Title: "Privacy-Preserving Information Brokering"

Peng Liu (Pennsylvania State University, USA)

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Position Paper

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In contrast with the situations when the information seeker knows where the needed data is located, a Distributed Information Brokering System (DIBS) needs to help each information seeking query "locate" the corresponding data source(s). Although DIBSs face daunting maintenance challenges, the data source locationing capability is highly desired in many important applications, such as emergence health care. Due to this new capability, existing anonymous communication techniques, such as Chaum Mix and Tor, are no longer sufficient. And the privacy enhancing measures must be integrated with the query routing operations.

In this work, we present a flexible and scalable DIBS using a broker-coordinator overlay network. Through a novel automaton segmentation scheme, in-network access control, and query segment encryption, our system integrates security enforcement and query forwarding while preserving system-wide privacy.

In summary, we believe that protecting the privacy of applications that involve data source or content locationing is a promising research direction and there are still a number of interesting privacy protection problems yet to be addressed.

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Bio:

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Dr. Peng Liu is an associate professor of Information Sciences and Technology at the Pennsylvania State University. He is the Director of the PSU's Center for Cyber-Security, Information Privacy, and Trust, and the Director of the Cyber Security Lab. His research interests are in all areas of cyber security. Dr. Liu has published a monograph and more than 100 refereed technical papers. More information about Peng Liu can be found at http://ist.psu.edu/s2/pliu