UT DALLAS

Cyber Security Research & Education Center (CySREC)

ERIK JONSSON SCHOOL OF ENGINEERING & COMPUTER SCIENCE AT THE UNIVERSITY OF TEXAS AT DALLAS

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Cloud-Centric Assured Information Sharing Goes Global

The Cyber Security Research and Education Center (CySREC) at UT Dallas is reaching out to universities around the world in the drive to share data safely in the expanding realm of cloud computing. Dr. Bhavani Thuraisingham, Executive Director of the Center, said that with more and more information exchanged and shared via the cloud, bolstering international partnerships is key because data processing can occur anywhere in the cloud, located anywhere in the world.

Dr. Bhavani Thuraisingham

Assured cloud computing is the effort to maintain confidentiality, privacy and trust for users of the cloud – a growing web-based computing environment in which processing, information and storage are accessed online on demand. UTD Professors Dr. Murat Kantarcioglu and Dr. Latifur Khan together with Thuraisingham have developed pioneering technologies for secure data storage and query processing in the cloud. They have subsequently integrated these technologies with their novel techniques for policy- and incentive-based information sharing. International collaboration builds on this research by the UT Dallas team.

"*Our team developed a demonstration system with our European partners, Kings College at the University of London and the University of Insubria in Italy, who are being funded by the European Office of Aerospace Research and Development*," Thuraisingham said. "*Our first demonstration illustrates how information may be shared in a single cloud. That is, each organization stores their data in a cloud and the data will be shared according to the policies that are specified by a partner. In a second demonstration, we are implementing a policy engine that will allow multiple social networks to share information across multiple clouds in accordance with the policies*," she added.

"*Bhavani is a leader in data and applications security research and was instrumental in forming two multi-university teams: one on assured information sharing and one on assured cloud computing*," said Dr. Elisa Bertino, Professor of Computer Science and Research Director of the Center for Education and Research in Information Assurance and Security at Purdue University. "*Both projects have made breakthrough contributions in cyber security and I am proud to be part of both teams*," Bertino added.

In an effort to create collaboration with Asia-Pacific countries, Thuraisingham recently gave a keynote address on this research in Sydney, Australia at the 9th IEEE Conference on Dependable, Autonomic and Secure Computing. Macquarie University in Sydney will be exploring opportunities to join the team with funding from the Asian Office of Aerospace Research Development. Collaborations with Europe and Asia-Pacific partners will lay the foundation for an international collaboration in cloud-centric assured information sharing.

"*To continue to excel in our research in assured cloud computing, we have expanded our team to include Professors Kevin Hamlen, Zhiqiang Lin and Kamil Sarac who are conducting a more in-depth investigation of secure virtual machine monitors, cloud forensics, and cloud monitoring tools*," Thuraisingham said. "*Our work in this area has been supported by the U.S. Air Force Office of Scientific Research*," she added.

The Cyber Security Research and Education Center was founded in October 2004 by Bhavani Thuraisingham, the Louis A. Beecherl Jr. I Distinguished Professor of Computer Science. The team has grown from two to six professors working in data and applications security, assured cloud computing, systems security and forensics, software and language security, network security and data mining for malware detection. The Center also has several, affiliated faculty in the School of Engineering and Computer Science, the Jindal School of Management and the School of Economics, Political and Policy Sciences.

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