



## Günther

asks



## Andy

Günther Stürner, dbms publishing, interviewed Andy Mendelsohn, executive vice president for database server technologies at Oracle, in March 2018

*Hallo Andy, thank you for your time. I and the readers of the Red Stack magazine in Austria, Switzerland and Germany appreciate it very much to hear the latest information and insides about the Oracle database from you.*

**Andy:** Delighted to chat with you and your readers once again Günther!

*In July 2017 we met the last time for a Red Stack interview. Since then lots of things happened in the Oracle Database world. Not too astonishing in this ultra-fast industry we work in. Let me first come back to the new yearly release model which is now in place. What are the reactions from the customers so far?*

**Andy:** Yes, when we last met, we had just announced the new release model, and earlier this year we started rolling out Oracle Database 18c, which is the first annual release in our new database software release model. In terms of the previous release model, Oracle Database 18c is what would have been the first patch set to Oracle Database 12c Release 2. Looking forward, our customers can anticipate the introduction of new database features and enhancements on a regular annual basis. The release of Oracle Database 18c, and that of the Autonomous Database Cloud, has been exceptionally well received by our customers and partners.

*Do you plan to have a kind of synchronized release process for database and database related products like Apex and SQL Developer to name two?*

**Andy:** Yes, we'll continue to develop tools like Apex and SQL Developer in parallel with that of Oracle Database. Previously, any Oracle Database 'Release 2' would typically last a minimum of 3-years, and there would be multiple releases of Apex and SQL Developer over the timeline of any 'Release 2'. However, with Oracle Database releases now coming out annually, we'll start to see fewer releases of Apex and SQL Developer per annual database release.

*Why should a customer be excited about Oracle 18c, why should he upgrade to 18c?*

**Andy:** Well, each new release brings a wealth of new features, enhancements to existing features, improved diagnostics, and improved quality; therefore it's always in our customers' best interests to stay abreast of the latest Oracle Database release. It's important that customers fully evaluate and test the latest release for themselves, and I would always encourage customers to upgrade to Oracle Database 18c. I would also encourage customers to measure tangible benefits from their upgrade, which could be anything from faster performance and higher availability to greater security, consolidation and more. The reasons why

customers will upgrade to Oracle Database 18c will vary from customer to customer and from use case to use case. An obvious starting point for many customers will be to standardize on Oracle Database 18c for new applications. Also, many customers are on old releases that are effectively out of support and running on older hardware infrastructures. The availability of Oracle Database 18c should be a rallying call for these customers to upgrade. Finally, Oracle Database 19c will effectively be the terminal patch set for Database 12c Release 2 and will have the same long term support lifecycle we have provided in the past for terminal patch sets. So for customers on Database 11g Release 2 who want to move to the terminal patch set of Database 12c, now is the time to start testing their applications against Database 18c, so they can rapidly go production when Oracle Database 19c ships. Finally, for many other customers, upgrading to Oracle Database 18c may simply be part and parcel of their journey to the Oracle Autonomous Cloud.

*I know it's not easy to highlight some features. As a 'father' you love all kids the same. But maybe some features are cooler than others or are more important than others when it comes to the competition or the future of the product itself. What are your favorite features within Oracle18c?*

**Andy:** As I mentioned previously, customers can view Oracle Database 18c as the first patch set to Oracle Database 12c Release 2. Therefore, in terms of the most important features, I'd call out the cloud agility and cost-savings of the multitenant architecture, the massive performance enhancements to be gained from in-memory, the native sharding capabilities for massive web-scale applications, and the improved support for using SQL on JSON data. All four features are further improved in Oracle Database 18c (e.g. refreshable PDB switchovers, a memory optimized rowstore, and user-defined Range and List sharding models). One of my personal favorite features of this release is the ability to do non-logged, high performance loading of tables, while still maintaining a Data Guard standby database. But, let's not forget that Oracle Database 18c also provides customers with a multitude of other database critical performance, scalability, reliability, security, data warehousing and AppDev capabilities as well.

*What about Oracle XE. It's quite popular but a bit outdated. I think XE could play a much more prominent role to keep Oracle database on top of the database world and visible within the development community. It should be the database in education in schools and even more in universities and it should be the popular system for development.*

**Andy:** Yes, you can expect to see an XE edition of Oracle Database 18c coming out later this year. The developer community is very important to Oracle and we'll continue to ensure that developers can access the latest generation of Oracle Database on-premises (e.g. by downloading XE), in the Cloud (e.g. using Cloud free trial credits), and via free sites like [livesql.oracle.com](http://livesql.oracle.com) and [apex.oracle.com](http://apex.oracle.com).

*Besides the announcement of Oracle18c and the new release model, the 'Autonomous Database' was the big bang at Oracle World 2017. To be honest, I was a bit confused and I found*

*many others in the Oracle community with the same feelings. Oracle18c and the autonomous database functionality was mixed up and it was not clear what is real and what is future or only good marketing. Can you please help us to understand what this is all about?*

**Andy:** Fair comment Günther! The simplest way to describe the Autonomous Database Cloud is it's the combination of Oracle Database 18c, running on Oracle Exadata, and available as pay-as-you-go services on the Oracle Cloud and Exadata Cloud at Customer. So the 'autonomous' aspect is only available on the Cloud and Cloud at Customer, where Oracle is managing the entire hardware and software platform, and thereby reduces the risk from 3rd party human error.

*Is it fair to say, that the autonomous database is not a new option and it is not a product per se? It's a mixture of automated tasks, defined procedures and management tasks flanked by innovative machine learning algorithms?*

**Andy:** That's correct. The Autonomous Database Cloud is a collection of database cloud services tailored for specific Data Warehousing, OLTP and NoSQL workloads that are available on Oracle Cloud and Cloud at Customer only.

*Machine Learning is the new star in the IT-world. The Oracle database already stores lots of meta-data about the usage of the data. Can you please give us a kind of idea what's behind the machine learning idea in the context of an Oracle database?*

**Andy:** Over recent releases of Oracle Database, we introduced a lot of 'automatic' functionality (e.g. Automatic Storage Management, Automatic Undo Management, Automatic Database Diagnostic Monitor, etc.), and through machine learning techniques we can now automate many routine manual administrative tasks. By utilizing existing database functionality (including cost-based optimizations, performance diagnostics, data optimizations and cloud-scale operations) with machine-learning techniques, the Autonomous Database Cloud can provide a level of database performance, reliability and security that alternative cloud vendors just cannot offer.

*For data warehouse systems Oracle released the Autonomous DWH Cloud in March 2017. What can a customer expect if he runs his data warehouse with this offering? What is different from the customer- and dba-perspective compared to a on-premises warehouse or a warehouse running in the Oracle Cloud?*

**Andy:** The Autonomous Data Warehouse Cloud (ADWC) offers customers enterprise performance, reliability and security for their data marts, reporting databases data warehouses and data lakes, with zero operational administration required on behalf of the customer. The ADWC is an easy to use service (e.g. it does not require manual tuning normally associated with data warehousing on-premises), it's fast (e.g. it runs on Oracle Exadata) and it's completely elastic (e.g. customers can independently scale compute and storage with zero downtime). It offers customers complete analytic freedom, with a choice of interfaces (e.g. SQL and APIs), analytic services (e.g. Machine Learning and Graph), and data management services (e.g. Autonomous Cloud and Object Stores).

*If we broaden our view to all available database applications incl. OLTP systems. What can a customer and a DBA expect from autonomous databases functionality? What is the unique customer experience working with such a system?*

**Andy:** Ultimately, the Autonomous Database Cloud will provide a range of service offerings for all database workloads including OLTP. It already offers customers the prospect of running their database workloads on Exadata in a fully automated pay-as-you-go service. These services not only eliminate much of the routine day-to-day administrative operations from the customer's perspective, it also (more importantly) helps eliminate the prospect of human error on behalf of the customer. The role of the DBA has been evolving over the years to be a more significant element in the success of any IT operation. That role will continue to evolve and grow in importance as customers gradually progress on their journey to the Cloud.

*One of the biggest challenges of many customers is the management of lots of databases. The multitenant option is a fantastic technology helping customers in that area. How can the autonomous database capability further make the upgrade task easier and faster?*

**Andy:** The multitenant architecture is a core component of Oracle Database Cloud Services (autonomous or otherwise). It provides a level of agility in the Cloud (and on-premises) that is essential for rapid provisioning, cloning, moving and upgrading databases, and it's completely complimentary with other critical database components such as Real Application Clusters and Active Data Guard. This enables customers to easily consolidate multiple PDBs into a CDB (both on-premises and in the Cloud), and also enables Oracle (as a service provider) to automate the patching and upgrade process using rolling patching and upgrade techniques without requiring any downtime on behalf of the customers. In fact, it's because of features like multitenant, RAC and Active Data Guard, that Oracle is able to guarantee less than 2.5 minutes of downtime per month for Autonomous Database.

*The car industry defined a leveling-schema for autonomous driving. Level zero is car driving without any assistance, level two is car-driving with lots of assistant tools – I would say this is the mainstream today –, level five, the highest level, is driving without a driver. Is there a similar leveling-schema available for autonomous database systems?*

**Andy:** Yes, we're conscious that one-size doesn't necessarily fit the requirements of all our customers. From day 1, ADWC is aiming to be a completely self-driving database; however, we understand that some customers may wish to bring their manually-tuned data warehouses to the cloud so we plan to accommodate these customers in the future. For Autonomous OLTP, we will offer a fully managed database that has some level of self-tuning capability with the target of offering full self-tuning in the future.

*Today the autonomous database capabilities are only available in the cloud. This is understandable from the development and management standpoint. This helps you to introduce these functions and processes in a very professional and controlled way.*

*But the real breakthrough would be if all Oracle database customers can use the autonomous functionality – not only the Oracle cloud users! Do you plan to make this cool stuff available to customers running their Oracle databases in their own computing centers some day in the future?*

**Andy:** Remember that autonomous database is a service consisting of the 18c database software running on our cloud infrastructure fully managed by Oracle. It will be available on the Oracle Cloud and at Oracle Cloud at Customer. Oracle Cloud at Customer provides customers with the exact same autonomous services, resident in their own data center, all fully managed by Oracle.

*As the Executive Vice President of the Oracle Database development – the leading product in that segment – you have a high responsibility for you team, for Oracle as a whole and for the many companies and their employees who have built their application on the Oracle database technology and for the many partners and persons who work with the Oracle database technology. This is one side of Andy Mendelsohn's daily business. But beside that you some other interests, I am sure. What do you do when you don't think about the next database version? What are your hobbies or what is your favorite music ...*

**Andy:** I very much enjoy working for Oracle, and I'm fortunate to have a great team working alongside me. Outside of work, I'm very much a family man and appreciate the times we spend together at home and on vacation. I also like to keep fit. I walk up the 14-flights of stairs to my office each day, and on the weekends, you'll find me on the tennis court or on ski slopes during the winter.

*Thank you very much for your time Andy. If you agree and if you have time for the next interview I would like to concentrate on the development part of the Oracle database. Because: A database without applications is worthless.*

**Andy:** My pleasure Günther, and I look forward to discussing the AppDev aspect of Oracle Database next time around.