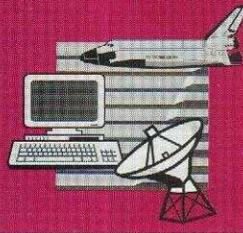


Technology Today

Alan J. Pierce



The Communication Revolution

AFTER carefully exploring the geometric explosion of communication technology, I think we can now call our present era the "Communication Revolution." This month's column explores one of many new communication technologies my research has uncovered. The drawing boards and research centers of the world are full of new communication prototypes and systems that will drastically change the way we work, play, and communicate in the 21st century.

In the novel *Neuromancer*, William Gibson describes a world where many people are connected through an information network that he calls "Cyberspace." In Gibson's own words, it "had its roots in primitive arcade games . . . in early graphic programs and military experimentation with cranial jacks. Cyberspace is a consensual hallucination experienced by billions of legitimate operators, in every nation." His fictional world where individuals are connected into Cyberspace through biotechnology seems far from today's reality.

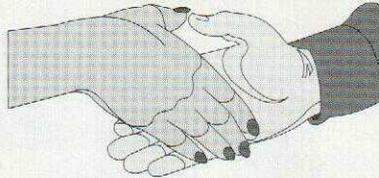
Gibson's term Cyberspace has been adopted to define the accomplishments of the original Advanced Research Projects Agency Network (ARPANET) that eventually evolved into the Internet. ARPANET was developed by a few university superstars of technology in the '60s when computers were considered math machines, modems didn't exist, computers worked with different operating systems, and there was no common language for machine-to-machine communication.

A crude version of Gibson's Cyberspace exists today. We communicate over the Internet, and virtual reality is real ("Technology Today," March and April 1996). Gibson's characters' experiences were like a virtual reality immersion in a cyber world. With the invention of IBM's Personal Area Network (PAN), fiction and reality start to merge. People wearing this new IBM appliance could transfer digital information through a simple handshake. Since the signal is being carried through the human body, eavesdropping or interference even by another PAN wearer is remote.

The PAN device generates a picoamp

(1×10^{-12} A) of current that is transmitted through the body as a static electric field. This current is so small that it would blend in with the minuscule electrical field that surrounds the body. PAN's early development grew out of work at the MIT Media Lab, where Tom Zimmerman began to develop PAN as a student. He perfected the device as a researcher at IBM's Almaden Research Center in San Jose, CA.

Each PAN device transmits a unique user code much like the ID transmission of a cellular phone. The wearer can determine when transmissions will occur and the type of information trans-



mitted. Each unit can identify and separate its own data signal, as well as the signals of other PAN users, from the background microcurrent noise of the body. Therefore, the touch of two individuals would allow intrabody communication. Transponders could also communicate with these PAN devices.

With the introduction of PAN, our future might not be so different from the world in *Neuromancer*. The merging of this technology with wearable phones and computers, full computer voice recognition, virtual reality glasses, and the Internet could be enough for all of society to recognize that we have entered the Communication Revolution.

Recalling the Facts

1. Who coined the term Cyberspace, and what does this term mean?
2. What were computers like when the ARPANET network was created?
3. Describe how IBM's Personal Area Network transfers data. EI

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