world's largest maker of Ethernet interface boards. This was when nearly everybody in business used PC clones, few of which came with Ethernet installed. That left open a market for Ethernet interface cards. Those cards then cost about a thousand dollars apiece. It was widely assumed at the time that 3Com was the king of Ethernet cards, but here I was learning that Novell was the real title-holder. So I asked Craig why Novell didn't make a big deal about its position in the Ethernet interface card market. He replied, "Because it's going to be a zero-dollar business. In a few years, Ethernet will be a standard jack on the back of every computer." And so it was, and still is.

Today Craig says the same thing about Internet service. The first cost of the Net is like the first cost of Ethernet. It's \$0, or close enough. Yes, Internet Service Providers (ISPs) are good to have, but their model should be roads, electric service or water distribution, not telephony or cable television. (Although they should be free to sell those services.) Your road department doesn't say whether your driveway should be concrete or gravel. Your water department is not also your "plumbing service provider." Yes, there are understandings about how and where you connect what's yours to what's theirs. But few if any of those say what you can do on your side of the relationship.

What we need here is what JP Rangaswami (Chief Scientist at Salesforce) and I call "because effects," and economists call positive externalities. JP and I coined "because effects" because they are easy to explain this way: *You make money **because of them**, rather than **with them**.* The total "because effect" of the Internet is incalculable. The Net has become a rising tide of capacity for connection that lifts all boats — economic, social and otherwise. That capacity rises as the inverse of the Net's own movement toward zero in the ease and cost of connectivity.

The third NEA ideal—*Anybody can improve it*—is what makes the Internet such an adaptive form of infrastructure. It is also why the Net constantly improves as a marketplace, becoming more and more useful and efficient for everybody and everything that relies on it. So, while the Net can support seller-built inconveniences that limit customer choices, it can also provide customers with ways of working around those limitations.

So, then

The Net's capacity to support limitless economic activity and growth will win in the long run because it will prove out in the very marketplaces it support. But there will be a great deal of resistance along the way, as the narrow interests of both Big Government and Big Business try to contain the Net's potential within the scope of their own ambitions. Still the evolutionary direction of the Net is toward ambient connectivity. Whatever that looks and

feels like, it won't resemble either the phone system or cable TV. Rather it will look like everything, together.

The Live Web

As we move from the attention economy to the intention economy, brand engagement will require much more than a flashy home page, killer ads and lots of tweets.

—Sam Curren

*Urge and urge and urge...
Always the procreant urge of the world...
Out of the dimness opposite equals advance...
Always substance and increase...
Always a knit of identity...
Always distinction...
Always a breed of life.
—Walt Whitman*

Argument

The Live Web is more than real-time. It's the combined sociologies, ecologies and economies of people, places and things, interacting with each other in constructive and profitable ways.

The Live Web will have cities, and it will have people. The cities will be rich with the varied capabilities of every company, organization, government body, and individual who lives and travels within and between them. The skyline of those cities will be APIs of large institutions with lots of data to share. There will also be countless smaller institutions, in the form of services and apps. Most of those will have APIs and similar means of selectively sharing data and engaging with other people and other processes. Individuals as well will be able to create their own solutions, without being trapped in any institutional entity's silo'd system. In fact, APIs will prove more profitable than silos, because they will benefit from the free will and agency of each independent user and customer.

Living ends

In 2003, my son Allen and I were talking about the future evolution of the Internet, and the Web in particular. As he saw it then, the Web we knew was mostly static. Sites changed constantly, but not so fast that Google and other search engines couldn't index everything on the whole Web every few days. But search engines didn't show what was happening right now, in real time. That's because nearly every website in those days was more of a construction project rather than a venue for live events. Allen didn't see this as a problem so much as an early limitation that would be overcome when anybody and anything could engage each other in real time. He called that future environment "the Live Web."

Blogs were the earliest widespread Live Web life form. What makes a blog live is syndication. When a blog post (or a news story) goes up, it notifies the world of that fact

through an RSS feed. (RSS stands for Really Simple Syndication, a term coined by RSS pioneer Dave Winer.) This fact came in handy when David Sifry and I were working together on a story about blogging for *Linux Journal* in November 2002. To help us do the research required, David invented Technorati, which went on to become what he called a “Live Web” search engine, borrowing Allen’s term.

Both Allen and David turned out to be ahead of their time, which began to arrive in a big way when Twitter and Facebook made the live nature of the Web obvious to everybody.

For me the most dramatic example of the Live Web at work came when my daughter called me in Boston one afternoon from her home in Baltimore. “We just had an earthquake!” she said. “It feels just like it did back in California. Everybody rushed outside and started yelling ‘Are you okay?’ to each other. Have you heard anything?” I looked for #earthquake on Twitter. The first results were from Virginia, D.C., Maryland, then Philadelphia, then New York. “It must be coming from somewhere south of you,” I said. Then our house began to rock. “Wow! I’m feeling it here now,” I said, and watched fresh tweets from others in Boston.

But here’s the important thing: Twitter and Facebook are just evolutionary stages. They are as prototypical of the future Live Web as AOL and CompuServe were for the Static Web. They are also companies and therefore single points of failure. They will die. That means we can’t depend on them, or any other company alone, to give us the Live Web. To imagine our way to the Live Web we need to look past Silicon Valley, Wall Street and the natural environment we see outside of humanity: the forests, jungles and oceans of the world. Instead we need to look at cities.

How we live

The human population of Earth passed seven billion while I was writing this book. Already by 2006, over half our population lived in cities. (In the U.S. we’ve now passed 82%.) From now until 2050 over a million people per week will be added to cities. While these are interesting facts that can lead in many directions, the most pertinent one for us here is mortality in business. That’s because cities live while businesses die off—as do people and other living things. What do cities do that companies and other living systems don’t?

Geoffrey West has an answer. West is a theoretical physicist who enjoyed a long and distinguished career in his home field before he and some colleagues began seeking a scientific model of cities. In the course of that work they also studied companies. What they found was that cities continue to grow in size and vitality while plants, animals and companies only grow to the point when they can’t any more. “It’s very hard to kill a city,” West says. “You can drop an atomic bomb on a city and thirty years later, it’s surviving. Very few cities fail. All companies die.”^{xvii}

That’s because cities scale in a *super-linear* way, while plants, animals and companies scale in a *sub-linear* way. In mathematical terms, the leverage of growth is greater than 1 for

cities and less than 1 for plants, animals and companies. So, as a city grows, it needs *less* energy to keep growing, while a company needs *more*. Hence a city has no inherent burdens of size, while an organism does. As my wife likes to say, “Trees don’t grow to the sky.” Sub-linear scaling is the reason. The typical path of sub-linear growth is sigmoidal: after it hockey-sticks up a steep growth slope, it bends right toward the horizontal. West and his colleagues studied 23,000 companies, and found that “they all start by looking like hockey sticks, they all bend over, and they all die like you and me.”^{xviii}

Yes, companies can renew themselves. They can invent new products and services that hockey-stick toward the sky at the speed of a start-up. Yet each success makes the company bigger again, and bigness has costs that can only be offset by constant innovation and even greater growth. This simply doesn’t happen beyond a certain level of hugeness, unless the company breaks into smaller pieces that all grow independently. But then it’s not one company anymore. By dividing into separate pieces, the original company dies.

Cities, on the other hand, are by nature arrangements of many living things. All those things die individually, while the city lives on as a collective system with benefits that transcend the mortalities of everything that comprises it. West says this works, and grows, because *cities are networks*.

World Wide City

“All of life is controlled by networks,” West says. But when you contain that network inside a single entity, it is mortal. When you combine those living networks with others of the same and related kinds, the economies of scale bring increasing returns. “The bigger you are, the more you have, per capita.” For example, “higher wages, more super-creative people, more patents...” You also get more crime, disease and other downsides as well. But cities also increase hope for solving those things, because the sources of solutions are networked.

What the Internet does is give all of connected civilization the benefits—at least online—of living in a city. By connecting each of us to all of us, the Internet is the biggest city of all.

So, then

Cities are generative. They foster invention, innovation, enterprise, adaptation and proliferation. They also have the properties of commons, and are the natural habitats of markets. (More about all those in chapters ahead.) Indeed, cities have always grown around marketplaces, and connections to commerce, especially shipping. It’s no coincidence that the places where undersea fiber optic cables connect to cities and countries are called “landing points.” And they benefit from corporate strategies that are both vertical (like Apple) and horizontal (like Google).

What do they need most of us as individuals, though? In a word, Agency.

Agency

Trust thyself: every heart vibrates to that iron string.
—Ralph Waldo Emerson

As precious as life itself is our heritage of individual freedom, for man's free agency is a God-given gift.
—David O. McKay

The Argument

Agency is personal. It is the source of confidence behind all intention. By its nature the networked marketplace welcomes full agency for customers. So, because the best vendors are customer driven, there will be many more ways for both vendors and customers to thrive in the networked marketplace, and therefore also in the Intention Economy.

Originalities

When we use the word “agency” these days, we usually mean a party that acts on behalf of another one—such as an advertising, PR, real estate, talent or literary agency. But the deeper original meanings of agency are about *acting for ones' self*. Here are the Oxford English Dictionary's relevant definitions of *agent*:

1. a. One who (or that which) acts or exerts power, as distinguished from the patient, and also from the instrument.
2. He who operates in a particular direction, who produces an effect. Of things: The efficient cause.
4. a. Of persons: One who does the actual work of anything, as distinguished from the instigator or employer; hence, one who acts for another, a deputy, steward, factor, substitute, representative, or emissary. (In this sense the word has numerous specific applications in Commerce, Politics, Law, etc., flowing directly from the general meaning.)^{xix}

Here are the OED's first three definitions of *agency*:

1. The faculty of an agent or of acting; active working or operation; action, activity.
2. Working as a means to an end; instrumentality, intermediation.
3. Action or instrumentality embodied or personified as concrete existence.^{xx}

The next three definitions (out of six) have to do with representation:

4. Comm. The office or function of an agent or factor.
5. An establishment for the purpose of doing business for another, usually at a distance.
6. The office of an Indian agent, or the establishment forming the headquarters of one. U.S.^{xxi}

In the Intention Economy, liberated customers enjoy full *agency* for themselves, and employ *agents* who respect and apply the powers that customers grant them.

Work

The Age of Industry began in shipping and trade. Under the OED's definition #4 above, the earliest examples of *agency* refer to activities in distant places. Cited are Jonathan Swift (1745), whose character would rather not be "at the charge of exchange and agencies," and a document from 1800 referring to "foreign houses of agency." The next definition, "An establishment for the purpose of doing business for another, usually at a distance," cites examples starting with Reuters Agency in 1861. The first agency of government comes two decades later.

Business in the industrial world is complicated. Nobody can do everything, and that's one reason markets work. Opportunity appears where something can be done that others are not doing, or are not doing well enough. Many of those opportunities are representational in the sense that agency, in the form of work, is handed off. We hire agents to work as extensions of ourselves.

Democracies too are representational arrangements. Democratic governments are agencies of their people. That these agencies should also have agencies makes sense.

But agency is personal in the first place. Having agency makes us effective in the world, which includes the marketplace. This raises some interesting questions. What does it mean for a customer to have full agency in the marketplace? Is it just to show up with sufficient cash and credit? Is it enough to be known as a good customer only within the scope of a company's CRM system? That's the current default assumption, and it's woefully limiting.

Take for example my agency as a customer in the airline business. Most years I fly more than a hundred thousand miles. I bring to the market a portfolio of knowledge, expertise and *intent* (that is, agency) that should be valuable to myself and valuable to the companies I might deal with. I know a lot about the science and history of aviation, about many airlines old and new, about many airports and their cities, about geography, geology, weather, astronomy and other relevant sciences. I'm a photographer whose work is known within some aviation circles and to a small degree adds value to flying in general. I am also a fairly easy passenger to please. I require no assistance, have no dietary restrictions, show up early and don't trouble airline personnel with rookie questions. I prefer certain seats but don't freak out if I don't get them, and I'm often one of the first to trade seats if it helps keep a couple or a family sit together on a plane. I am also willing to pay for certain

privileges. Yet only the first item—miles flown—is of serious interest to the airline I usually fly, which is United. That I'm a million-mile flyer with United is unknown and uninteresting to all but that one airline.

Thus I have a measure of agency only within United's system, and somewhat less than that with other members of the Star Alliance, to which United belongs. My self-actualization as a passenger is not my own, but that of a "1K" (100k mile/year) or whatever it says on my United Mileage Plus membership card in a given year. I am a high-value calf in their well-tended corral. It's nice that my one-company status gets me some privileges with other airlines in the Star Alliance. But, since the IT systems of Star Alliance member airlines are not entirely communicative, those privileges are spotty. Asking any Star Alliance airline to be a cow for the calves of other airlines makes each of them groan.

The other airlines don't know what they're missing because they *can't* know what they're missing. All their heuristics are confined to their own CRM systems, plus whatever speculative "personalized" jive they buy from data mills. None of that milled data comes directly from you or me. If Delta buys data about me from, say, Acxiom, my agency is nowhere to be found. All the agency is Acxiom's, and they're not even acting as *an* agency for me in the representational sense of the word. I've offloaded no work on them at all, but they're doing it on my behalf, sort of. ^{xxii}

We can only do better if agency is ours and not theirs.

Self-actualization

To consider what self-actualization means in the marketplace, it helps to examine the business sections of bookstores and libraries. They are full of books about self-actualization for companies and their employees; but there are few if any books for customers in the business section. There is nothing, yet, about what it means for you and me to be self-actualized as customers. If there were, what would they say?

In *A Theory of Human Motivation*, Abraham Maslow placed "The need for self-actualization" at the top of the list of human motivations—above survival, safety, love and esteem. ^{xxiii} Specifically,

Even if all these needs are satisfied, we may still often (if not always) expect that a new discontent and restlessness will soon develop, unless the individual is doing what he is fitted for. A musician must make music, an artist must paint, a poet must write, if he is to be ultimately happy. What a man can be, he must be. This need we may call self-actualization.

This term, first coined by Kurt Goldstein, is being used in this paper in a much more specific and limited fashion. It refers to the desire for self-fulfillment, namely, to the tendency for him to become actualized in what he is potentially. This tendency might be phrased as the desire to become more

and more what one is, to become everything that one is capable of becoming.[p. 383]^{xxiv}

Let's forget for now that Maslow wrote this in 1943, that he later revised it, and that others take issue with it. Let's just recognize that Maslow helps us understand a few things about what human beings wish to be.

Being customers is part-time work for most of us. (Even for shopping addicts.) Yet we bring more to market than fits into the scope of any seller's current systems for ignoring all but a small range of signals from customers. How much more can customers bring, and vendors embrace, if the range of signals and actions on the customer side are freed up?

We can answer that question with another one: How big do we want markets to be?

In *Here Comes Everybody: The Power of Organizing Without Organizations*, Clay Shirky examines the effects of social networking tools, a disruptive fact of marketplace life for which the business world reached maximum thrall in 2011. (And with good reason: Facebook alone boasted 750 million users.) "None of the absolute advantages of institutions like businesses or schools or governments have disappeared. Instead, what has happened is that most of the relative advantages of those institutions have disappeared—relative, that is to the direct effort of the people they represent."

While Clay's focus is on the social, the personal remains more than implicit. Each of us has far more agency in the networked market than we could possibly enjoy in the industrialized marketplace. Since the two are becoming one, our agency will become valuable to industry.

So, then

When you limit what customers can bring to markets, you limit what can happen in those markets.

In the chapters that follow we look at ways those limits will end, and opportunities for personal agency to open up.

Free and Open

We hackers were actively aiming to create new kinds of conversations outside of traditional institutions... This wasn't an accidental byproduct of doing neat techie stuff; it was an explicit goal for many of us as far back as the 1970s. We intended this revolution^{xxv}.

— Eric S. Raymond

The Argument

Free markets on the Internet depend on FOSS (free and open source software) code and development methods. It doesn't pay to stand in the way of that fact. It does pay to understand it.

Free market making

No question matters more to reporters than “What's the story here?” If the reporter doesn't ask that question of himself or herself, some managing editor will.

Yet the story format is not capable of containing the full truth behind whatever subject the reporter might cover. That's because stories, by design, require conflict or struggle. Whether the topic is politics, the weather, fashion or sports, you need some kind of trouble, or the reader moves on. The cheapest metaphors for trouble—the ones with the biggest boxes of words to work with—are war and sports. Thus, when writing about technology, the easiest stories to write are product vs. product, company vs. company, CEO vs. CEO. But not everything that matters can be found on battlefields and arenas, imagined or real. Such is the case with free and open source software (FOSS).

While a zillion “Windows vs. Linux” and “Bill vs. Linus” stories ran in the '90s and the '00s, there never was much of a fight, because Bill Gates, Linus Torvalds and their respective projects were driven by different motivations, and labored in different ways toward goals that were only superficially similar and competitive. Yes, Windows and Linux were both operating systems, and in some cases competed. But Windows had to make money for Microsoft while Linux just had to make things work.

The dull story-free fact of Linux's life is that its only job is being the best possible operating system for the widest variety of applications. All other FOSS projects also have the same kind of mundane and straightforward purposes. Thus they succeed simply by working and being used. Asking Linux, Perl or Python for their business model is like asking the same of granite or sunlight.

It might have made great copy if Linus Torvalds, the creator of Linux, was a Filippo Brunelleschi or a Christopher Wren, and if Linux' programmers were building his great

cathedral. But Linus came up with Linux “just for fun” (also the title of his book about it^{xxvi}), and that’s what keeps him going as Linux’ alpha maintainer. Rather than sculpting fine works of art, Linux programmers “submit patches.” When asked specific questions about what Linux actually does in the world, Linus answers, “That’s user space. I only do kernel space.” That’s not the kind of thing Brunelleschi or Wren would have said.

Yet the results of work by Linux programmers are beyond profound. Today most of the sites and services we enjoy on the Net and the Web (including nearly all of Google, Yahoo, Amazon, Facebook, Twitter and Wikipedia) are built on top of Linux or its close relatives, plus Apache, another FOSS code base, which serves about 60% of all the Web’s pages.^{xxvii} Both Linux and Apache have the charisma of pavement. And they’re just two among millions of other dull but essential FOSS code bases.

The total number of FOSS projects may never be known. At the current growth rate, GitHub will probably soon pass 2.5 million code repositories for over a million programmers, if it hasn’t already by the time you read this. SourceForge will pass 300,000, and who knows how many more will be using Google Code (they don’t post numbers). All those code bases were created by and for intelligent minds at the Internet’s ends. Nearly all of them began with one individual’s work. And all of them grow by accretion of unique contributions by other individuals, all contributed by way of the Net.

Active and useful FOSS code is social as well as personal, in the sense that the writers of free and open code need to cooperate with each other. Yochai Benkler explains this in both *Coase's Penguin, or Linux and the Nature of the Firm* (Yale Law Journal, 2002) and *The Wealth of Networks*, (Yale University Press, 2006). In *Coase's Penguin* he writes,

...the central organizing principle is that the software remains free of most constraints on copying and use common to proprietary materials. No one “owns” the software in the traditional sense of being able to command how it is used or developed, or to control its disposition.

... I suggest that we are seeing ... the broad and deep emergence of a new, third mode of production in the digitally networked environment. I call this mode “commons-based peer-production,” to distinguish it from the property- and contract-based models of firms and markets. Its central characteristic is that groups of individuals successfully collaborate on large-scale projects following a diverse cluster of motivational drives and social signals, rather than either market prices or managerial commands.^{xxviii}

Thus, while commons-based peer production may be better for producing code than “property- and contract-based approaches,” smart firms are also advantaged by adapting to the open source code production model, rather than by fighting it.

IBM offers a good example of adaptation. In the late 1990s, while other companies fought adoption of Linux by their customers and their own engineers and IT departments, IBM took to heart the lessons of Token Ring’s loss to Ethernet. Upon discovering the extent of

Linux development going on inside the company^{xxxix}, IBM not only decided to adopt Linux, but to brag about investing a billion dollars in it. All that noise made IBM's effort seem much easier than it really was. Dan Frye, VP for Open Systems Development at IBM Systems and Technology Group, told me it took a number of years before IBM management learned that it couldn't tell its Linux developers what to do—but that instead the reverse was true: Linux developers were the ones taking the lead. Here is how Andrew Morton, one of the top maintainers of the Linux Kernel, explained the relationship between wise companies and open source developers:

Look for example at the IBM engineers that do work on the kernel. They understand (how it works) now. They are no longer IBM engineers that work on the kernel. They're kernel developers that work for IBM. My theory here is that if IBM management came up to one of the kernel developers and said "Look, we need to do that", the IBM engineer would not say, "Oh, the kernel team won't accept that". He'd say "WE won't accept that". Because now they get it. Now they understand the overarching concern we have for the coherency and longevity of the code base.

Given that now these companies have been at it sufficiently long, they understand what our concerns are about the kernel code base. ^{xxx}

Andrew now works for Google. ^{xxxi}

Best intentions

Commons-based peer production has also proven useful for spreading ideas, including open source itself. Search Google for "open source" (with the quotes) and you'll get results in many dozens of millions. Yet the term has been in wide use only since February 8, 1998. That's when Eric S. Raymond (known for maintaining the Jargon File and editing *The New Hacker's Dictionary*, among other things) issued a bulletin to the programming community titled "'Goodbye, 'free software'; hello, 'open source'." ^{xxxii} It set out, with a fine degree of calculation, establishing open source as a common and well understood concept. ^{xxxiii}

The strategy worked just about perfectly, thanks in large measure to the charismatic personality and polemical genius of Eric Raymond, whom Christopher Locke calls "a rhetorician of the first water." ^{xxxiv} What rocks here—and is easy to forget—is that "open source" was *intentional*. As Eric told us in *The Cluetrain Manifesto* (and as I quoted at the start of this chapter), "We intended this revolution."

Eric's efforts also took advantage of a movement that was already well underway. That movement started in 1983, when Richard Stallman announced the GNU Project. The GNU Manifesto, the Free Software Definition, the Free Software Foundation and the GNU General Public License (GPL) followed. Said the GNU Manifesto, "'Free software' is a matter of liberty, not price. To understand the concept, you should think of 'free' as in 'free speech,' not as in 'free beer.' Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software." ^{xxxv} So, while Eric and friends correctly recognized

problems with "free software" as a label, the founding importance of freedom was not diminished by the Open Source Initiative's re-branding effort.

So, then

Freedom, liberty, openness and independence persist as values—not only in FOSS code, but also in how they support construction of organizations, businesses and goods in the connected world.

What you and I bring to the marketplace also needs to embody those same values. We need to contribute our own patches to the marketplace. Few of us can do that today, and this too comprises an opportunity. We can see that opportunity open up if we understand the raw materials we'll be working with. In a word, those are bits.

Vertical and Horizontal

So then Apple is the ultimate unGoogle. Right? Not so fast.^{xxxvi}
— Jeff Jarvis

The Argument

Markets grow in at least two dimensions. It doesn't make sense to argue that one axis is better than another when both together are doing the job.

The Double whammy

The smartphone business was invented by Nokia and RIM around the turn of the millennium, and then royally disrupted by Apple and Google a few years later. Today Apple and Google define the smartphone business, together—though not always in direct competition. It is important to understand how this works, because the two companies' directions are orthogonal: ninety degrees off from each other. And because they do that, the market for both—and for everybody else as well—is huge.

Apple's punch to the smartphone market was vertical. It came up from below like a volcano, and went straight toward the sky. With the iPhone, Apple showed how much invention and innovation the old OEM/operator^{xxxvii} marriage had locked out of the smartphone marketplace, completely re-defining the smartphone as a pocket computer that also worked as a phone. iPhones were beautiful, easy to use, and open to a zillion applications that were easy for programmers to write and for users to install.

The Google punch was horizontal. It came from the side, spreading its open Android platform toward the far horizons. As a platform, Android supported everything Apple's iOS did—and more, because it was open to anybody, making it more like geology than a foundation. The old cartels could still build vertical silos on Android, but anybody could build just about anything, anywhere.^{xxxviii}

So, while Apple shows how high one can pile up features and services inside one big beautiful high-rise of a silo, Google not only provides a way to match or beat Apple's portfolio, but to show how broad and rich the open marketplace market can be.

We need innovation in both directions; but we can't see how complementary these vectors are if we cast the companies innovating in both directions as competitors for just one space. So, while it's true that Apple phones compete with Android-based phones straight up, it's also true that Apple makes phones and Google doesn't.^{xxxix} And, while it's true that iOS and Android compete for developers, iOS only runs on Apple devices, there is no limit to the number and variety of devices that run on Android. In the larger picture here, Apple

and Google are stretching the market in orthogonal directions. The result is a bigger marketplace for both, and for everybody else who depends on smartphones.

Chief among those are users. There are now many more users of smartphones than laptops, just as there are many more users of pockets than of cars. What smartphones do for users—specifically, for *customers*—is provide a box of tools customers can use to engage vendors in the marketplace. Liberated customers will rely on smartphones more than on any other single device. In other words, no device will be more essential to the development and growth of the Intention Economy than smartphones.

To understand what will make the Intention Economy spring forth from customers' purses and pockets, let's look at the orthogonal directions Apple and Google are taking us.

Steve being Steve

To understand the iPhone, one must understand Apple; and to understand Apple, one must understand Steve Jobs. This is hard, because Apple is like Steve and Steve was unlike anybody. As a result, both are examples only of themselves: unique to a near-absolute degree. This is why it makes little or no sense to "be like Apple." It can't be done, except in some of the exemplary ways that Apple does what every other company ought to do, but too often neglects—such as customer service. But no company can do the one thing Apple does best, which is transform industries by opening up whole new markets, over and over again. That was what Steve did, and it's not something any other company has ever done so well, and for so long—or is ever likely to do again.

Case in point. Not long after Steve returned to Apple, one of the first things he did was kill off Apple's clones. Naturally, a great cry of outrage went up. One response to the outrage was an email I wrote to Dave Winer, which he published, on September 4, 1997. Here it is:

So Steve Jobs just shot the cloners in the head, indirectly doing the same to the growing percentage of Mac users who preferred cloned Mac systems to Apple's own. So his message to everybody was no different than it was at Day One: all I want from the rest of you is your money and your appreciation for my Art.

It was a nasty move, but bless his ass: Steve's art has always been first class, and priced accordingly. There was nothing ordinary about it. The Mac "ecosystem" Steve talks about is one that rises from that Art, not from market demand or other more obvious forces. And that art has no more to do with developers, customers and users than Van Gogh's has to do with Sotheby's, Christie's and art collectors...

The simple fact is that Apple always was Steve's company, even when he wasn't there. The force that allowed Apple to survive more than a decade of bad leadership, cluelessness and constant mistakes was the legacy of Steve's

original Art. That legacy was not just an OS that was 10 years ahead of the rest of the world, but a Cause that induced a righteousness of purpose centered around a will to innovate -- to perpetuate the original artistic achievements...

Now Steve is back, and gradually renovating his old company. He'll do it his way, and it will once again express his Art.

These things I can guarantee about whatever Apple makes from this point forward:

1. It will be original.
2. It will be innovative.
3. It will be exclusive.
4. It will be expensive.
5. It's aesthetics will be impeccable.

The influence of developers, even influential developers like you, will be minimal. The influence of customers and users will be held in even higher contempt.

The influence of fellow business artisans such as Larry Ellison (and even Larry's nemesis, Bill Gates) will be significant, though secondary at best to Steve's own muse.^{x1}

I share this because I think we need at least *some* of what Steve did best, and that nearly all CEOs simply can't do at all: create markets while proving out ideas in a contained vertical space that the founding vendor alone controls. While Apple's controlling nature rubs my FOSS fur the wrong way, I cut Steve and his company some slack, because constructive creation is a Good Thing, and great artists can't help wanting to control things.

Back in the mid '00s, I was catching up with Tony Fadell on the phone. Tony at the time was VP Engineering at Apple, and involved in many successes there, starting with the iPod. (He resigned in 2008, but stayed on as a Special Advisor until 2010.) I've known Tony since the mid-90s and found him exceptionally good at providing helpful intelligence about Apple while revealing absolutely nothing about the company's secrets. On this call he said, "If you want to understand Steve, don't look at Apple, look at Pixar." His points, from bulleted notes I took at the time:

- As few products as possible
- Every product is original (nothing derivative)
- Every product is delightful, beautiful, successful and profitable
- Every product breaks new ground and moves forward both technology and art

At that time Apple Stores were still new, and few. Tony pointed out that there was nothing in the history of retailing that would encourage anybody to try starting another computer

store. The smoking ruins of similar efforts by Computerland, Radio Shack, CompUSA, Circuit City, Gateway and Sony all gave unanimously dire warnings. Meanwhile Dell and many other companies were kicking butt selling directly to individual customers or to the enterprise market. Yet Steve wanted to build out this new retail channel, and knew it would succeed. And it did.

Likewise with the iPhone.

This is where another of Steve's motivations comes in. He liked to fix product categories that are stuck or broken. That's what the Macintosh did for personal computing in 1984, with its graphical user interface and simple industrial design. It's what the iPod did for digital audio players in 2001.

Smartphones in the mid-00s were so stuck in unholy alliances between operators and OEMs that little that was promising or cool had happened there—or would ever happen, if progress were left up to just those two parties. Apple broke that logjam by making its own phone: one that embodied all the numbered and bulleted points listed above. Apple also eliminated billing complexity for mobile data, with the original unlimited \$25/month data plan with AT&T.^{xli} (Similar simplicities for phone call billing were beyond Apple's reach.) This was huge, and would never have happened without inspired work on Apple's part.

Then, in the summer of 2007, Apple opened the iTunes app store and introduced the iPhone 3G. The market for apps on smartphones exploded. This changed the handheld data device market forever, just like the Macintosh changed the PC market forever in 1984. The difference this time was that the iPhone became wildly popular, while the original Mac served mostly as a prototype.

But, even though the smartphone and app booms were huge, their dimensions were those of Apple's vertical monopoly. The whole thing was contained within Apple's silo. In order to grow, the smartphone and app markets needed to spread horizontally. That's where Google and Android came in.

Google's world

If Apple's philosophy is Think Different, Google's orthogonal corollary would be Think Same—by creating a big wide open and new market space, where lots of similar things can grow, outside of anybody's silo.

That probably flatters Google a bit too much, because they're not all-open, and have their silos too. (Plus other problems, some of which we've visited already and others of which we'll tackle later.)

See, Google is a net-head company. In a deep and abiding way, it *gets* the Net, and what the Net does for the connected world. Thus Jeff Jarvis' book, *What Would Google Do* (New York: Collins Business, 2009), might as well have been titled "What Would The Net Do." In Jeff's

words, the Net “commodifies everything.”^{xlii} Google and the Net do this to obtain *because effects*. Rather than make money *with* Android, Google wants to make money *because of* it. And they don’t mind lots of other companies making money because of it too. In fact, that’s exactly what Google wants.

So, like Apple, Google wants to fix slow, damaged or broken markets. But unlike Apple, Google wants to fix those markets by making them more free and open for everybody—and therefore much larger as well. That is, to grow markets horizontally.

Google also likes to explore and demonstrate what can be done with a new idea, new code, new hardware technologies, new apps, new forms of infrastructure, and new ways of doing business. Google is also committed to open source, and understands in its bones how open source works, which is horizontally rather than vertically. Those bones, by the way, are comprised of engineers: thousands of them, including the company’s two founders.

Open source building materials and designs are ideal for creating foundations of broad new markets. That was the idea behind Android, and that’s why Android succeeded. Thanks to Android, customers have a choice of more than one true smartphone, and countless new smart handheld devices. No one hardware OEM can control those markets anymore, and developers have a choice of platforms other than Apple’s closed one.

True, there are problems with Android for developers, just as there are problems with Apple’s iOS. The biggest one with Android is too many target devices, and too many feature differences among them. Developers had the same problem with RIM’s Blackberry and Nokia’s smartphones, which have used several different operating systems, and had radically different versions for different operators. The difference with Android is that there are still hundreds of thousands of applications working on Android devices, and more coming out all the time, in spite of the complicated terrain there.

Generativity

In *The Future of the Internet And How to Stop It*, (2008: Yale University Press), Jonathan Zittrain borrows a word from biology to label the capacity of an enabling technology or standard to encourage boundless growth, in hardware, software and usage. The word is *generativity*.

JZ (as he is known to friends) illustrates generativity with an hourglass.^{xliii} At the waist of the hourglass is the generative technology. Below the waist is all the hardware it invites, enables and runs on. Above the waist is all the software and uses the technology invites and supports. His point: generative standards (such as the Internet) and technologies (such as generic PCs and mobile device) invite, run on and support a boundless variety of other standards, technologies and uses, for both hardware and software. Rather than working only as platforms for stuff that runs on top of it, they serve as a way to connect—and to open—development above and below.

Look at the table below as seven hourglasses. Note that, for software, nearly anything runs on all seven standards (the Net) and technologies (popular computer and mobile operating systems). For hardware, the Net, Linux and Android run on any hardware, while Windows runs only on licensed hardware (though there is a lot of that) while Apple’s operating systems run only on Apple’s hardware.

Software	Anything	Anything	Anything	Anything	Anything	Anything Apple approves and sells
Generative technology or standard	Internet (TCP/IP)	Linux	Android	Microsoft Windows	Apple OS X	Apple iOS
Hardware	Anything	Anything	Anything	Any Microsoft licensed hardware	Apple hardware	Apple hardware

But there are advantages to vertical integration, and to control by one company. Apple’s products are famously beautiful, easy to use, and backed by good customer service.

Apple makes what Regis McKenna, Geoffrey Moore and other marketing gurus call a *whole product*. That is, one that provides everything both customers and third parties need. They also happen to be beautiful, easy to use, exceedingly practical, and so brilliantly marketed that they often sell in massive quantities and define their categories. This is not something any company can do. (In fact, Apple may be the only company capable of doing it, at least in the tech world—and, at this writing, it remains to be seen if the company can keep doing it without the commanding genius of Steve Jobs.)

With Android, Google does not make a whole product—and doesn’t want to. Instead it makes a partial one that device makers, mobile service companies and customers are free to complete. The idea is to expand markets horizontally—for everybody—at least as well as Apple expands its own vertically. It’s the difference between a high-rise office building and the Wild West. It’s also the difference between the Industrial and the Information Ages—and the difference between a company and a city.

Apple is trying to make an all-encompassing company. Google is trying to make an all-encompassing city that will be good for many companies. (For more on that, see “World Wide City” under “The Live Web,” above.)

At this early stage in the growth of smart mobile devices, progress in both directions has been dramatic. Apple’s iPhone continues to lead both in innovation and customer

entrapment. Android leads in opening opportunities for everybody on the World Live Web. Thus Android became the world's top-selling smartphone by the end of 2010,^{xliv} and will continue to lead until something even more live and open comes along.

Closed frontiers

Meanwhile the problem today for both Apple and Android is that mobile operators still own the frontier, and they don't like the mobile equivalent of "white box" computers. Not if those devices are going to connect to the Net over cellular phone and data systems, both of which are controlled by mobile operators—and by national laws that go back to the dawn of telephony.

My first encounter with this problem came in the summer of 2010, when I took a new Google Nexus One smartphone (intentionally a generic "white box" Android device, made for Google by HTC) to France for a few weeks, where I incorrectly assumed it would enjoy some of Bob Frankston's ambient connectivity. After all, Europe has for years been way ahead of the U.S. in mobile telephony. I figured the same would be true of mobile data.

Not so. Outside the wi-fi zone in our rented apartment, the Nexus One failed completely as a data device, through no fault of its own. My chosen provider, Orange, sold me two data plans in a row that the phone burned through in a matter of minutes. The reason was that reasonable rates were available only with two-year contracts, and by French law those were available only to those holding French bank accounts. Unreasonable rates were what you got with pre-paid plans. These rates were so high that not one of the four Orange stores I dealt with could tell me what they were. "Just don't use data," was the final advice of the last salesperson I bothered with the problem. So, after spending 75€ and a week of trouble-shooting failure, I gave up on data over mobile telephony outside the U.S. —at least until I could find a work-around.

"No problem can be solved from the same level of consciousness that created it," Einstein said^{xlv}. This is why the ITU's plans to turn the Internet into a big phone system will fail. End-to-end is simply a better way to get ambient connectivity than by endlessly improving the old phone system. But it's impossible to see that future as long as we're stuck in the framework of telephony's past. That's what we have with 3G, 4G, and all the bells and whistles of "high speed" mobile data service from phone companies.

The Net rules

Every technology, every domain of science, has what are called *boundary conditions* between levels of an operational hierarchy. Take for example a mechanical clock. You can understand the clock at a number of levels. At the bottom level the clock depends on the laws of chemistry and physics. Without good materials, you can't make the clock. Above that you have laws of mechanics. These depend on the laws of chemistry and physics but cannot be reduced to them. This is because chemistry and physics have a boundary above

which they have nothing to say. Even if you know everything about chemistry and physics, you can't explain mechanics with them. Likewise, the laws of mechanics are harnessed by the purpose of the clock; but you can't use mechanics alone to explain the clock because the clock's purpose is above the upper boundary of mechanics. If you were to disassemble the clock and lay out all its gears and other parts, you wouldn't know what to make of them unless you understood that these comprise a clock. In fact, the clock itself would make no sense unless you knew its purpose was to tell time. Thus we have this hierarchy of domains, each of which has an upper and lower boundary.

In this sense the Internet is about telling time, not about maintaining the mechanics for doing that. The mechanics of the Net are endlessly varied, and substitutable. The Internet Protocol itself simply requires that a best effort be made to find a path from one end of the Net to the other. John Gillmore famously said, "The Net interprets censorship as damage and routes around it."^{xlvi}

This is an intentional design feature of the Internet, and not just an accidental property. And this feature comes, at least in part, from study of the phone system by the Internet's founding geeks. The phone system used what's called "circuit switching," which was ideal for billing everything that could possibly be billed. The Internet uses "packet switching," which very pointedly does *not* care about billing. In fact it was invented to relieve the world of a need for billing on networks.

That's why the Internet is good for business, but not *its own* business. Business protocols—ceremonies of relationship, conversation and transaction—are supported almost perfectly by the technical protocols of packet switching and best-effort data transport. And the cost of moving bits is not high, once the capacity is installed. Since fiber-optic cabling is capable of carrying enormous sums of data traffic, while disturbing the physical environment remarkably little (especially when compared to easement and build-out requirements of electricity, gas, water, roads, waste treatment and other public utilities), business should have a great deal of interest in seeing Internet infrastructure completed everywhere. But it can't feel or express that interest if it can't understand what the Internet is, or at least settle on one metaphor that makes clear how something so huge and stupid as the core of the Earth can be good for business.

A frame for business

We frame the Internet in many ways, but the most common three are *transport*, *place* and *publishing*.

When we call the Internet a "medium" through which "content" can be "uploaded," "downloaded" and "delivered" to "consumers" through "pipes," we're thinking and talking inside the *transport* frame. We find it in the tech language as well. The Net's core protocols pair, TCP/IP, stands for Transmission Control Protocol and Internetworking Protocol, and concerns itself with "packets" in the "transport layer." The File Transport Protocol (FTP) and all the mail protocols also use transport language and framing.

When we speak of "sites" with "domains" and "locations" that we "architect," "design," "build" and "construct" for "visitors" and "traffic," we employ the language and framing of real estate, or *place*. We do the same when we speak of going "on" the Net, and when we call it a "world," a "sphere," a "space" and an "environment" and an "ecology."

When we say we "author," "edit," "put up," "post" and "syndicate" things called "pages," we employ the language and framing of *publishing*. When Dave Winer, one of blogging's inventors, improved its technology and practices with RSS — Really Simple Syndication — the Web became even more of a publishing platform.^{xlvii}

We can't help using all three frames, but the one that works best for *all* business (and not just those in transport, such as phone and cable companies) is *place*. That's because it's beginning to dawn on business that the world wide marketplace we call the Internet is indeed a place, and that we're leaving a lot of money on the table if demand and supply are not both sitting there, facing each other and dealing as equals. Personally. Anywhere. Even if the two are not in the same country, or continent.

Wide wins

Cities also grow in vertical and horizontal dimensions. Prosperous companies build skyscrapers, while less vertical or vain companies build their businesses on streets and crossroads where customers live and travel. For most of the last millennium, the biggest buildings at the centers of cities were churches or seats of government. Then, in the Industrial Age, the biggest buildings were retailing establishments and corporate headquarters, such as the Woolworth Building and Chrysler buildings in New York, and the Home Insurance Building in Chicago.

Today Chrysler no longer owns or runs the building that bears its name. The Hancock name still resides on a pair of skyscrapers in Chicago and Boston, but the company that built them has since been absorbed into the Canadian company Manulife Financial, which may be called something else by the time you read this. The Sears Tower in Chicago is now called Willis is also sure to be re-named again and again before it comes down.

Most major league sports fields and stadiums are now named after companies that pay for the privilege. Why build something when you can just buy "naming rights?" (Perhaps not coincidentally, the failure rate for buyers of naming rights for ball fields is rather high. Air Canada, CMGI, Enron, 3Com, PSInet, Adelphia and Trans World have all been hit with the "stadium curse."^{xlviii})

No doubt the most beautiful building in California will be the new one Apple builds, according to a design led by Steve Jobs and approved by the Cupertino City Council after a pitch by the Man Himself, in his last public appearance as CEO and less than two months before he died. Even more certainly, Apple will follow Steve to the grave. Unless it adapts.

This is an open question. What if companies open up, turn their silos inside out (see “APIs” in Part IV), interact productively with everybody and everything, and become more city-like in the way they work in the world? Is that adaptive enough for them to survive? Can phone and cable companies get the clues from Geoffrey West and the flood of informative activity flowing over their pipes and airwaves?

Whether or not the answer is yes, the symbiosis between vertical and horizontal economic, social and political entities will be better understood, especially after the level of signaling explodes and far more—and better—research can be done.

So, then

Nothing in the old phone and cable company captive market models begins to contemplate the Net as a generative place. But the rest of us can, and we have a good working model for it. Read on.

Bits Mean Business

Bits behave strangely. They travel almost simultaneously, and they take almost no space to store. We have to use physical metaphors to make them understandable...

The Internet was designed just to handle just bits, not emails or attachments, which are inventions of software engineers. We couldn't live without those more intuitive concepts, but they are artifices. Underneath, it's all just bits.^{xlix}

— Hal Abelson, Ken Ledeen and Harry Lewis

The Argument

Abundant data is neither a problem nor a solution. It's an opportunity.

Phone vs. Free

The Internet makes data productive, abundant, and—in many ways—priceless. Yet data has no natural scarcity and therefore costs as little as sunlight and gravity. Data also yearns toward abundance, by proliferating in ways that gravity and sunlight cannot. “The Internet is a copy machine,” Kevin Kelly says.¹ This amplifies a problem that Thomas Jefferson saw two hundred years ago, when he argued against regarding ideas as property. In a letter to Isaac MacPherson in 1813, Jefferson wrote,

He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me.

That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density in any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation. Inventions then cannot, in nature, be a subject of property.

Data has the same combustive and light-giving power as ideas. A seminal effect of this is summed well by Lawrence Lessig in *Code and Other Laws of Cyberspace* (Basic Books, 1999):

Born in a research project in the Defense Department, cyberspace too arose from the unplanned displacement of a certain architecture of control. The tolled, single-purpose network of telephones was displaced by the untolled and multipurpose network of packet-switched data. And thus the old one-to-

many architectures of publishing (television, radio, newspapers, books) were complemented by a world in which anyone could become a publisher. People could communicate and associate in ways that they had never done before. The space seemed to promise a kind of society that real space would never allow—freedom without anarchy, control without government, consensus without power. In the words of a manifesto that defined this ideal: "We reject: kings, presidents and voting. We believe in: rough consensus and running code."^{li}

The words Lessig quoted were spoken^{liii} in 1992 by David Clark, one of the three authors of *End to End Arguments in System Design*, and a leading figure in the Internet Engineering Task Force (IETF), which has produced many of the Internet's defining protocols.

Some other Internet protocols, however—notably those used for data transmission by phone and cable companies—are not defined by the IETF. Nor do they express the ethos of "rough consensus and running code." If your Net connection is ADSL (usually abbreviated as just DSL) or fiber from a phone company, it's using protocols defined by the International Telecommunications Union, or ITU, which was formed as the International Telegraph Union in 1865.^{liiii} If your connection to the Net is over a cable TV system, the standards employed are DOCSIS^{liv}, which is an ITU standard maintained by CableLabs, a cable TV industry association^{lv}.

For the last hundred years or more, the ITU has been mostly a phone company institution, and it remains so. Thus its interest in supporting new economies is compromised by its interest in sustaining old ones—and also by the interests of governments that are involved in the process. Government interests include imposition of tariffs and taxes, protection of domestic industries, politically- or security-motivated censorship and worse. In other words, the ITU cares very little about the Net's economic leverage beyond what it does for what in the trade they call "operators": phone and cable companies. In a speech at the Techonomy conference in August 2010^{lvi}, Reinhard Scholl of the ITU spoke glowingly about the future of broadband, and did not once utter the word "Internet." Instead he talked up "broadband," an old telco term that puts a gloss over the operators' plans for shaping the Internet to fit their business models and growth plans.

For an example of how constipated the Internet can become when its connections are managed by phone companies, look at mobile phone data services, most of which today are branded 3G or 4G. Those are the ITU standards for 3rd and 4th Generation Mobile.^{lvii} 3G and 4G are how iPads and smartphones connect to the Internet over cell phone systems. At this writing, most of what's deployed is still 3G, but the problems are the same: 3G plans from phone companies have national boundaries. You can usually use your 3G devices in another country, but you also risk bills of many hundreds or thousands of dollars (or pounds, or Euros) for "roaming"—even if you're connecting through the same mobile phone company (say, Orange, Vodafone or T-Mobile). To the ITU and the mobile phone company operators, roaming charges are a feature, not a bug. National boundaries are excuses for tariffs that bring bonus charges to phone companies and cash to governments. They also flourish in a

fog of complicated offerings and policies that Scott Adams, who draws the Dilbert comic strip, calls a “confusopoly”:

A confusopoly is any group of companies in a particular industry that intentionally confuses customers about their pricing plans and products. Confusopolies do this so customers don't know which one of them is offering the best value. That way every company gets a fair share of the confused customers and the industry doesn't need to compete on price. The classic examples of confusopolies are phone companies, insurance companies, and banks.^{lviii}

Ryan Singel of *Wired* summarizes this problem in “Wireless Oligopoly Is Smother of Invention”^{lix}:

Imagine if the wireless carriers controlled your wired broadband connection or your television set. You'd have to buy your television from your cable company, with a two-year contract, and when that ended, you'd have to ask them to unlock it so you could take it to another provider.

If the wireless company ran your ISP, you'd have to use a computer they approved, and if you wanted to use a different one, you'd pay more. Want Wi-Fi in your house? That'll be an extra \$30 a month and \$150 to buy an approved but functionally limited Wi-Fi device.

So, on the net-head hand, we have open protocols and open software creating open infrastructure that supports boundless opportunities for every economic, social, governmental or you-name-it entity. On the bell-head hand we have phone companies selling you packaged and metered “data services” that work almost exclusively to the economic benefit of those companies and their partners in government and the “content” business. Which hand will win?

In the long run, both; but only when the carriers and their technologies subordinate their legacy businesses to the Internet and its imperatives, which support limitless business opportunities for which the carriers will enjoy first-mover, real estate and geographical proximity advantages.

Pre-thinking the impossible

One of the first to see these opportunities was Reese Jones. In the late 1980s Jones was a graduate student doing brain research at UC-Berkeley, and a co-founder of the local Macintosh Users Group. It was in that second capacity that Jones saw an opportunity: running a computer network over ordinary phone wires. At the time Apple used a robust protocol it named AppleTalk, which would allowed connecting any number of computers together using Apple's proprietary wiring. Jones saw that Apple's wiring was basically nothing more than what's called “twisted pair.” More importantly, Jones saw abundant

twisted pairs in existing phone wiring in most homes and businesses. That's because most phones and phone systems only used two wires rather than four. The "dry pair" could therefore be used to connect computers. All they needed was a little dongle to bridge between the connector in the back of a computer and a standard RJ-11 phone plug. Jones invented that dongle, called it a PhoneNet connector, and started a company called Farallon Computing to sell it, plus other networking gear.

PhoneNet connectors allowed users to string together reliable do-it-yourself networks of nearly any size. As a plug-and-play system, PhoneNET relieved customers of the need to buy expensive proprietary Apple wiring. PhoneNet also helped Apple succeed in spite of itself. (This was during the Steve Jobs interregnum, when Apple was clueless compared to the company Jobs rebuilt after returning in 1998.) PhoneNet also brought telephony and computing together in a casual way for the first time. This was intentional. Jones actually liked telephony, which he saw as a business that had worked out many problems already, chief among which was support for the most basic of human needs: to talk with one another.

As it happened, the late 1980s was filled with computer industry buzz around "groupware" and "workgroup computing"—much as there is today around "the cloud" and "social computing." Jones didn't buy it. "People don't compute in groups for the same reason they don't talk at once in groups," he said. "What they do is converse. Two at a time. See, at any one time the human brain can only pay full attention to what one other person says. Even when one person speaks to a large group, the relationship is still one-to-one, speaker to listener. Conversation is the bottom line. If computing isn't about conversation, it won't go anywhere."^x

So, even though Farallon was a PC business, Jones said his long-term ambition was to make "software for telephones." He saw telephones as more proven and personal than PCs, and ideal platforms for a boundless variety of applications, all of which would thrive on smart devices optimized for conversations between individuals but hardly limited to that alone.

It took another twenty years, but we have those now with smartphones. Nokia delivered the first of these, around the turn of the millennium, but Nokia was crippled by its partnerships with mobile phone companies. I remember comparing my Nokia E62 smartphone with a friend's E61 over beers in Brussels in the Spring of 2007. Her E61 had a Wi-Fi connection. My E62 did not. When I asked the folks who loaned me the phone (one of the benefits of being a journalist for a tech magazine is getting these kinds of things) why the E62 lacked E61 features, they explained that the American carriers (mine was AT&T) didn't want those features.

I wasn't surprised. A few years earlier I attended a meeting hosted by Nokia. After listening to innovators from a dozen companies—ranging from start-ups to giants—explain the amazing new things they were doing, and how these things might work on phones and other hand-helds, one of Nokia's top engineers explained that the phone industry differed from the computer industry in this fundamental way: OEMs (the name for gear makers like Nokia) knew their road maps, going years out into the future, and so did the operators, who

were “partners” in those plans. Listening to this guy talk I felt like the year was 1450 and I was sitting in on a briefing for plans cooked up between the Medici bank and the Vatican.

He then explained that he already knew what would be going into the company’s phones, feature by feature, years in advance. Also that he could hardly imagine adding the kinds of things we were talking about. The clear message: nobody was going to tell Nokia what to do. Except, of course, the operators. That’s why, if AT&T didn’t want Wi-Fi on a Nokia E62, it wasn’t going to be there.

So, then

Now that old railroad has been blown to the sky and scattered to the winds. Its replacement is (literally) a bazaar (as well as bizarre) new world. It’s also one that could hardly be more personal: nearly all of us carry it in our pockets. The Intention Economy will depend on it, because it will be our primary means for expressing intention in the world. It therefore helps to explain what blew up the old world and what’s making the new one. They may not be exactly what we think.

The Comity of the Commons

*The Web changes everything (Everything = Everything.)
Embrace it. Totally. Or else.^{lxi}*
—Tom Peters

The argument

The Internet is a commons. This is good for business.

Markets are everything

If the Internet is a place, what kind of place is it? Remember: 1) all metaphors are wrong; and 2) we have to use them, because we understand everything metaphorically. So let's be clear with ourselves that the Internet is not *really* a place. (Nor is it a printing press, plumbing, a theater, a shipping system or any other frame we use to think and talk about the Net.) But if we choose to prefer place to other metaphors, what kind of real-world *place* would we prefer?

How about a market?

Well, most of what we call markets aren't places either. We use the term "market" when we mean categories ("the home improvement market"), demographics ("the upscale market"), regions ("the New York market") appetites ("the market for candy") or a virtual place for selling ("these jewels are on the market") or for buying ("we're in the market for a car"). We also say "the market" or "the marketplace" when we mean the whole of business—especially when posed apart from government. The phrase "neither the state nor the market" appears in hundreds of books.^{lxii}

In respect to the Internet as a place, the term "commons" has come into popular use. Search for "commons" on Google and the top results will be for Creative Commons, Wikipedia articles and Wikimedia Commons, a repository for media files that are either in the public domain or available with usage-friendly Creative Commons licenses. But not all things called *commons* are free and open. Also among the top results in a search for *commons* is eRA Commons, with the address *commons.era.nih.gov*, at the National Institute of Health. At the bottom of that page it says,

WARNING

You are accessing a U.S. Government web site which may contain information that must be protected under the U.S. Privacy Act or other sensitive information and is intended for Government-authorized use only.

Unauthorized attempts to upload information, change information, or use of this web site may result in ...

Why would something called a “commons” have such a stunted proviso? The short answer is, *because all commons are stunted*. The idea that the commons is a purely open common pool resource is wrong—one might even say, tragically.

A tragic dilemma

For most of us, the noun “commons” tends to arrive with the adjective “tragic.” For that we can thank Garrett Hardin’s “The Tragedy of the Commons,”^{lxiii} a 1968 essay in *Science* on the subject of population growth. Hardin’s main argument was against “the tendency to assume that decisions reached individually will, in fact, be the best decisions for an entire society”—an assumption that derives, of course, from Adam Smith’s “Invisible Hand.” Here is Hardin’s case, slightly abridged:

The tragedy of the commons develops in this way. Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land. Finally, however, comes the day of reckoning, that is, the day when the long-desired goal of social stability becomes a reality. At this point, the inherent logic of the commons remorselessly generates tragedy...

Each man is locked into a system that compels him to increase his herd without limit — in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.^{lxiv}

Commons properties

Lewis Hyde challenges Hardin’s assumption that common pool resources and a commons are the same thing.^{lxv} In *Common as Air* (2010), he makes a thoroughly argued case against Hardin’s tragedy-prone commons and for something much more complex, subtle and—I believe—important to understand if we are to make the most of the Internet.

“I take a commons to be a kind of property,” Hyde writes, “and I take ‘property’ to be, by one old dictionary definition, *a right of action*,” noting “that ownership rarely consists of the entire set of possible actions.” For example, “If I own a house in an American city, I have many rights of action ... but not all... I cannot put a herd of cows in my yard; I cannot convert my home into a soap factory...”^{lxvi} He continues, “... my point is that the idea of

property as a right of action suggests... that a commons is a kind of property in which more than one person has rights.”

He goes on to unpack what nearly all of us (Hardin included) never learned, or forgot, or ignored, about what a commons was, and—more importantly for our purposes—how it served both commerce and culture:

Traditional English commons were lands held collectively by the residents of a parish or village: the fields, pastures, streams and woods that a number of people... had the right to use in ways organized and regulated by custom. Those who held a common right of *pasturage* could graze their cattle in the fields; those with a common right of *piscary* might fish the streams; those with a common of *turbary* might cut turf to burn for heat; those with a common of *estovers*^{lxvii} might take wood necessary to heat, furnish or repair their houses. Everyone, the poor especially, had the right to glean after harvest.^{lxviii}

Thus, “The commons are not simply the land but the land plus the rights, customs, and institutions that preserve its communal uses.”^{lxix} A true commons is a stinted thing; what Hardin described is not a commons at all but what is nowadays called an unmanaged common-pool resource.”^{lxx}

Notably, markets too were stinted. For example, there might be only one “market day” per week, and that might be further limited to just one afternoon.

Those who shared the commons also enforced their own rules:

In general no one could erect barriers to customary common rights, not the lord of the manor, not even the king. In fact, if encroachments appeared, commoners had a right to throw them down. Once a year, commoners would “beat the bound,” meaning they would perambulate the public ways and common lands armed with axes, mattocks, and crowbars to demolish any hedge, fence, ditch, stile, gate or building that had been erected without permission.^{lxxi}

These types of commons, which had retained their essential qualities since Saxon times, came to a tragic end, destroyed by “enclosure” and similar takings by government and commercial interests. To sum it up, the commons lost when industry won the Industrial Revolution.

Yet the sense of what a commons is, and what it is for, survives in culture,^{lxxii} and helps make sense of a common pool resource that is not by nature limited in the manner of Hardin’s, yet might still be made tragic by those who would enclose it with contrived finitudes (say, “minutes” or “channels”) for their own parochial purposes. This is the risk of subordinating the Internet to telephony and cable television, both of which the Internet transcends and subsumes by design—yet both of which funnel Internet access and contain

use within legacy telephone and cable company facilities, provisioning and business models.

So, how can we respect these manorial companies' need to innovate and cause market growth as only they can, while still protecting the World Wide Commons we mostly access by their grace, and which to some degree they already consider at least partially enclosed for their own purposes? And how might we guide government policy away from encouraging or granting additional rights of enclosure to the same companies?

Lewis Hyde answers,

The commons... needs some kind of built-in border patrol or annual perambulation, a defense against the undue conversion of use rights into rents or the fencing of open fields into sheep pastures. Almost by definition, the commons needs to stint the market, for if the "free market" is free to convert everything it meets into an exchangeable good, no commons will survive.^{lxxiii}

This is not the kind of talk that tends to warm a capitalist heart. But let's ponder our own enclosed markets—our captive customers, our loyalty-card-carrying calves that also suckle our websites' cows. What will happen when they come to possess tools that make them fully independent in the marketplace? What will happen when they cease to be veal, and start beating the bounds of the Web or the Net or the marketplace as a whole—especially when those three things come to coexist and co-depend to the degree that they become indistinguishable?

Here's how Lewis Hyde described the current situation in an interview, not long after *Common as Air* came out:

The rules are not clear. Then we get these polar camps: amateur anarchists on the one side, who happily believe we need no rules, and old guard "intellectual property" purists madly trying to enforce and sharpen the rules that worked so well back in 1965. What Creative Commons and others are doing is trying to enlarge the middle ground.^{lxxiv}

The amateur anarchists and intellectual property maximalists will still fight, but customers and vendors are the ones in position to civilize the middle ground. We call that ground, that commons, the marketplace. Both sides will stint it to serve their own common(s) interests, because they will know from growing experience how working together will be good for business, and for the culture that surrounds it.

So, then

Connected and well-equipped customers will finish enlarging the Net's ground until it is both a commons and a marketplace, under the feet of us all. The choice for business is to

shake hands with customers and work together, or to continue heating up the branding irons.

ⁱ David Weinberger, *Small Pieces, Loosely Joined: a unified theory of the Web*. (New York: Perseus Books, 2002), 24.

ⁱⁱ In the *Blade Runner FAQ*, Murray F. Chapman lists thirty product placements. Chapman's research, spanning several years in the early 1990s, is extensive. <http://www.faqs.org/faqs/movies/bladerunner-faq/> (Accessed February 8, 2011)

ⁱⁱⁱ I might be wrong on one or more of those, and I might have missed some other locations. In any case my point is the same: the Net works by reducing the apparent distance of everything on it to zero—and the cost as well.

^{iv} <http://en.wikipedia.org/wiki/VisiCalc>

^v Bob Frankston, "Understanding Ambient Connectivity"

<http://www.frankston.com/public/?name=AmbientConnectivity> (Accessed February 8, 2011)

^{vi} Google search for "the Internet is", [http://www.google.com/search?hl=en&q="the+Internet+is"](http://www.google.com/search?hl=en&q=) (Accessed December 6, 2010)

^{vii} <http://web.mit.edu/Saltzer/www/publications/endtoend/endtoend.pdf>

^{viii} David Isenberg, "The Rise of the Stupid Network" <http://isen.com/stupid.html> (Accessed 23 September 2010)

^{ix} My favorite sources for more wisdom on this are George Lakoff and Mark Johnson. A good place to start is with *Philosophy in the Flesh: the Embodied Mind and Its Challenge to Western Thought*. (New York: Basic, 1999.) Other recommendations are in the bibliography.

^x In *Small Pieces*, David also writes, "I purposefully conflate the Internet with the Web throughout the book." His point here therefore applies to the Net, and not just to the Web.

^{xi} *Small Pieces*, loc. cit., 9.

^{xii} Doc Searls, "Uncollapsing Open Source Distinctions: A Conversation with Craig Burton" *Linux Journal*, August 2000. <http://www.linuxjournal.com/article/4158> (Accessed May 22, 2011.)

^{xiii} Google search for RSS <http://www.google.com/search?q=rss> (Accessed October 5, 2011) A search in February 2011 yielded six billion results, and searches in months previous to that grew from three to four billion results.

^{xiv} Need to source this.

^{xv} Wikipedia entries such as this one (on the Internet Protocol Suite) change almost constantly. This link that follows goes to the latest revision as of February 14, 2011.

http://en.wikipedia.org/w/index.php?title=Internet_Protocol_Suite&oldid=413851023

^{xvi} Patent 4,063,220. Listed inventors are Robert M. Metcalfe, David R. Boggs, Charles P. Thacker and Butler W. Lampson. The assignee is Xerox Corporation, which worked with Digital Equipment Corporation and Intel on the standard, and the successful strategy for ubiquitousizing it.

^{xvii} "Geoffrey West: The surprising math of cities and corporations." A speech at *TED*. July, 2011.

http://www.ted.com/talks/geoffrey_west_the_surprising_math_of_cities_and_corporations.html (Accessed October 25, 2011.)

^{xviii} *Ibid*.

^{xix} "agency noun" *Oxford Dictionary of English*. Edited by Angus Stevenson. Oxford University Press, 2010. *Oxford Reference Online*. Oxford University Press. Harvard University Library.

<http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t140.e0013280> (Accessed June 11, 2011.)

^{xx} "agency noun" *Oxford Dictionary of English*. Edited by Angus Stevenson. Oxford University Press, 2010. *Oxford Reference Online*. Oxford University Press. Harvard University Library.

<http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t140.e0013280> (Accessed June 11, 2011.)

^{xxi} *Ibid*.

^{xxii} Disclosure: for a few months a couple years back, Acxiom was a consulting client of The Searls Group. Tim Christin, who brought me in, thought Acxiom was in a good position to be a fourth party: an agency for individuals. But it's hard for a company to change its species, and that's what we were asking Acxiom to do.

Eventually Tim moved on and so did I. Still, to Tim and Acxiom's credit, the company did invest early in Kynetx, an early developer of tools ideal for VRM.

xxiii Abraham H. Maslow, "A Theory of Human Motivation." (1943) *Psychological Review*, 50, 370-95.

xxiv Ibid.

xxv *The Cluetrain Manifesto*, New York: Basic Books, 2000, p. 87.

xxvi Linus Torvalds and David Diamond. *Just for Fun: the Story of an Accidental Revolutionary*. (New York: HarperBusiness, 2001).

xxvii Netcraft. <http://necraft.com> (Accessed February 21, 2011)

xxviii Yochai Benkler, "Coase's Penguin, or, Linux and The Nature of the Firm." (New Haven: *The Yale Law Journal*, vol. 112: 2002.)

xxix Some of Linux's top kernel hackers, called maintainers, worked at IBM at the time, and still do.

xxx Doc Searls, "Is Linux Now a Slave to Corporate Masters?" *Linux Journal*, April 30, 2008

xxxi Brian Proffitt, "Morton Gets Googled" *Linux Today*, August 3, 2006.

<http://www.linuxtoday.com/developer/2006080303126NWCYKN> (Accessed February 12, 2011)

xxxii Eric S. Raymond, "Goodbye, 'free software'; hello, 'open source'" <http://www.catb.org/~esr/open-source.html> (Accessed February 11, 2011)

xxxiii Credit where due: The term "open source" was first used in its current context by Bruce Perens, in the Debian Free Software Guidelines, which evolved into the Open Source Definition. The Definition still anchors used the Open Source Initiative, which was co-founded by Bruce and Eric Raymond and remains the canonical institution of the open source movement.

xxxiv Personal correspondence.

xxxv Richard Stallman, "GNU Operating System." <http://www.gnu.org/gnu/manifesto.html> (Accessed February 14, 2011)

xxxvi Jeff Jarvis, *What Would Google Do?* (New York: HarperBusiness, 2009), 270.

xxxvii In telco parlance, OEMs are equipment makers such as Nokia, Motorola and Samsung, while operators are phone companies such as AT&T, Verizon and T-Mobile.

xxxviii That was the idea, anyway. Within the practical realities of the telco business, only Google writes Android code, and in its licensing deals Google isn't much different than Microsoft has been from the start with Windows. But let's remember that it was this kind of dealing that also made Windows a *de facto* dominant horizontal platform for two decades.

xxxix Google did buy Motorola in 2011, but the reason was clearly to acquire the patent portfolio and keep the company afloat, rather than to get into competition with other Android OEMs.

xl "Doc Searls on Steve Jobs." *DaveNet*, September 4, 1997.

<http://scripting.com/davenet/stories/DocSearlsonSteveJobs.html> (Accessed May 11, 2011.)

xli Yes, it has changed since then. But, contrary to the usual reports, there are not "caps" on data. Just flat charges for each additional gigabyte used.

xlii Ibid., 79-80.

xliii Jonathan Zittrain: *The Future of the Internet and How to Stop It*. (New York: Yale University Press, 2009), 68, 70.

xliiv "Google's Android becomes the world's leading smart phone." Canalys, January 31, 2011.

<http://www.canalys.com/pr/2011/r2011013.html> (Accessed February 12, 2011)

xlv Brainy Quote <http://www.brainyquote.com/quotes/quotes/a/alberteins130982.html> (Accessed February 12, 2011)

xlvi From John Gillmore's website (<http://toad.com/gnu>): "This was quoted in Time Magazine's December 6, 1993 article 'First Nation in Cyberspace', by Philip Elmer-DeWitt. It's been reprinted hundreds or thousands of times since then, including the NY Times on January 15, 1996, Scientific American of October 2000, and CACM 39(7):13."

xlvii Doc Searls, "Framing the Net." *Publius*, February 4, 2009. <http://publius.cc/2008/05/16/doc-searls-framing-the-net> (Accessed May 22, 2011)

xlviii CNBC, "The Stadium Curse: Naming Deals Gone Bust." *CNBC.com*. Undated.

http://www.cnbc.com/id/34960125/The_Stadium_Curse_Naming_Deals_Gone_Bust (Accessed November 6, 2011.)

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- ^{xlix} Hal Abelson, Ken Ledeen and Harry Lewis, *Blown to Bits: Your Life, Liberty and Happiness after the Digital Explosion*. (Boston: Addison Wesley, 2008), 4-5.
- ^l Kevin Kelly, "Better than Free" *The Technium* http://www.kk.org/thetechnium/archives/2008/01/better_than_fre.php (Accessed September 12, 2010)
- ^{li} Lawrence Lessig, *Code and other laws of cyberspace*, (New York: Basic Books, 1999), 4.
- ^{lii} "A Cloudy Crystal Ball -- Visions of the Future" (PDF). 1992-07-16. Retrieved 2008-06-04. (Presentation given at the 24th Internet Engineering Task Force.)
- ^{liii} ITU History Portal. <http://www.itu.int/en/history/> (Accessed February 14, 2011)
- ^{liv} DOCSIS® <http://www.cablelabs.com/cablemodem> (Accessed February 14, 2011)
- ^{lv} About CableLabs <http://www.cablelabs.com/about/mission/> (Accessed February 14, 2011)
- ^{lvi} <http://teconomy.com/program-outline/>
- ^{lvii} <http://www.itu.int/3g>
- ^{lviii} Scott Adams, "Making Money Scheme," *The Scott Adams Blog*, April 6, 2011. http://dilbert.com/blog/entry/money_making_scheme/
- ^{lix} Ryan Singel, "Wireless Oligopoly is the Smother of Invention" *Wired*, <http://www.wired.com/epicenter/2010/06/wireless-oligopoly-is-smother-of-invention/#ixzz0vVTWU3nu> (Accessed 3 July 2010)
- ^{lx} In fact, "Markets are conversations," the alpha thesis of *The Cluetrain Manifesto*, was inspired by this writer's conversations with Reese Jones.
- ^{lxi} Tom Peters, *Re-Imagine!* (New York: Dorling Kindersley Limited, 2003), 59.
- ^{lxii} Advanced Google Books search for "neither the state nor the market." <http://www.google.com/search?tbo=p&tbm=bks&q=%22neither+the+state+nor+the+market%22&num=10> (Accessed June 29, 2011.)
- ^{lxiii} Garrett Hardin, "The Tragedy of the Commons," *Science*, 162 (1968):1243-1248.
- ^{lxiv} *Ibid.*
- ^{lxv} Hyde notes, "Garret Hardin has indicated that his original essay should have been titled 'The Tragedy of the Unmanaged commons,' though better still might be 'The Tragedy of Unmanaged, Laissez-Faire, Common-Pool Resources with Easy Access for Noncommunicating, Self-Interested Individuals.'" (*Common as Air*, 44.)
- ^{lxvi} *Hyde*, loc. cit. 24-25.
- ^{lxvii} *Estovers*, Hyde says, "comes from the French *estovoir*, 'to be necessary'; a common of estovers is actually a right of subsistence." Sourcing a line using *estovers* in the Magna Carta, he adds, "Rights in common assured a baseline of provision: they were the social security of the premodern world, the 'patromony of the poor,' a stay against terror."
- ^{lxviii} *Ibid.*, 28.
- ^{lxix} *Ibid.*, 31.
- ^{lxx} *Ibid.*, 34-35.
- ^{lxxi} *Ibid.*, 37
- ^{lxxii} In *Commoners: Common Right, Enclosure and Social Change in England, 1700-1820* (Cambridge: Cambridge University Press, 1993), J. M. Neeson contends that a cultural memory of the commons persists in "a lasting connection between population and land." (p. 306)
- ^{lxxiii} *Ibid.*, 43-44.
- ^{lxxiv} Mike Linksvayer, "Lewis Hyde, author of *Common as Air: Revolution, Art, and Ownership*," *Creative Commons*, August 27, 2010. <https://creativecommons.org/weblog/entry/23204> (Accessed May 26, 2011.)