

IEEE CLOUD

COMPUTING



MANUFACTURING & THE CLOUD



Mobile Service Computing 32
Securing Cryptographic Keys 42

JULY/AUGUST 2016
www.computer.org/cloudcomputing



IEEE  computer society
CELEBRATING 70 YEARS





CONTENT



What will the future of cloud computing look like? What are some of the issues professionals, practitioners, and researchers need to address when utilizing cloud services? *IEEE Cloud Computing* magazine serves as a forum for the constantly shifting cloud landscape, bringing you original research, best practices, in-depth analysis, and timely columns from luminaries in the field.

FEATURE ARTICLES

24 Social-Oriented Resource Management in Cloud-Based Mobile Networks

Zhaolong Ning, Feng Xia, Xiangjie Kong, and Zhikui Chen

32 Toward Mobile Service Computing: Opportunities and Challenges

Shuiguang Deng, Longtao Huang, Hongyue Wu, Wei Tan, Javid Taheri, Albert Y. Zomaya, and Zhaohui Wu

42 Securing Cryptographic Keys in the Cloud: A Survey

Bushra AlBelooshi, Ernesto Damiani, Khaled Salah, and Thomas Martin

58 Hybrid Cryptographic Access Control for Cloud-Based EHR Systems

Uthpala Premarathne, Alsharif Abuadbba, Abdulatif Alabdulatif, Ibrahim Khalil, Zahir Tari, Albert Zomaya, and Rajkumar Buyya



July/August 2016
Volume 3, Issue 4

www.computer.org/cloudcomputing

COLUMNS

4 From the Editor in Chief Manufacturing and the Cloud

Mazin Yousif

6 Cloud Economics The Economics and Strategy of Manufacturing and the Cloud

Joe Weinman

12 Cloud Tidbits The Technical Case for Mixing Cloud Computing and Manufacturing

David S. Linthicum

16 Cloud and the Law Cloud Manufacturing: Security, Privacy, and Forensic Concerns

Christian Esposito, Aniello Castiglione, Ben Martini,
and Kim-Kwang Raymond Choo

66 Blue Skies Internet of Things and Edge Cloud Computing Roadmap for Manufacturing

Dimitrios Georgakopoulos, Prem Prakash Jayaraman,
Maria Frazia, Massimo Villari, and Rajiv Ranjan

74 Standards Now Cloud, Data, and Business Process Standards for Manufacturing

Alan Sill

23 IEEE CS Information 41 Advertising Index

Reuse Rights and Reprint Permissions: Educational or personal use of this material is permitted without fee, provided such use: 1) is not made for profit; 2) includes this notice and a full citation to the original work on the first page of the copy; and 3) does not imply IEEE endorsement of any third-party products or services. Authors and their companies are permitted to post the accepted version of their IEEE-copyrighted material on their own Web servers without permission, provided that the IEEE copyright notice and a full citation to the original work appear on the first screen of the posted copy. An accepted manuscript is a version which has been revised by the author to incorporate review suggestions, but not the published version with copyediting, proofreading and formatting added by IEEE. For more information, please go to: http://www.ieee.org/publications_standards/publications/rights/paperversionpolicy.html.

Permission to reprint/republish this material for commercial, advertising, or promotional purposes or for creating new collective works for resale or redistribution must be obtained from the IEEE by writing to the IEEE Intellectual Property Rights Office, 445 Hoes Lane, Piscataway, NJ 08854-4141 or pubs-permissions@ieee.org. Copyright © 2016 IEEE. All rights reserved.

Abstracting and Library Use: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy for private use of patrons, provided the per-copy fee indicated in the code at the bottom of the first page is paid through the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923. IEEE prohibits discrimination, harassment, and bullying. For more information, visit www.ieee.org/web/aboutus/whatis/policies/p9-26.html.