

HPI Kolloquium

17.05.2018, 16.00 Uhr

Hasso-Plattner-Institut, Hauptgebäude, Hörsaal 1
Campus Griebnitzsee, 14482 Potsdam

“Data Protection in Resource-Constrained Computing Systems”

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Abstract

Resource-constrained computing is a variant of distributed computing, in which computations are conducted using low-powered, low-processing, and memory-limited components. Systems based on this concept are well suited to scenarios where access to standard technology is impeded by infrastructural and economic factors. Application examples emerge in health information systems, environmental monitoring, and in cyber-physical-systems such as smart microgrids. The focus of this talk will be on data protection in resource constrained computing systems in which resources are user-contributed. Since the management of such a system is by necessity distributed, providing firm guarantees of data protection to users, is important in ensuring stability. The reason for this is that system stability is contingent on user participation. Therefore, loss of trust in the reliability of the system can result in user withdrawals and a breakdown of the system. I begin by considering models which are dependent on high-processing computing components such as cloud computing systems. Then, progressively transition towards models in which the system operates autonomously based solely on user-contributed resources. To demonstrate feasibility, I will describe results from prototype implementations.

Short CV

Anne Kayem is a guest researcher working with the Internet Technologies and Systems chair at the Hasso-Plattner-Institute. Prior to this, she held a Senior Lectureship at the University of Cape Town, South Africa; and was a Postdoctoral Research Fellow at the DFKI in Bremen, Germany. She holds a PhD degree in Computer Science from Queen’s University in Canada. Her research is in the area of secure distributed systems, with a special interest in resource-constrained computing, data privacy, and pragmatic security and privacy models. Dr. Kayem is a recipient of the South African National Research Foundation Young Researcher Award, has authored various peer-reviewed publications, and written as well as co-edited three (3) books on various security topics. She is an associate editor of the Parallel Processing Letters journal and is an active member of journal review boards such as ACM Surveys, IEEE Transactions on Mobile Computing, and Elsevier Information Security.

Host: Prof. Dr. Christoph Meinel