

# Foreword

**T**he EDUCAUSE Center for Applied Research (ECAR) was launched on January 1, 2002, to create a body of research and analysis on important issues at the intersection of higher education and information technology. ECAR is fulfilling its mission through a program of symposia and through the publication of biweekly research bulletins, detailed research studies, occasional papers, executive roadmaps, and case studies designed to highlight effective practices, lessons learned, and other insights from the practical experience of campus leaders. Since ECAR's inception, nine symposia have been held and more than 260 research publications have been issued.

## **Information Technology Security in Higher Education**

Simply stated, information technology (IT) security is a pressing issue. In fact, in the seventh and most recent annual survey of current IT issues, 628 key IT leaders from the EDUCAUSE membership rated security and identity management second only to IT funding in importance. This is not a new priority. College and university administrators have long invested money and human resources to protect their information assets and those of their faculty. This effort is

growing, as there is no end in sight to security threats and breaches.

Rising demand for all IT services and the widespread distribution and governance of research computing resources, coupled with an incredible rise in computer crimes, places increasing stress on higher education institutions. Even institutions famous for their IT security investments and policies are at risk and have suffered newsworthy break-ins, resulting in the theft of student Social Security numbers and other personal, private, or confidential information. Colleges and universities too frequently serve as launchpads for virus and denial-of-service attacks, creating public relations, financial, and regulatory exposure for higher education as a whole.

ECAR studied IT security in 2003. We found that despite the national attention and ongoing efforts of EDUCAUSE, Internet2, and other organizations to develop and foster a modern and secure IT infrastructure in higher education, our knowledge of the current state and future plans of colleges and universities vis-à-vis IT security was largely anecdotal. We had little quantitative information on the impact of distributed computing, distance learning, and mobile/wireless capabilities on security. We concluded that higher education's leadership was not fully engaged in this issue

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and was too often reactive rather than proactive. Interviewees told us that higher education's academic culture believed that security, academic freedom, and intellectual freedom were antithetical.

The 2006 IT security story is a breathtaking tale of widespread marshalling of talent and other resources in the face of rising threats. Principal investigator Bob Kvavik refers to a sea change, and he is not prone to exaggeration. Importantly, this study chronicles IT security in one sector of the economy, over time. This particular longitudinal study is what statisticians refer to as a panel study—that is, a study that assesses changes over time among a *constant set of respondents*. Among 492 total survey respondents, 204 institutions responded to both the 2003 and the 2005 surveys. These respondents reported extraordinary changes in both hard and soft security measures in just two and a half years. More than 60 percent of the most recent respondents report having a centralized IT security function, and nearly one-third of these respondents now have a chief information security officer. And as you will read, once a program and a designated officer are in place, good things tend to follow.

Notwithstanding the extraordinary progress this report details, the study reminds us that ongoing opportunities and challenges posed by networked information demand responses that are at once technological and cultural in nature. The story of IT security in higher education is ultimately a story of people—those outside and inside our academies with sinister motives, and those outside and inside our academies with good intentions but incomplete knowledge of or attention to good practice. These people, good and bad, converge in, on, and around our virtual commons, which we have optimized to facilitate the free exchange of scholarly ideas and communication. In the end, higher education's potential to secure its stakeholders

and their information assets will depend on the creativity, vigilance, investment, and technical sophistication of our IT leaders on one hand and on communications, education, awareness training, and collaboration among institutional subunits on the other. IT security continues to be everyone's responsibility.

## **Many Contributors to the Study**

The efforts of EDUCAUSE in the IT security domain have been noteworthy. EDUCAUSE has partnered with university leaders, sister organizations, government agencies, corporations, and others to conceive, develop, and deploy technologies, techniques, and standards to help all colleges and universities come to grips with ever-rising security problems and to showcase effective approaches from all sectors. ECAR is especially grateful to Mark Luker, Rodney Petersen, and Steve Worona, who lead these efforts within EDUCAUSE. In addition to helping secure higher education, these busy people advised us throughout the course of this research effort. Of course, they bear no responsibility for our findings or conclusions.

Bob Kvavik and John Voloudakis are extremely gifted investigators. It is a real honor to work with them. Bob, John, and I worked on ECAR's first internally developed research study, *The Promise and Performance of Enterprise Systems for Higher Education*, and their contributions to ECAR and to higher education are too numerous to list. Bob Kvavik has authored or coauthored more ECAR studies than anyone, and the community owes him a considerable debt of respect. While he remains an ECAR senior fellow, he now assumes a vice presidency at the University of Minnesota, fitting recognition for an extraordinary career of service. We will miss Bob's daily engagement in ECAR's work but wish him continued success in this new and important endeavor.

The real team in any ECAR study is the EDUCAUSE community. Our ability to develop a good understanding of the state of practices, policies, and directions in higher education depends on the goodwill of our friends in the community. Literally hundreds of busy CIOs and security officers shared their experiences and expertise on our quantitative survey, and many more gave generously of their time in interviews. We are particularly grateful to higher education IT leaders Ardoth Hassler, Joy Hughes, Jack Suess, and Krizi Trivisani for their time and insights in interpreting our findings. We also thank Stephen Fridakis, chief information security officer of the United Nations, who also shared his expertise and cross-industry perspective with us.

While we are always exceptionally proud of the quantitative robustness of ECAR data and the rigor of our analysis, ECAR studies would not be complete without the rich contribution of leaders and specialists who agree to participate with us as qualitative research subjects. We are indebted to Ced Bennett, Mary Ann Blair, John Bruggeman, Mark Bruhn, Rob Clark, William Custer, Michael Gettes, Merri Beth

Lavagnino, and Carol Meyers for their time and contributions.

ECAR research is fundamentally a collaborative effort, and this instance is no exception. While Bob Kvavik and John Voloudakis lifted the heavy end of this research, Bob Albrecht, Judy Caruso, Judy Pirani, and Don Spicer conducted interviews and spearheaded the case work that accompanies this report. Gail Salaway set up the SPSS files and consults continually with ECAR investigators on both the finer points of analysis and the substance of higher education practice. Phil Goldstein and Ron Yanosky reviewed and commented on drafts and interpretations of data. Toby Sitko is very simply the glue that binds the ECAR research enterprise with the processes that translate this work into the highly readable materials you receive. We are lucky to have this amazing team. And of course ECAR stands on the shoulders of the great EDUCAUSE staff, who never fail to amaze. EDUCAUSE is an organization that truly takes pride in excellence and strives for greatness in its performance. It is an honor to work with EDUCAUSE staff.

*Richard N. Katz  
Boulder, Colorado*