



**Renowned ceramics manufacturer Villeroy & Boch AG and hosting partner Rödl IT Operation GmbH test Oracle Database In-Memory for SAP NetWeaver BW**

## **HUGE PERFORMANCE BOOST CONFIRMED, MINIMAL IMPLEMENTATION EFFORT COMES AS SURPRISE**

With an annual revenue of approximately € 800 million and over 7,300 employees, Villeroy & Boch AG is one of the world's leading manufacturers in the ceramics industry. The family business, which was founded in 1748 and is headquartered in Mettlach/Germany, stands for innovation, tradition and exceptional style. As a renowned lifestyle brand, Villeroy & Boch offers products from the sectors Bathroom, Wellness and Tableware, and is active in 125 countries.

Both business areas use an SAP ERP and an SAP BW system as well as other SAP solutions. Villeroy & Boch has been using Oracle's proven, reliable database to great advantage for around 20 years. Over the years the use and importance of BW/BI has steadily increased. The company has approximately 2,500 SAP users worldwide, including around 1,700 in the SAP BW environment. Certified SAP hosting partner Rödl IT Operation GmbH (with offices in Mettlach, Selb, and Frankfurt) operates and manages a range of systems including all SAP systems on behalf of Villeroy & Boch AG.

As Villeroy & Boch CIO and IT Director Thomas Ochs explains, „It was at an event organized by German-speaking SAP user group DSAG in early 2015 that we learned about the new Oracle Database 12c for SAP and the Oracle Database In-Memory technology, mainly from the standpoint of potential performance improvements for our SAP

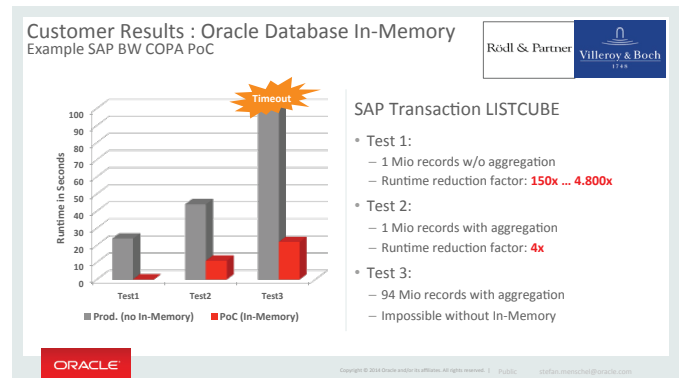
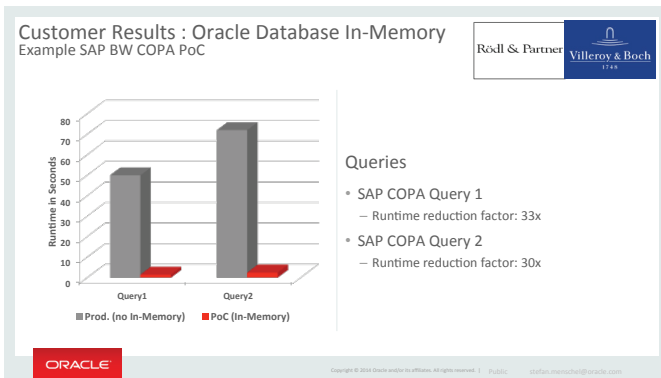
NetWeaver BW systems. Some time later our hosting partner Rödl IT Operation GmbH suggested performing a joint test of the Oracle 12c technology as part of a transparent proof of concept (PoC), and we agreed. The questions that interested us most were: What potential performance improvements could we achieve by using Oracle Database In-Memory for SAP BW? And how much implementation work would be involved?”

### **Tests on an SAP BW sandbox**

For the tests with Oracle Database In-Memory, fact tables (E and F tables) from the largest COPA cube at Villeroy & Boch AG were used, with around 94 million rows. “Obviously, we wanted to perform the tests with real production data to produce results and an actual comparison of the outcome with and without In-Memory. With these kinds of tests it was mainly about read times for data and queries both with and without database aggregation. We also wanted to evaluate how this Oracle 12c technology works with identical hardware configurations and the addition of more memory,” says Harald Wolf, Senior Consultant BI at Villeroy & Boch within the corporate IT team, who carried out the PoC in close collaboration with Klaus Lehnen, head of the competence center for SAP-based technology at Rödl IT Operation GmbH.



### Summary of test results: Oracle 12c In-Memory option at Villeroy & Boch



For the PoC the partners constructed an SAP BW sandbox which was an exact copy of the productive SAP BW system, with a total of 64GB of In-Memory storage being earmarked for the database. The Oracle database for the SAP BW system was then upgraded from 11g to 12c. Lehnen explains, “The aim was to test Oracle Database In-Memory on comparable standard hardware. For both the BW sandbox with 128GB of RAM and the BW PROD system with 96GB of RAM we used an X86 RedHat Linux-based system environment virtualized with VMware on two CPUs with a total of 16 cores.”

He goes on to explain how the Oracle 12c upgrade and the activation of Oracle Database In-Memory was completed in around five hours. The entire PoC was carried out in 1.5 days with very reasonable resource utilization. After an initial brief test, only two database parameters were adjusted as a recommended tuning measure.

The LISTCUBE transaction was used for all the tests performed by the partners. The database response times were calculated with SQL traces using SAP transaction ST05 (performance analysis). All data was compressed beforehand utilizing Oracle Advanced Compression.

### Exceeding expectations

In total, Villeroy & Boch and Rödl IT Operation GmbH carried out four different test scenarios on the SAP BW sandbox with Oracle Database In-Memory. Each was followed by an evaluation of the results from the SAP application.

In the first test, 1 million records were selected without database aggregation and processed with In-Memory, several times over. The database processing time was measured with preparation and transfer times being measured separately. For the PROD system, the data showed that the entire process took 24 seconds. The equivalent process in the SAP BW sandbox with Oracle Database In-Memory yielded a significant reduction in processing time as it was reduced to 160 milliseconds and as little as 5 milliseconds in some cases.

The second test was similar to the first, but the 1 million records selected were aggregated in this case. Comparative measurements showed that the database time was reduced by 75% as the runtime went from 44 seconds to 11 seconds. 33 seconds fewer to process each request.

In a third test, the entire data volume of the loaded tables (94 million records) was read from the memory and aggregated in just 22 seconds. A comparable test in the SAP BW PROD system could not be completed due to a timeout.

Finally, Villeroy & Boch concentrated on the processing of existing COPA queries and preparing the results with web templates. Two heavily processed SQL candidates were chosen. The results for query test 1 showed the database time with Oracle Database In-Memory taking 1.5 seconds while that same statement takes 50 seconds in the SAP BW PROD system. Query test 2 had similar results. What took 72 seconds in the SAP BW PROD system only takes 2.5 seconds with Oracle In-Memory.

In the words of Harald Wolf, “With our tests based on Oracle 12c and Oracle Database In-Memory, the PoC produced amazing results in terms of improved performance. From a BI point of view I was also especially pleased with the fact that once SAP applications have been created, they can be used with Oracle Database In-Memory without any modifications. It’s also easy to choose which SAP BW tables are processed with In-Memory and which are not.”

#### Low resource requirement, many benefits

Thomas Ochs sums up the result, “Obviously, we expected the Oracle Database In-Memory technology to deliver a certain performance boost. The final result was a marked improvement, which revealed how much potential the technology has to offer. The IT team at Villeroy & Boch was pleasantly surprised at how little implementation work was involved and how quickly the tests could be performed.”

Klaus Lehnen from Rödl IT Operation GmbH notes, “The benefits that can be achieved with the use of Oracle Database In-Memory for existing SAP customers with the Oracle database are very substantial, with moderate costs and only a modest amount of implementation work. This is also due to the fact that existing hardware infrastructures can be used and no modifications are required on the application side.”

He sums up by saying, “Migration projects to Oracle 12c – if you can call them that – with the use of Oracle Database In-Memory are very low-risk, as well as being easy to manage and easy to calculate. Furthermore, the whole process is based on Oracle, a long-established stability factor for databases in the SAP environment.” Rödl IT Operation GmbH also provides hosting services to numerous SAP customers, most of whom rely on the tried-and-tested combination of SAP and Oracle Database.

After the successful testing Villeroy & Boch AG is now adopting Oracle Database In-Memory for their SAP installations BW and CRM.



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