

## BOOK REVIEWS

EDITED BY PIOTR CHOLDA

### CLOUD COMPUTING: THEORY AND PRACTICE

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Cloud computing can provide services via the network to a wide range of customers, who, in many cases, are even unaware that they use clouds. Cloud computing combines many current technologies with each other or even combines them with new ones to achieve a new level of quality. Marinescu's book presents how cloud computing works, how to effectively use it, and how IT departments can benefit from it.

Chapter 1 introduces three cloud delivery models: Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS), and Infrastructure-as-a-Service (IaaS), as well as four deployment models: public, private, community, and hybrid clouds. It also provides information on the basic advantages of using cloud computing. Then, the most important inherited solutions used in parallel and distributed systems, that are applicable in cloud computing, along with their analysis models, are presented in Chapter 2. The next chapter identifies leading infrastructure solutions to commercial and open-source problems that can be used in private clouds. Chapter 4 considers which applications benefit from cloud computing.

Effective use of software and hardware resources in cloud computing requires mechanisms for resource management and scheduling for a very large number of shared resources. Virtualization, as described in Chapter 5, simplifies the management operations. The strategies for resource management in the context of cloud computing are presented in Chapter 6. Therein, Marinescu also presents the theoretical basis used in the management of cloud computing mechanisms. As cloud computing efficiency depends strongly on the transmission efficiency of the computer network linking the system components of cloud computing, the solutions for computer networks used in clouds are presented in Chapter 7. They involve different types of protocols (IP, TCP), network types (storage area network, content delivery networks, and overlay networks), as well as methods of managing network resources.

Currently, users of devices connected to the Internet very often use cloud computing to store data, such as audio, video, or photos. This makes it easy to access data stored in the cloud from different kinds of equipment and under various conditions, which is the focus of Chapter 8. Cloud computing is used by individuals and corporate users. For each of these groups of users it is important that the operations carried out in the cloud and the data stored in it are safe. The issues related to security, privacy, and trust are presented in the next chapter, while scalability problems of systems, including their decomposition and limitations, are set out in Chapter 10. Finally, methods for building applications for cloud computing are presented in Chapter 11. This chapter also examines some simple examples of applications using cloud computing.

The book offers a good insight for IT professionals, researchers, and students. It has a wide bibliography, which includes a review of already implemented solutions related to cloud computing, as well as solutions that are the subject of scientific research. The author skillfully combines theory with practical use cases. The presented topics allow a reader to understand the technology of cloud computing and learn about their capabilities. It also points out the benefits the whole IT field can achieve with cloud computing.

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