Welcome, and thank you for picking up this latest edition of *Sams Teach Yourself SAP in 24 Hours*. Inside these pages you will find six newly renovated SAP parts and 24 hours of instruction refocused to better teach the SAP newcomer. My colleagues and I have spent a considerable amount of time aligning the content with what a person new to SAP needs to know up front, and we’ve done this from several different perspectives—the information technologist, the end user, the project manager, the wannabe SAP developer or programmer, and the business professional.

We have organized each hour (or chapter) around one of several common themes, beginning naturally with introductory materials useful in helping most anyone understand the underlying technology, business basics, and various SAP implementation roadmaps. Next, we cover SAP’s products and components in detail, laying the groundwork for the next part of the book, which covers implementing SAP. By addressing SAP deployment from project management, business, and technology perspectives, we have strived to give our readers enough real-world breadth and depth to make the book a truly useful guide. Additional SAP technical considerations round out this breadth and depth, followed by a section focused on end users: how to log in, use the various SAP interfaces, customize the interface, and execute common business functions such as reports and queries. The final part of the book concludes with materials designed to help our readers land a job in SAP, including pointers to readily available Internet-based and other resources.

Though necessarily broad, our new approach accomplishes two things. First, it gives the new reader an opportunity to understand all that SAP comprises, particularly with regard to the many changes we’ve witnessed in the world of SAP since 2005. Second, the third edition makes for less jumping around from hour to hour, and is therefore an easier read. If your company has just announced it is deploying SAP, or you have just joined a company using SAP, you’ll find it easy to navigate the book and quickly come up to speed. For example, end users may want to first read Parts I and IV before focusing their attention more fully on Part V, whereas technologists might prefer to focus their attention fully on Parts II and IV. Meanwhile, decision makers and project managers might find Parts II and III most useful, and SAP hopefuls might turn immediately to Part VI for advice aimed at breaking into the SAP workforce.

For you, our reader, picking up this book represents an assertive step forward. You are going with the market leader, the model of endurance, and the preeminent technology front-runner and enterprise solution enabler. As a result, after about 24 hours of reading, you
will possess a solid foundation upon which to build greater capabilities or even a career in SAP. Your knowledge foundation will be broad, certainly, and in need of further bolstering before you’re an expert in any sense of the word. But the great thing about your decision is simply that you’ll know what you know and have a handle on what you still need to learn. You’ll know where you want to go, and be smart enough about it to navigate a roadmap and career of your own choosing. That good sense alone will be enough to get you on the road toward making something new happen in your career, maybe even your life. And in the meantime, your 24 hours of investment may serve you well in your current employment position, too. Armed with insight, skills, understanding, and a broad sense of the big picture facing most every company in business today, you will no longer look at business applications and the technology solutions underpinning those applications in the same way again. You’ll be wiser and more able to contribute to a greater extent than previously possible from several different perspectives, ranging from business and application expertise to technology, end-user, and project management insight. You’ll be a “SAPling” in the broadest sense of the word.

**SAP’s Journey**

SAP has come a long way since this first edition of this book was published in the heyday of R/3. In the last several years alone, we’ve witnessed an explosion in both technology and business applications, the frontlines of which SAP has arguably pushed harder than any other software company. Certainly, SAP’s competitors and partners have provided great incentive to the developers and executives over in Walldorf, Germany. But with a revamped suite of core offerings surrounded by new products and new enabling technologies, SAP’s stable of contemporary business solutions is unparalleled. And the company remains a model of both evolution and revolution. SAP may be found in 46,000 different firms around the world, ranging from multinational corporations to government entities, small/medium businesses, and everything in between. SAP has successfully engaged what is often termed the “mid market.” That is, SAP is no longer only the best solution provider for big companies; it’s also the best solution for the rest of the industry. Armed with state-of-the-art development tools, a focus on really delivering on the promises of Service-Oriented Architecture (SOA), and the willingness to reinvent how business does business in our new world, SAP is making it easier and easier to, well, do SAP.
What’s New, and Who Should Read This Book?

Like its predecessors, this book is divided into 24 chapters, or “hours,” that can each be completed in about an hour. This book covers everything you need to become well acquainted with the core SAP products and components that are often collectively referred to simply as SAP. The book is organized to provide visibility into key facets of SAP terminology, usage, configuration, deployment, administration, and more. As such, it is necessarily general at times rather than exceedingly detailed, although a certain amount of depth in much of the subject matter is purposely provided where deemed critical to further your understanding. The book serves as several intertwined roadmaps as well. In this structure may be found the book’s true value—the content herein is broad enough to paint a picture most anyone can understand, yet deep enough to provide more than an introduction to the subject matter along several different paths or routes. And the flow of material moves along the same lines, from general to specific, from SAP products and components to post-implementation support and use, and from project management planning and preparation to project realization.

*Sams Teach Yourself SAP in 24 Hours* begins with the basics and terminology surrounding SAP, SAP NetWeaver, and what an SAP project looks like, and from there begins the process of carefully building on your newfound knowledge to piece together the complex world of SAP. The pace of the book is designed to provide a solid foundation such that you may grasp the more advanced topics covered later in the book. In this way, the novice may quickly realize what it means to plan for, deploy, and use SAP, in the process unleashing the power that comes with understanding how all the pieces of the puzzle come together to solve business problems. With this understanding also comes an appreciation of the role that SAP’s various partners play with regard to an implementation project—how executive leadership, project management, business applications, technical deployment, and system end users all come together to create and use SAP end-to-end.

Organization of This Book

From the basics surrounding what SAP comprises and the technologies underneath it, to understanding and developing business and technology roadmaps, Part I, “Introduction to SAP,” gives you a foundation. Part II, “SAP Products and Components,” revolves around SAP’s products and components, from the groundwork provided by SAP NetWeaver to SAP’s
core ERP product, its Small/Medium Business (SMB) offerings, and finally SAP’s full-featured SAP Business Suite. Part III, “Implementing SAP,” then turns to implementation matters, providing project management, business, and technical roadmaps after setting the stage with SAP’s development tools and methodologies and how SAP leverages SOA in the real world. The technical concentration in Part IV, “SAP Technical Considerations,” brings together what we’ve been told over and over again by new technologists looking for an introductory SAP book—how to install SAP, how to integrate it with Microsoft’s ubiquitous Office offerings, how to manage and maintain the system, and finally what it means to upgrade or enhance SAP once it’s in production. Part V, “Using SAP,” brings us to the world of using SAP, from logging in, to customizing SAP’s display, printing, creating reports, and executing queries. Finally, Part VI, “Developing a Career in SAP,” concludes as stated earlier with what it takes to develop a career in SAP.

All told, this latest edition of *Sams Teach Yourself SAP in 24 Hours* serves as an excellent launchpad for using and managing SAP in the real world of business and IT. To test and reinforce your knowledge, each hour concludes with a case study and related questions. The questions provide you an opportunity to put your newfound hours’ knowledge and understanding to the test as well as into practice. And with the answers to the questions found in Appendix A, “Case Study Answers,” it will be an easy matter to verify your newfound knowledge.

From all of us at Sams, we hope you enjoy and get a lot out of the third edition of *Sams Teach Yourself SAP in 24 Hours*!

**Conventions Used in This Book**

Each hour starts with “What You’ll Learn in This Hour,” which includes a brief list of bulleted points highlighting the hour’s contents. A summary concluding each hour provides similar though more detailed insight reflecting what you as the reader should be walking away with. In each hour, any text that you type will appear as *bold monospace*, whereas text that appears on your screen is presented in *monospace* type.

It will look like this to mimic the way text looks on your screen.

Finally, the following icons are used to introduce other pertinent information used in this book.

*By the Way* presents interesting pieces of information related to the surrounding discussion.
Did You Know? offers advice or teaches an easier way to do something.

Watch Out! advises you about potential problems and helps you steer clear of disaster.

Each hour concludes with a case study germane to the hour’s materials. By providing an hour-specific situation involving a fictional company called MNC Global Inc., the questions (and follow-on answers found in Appendix A) provide the reader with real-world reinforcement.
Infrastructure Technology Basics: Hardware, Operating Systems, and Databases

What You’ll Learn in This Hour:

- Hardware basics: server and disk subsystem infrastructure
- Partnering with your infrastructure providers
- Supported operating systems for SAP
- An introduction to database basics

With the business fundamentals covered in Hour 3, “Business Basics: Developing a Roadmap for Deploying SAP” behind us, it’s now time to turn our attention to the infrastructure technologies that underpin SAP. In this hour, we take a closer look at the three broad infrastructure technologies that come into play when deploying SAP—hardware, operating systems, and databases. In later hours, we examine the SAP-specific application and integration technologies as well.

Why Is This Important?

Hardware, operating systems, and databases represent the underlying technologies that make up the lowest layers of an SAP business software solution. Called a solution stack or technology stack, these layers of enabling technology combine to create the basis of an SAP system. Similar to building a house or skyscraper, the underlying technology solution is like a foundation; it’s the base layer of the building and arguably one of the most important aspects of an SAP system. An improperly built foundation weakens the ability of your
SAP system to weather storms, survive changing business needs, and meet the expectations of its occupants—your SAP end user community. Hour 4 covers the ins and outs of choosing these components wisely in order to build a firm, solid foundation, thus affording optimum system availability, longevity, and to some extent performance.

Hardware for SAP: An Introduction

Hardware, although often an afterthought in an SAP project, is an essential component of an SAP system. Hardware comprises the servers (think “data center computers”), disk storage systems, network gear (such as routers, network switches, and security firewalls), and tape backup units all working together to create the infrastructure or base layer of an SAP system. If any one piece is overlooked or skimped on, it creates a weak link or single point of failure that may cause something down the road as simple as a one-time nagging glitch or as major as a series of significant system outages, costing your company precious dollars. When hardware purchases are addressed late in an implementation, inevitable budget cuts (yes, implementing SAP tends to be more expensive than most companies estimate up front) often restrict purchasing what could have been a robust and highly available system. Advance planning will help you avoid this problem when designing the overall solution.

The major players in the SAP hardware marketplace sell systems that fit all types of solution needs, from small/medium user platforms reflecting commodity solutions and low cost, to larger and highly resilient platforms capable of scaling on the fly to meet the changing or growing needs of thousands of users. Choosing a partner simply based on name recognition is a good place to start, to be sure. However, take care to investigate and compare hardware solutions from competitors that are truly apples-to-apples solutions. A million-dollar commodity hardware solution might support the same workload as a high-end proprietary system costing twice as much, but do they offer the same levels of availability, scalability, and flexibility your business needs to survive month-end closing? By the same token, will saving a few dollars on hardware (or database software, for that matter) require the IT department to spend more money every year on systems management, maintenance activities, and downtime for upgrades and patches?

Server Hardware

We view server hardware as coming in three main initial acquisition “cost” classes or performance categories: small or low, medium, and high (see Figure 4.1). Costs per server can range from a few thousand dollars to several million. Performance
can vary as well, depending on the number of CPUs, amount of RAM, internal server architecture factors, support for high-speed disk operations, and much more. Different hardware platforms are developed to support various operating systems and levels of system availability. They differ in terms of configuration flexibility and on-the-fly adaptability too.

Interestingly, a single SAP solution may utilize servers from one, two, or all three categories. For instance, SAP solutions are commonly designed to leverage a high-end server for the database tier, a mid-tier server platform for the SAP central instance or applications servers, and perhaps very inexpensive servers to address web server needs, noncritical bolt-on solutions, and so on. Conversely, other SAP IT departments might choose to put all their SAP components on only a few high-end servers that can be carved up into partitions or virtual machines as necessary. And some small/medium businesses (SMBs) may choose to run SAP solely on low-cost servers (relying on SAP’s built-in application server horizontal scalability to keep them out of trouble should their workload grow). In any case, overall system availability, a comprehensive total cost of ownership analysis (reflecting technology, people, and process costs over time as well as up front), and anticipated future business requirements should drive your hardware platform decision.

Several of the largest and certainly best-known hardware vendors use proprietary CPU chips in their servers and support a proprietary OS as well. IBM’s PowerPC chip running AIX is a good example, as are HP’s end-of-life PA-RISC and more contemporary Itanium2-based IA64 platforms running HP-UX. Be sure to investigate your platform’s ability to host other operating systems as well; this can be beneficial down the road when you need to retire your SAP system and seek to redeploy it internally rather than toss it in the dumpster. HP’s IA64 chips support Windows, Linux, and OpenVMS, for example, whereas Sun’s latest offerings support Solaris, Windows, and Linux.
Clearly the trend of late is around deploying low-cost servers based on commodity CPU chips from Intel and AMD (often referred to generically as “x64” platforms). HP and Dell are the biggest players in this market, though Sun offers a bit of choice here as well. Interestingly, these platforms are growing more and more powerful each year, supplanting some of the bigger server platforms in the process. Commodity server form factors continue to expand and provide IT departments with choice—from dense blades to slim-line “pizza box” designs to more traditional big-box designs. Meanwhile, hardware vendors in this space continue to develop high-availability, virtualization, and other technologies and solutions that help put these servers on more of an equal footing with their proprietary counterparts. In all the excitement and hype surrounding these well-performing upstarts, though, take care not to overlook trade offs. Low cost up front doesn’t always translate to low cost over a system’s lifetime, for example.

When purchasing servers and associated hardware for SAP, consider investing in the high-availability features offered for the platform, even if an additional charge is involved. Most servers offer redundant power supplies, redundant memory, disk array (RAID) controllers capable of running even after a disk drive fails, and support for multiple network interfaces cards (NICs) to avoid failure of a network segment, network switch, or single card. Leveraging these technologies will certainly increase the overall uptime of your SAP solution, typically adding only incremental cost in the process.

Server networks should be configured in a redundant fashion as well. In many IT data centers, the network represents a major—and avoidable—single point of failure. Dual switches and the use of the aforementioned redundant NICs can eliminate or mitigate what otherwise could be a major outage. Of course, these NICs and switches must be properly and professionally installed, cabled, and configured to actually work well; attention to high availability is just as important after the purchase as beforehand.

**Disk Subsystem Hardware**

Most server hardware vendors also sell disk subsystems, which are essentially enclosures for multiple disk drives used by SAP and other applications to house the application’s database, its installation binaries or executables, and so on.

The most robust and well-performing disk subsystems today are in the form of storage area networks (SANs) and to a lesser extent network-attached storage (NAS) systems. Similar to how servers are marketed, vendors sell low-tier, mid-tier, and high-end SANs and NAS devices. At a minimum, the storage chosen for SAP should support redundant connectivity between the storage and the servers connected to it,
so as to avoid a single point of failure. RAID (Redundant Array of Inexpensive Disks) level 0, 1, 5, or 10 should be configured as well to protect against disk failures. As Table 4.1 suggests, different RAID levels provide various combinations of availability, cost, and performance.

**TABLE 4.1  Disk Subsystem RAID Types, Advantages, and Disadvantages**

<table>
<thead>
<tr>
<th>RAID Level</th>
<th>Method of Availability</th>
<th>Advantages and Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAID 0</td>
<td>Disk striping</td>
<td>Spans multiple disks, all of which are available for storage. RAID 0 is great when maximum space is needed, and it provides excellent performance as well. However, no disk redundancy is afforded, and it’s not viable for production systems.</td>
</tr>
<tr>
<td>RAID 1</td>
<td>Disk mirroring</td>
<td>Mirroring provides best-in-class performance and excellent redundancy, although it’s costly (a 500GB database requires a terabyte of raw disk capacity at minimum).</td>
</tr>
<tr>
<td>RAID 5</td>
<td>Disk striping with parity</td>
<td>Stripes data with parity, making for wonderful disk read performance, though to some extent a disk write penalty; excellent redundancy balanced by best-in-class low cost.</td>
</tr>
<tr>
<td>RAID 10</td>
<td>Disk mirroring and striping</td>
<td>Data is both striped and mirrored; best performance and redundancy, although this is the most costly method of providing disk subsystem availability.</td>
</tr>
</tbody>
</table>

High-end SAN storage typically supports advanced replication technologies, too, which can be useful for disaster recovery purposes among other things. Be sure to look into such capabilities—the ability to copy data between remotely connected SANs or to create “snapshots” of SAP databases on the fly is useful in many different ways, from enabling rapid system backups, to allowing systems to be cloned for offline testing and training, to supporting disaster and business continuity requirements in the wake of a severe data center outage.

**SAP-Supported Operating Systems**

An operating system (OS) is software that allows applications to interface with a computer or server. The OS is the middleman, making a system’s hardware accessible to an application sitting atop the OS while providing basic services to
applications (such as file sharing, support for network connections, and so on) in the process. Operating systems such as Microsoft Windows Server, Red Hat and SUSE Linux, and the many popular UNIX variants (HP-UX, AIX, and Solaris) are common in today’s SAP environments. Even the occasional IBM iSeries or AS/400 (running the OS400 operating system) or mainframe (running z/OS) can be found supporting SAP today as well.

Figuring out which is the best for your solution can be a daunting task, however. More and more, the OS playing field is being leveled. Robust 64-bit technology in the commodity server market has many SAP shops rethinking their strategy. When choosing an OS, it all comes down to relationship, confidence, supportability, and particularly your in-house IT skill sets and personal biases. To this end, always take care to factor in your current in-house skill sets, comfort levels, and ability to be “retooled.” The cost and time of retraining or hiring additional resources can weigh significantly on an IT department. And as with your hardware decisions, look for a company that has a solid relationship with SAP and verifiable satisfied client references.

In 2007, SAP announced it would generally only support 64-bit operating environments for new installations going forward. As SAP software evolves and low-cost 64-bit hardware becomes more prevalent, the need to run 32-bit servers and therefore 32-bit operating systems is falling by the wayside. Don’t waste your time on such environments. Unless the company is already running an older version of SAP or has some odd bolt-on software only supported in 32-bit environments, there is simply no need to run a 32-bit server and OS in an SAP environment anymore.

**Basic OS Features**

Some of the features to look for in an OS are memory management, crash recovery, patch management, security, and advanced features such as clustering capabilities. Other things to consider when choosing an OS are support for third-party management utilities or the presence of built-in ones. Take a look at how the management and monitoring solutions in your IT environment today might fit with your prospective SAP solutions and the possible OS choices you face. Utilities such as monitoring applications, virus-scanning utilities, and backup software need to be validated to
make sure they will work with existing toolsets as well as with SAP. In some cases, new toolsets must be invested in, which may not be cost effective or consistent with your IT department's future vision.

**SAP File Systems and the Role of the OS**

SAP in relationship to an OS is a set of executables and libraries that allow users though various front ends to connect to application servers to submit and retrieve data to an SAP database. SAP starts multiple OS-level services and processes, thereby making efficient use of a server's available memory and CPU power. A UNIX or Linux OS containing an SAP instance has a directory named /usr/sap (or x:\usr\sap in the case of Windows) that contains several subdirectories with executables, log files, and profiles. In Windows, x:\usr\sap is shared as SAPMNT and is accessible as \servername\sapmnt. On a Windows server with multiple instances of SAP and a single OS installation, all SAP instances must be installed to the same SAPMNT directory; there can be only one SAPMNT share. In UNIX, /sapmnt is mounted as an NFS (network file system) mount, whereas /usr/sap/<SID> is a local file system.

In both UNIX and Windows, the SAP system identified (SID) is at the next directory level. See Figures 4.2 and 4.3 for the SAP directory structures of a Windows and a UNIX system for SAP, respectively. In Windows, the service SAPOSCOL runs the OS collector and allows SAP to gather OS-related performance and other statistics such as CPU utilization, memory utilization, disk input/output (I/O) activity, and more. All SAP systems contain one instance of the OS collector, although this collector is not required for SAP system operation.

Another Windows service is SAPService<SID>, where <SID> is the system identifier of the SAP instance. One SAPService<SID> exists for each instance of SAP on a machine, and it is started using sapstartsrv.exe. The service is started by the SAP service account of the <SID>adm account, depending on SAP version. This service calls the SAP start profile, which tells the system how to start SAP and registers a number of environmental variables. Suffice it to say here that these matters can be fairly complex.
The term *SAP system* refers to a single system or collection of systems hosted by one database that uses one SID name (system identifier). For example, an SAP ERP production system named PRD may consist of one database (nearly always), one central instance, and perhaps two, eight, or sixty different application servers, depending on workload. This collection of multiple SAP instances and the database make up an SAP system. Thus, an SAP instance is synonymous with one installed component (or “installation”) of SAP on a server (also called a “host”). One host can contain multiple SAP instances, too, which belong to different SAP systems.
FIGURE 4.3
SAP file systems installed on UNIX-based SAP systems.
SAP OS-Level Work Processes

At an OS level, SAP has eight different work process types, as detailed in Table 4.2. Sometimes you will see them referenced as DWEBMSG. The D equates to dialog work processes, whereas the V references update work processes (differentiated by V1 and V2 priority types), E is enqueue, B is for background/batch jobs, M is the message service, S is used for print spooling, and G represents the SAP gateway. The instance profile of an SAP instance dictates how many of each type of process will start at system startup time. You can see which work processes your OS is running by running an applet or utility on the OS itself or using SAP's own transactions SM50 and SM66. Though we are getting ahead of ourselves, this ability to review the status of your SAP work processes is very important; beyond providing a view into the system's workload, it also reveals in real time the status of the system in terms of what each work process is performing on a particular SAP instance or group of instances. SM50 shows you only the work processes on the current application server you are logged in to, whereas SM66 gives you a global work process overview; SM66 is your window into what is happening with every active work process running across an entire SAP system.

<table>
<thead>
<tr>
<th>Work Process Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dialog</td>
<td>D: Processes real-time information in the foreground.</td>
</tr>
<tr>
<td>Background</td>
<td>B: Background processing for long-running processes, reports, and batch jobs.</td>
</tr>
<tr>
<td>Synchronous Update</td>
<td>V1: Processes immediate updates to the database.</td>
</tr>
<tr>
<td>Asynchronous Update</td>
<td>V2: Processes updates to the database on a lower priority than V1 (that is, when time permits).</td>
</tr>
<tr>
<td>Enqueue</td>
<td>E: Manages database locks.</td>
</tr>
<tr>
<td>Message</td>
<td>M: Manages communication between application servers.</td>
</tr>
<tr>
<td>Spool</td>
<td>S: Manages print jobs (the print spool).</td>
</tr>
<tr>
<td>Gateway</td>
<td>G: Communicates with other SAP and non-SAP systems.</td>
</tr>
</tbody>
</table>

SAP OS-Level Profiles

SAP contains three profiles: the default, start, and instance profiles. Profiles are essentially text files that, for the purposes of version control, are imported into and maintained by the SAP database. The default profile contains information common to all instances of SAP in an SAP system. For example, PRD may have a database, central instance, and three application servers; these would all use the same default
profile. The start profile calls the executables to start SAP. Finally, the instance profile contains detailed information for each SAP instance in a system that makes up a common SID. This detailed information reflects specific memory configuration parameters, defines how buffers and work processes are defined and utilized, and a myriad of other information as well. Use SAP transaction RZ10 to change and maintain all these profiles, and to access a handy list of all available profile parameters.

**Database Basics for SAP**

With hardware and operating system details behind us, it is now time to turn our attention to the role of the database underneath an SAP business application. The same care that goes into choosing a hardware platform and OS should be used when choosing a database. Depending on your platform and SAP version, you may be restricted to only a few database choices (which underscores the importance of looking at your SAP infrastructure holistically). SAP tends to support most mainstream databases such as Microsoft SQL Server, IBM DB2, and Oracle’s ubiquitous database offerings. SAP also supports its very own database called MaxDB, which has an interesting history of acquisitions and continues to grow in popularity. More common for SAP-on-Linux platforms, MaxDB is an interesting and low-cost alternative to the other primary SAP-supported database offerings. Indeed, it is serving to level the playing field in the same way that commodity hardware and OS solutions are leveling the hardware and operating system playing fields.

Most IT departments choose a database based on what their current database administrators (DBAs) are familiar with or know. In the past, it has been a daunting task to retrain DBAs for a new database platform, particularly one associated with mission critical applications such as SAP. Today, though, low-overhead database offerings from Microsoft and IBM are making this transition easier.

Relative to selecting a database platform for SAP, you need to base your decision in part on the advanced functionality of database software you may need to meet your business user’s response-time and availability requirements. Microsoft SQL Server and Oracle both support log shipping and clustering technologies for increasing the availability of SAP systems. Log shipping allows you to maintain a secondary copy of your SAP (or any) database on another system to fail over to in case of a disaster situation. Sometimes log shipping is called “poor man’s DR.” Regardless, it is a robust and widely used technology for SAP as much as any other business application.

**A Database Primer**

Whichever database you choose, enterprise applications such as SAP are essentially made up of programs along with the data that is both used by and created by those
programs. The data is organized in a meaningful way within a database, making it easy for the programs to access and find the data necessary to do something useful like run a financial report or create a sales order. In the case of an SAP component or product such as ERP, the programs and data reside together in the same database. Each component generally has its own database (although exceptions exist)—a production system landscape composed of SAP ERP, SAP NetWeaver Portal (EP), and SAP Customer Relationship Management (CRM) consists of three production databases, for example.

A database is essentially an electronic filing system that houses a collection of information organized in such a way that it allows a computer program to quickly find desired pieces of data. In the simplest form, a database is composed of tables, columns (called fields), and rows (called records or data). The basic structure of a database is quite similar to the well-known Microsoft Excel spreadsheet, where columns (fields) store row after row of records (data). The biggest difference between a database and a spreadsheet is simply that databases can contain multiple (and extremely large) tables that are connected to one another through relationships. Thus, a database can be thought of as a much more complex, and ultimately much more useful, spreadsheet. The database plays a key role in each SAP system because it houses all the data used by that particular SAP component or application.

**Tables, Indexes, and Structure**

The SAP database contains literally thousands of tables that store information. Some products, such as ERP, comprise greater than 30,000 tables, whereas less complex offerings such as SAP NetWeaver Process Integration (PI) might have fewer than 10,000. It is noteworthy to know that in most SAP systems, 10% of the tables house 90% of the data, so some tables can get quite large and be subject to constant change, whereas others tend to remain very small and relatively static. Regardless of the number, though, these various tables are all tied to each other through established relationships. It is precisely this series of connected multiple tables that creates what is known as a *relational database management system (RDBMS)*.

Databases are made up of indexes, too; whereas tables house the data, indexes are used to speed up the retrieval of data from those tables. An index might best be described as a copy of a database table reduced to only the key fields. The data in this reduced copy is sorted according to some predefined criteria, enabling rapid access to the data. Not all fields from the copied table exist in the index, and the index contains a pointer to the associated record of the actual table. You might be surprised to know that indexes make up approximately 50% of the overall size of an SAP database!
SAP uses another concept called *transparent tables*, which are SAP database tables that only contain data at runtime. A transparent table is automatically created in the database when a table is activated in the ABAP/4 Data Dictionary. This transparent table contains the same name as your database table in the ABAP/4 Dictionary. Each of its fields also contains the same names as their database counterparts, although the sequence of the fields might change. The varying field sequence makes it possible to insert new fields into the table without having to convert it, all of which allows for more rapid access to data during runtime.

(Database structure) is another technical term that you really do not need to concern yourself with too much, but it’s important nonetheless. Simply remember that database structures are a group of internal fields that logically belong together. Structures are activated and defined in the ABAP/4 Data Dictionary and only contain data temporarily—during the execution of a program. Structures are differentiated from database tables based on the following three criteria:

- A structure does not contain or reflect an associated ABAP/4 Data Dictionary table.
- A structure does not contain a primary key.
- A structure does not have any technical properties such as class, size, category, or buffering specifications.

**Partnering with Your Infrastructure Providers**

As you have seen, there is much to consider when developing an infrastructure design or plan for SAP. Choosing an infrastructure provider or network of providers is therefore serious business. Do not just automatically choose a hardware, OS, or database vendor your company is already familiar with in the context of desktop PCs or laptop purchases. Look to your data center standards first, to get a sense of whom you might already be comfortable with. And then look at competitors. It is certainly a fine strategy to choose a hardware partner you know and trust, for example, but too much is at stake to not conduct a more thorough assessment.

Be sure to investigate any prospective infrastructure providers in light of their relationship with SAP. Do they have a long history of partnering with SAP? Are they “certified” for SAP, or do they hold SAP’s Global Technology Partner status? Check with potential providers for SAP-specific customer references, and follow up by talking with these references over the phone or via an onsite visit if possible. After all, it
is helpful to see and hear from other customers; their experiences with SAP and your other likely infrastructure partners can really shed some light on whether your proposed infrastructure solution will provide the foundation the company needs. References in a similar industry or reflecting SAP components and products hosting similar workloads or scope are even more valuable.

Attending an SAP tradeshow such as SAP TechEd, ASUG, or any number of SAP Insider conferences is a great place to meet other SAP customers as well as potential infrastructure providers. SAP is generally happy to make these introductions, but don’t fear striking out on your own. This process is akin to peer support, similar to what is seen in the open-systems arena. Many SAP customers have peer contacts with other companies, sometimes even their own competitors, which can be leveraged to share various experiences and technical challenges as well as answer questions related to how well the provider supports and maintains its customers after money changes hands.

Bottom line: It is not advisable to bet your SAP environment’s viability on a whim, on a relationship that has not been vetted over time or shown to be fruitful by others, or on a little-used technology. Save your cutting-edge IT decisions for something less critical and less essential to the company’s financial well-being. Finally, do your homework, and do it early—before all the SAP project’s budget money is spent on consultants!

**Summary**

In Hour 4, we covered the key components of SAP infrastructure: hardware, operating systems, and databases. And we looked at what it means to choose and partner with the vendors that will ultimately work together to create your infrastructure platform for SAP. A new SAP implementation requires a solid, well-thought-out foundation. Leverage the information presented here when researching the best alternatives for your company, keeping in mind the following:

- Does my current hardware provider have solutions for SAP?
- Does my current hardware provider have a relationship with SAP?
- What are the current in-house skill sets at my company that may be called upon to support the SAP solution?

Ask the same types of questions in relationship to your operating system and database providers, and then perform an apples-to-apples cost and capabilities analysis to really vet out the right fit for your company and its SAP environment.
Case Study: Hour 4

In light of your newfound hardware, operating system, and database knowledge, consider this hour’s case study and answer the questions that follow. Answers may be found in Appendix A, “Case Study Answers.”

Situation

MNC Global recently acquired a company in the process of upgrading to a new release of SAP ERP 6.0. Currently, the acquisition runs SAP R/3 4.6C hosted by IBM on older 32-bit hardware, running AIX 5.x and an older release of Oracle (8.1.7), all connected to a best-in-class third party storage system. The $6M annual price tag associated with hosting is greater than MNC wishes to spend in the future, though. Fortunately, the outsourcing contract is coming to a close in the next 12 months. Thus, the combined company has made a strategic decision to in-source its new SAP environment in an effort to provide greater flexibility to its business while hopefully cutting IT costs in the process. The current SAP R/3 database is 500GB in size and supports about 1000 users.

MNC has several options as they see it. First, they can buy new IBM AIX-supported equipment and move the database to MNC’s local datacenter. In this way, they can stay on the same platform, making the technical transition fairly straightforward. Once the system is hosted in-house, the upcoming SAP technical upgrade could then be performed. Neither MNC nor the firm being acquired has IBM AIX expertise in house, but both are strong when it comes to Oracle administration and support.

Another option put forth by MNC’s IT department is to buy less-expensive commodity hardware and move SAP to a new platform. MNC IT has grown comfortable with supporting Microsoft Windows and both Oracle and SQL Server over the last several years, and is anxious to apply their knowledge to SAP. Such a transition or “replatforming” to a Windows platform would cost $500K in consulting and migration services and another $2M annually in hardware, OS, and database licenses, acquisition, and ongoing maintenance costs. The technical upgrade could then be performed afterwards. While MNC Global has the skill-sets in the datacenter to host the new platform, the acquired company has very little SAP Basis knowledge and MNC has only begun to develop its own in-house SAP expertise.
Questions

1. For each hardware/OS/database platform choice outlined above, list several advantages.

2. What are the disadvantages or potential challenges for each platform?

3. In your estimation, is there a clear option or path that MNC Global should choose?

4. Is there another potentially good alternative that might need to be explored?

5. What new performance enhancing technology is available to MNC Global when the move is made to a new platform and upgrade is performed?
## Index

### A

ABAP, 182
ABAP architecture, sizing, 60
ABAP code remediation, 273
ABAP Development Workbench, 182
ABAP List Processing (ABAP Programming), 344
ABAP Query, 344, 351
ABAP stack, system logs, 254-255
ABAP-based application servers, user authorizations, 260
aProfile Generator (PG), 262
authorization profiles, 260-261
ABAP/4 Data Dictionary, 53
AcceleratedSAP. See ASAP
accessing the system, 281
client access strategy, 62-63
SAP Logon Pad, 282
configuring, 282-283
low-speed connections, 283
SAP Logon screen, 284
logon language, 285
SAP client, 285
SAP user ID, 284
activity groups, 262
Actual Start Date field, 195
Actual Work Days field, 195
AD (Active Directory), 249
Ad Hoc Query, 344. See also InfoSet Query
adaptability, Business ByDesign, 77
adapting to changing needs, All-in-One

appearance
changing visual appearance of WinGUI, 327
   EnjoySAP, 328-329
   High Contrast, 329
   Streamline, 329
   Tradeshow, 329
   XP design, 329
   Clipboard selection, 338
   Font selection, 339
   New Visual Design selection, 337
   Color Settings tab, 338
   General tab, 337-338

application areas, 354
application toolbar, SAP GUI window, 292
architecture
technical architecture, overview of, 15
   three-tiered architecture, 15-17
ASAP (AcceleratedSAP), 184
   SolMan, 144
ASAP (AcceleratedSAP) project management roadmap, 140
   Phase 1, project preparation, 141-143
   Phase 2, business blueprint, 158
   Phase 3, realization, 158-159
   Phase 4, final preparation, 159-160
   Phase 5, Go-Live, 160
ASAP project management roadmap, 139
   qualified project team, building, 143
ASCS (SAP Central Services Instance for ABAP), SAP installation, 219-220
assembling
   SAP project team, 150
   Technical Project Team, 171-172
   management, 172
   SAP Alliance partners, 173
   SAP Consulting, 173
   system administrators, 174
   team leaders, 173
   team specialists, 174
assigning InfoSets to query groups, 361
ASUG (Americas’ SAP Users’ Group), 111, 394-396
attributes, report attributes
   (General Report Selection), 347
authorization concepts, 259
  user authorizations for ABAP-based application servers, 260
  authorization profiles, 260-261
  Profile Generator, 262
  user authorizations for Java-based application servers, 262-263
authorization profiles, user authorizations for ABAP-based application servers, 260-261
automotive industry, CRM-specific processes, 127

B

backend tier, Duet, 248
background processing, General Report Selection, 350
backup/recovery strategies, implementing for SAP installation, 64
baseline configuration, 158
benefits of Enterprise SOA, 203-204
  cost effectiveness, 205
  modular design, 204-205
  reusability, 204
Best Practices, 82
  big bang implementation versus phased implementation, 178
blueprinting, 157
building qualified project management teams, 143
business acceptance testing phase of SAP project lifecycle, 167-168
business agility, 33
business applications, SAP, 11-13
business blueprint, phased approach of implementation tools, 186
business blueprint phase of ASAP project management roadmap, 158
business blueprinting, 34
  business view, 34-35
  stakeholders, 35-36
  supporting business needs with SAP technologies, 35
Business ByDesign, 76-77
  features, 78
  functionality, 78
  implementation and adaptability, 77
  SaaS, advantages of, 78
  SAP partners and, 79
business communications management feature (CRM), 126
business concerns, 30-31
  business agility, 33
  increasing sales, decreasing costs, 31-32
  managing risk, 32
business insights, gaining through PLM, 129
business modules, 99
business needs, mapping to SAP technologies, 36-39
  functional view, 36-37
  project implementation view, 37-38
  technical view, 37
Business One, 74-76
  development, 76
  features, 75-76
  functionality, 75
  implementing, 76
business process complexity, selecting the best solution for SMEs, 74
business purposes of SCM, 123
business roadmaps, 29-30
  business agility, 33
  business concerns, 30-31
  increasing sales, decreasing costs, 31-32
managing risk, 32
mapping business needs to SAP technologies, 36-39
functional view, 36-37
project implementation view, 37-38
technical view, 37
business solutions, SAP ERP, 98-99
business transactions, SAP, 13-14
business view, 34-35
buy-in, lack of technical buy-in, 177
BW/BI Expert, 398

canceling data entered on screens, input fields, 307
career opportunities, 405, 407
business and functional positions, 382-383
ethics, 390
finding, 379-380
SAP AG, 380
SAP customers, 382
SAP partners, 380-381
getting educated, 389
hustle, 390
ITtoolbox, 407
positioning yourself for, 385-388
developers/programmers, 387
hardware/infrastructure specialists, 386
OS/DB administrators, 387
project management, 384
SAP-Resources.com, 405-406
Softwarejobs.com, 406
technical positions, 383-384
trainers and testers, 384-385
your presentation layer, 389-390
CCMS (Computing Center Management System), 253, 256-259
Alert Monitor (RZ20), 257-258
Workload Monitor (ST03), 258-259
CD/DVD media, SAP installation, 215
CE (Composition Environment), 183-184
central instances, 25
challenges to adopting SOA, 206-208
change management, 152
changing passwords, 285-286
check boxes, screen objects, 312
choosing SAP GUI, 323-324
JavaGUI, 324-325
WebGUI, 325
WinGUI, 326-327
CIO (Chief Information Officer), 145
client access strategy, 62-63
client tier, Duet, 247-248
client/transport strategies, 354
clients, 25-27
usage types, SAP NetWeaver 7.0, 91
Clipboard, 319
 Clipboard selection, 338
closing out SAP implementation project, 153-154
Color Settings tab, New Visual Design selection, 338
command field, creating new sessions, 287-288
communication planning, 150
company internal functional specialists, 162
components, SAP, 11-13
corporate operations team, 65
Computing Center Management System (CCMS), 253, 256-259
Alert Monitor (RZ20), 257-258
Workload Monitor (ST03), 258-259

conferences, 403
Managing Your SAP Projects, 404
SAP TechEd, 404
SAPPHIRE, 403

configuration testing, 159
configuring
Duet, 249
phased approach of implementation tools, 186
SAP Logon Pad, 282-283
connections, low-speed connections (SAP Logon Pad), 283
consultants, long-term consultants, 178
consulting, SAP Consulting, 173
consumer products industry, CRM-specific processes, 127
contingency planning, 150
contractors, long-term contractors, 178
Control Levels screen, 367
Controlling module, SAP ERP Financials, 103

copying data, Clipboard, 319
cost effectiveness, Enterprise SOA, 205
costs
reducing, 31
selecting the best solution for SMEs, 73-74
cover sheets, Spool Request Attributes, 317
CRM (Customer Relationship Management), 12, 22, 74, 124
ERP, extending, 125
features, 125-126
industry-specific processes, 127

Customer Relationship Management (CRM), 12, 22, 74, 124
ERP extending, 125
features, 125-126
industry-specific processes, 127

Customizing of Local Layout button, 329-331
Cursor tab, 333
cursor position, 333-334
Cursor Width, 334-335
Local Data tab, 334-335
Options tab, 332
Scripting tab, 336-337
Trace tab, 334-336

data
copying, Clipboard, 319
downloading with %pc, 232-233
editing in input fields, 306
exporting SAP data to Microsoft Excel, 233-234
moving, Clipboard, 319
replicating, 308
deleting data that is on a screen, 310
Hold Data function, 308
Set Data function, 308-309
SAP data
exporting to Microsoft Access, 237-238
importing to Microsoft Access, 238-241
saving on screen, 308
data center team, 65
data migration, 267
database administrators (DBAs), 51
database server software
installation, SAP installation, 217
Microsoft SQL Server, 217
Oracle, 218
data base team, 65
databases, 51-52
tables, indexes, structures, 52-53
DBAs (database administrators), 51
decision-making process, streamlining for ASAP project management roadmap, 142
default values for printers, setting, 318
defining objectives for ASAP project management roadmap, 142
deleting data on screens, 310
Demand Planning application (APO), 124
design and construction phase of SAP project lifecycle, 166
desktop applications, integrating with SAP, 231-232
development, Business One, 76
development tools,
programming tools, 181
ABAP, 182
CE (Composition Environment), 183-184
Java, 183
dialog boxes, screen objects, 313
difficulty of implementing SAP software, reasons for, 140
Director of Enterprise Computing, 145
disk subsystems, 44-45
RAID, 45
display fields, 310
dividing and conquering projects, 178
documentation, IMG (Implementation Guide), 193
downloading data with %pc, 232-233
DR (disaster recovery), installation options, 61-62
Duet, 247
backend tier, 248
client tier, 247-248
configuration and scalability, 249
middle tier, 248
data
E-Recruiting 6.0, 109
EA (enterprise architecture), 207
editing data in input fields, 306
EH&S (Environment, Health and Safety), 116
EM (Event Management), 123
Employee tab for resource assignments, 196
employment, 405, 407
ITtoolbox, 407
SAP-Resources.com, 405-406
Softwarejobs.com, 406
enabling SOA through SAP NetWeaver, 202
WebAS, 202-203
ending sessions, 289
enhancements, 174, 266, 270
project planning for, 270-271
E
execute steering committee, 145

executing reports, General Report Selection, 346-347

Executive Information System (EIS), 344-345

Enterprise Architecture (EA), 207

Enterprise Compensation Management, 109

Enterprise Controlling module, SAP ERP Financials, 103-104

Enterprise Services, SAP NetWeaver 7.1, 94

Enterprise Services Inventory (ESI), 200

Enterprise SOA, 203

benefits of, 203-204
cost effectiveness, 205
modular design, 204-205
reusability, 204
principles of, 201-202
versus SOA, 200-201

Environment, Health and Safety (EH&S), 116

ERP, extending through CRM, 125

ERPcentral, 401

ESI (Enterprise Services Inventory), 200

executing reports, General Report Selection, 346-347

Executive Information System (EIS), 344-345

event plans, 180-181

Exit Current Screen box, 307

exporting, 275

lists
to Microsoft Access, 246
to Microsoft Excel, 244

SAP data
to Microsoft Access, 237-238
to Microsoft Excel, 233-234

SAP query reports
to Microsoft Access, 246-247
to Microsoft Excel, 245

extended business processes, 12

extending ERP through CRM, 125

f

fat clients, 24

features

All-in-One, 81
adapting to changing needs/
SAP NetWeaver, 82
cost of ownership/
Best Practices, 82
intuitive user experience/SAP NetWeaver Business Client, 83
Business ByDesign, 78
Business One, 75-76
selecting the best solution for SMEs, 73

features of SAP CRM, 125-126

field entry validation, input fields, 307

fields, 301-302
display fields, 310
input fields, 302-303
canceling all data entered on screen, 307
entries for, 304-306
field entry validation, 307
Insert mode, 303, 306
Overwrite mode, 304
required fields, 306-307
saving data, 308
final preparation phase of ASAP project management roadmap

final preparation phase of ASAP project management roadmap, 159-160

Financial Supply Chain Management (FSCM), SAP ERP Financials, 105-106

Financial and Managerial Accounting module, SAP ERP Financials, 101-102

finding career opportunities in SAP, 379-380
  SAP AG, 380
  SAP customers, 382
  SAP partners, 380-381

fine-tuning configuration, 159

Font selection, 339

form letters, creating with Microsoft Word, 234-237, 245-246

FSCM (Financial Supply Chain Management), SAP ERP Financials, 105-106

functional areas, 353

functional row leaders, 161

functional upgrades, 269-270

functional view, mapping business needs to SAP technologies, 36-37

functionality
  All-in-One, 80-81
  Business ByDesign, 78
  Business One, 75
  selecting the best solution for SMEs, 73

Go-Live phase of ASAP project management roadmap, 160

GRC (Governance, Risk, and Compliance), SAP ERP Financials, 100-101

GTS (Global Trade Services), 116
  SAP ERP Financials, 105

G

General Report Selection, 345-346
  background processing, 350
  executing reports, 346-347
  lists, 350-351
  report attributes, 347
  searching for reports, 347-348
  selection screens, 348
  variants, 348
  modifying, 349-350

General tab, New Visual Design selection, 337-338

global query areas, 355

Global Trade Services (GTS), 116
  SAP ERP Financials, 105

Go-Live, implementation tools, 187

H

hardware, 42
  disk subsystems, 44-45
  server hardware, 42-44

hardware sizing, 60-61

HCM (Human Capital Management), 98, 106-108
  reasons for using, 111-112
  SAP Talent Management, 108-110

help, IMG (Implementation Guide), 192-193

heterogeneous system copy, 268

high availability, installation options, 61

High Contrast, WinGUI, 329

high-tech industry, CRM-specific processes, 127
history list, finding transaction codes, 296
Hold Data function, 308
hosting, selecting the best solution for SMEs, 74
hostname considerations, infrastructure review (SAP installation), 214
hostname naming conventions, 175
HTML, WebGUI, 325
Human Capital Management (HCM), 98, 106-108
   reasons for using, 111-112
   SAP Talent Management, 108-110

IC (Interaction Center) management, support for on CRM, 126
ICH (Inventory Collaboration Hub), 122-123
IMG (Implementation Guide), 188-189, 192
documentation, 193
help, 192-193
integrating with SolMan, 192
Release Notes, 196
Status Information, 194-196
views, 189
   SAP Enterprise IMG, 190
   SAP Project IMG, 190
   SAP Reference IMG, 189
   SAP Upgrade Customizing IMG, 191
implementation roadmaps, 187-188
   four-phased approach
      business blueprint, 186
      configuration, 186
      project preparation, 185
      testing, final preparation, and Go-Live, 187
implementation tools, four-phased approach, 185
implementing
   Business ByDesign, 77
   Business One, 76
implementing SAP
   big bang or phased implementation, 178
   project closeout, 153-154
   project plan execution, 152-153
   project structure, executive steering committee, 145-150
implementing SAP software, difficulty of, 140
importing SAP data to Microsoft Access, 238-241
increasing sales, decreasing costs, 31-32
indexes, 52-53
industry-specific processes on CRM, 127
information windows, 313
InfoSet Query, 369-370
   creating, 370-372
InfoSets, 353
   assigning to query groups, 361
   creating new, 357-360
infrastructure providers, partnering with, 53-54
infrastructure review, SAP installation, 213
   hostname considerations, 214
   network, 213
   SAN (storage area network), 214
Input fields, 302-303
   canceling all data entered on screen, 307
   editing data, 306
   entries for, 304-306
   field entry validation, 307

How can we make this index more useful? Email us at indexes@samspublishing.com
Insert mode, 303
Insert mode, input fields, 303
Insert mode, 303
Install mode, 304
Overwrite mode, 304
required fields, 306-307
saving data, 308
SAP
SAP Solution Manager (SolMan), 176
Unicode or non-Unicode, 175-176
backup strategies, 64
database server software installation, 217-218
disaster recoverability, 61-62
hardware, sizing, 60-61
high availability options, 61
Master Guides, 58-59
network considerations, 63-64
operating system installation, 216-217
overview of, 211
planning, 212-213
planning stages, 57-58
post-installation, 228
pre-planning, 213-215
SAN considerations, 64
SAP software installation, 218
system landscapes, sizing, 59-60
system variants, 218-221
instguides, 59
integrating SAP with desktop applications, 231-232
internal procurement, SRM applications, 132
Internet Transaction Server (ITS), 88
Internet-based e-commerce, 126
inventory of enterprise services, 200
issue management, 152
Issues database, 158
IT staff, teams, 65
ITS (Internet Transaction Server), 88
ITToolbox, career opportunities, 407
Java
Java GUI, 324
programming tools, 183
Java architecture, sizing, 60
Java Development Infrastructure (JDI), 90
Java Runtime Environment (JRE), 324
Java stack, system logs, 256
Java-based application servers, user authorizations, 262-263
JavaGUI, 324-325
JDI (Java Development Infrastructure), 90
JRE (Java Runtime Environment), 324
keyboards, navigation, 293
languages, system landscapes, 59
ABAP and Java architectures, sizing, 60
high availability options, 61
performance options, 61
sizing, 59-60
LdB (logical database), 353
learning from mistakes, 178
leasing entities, CRM-specific
processes, 127
letters, creating form letters
with Microsoft Excel, 245-246
List Processing, 344
lists
exporting
to Microsoft Access, 246
to Microsoft Excel, 244
General Report Selection,
350-351
load testing, 167
load/stress testing, 152
Local Data tab, Customizing of
Local Layout button, 334-335
logging in
SAP Logon Pad, 282-283
configuring, 282-283
low-speed connections, 283
SAP Logon screen, 284
logon language, 285
SAP client, 285
SAP user ID, 284
logging off SAP, 289
logical database (LdB), 353
logon language, 285
low-speed connections, SAP
Logon Pad, 283

M
management team, 65
managing
risk, 32
scope creep, 179
Technical Project
Teams, 172
Managing Your SAP Projects
conference, 404
Manufacturing, 133
CRM-specific
processes, 128
mapping business needs to
SAP technologies, 36-39
functional view, 36-37
project implementation
view, 37-38
technical view, 37
marketing, support for SAP
CRM, 125
master data row leaders, 161
Master Guide, 58
instguides, 59
master records, 260
matching and prototyping
phase of SAP project lifecycle,
165-166
Materials Management module,
114-115
MaxDB, 51
media industry, CRM-specific
processes, 127
members of SAP project team,
assembling, 150
members of executive steering
committee, 145
cross-bundle project leader, 147-148
PMO, 148-150
project sponsor, 146-147
Mendocino. See Duet
menu bars, SAP GUI
window, 290
menu paths, performing tasks,
292-293
messages, Customizing of Local
Layout button, 332
Metadata service, 248
micro-vertical solutions, 81
Microsoft, integrating SAP
with desktop applications,
231-232
Microsoft Access, exporting
data from SAP, 237-241
lists, 246
SAP query reports,
exporting, 246-247
Microsoft Access Import
Spreadsheet Wizard, 240
Microsoft Access Report
Wizard, 242-244

How can we make this index more useful? Email us at indexes@samspublishing.com
Microsoft Active Directory (AD), 249

Microsoft Excel
  creating form letters, 245-246
  exporting
    lists, 244
    SAP data to, 233-234
    SAP query reports, 245

Microsoft SQL Server,
  database server software installation, 217

Microsoft Word, creating SAP form letters, 234-237

middle tier, Duet, 248

migration
  data migration, 267
  defined, 267
  OS/DB migration, 267-269
  project planning for, 273-277

mistakes, learning from, 178

modifying variants, General Report Selection, 349-350

modular design, Enterprise SOA, 204-205

modules
  business modules, 99
  SAP, 13-14

monitoring systems, 253
  CCMS, 256-259
  SAP NetWeaver Application Servers (SM51), 253-254
  system logs, 254-256

mouse, navigation, 293

moving data, Clipboard, 319

n

naming conventions, hostname naming conventions, 175

navigation, 292
  with keyboards, 293
  with the mouse, 293
  performing tasks with
    menu paths, 292-293
    transaction codes, 293-296

NetWeaver Composition Environment (CE), 183-184

NetWeaver Development Infrastructure (NWDI), 183

network, infrastructure review (SAP installation), 213

network considerations for SAP installation, 63-64

new InfoSets, creating, 357-360

new user groups, creating, 355-357

New Visual Design selection, 337
  General tab, 337-338

newsletters, professional SAP resources, 398

non-Unicode, deciding to use, 175-176

/nSART, 345

/nSQ02, 353

Number of Copies field, Print Screen List, 315

NWDI (NetWeaver Development Infrastructure), 183

NWDS (SAP NetWeaver Developer Studio), 183

O

Object Linking and Embedding (OLE), 231

objectives, defining for ASAP project management roadmap, 142

OLE (Object Linking and Embedding), 231
  SAP Assistant, 232

OLTP (online transaction processing) systems, 97

The Open Group Architecture Framework (TOGAF), 207
operating system installation, 175
  SAP installation, 216-217
  network, 214
operating systems, pre-installation planning, 175
operating systems (OS), 45-46
  basic features, 46
  OS-level work processes, 50
  profiles, 50
  SAP file systems and, 47-48
operational stabilization phase of SAP project lifecycle, 169
Options tab, Customizing of Local Layout button, 332
Oracle, database server software installation, 218
Organizational Management, 110
OS (operating systems), 45-46
  basic features, 46
  profiles, 50
  SAP file systems and, 47-48
  work processes, 50
OS-level profiles, 50
OS-level work processes, 50
OS/DB migration (operating system/database migration), 267-269
  project planning for, 273-277
Overview of Sessions window, 288
Overwrite mode, input fields, 304

P
partner channel management feature (CRM), 126
partnering with infrastructure providers, 53-54
passwords, changing, 285-286
%pc, downloading data, 232-233
Percent Complete field, 195
performance, installation options, 61
Personnel Administration, SAP Talent Management, 108-110
PFCG, 262
PG (Profile Generator), user authorizations for ABAP-based application servers, 262-263
pharmaceutical industry, CRM-specific processes, 128
phases of SAP project lifecycle
  phase 1, project initiation, 165
  phase 2, matching and prototyping, 165-166
  phase 3, design and construction, 166
  phase 4, SIT, 166-167
  phase 5, business acceptance testing, 167-168
  phase 6, preparing for production cutover, 168-169
  phase 7, operational stabilization, 169
Plan B, managing risk, 32
Plan End Date field, 195
Plan Start Date field, 195
Plan Work Days field, 195
Planning SAP installation, 212-213
planning stages for SAP installation, 57-58
Plant Maintenance module, 115
Plattner, Hasso, 326
PLM (Product Lifecycle Management), 128-130
  business insights, gaining, 129
  SRM integration benefits, 130-131
PM (project manager), 172
PMO (Project Management Office), 148-149, 172
- responsibilities, 150
- communication planning, 150
- contingency planning, 150
- quality planning, 149
- scheduling, 149
- scope management, 149

Power users, 162-163

Pre-installation planning
- hostname naming conventions, 175
- operating system installation, 175
- SAP Solution Manager (SolMan), 176
- Unicode or non-Unicode, 175-176

Pre-planning SAP installation, 213
- CD/DVD media, 215
- infrastructure review, 213-214
- operating system installation, 214
- SAP Solution Manager keys, 215

Preparation for production cutover phase of SAP project lifecycle, 168-169
Prepare, upgrades, 272

Presentation servers, 15
Presentation software, 25, 281
Presentation tier, 281
Print Screen List, 315

Printing in SAP, 314
- Print Screen List, 315
- setting default values for printers, 318
- Spool Request Attributes, 316-318

Problems with SME, 72

Production cutover, preparing for, 168-169

Production Planning and Control module, SAP ERP Operations, 113-114

Production Planning application (APO), 124

Professional services industry, CRM-specific processes, 127

Profile Generator (PG), user authorizations for ABAP-based application servers, 262-263

Profiles, operating systems and, 50

Programming tools, 181
- ABAP, 182
- CE (Composition Environment), 183-184
- Java, 183

Project and Portfolio Management module, 117-118

Project basics, 22, 24

Project board, 145
- crucial tasks performed by, 146
- members, 145
- cross-bundle project leader, 147-148
- PMO, 148-150
- project sponsor, 146-147

Project closeout, 153-154

Project implementation view, mapping business needs to SAP technologies, 37-38

Project initiation phase of SAP project lifecycle, 165

Project Management Office (PMO), 148, 172

Project plan execution, 152-153

Project planning, 270
- for enhancements, 270-271
- for OS/DB migration, 273-277
- for upgrades, 272-273
project preparation, phased approach of implementation tools, 185
project preparation phase of ASAP project management roadmap, 141-143
project sponsor, 145-147
Project System Module, 117
project team
  company-internal functional specialists, 162
  power users, 162-163
  row leaders, 161-162
prototyping, 165
public sector, CRM-specific processes, 127
Purchase Planning application (APO), 124
query areas, 354-355
query groups, 352-353
  assigning InfoSets to, 361
query reporting tools, structure of, 351-352
  administrative decisions, 354-355
  InfoSets, 353
  query groups, 352-353
Quick Info option, Customizing of Local Layout button, 332
QuickView, creating, 372-374
relational database management system (RDBMS), 52
Release Notes, IMG (Implementation Guide), 196
Remaining Work Days field, 195
replatforming, 274
replicating data, 308
  deleting data that is on a screen, 310
  Hold Data function, 308
  Set Data function, 308-309
report attributes, General Report Selection, 347
report trees, 345
reporting tools, 343
  ABAP List Processing (ABAP programming), 344
  ABAP Query, 344
  Ad Hoc Query, 344
  Executive Information System, 344-345
  SAP Information System (report trees), 345
  Structural Graphics, 344
reports
  executing General Report Selection, 346-347
  searching for, in General Report Selection, 347-348
QAdb (Question and Answer database), 158
quality assurance, 149
quality control, 149
Quality Management module, 117
quality planning, 149
queries, 362. See also SAP queries
radio buttons, screen objects, 312-313
RAID, disk subsystems, 45
RDBMS (relational database management system), 52
Real Estate Management module, 116-117
real-time offer management feature (CRM), 126
realization phase of ASAP project management roadmap, 158-159
records, 301
  master records, 260
reducing costs, 31
R

How can we make this index more useful? Email us at indexes@samspublishing.com
Request Handler server component

Request Handler server component, 248
required input fields, 306-307
requirements for SME, 71-72

resources
  Internet resources, 398
  SAP Fans, 399-400
  SAP FAQ, 402
  SAP IToolbox, 402-403
  SearchSAPcom, 402
  TechTarget, 402
  Wayback Machine, 401-402
professional resources, 393
  Americas’ SAP Users’ Group (ASUG), 394-396
  books, 397
  newsletters, 398
  SAP Professional Journal, 396
  SAPinsider, 396-397
  SAPNetWeaver Magazine, 397
SAP conferences, 403-404
  Managing Your SAP Projects, 404
  SAP TechEd, 404
  SAPPHIRE, 403

responsibilities
  of cross-bundle project leader, 147-148
  of PMO, 148-149
  communication planning, 150
  contingency planning, 150
  quality planning, 149
  scheduling, 149
  scope management, 149
  of project sponsor, 147

reusability, Enterprise SOA, 204
risk, managing, 32
roadmaps, business roadmaps, 29-30
  business agility, 33
  business concerns, 30-31
  increasing sales, decreasing costs, 31-32
  managing risk, 32
  mapping business needs to SAP technologies, 36-39
    functional view, 36-37
    project implementation view, 37-38
    technical view, 37
row leaders, 161-162
rows, 144
running SAP, 21-22
RZ20 (Alert Monitor), 257-258

S
SaaS (Software as a Service), 77
  advantages of Business ByDesign, 78
Sales and Distribution module, 115
sales, support for on SAP CRM, 125
SAN/disk subsystem team, 65
SANs (storage area networks)
  implementing for SAP installation, 64
  infrastructure review, SAP installation, 214
SAP
  business applications or components, 11-13
  business transactions, 13-14
  modules, 13-14
  overview of, 9-11
  running, 21-22
  SOA and, 17-18
SAP (Systems, Applications, and Products), overview of, 10
SAP AG, 380
SAP Alliance partners, 173
SAP application servers, 15
SAP Assistant, 232
SAP Basis team, 65
SAP Best Practices, 82
SAP Business Suite, 11
SAP central instance, SAP installation, 225-227
SAP Central Services Instance (SCS), SAP installation, 220-221
SAP Central Services Instance for ABAP (ASCS), SAP installation, 219-220
SAP client, 285
SAP Competency Center, 61
SAP conferences, 403-404
  Managing Your SAP Projects, 404
  SAP TechEd, 404
  SAPPHIRE, 403
SAP Consulting, 173
SAP Database instance, SAP installation, 221-225
SAP ECC, versus SAP ERP, 97-98
SAP Enterprise IMG, 190
SAP Enterprise Learning, 110
SAP ERP (Enterprise Resource Planning), 11-13, 346
  business modules, 99
  business solutions, 98-99
  versus ECC and R/3, 97-98
SAP ERP Analytics, 99
SAP ERP Corporate Services, 99, 116
  Project and Portfolio Management, 117-118
  Quality Management, 117
  Real Estate Management, 116-117
SAP ERP Financials, 98, 100
  Controlling module, 103
  Enterprise Controlling module, 103-104
  Financial and Managerial Accounting module, 101-102
  Financial Supply Chain Management (FSCM), 105-106
  GRC (Governance, Risk, and Compliance), 100-101
  GTS (Global Trade Services), 105
  Treasury Management module, 104-105
SAP ERP Human Capital Management (HCM), 98, 106-108
  reasons for using, 111-112
  SAP Talent Management, 108-110
SAP ERP Operations, 98, 112-113
  Materials Management module, 114-115
  Plant Maintenance module, 115
  Production Planning and Control module, 113-114
  Sales and Distribution module, 115
SAP Fans, 399-400
SAP FAQ, 402
SAP file systems, operating systems and, 47-48
SAP Financials Expert, 398
SAP form letters, creating in Microsoft Word, 234-237
SAP GUI, choosing, 323-324
  JavaGUI, 324-325
  WebGUI, 325
  WinGUI, 326-327
SAP GUI, system basics, 24-25
SAP GUI window, 289-290
  application toolbar, 292
  menu bar, 290
  standard toolbar, 290-292
SAP Information System (report trees), 345

How can we make this index more useful? Email us at indexes@samspublishing.com
SAP installation, 216
    backup strategies, 64
    database server software installation, 217
    Microsoft SQL Server, 217
    Oracle, 218
    disaster recoverability, 61-62
    hardware, sizing, 60-61
    high availability options, 61
    Master Guides, 58
        instguides, 59
    network considerations, 63-64
    operating system installation, 216-217
    overview of, 211
    performance options, 61
    planning, 212-213
    planning stages, 57-58
    post-installation, 228
    pre-planning, 213
        CD/DVD media, 215
        infrastructure review, 213-214
        operating system installation, 214
    SAP Solution Manager keys, 215
    SAN considerations, 64
    SAP software installation, 218
    system landscapes, sizing, 59-60
    system variants, 218-219
    ASCS (SAP Central Services Instance for ABAP), 219-220
    SAP central instance, 225-227
    SAP database instance, 221-225
    SCS (SAP Central Services Instance), 220-221
    SAP ITtoolbox, 402-403
    SAP Lean Planning and Operations, 113
    SAP Learning Solution, 110
    SAP Logon Pad, 282
        configuring, 282-283
        low-speed connections, 283
    SAP Logon screen, 284
        logon language, 285
        SAP client, 285
        SAP user ID, 284
    SAP Manufacturing, 112-113
    SAP Manufacturing Integration and Intelligence, 113
    SAP NetWeaver, 11
        All-in-One, 82
        benefits of, 88-89
        enabling SOA, 202
            WebAS, 202-203
        history of, 87-88
    SAP NetWeaver 2004, 89
    SAP NetWeaver 7.0, 89-90
        usage types, 90
        clients, 91
        standalone engines, 90
    SAP NetWeaver 7.0 Master Guide, 91-93
    SAP NetWeaver 7.1, 94-95
        Web Services and Enterprise Services, 94
    SAP NetWeaver Application Servers (SM51), 253-254
    SAP NetWeaver Business Client, All-in-One, 83
    SAP NetWeaver Developer Studio (NWDS), 183
    SAP NetWeaver Process Integration, 11
    SAP Partners
        All-in-One, 81
        Business ByDesign and, 79
    SAP Professional Journal, 396
    SAP Project IMG, 190
SCC (Supply Chain Cockpit)

SAP project lifecycle
- business acceptance testing phase, 167-168
- design and construction phase, 166
- matching and prototyping phase, 165-166
- operational stabilization phase, 169
- preparing for production cutover phase, 168-169
- project initiation phase, 165
- SIT phase, 166-167

SAP project team
- assembling, 150
- project closeout, 153-154
- project execution and control, 152-153

SAP queries, 362
- advanced SAP queries, 366-369
- creating, 362-365

SAP Query, 351

SAP query reports, exporting
- to Microsoft Access, 246-247
- to Microsoft Excel, 245

SAP Query tool, exporting data
- to Microsoft Excel, 233

SAP QuickViewer tool, 372
- creating QuickView, 372-374

SAP R/3, versus SAP ERP, 97-98

SAP Reference IMG, 189

SAP Reporting tools, 351
- assigning InfoSets to query groups, 361
- new InfoSets, creating, 357-360
- new user groups, creating, 355-357
- structure of query reporting tools, 351-352
- administrative decisions, 354-355
- InfoSets, 353
- query groups, 352-353

SAP screens
- fields, 301-302
- input fields, 302-308
- replicating data, 308
- deleting data, 310
- Hold Data function, 308
- Set Data function, 308-309
- screen objects, 311
- check boxes, 312
- dialog boxes, 313
- radio buttons, 312-313
- SAP trees, 311
- table controls, 313-314

SAP software installation, SAP installation, 218

SAP Solution Centers, All-in-One, 81

SAP Solution Manager (SolMan), 176, 185

SAP Solution Manager keys, SAP installation (network), 215

SAP Solutions for RFID, 113

SAP Supplier Relationship Management, 11

SAP Supply Chain Management, 113, 121

SAP systems, accessing, 281

SAP Talent Management, 108-110

SAP TechEd, 404

SAP technologies, supporting business needs, 35

SAP trees, 311

SAP Upgrade Customizing IMG, 191

SAP-Resources.com, 405-406

SAPinsider, 396-397

SAPNetWeaver Magazine, 397

SAPPHIRE, 403

SART, 345

SAPinsider, 396-397

SAPNetWeaver Magazine, 397

SAPPHIRE, 403

SART, 345

saving data, input fields, 308

scalability, Duet, 249

SCC (Supply Chain Cockpit), 124

How can we make this index more useful? Email us at indexes@samspublishing.com
SCM (Supply Chain Management), 13, 121
- APO, 122-124
- business purposes, 123
- EM, 123
- ICH, 122-123

SCM Expert, 398
- scope creep, managing, 179
- scope management, 149

screen objects, 311
- check boxes, 312
- dialog boxes, 313
- radio buttons, 312-313
- SAP trees, 311
- table controls, 313-314

screen prints, creating from SAP, 320-321

screen shots, creating from SAP, 320-321

Scripting tab, Customizing of Local Layout button, 336-337

scrolling, techniques for, 296

SCS (SAP Central Services Instance), SAP installation, 220-221

searching for reports, General Report Selection, 347-348

SearchSAP.com, 402

security team, 65

selection screens, General Report Selection, 348

SEM (Strategic Enterprise Management), 344

senior-level management support, obtaining for ASAP roadmap, 142

server hardware, 42-44

server team, 65

Service and Asset Management, 134-135

Service Level Agreements (SLAs), 177

service, support for on SAP CRM, 126

Service-Oriented Architecture (SOA), 199

- challenges to adopting, 206-208
- enabling through SAP NetWeaver, 202-203
- versus Enterprise SOA, 200-201
- SAP and, 17-18
- Web Services and, 200, 205-206

sessions, 27, 286-287

- creating new, 287
- while also starting new tasks at the same time, 288-289
- with command field, 287-288
- ending, 289
- logging of SAP, 289

Set Data function, 308-309

shakedown testing, 165

Single Sign-On (SSO), 249

SIT (system integration testing) phase of SAP project lifecycle, 166-167

sizing

- hardware, 60-61
- system landscapes, 59-60
- ABAP and Java architectures, 60

SLAs (Service Level Agreements), 177

SM51 (SAP NetWeaver Application Servers), 253-254

SM66, 259

small and medium enterprises. See SME

SMBs (small/medium businesses), 43, 71

- Business One, 74-75
- development, 76
- features, 75-76
- functionality, 75
- implementing, 76

SME (small and medium enterprises), 71

- Business ByDesign, 76-77
- features, 78
- functionality, 78
- implementation and adaptability, 77
SaaS, advantages of, 78
SAP partners and, 79
selecting the “best” solution, 73
complexity of business processes, 74
cost, 73
features, 73
functionality, 73
hosting, 74
number of employees, 74
summary of SME solutions, 84
SME requirements, 71-72
problems with, 72
SMLG, 259
smoke testing, 167
SNP Planner (APO), 124
SOA (Service-Oriented Architecture), 199
challenges to adopting, 206-208
enabling through SAP NetWeaver, 202-203
versus Enterprise SOA, 200-201
SAP and, 17-18
Web Services and, 200, 205-206
Software as a Service (SaaS), 77
Softwarejobs.com, 406
SolMan (SAP Solution Manager), 144, 158, 176, 185
integrating with IMG, 192
solution stacks, 41
solutions for SMEs, selecting, 73
complexity of business processes, 74
cost, 73-74
features, 73
functionality, 73
hosting, 74
SPAU, 273
SPDD, 273
Spool Request Attributes, 316-318
SRM (Supplier Relationship Management), 22, 130
applications, 132-133
business benefits of, 131
internal procurement, 132
PLM integration benefits, 130-131
SSO (Single Sign-On), 249
ST06, 259
ST07, 259
ST22, 259
stakeholders, business blueprinting, 35-36
standalone engines, usage types (SAP NetWeaver 7.0), 90
standard query areas, 355
standard toolbar, SAP GUI window, 290-292
start small when implementing, 178
status fields, System Information icon, 339-340
Status Information, IMG (Implementation Guide), 194-196
ST03 (Workload Monitor), 258-259
stopping transactions, 298
Strategic Enterprise Management (SEM), 344
Streamline, 329
streamlining decision-making process for ASAP project management roadmap, 142
stress testing, 167
Structural Graphics, 344
structures, 52-53
Supply Chain Management. See SCM
supporting business needs with SAP technologies, 35
system access, 25
system administrators, Technical Project Teams, 174

How can we make this index more useful? Email us at indexes@samspublishing.com
system basics, 24
SAP GUI, 24-25
System Information icon, status fields, 339-340
system landscapes
ABAP and Java architectures, sizing, 60
high availability options, 61
performance options, 61
sizing, 59-60
system logs, 254
ABAP stack, 254-255
Java stack, 256
System option, Customizing of Local Layout button, 332
system variants, SAP installation, 218-219
systems, monitoring, 253
CCMS, 256-259
SAP NetWeaver Application Servers (SM51), 253-254
system logs, 254-256
systems integration testing, 152
Systems, Applications, and Products. See SAP

T
t-codes, 294
table controls, screen objects, 313-314
tables, 52-53
transparent tables, 53
tasks
performing
with menu paths, 292-293
with transaction codes, 293-296
starting while creating new sessions, 288-289
tasks performed by executive steering committee, 146
TDMS (Test Data Migration Server), 267
team leaders, Technical Project Teams, 173
team specialists, Technical Project Teams, 174
teams
row leaders, 161-162
rows, 144
Technical Project Team, assembling, 171-174
technical architecture, overview of, 15

Technical Project Team, assembling, 171-172
management, 172
SAP Alliance partners, 173
SAP Consulting, 173
system administrators, 174
team leaders, 173
team specialists, 174

technical roadmap, implementing
backup/recovery considerations, 64
client access strategy, 62-63
network considerations, 63-64
SAN considerations, 64
technical support organization staffing, 64, 66
technical upgrades, 269
technical view, mapping business needs to SAP technologies, 37
technology stacks, 41
TechTarget, 402
Test Data Migration Server (TDMS), 267
testing, 152
phased approach of implementation tools, 187
types of, 167
three-tiered architecture, 15, 17
Time Management, 109
TOGAF (The Open Group Architecture Framework), 207
toolbars
application toolbar, SAP GUI window, 292
standard toolbar, SAP GUI window, 290-292
tools
implementation tools, four-phased approach, 185
programming tools, 181
ABAP, 182
CE (Composition Environment), 183-184
Java, 183
reporting tools, 343
ABAP List Processing (ABAP programming), 344
ABAP Query, 344
Ad Hoc Query, 344
Executive Information System, 344-345
SAP Information System (report trees), 345
Structural Graphics, 344
SAP QuickViewer tool, 372
creating QuickView, 372-374
SAP Reporting tools, 351
assigning InfoSets to query groups, 361
new InfoSets, creating, 357-360
new user groups, creating, 355-357
structure of query reporting tools, 351-355
Trace tab, Customizing of Local Layout button, 334-336
Tradeshow, 329
transaction codes, performing tasks, 293-296
transactions, stopping, 298
transparent tables, 53
Treasury Management module, SAP ERP Financials, 104-105
Tweak SAP GUI, 327-328
upgrades
defined, 266-267
functional upgrades, 269-270
project planning for, 272-273
technical upgrades, 269
usage types, SAP NetWeaver 7.0, 90
clients, 91
standalone engines, 90
user acceptance testing, 152, 167
user authorizations
for ABAP-based application servers, 260
authorization profiles, 260-261
Profile Generator, 262
for Java-based application servers, 262-263
user experience, All-in-One, 83
user groups, creating new, 355-357
user ID, SAP user ID, 284
User Management Engine (UME), 262
user training, 152
utilities, CRM-specific processes, 127

UME (User Management Engine), 262
Unicode, deciding to use, 175-176
unit/functional testing, 152, 167
Upgrade Assistant, 272

How can we make this index more useful? Email us at indexes@samspublishing.com
validation, field entry validation (input fields),

V

validation, field entry validation (input fields), 307
variants, General Report Selection, 348
modifying, 349-350
views, 189
project basics, 24
volume testing, 167

W–Z

The Wall Street Journal, 140
Wayback Machine, 401-402
WBS (Work Breakdown Structures), 118
Web Application Server (WebAS), 14-15, 88, 185
enabling SOA through SAP NetWeaver, 202-203
WebGUI, 325
Windows, WinGUI, 326-327
WinGUI, 24, 326-327
changing visual appearance of, 327
EnjoySAP, 328-329
High Contrast, 329
Streamline, 329
Tradeshow, 329
XP design, 329
wizards
Microsoft Access Import Spreadsheet Wizard, 240
Microsoft Access Report Wizard, 242-244
Work Breakdown Structures (WBS), 118
work processes, operating systems and, 50
Workload Monitor, 258-259
workstream leaders, 145
workstreams, 35
XP, SAP GUI, 329

WebAS (Web Application Server), 14-15, 88, 185
enabling SOA through SAP NetWeaver, 202-203
WebGUI, 325
Windows, WinGUI, 326-327
WinGUI, 24, 326-327
changing visual appearance of, 327
EnjoySAP, 328-329
High Contrast, 329
Streamline, 329
Tradeshow, 329
XP design, 329
wizards
Microsoft Access Import Spreadsheet Wizard, 240
Microsoft Access Report Wizard, 242-244
Work Breakdown Structures (WBS), 118
work processes, operating systems and, 50
Workload Monitor, 258-259
workstream leaders, 145
workstreams, 35
XP, SAP GUI, 329