You might well be wondering what this book is doing with a chapter devoted to running the Oracle database on the Microsoft Windows platform. After all, surely all serious databases run on some proprietary variety of Unix, or else on the fast-growing Linux platform. When it comes to database environments, surely the Windows environment is just a sideshow.

If you do hold such thoughts, however, then I’d say you are mistaken. To explain why, I’d like to go into a little history. In its Windows marketing material, Oracle Corporation is fond of detailing the list of firsts that it has achieved on the Windows platform. Put simply, Oracle was the first relational database available on the Windows platform with Release 7 in 1993, predating the Microsoft-developed SQL Server 6.0 offering by two years. Along the way, Oracle has released the first 64-bit database on Windows, the first with support for .Net stored procedures, and so on. Clearly Windows has historically been and continues to be a significant platform for Oracle.

For the most part, and certainly from the application developer’s perspective, the choice of operating system makes absolutely no difference to the effective exploitation of the power of the Oracle database. It can, however, have a significant impact on the database administrator, who will often be interacting at the operating system level directly with the Oracle installation. This chapter, therefore, is devoted to the distinctions that administrators and operators may have to deal with.

**Architecture**

As everyone with a cursory understanding of computer science is aware, there are four main resources that a computer operating system manages on behalf of the applications running on it. These are:

- CPU
- Memory
- Storage
- Network

In system troubleshooting, the primary focus of this chapter, you will usually be concerned about the usage of one or more of these scarce resources. The next few sections deal therefore with the first three, network usage being the least Windows-specific area and the least likely in my experience to cause Windows-specific issues for database specialists.
CPU Resources

It is in the use of the CPU that Oracle on Windows differs most significantly from the Unix and Unix-like platforms. On every other platform, Oracle uses a process-based architecture. Whenever a new session is created—whether by the end-user, by a background process, or by an application middle tier—a new operating-system process is created. These are visible to the administrator via the process table for the Oracle process, which is exposed as the V$PROCESS dynamic performance view (in turn a view of the X$KSUPR fixed table). On Windows, although this view still exists, the mechanism is entirely different. The Windows operating system is designed, for various reasons, with a rather significant overhead for process creation, especially if shared memory needs to be available to each process. The Oracle system architecture relies heavily on shared memory and consequently, a process-based model is not appropriate on this platform. Oracle instead utilizes a multithreaded model in which each process (from an Oracle perspective) is actually an operating system thread running in the context of the oracle executable.

Using the Right Tools for the Job

Most Unix DBA staff will be familiar with drilling down from the operating system to identify a database session or sessions of interest using utilities such as top, topas, and so on. The Windows operating system does not come supplied with thread-level resource monitors, so historically it has been rather difficult to observe the database processes from the operating-system level. Instead, DBAs have tended to approach the performance story from within the database itself. Oracle does in fact supply a little-known utility with its Windows distributions, called the Oracle Administration Assistant for Windows. Figure 5-1 shows this utility, which allows you to list and kill threads within the oracle.exe process. However, it only allows you to list threads and kill them; moreover, the list is not sortable, and it is not always populated completely.

![Figure 5-1. The Oracle Administration Assistant for Windows](image-url)