UNIVERSITY OF SOUTH FLORIDA

Major Research Area Paper Presentation

Privacy-Preserving and Functional Information Systems
by
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For the Ph.D. degree in Computer Science & Engineering

Information systems generally involve storage and analytics of large-scale data, many of which may be highly sensitive (e.g., personal/medical information, financial transactions). Thus, it is critical to ensure that these systems not only provide essential functionalities at large scale efficiently but also achieve a high level of security against potential cyber threats. Unfortunately, there are significant research challenges in offering the security and privacy for such information systems while preserving their original functionalities and efficiency (e.g., search, update, analytics). Hence, there is a critical need for efficient cryptographic protocols that can address data privacy versus utilization dilemma for real-life applications.

In this talk, we will present our new series of privacy-enhancing technologies toward enabling breach-resilient and functional information systems. We target privacy-preserving data outsourcing applications featuring critical functionalities (i.e., data query and analytics) with a high level of privacy guarantee. Specifically, we will focus on novel searchable encryption techniques that allow the client to perform a keyword search and update on the outsourced data while preserving the keyword privacy and data confidentiality simultaneously. We will then present new distributed Oblivious RAM protocols that permit the client to hide the access patterns efficiently when accessing data stored on the untrusted server(s).

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1:00 PM
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THE PUBLIC IS INVITED

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