

Database Migration and Upgrade Methodology

Upgrading an existing database or migrating to a new database can be a daunting challenge. On the other hand, standing in place with your technology environment is neither safe nor sound. Often, when a new database version is released, the clock starts ticking on “end-of-life” versions, and support will stop at some point. Additionally, if no action is taken, organizations often fail to achieve compelling economic and performance gains related to system performance, storage optimization, business continuity, reliability, and supportability. Upgrading or migrating does not have to be a risky or uncertain undertaking, provided appropriate measures are taken:

- Carefully strategize and plan project approach prior to commencing work
- Automate as much of the process as possible
- Use proven tools and techniques
- Engage resources with sufficient experience and know-how to avoid costly mistakes.

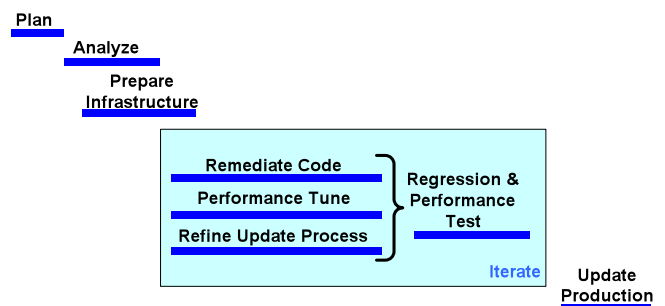
Integra Technology Consulting is a leading full-service systems integrator, with deep roots and experience in complex enterprise database solutions – so deep, in fact, that Oracle Corp. itself recently sought our expertise to assist in beta testing its 11gR2 database. This experience, gained over the course of many years, has led Integra to develop our unique Database Migration and Upgrade Methodology.

For database migrations and upgrades, Integra employs our proprietary methodology and experienced, senior consultants to help clients reduce risk. We recognize there are many alternative approaches, each of which has its strengths and weaknesses. But with our many years of enterprise database experience, Integra has come to recognize that none of these are perfect, and the process must be customized to your needs. Additionally, there is no substitute for competent database experts who have “been there and done that”, and understand not only the latest technologies, but also the importance of the basic “blocking and tackling” that go into every enterprise database initiative. It is from this perspective that Integra has developed our database migration and upgrade “playbook” of tools and methodology.

Our Methodology

Our methodology focuses on the fundamentals of database upgrades – detailed discovery, iterative execution, exhaustive testing – and then layers in scripts and other tools to perform the upgrade quickly, reliably, and repeatably. The following figure depicts the sequence of steps in our methodology.

Integra Database Migration and Upgrade Methodology



Integra’s first priority in any database upgrade project is to make sure that the functionality and performance of the system beforehand will be maintained or improved by the upgrade. Consequently, our rigorous methodology places significant emphasis on analysis and setup, pre-upgrade actions, iterative implementation, testing, and remediation and refinement.

In the Plan phase, Integra works closely with our clients to tailor the project approach to meet specific needs, define a project timeline, map initial infrastructure requirements, and define team roles and responsibilities.

During the Analyze phase, the combined team carefully reviews existing code, operating system, database configuration, and performance characteristics of the system to be upgraded. Using this analysis, our team modifies standard tools to create project-specific tools, including:

- Catalog of code to remediate, to ensure proper functionality and performance with the upgraded database

- Upgrade “playbook” to set the sequence of upgrade steps and establish benchmark times for each step
- Performance measurements and benchmarks.

During the Prepare Infrastructure phase, Integra works closely with our clients to prepare the infrastructure to support the project, as well as establish any new infrastructure to support a migration to a new platform.

Once the key elements of the infrastructure are in place, the Integra team commences an iterative upgrade process. In each iteration, the team undertakes three parallel activities to minimize risks during the upgrade to the production system:

1. Code Remediation: Modify and patch existing software so it functions and performs to standards with the upgraded database;
2. Performance Tuning: Modify database, server, operating system, and storage parameters to optimize system performance;
3. Upgrade Process Refinement: Refine and improve the upgrade process “playbook” to reduce time and improve the consistency of upgrade execution.

Integra strongly believes that rigorous testing is of paramount importance in successfully executing an enterprise database upgrade initiative. Therefore, as part of each iteration, the team performs regression testing to assess the functionality of the upgraded system and performance testing to compare the upgraded system to benchmarks. It is during the Testing phase that the real value of Integra’s comprehensive Analysis activities shines through. Integra insists on rigorous testing because the success or failure of every database upgrade project depends heavily on ensuring that all components of the system are appropriately configured.

When the team is confident that goals for functionality, system performance, and elapsed time for the upgrade process itself meet objectives, the team enters into the final phase: Update Production.

Of course, the above is only intended to convey a high-level sense of Integra’s methodology. During the actual execution of the project, there are many nuances and elements of our approach and execution technique that bear on the success of the project. These include detailed code remediation tools, performance management techniques, and planning and strategy for the eventual upgrades to the production database platform.

Quality and Management

Integra underpins all of its projects with our rigorous integrated project management approach:



Our project management process provides our database experts, project managers, and clients a framework that uses communication and a client-focused foundation to drive quality and measure project progress and success. It also provides Integra’s teams and clients with tools and techniques to control and track project costs and schedules and effectively report progress and issues to our clients. We meld our project management approach and upgrade methodology to reduce the risks, costs, and time required to complete database upgrade and migration projects.

Results

As an Oracle Certified Partner, Integra Technology Consulting provides the expertise, methodologies, and tools you need to successfully undertake the most daunting database migrations or upgrades. With our rigorous process, methodologies, and tools, customized to specific needs, and combined with deep expertise and know-how, we have helped many organizations, large and small, achieve unparalleled results.

Contact Integra today to discuss your enterprise database migration or upgrade plans in more detail, and to learn how Integra can help you save time and money, reduce risk, and realize greater return on your database investment.