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Internals For  
Dbas And  
Developers  
Experts Voice In  
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Internals For  
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**Developers**  
Essential Internals  
**Experts Voice**  
For Dbas And  
**In Databases**  
Developers

*The*  
Essential Internals  
*superabundance*  
For Dbas And  
*of data that*  
Developers  
*is created by*  
*today's*  
Experts Voice In  
*businesses is*  
Databases  
*making storage*

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Essential Internals  
*a strategic  
investment  
priority for  
companies of  
all sizes. As  
storage takes  
precedence,  
the following  
major  
initiatives  
emerge:*  
*Flatten and*

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*converge your  
network: IBM®  
Developers  
takes an open,  
Essential Internals  
standards-  
For Dbas And  
based approach  
Developers  
to implement  
Experts Voice In  
the latest  
Databases  
advances in  
the flat,  
converged data  
center network  
designs of*

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*today. IBM  
Storage  
Developers  
solutions  
enable clients  
to deploy a  
high-speed,  
low-latency  
Unified Fabric  
Architecture.  
Optimize and  
automate virtu  
alization:*

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Advanced  
For Dbas And  
virtualization  
Developers  
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Essential Internals  
reduces the  
For Dbas And  
cost and  
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complexity of  
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deploying  
Databases  
physical and  
virtual data  
center infrast  
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*Simplify*

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*management:*  
For Dbas And  
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For Dbas And  
easy to  
Developers  
deploy,  
Experts Voice In  
maintain,  
Databases  
scale, and  
virtualize,  
delivering the  
foundation of  
consolidated

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*operations for  
For Dbas And  
dynamic  
Developers  
infrastructure  
Essential Internals  
management.*

*Storage is no  
Developers  
longer an  
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afterthought.  
Databases  
Too much is at  
stake.*

*Companies are  
searching for  
more ways to*

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*efficiently*  
For Dbas And  
*manage*  
Developers  
*expanding*  
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*volumes of*  
For Dbas And  
*data, and to*  
Developers  
*make that data*  
Experts Voice In  
*accessible*  
Databases  
*throughout the*  
*enterprise.*

*This demand is  
propelling the  
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*storage into  
the network.*

*Also, the  
increasing  
complexity of  
managing large  
numbers of  
storage*

*devices and  
vast amounts  
of data is  
driving*

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*greater  
business value  
Developers  
into software  
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and services.*

*With current  
Developers  
estimates of  
Experts Voice In  
the amount of  
Databases  
data to be  
managed and  
made available  
increasing at  
60% each year,*

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storage area  
network (SAN)  
enters the  
arena. SANs  
are the  
leading  
storage  
infrastructure  
for the global  
economy of*

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*today. SANs  
offer  
simplified  
storage  
management,  
scalability,  
flexibility,  
and*

*availability;  
and improved  
data access,  
movement, and*

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*backup.*

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*IT can be  
achieved by  
connecting  
servers and*

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solutions can  
provide an  
environment*

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*smarter,*  
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*greener, open,*  
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*and easy to*  
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*manage. This*  
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*introduction*  
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*networking,*  
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Developers  
*to achieve a*  
Essential Internals  
*smarter data*  
For Dbas And  
Developers  
*center. This*  
Experts Voice In  
*book is*  
Databases  
*intended for*  
*people who are*  
*not very*  
*familiar with*  
*IT, or who are*

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*just starting  
out in the IT  
Developers  
world.*

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abbreviated as  
RAC, is  
Oracle's indus  
try-leading  
architecture*

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*for scalable  
and fault-  
tolerant  
databases. RAC  
allows you to  
scale up and  
down by simply  
adding and  
subtracting  
inexpensive  
Linux servers.  
Redundancy*

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*those*  
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*servers is the*  
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*basis for the*  
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*failover and*  
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*other fault-*  
*tolerance*  
*features that*  
*RAC provides.*  
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*their talent*  
*with RAC, Pro*  
*Oracle*  
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*RAC on Linux*  
*gives you a*  
*rock-solid and*  
*technically*  
*flawless*  
*foundation on*

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your RAC-  
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management  
Essential Internals  
skills.*

*Authors Julian  
Developers  
Dyke and Steve  
Experts Voice In  
Shaw share  
Databases  
their hard-won  
experience in  
building RAC  
clusters,  
showing you*

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using the very  
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to  
troubleshoot  
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learn how to  
correctly  
deploy RAC in  
a virtual-  
machine*

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expertise in  
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deployment.  
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"wing it" in  
creating a RAC  
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Rigorous and  
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Linux kernel  
architecture  
Get to grips

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*various*  
*dynamic kernel*  
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developers and DBAs

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struggle with every

day.\* Provides

Everything Internals

to know to program

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database and exploit

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its feature-set

Databases

effectively.

Although MySQL's

source code is open

in the sense of being

publicly available, it's

essentially closed to

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you if you don't

understand it. In this

book, Sasha Pachev

-- a former member of

the MySQL

Development Team --

provides a

comprehensive tour of

MySQL 5 that shows

you how to figure out

the inner workings of

this powerful

database. You'll go

right to heart of the

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database to learn how  
data structures and  
convenience functions

operate, how to add  
new storage engines  
and configuration

options, and much  
more. The core of  
Understanding

MySQL Internals  
begins with an

Architecture Overview  
that provides a brief  
introduction of how

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the different components of MySQL work together. You then learn the steps for setting up a working compilable copy of the code that you can change and test at your pleasure. Other sections of the book cover: Core server classes, structures, and API The

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communication  
protocol between the  
client and the server  
Configuration  
variables, the controls  
of the server; includes  
a tutorial on how to  
add your own Thread-  
based request  
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threads and how they  
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developers, DBAs,  
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complex result of decades of research, learning how it works its magic is not only possible, but immensely useful to DBAs and Developers alike. A better understanding of what the Query Optimizer does behind the scenes can help you to improve the performance of your

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databases and applications, and this book explains the core concepts behind how the SQL Server Query Optimizer works. With this knowledge, you'll be able to write superior queries, provide the Query Optimizer with all the information it needs to produce efficient execution

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plans, and

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on and to the Oracle  
Exadata Database  
Machine. Whether  
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Database  
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solutions to  
accomplish a wide  
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reliable solutions that

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this book in your  
enterprise Exadata  
environment.

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managing a traditional  
Oracle database.

Oracle's Exadata  
Database Machine is  
a pre-configured  
engineered system  
comprised of  
hardware and

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features designed to

leverage the high-

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declared, used,  
and enforced  
Essential Internals  
-How Android  
For Dbas And  
Developers  
manages  
application  
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packages and  
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employs code  
signing to  
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authenticity  
-How Android  
implements the

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and APIs, which  
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used to perform  
full system  
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to obtain root  
access With its  
unprecedented  
level of depth

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and detail,  
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migrating from  
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to 10g,

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issues and  
downtime (=lost

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Beginners is a  
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the use of  
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Recovery Manager  
software to make  
backups of an  
Oracle database,  
and to restore  
all or part of a  
database in the  
event that data  
loss occurs. It  
is often said  
that a database  
administrator's

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#1 job  
responsibility  
is to be able to  
recover from  
data loss. If  
you're new to  
the Oracle  
platform, or  
you're new to  
database  
administration  
in general, you  
can hardly go  
wrong by making

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it your first  
priority to  
learn to backup  
and recover the  
database that  
has been  
entrusted into  
your hands. This  
book is short  
and sweet at  
just 200 pages.  
Focus lies on  
the mainstream  
use cases.

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Recovery  
Manager, or RMAN  
as it is called,  
is a powerful  
and complex tool  
that can be  
intimidating at  
first. Author  
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understands the  
need to focus on  
the core use  
cases, building  
your confidence

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in the tool, and  
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to recover from  
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lost database  
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files, and even  
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to recover your  
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entire database  
Databases  
should that  
become

necessary.

Oracle RMAN for  
Absolute

Beginners shows  
how to backup

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your database.  
That's the first  
job. You'll  
learn to backup  
the entire  
database, and to  
create  
incremental  
backups that in  
turn can speed  
restore and  
recovery  
operations. Then  
you'll learn to

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recover from  
lost data files,  
lost redo log  
files, lost  
control files,  
and even to  
restore the  
entire database  
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You'll even  
learn how to  
clone a database  
for development  
and test

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purposes by  
backing the  
database up on  
one system and  
restoring it  
onto another.  
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has a decade and  
a half of  
experience in  
writing about,  
and teaching  
Oracle Database  
backup and

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system resources  
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most common  
bottleneck in  
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performance,  
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You'll learn how  
the optimizer  
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of its latest  
features, and  
when it's better  
to turn them off.  
Quickly tune any  
SQL statement  
no matter how  
complex. Build  
and tune test  
cases without  
affecting  
production. Use  
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features with

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capable of

running Oracle

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edition is fully-

updated to cover

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12c. If you're

new to Exadata,

you'll soon learn

that it embodies

a change in how

you think about

and manage

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**relational  
databases. A key  
part of that  
change lies in  
the concept of  
offloading SQL  
processing to the  
storage layer. In  
addition there is  
Oracle's  
engineering  
effort in creating  
a powerful  
platform for both**

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and transaction  
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resulting value  
proposition in  
the form of  
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and how the**

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hardware and  
software that  
comprise  
Exadata actually  
work. Authors  
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contributions  
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and built on the  
foundation laid**

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implementations,  
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success with  
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**what makes the  
platform tick and**

**for whom—"how"**

**it does what it is**

**does is as**

**important as**

**what it does. By**

**being exposed to**

**the features that**

**are unique to**

**Exadata, you will**

**gain an**

**understanding of**

**the mechanics**

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**that will allow  
you to fully  
benefit from the  
advantages that  
the platform  
provides. This  
book changes  
how you think  
about managing  
SQL performance  
and processing.  
It provides a  
roadmap to  
successful**

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**Exadata  
implementation.  
And it removes  
the "black box"  
mystique. You'll  
learn how  
Exadata actually  
works and be  
better able to  
manage your  
Exadata  
engineered  
systems in  
support of your**

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**business. This**  
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**the way you**  
**think about**  
**managing SQL**  
**performance and**  
**processing**  
**Provides a**  
**roadmap to**  
**successful**  
**Exadata**  
**implementation**  
**Removes the**  
**"black box"**

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**mystique,**  
**showing how**  
**Exadata actually**  
**works**  
**When your**  
**database**  
**application isn't**  
**running fast**  
**enough,**  
**troubleshooting**  
**is usually your**  
**first move.**  
**Finding the slow**  
**part of an**

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**application is  
often easy, but**

**discovering a**

**solution can**

**prove much more  
difficult.**

**Troubleshooting  
Oracle**

**Performance**

**helps by**

**providing a**

**systematic**

**approach to**

**addressing the**

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Improving a  
Great Database  
Oracle system  
performance  
inefficiencies  
often go  
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Performance  
Group, clearly  
and concisely

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explains how to  
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use Oracle's  
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statistics to  
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diagnose and  
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cuts a path  
through the  
complexity of  
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techniques that  
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users care most  
For Dbas And  
about is  
Developers  
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Databases  
Naturally, DBAs  
focus much of  
their time and  
effort towards  
improving  
response time.

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But it is entirely  
too easy to  
spend hundreds  
of hours to  
improve  
important  
system metrics  
such as hit  
ratios, average  
latencies, and  
wait times, only  
to find users are

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measurability,  
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predictive  
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capacity,  
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reliability, speed,  
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and practicality  
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to the science of  
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performance  
optimization.  
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shows you how  
to slash the  
frustration and  
expense  
associated with  
unraveling the  
true root cause  
of any type of  
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problem, and  
reliably predict

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assign user  
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privileges  
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replication, file  
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tagging, and  
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Databases  
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Oracle Database  
server. Covering  
useful but little-  
known features  
from Oracle  
Database 9  
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shines the light  
of day on  
features that  
help you master  
more difficult

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tasks than you  
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ever thought  
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possible. Finally,  
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in one place, you  
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have at your  
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knowledge that  
previously had to  
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What Norbert  
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writes is  
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accurate, well-  
tested, well-  
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clear examples,  
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improve your  
ability to make  
an impact on  
your day-to-day  
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internals is essential.

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today, it's often

difficult to understand

what each one offers

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Developers

behind modern

database and storage

engine internals.

Throughout the book,

you'll explore

relevant material

gleaned from

numerous books,

papers, blog posts,

and the source code of

several open source

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databases. These resources are listed at the end of parts one

and two. You'll

discover that the most significant distinctions

among many modern databases reside in

subsystems that determine how

storage is organized and how data is

distributed. This book

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examines: Storage engines: Explore storage classification and taxonomy, and dive into B-Tree-

based and immutable

Log Structured

storage engines, with differences and use-cases for each Storage building blocks: Learn how database files are organized to build

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efficient storage, using  
auxiliary data

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Log Distributed

systems: Learn step-

by-step how nodes and

processes connect and

build complex

communication

patterns Database

clusters: Which

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Oracle Core: In

Essential Internals for

DBAs and Developers

by Jonathan Lewis

provides just the

essential information

about Oracle

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Database internals  
that every database  
administrator needs  
for

troubleshooting—no  
more, no less. Oracle  
Database seems

complex on the  
surface. However, its  
extensive feature set is  
really built upon upon  
a core infrastructure  
resulting from sound

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architectural

decisions made very

early on that have

stood the test of time.

This core And

infrastructure

manages transactions

and the ability to

commit and roll back

changes, protects the

integrity of the

database, enables

backup and recovery,

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thousands of users all

accessing the same

data. Most

performance, backup,

and recovery

problems that

database

administrators face on

a daily basis can

easily be identified

through

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understanding the

essential core of

Oracle Database

architecture that

Lewis describes in this

book. Provides proven

content from a world-

renowned

performance and

troubleshooting expert

Emphasizes the

significance of

internals knowledge to

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rapid identification of  
database performance

problems Covers the

core essentials and

does not waste your

time with esoterica

Summary Cloud

Native Patterns is your

guide to developing

strong applications

that thrive in the

dynamic, distributed,

virtual world of the

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cloud. This book presents a mental model for cloud-native applications, along with the patterns, practices, and tooling that set them apart. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About

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the Technology Cloud platforms promise the holy grail: near-zero downtime, infinite scalability, short feedback cycles, fault-tolerance, and cost control. But how do you get there? By applying cloudnative designs, developers can build resilient, easily adaptable, web-

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scale distributed  
applications that

handle massive user  
traffic and data loads.

Learn these

fundamental patterns

and practices, and

you'll be ready to

thrive in the dynamic,  
distributed, virtual  
world of the cloud.

About the Book With

25 years of experience

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Essential Internals

under her belt,

Cornelia Davis

teaches you the

practices and patterns

that set cloud-native

applications apart.

With realistic

examples and expert

advice for working

with apps, data,

services, routing, and

more, she shows you

how to design and

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Cloud-scale

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configuration

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management Zero

Developers

downtime upgrades,

versioned services,

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and parallel deploys

Service discovery and

dynamic routing

Managing interactions

between services,

including retries and

circuit breakers About

the Reader Requires

basic software design

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skills and an ability to read Java or a similar language. About the

Author Cornelia

Davis is Vice

President of

Technology at Pivotal

Software. A teacher at

heart, she's spent the

last 25 years making

good software and

great software

developers. Table of

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Accessing apps:

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An In-Depth Guide to  
Android's Security  
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distributed, publish-  
subscribe queue for  
handling real-time  
data feeds. With  
this comprehensive  
book, you will

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understand how  
Kafka works and  
how it is designed.  
Authors Neha  
Narkhede, Gwen  
Shapira, and Todd  
Palino show you  
how to deploy  
production Kafka  
clusters; secure,  
tune, and monitor  
them; write rock-  
solid applications

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that use Kafka; and  
build scalable  
stream-processing  
applications. Learn  
how Kafka  
compares to other  
queues, and where  
it fits in the big data  
ecosystem. Dive  
into Kafka's internal  
design Pick up best  
practices for  
developing

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Kafka in production  
monitoring, tuning,  
and maintenance  
tasks. Learn how to  
secure a Kafka  
cluster.