

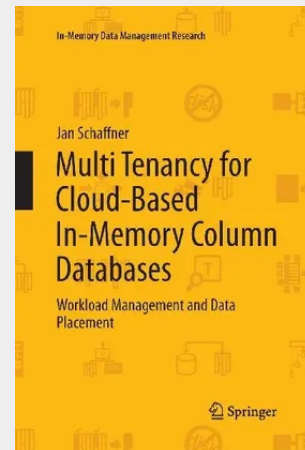
Multi Tenancy for Cloud-Based In-Memory Column Databases

Workload Management and Data Placement

With the proliferation of Software-as-a-Service (SaaS) offerings, it is becoming increasingly important for individual SaaS providers to operate their services at a low cost. This book investigates SaaS from the perspective of the provider and shows how operational costs can be reduced by using "multi tenancy," a technique for consolidating a large number of customers onto a small number of servers.

Specifically, the book addresses multi tenancy on the database level, focusing on in-memory column databases, which are the backbone of many important new enterprise applications. For efficiently implementing multi tenancy in a farm of databases, two fundamental challenges must be addressed, (i) workload modeling and (ii) data placement. The first involves estimating the (shared) resource consumption for multi tenancy on a single in-memory database server. The second consists in assigning tenants to servers in a way that minimizes the number of required servers (and thus costs) based on the assumed workload model. This step also entails replicating tenants for performance and high availability. This book presents novel solutions to both problems.

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53,49 €

49,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783319033440

Medium: Buch

ISBN: 978-3-319-03344-0

Verlag: Palgrave Macmillan

Erscheinungstermin: 06.08.2015

Sprache(n): Englisch

Auflage: Softcover Nachdruck of the original 1. Auflage 2014

Serie: In-Memory Data Management Research

Produktform: Kartoniert

Gewicht: 2292 g

Seiten: 128

Format (B x H): 155 x 235 mm

