

This presentation parallels, more or less, a discussion that appears in S&C's newsletter (to subscribe, send email to bsanders@scribble-count.com) and on our Website (www.scribble-count.com/hypertext.shtml.htm – or link from the home page).

Caveat: We intend for the Web page to become a dialog – so if you respond to us through either method, clearly identify anything you feel is too speculative or avant garde to be associated with your name. We won't exercise that discretion on our own.

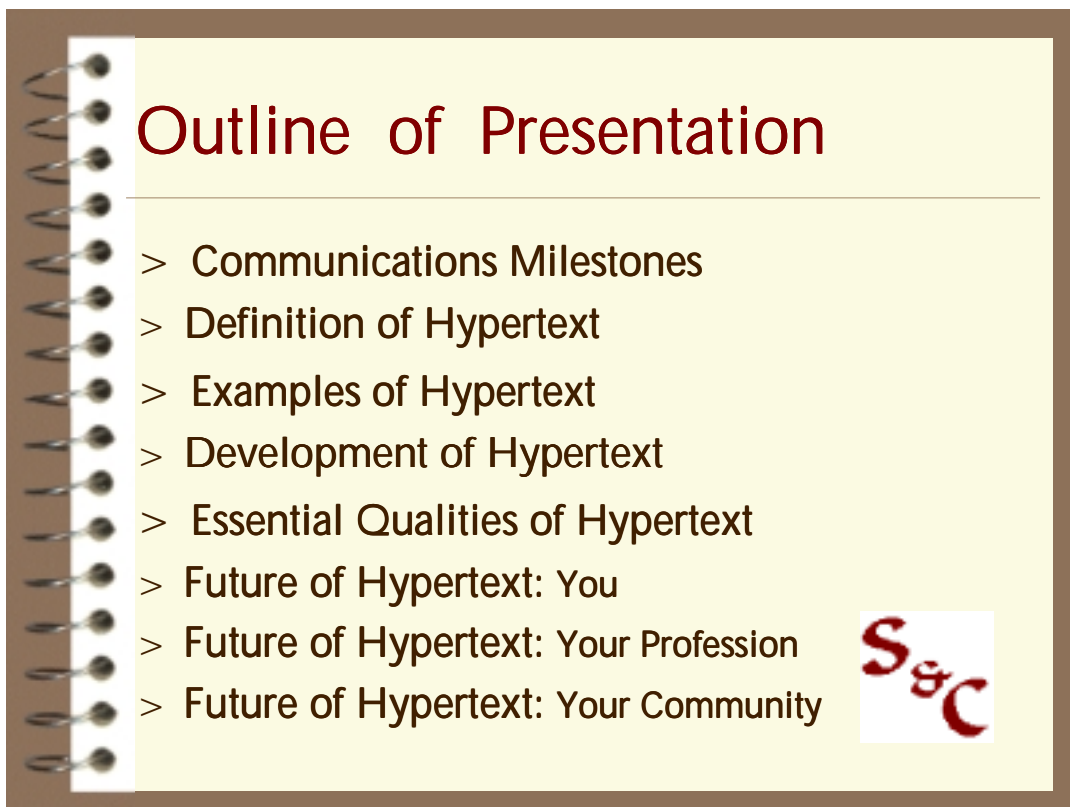
Apology: The conference schedule should have said "Understanding Hypertext", not "Understanding HTML". And I found it impossible to keep telecommunications and the Digital Age out entirely. So this presentation is broader than it was advertised. *Mea dimidia culpa.*



This Session Is *NOT* Techie
(We're getting enough of that elsewhere)


- > No Macros or J-Scripts
- > No embedded Windows
- > No Information Types
- > No Indexing

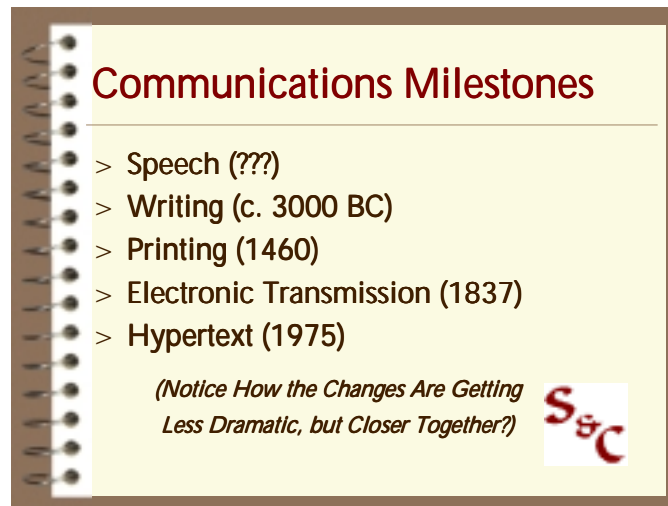
(There will be a short pause for graceful exits.)



Outline of Presentation

- > Communications Milestones
- > Definition of Hypertext
- > Examples of Hypertext
- > Development of Hypertext
- > Essential Qualities of Hypertext
- > Future of Hypertext: You
- > Future of Hypertext: Your Profession
- > Future of Hypertext: Your Community





Notice the title of the slide is "Communications", not "Information". They're obviously connected, but information has been accumulating steadily for centuries; communications advances have come in leaps.

Speech: We all know this. But stop for a moment and think about the immense power (and magic) of this first manipulation of symbols. Humans have been moving mental images around ever since speech began, and all of us here are near-masters of several techniques.

Writing. It's permanent, if you preserve the papyrus. History's based on it. Knowledge cumulates.

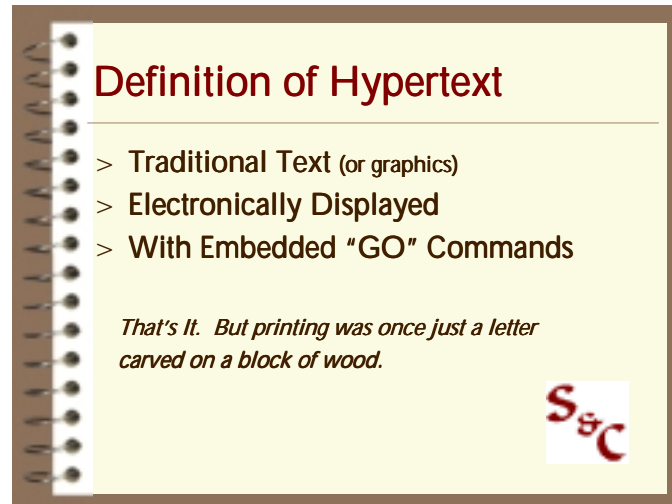
Printing. Mass reproduction. Without it, no widespread commerce, no universal education, no scientific method, little technology, no nation state, no widespread democracy. Lots of things we've gotten used to.

Electronic Transmission. Immediate. Cheap. Accessible. More revolutionary than has been widely recognized. Hypertext requires it.

Hypertext/Hypermedia. The rest of this presentation argues for hypertext (and the Digital Age in general) as the latest addition to this elite list, and suggests what it may mean for us – the tangible short- and mid-term implications for us as individuals and professionals; and the less certain, less concrete, long-term implications for our communities.

Note: I'm an historian, trained to believe in gradualism. But this gradualist claims that digital communication in general and hypertext in specific will produce one of the big discontinuities of history.

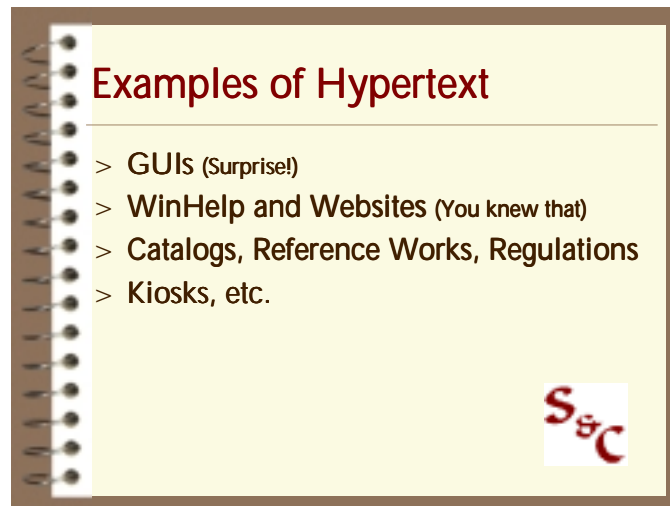
Notes:



Hypertext is traditional text or graphics, electronically displayed, with embedded GO commands. That's pretty simple, but the essence of printing was movable type, which was even simpler. And look how far that went.

We all know that the distinction between "hypertext" and "hypermedia" is important today; but it probably won't be in the long term. In the early '60s, distinction was carefully made between B&W and color TV. By the late 60s, color was assumed; shortly we'll assume hypermedia, even if we only say "hypertext".

Notes:



Examples of hypertext are everywhere. That's one of the major points of this session.

GUIs. Bet you haven't thought of it. Hypertext and first GUI were developed by the same folks about the same time. Without hypertext, you can't have a functioning GUI.

Note: This shows how omnipresent hypertext is – and how easily everyone will soon take it for granted.

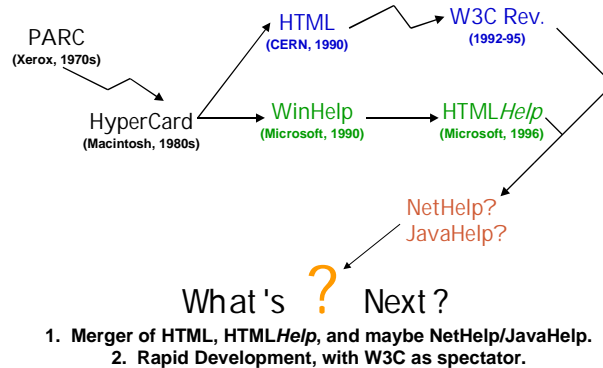
WinHelp and Websites. 'Nuff said. We know about these aspects; that's why we're in Austin.

Catalogs, Reference Works, etc.. This will be a huge growth area; learn about intranets, which is where most of them will be hosted, and about database mining, which is where a lot of the info will come from in the near future. We'll discuss this later under ***The Future: Your Profession.***

Kiosks, etc. Ever stop to think about the information directories in Chambers of Commerce and ritzy hotels? How about the order screen at Arby's? The Post Office? These can also be in your professional future. Hold that thought; we'll get back to it.

Notes:

Development of Hypertext



The Term: (Not on the slide). Coined by Ted Nelson in the mid 1960s.

Precursors. (Also not on the slide). From personal experience, I know that online searching goes back to at least the early '70s (OCLC, Lexis, and Dialog). But it wasn't quite hypertext yet.

PARC. Xerox's lab there was where hypertext began. The corporate big-wigs in New York paid a lot of money for the Palo Alto think-tank – but other than apply assiduously for each and every patent, they did little with the researchers' output. (See the Quick-Reference Supplement for other PARC inventions.)

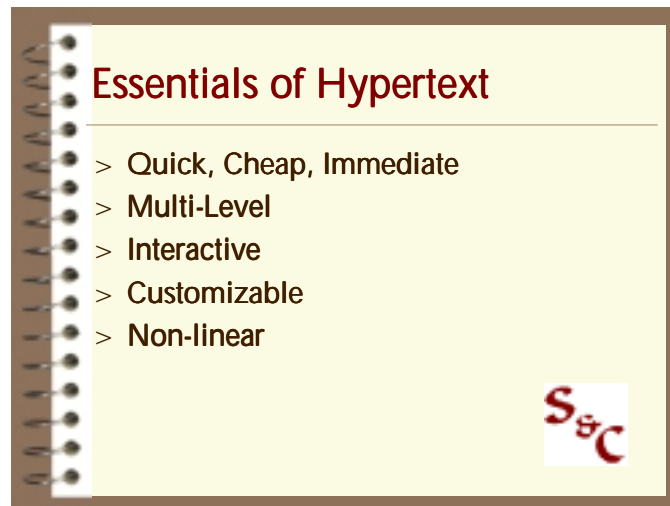
Apple (HyperCard). As usual, the boys in America's most celebrated garage were ahead of their time technically and inept commercially: their hypertext variant went nowhere. Except to stimulate Tim Berners-Lee and a fellow named Gates.

HTML (CERN). Developed by Berners-Lee in Europe's famous physics lab, originally, just as a way to check references in scientific papers. A body (called the W3C) was set up to superintend HTML's orderly development, but it was so orderly (think "ponderously slow") that it may not matter any more. (See the Quick-Reference Supplement for details.)

Microsoft. A day late, but definitely not a dollar short. When Bill grabs the helm, that big boat still turns on a dime.

Future: Change. Since profit can also be the Mother of Invention, *very rapid change*. First in display hardware, transmission hardware and software, and standards. Next in applications. It's an exciting, though tiring, time to be a hypertext author.

Notes:



If hypertext is this important, we've got to make some decisions concerning it. Decisions should be made on essences, not superficials. Here's what I think is essential. These essentials influence hypertext's future impact on you, on your profession, on your community. I'll try to highlight the threads on the next three slides.

Quick & Cheap To Produce / Immediate for the User: And that's even more true for revisions. Consider a catalog of outdoor gear: when the price of choice northern goose down rises, the sleeping bag and parka sections have to be revised. If L. L. Bean's catalog is in hypertext, it can be revised quickly and cheaply. Eddie Bauer's print version is expensive and the sales staff is on hold until it's finished.

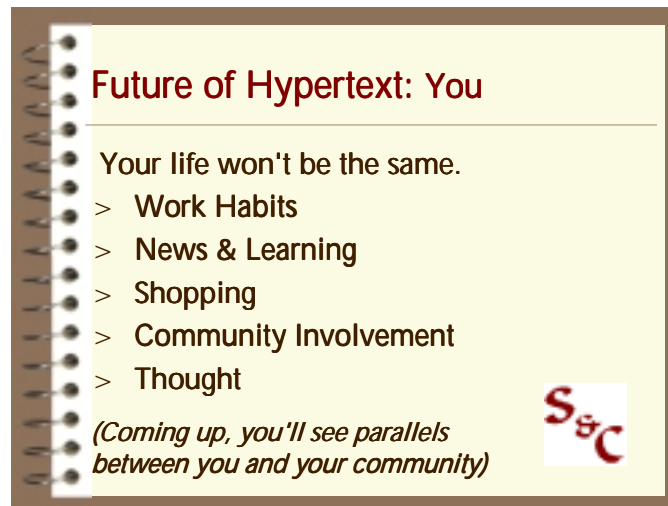
Multi-Level: Continuing the outdoor analogy, Eddie Bauer's paper catalog is 130pp. Bean's was, too, until they posted it in hypertext. Now it's got ten times the technical data it had before (which would take nearly 600 pp to print), but each user only "drills down" to the few pages of information they want at a given time.

Interactive: The user can create, on the fly, a customized table of weight, warmth index, and price of each of the down bags and synthetic counterparts. Then they can order. We'll address social aspects of this move away from passive spectating later; it may be one of the most far-reaching aspects of hypertext. Other examples: interactive marketing and voting.

Customizable: Customization uses each of the characteristics above. Hypertext must be quick and cheap to produce, and immediate for the user. The normal technique is to compile an all-inclusive, multi-level source document from which selections are made by filter. Users can help design the filter interactively. (**Note:** Customization raises the "cookie" problem. The current threat has been overstated; the potential danger hasn't. See the **Future: Your Community** slide.)

Not Linear: Or, at least it doesn't have to be, and it's the first communication method in all of history that isn't. We'll deal with this in both **You** and **Your Community**.

Notes:



If hypertext is that big a deal, it will impact us in countless ways and for the foreseeable future. We'll deal with three categories: **You** (this slide), then **Your profession** and **Your community** (the next two slides.)

Work Habits. You'll work differently. If you're not telecommuting part of the time, you probably will. Then you'll ask "If I'm only driving in one or two days a week, can I live farther way, up by the lake?" These are lifestyle issues; we'll cover the professional development aspects in the next slide.

News & Learning. Customized and immediate information. Ralph & Kate will explain how to filter your help project; you'll also filter information for your own use. How about comparing your online newspaper to mine? Both might carry the masthead "Pointcast Daily Bugle" (or some such) but they'll be very different. Interactive education interests kids more than I ever could – but we haven't seen them as adults yet (see **Thought**, below). The Global Positioning System (GPS) has yet to be fully felt. It will.

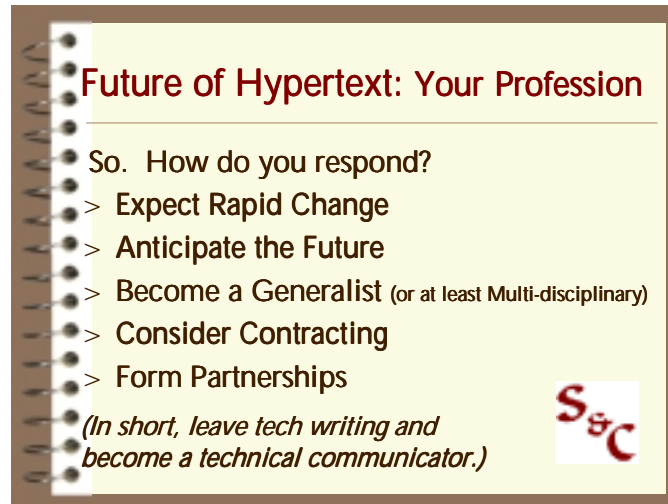
Shopping. You've heard enough about this already. Enough to note that 1) not nearly as many things can be sold online as the hype claims; and 2) changes in security (both technical improvements and the public acceptance of acceptable risks) will facilitate growth.

Note: Think of the marketing windfall of recording every keystroke you make while shopping.

Community Involvement. Ross Perot's electronic voting? (Is society ready for the knee-jerk, emotional voting decision analogous to a flaming email?)

Thought. There are several facets here: Talbott's "scattered self", the distracted individual overloaded with input, choices, and decisions. This deteriorating attention span has been documented for a couple decades and is exacerbated by hypertext's hyperactive jumping around. It's non-linear with McLuhanesque ramifications; for example, if kids learn in solely non-linear fashion, will they be able to follow a simple train of thought? The new RAM may be a random access mind.

Notes:



You're here in Austin to address this issue. See if this adds something to your perspective.

Expect Rapid Change. Display technology, transmission, security (both software and public acceptance of acceptable risks). Most of all, expect unification of competing standards. Now try to keep up with all that.

Anticipate the Future. Your judgement calls here have to be continuous and accurate. Your most important project is your career. Spend a lot of time and money reading professional news and analysis and attending professional organizations. Visit the online forums and mailing lists regularly (citations are in Bibliography). Notice all the hypertext in your life, *then figure out where hypertext will or should be in a year or two*. Anticipate correctly just a little of what's coming, and you'll be a big winner.

Become a Flexible Generalist. Or at least multi-disciplinary. You'll need to know as many of these as possible: communications/networks; graphics/digital photography; programming/HTML; sound/multi-media; database structure. Eschew narrow tech writing. Keep your options open.

Consider Contracting. That's where the growth is. If you stay employed, be careful that your job doesn't dead-end or pigeon-hole you. If you contract, update (at least mentally) your business plan: services offered, target customer base, marketing strategy.

Form Partnerships. Nobody can be a Leonardo these days. Based on the generalist you didn't quite become, and the future as you anticipate it, partner with selected colleagues.

Notes:



Society consists of groups of individuals, so some of these were also addressed under **Future: You**.

Definition of Community. The first effect on our community will be to redefine it. Your communities will be ones of *interests* far more than they ever have been, and ones of *proximity* significantly less. We will always be instinctively geographical, but we'll be thinking increasingly in other terms.

Redistribution of Power. Traditional power groups (such as labor) won't automatically retain their position; previous "have-nots" (such as rural America and developing societies) can gain power if they take advantage of the opportunity.

Decentralization & Miniaturization. The history of Western Civilization has been that of concentration: wealth; political power; production; demography. This is ending; lots of big entities are breaking up (Canada, Soviet Union), restructuring (IBM, Chrysler), or disappearing (Wards, International Harvester).

Censorship & Privacy. There are dozens of issues here. I'll hit just a few:

Traditional Censorship. It's on the ropes. Iran can't keep sedition out; same for us and pornography.

Encryption. And the feds can't keep code in. When business sided w/ citizens, the government lost.

Monitoring & Cookies. Hypertext ideally suited to monitoring and snooping.

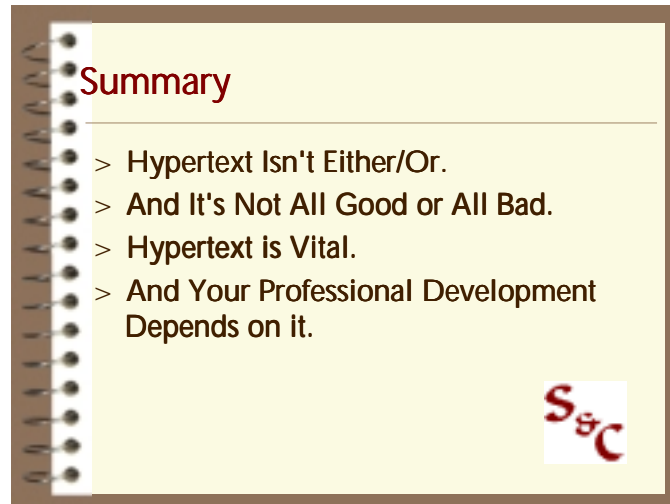
Individualism. Will hypertext increase the self-centeredness we've already seen too much of? Or will we reach out more now that we have more in common with our new communities of interest and technology to make it easier? Or both?

Accountability. Linear exposition from A to B to Z holds people's feet to the fire. Print does this well; hypertext doesn't. But, on the other hand, accountability is also aided by the quick retrieval of relevant data; here hypertext shines. However, on the one hand, irresponsible knee-jerk reactions are made easy with hypertext. But on the other hand, back-room deals exposed on the Internet have been stopped dead in a matter of hours. Are you getting a mixed, good news/bad news, message here?

Thought Patterns. Marshall McLuhan (see Bibliography) says that how we get a message is as important as the contents. All previous communication has been in the one direction chosen by the author; hypertext is immediate, tends toward scattered discourse, promotes active participation rather than passive absorption, and encourages individualism. This sounds like a combination of good news/bad news, too.

This topic has so much text, the note space is on the reverse.

Notes:



This is important. No: it's momentous. Big institutions are in trouble. Power will be redistributed. Communities will be redefined. Thought patterns will change. As Dean Acheson said: you were present at the Creation.

Hypertext Is Not Either / Or. There's no Faustian choice here; we need both hypertext and linearity. Accountability and responsibility require both. Story telling is linear. Cause and effect are linear. It will be a long time before a complex schematic foldout can be satisfactorily reproduced in pixels. Don't let the extremists spook you. Linear communications, both oral and printed, are here to stay.

Note: On the other hand, the next generation of PDAs will replace a lot of things you used to stick in pocket or purse.

And It's Not All Good or All Bad. Hypertext provides immediate data retrieval -- but exacerbates the attention span problem. It provides immediate feedback -- but that includes irresponsible flames. It foils government censorship -- but makes it almost impossible to enforce child pornography laws. But hypertext is more good than bad; and that's a good thing, because it's here to stay.

Hypertext Is Vital. Kevin Kelly (see Bibliography) makes a good case that this isn't an *information* revolution (that huge change has been evolving slowly for more than a century). This sudden revolution is a *communications* revolution -- the transfer of information. Telecommunications and hypertext are going to remake your world as much as printing has.

And Your Professional Development Depends on It. Change is occurring so fast you don't have time to ponder. It won't be easy, but you have to find time to keep abreast of events.

Coda: Two comments that seem appropriate. *Very* different people, different times, similar message.

Neal Cassady: "I don't know where we're goin', but we're makin' good time." (attributed)

Stephen Jay Gould: Evolution is millenia of stasis punctuated by centuries of feverish activity. (paraphrased)

Notes: