

Preface

This book introduces several important topics in the management of resources in virtualized cloud data centers. They include consistently provisioning predictable network quality for large-scale cloud services, optimizing resource efficiency while reallocating highly dynamic service demands to VMs, and partitioning hierarchical data center networks into mutually exclusive and collectively exhaustive subnetworks.

To explore these topics, this book further discusses important issues, including (1) reducing hosting cost and reallocation overheads for cloud services, (2) provisioning each service with a network topology that is non-blocking for accommodating arbitrary traffic patterns and isolating each service from other ones while maximizing resource utilization, and (3) finding paths that are link-disjoint and fully available for migrating multiple VMs simultaneously and rapidly.

Solutions which efficiently and effectively allocate VMs to physical servers in data center networks are proposed. Extensive experiment results are included to show that the performance of these solutions is impressive and consistent for cloud data centers of various scales and with various demands.

Virtualized Cloud Data Center Networks: Issues in
Resource Management.

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