Modern Performance Myths

Author Craig Shallahamer sheds some light on Oracle performance analysis. See page 5.

There's No Free Lunch

Our SQL Corner columnist Iggy Fernandez reports on Oracle's concurrency management scheme and the "gotchas" you should know about. See page 8.
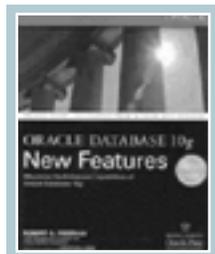
Book Review

Our popular book reviewer Brian Hitchcock offers up a review of Oracle Database 10g New Features. *See page 20.*

Much More Inside . . .

Oracle Database 10g New Features

Review by Brian Hitchcock

Title: *Oracle Database 10g New Features*
By: Robert G.Freeman
Published by: Oracle Press
ISBN: 0-07-222947-0

Summary

Overall review: Adequate for its intended purpose.

Target audience: DBAs and application developers.

Would you recommend to others?: No.

Who will get the most from this book?: Those who need a quick high-level review of the new features in the 10g database.

Is this book platform specific?: No.

Why did I obtain this book?: I didn't, I was asked to review it for NoCOUG, and it was given to me.

Overall review

Before I read this book, I had read and reviewed the 10g DBA OCP upgrade exam book. Therefore, I came to this book having already gone over a lot of the technical details of the new features in the 10g database. However, the OCP exam guide was much more focused on the very detailed technical aspects of the new features, while this book gives a much higher level, and arguably more thorough view of the major new features of the 10g database.

The very nature of the task of writing about new features is problematic. First, it is largely a marketing exercise, which isn't necessarily a criticism. The task itself is to get the material out close to—and perhaps even a little before—the general release of the new version of Oracle. Therefore, much of the material may be relatively unproven, in that many of the new features described may or may not be fully implemented in the finished product and will not have been in wide general use by the technical community for any length of time.

This limits the practical value of much of the material, in that you're never sure if what you're reading about will actually be fully implemented in the product you get. Plus, the book describes how much you need to be careful to test the new features before you rely on them.

Another challenge of reviewing a book about new features is that I'm commenting on the book itself *and* the Oracle features being described in the book. I've attempted to do both, and attempted to be clear on when I was doing the former versus the latter. The reader needs to know a lot about a feature in order to get much out of the text covering the changes to it. In many cases, a feature is described so briefly that it isn't clear what that feature does or how it will be useful.

> *The reader needs to know a lot about a feature in order to get much out of the text covering the changes to it. In many cases, a feature is described so briefly that it isn't clear what that feature does or how it will be useful.*

Chapter Reviews

1 Getting Started
2 Server Manageability
3 Performance Tuning
4 Security
5 Availability and Recoverability
6 Business Intelligence
7 Application Development
8 Other Database New Features
9 Oracle Enterprise Manager 10g
Appendix Oracle Database 10g new processes

Chapter 1 Getting Started

The author starts out by telling us that the "g" in 10g refers to "grid." He then goes on to point out that no one seems to be sure what grid really means in general, let alone what it means for Oracle 10g in particular. The author then gives four bullet points about grid that don't really tell me what grid means. For example, one of the bullet items states that the grid enables you to "leverage components made available to the grid." What does that mean? How do I configure Oracle products to be available to the grid? I'm surprised that a book covering 10g new features can't tell me what the grid is. Given Oracle's well-known abilities as a marketing machine, I'm puzzled that they haven't more fully explained, at least in marketing terms, what the grid

and the "g" in 10g mean to Oracle users.

The author covers upgrading to Oracle database 10g with reference to the new Database Upgrade Assistant (DBUA) GUI tool. The author says he prefers manual upgrades , but he unfortunately does not explain the reasons for his preference. I also prefer manual upgrades vs. using a GUI upgrade tool, and my opinion is that it's better to control all aspects of the upgrade, rather than to run an automated tool and find out later which pieces worked and which didn't. Next we're told—not the first and not the last time—that using any new features without extensive testing is unwise.

In addition to the author's writing, this book also contains commentary by Jonathan Lewis. We're told in the introduction that Mr. Lewis is known as "Mr. Oracle." Our first comment from "Mr. Oracle" reiterates that we should not use any of the new features described in this book without extensive testing. Given the description of the testing Lewis says is needed for every new feature in the book, I think you would need a small team of dedicated full-time DBAs just to review the new features. These days, does anyone have those kinds of resources available? Simply telling me that new features are risky is not the practical advice I'd prefer, and it doesn't provide any insights into how we are supposed to deal with Oracle new features in our real-world jobs.

The author also describes how you can upgrade using "create table as select *." This puzzles me. I'm not sure there are very many databases where it would be practical to do an upgrade by creating a copy of every table of the old database. I'm not sure that this method would really be of any use to the vast majority of the Oracle user community. A relatively detailed description of ASM (automated storage management) is given, but I'm not clear why this is in a chapter called getting started versus a chapter of its own.

I had a lot of unanswered questions about this new feature. Do I really need a new volume manager? How will the DBAs and SAs interact when the ASM is used? How will the SA do his or her job if the disks are only visible to the Oracle ASM instance?

These are the kinds of issues you need to think about before you can really make an informed decision about whether to use new features or not, and these issues are not covered in this book. These issues will only come up

> *Given Oracle's well-known abilities as a marketing machine, I'm puzzled that they haven't more fully explained, at least in marketing terms, what the grid and the "g" in 10g mean to Oracle users.*

as ASM is really used. Taking this step further, think about how ASM would affect outsourced SA support for a data center. Can you implement a new feature like this with the support model your business is currently using? Rolling upgrades are described, but there are many restrictions on this new feature. It becomes clear as you read this book, that at least some of the 10g new features seem only partially ready. Some of them sound like they might be a good idea but they don't all seem to be fully implemented yet.

Cluster ready services are described, and after reading four paragraphs, I don't know what they are or what they do. Sounds like yet another layer of "services," another set of commands, and potentially new bugs. What will I do with the ability to "assign services to specific instances in the cluster"?

On page 16 we have what I think illustrates what can go wrong with a book on new features. I'm told the name of the new parameter, its default, and its minimum and maximum values, and that's it. Oh, I'm also told this parameter "defines the initial number of server processes in global cache service that are started to serve inter-instance traffic." I'm sure this is terribly cool, but I don't know what any of it does and I don't see any further description from the author on this.

Chapter 2 Server Manageability

The new feature of automated statistics collection is described and this includes lots of new packages and procedures. I'm not clear how to know which of these packages and procedures to use, when to use them, and who will monitor and maintain all of this, let alone review all the data that will be produced. There is no mention of how this new automated statistics collection feature might affect performance of your application after you migrate to 10g. I would like to have some commentary from Mr. Lewis on this new feature.

This is a good example of the problematic nature of writing a book on the topic of new features. In general, it's tough to really explain why we need any one of these new features. In 10g we're told that we should analyze the tables in the data dictionary, but I'm curious as to why we were told not to do this before 10g. The author offers no explanation. Again, this book is mainly a listing of the new features and does not provide much help as to the effects of trying to implement these new features.

> *Rolling upgrades are described, but there are many restrictions on this new feature. It becomes clear as you read this book, that at least some of the 10g new features seem only partially ready. Some of them sound like they might be a good idea, but they don't all seem to be fully implemented yet.*

The section on the new Scheduler is very thorough. I'm curious how this compares with the UNIX cron utility that I currently use. Again, it would have been helpful for the author to comment on issues like this. Oracle has made it much easier to understand things like the repeat interval when using the job scheduler, since we can now use terms like "daily," which is much better than the previous syntax. This is an example of where this book is good. Learning this sort of specific new feature information makes me actually reconsider using Oracle's job scheduler. In the past I haven't really considered it, because I felt it was so hard to use compared to the UNIX cron.

At the same time, the new job scheduler is a good example of what's wrong with many Oracle features. (This is true of almost all software, not just Oracle.) It is so flexible, and has so many features that a clever DBA could easily deploy a set of scheduled jobs that are very hard to understand and maintain. The administration costs of such features are an argument against implementing them. Yes, something new is possible in Oracle 10g, but that doesn't mean you can afford to implement it. And, with each new release there are a few new things that are simple and useful. The user configurable default tablespace is one of these things. I also like the ability to rename a tablespace, but note that the associated datafile name doesn't change. The ability to drop and shrink tablespace is also very useful.

Learning this sort of specific new feature information makes me actually reconsider using Oracle's job scheduler.

I also like the ability to rename a tablespace, but note that the associated datafile name doesn't change. The ability to drop and shrink tablespace is also very useful.

Chapter 3 Performance Tuning

Oracle 10g provides us with many more wait events than before, and the description of how these new wait events have been sorted into wait events groups is good. There are changes to the v$session table to make it easier to see which waits are associated with which sessions, as well as blocking information and wait history.

The automated workload repository (AWR) is described, but it's hard to assess what the real impact of this will be. How easy will it be to get usable results out of this new feature? It's too soon to tell. With all of these new features coming in 10g, I wonder if something like OEM (Oracle Enterprise Manager) may be required to simply keep track of all of the different kinds of repositories and advisories that are now available in 10g.

Further, 10g will give us many alerts that will tell us when things may be going wrong, but who's going to review, monitor, and respond to them all? Imagine the data center with hundreds of databases that could potentially generate thousands of alerts on a regular basis. The author does not comment on how these alerts might be implemented or managed.

Automated SGA tuning sounds very good, but upon reading the description given here, it's not fully implemented. You still have to manually set some parameters. Personally, I think we need to simply set the total memory for the SGA, and that's it.

10g offers some new tracing abilities that are good, but also mean you'll be generating lots more data when you do your tracing.

Chapter 4 Security

This chapter briefly describes some improvements over 9i for security features, although there really isn't a whole lot of information here. This chapter is all of five pages long.

Chapter 5 Availability and Recoverability

In this chapter, we learn about recovery through the reset log command, specific changes to log archive formats, new standby database features, and changes to the way you can make backups, including specific RMAN changes. The new flash recovery area is described and this information is useful as it makes clearer how this new feature affects your backup process, and so on.

I find it interesting that Oracle is now telling me how RMAN is improved because it takes actual image copies of my datafiles as backups, whereas previously RMAN was better because it only recorded the block changes. How times change.

There is also a fascinating comment from Lewis. We're told that disks have become much too big these days and that we should only use about 10 GB per disk. However, I can't see myself going to my management and telling them that for a terabyte database where we will be using new 70 GB disks, we will need to purchase 7 terabytes of disk space before mirroring.

While the new capabilities of various flashback features are described, flashback has always puzzled me. The author provides good coverage of the many new flashback features. Being able to flashback the entire database doesn't do me

10g offers some new tracing abilities that are good, but also mean you'll be generating lots more data when you do your tracing.

much good, unless the database is only used by a simple single application. If you use flashback to reverse a single data change, you'll move all of your business back to that time, without regard for the other data changes that have been made since the time you flashed back to. Similarly, you can flash forward as well as flashback, but I'm not sure these are good ideas. Does your business really want to move back and forth in time? How, for example, would this play with the many SOX requirements we now have to deal with? And I'm also concerned about the amount of disk space that would be needed to retain sufficient redo information to support flashback (and flash forward) of a large active database over a reasonable period of time, for example, several days. My users don't usually tell me the very minute that they drop something they meant to keep, it usually takes days for such an event to come to light.

Chapter 6 Business Intelligence

This chapter devotes a lot of its coverage to Oracle Data Pump, which replaces (or, at least, supplements) the export and import utilities. The coverage here is thorough and clear. However, Lewis adds that he "can't get very excited about Data Pump Export." I have had to support many performance issues relating to moving data into and out of databases. Therefore, I would have appreciated expert advice from Lewis on the benefits and best way to use Data Pump.

The rest of the chapter covers new features like big file tablespace, which allows you to have one very large datafile for a tablespace instead of a group of smaller datafiles. Cross-platform transportable tablespaces are described as well as various enhancements to specific SQL statements that will allow you to do data analysis. New partitioning features are also covered. This material is thorough and clear, but doesn't offer you any insights as to how to determine when these new features will help you with your specific application needs.

Chapter 7 Application Development

Oracle 10g allows you to use regular expressions in your SQL and PL/SQL processing that allow you to do complex pattern matches in your string data. There are clear descriptions of the new PL/SQL packages and information on some things that I've never had to use such as Oracle collections, temporary tables with varray columns, tablespaces for nested tables.

We're told that the new 10g PL/SQL compiler is 50 to 75% faster than the 9i compiler. I would like to have had the author's comment on some testing to verify this improvement but none is offered. I hope that these performance improvements turn out to be true, as that would be a big help to many users.

Chapter 8 Other Database New Features

This chapter covers an even wider range of new features than the previous chapters. Some of these new features are improvements to things I have never used before so I can't really say if these improvements are significant or not. For example, the very detailed description of workspace man-

ager enhancements, including multiparent workspaces and workspace manager events, may be very useful to those who are familiar with this feature. There's also a description of exporting and importing version data from workspaces, but again I'm not sure if this is a significant feature or not.

There is a section on streams enhancements. I don't think there is enough explanation of what streams even are, so unless you are familiar with streams, this section may be hard to understand. Here again, you need to have some expertise with the specific feature before you can get much out of the sometimes very brief description of the enhancements to specific features contained in this book.

There are several pages describing SQL*Plus enhancements that I found very interesting, because I have used SQL*Plus extensively over the years and these enhancements will be relevant to my day-to-day use of the Oracle database. There is also a section on SQL language new features, however I believe these are relatively obscure features that I don't have enough background to appreciate. For example, I'm not sure how to assess the benefit of the new removal of aggregate and SQL statement length limitations.

Chapter 9 Oracle Enterprise Manager 10g

This chapter focuses on changes and improvements to the Oracle Enterprise Manager (OEM). The description of these changes is thorough and easy to follow. It includes some screenshots of the web pages you'll see as you use the new OEM features. OEM is now browser based, so you can manage your databases from anywhere you have a browser that can connect to your network.

OEM now comes in two flavors, Grid Control for managing multiple databases and application servers and Database Control for managing a single database. It is clear to me that as the authors approached the last three or four chapters of this book, they were running up against time and/or physical space limitations because the amount of information on any given new feature becomes smaller

and smaller to the point where some are mentioned in name only.

Appendix Oracle Database 10g New Processes

The appendix is all of three-quarters of one page, but is useful in that it identifies all the new operating system–level processes that you may have when you start using the 10g database. Again, this highlights how many more things you may have to install, configure, and manage as you implement the new features in 10g. While I think the new features of 10g will improve many long-standing DBA issues, I think there is also added complexity for some of the newest features that will simply replace old issues with new issues. For those who think each new version of Oracle reduces the need for a DBA, I think it simply changes what the DBA does.

I think it is important to keep in mind that new features are just that, new features. They aren't necessarily good features that will help you with your real-world applications.

Conclusion

With regard to new features in general, not just for 10g, I'm reminded of one of the better training experiences I ever had. This was a third-party training class on Oracle 8i, and the instructor pointed out that in many ways Oracle has to create new features simply to maintain the myth that they are the technology leader in the arena of relational databases. And while the specific example described by the instructor is now well out of date (this was 8i after all), I think the message is still relevant. After all, how many of you are now storing video inside of your Oracle database? But at the time that 8i was new, storing video in the database was an example of how Oracle was superior to the competition. I think it is important to keep in mind that new features are just that, new features. They aren't necessarily good features that will help you with your real-world applications.

This book is a fine attempt to convey a high-level review of all the major new features of the Oracle 10g database. However, I don't see that this book is much better than the marketing materials you can get for free from Oracle's website, so I don't see that you need to buy this book.

To put the whole idea of how we buy enterprise software in perspective, consider how it would sound if we were discussing the new features of a new car. The author would tell us that the new car has big shiny fins, whose purpose is not clear. We would review each of many new things about the car, many of which have not been available before so we wouldn't know what, if any, effect on driving they would have. Finally, "Mr. Automobile" would advise us that after buying, we must completely disassemble the car and thoroughly test each component separately before we should consider driving our new car. And "Mr. Automobile" would be unable to get excited about the car's fuel mileage.

Would you buy a new car this way? Then why do you buy mission critical enterprise software this way? ▲

About the Author

Robert G. Freeman has been involved in Oracle for almost a decade and a half. Having decided many moons ago that selling trucks was not the life for him, Robert moved into computing. From there he started delving into C programming and then he quickly moved into UNIX administration and then to Oracle. As a consultant, Robert has experienced many interesting assignments all over the United States. Additionally, Robert has spoken at many user groups, both national and international. In his free time (does he have free time?) Robert enjoys being with his new wife (whom he totally didn't deserve), his wonderful kids, and Clifford the cat (and no, Clifford isn't eight feet tall). He's also trying to learn French, but is sure he will never get it.

About the Reviewer

Brian Hitchcock has worked at Sun Microsystems in Newark, California, for the past nine years. Before that he worked at Sybase in Emeryville, California. Even further into the past he spent 12 years at Lockheed in Sunnyvale, California, designing microwave antennas for spacecraft. He supports development databases for many different applications at Sun, handling installation, tuning, NLS and character set issues as well as Unicode conversions. Other interests include Formula One racing, finishing a Tiffany Wisteria lamp, Springbok puzzles, Marklin model trains, Corel Painter 8, and watching TV (TiVo® rules!). Brian can be reached at brian.hitchcock@aol.com or brhora@aol.com.