

INTERNATIONAL NDT TECHNICAL COLLABORATION USING THE INTERNET

Yoseph Ilar-Cohen, JPL, Caltech, Pasadena, CA, yosi@jpl.nasa.gov
Rolf Diederichs, Germany, rd@ultrasonic.de
Marty Jones, Edison Welding Institute, Columbus, OH, mpjones@ewi.org
Morio Onoc, Ricoh, Yokohama, Japan, onoc@ricoh.co.jp

INTRODUCTION

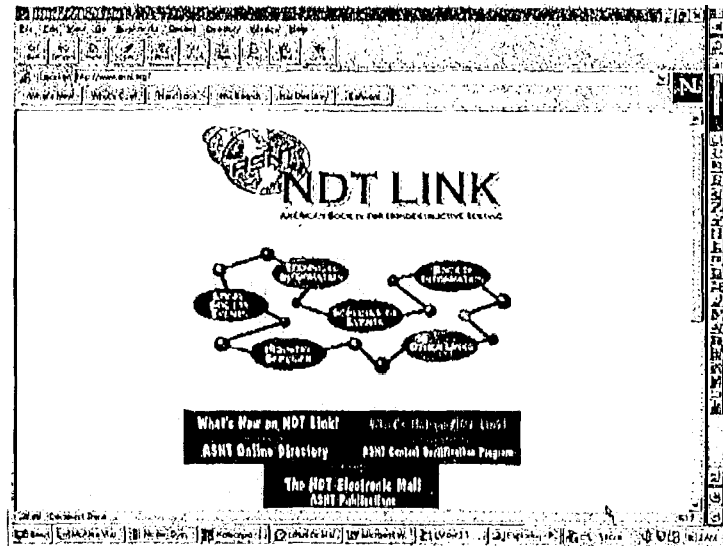
This paper reviews the capability of the Internet as a world-wide NDT communication tool for technical collaboration, dissemination of information and international standards. This paper was written by authors that never personally met (except for two) and despite thousand of miles distance between them the authors managed to work as a team to complete this paper in a very time efficient manner. This success is attributed to the power of the Internet and it represents a simple example of the "miracles" of this new technology that have revolutionized the way we communicate with each other. This technology had the most impact on information exchange and archival since the invention of the phone. As the number of users grows exponentially, the power of this tool is being widely harvested in many forms including e-mail and webpages [1].

Most business organizations, particularly in the USA, have now access to a high speed Internet communication connection and many public libraries/schools have terminals that are available for public use. At home, to connect to the Internet the user needs a computer with a modem, a phone line and a network service provider. The exponential growth of the Internet is providing easy access to an international network from every corner of the world. Once on the Internet, there are neither long distance charges nor international charges and the equipment, that is compatible with the Internet, is cost-effective because of the large number of users. Unlike conventional print media, there is no cost difference between black&white and color images and animation, movies, three-dimensional images and even virtual reality can be handled easily.

NDT AND THE INTERNET

In the last two years, many NDT organizations formed webpages to provide information about their product, capability, services and hyperlinks to many other related websites. ASNT recently formed its own webpage [<http://www.asnt.org>]. The NDT community in the USA has recognized the power of Internet and the World Wide Web. Having a webpage is now like having a business card, it provides identity description of the webpage owners. Numerous companies, organization and individuals have formed webpages which are hyperlinked to other NDT websites. At the beginning of this year, ASNT joined the community of organizations having a webpage (see Figure 1). A user can review the various NDT services and products, access conference information, send e-mail messages to any of the society representatives and access numerous NDT websites of other organizations [<http://206.21.77.126/links/nonprofitlinks/non.htm>]. Also, the various committees of ASNT are now documenting their Minutes on webpages that are hyperlinked to the ASNT webpage. As an example one can view the Ultrasonic Personnel and Qualifications as well as the Ultrasonics Committee's webpage [<http://nasa-ndc.jpl.nasa.gov/jpl-ndc/asnt-ut/homepage.htm>].

Figure 2: A print-screen of the ASNT webpage.



Other organizations that started using webpages to inform of conference announcements and agenda include Iowa State University. This year, for the first time the Review of Progress in Quantitative NDT was announced on a webpage ahead of the conference and details such as registration and others were available [<http://www.cndc.iastate.edu/qndc/qndcreg.html>]. Various organizations are providing databases that are very useful to the NDT community. This include acoustic properties of various materials [<http://stud.uni-sb.de/~mala/acoustic.html#acoustic>] as well as the properties of piezoelectric materials [<http://www.ultrasonic.com/tables/long.htm>]. Some webpages cover specific methods such as acoustic emission [<http://www.tricity.wsu.edu/~mfriesel/index.html>]. Other leading organizations that are providing detailed webpages include, NTAC [<http://www.dtic.dla.mil/iac/ntiac/>], NASA NDT Working Group [<http://nasa-ndc.jpl.nasa.gov/jpl-ndc/homepage.htm>], and IOWA [<http://www.cndc.iastate.edu/cndc.html>].

Through an effort of NDT individuals from numerous countries, the NDT World Wide was formed as a not-for-profit and voluntary hypermedia devoted to improve the communication among international NDT communities. Beside news and calendar events, NDT World Wide is hyperlinked to numerous NDT societies and research institutes. NDT World Wide is intended to be a guide post [<http://www.ricoll.co.jp/nct-messena-1/NTWW/INTRO/NTWW-USJ.html>], rather than a warehouse of NDT information, because of the organizers belief that information is best maintained and updated at the source locations. It is also recognized that the accessibility to the Internet varies from country to country. Therefore, NDT World Wide is assisting various NDT societies by preparing their webpages and providing them with a server to host their webpages until these societies form their own server. Among the various items that are posted on the NDT World Wide website are the final announcement of the 14th WCNDT, which will be held in India in December 1996 [<http://www.ricoll.co.jp/nct-messena/NTWW/CALENDAR/WCNDT3/WCNDT3.html>]. Other international organizations are also active in documenting Conference information. Webpages are now providing conference announcements, online forums, electronic conferences, workshops and electronic journals [http://www.ultrasonic.de/wshop/wshop_tr/transdan.htm], [<http://www.ultrasonic.de/>] and [<http://www.ultrasonic.de/deino.htm>].

International standardization is another promising area for the application of the Internet. The traditional process of international standardization based on mailed documents cannot cope any more with the rapid progress of technology and the globalization of the world market. The Central Secretariat of ISO (International Organization for Standardization) has now ISO/TC135 (NDT) and ICNDT webpages one set for the general public and another with exclusive access for the members (using a password). The speed of international standards development will be greatly improved by the positive use of the Internet.

PROPOSED FUTURE ACTION

Online communication is expected to make an impact on our life in a significant way similar to the 'Book printing' and 'Electricity'. The NDT community needs to consolidate its effort in order to effectively take advantage of this new technology which is offering. Numerous capabilities are now possible which involve distant individuals and facilities and the action can be accomplished in a very short time. Global markets are expanding the NDT activities, and it is becoming increasingly vital to the assurance of products quality, safety of plants and the preservation of the environment. A plant in a remote country can now be designed, constructed and inspected by service providers in different countries. The Internet is an indispensable component of the infrastructure for such collaborative development processes. Further, the internet is allowing online publishing and it is expected to be the dominant way of publishing, - papers will be sent electronically to journal websites and will be posted on the webpage once it is reviewed by an international panel of experts (who might be later substituted by an expert system).

The use of the Internet capabilities, such as webpages, electronic databases, NDT teleconferences (audio/video), IRC and e-mail can enable the world NDT community to make a better use of its resources and respond faster to the rapidly changing needs. ASNT can take the lead in this global Internet networking that will link all the NDT experts throughout the world. Major concerns that need to be addressed include copyright, security and universal access. These issues are already being addressed by the Internet providers and significantly more secured tools are now available to protect the provided Internet information.

ACKNOWLEDGEMENT

The Jet Propulsion Laboratory, California Institute of Technology, portion of this paper was written under a contract with the National Aeronautic and Space Administration.

REFERENCES

1. A code that is identified with an <http://> beginning and is marked in parenthesis represents a webpage URI address on the World Wide Web.
2. Ed Krol, "The Whole Internet", O'Reilly & Associates, Inc., (1993).
3. Traugott Koch, J and Univ. Library, Development Dept. NetLab Electronic Publishing and Libraries. Bielefeld Colloquium, Feb. 05, 1996 [<http://www.ub2.ltu.se/tk/demos/BFI09602-cn.html>].