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IFIP – The International Federation for Information Processing

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.

IFIP distinguishes three types of institutional membership: Country Representative Members, Members at Large, and Associate Members. The type of organization that can apply for membership is a wide variety and includes national or international societies of individual computer scientists/ICT professionals, associations or federations of such societies, government institutions/government related organizations, national or international research institutes or consortia, universities, academies of sciences, companies, national or international associations or federations of companies.

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David Aspinall · Jan Camenisch
Marit Hansen · Simone Fischer-Hübner
Charles Raab (Eds.)

Privacy and Identity Management

Time for a Revolution?

10th IFIP WG 9.2, 9.5, 9.6/11.7, 11.4, 11.6/SIG 9.2.2
International Summer School
Edinburgh, UK, August 16–21, 2015
Revised Selected Papers

Springer

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Preface

Over the last decade privacy has been increasingly eroded, and many efforts have been made to protect it. New and better privacy laws and regulations have been made, such as the European General Data Protection Regulation. Industry initiatives such as "Do Not Track" and better accountability have been launched. The research community on privacy and data protection has burgeoned, covering a wider range of technical, legal, and social disciplines. Many privacy-enhancing technologies (PETs) for user-controlled identity management and eIDs have gained in maturity, and the public at large is responding to privacy-related challenges.

Despite these positive signs, privacy remains highly vulnerable. Rapid technology developments and increasing interest in identities and other personal data from commercial and government sectors have fuelled increasing data collection to privacy's detriment, with little apparent financial advantage in its protection. Laws and regulation have been faltering for various reasons: weak and slow implementation, ineffective sanctions, and easy circumvention. Many laws aim at checkbox compliance rather than promoting the actual protection of human rights. Technology and processes have become so complex that not even experts – let alone end-users – can tell whether or not privacy is being protected; hence protective measures are inhibited. This makes it more difficult for user-controlled identity management to succeed in empowering users. Moreover, the Snowden revelations in 2013 made it clear that electronic infrastructures are very vulnerable, and protection mechanisms such as encryption are rarely used. Identity information of Internet and phone users is being collected and analyzed by intelligence services in the pursuit of national security. This is problematic not only for maintaining privacy and managing one's identities, but for the organization and structure of societies and economies in general. Against the hope that this message would be sufficiently clear to enable action to secure infrastructures, the crypto debate has instead re-surfaced, concerning whether users should be allowed to use proper encryption or not.

This raises questions about what is needed to increase privacy protection. Do we need a technological, social, or political revolution, or are we seeing a variety of evolutionary and piecemeal advances? Are the available legal, technical, organizational, economic, social, ethical, or psychological instruments effective? Do we need a transformation of our thinking and acting: a broad sociocultural movement based on personal initiative, not only for citizens to voice their opinions, but also to implement and maintain solutions as alternatives to those technical infrastructures that have been found wanting? These questions, as well as current research on privacy and identity management in general, were addressed at the 10^{th} Annual IFIP (International Federation for Information Processing) Summer School on Privacy and Identity Management, which took place in Edinburgh, Scotland, August 16–21, 2015. The Summer School organization was a joint effort among IFIP Working Groups 9.2, 9.5, 9.6/11.7, 11.4, 11.6, and Special Interest Group 9.2.2, CRISP (Centre for Research into Information, Surveillance and Privacy), the University of Edinburgh School of Informatics

and their Security and Privacy Research Group, and several European and national projects: A4Cloud, FutureID, PrismaCloud, PRISMS, and the Privacy-Forum. Sponsorship was received from these organizations and SICSA, the Scottish Informatics and Computer Science Alliance.

This Summer School series takes a holistic approach to society and technology and supports interdisciplinary exchange through keynote and plenary lectures, tutorials, workshops, and research paper presentations. Participants' contributions ranged across technical, legal, regulatory, socioeconomic, social, political, ethical, anthropological, philosophical, and psychological perspectives. The 2015 Summer School brought together some 75 researchers and practitioners from many disciplines, once again, including many young entrants to the field. They came to share their ideas, build up a collegial relationship with others, gain experience in making presentations, and have the chance to publish a paper through these resulting proceedings. Sessions were held on a range of topics: cloud computing, privacy-enhancing technologies, accountability, measuring privacy and understanding risks, the future of privacy and data protection regulation, the US privacy perspective, privacy and security, the PRISMS Decision System, engineering privacy, cryptography, surveillance, identity management, the European General Data Protection Regulation framework, communicating privacy issues to the general population, smart technologies, technology users' privacy preferences, sensitive applications, collaboration between humans and machines, and privacy and ethics.

Reflecting the theme of "Privacy and Identity Management: Time for a Revolution?", an evening audiovisual presentation was given by the composer Matthew Collings and digital designer Jules Rawlinson, based on their opera production, *A Requiem for Edward Snowden*, which was performed in the Edinburgh Festival Fringe. The opera addresses security, loss of faith, and personal sacrifice in a world where we are totally reliant on electronic communication and daily routines in which our privacy is routinely compromised. Collings and Rawlinson explained how they interpreted, interwove, and portrayed these themes as an audiovisual narrative incorporating electronic sound, acoustic instrumentation, and live visuals. The 2015 invited lectures were given by Gabriela Barrantes, Timothy Edgar, Lilian Edwards, Michael Friedewald, Mark Hartswood, Gerrit Hornung, Anja Lehmann, Melek Önen, and Angela Sasse, and a tutorial was given by Kami Vaniea. Many of the Summer School papers, covering a broad landscape of themes and topics, were revised and reviewed for publication in these proceedings, including the paper by Olha Drozd, which was judged to be the Summer School's best student paper.

We are grateful to the Program Committee, the many reviewers of abstracts and papers, those who advised authors on their revisions, the Principal of the University of Edinburgh, and the Head and staff of the School of Informatics at Edinburgh. All contributed in many ways to ensure the successful outcome of the Summer School.

Finally, we dedicate these proceedings to the memory of Caspar Bowden, our colleague, friend, and former participant in Summer Schools and other IFIP events. His final illness prevented him from accepting our invitation to give a prominent keynote lecture and, as before, attending and inspiring us in our common endeavor. Caspar died on the 9th of July, six weeks before the Summer School took place. He will be

remembered as a highly knowledgeable expert and a tireless advocate for information privacy rights, and his loss is felt by so many across the world.

May 2016

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