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<<云计算与分布式系统>>

图书基本信息

书名：<<云计算与分布式系统>>

13位ISBN编号：9787111382270

10位ISBN编号：7111382277

出版时间：2012-5

出版时间：机械工业出版社

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页数：648

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内容概要

随着信息技术的广泛应用和快速发展，云计算作为一种新兴的商业计算模型日益受到人们的广泛关注。
本书是一本完整讲述云计算与分布式系统基本理论及其应用的教材。
书中从现代分布式模型概述开始，介绍了并行、分布式与云计算系统的设计原理、系统体系结构和创新应用，并通过开源应用和商业应用例子，阐述了如何为科研、电子商务、社会网络和超级计算等创建高性能、可扩展的、可靠的系统。

《云计算与分布式系统：从并行处理到物联网（英文版）》特色：
全面覆盖现代分布式计算技术，包括集群、网格、面向服务的体系结构、大规模并行处理器、对等网络和云计算。

提供的案例研究来自主流分布式计算供应商，如亚马逊、微软、谷歌等。

解释如何利用虚拟化来促进管理、调试、迁移和灾难恢复。

专为本科生或研究生的分布式系统课程而设计——每章后都配有习题和进一步阅读建议，并为教师提供配套的PPT等教辅资源。

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他拥有加州大学伯克利分校EECS博士学位，主要研究领域为云计算、分布式系统、高性能计算、普适计算、信任网格计算等。

现已发表论文220多篇，出版8本计算机体系结构、数字运算、并行处理、分布式系统、互联网安全和云计算方面的相关著作。
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多年以来，他都在负责Top500最快计算机的Linpack基准测试评估。
基于他在超级计算和高性能领域的巨大贡献，他被评为美国国家工程院院士。

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章节摘录

版权页： 插图： SUMMARY This chapter presents the evolutionary changes that have occurred in parallel,distributed,and cloudcomputing over the past 30 years,driven by applications with variable workloads and large datasets.We study both high-performance and high-throughput computing systems in parallel computersappearing as computer clusters,service-oriented architecture,computational grids,peer-to-peer networks,Internet clouds,and the Internet of Things.These systems are distinguished by their hardware architectures,OS platforms,processing algorithms,communication protocols,and servicemodels applied.We also introduce essential issues on the scalability,performance,availability,security,and energy efficiency in distributed systems. 1.1 SCALABLE COMPUTING OVER THE INTERNET Over the past 60 years,computing technology has undergone a series of platform and environmentchanges.In this section,we assess evolutionary changes in machine architecture,operating systemplatform,network connectivity,and application workload.Instead of using a centralized computerto solve computational problems,a parallel and distributed computing system uses multiplecomputers to solve large-scale problems over the Internet.Thus,distributed computing becomesdata-intensive and network-centric.This section identifies the applications of modern computersystems that practice parallel and distributed computing.These large-scale Internet applicationshave significantly enhanced the quality of life and information services in society today. 1.1.1 The Age of Internet Computing Billions of people use the Internet every day.As a result,supercomputer sites and large data centersmust provide high-performance computing services to huge numbers of Internet users concurrently.Because of this high demand,the Linpack Benchmark for high-performance computing(HPC)applications is no longer optimal for measuring system performance.The emergence of computingclouds instead demands high-throughput computing(HTC) systems built with parallel and distributed computing technologies [5,6,19,25].We have to upgrade data centers using fast servers,storagesystems,and high-bandwidth networks.The purpose is to advance network-based computing andweb services with the emerging new technologies. 1.1.1.1 The Platform Evolution Computer technology has gone through five generations of development,with each generation lastingfrom 10 to 20 years.Successive generations are overlapped in about 10 years.For instance,from1950 to 1970,a handful of mainframes,including the IBM 360 and CDC 6400,were built to satisfythe demands of large businesses and government organizations.From 1960 to 1980,lower-cost mini-computers such as the DEC PDP 11 and VAX Series became popular among small businesses and oncollege campuses.

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作者将应用与技术趋势相结合，揭示了计算的未来发展。
无论是对在校学生还是经验丰富的实践者，本书都是一本优秀的读物。
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