Cloud Computing For Science And Engineering (Scientific And Engineering Computation)

Synopsis

The emergence of powerful, always-on cloud utilities has transformed how consumers interact with information technology, enabling video streaming, intelligent personal assistants, and the sharing of content. Businesses, too, have benefited from the cloud, outsourcing much of their information technology to cloud services. Science, however, has not fully exploited the advantages of the cloud. Could scientific discovery be accelerated if mundane chores were automated and outsourced to the cloud? Leading computer scientists Ian Foster and Dennis Gannon argue that it can, and in this book offer a guide to cloud computing for students, scientists, and engineers, with advice and many hands-on examples. The book surveys the technology that underpins the cloud, new approaches to technical problems enabled by the cloud, and the concepts required to integrate cloud services into scientific work. It covers managing data in the cloud, and how to program these services; computing in the cloud, from deploying single virtual machines or containers to supporting basic interactive science experiments to gathering clusters of machines to do data analytics; using the cloud as a platform for automating analysis procedures, machine learning, and analyzing streaming data; building your own cloud with open source software; and cloud security.The book is accompanied by a website, Cloud4SciEng.org, that provides a variety of supplementary material, including exercises, lecture slides, and other resources helpful to readers and instructors.

Book Information

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Customer Reviews

This book helps make the cloud computing ecosystem comprehensible for scientist and student alike. Foster and Gannon provide an introduction to concepts, an explanation of systems, clean code examples in Python, and even downloadable Jupyter notebooks. Sign me up! (Simson L. Garfinkel, Cloud Computing Instructor; author of Architects of the Information Society)Foster and Gannon have written the definitive guide to cloud computing tools and techniques for data analytics, filled with practical tips and working examples. (Dan Reed, Vice President for Research and Economic Development, University of Iowa)Cloud computing has changed the corporate world dramatically in a few short years and is now about to play a major role in scientific and engineering applications. This very timely book by Foster and Gannon is both a comprehensive overview and a practical guide to the services offered by the three major public cloud providers, , Google, and Microsoft. It will be an invaluable resource for scientists and engineers in both industry and academia. (Tony Hey, Chief Data Scientist, Science and Technology Facilities, Rutherford Appleton Lab)

Ian Foster is the Arthur Holly Compton Distinguished Service Professor of Computer Science at the University of Chicago and Distinguished Fellow at Argonne National Laboratory.Dennis B. Gannon is Emeritus Professor of Computer Science at Indiana University Bloomington.

Dynamics and Beyond (Numerical Mathematics and Scientific Computation) Introduction to Linear Optimization (Athena Scientific Series in Optimization and Neural Computation, 6) Numerical Analysis and Scientific Computation Freezing Colloids: Observations, Principles, Control, and Use: Applications in Materials Science, Life Science, Earth Science, Food Science, and Engineering (Engineering Materials and Processes) A First Course in Scientific Computing: Symbolic, Graphic, and Numeric Modeling Using Maple, Java, Mathematica, and Fortran90 by Rubin H. Landau (2005-05-01) Introduction to Scientific and Technical Computing