CHAPTER 1

Oracle: The Company and the Software
With Oracle quickly approaching its 25th anniversary, we thought it would be appropriate to spend some time reviewing its history. Understanding the company’s roots will give you better insight into how and why the company operates the way it does today. We will then wrap up the chapter with an overview of Oracle’s current product and services offerings.

This chapter covers the following topics:

- History of Oracle Corporation
- Five areas of Oracle software

Terminology

The following terminology will arm you with the technical jargon to get through this chapter.

- **DBMS** stands for database management system. Think of it as a file manager for files in a database, rather than files in a file system. The most common type of database today is an RDBMS.
- **Java** is a programming language expressly designed for the distributed environment of the Internet.
- **RDBMS** stands for relational database management system, a database implemented according to Dr. E. F. Codd’s relational model.

Oracle Corporation: A Timeline

What does SDL (Software Development Laboratories) have to do with Oracle Corporation? Very little, but now that I have your attention, it is one of the many names of the company before it became known as Oracle Corporation. We have found this to be a great trivia question among our high-tech friends. Here is another trivia question: what is the origin of Scott/Tiger, the username and password used in many of the examples shipped with the database? Bruce Scott is the name of the developer, and Tiger is his cat. But enough fun—on to the history of Oracle.

1977: In the Beginning

The year is 1977, and Larry Ellison, Bob Miner, and Ed Oates have founded SDL. Yes, Ed Oates. Many times you hear only of Larry Ellison and Bob Miner—but to be fair, it was all three. We have been fortunate enough to meet all three individuals.
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Larry Ellison and Ed Oates are still with us today. Only Larry Ellison is still with Oracle Corporation.

The new corporation was formed so that they would be able to bid on government contracts. Ellison and his co-founders were already familiar with an IBM research paper by Dr. E. F. Codd about a new type of database that would better organize the way information was stored within a database and a new language called SQL, which would allow you to sort through large amounts of information quickly.

The CIA had an inherent need to store large volumes of information and retrieve it quickly, so it was sufficiently intrigued by this research paper to put some funding behind the idea. SDL was awarded a bid and began work on this top-secret project. The code name for this CIA project was Oracle.

If you think about it, Oracle was a great name for this project. The word oracle means a prophecy or someone who delivers such predictions. It was believed that, if one asked a question of an oracle, the answer came straight from the gods. In his paper, Codd theorized that, using the new SQL language, one would be able to navigate vast amounts of information—and derive an answer to one’s query—very quickly.

Like many projects the government funds, after a while its funding was canceled. But early on, Larry and his co-founders had recognized the commercial possibilities of a database that could store vast amounts of information and allow you to retrieve it quickly. This, coupled with the belief that IBM was planning on incorporating this new relational database and SQL language into future computers, led Larry, Bob, and Ed to decide to continue work on the project.

They decided to implement this database on a minicomputer built by Digital Equipment, an IBM competitor. At that time, mainframes were still king (IBM dominated computer sales), so a minicomputer was not the obvious choice. Nonetheless, through a combination of their savings and the consulting work they could pick up along the way, they struggled on, developing this new concept in databases.

1978: Relational Software Inc. Is Born

Oracle version 1.0 is written in assembly code on Digital Equipment computer PDP-11 under the RSX operating system. It uses only 128KB of maximum memory. Imagine trying to write any program that uses 128KB of memory, never mind a database. Ellison, Miner, and Oates had hopes that the database would be ready by now, but this version was never released. But the success they had inspired the team to continue.

They change the name of the company from Software Development Laboratories to Relational Software Inc. (RSI). They are completely focused on developing the first production release of a relational database.

Blind Folio 1.5

Thursday, October 25, 2001 11:35:28 AM
1979: First Commercial Database Product Ships

Two years later, Relational Software Inc. ships the first commercial relational database product implementing the SQL language. Not only are Ellison, Miner, and Oates right that IBM is developing a relational database product, but they also beat IBM to the market. Quite a feat, when you consider that IBM dominates the computer industry at this time, with well over 80 percent market share. The first customer to purchase the RSI database is Wright Patterson Air Force Base, Advance Technology Division.

Another great trivia question: what was Oracle Corporation’s first implementation of the SQL language called? It was called UFI, which stood for user friendly interface. This was done to avoid any issues with IBM, which invented the concept of a structured query language (SQL).

1980: Oracle Systems Is Born

Oracle version 2 is released on a Digital Equipment Corporation (DEC) PDP-11 machine. The underlying database is still written in assembly language. Another release of the database is developed to run under the DEC VAX/VMS operating system, which is also implemented using assembly language.

In 1980, Relational Software Inc. officially changes its name to Oracle Systems Corporation (later to Oracle Corporation). It is decided that the next version of the database will be rewritten using the C programming language. Rewriting the database in C is a key strategic decision, making Oracle Corporation an early adopter of this new programming language.

1981–1983: First RDBMS to Run on Mainframes and Minicomputers

Oracle Corporation hits $2.5 million in sales and releases Oracle version 3. This is the first relational database to run on mainframes and minicomputers. Since the database is written in C, the same core source code can be used across all platforms. This ability to migrate source code across machines gives Oracle a serious advantage over the competition.

This year, Oracle opens its first international office—Oracle Denmark. Even at this very early stage, the founders have great aspirations. In many ways, Oracle is a reflection of its founders. Bob Miner and Ed Oates lend it its inner personality of soft-spoken technical excellence. From Larry Ellison, it receives its outer personality—proud, bold, and always aspiring to be number one.

1984: Version 4 (Read Consistency)

Oracle Corporation reaches $13 million in sales and releases Oracle version 4. With this release, the Oracle database attains true interoperability between servers
(mainframes and minicomputers) and PCs. At Honeywell Systems, where one of us (Mike Corey) worked at the time, we developed Oracle code on PCs and then recompiled that same source code on our servers. It worked as expected. The same code that was written on the PC would actually run on a server. This was unheard of at the time.

All other vendors at this time could not attain true interoperability. Part of the problem was that they were still developing the database in assembly language. This meant that the code set was different on each machine. Code written on one machine would not necessarily behave the same on another machine.

The PC version of Oracle used under 256KB of memory. Imagine a database running in less than 256KB of memory!

At this time, there was no GUI (graphical user interface) to develop forms-based front ends to an Oracle database. Oracle had a product known as Fast Form, which was the predecessor of SQL*Forms (known later as Oracle Forms). The program asked a series of questions, and then, based on the answers, it produced a form-based front end to the database.

In 1984 Oracle also introduced the read consistency model. An SQL query that started running, say, at 12:01 would give users a view of the database exactly as it looked at the time the query started, regardless of what had changed inside the database since the query began executing. Competitors were still doing dirty reads. Dirty reads meant that on a long-running query, if someone changed the data, when the SQL query reached that portion of the database, it would pick up the changed data. The resulting query would not retrieve a consistent view of the database.

Imagine working in a financial institution and trying to determine whether you had made money at 12:01 or not. With non-Oracle products, you would have to stop all updates to the database, and then execute the SQL query to receive an accurate position. With Oracle’s read consistency, you could execute the query with confidence that the database would return an accurate portrayal of your position at 12:01 when the query first started executing.

One final note for 1984: Oracle moves its corporate offices to 20 Davis Drive, Redwood City, California. This is touted as the last corporate office they will ever need.

1985: Oracle Enters the Application Business

Oracle attains $23 million in sales, and Jeff Walker joins the company as CFO. Jeff Walker is the founder of Walker Interactive Products, a producer of financial software. Based on the fact that it will sell more databases, Jeff Walker convinces Larry Ellison to enter the financial application business. This proves to be a second key decision point for Oracle Corporation. Oracle’s main competitors remain pure database companies, and ultimately, Oracle’s financial products alone will bring in more revenue than the competitors’ databases sales.
By this time, Oracle is becoming very popular, and all major hardware vendors are asking Oracle to port its database onto their platform. To meet this need, Oracle allows hardware vendors to port the Oracle database directly.

1986: The First DBMS with Distributed Capabilities
Oracle Corporation reaches $55 million in sales and goes public one day before Microsoft Corporation. With an opening price of $15 a share, Oracle reaches a market value of $270 million. Larry Ellison is worth over $90 million by the end of the day. Microsoft goes public the following day at $21 a share and reaches a market value of $700 million.

Oracle version 5 is released with distributed capabilities known as SQL*Star. Now users can have databases all over the world that can share information using the capabilities of SQL*Star. It is possible to join the contents of a database in Boston with the contents of a database in San Francisco.

1987: The Beat Goes On
The company reaches $131 million in sales and has another record year of growth. The performance of distributed capabilities is further refined, and Oracle is running on virtually every machine in existence. Larry Ellison is still personally interviewing every candidate before a job offer can be made. In fact, the company becomes even larger before Larry stops interviewing candidates.

1988: Oracle Financials/Oracle CASE
The company reaches $188 million in sales and releases Oracle version 6. Version 6 represents a major rewrite of significant portions of the database code and is designed to handle larger and larger transactional processing systems. Functionality such as sequence number caches is added; the financial suites of products as well as a CASE (computer-assisted software engineering) development suite are released. For the first time, an Oracle product does not originate in the United States, but from the leadership of Richard Barker and Geoff Squire in Britain, where Oracle CASE is developed.

Also in 1988, Oracle Corporation moves its headquarters from 20 Davis Drive to 500 Oracle Parkway, in Redwood City, where it is located today.

1989: Oracle 6.2 Is Born
Oracle reaches $571 million in sales and releases Oracle version 6.2 on a Digital Equipment VAX/VMS cluster. This marks the first time that two computers that do not share physical memory can share the same disk farm at the same time. In other
words, machine A and machine B can both use the same database at the same time. What makes this so special is the fact that there is very little degradation of performance as machines are added. Oracle is a scalable architecture as users add machines.

Imagine a hospital where you need uptime 24 hours a day. You could now have two machines working on the same database. If machine A failed, you still had access to the database from machine B. This ability made Oracle a nearly fault-tolerant solution. The only other alternative at the time was to use Tandem computers, which were 100 percent fault tolerant, but also cost ten times more than other machines. A Tandem computer at this time also used a proprietary operating system.

Many people had tried to make a database scalable as machines were added, but all had failed. Andy Laursen, Mark Porter, and Scott Martin convinced Larry Ellison to let them give it a try. To accomplish this task, they ended up writing a generic Distributed Lock Manager. From Oracle 6.2 came the Oracle Parallel Server. Today, any Oracle shop can add computers and expect database performance to scale up, with nearly fault-tolerant capabilities at a fraction of the traditional cost.

1990–1991: The $1 Billion Mark

Oracle finishes the fiscal year 1990 with $916 million in sales, and it appears that nothing can stop the company. Ironically, in 1991, the year that it reaches $1,028 million in sales, Oracle loses money for the first time.

Jeff Walker leaves Oracle as CFO and is quickly replaced by Jeff Henley. Oracle takes scalability to a new level, and Larry Ellison embraces a new type of computer known as a massively parallel computer. Until now even mainframes might have four or five CPUs. A massively parallel system (MPS) could have 1,000 CPUs. Using this technology, Oracle is the first database to process 1,000 transactions per second. The Oracle database can take a query that would ordinarily take 12 hours to run and run it in minutes, harvesting the power of an MPS.

1992: Ray Lane Is Hired

Oracle reaches $1,179 million in sales, and Ray Lane joins the staff. This marks a major turning point for the company in many ways. Before Jeff Henley joined the company, most of Oracle management was homegrown. As Oracle comes of age, Ellison and others realize that they need to bring in seasoned management, and Ray Lane is added to the team.

Next to the founders, the most important hire the company ever made would prove to be Ray Lane. He quickly assumes day-to-day operations of the company. Larry Ellison’s attentions are drawn elsewhere, and Lane masterfully moves the company forward. He understands how to get a billion-dollar company focused and moving in one direction. Lane has a clear vision of where Oracle needs to go and the skills to make it happen. In many ways, he is the perfect complement to Ellison.
Also in 1992, Oracle Corporation acquires N-Cube Corporation, a pioneer of massively parallel processing. Like IBM, Oracle can now couple software with hardware. The company now sets its sights on intensive multimedia applications.

1993: The Applications Business

Oracle reaches $1,503 million in sales, and Oracle 7 is released under the UNIX operating system. This marks a major shift away from Digital Equipment Corporation; Larry Ellison sees that UNIX is going to dominate the marketplace. Oracle 7 is designed for very large databases (VLDBs)—any database over 5 terabytes in size. Oracle now has the capability to meet the growing need of organizations to build massive databases known as data warehouses.

While Jeff Walker was aggressively growing the applications business, he let quality slip to a low priority. Many customers bought the promise of a financial suite based on Oracle, but are struggling to make it work. To solve this problem, Ellison assigns one of his most trusted lieutenants, Ron Wohl, to day-to-day control of Oracle financials. Wohl’s job is to stabilize the business and improve the overall quality of the product suite.

Under this dark cloud, Oracle Industries is launched. Ellison sees a clear race ahead to dominate the applications business and pushes the company full steam ahead. His object is to develop a full suite of interrelated applications, not just financials, for business, just as Microsoft owns the desktop, with a suite of interrelated applications (Word, Excel, PowerPoint). Oracle starts to develop a customized suite of applications in key industries, in direct competition with many of its strategic partners. Also in 1993, Oracle releases the first annual report ever to be delivered on a CD-ROM.


Oracle reaches $2,001 million in sales and releases Oracle 7 for the PC. One very sad note in 1994: Bob Miner passes away from cancer. If Larry Ellison is Oracle’s vision and drive, Bob Miner is its heart and soul. In 1995, the company reaches $2,967 million in sales; and capitalizing on its ability to harness the power of massively parallel systems, Oracle pursues Interactive TV with British Telecom.

While at the Annual European Information Technology Forum in Paris, Ellison introduces the concept of the network computer. He envisions an appliance, much like the telephone for dialing the Internet. It will be a low-cost computer, very simple to use, without the Windows operating system. Users will simply plug it in, like the telephone. The complexity of installing and maintaining all the software will be done at the back end.
1996: Oracle Enters the Consumer Marketplace

The company reaches $4,223 billion in sales, and Oracle Corporation spins off Network Computer, Inc., to build the network computer envisioned by Ellison. Oracle’s first foray into the consumer marketplace puts the company at odds with Sun, IBM, and other computer manufacturers. Since the network computer is not based on the Windows operating system, it also puts Oracle in direct competition with Microsoft. Larry Ellison is awarded the Business Times Award for Executive of the Year for the network computer.

Oracle’s applications business reaches over $500 million in sales. Because the database is associated with each of those sales, this represents a large portion of Oracle business. Oracle’s application suite now includes:

- Oracle Financials
- Oracle Supply Change Management
- Oracle Manufacturing
- Oracle Project Systems
- Oracle Human Resources
- Oracle Market Management

Also in 1996, Oracle acquires IRI Software, providing a full suite of OLAP (Online Analytical Processing) tools. This technology will bolster Oracle’s data warehousing offering.

1997: Oracle8 Released

Oracle reaches $5,684 million in sales and releases version 8, supporting more users, more data, and higher availability than ever before. Once again making a key strategic technical decision early in the game, Oracle embraces the Java programming language and abandons the client-server architecture to concentrate on Internet-based applications.

The company starts to build a suite of browser-based applications utilizing Microsoft Internet Explorer or Netscape Navigator. The goal is to have a suite of applications that will require no customization or costly installation to use. Larry Ellison donates $100 million worth of network computers to schools.

1998: Oracle Supports Linux

The company reaches $7,144 million in sales and embraces the Linux operating system. Oracle is on a collision course with Microsoft and is doing everything in its power to support non-Microsoft-based solutions.
Oracle9i: A Beginner’s Guide

Building on its groundwork of browser-based applications, Oracle Business Online is founded on the principle that Oracle can run mission-critical software more economically and efficiently as a service for other businesses than they can for themselves.

1999: Oracle8i Released
The corporation tops $8 billion in sales, and Oracle 8i is released with major Java integration. Oracle is now built with the Internet in mind. Larry Ellison feels that the best advertising Oracle can use is itself and puts the corporation on a mission to shave $1 billion off the bottom line by using its own E-Business Suite of integrated business software.

2000: Number One
Oracle reaches $10,139 million in sales, and is the number one database of choice for the Internet and the number one ERP vendor. Larry Ellison becomes the richest man in the world as Microsoft stock plummets and Oracle stock rises on the Internet wave. The company cuts $1 billion in a year through centralizing software and IT worldwide, using its newly launched E-Business Suite of integrated business software. Oracle 9i is released.

Current Offerings
Oracle is a force to be reckoned with. Its take-no-prisoners attitude is a reflection of one of its founders, Larry Ellison. Ellison plays to win; Oracle plays to win.

When a business opportunity arises, the people at Oracle seize the moment. For example, Ellison helped fund Salesforce.com, which was founded by Oracle employee Marc Benioff. Today, Oracle is a competitor. An early Ellison protégé, Tom Siebel, left Oracle after Ellison turned down his idea for sales automation. Today, Oracle is a competitor. Oracle has taken on many of its partners and today competes with some of the biggest names in the industry, such as

- Computer Associates with the Ingres database
- IBM with DB/2 database
- Informix with the Informix database
- Microsoft with Access and SQL Server database
- Software AG with ADABAS
- PostgreSQL (free open source database)
With all these different competitors, it is sometimes difficult for people to understand what business Oracle is in. Oracle Corporation is a supplier of software for the management of information. This includes database management, application development, business intelligence, and the development of Internet-based business applications. Oracle also offers a full range of integrated industry packages that can be brought in-house and customized or purchased as a service, whereby Oracle maintains the application for the customer.

They offer a wide range of supporting services, including one of the largest educational/training businesses in the world, consulting, and full system integration, no matter how small or large the project.

As a product set, Oracle can be broken into five areas:

- Oracle 9i database
- Oracle 9i Application Server
- Internet Development Suite
- Data Warehousing and Business Development
- Oracle E-Business Suite

Chapter 2 will describe how to make the Oracle services work for you. We will provide a summary of services within and without Oracle that are available for support and guidance.

**Chapter 1 Questions**

Answers to questions can be found in Appendix A.

1. Larry Ellison, Bob Miner, and _________ founded Oracle.
   A. Ken Jacobs
   B. Ray Lane
   C. Ron Wohl
   D. Ed Oates

2. Oracle shipped the first commercial release of a relational database in what year?
   A. 1979
   B. 1961
3. Oracle competes with
   A. IBM
   B. Computer Associates
   C. Software AG
   D. Microsoft
   E. All of the above

4. Oracle's database was the first to introduce the ________ consistency model.
   A. read
   B. write
   C. update
   D. dirty read

5. Oracle's first international office was located in what country?
   A. United Kingdom
   B. Japan
   C. India
   D. Denmark