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Extranets and Intergroupware

A convergence for the next generation in electronic media-based *activity*

by Richard R. Reisman, President, Teleshuttle Corporation
(Working paper, revised 3/21/97)

Internets, intranets, and extranets

Convergence in multi-media *content* and related hardware *platforms* has been much discussed, but there is an equally important and more immediately impacting convergence of the various *uses* of electronic media. The movement of Web publishing into corporate "intranets" was last year's hot phenomenon, but this has already been recognized to be just part of the picture, as "extranets" have become the latest big thing. These trends are part of a broader convergence that is generally viewed in fragmentary terms. The simple framework diagrammed below helps to clarify the big picture-- showing the distinct forms of electronic media, the kinds of interactions they support, and how they are converging. This article outlines the framework, reviews the partial convergences that have been developing, and looks to the broader convergence that will form the infrastructure needed to support electronic commerce and electronic society.

Extranets and Intergroupware
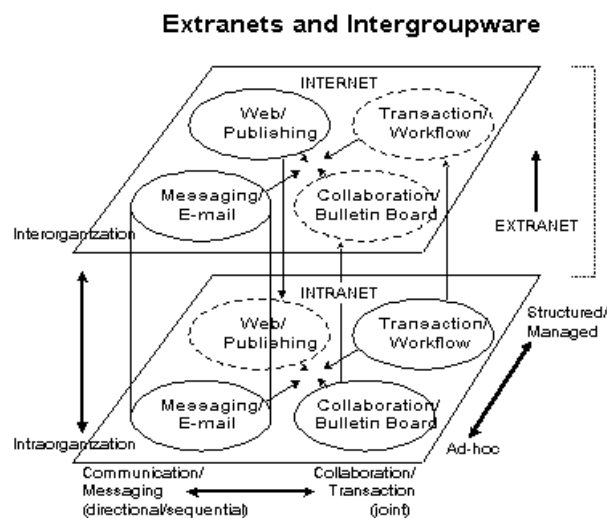
This framework is simple, but its unity has been obscured because until very recently the domains of inter- and intra- organizational media have been served largely independently, and have grown from different areas of strength. Only in the case of e-mail has a single vehicle come to be applied consistently to both domains. Imagine where we would be if internal enterprise e-mail systems still could not seamlessly link to and interwork with e-mail across the Internet. Imagine where we could be if only the other quadrants were as consistent. This was only recently highlighted by intranets, which are bringing Web publishing to internal domains, and combining it with groupware. The other side of this convergence has been more slowly recognized -- the feedback from intranets to the Internet: the Internet is pulling not only transaction systems, but groupware as well, into its inter-organizational dynamic. This includes both applications in the public Internet, and applications restricted to closed, extranet communities such as customers, partners, and suppliers.

Communications activities and point-solutions

Inter- and intra- organizational media-based communications activities have been developing in what can be viewed as two separate parallel planes. The dimensions of each plane are the degree of structure and the degree of mutuality in the communications activities.

- *Structure* ranges from informal and ad-hoc, to formally structured, defined, and managed or edited processes.
- *Mutuality* ranges from unidirectional or sequential back-and-forth message passing, to true joint work or collaborative transactions in a shared space of information.

The resulting four regions characterize four different kinds of interaction, which place distinct demands on their media vehicles or tools. Separate tools have developed in each region as point-solutions, but the need to apply them widely and in concert is causing them to converge. (This structure applies to traditional communications media as well, but we focus here on the new electronic media.) Facilitating this convergence is the wide acceptance of Internet standards and the rapid development of powerful software based on them.

Partial convergences

The technologies used in inter- and intra-organizational domains are now crossing over from opposite areas of strength. The growth of the Internet is obviously fueled by the success of Web publishing, which has flashed over into the world of the intranet, a concept it sparked. Meanwhile, groupware has been developing a degree of maturity and integration within organizations, best exemplified in Lotus Notes. However groupware has traditionally failed to fully exploit the power of published media to the extent done by the Web (which it is now addressing defensively). The Web and groupware are combining to form a far more powerful, pervasive media tool.

This is most apparent in the intranet domain. Groupware has been understood in terms of "the three C's," which correspond to three of our four quadrants. These are

- Communications or messaging (notably e-mail),
- Collaboration or conferencing (notably forums or "bulletin board" systems which organize messages into topical "threads" of group discussion, maintained in a shared database), and
- Coordination or workflow and transactions (applying pre-defined rules to automatically process and route messages).

The success of Lotus Notes stems from its recognition that, while these have distinct characteristics, they can only be served effectively by a unified platform that allows them to interact seamlessly. What has held back wider adoption of groupware until the Web lighted the way, was exploitation of the fourth quadrant--the special power of publishing as a process that adds editorial structure and value to communications. The capability was there, but not well developed or recognized. That is now changing rapidly, as groupware merges with Internet technologies to form intranets that pervade organizations.

In the inter-organizational domain of the Internet, this convergence occurs in a more diverse and fragmented community, where it is harder to establish a coherent broad view. E-mail is widespread and well understood, and the Web has captured everyone's imagination. Transaction support has been a focus of attention to credit card security problems that seem close to resolution, but standardization may take some time yet, and the deeper problems of back-end database and transaction support are just now getting serious attention. Collaboration support has been around in the form of mailing lists and Internet "newsgroups," but these have had limited appeal to the mass of casual, non-technical users, and more integrated user-friendly forms have been slow to develop.

The new congruence

By viewing the two planes together, the dynamic of this convergence becomes clearer. Developmental opportunities--such as a spill-over of groupware and database/transaction systems to the Internet--become more apparent. A common, standard technical infrastructure is developing to meet the need of both domains, more powerfully and faster than either could accomplish alone. Only in e-mail is such a congruence fully in place now.

A similar congruence is well under way with the Web, with Web publishing platforms seeing their hottest market as driving corporate intranets. The concept of an "intranet" took off when organizations realized they could take this easy-to-use, open, and well supported vehicle and apply it, essentially as is, to their internal groupware needs.

Such congruence is just beginning in the other two quadrants. Internet transaction systems are still immature, and poorly integrated with the internal "back-end" operations support and database systems needed to fully process these activities -- reliably, and at high volumes. This is becoming a major area of investment for corporate IT, and for database and transaction software providers, that will slowly but deeply transform both domains. Conventional mainframe, database, and client/server suppliers are aggressively Web-enabling their offerings, while a multitude of new tools for building Web-database/transaction systems have appeared. This is enabling a new era in extended enterprise systems:

- Addition of Web front-ends to existing "legacy" transaction systems to radically broaden their use --like the Fedex package tracking system, now available to any customer with Web access.
- Creation of entirely new inter-enterprise transaction systems--like the Cisco Connection Online, a self-service order placement and support system, now available to all customers under contract (which is expected to account for over $1 billion in business in 1997).

Inter-organizational collaboration and bulletin board systems are also crude and poorly integrated with other vehicles. The integration of common messaging and shared, replicated database infrastructure -- that has served advanced groupware systems like Lotus Notes so well -- is just beginning to mesh with Internet/intranet infrastructures. With players like Lotus and Netscape's Collabra unit racing to control this sector, this is an area to watch. Similarly, the combination of messaging with programmed transaction processing into workflow systems or message-based applications, which are a powerful groupware facility, has not yet taken shape for Internet-based groupware. Only when integrated "intergroupware" becomes real across organizations in the larger domain of the Internet will electronic communities reach full functionality

This broader congruence is coming. The engine of common Internet/intranet technology and applications is driving rapid development across this whole space. By understanding the overall direction of this development we can better anticipate and accelerate the process. We look toward the digital economy, the virtual corporation, and the erosion of organizational boundaries into dynamic communities (Toffler's "ad-hocracies") of participants in digital commerce and society in general. Integrated tools for messaging, collaboration, coordination, and publishing are needed to support relationship marketing activities with customers, prospects, suppliers, channels, and other overlapping and evolving electronic communities. The distinction between the two planes will blur, with only gradations of security, privacy, and management control as fundamental differentiators.

The term *intranet* has already become confining as emerging applications are beginning to serve these interlocking networks of customers and vendors. The Gartner Group describes the firewall between Internet and intranet as "a semipermeable membrane that will become more porous with time." The newer term *extranet* was coined to recognize this evolution. But these terms are only suggestive--the reality of intergroupware and electronic commerce is too rich in ever-changing varieties of interconnectedness to fall neatly into any such category.

As we exploit the convergence of inter- and intra- organizational infrastructures, we can build on their complementary strengths and combined economies of scale to move more quickly and surely to achieve a flexible and seamless infrastructure. Remember that the essence of the Internet is an "internetwork"--a network of networks. Solving the problems of security, data sharing, standards, and technical architectures for a deeply functional but open internetwork will take time and effort, but the drivers are in motion. Using this simple model, the overall functional direction can be foreseen more clearly.

Definitions: Internet, intranet, extranet, groupware, intergroupware

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To dig deeper, a related Web resource guide is available at www.teleshuttle.com/media.

(This paper is revised from a 6/96 version which described extranets before that term came into use.)

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