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IFIP was founded in 1960 under the auspices of UNESCO, following the first World Computer Congress held in Paris the previous year. A federation for societies working in information processing, IFIP's aim is two-fold: to support information processing in the countries of its members and to encourage technology transfer to developing nations. As its mission statement clearly states:

*IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.*

IFIP is a non-profit-making organization, run almost solely by 2500 volunteers. It operates through a number of technical committees and working groups, which organize events and publications. IFIP's events range from large international open conferences to working conferences and local seminars.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is generally smaller and occasionally by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

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Sheikh Mahbub Habib · Julita Vassileva  
Sjouke Mauw · Max Mühlhäuser (Eds.)

# Trust Management X

10th IFIP WG 11.11 International Conference, IFIPTM 2016  
Darmstadt, Germany, July 18–22, 2016  
Proceedings

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# Preface

This volume contains the proceedings of the 10th Annual IFIP Working Group 11.11 International Conference on Trust Management (IFIP TM). This is an annual research conference, organized by the International Federation for Information Processing Working Group WG 11.11, which started in 2007. The previous editions were held in New Brunswick (Canada, 2007), Trondheim (Norway, 2008), West Lafayette (USA, 2009), Marioka (Japan, 2010), Copenhagen (Denmark, 2011), Surat (India, 2012), Malaga (Spain, 2013), Singapore (2014), and Hamburg (Germany, 2015). This year, IFIP TM was part of the “Security&Privacy Week” (SPW) in Darmstadt, where more than a handful of security and privacy conferences and workshops took place. IFIP TM 2016 and the SPW were hosted by the Technische Universität Darmstadt, Germany, during July 18–22, 2016.

IFIP TM is a flagship conference of the IFIP Working Group 11.11. It focuses on novel research topics related to computational trust and trust-related issues of security and privacy. The IFIP TM 2016 conference invited contributions in several areas, including but not limited to trust architecture, trust modeling, trust metrics and computation, reputation and privacy, security and trust, socio-technical aspects of trust, and attacks on trust and reputation systems.

This year, we received 26 submissions from different parts of the world, including Australia, Belgium, Canada, China, Colombia, Egypt, Germany, Greece, Hong Kong, India, Indonesia, Israel, Japan, Malaysia, The Netherlands, Norway, Singapore, Spain, UK, and the USA. Every submission went through a peer-review process, with at least three reviewers. After carefully analyzing all the reviews, we accepted seven full papers (acceptance rate of 26.92 %) in addition to seven short papers.

Every year IFIP TM hosts the William Winsborough Commemorative Address in memoriam of our esteemed colleague Prof. William Winsborough. The award is given to an individual who has significantly contributed to the areas of computational trust and trust management. In 2016, the Working Group was pleased to host Prof. Simone Fischer-Hübner of Karlstad University, Sweden, to present a keynote speech on “Transparency, Privacy and Trust Technology for Tracking and Controlling my Data Disclosures: Does this Work?” An invited paper related to the keynote is also included in the proceedings.

In addition to papers and the William Winsborough keynote address, IFIP TM hosted Prof. Vijay Varadharajan of Macquarie University Sydney, Australia, to present a keynote speech on “Trust Enhanced Secure Role-based Access Control on Encrypted Data in Cloud.” An abstract of his speech is also included in these proceedings. Finally, the conference hosted a special panel session on “The Ideology of Social Science Meets The Digitisation of Trust, Security and Privacy,” organized and chaired by Dr. Natasha Dwyer of Victoria University Melbourne, Australia, and Sarah Talboom of Vrije Universiteit Brussel, Belgium. This session is exclusively organized for the speakers of the accepted papers in order to let them share the stories behind their papers.

In order to organize a successful conference, a team of dedicated people is a key. We would like to thank our honorable Program Committee members as well as additional reviewers for their timely, insightful, and thoughtful reviews. We are also fortunate to get a professional and friendly team of workshop and tutorial, panel and special session, graduate symposium, Web and Publicity chairs, and local organization chairs. Since IFIP TM 2016 is part of the ‘Security&Privacy Week’, thanks and appreciation go to local organization team members, especially Verena Giraud and Matthias Schulz. Finally, thanks to the Technische Universität Darmstadt and the funded projects and centers such as CROSSING, the Doctoral School “Privacy and Trust for Mobile Users,” and CYSEC at TU Darmstadt for providing the facilities and financial support.

Authors are essential for the success of conferences. Congratulations to all of those who got accepted and thanks to those who submitted to become a part of this research community. A number of conferences are out there that have trust among their topics of interest. IFIP TM distinguishes itself with its focus on the application of computational models of trust and trust management in different fields such as cybersecurity, privacy, human–computer interaction, social sciences, and risk quantification. We strive to build IFIP TM as a cross-disciplinary conference and without your support and feedback this would be impossible.

For more information on the working group, please visit <http://www.ifiptm.org/>

We hope that you enjoyed the conference and reading the proceedings.

May 2016

Sheikh M. Habib  
Julita Vassileva

# **IFIP Trust Management X**

## **10th IFIP W.G. 11.11 International Conference on Trust Management, 2016**

**Darmstadt, Germany  
July 18–22, 2016**

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# Trust Enhanced Secure Role-based Access Control on Encrypted Data in Cloud (Abstract of Keynote Talk)

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**Abstract.** In this talk I will begin with a brief look at current trends in the technology scenery and some of the key security challenges that are impacting on business and society. In particular, on the one hand there have been tremendous developments in cyber technologies such as cloud, Big Data and Internet of Technologies.

Then we will consider security and trust issues in cloud services and cloud data. In this talk, we will focus on policy based access to encrypted data in the cloud. We will present a new technique, Role based Encryption (RBE), which integrates cryptographic techniques with role based access control. The RBE scheme allows policies defined by data owners to be enforced on the encrypted data stored in public clouds. The cloud provider will not be able to see the data content if the provider is not given the appropriate role by the data owner. We will present a practical secure RBE based hybrid cloud storage architecture, which allows an organisation to store data securely in a public cloud, while maintaining the sensitive information related to the organisation's structure in a private cloud.

Then we will consider trust issues in RBE based secure cloud data systems. We will discuss two types of trust models that assist (i) the data owners/users to evaluate the trust on the roles/role managers in the system as well as (ii) the role managers to evaluate the trust on the data owners/users for when deciding on role memberships. These models will take into account the impact of role hierarchy and inheritance on the trustworthiness of the roles and users. We will also consider practical application of the trust models and illustrate how the trust evaluations can help to reduce the risks and enhance the quality of decision making by data owners and role managers of the cloud storage services.

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