

The Evolution of Converged Communications Services in Higher Education

After its formation in 1999, the EDUCAUSE Net@EDU Integrated Communications Strategies (ICS) Working Group decided to concentrate on Voice over IP (VoIP), with the intent to investigate a number of assumptions regarding the cost, timing, and motivation for moving to an integrated voice and data infrastructure.¹ An important early event, in August 2000, was the EDUCAUSE/NSF-sponsored VoIP Summit, where the focus of the Working Group evolved from voice to the more general question of the convergence of communications services—that is, the deployment of voice, data, and video services over a single network.²

At the summit, the most important questions surrounding convergence appeared to involve nontechnical issues:

- Are the policy and financial issues well understood?
- Is the transition likely to be gradual, or is there a “killer application” on the immediate horizon? Are there compelling reasons to move quickly?
- Should a conservative approach be taken because of underlying technologies that may not be sufficiently ma-

ture to support mission-critical services at the “five nines” (99.999%) level of reliability?

To answer these questions and others that have arisen since that time, the ICS Working Group Steering Committee recently conducted a survey of two hundred higher education institutions. As of this writing, seventy-one have responded, for a return rate of 36 percent. About one-half of the respondents are Research-1 institutions, one-fourth are Research-2 and doctoral-granting institutions, and the remainder are at the master’s, bachelor’s, and associate’s level.

The information that follows is an edited, condensed summary of the results of the survey.³ The results cannot be considered as representative of all of higher education. The survey was sent to a highly selective group of institutions: most are either members of Net@EDU or have worked with the ICS Working Group in the past. Instead, this analysis can be considered as representative of conversations that would occur at a national meeting of individuals interested in integrated communications strategies.

Reasons for Considering Convergence

Why are these institutions pursuing convergence? Long-distance savings have become less important as telephone companies have become increasingly cost-competitive (though this trend may not continue, given the current turmoil in the telecommunications industry). Other reasons are the significant service improvements that result from combining support staff or network facilities (see Table 1). But the most frequently reported reason for pursuing convergence was an interest in enhanced applications. The following are just a few of the many examples given: video help-desk; unified messaging, call management via the Web, and integrated voice, data, and video messages; “a godsend for our telecommuters”; more video in the classroom; strong agent in distance learning; decreased cost of adding and moving phones, with lower cost and better service than with existing current telephone equipment; remote support of instrumentation at a telescope located one thousand miles away; conversion of cable TV to run over the campus network and into residence halls; better user interfaces; mobility, accessing voice/video/data information from anywhere; and video conferencing among colleagues for organizing joint efforts (“IP video is more like the telephone, and people just use it in their own location, on their own schedule, and at no cost”).

Progress toward Convergence

Research-1 universities are the most aggressive in their progress, particularly in developing the planning, operations, and financial modeling necessary to support

The steering committee for the ICS Working Group welcomes your observations and invites your participation. You may contact any of the steering committee members:

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TABLE 1.

Reasons for Pursuing Convergence

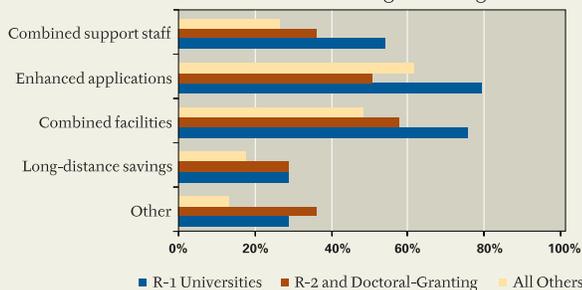


TABLE 2.

Organizational Effort

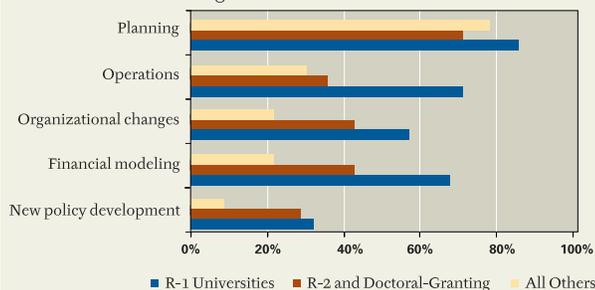


TABLE 3.

Converged Production Systems

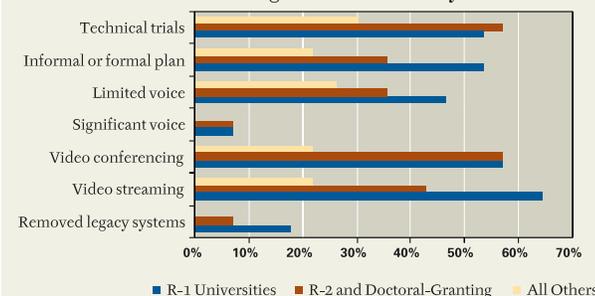
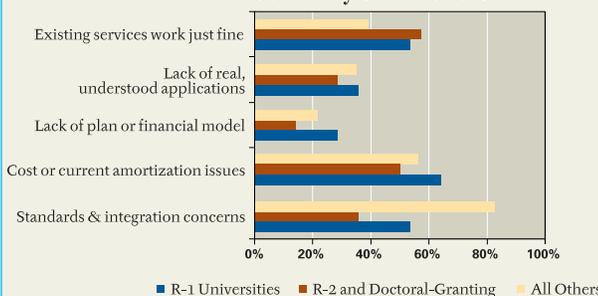


TABLE 4.

Summary of Inhibitors



a converged environment (see Table 2).

Video, both streaming and conferencing, is leading the way in implementation and in production at most institutions re-

sponding to the survey (see Table 3). Significant voice is still in the planning or experimental stages. Regarding the Table 3 statistic on removal of legacy systems, in every case the responses indicated the replacement of only some small portion of legacy services (a small section of a telephone network, for example) or the deployment of converged systems instead of legacy systems only in special circumstances (such as a new building or a small, remote facility).

Factors Inhibiting Progress

Not surprisingly, standards and costs are the two “inhibitor” elements being studied most carefully as institutions pursue convergence (see Table 4). Given the mission-criticality of the network and the services affected by convergence, for many institutions the approach appears to be to proceed with caution toward implementation while moving ahead aggressively with planning, analysis, and testing.

Specific comments about inhibitors focused on security issues, emergency 911, concerns about the immaturity of the technology, campus networks that are not ready to support the applications, and organizational structures that were either fragmented or not prepared to assume the responsibilities inherent in ICS work.

Conclusions

The primary reasons to pursue convergence are the increased productivity resulting from combining organizations and infrastructure and, of central importance, new or enhanced applications. Planning, financial modeling, organizational restructuring, and technical trials are occurring at many institutions. Key inhibitors to convergence are concerns about standards, technical stability, cost, and the need to amortize existing investments as part of the migration process.

The results of the survey of institutions currently engaged in ICS efforts suggest that the convergence process is an *evolutionary* rather than revolutionary phenomenon. David Wasley, with the University of California Office of the President, explained: “The fact is that most institutions have a large investment in the existing technology and it offers a good set of functionality that we rely on. To invest in a complete replacement system must be justified by an incremental improvement in the service—even parity won’t make it.”⁴ Yet the growing number of institutions engaged in ICS initiatives suggests that convergence will soon become a compelling alternative to the provision of separately networked voice, data, and video services. Now is thus an ideal time to begin developing a fuller understanding of the implications of convergence.

Notes

1. Additional information about the working group can be found at <<http://www.educause.edu/netatedu/groups/ics/>>.
2. For the results of this summit, see E. Michael Staman, “Voice over IP as a Model for Multi-Services Networking,” report paper, October 9, 2000 <<http://www.educause.edu/asp/doclib/abstract.asp?ID=NET0018>> (accessed September 10, 2002).
3. A copy of the survey instrument and a full analysis can be obtained by contacting the author.
4. Wasley to the author, personal correspondence.

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