

Student Innovations

at the Center for Professional Development 

Voting over the Internet

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Project:

"Apply existing technology to solve a real-life problem" for the System and Network □ Security class.

Outcome:

Team members innovated a secure Internet-based voting system that could make it possible for registered voters to securely vote over the Internet. Students created a functional voting system using off the shelf resources like Microsoft's 2000 Server, Microsoft's IIS 5.0 (web server), Linux Firewall software (Firewall) and Microsoft SQL 2000 (database) for implementation of various aspects of the system. Secure Socket Layer technology along with digital certificates were used to create a Virtual Private Network so as to simulate an encrypted one-to-one voting channel from web server to voter's web browser. Further IpSec technology is used to make the internal network completely secure and tamper free.

Under the system, each registered voter is assigned a PIN or Personal Identification Number, which replaces the current voter registration card. Online voting requires successful PIN entry and validation prior to a voter casting an online ballot; the PIN also ensures each voter casts only one vote. Voting information is encrypted and transmitted through the Internet to a secure web server. A robust packet filtering firewall, which filters out non-essential packets to significantly reduce the chances of potential hacking attempts, guards the web server. It also deters most denial of service attacks, providing reliable service to the voter. All transferred data is encrypted with powerful encryption mechanisms guarding against possible manipulations and thus ensuring privacy of the voter. The voting information is stored in a secure database in an encrypted format to provide security against tampering.

The project was featured in an article titled "College Students Put Voting Booth Online" which appeared in the February 6th edition of the Daily Herald Newspaper.

Networks



Users



Databases



Security



Illinois Institute
of Technology

