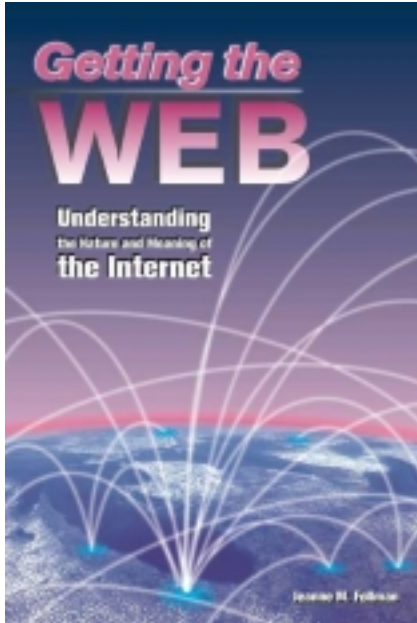
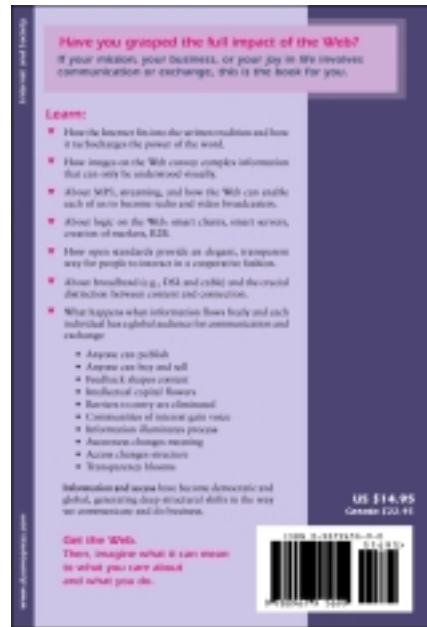


Read Me and Pass Me On
chapter excerpt & annotated Table of Contents

Getting the Web: Understanding the Nature and Meaning of the Internet



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Getting the Web will be generally available in bookstores by September 2001. After mid-March, you can purchase the softcover book directly from Duomo Press at <http://www.duomopress.com> or order it through your favorite online retailers and traditional bookstores.

an eTaste of
Getting the Web

Understanding the
Nature and Meaning
of the Internet

Jeanne M. Follman

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Individuals in Conversation

IN THE EARLY months of the new millennium, Cisco Systems, Inc., the maker of much of the equipment that runs the Internet, ran a series of TV commercials. In each, we saw a succession of people from all over the planet, of varying races, genders, and ages, often in native garb and habitat, looking at the camera and asking, “Are you ready?”

These commercials capture two crucial elements of the Internet. The first, obviously, is its global reach. The second, not so obviously, is the importance of – and the challenge to – the individual. The lad by the garden, the girl in the forest, the elderly Asian man, the woman in the marketplace, as well as you and I, all will determine how the Internet evolves and consequently how it effects us.

Communication and Exchange

The Internet empowers the individual like no other technology before it because the Internet bestows on us a planet-wide audience for communication and exchange. This is what Christopher Locke says about communication and exchange in *The Cluetrain Manifesto* (www.cluetrain.com):

A few thousand years ago there was a marketplace.
Never mind where. Traders returned from far seas with

spices, silks, and precious, magical stones. Caravans arrived across burning deserts bringing dates and figs, snakes, parrots, monkeys, strange music, stranger tales. The marketplace was the heart of the city, the kernel, the hub, the omphalos. Like past and future, it stood at the crossroads. People woke early and went there for coffee and vegetables, eggs and wine, for pots and carpets, rings and necklaces, for toys and sweets, for love, for rope, for soap, for wagons and carts, for bleating goats and evil-tempered camels. They went there to look and listen and to marvel, to buy and be amused. But mostly they went to meet each other. And to talk. . . . Markets are conversations. Trade routes pave the storylines. Across the millennia in between, the human voice is the music we have always listened for, and still best understand.

If your interests, your business, or your mission in life lay within the realm of communication or exchange, the Internet is the tool for you. The human voice may only show up as a squiggle of words on a computer monitor, but it is the human voice nonetheless and represents at least some portion of a human presence. We pass files back and forth between our computers in order to engage in a conversation. It is the conversation that counts, not the technology; the technology just lets it happen. Creating a telephone company for our computers has a significant impact on the way we live precisely because we spend so much of our time communicating and exchanging. On the Internet, the vast complexity and storage capacity of computers fuses with the reach of the telephone network, dramatically enriching our conversations. This gives each of us the power not just to contact anyone on the planet – we can do that now, one person at a time, simply by making a telephone call. The Internet gives us a much grander

platform for conversation. It gives us a platform for conversation that can hold a huge and complex repository of words, pictures, sound, motion, and logic, that anyone can explore and respond to, at any time they want, in any way they want. And the effects of these enriched conversations and the possibilities that they open up will endure long after the conversations end.

The Power of Publishing

One way to start a conversation is to publish. The power to publish is essentially the power to communicate – a power that writing bestows – with a mass audience. In the past, the power to publish was held only by governments and corporations. Now, any individual or organization can create a work and gain direct access to a vast audience with whom it can communicate.

To each individual and organization on the planet, the Web gives the power to:

- ❑ Publish and read complex repositories of thought and to enter into a dialog on that thought.
- ❑ Publish and view visual representations of knowledge, image and art.
- ❑ Broadcast or receive music, radio and video from anywhere at any time.

On the Web, people are continuously offering hundreds of thousands of works to the public that might not otherwise have seen the light of day. Many of these works are peculiar, to say the least, but many others are quite wonderful and add to our deposit of cultural, intellectual and spiritual wealth. As Robert Reid says in *Architects of the Web*, the Internet was always about “the exchange of ideas – of all ideas without constraints imposed by popularity or production value thresholds. And since the shelf was infinite, there was no harm in piling it high with the outpourings of anybody who felt like they had something to outpour.

If only two or three people found enough value in a particular site to pluck its pages from the shelf, they at least would be enriched for it, its author would get an audience, and some idea or creation that would not otherwise have had one would gain a voice.” (New York: John Wiley and Sons, 1997).

The Power To Exchange

The Internet also gives each individual the power to transact business – another power that writing bestows – with a global marketplace. One of the uses of conversation is making a buck and there are plenty to be made having conversations on the Internet. In the past, exchanges were limited by geography, lack of information, and the cost of promotion to distant customers. Now, with fees for online retailing plummeting, any individual or organization can create a product or a service and gain direct access to at least some portion of the worldwide marketplace. The maker of woolen blankets in the west of Ireland, the blacksmiths of Nepal, the small press in Chicago, all have the power to create and utilize direct Web relationships with a world market. This obviously benefits sellers but also benefits buyers as they can easily find as well as transact directly with the source of the objects they desire. And the Web gives the power not only to participate in markets, but to create them – a lucrative business as the founders of such auction sites as eBay have found out.

The Creator’s Tool of Choice

The Internet is still in its infancy. The more each individual is able to grasp its possibilities for communication and exchange and participate not only as a surfer but as a creator, the more we can all realize the full potential of the Web as well as our own. And fortunately, it’s not that hard. It all comes down to using files of words, pictures, sound, motion, and logic to create a conversation. We all have the chance to make our voices heard in a

fresh and uncensored manner and to hear the voices of those who choose to respond.

If all you want to do is surf the Web, you can use your computer, your cell phone, a palm-held device, or any other appliance that may come on the scene. But if you want to be on the Web as a creator, the computer will always be the tool of choice. The computer offers a tool of almost unlimited storage and complexity so that we may digitize words, pictures, sound, motion, and logic to our hearts content and offer our creations to the world via the Web.

Using Files for Communication and Exchange

If you could see every possible activity on the Web in terms of people creating conversations by moving files back and forth between their computers, it might be easier to figure out how to get some files out there yourself. Sometimes the communication and exchange is purely digital and the entire experience can be completed on the Web (e.g., surfing, emailing, downloading music or software). Other times the Web mediates a communication or exchange on a product or service that exists outside the digital world (e.g., buying concert tickets, blue jeans or a book online; participating in an online auction; checking the exhibits and times of a museum). Either way, you use the Internet to conduct a conversation with another individual so you can communicate, buy, or sell.

Files of words and pictures form the heart of what we know as the Web. Almost any document that exists on a computer can be turned into an HTML file (or a PDF file to maintain specific formatting) and served to the world. Today we also have Web radio broadcasts, MP3 downloads, streaming video and Internet telephony. How can you use files of words, pictures, sound and motion to start your conversations?

You can use files of logic (smart servers and clients) for online

retailing, business-to-business e-commerce, and even the creation of markets. Various auction sites like eBay are examples of people using software and the Web to create markets. If you go to eBay as a buyer or a seller, you know that other people will also be there, with goods to buy and sell. eBay makes its money, like marketplaces of old, by providing a place for people to meet and by taking a little off the top of each sale transacted. New markets are springing up daily, especially in the business-to-business arena, with suppliers setting up sites for the industries they serve. Unlike the marketplaces of old, markets on the Internet are independent of geography and even independent of time since they can function around the clock.

Technically, it's all quite complex and sophisticated. Conceptually it's a simple matter of moving files back and forth between servers and clients to engage people in communication and exchange.

The joy of the Web is that storage is almost infinite and information only has to be served once for everyone to get it. And there is little if any marginal cost since ten thousand visits to a Web site cost about the same as one. The Web offers unique opportunities to those who are clever enough to figure out how to leverage its particular ability to connect hard disks all over the planet. The young college student who invented Napster.com did exactly that. Napster is a site that allows people to trade MP3 files directly with one another. You have an MP3 file on your hard disk; I have one on mine. Via Napster, we can find out about each other's files and effect a possibly illegal trade. The point is, the guy who invented Napster figured out a way to exploit the fact that all the hard disks on the Internet are connected. As a result, music is flying between people all over the Web, he's the object of a high-profile copyright suit, and intellectual property law will never be the same.

On the Web, information is freed from paper and trade routes

become digital. If you think that this will generate a deeply structural change in the way we communicate and do business, you're right. And if you think that you are going to have to crank up your imagination to really make use of the opportunities the Web has to offer, you're right again. But all such talk is just a grand pile of flapdoodle until that special moment when you get the tickle of the epiphany that it really could mean something to you and what you care about and what you do.

Visualizing Discourse

The Web is a key venue for conversations enabling communication and exchange, but not the only one. The non-Web components of the Internet, including email, instant messaging, discussion lists and news groups, are other crucial vehicles for discourse. The Internet makes it easy to debate. Even a mechanism as simple as email can be a powerful force for dialog. And instant messaging software has created a quick and easy way to literally have conversations online. If you download the software and fill up your "buddy" list with the logons of the people with whom you want to talk, you can send and receive messages almost instantly. While much of the instant messaging I've seen is dedicated to gossip and the arrangement of social events, it could be used for almost anything. For example, one of our local teachers tells her students that she will be online at a certain time on certain evenings; if they need help they can ask her questions and she will tutor them online.

Like email and instant messaging, discussion lists and newsgroups enable conversation, allowing people with common interests to question, answer, examine, diagnose, debate, resolve, praise, excoriate, and rant to their heart's content. And this opportunity to carry on is typically open to anybody. You can post your opinion almost anywhere you'd like. Your interest is what drives your contribution and your content is your credential. As

a result of this huge amount of free-flowing information, people can reach consensus much faster, and usually with a better result, than they otherwise would have.

Internet Time

“Internet time is measured in months, not years!” the hype often goes. There is actually something to it, however, for the very reason that the increased flow of information allows people to get to conclusions and consequent action much faster. The Internet’s zero marginal cost and near-instantaneous speed allow people to work through complex issues in a short time, making the trip from information to conclusion significantly quicker. Here’s one small example. One night when I was online, I got an email from a visitor to our Web site *Building a School Web Site* (www.wigglebits.com). It was from Klaus in Australia; he had a question about where to download a graphics program. I gave him a location, and as he was still online, he took a look but couldn’t find what he wanted so he wrote back. I mentioned another location. He responded and I made one more suggestion. A few emails, a little bit of time, one individual to another, even though we were complete strangers, and a small problem was resolved. Klaus found his software so he could move forward with his project and I got a big kick out of talking to someone on the other side of the planet.

On the Internet, we have instant access to all the information on the Web as well as access to all the people who give us their emails for purposes of communication. This repository of power and complexity that we have invited into our homes and onto our desktops, laps, and palms can generate quite a blitz of information and conversation. And the people who take advantage of it to move forward with their mission are the ones with their foot on the gas pedal, creating the phenomenon of Internet time. Of course, Internet time is really nothing more than how long some-

thing really should have taken anyway. When I published this book, one of the things I needed was a Library of Congress Control Number. I wrote for the forms and waited three weeks for them to arrive. Had I filled them out and sent them back to the Library of Congress, I have no idea how long it would have taken for them to send me the index card with the number I needed. Maybe the entire process would have taken two months. I don't know because soon after I requested the forms, I found out I could apply for my number online at the Library of Congress Web site (www.loc.gov). I did and received it via email in a matter of hours! So Internet time is really nothing more than how long a process ideally should have taken in the first place.

Discourse and the Shaping of Content

The Internet not only encourages and speeds up discourse, it enables discourse to shape content before the content is even published. Before one of my favorite *Star Trek* reviewers on the Web (www.treknews.com/deltablues/) writes one of his *Star Trek* TV or movie reviews, he is bombarded with emails from people like me who have read his previous reviews, know he's writing another one, and want to get an opinion voiced. Every once in a while, I see something I've sent to him appear in his reviews. And of course people email him to agree or disagree with the review itself. But the point is, our voices are being heard, often before he even writes his review, so the content of the review is modified as it is being created.

Sometimes the shaping of content by discourse is encouraged, as in the case of my *Star Trek* reviewer. Other times, it is not. Often the most intriguing and useful dialog occurs when a text or idea sees the light of day against its author's wishes. The Internet allows anyone to impose the Socratic Dialog, even if it is not wanted. For example, a number of political activists in non-governmental organizations (NGOs) have become experts at ferret-

ing out the details of economic agreements, particularly those relating to globalization. Such agreements are often struck behind closed doors by the economic ministries of various countries. By “liberating” the details of such agreements, NGOs introduce an unwanted but usually necessary level of dialog and transparency to the process, thereby allowing affected parties to have a chance to modify the terms of the agreements before they are finalized. Email, discussion lists, and the Web have been potent weapons in such undertakings, interjecting the Socratic Dialog into global governance as well as many other arenas. This has helped to ensure the transparency of these crucial processes, often against the will of those involved.

Sharing and Amplifying Intellectual Capital

Writing allows ideas to flower. In *The History and Power of Writing*, Henri-Jean Martin says that “writing casts speech onto a two-dimensional space and fixes it there, thus permitting speech to be an object of reflection outside of any context. Furthermore, because it visualizes discourse, writing prompts new sorts of connections in the reasoning process.”

The Internet allows writing to move anywhere, at the speed of light, enabling the involvement of a wide variety of people in the flowering of ideas. Having complex documents, plans, proposals, treaties, agreements, standards and even source code circulated among interested parties for the express purpose of generating dialog allows participants to review both the context and the details for coherence and completeness. As a result, the accumulation of robust knowledge within an informed community becomes much greater. Nothing improves quality better than thousands of knowledgeable eyeballs scrutinizing every detail. Furthermore, the evolution toward quality is much quicker because of the speed with which interested parties can communicate.

Once a body of knowledge is formulated, it can then be shared.

The almost infinite shelf space of the Web combines with hypertext and such tools as streaming video webcasts, threaded discussion groups, and instant messaging to provide a rich platform for the transfer of knowledge to anyplace on the globe.

We all like to talk. The Internet gives us a splendid mechanism to hold an enriched conversation with anyone, anywhere on the planet, which no doubt accounts for its incredible growth and popularity. And talk is good. The more we converse, the more we can learn, and the more we learn the more we can contribute. And when people on the Internet start talking, they do what people have always done when they talk – they form communities.

Getting the Web

Annotated Table of Contents

A quick look at the other chapters in the book.

The Big Picture

The pictures taken by the Apollo 8 astronauts were the first to show us Earth, floating alone and majestic in space; these pictures forever changed the way we think about ourselves. Likewise, the Internet is now forever changing the way in which we interact. It is launching us into the new millennium by giving to each individual the powers of communication and exchange that in the past were held only by governments and corporations. This book explores what the Internet is, how computers and telephones shape the internet, and how the Internet shapes communication and exchange and ultimately, us. Technically, it's all quite complex and sophisticated. Conceptually it's a simple matter of moving files back and forth between servers and clients to engage people in communication and exchange. Chapter topics: Looking at What, Not How — Structure of the Book

Part I

In Part I, we see what happens when individuals exchange words, pictures, sound, motion, and logic by putting them in files and moving them back and forth on the Internet – the telephone company for computers.

The Telephone Company for Computers

How the telephone network and computers, as either clients or servers, make up the fabric of the Internet and create the basic mechanism for communication. Chapter topics: *Computers — The Telephone Network — Clients and Servers — Summary: The Telephone Company for Computers*

Files

Traffic on the Internet is no more or no less than billions of requests and files, flying back and forth all over the world, between clients that have requested the files and servers that have served them. Chapter topics: *Signals — Suck It and See*

Files of Words

How the Internet fits into the written tradition and how it turbocharges the power of the word, visualizing discourse and giving each individual the power to create complex repositories of thought and to enter into a conversation on that thought with anyone else on the planet. Chapter topics: *Visualizing Discourse — A Changing Relationship with Text — Mesopotamia dot COM — The Solitary Reader — The Logic of the Book — The Flavor of Text on the Internet — Hypertext - Connection Made Manifest — Breaking Down Barriers — What We Were After All Along?*

Files of Pictures

How images on the Web can be used to convey complex information that can only be fully done pictorially. Chapter topics: *Image File Guts - Pictures as 0s and 1s — Pictures are Cool — Visual Knowledge — Photographs — Art*

Files of Sound and Motion

How the Web can enable each one of us to become radio and

video broadcasters. Chapter topics: *Sound as 0s and 1s* — *Streaming Audio* — *MP3* — *Internet Radio* — *Broadcasting Internet Radio* — *Video on the Web*

Files of Logic

Smart clients, smart servers, B2B: what happens when we start creating Web clients and servers that not only do “show and tell” (i.e., transmit files of words and pictures), but do the million other things that software is known for. Chapter topics: *Smart Servers* — *Smart Servers - Business to Business* — *Smart Clients* — *Downloading Programs* — *The Telephone Company for Computers*

Part II

Part II explores why the Internet is the way it is: how computers and telephone networks shape the nature of the Internet. We see how open standards successfully orchestrate the daily movement of millions of files, we look at search engines, we see why bandwidth is an issue, and we explore the crucial difference in a public network between content and connection.

Open Standards

Open standards are the power that fuels phenomenal growth, providing the clarity and stability necessary to create new forms of communication and exchange. They provide an elegant, transparent way for people to interact in a cooperative fashion. As Tim Berners-Lee says, “As long as we accept the rules of sending packets around, we can send packets containing anything to anyone.” Chapter topics: *Standards and Communication* — *File Types* — *File Standards* — *Standards and the Birth of the Web* — *Standards Today* — *Open Standards* — *Open vs. Proprietary Standards* — *Open Standards and Growth* — *The Power of Cooperation*

Searching the Web

Push vs. Pull, metadata, and why it's so hard to *find what you're looking for on the Web. Chapter topics: *Push vs. Pull — Catalogs, Search Engines, and Portals — Mechanizing Meaning — Metadata — Sort of Meta — Real Metadata*

Bandwidth and the World Wide Wait

A quick tour of the Internet, why squeezing bits through the voice telephone network is such a slow process and what forthcoming "broadband" solutions, especially ADSL and cable, can do to help the situation. Chapter topics: *The Local Loop — The Internet — The Internet Service Provider (ISP) — Traffic on the Internet — Bandwidth — Speeding up the Internet Network — Speeding Up the Local Loop — In the Interim — Speed in Both Directions — Broadband Solutions — Asymmetric Digital Subscriber Line (ADSL) and the Pooꝛ Deaf Telephone Company — Cable TV — Fiber — Wireless Options — Accessibility Issues — Cost and Convergence — Why Bandwidth Matters*

Content and Connection

What happens when a number of centralized, private networks such as TV broadcast and cable networks crunch into the distributed, decentralized public network that is the Internet. Chapter topics: *Bundling — Bundling in a Broadband World — Bundling Access and ISPs — Public Networks Connect — Content, Connection and Convergence — History Repeats Itself — The Pricing Issue — The Infrastructure Challenge*

Part III

In Part III, we discuss the ways in which the Internet shapes communication and exchange and ultimately, us. The Internet gives us a splendid mechanism to hold an enriched conversation or to

do business with anyone on the planet. And when people start talking on the Internet, information flows freely, anyone can publish, barriers to entry for many businesses are virtually eliminated, intellectual capital increases, feedback shapes content, communities of interest gain voice, local communities thrive, and complex and differentiated entities form and emerge, like the open source movement and the Internet itself. Information illuminates. The Internet will make obvious new ways of doing things and create new ways of looking at life. With it, we can more easily see ourselves in the full context of who we really are and ensure that our institutions truly function the way they should.

Individuals in Conversation

On the Internet, the vast complexity and storage capacity of computers fuses with the reach of the telephone network, dramatically enriching our conversations. If your interests, your business, or your mission in life lay within the realm of communication or exchange, the Internet is the tool for you. Are you ready? Chapter topics: *Communication and Exchange — The Power of Publishing — The Power To Exchange — The Creator's Tool of Choice — Using Files for Communication and Exchange — Visualizing Discourse — Internet Time — Discourse and the Shaping of Content — Sharing and Amplifying Intellectual Capital*

Formation of Community

On the Internet, it's not unusual for people who would otherwise be complete strangers to do cool stuff as a community for no other reason than their love of doing cool stuff. Far from being a force for social isolation, for people of like minds or similar interests, the Internet is a wellspring of community formation, and is itself the product of such a community. The Internet dissolves barriers, the main but not the only one being distance, and provides a forum for conversation, debate, and interaction. Chapter

topics: *Conveying Presence — Reaching the Niche Audience — A Small Corner of Cyberspace — Victorian Email — Enhancing Physical Communities — The Virtual Corporation — The Community that Created the Internet — Doing Good and Showing Off — Open Source — Transparency and Complexity — Cyberspace is Earth*

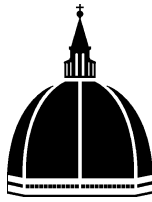
Conversations Driving Change

The Internet doesn't cause change but the people using it certainly do. If there are conversations between people and within communities that the Internet can bring about, it is from these conversations that change will come. Information and access have become both democratic and global, generating deep structural changes in the way we communicate and do business. Chapter topics: *The Free Flow of Information — Access Changes Structure — Everyone's an Operator — The Price in the Marketplace — The Marketplace Itself — A Market of One*

An Outbreak of Sanity

Information illuminates. With it, we can see ourselves in the full context of who we really are and insure through transparency that our organizations function the way they should. Using the Internet, each individual, alone or in communities of interest and knowledge, finally has the power to trump the agenda of the institution and shape it to serve those who give it meaning. It may be just the thing we need to permanently nail into place the mother of all paradigm shifts: the idea that the person gives meaning to the institution, not the other way around. Chapter topics: *Illumination and Formalization — Transparency — Epiphanies of Context — Welcome to the Renaissance*

Glossary, Bibliography, Index



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