## *Oracle Database*

The Oracle Database has been the "best-of-breed" enterprise database for decades. Outperforming its nearest competitors in every important category whether measured by stability, performance, security, features, or options.

The Oracle Database was first released in 1979, now 42 years ago, and with every generation has continued to add and enhance capabilities. Most of the "consultants" in the business are younger than the product they are working on, but that is not true at Zione. At Zione we recruit our technical staff from a pool of the most knowledgeable and experienced practitioners specifically looking for those that have deep experience from the past, have kept their skills sharp for the present, and are preparing for the future. The average member of our Oracle Database team, as of August 2021, has 30.5 years of experience and members of our senior staff have been recruited by Oracle Corp. to be Beta Testers, Advisory Council members, a member of the Oracle Center of Excellence, and to represent Oracle at hundreds of conferences on four continents.

Oracle trusts us... and you can too.

### Architecture and Design

Getting the most value from an Oracle Database has always required a thorough knowledge of multiple disciplines. Optimization requires a deep understanding of logical and physical servers, TCP/IP and UDP networks, routable, non-routable, jumbo frames, storage from SAN to NAS to DASD, and operating systems including Linux, Solaris, AIX, HP/UX, and back in the days of version 5 there were a total of 92 separate platforms and operating systems to support.

Today that experience and the knowledge that came with it are put to use supporting Cloud deployments, Real Application Clusters, Disaster Recovery environments from the basic to those with Active and Snapshot Data Guard, Cascading standbys and FarSync instances running on file systems, raw disk with ASM, and soon Persistent Memory databases on Optane. All, while keeping current on Oracle's latest engineered systems such as ODA, Exadata, ExaCM, and ExaCC.

### Installation and Configuration

If running OUI, NETCA, or DBCA all that was required to install and configure a database in an enterprise environment no database would take more than 4 hours to create. Oracle 19c has 447 configuration parameters, Oracle 21c has 483: 36 more that might impact stability, security, and performance.

Most of our customers are still in the process of migrating from 11g and 12c to version 19. Fewer than 2% of them

have experience working with the new Container architecture, with Container Databases (CDBs) and Pluggable Databases (PDBs), which was required as of 20c and will be a required upgrade for everyone before the end of 2023. The Zione team has been working with CDBs since the 12.1 Beta 5-years ago; we worked in the unreleased 20c, and work almost every day in 21c to make sure that we have the experience our customers expect.

If your team isn't ready to deploy Read Only Oracle Homes, Immutable tables, Inactive Account Time, and Password Rollover Time, we are ready to assist your organization.

## Stability

Our customers are enterprises that use Oracle products to support their mission-critical business requirements. Many are global, many work 24x7x365, many have Service Level Agreements (SLA) and take their RTO and RPO requirements seriously: An extended service outage is not an option. Stability to our team means reliability and risk reduction; it means supporting our customers as they grow their business and affirm their reputation with their internal and external customers.

Zione's stability practice built on tested processes, procedures, and methodologies, is focused not just on implementing High Availability options such as RAC, Data Guard, and product options but also on optimizing the reliability of patching, backups, online configuration changes, and other day-to-day maintenance activities.

## Scalability and Performance

Scalability and Performance have been issues for all relational databases since their inception. Members of our team have been tuning SQL statements for decades. We have been tuning PL/SQL since the release of version 7 in 1992. And the successes our team members have produced have impacted the business processes at companies as large at the Fortune 10.

Our Scalability and Performance practice is led by Oracle ACE Ric Van Dyke, who was employed for 10 years by Oracle Corp. as a member of their internal performance team and who, after leaving Oracle, was a key member of the HotSOS staff working with Cary Millsap.

## Security

With very few exceptions there isn't an Oracle Database that can't be broken into in less than 15 seconds. It's not Oracle's fault. Oracle provides the most secure enterprise-ready database product on the market. Oracle configures that database, on installation, to be maximally backward compatible. And, expects its customers to configure security using the tools provided, to minimize the attack surface: Unfortunately, few of Oracle's customers have the knowledge required to perform that essential work.

The cost to properly configure and deploy most of the built-in security functionality in an Oracle Database is minimal when compared with the cost of firewalls and end-point monitoring and that is where Zione security practice focuses. We know our customers value QoS and TCO and would rather get the maximum value from what they already own before they purchase additional, sometimes expensive, options.

More than 90% of Oracle Database customers give users the DEFAULT profile without password verification and give DBAs the built-in DBA role: Both should never be done. More than 90% don't configure Net Services encryption, rate limiting, or valid node checking even though all three are included in their existing license.

Zione's Security team hits the ground running, by checking for hundreds of vulnerabilities potentially exposed by a firewall breach or to an internal resource, rating them in terms of urgency and risk, and efficiently locking them down. Our Zero Trust approach addresses configuration and encryption issues and can address spillage, non-repudiation, and audit trail inviolability.

**Troubleshooting & Debugging**

If nothing ever broke there wouldn't be a need for troubleshooting and debugging skills: That's not the world we live in.

The massive advantage Zione brings to engagements is the decades of experience our team has. It is not uncommon for us to look at something and hear a team member say: "Oh, I saw that 2 years ago at XYZ company. Look up this doc at Oracle Support and see if it checks out."

Because our experience is far broader than just database, we are able to take a holistic approach and identify when the database is reacting to issues elsewhere in the IT stack, saving our customers from SLA violations. That broad level of experience has quickly focused on NTP and DNS issues, on swapping and HugePage issues, and issues that resulted from virtualized storage.

The Zione Database Team is flexible and can often engage within hours of being asked to parachute in and get a system back online. Contact us today to set yourself up for this service at no cost until you need it.

**Upgrades and Migrations**

No aspect of Oracle Database management produces more unjustified overconfidence than upgrades and migrations. The average organization engages in these activities once every 5 to 7 years and is completely out of practice. The organization doesn't remember the fact that the last time they did it they didn't stick to their outage window, didn't stay within budget, and fork-lifted most of the previously existing issues into the new version.

Zione's Migrations team knows not just your existing version, we know the version you are moving to. We know where the bugs are, we know the options that will minimize issues, outages, and cost. And, perhaps most importantly, we know what technology in the old version is deprecated or desupported and can help you prepare for the issues that will create before bumping into them halfway through the migration engagement.

You will, whether you wish to or not, be migrating to database version 20c+ in the next 3 or 4 years which means moving to a container database. You can leverage our expertise to simplify the complex and make your efforts successful. To find out more about how we work cooperatively with your internal teams, and how we can provide knowledge transfer to DevOps, SQL Developers, DBAs, and System Admins contact us today.
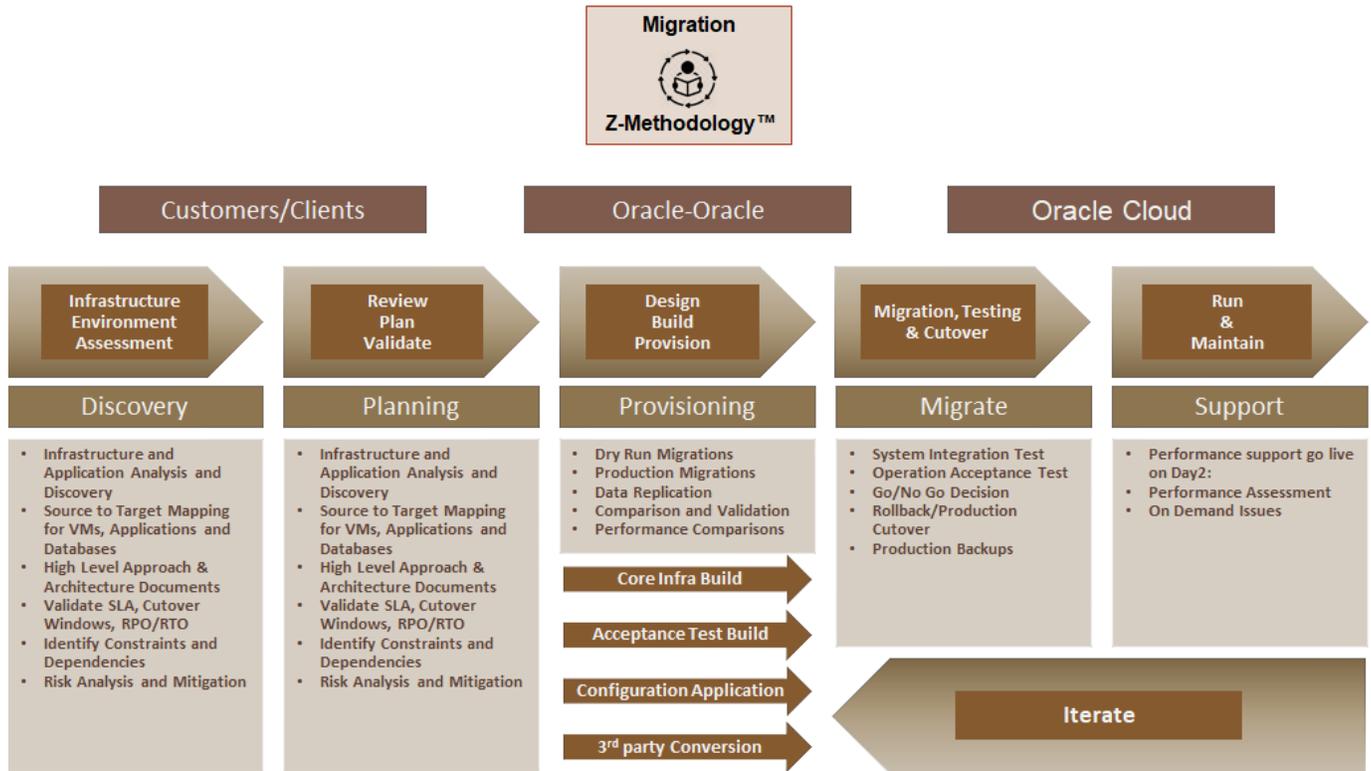
## SQL and PL/SQL Development

Development often takes a back seat when we talk about the Oracle Database: So much of development has been transferred to DevOps groups that are highly skilled in Java, Swift, or Rust. These teams are very skilled with what they do but often are not aware of how to optimize in-database activities, which options are being deprecated or desupported, or which new options could be leveraged to make an incredible improvement in performance.

Just in the last 3-years members of our team have saved customers thousands of development hours by helping them safely navigate issues created by the desupport of Advanced Replication, Change Data Capture, Workflow, and the introduction of Container Database architecture.

Contact the Zione team and, with an NDA in place, let us show you the value add of working at our level.