Chapter 1

The Quest for Portable Computing

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► Looking back at laptop history
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► Deciding whether you need a laptop

Technology is the eternal driving force behind the urge for humans to improve upon their existence. Thousands of years ago, the primitive people of this planet craved barbecue, so they invented fire. Then there was a need for more food, so the organic farmers’ market was born.

Fast-forward thousands of years and you’ll find bespectacled proto-nerds craving to bask their alabaster skin in the sunlight — or at least under a tree in the quad. Using the primitive technology of the wheel (in the form of castors) and an extension cord, they could well have wheeled the hulking computers of the early 1950s outside and improved upon the existence of all mankind by marking the dawn of the portable computing era. But it didn’t happen.

Indeed, it’s been a long road, but the portable computing device you have or are looking toward obtaining didn’t just happen overnight. To help you better understand the concept of a laptop I present this chapter: a brief and informative history of portable computing.

Making It Mobile

Here’s a handy technology tip: To make anything portable, just attach a handle. Presto! It’s portable! Such marketing gimmickry makes a 19-pound television or a 25-pound table saw instantly portable. Wow! I suppose that even a handle on an elephant would make it portable. (Oh, but the legs! Right.)
Part I: Getting Your Very Own Laptop

The ancient portable computer

Long before people marveled over (solar powered) credit-card-size calculators, there existed the world’s first portable, human-powered calculator. Presenting the abacus, the device used for centuries by merchants and goatherds to rapidly perform calculations that would otherwise cause painful headaches.

Abacus comes from the Greek word meaning “to swindle you faster.” Seriously, the abacus, or counting board, is simple to master. Many kids now learn to use the abacus in elementary school. In the deft hands of an expert, an abacus can perform all the same operations as a calculator — including square and cubic roots.

In his short story Into the Comet, science fiction author Arthur C. Clarke wrote of stranded astronauts using multiple abacuses to plot their voyage home when the spaceship’s computer wouldn’t work because the Internet was down and their version of Windows couldn’t be validated.

Real portability implies more than bolting on a handle. It means that the item has three characteristics:

- Light weight
- No power cord
- Practical

Sadly, not all those things happened at once.

The Xerox Dynabook

The desire to take a computer on the road has been around a long, long time. Back around 1970, long before the notion of the personal computer existed,
Xerox PARC developed the Dynabook concept. Today, you’d recognize it as a Tablet PC: The Dynabook was to be the size of a sheet of paper and only one half-inch thick. The top part would be a screen; the bottom would be a keyboard.

The Dynabook never left the lab, remaining only a dream. Yet the desire to take a computer on the road wouldn’t go away. For the next three decades after the Dynabook concept, many attempts were made to create truly portable computers.

**The Osborne 1**

The first successful portable computer was the Osborne 1, created by computer book author and publisher Adam Osborne in 1980. Adam believed that for personal computers to be successful, they would have to be portable.

His design for the Osborne 1 portable computer was ambitious for the time: The thing would have to fit under an airline seat — and this was *years* before anyone would dream of actually using a computer on an airplane.

The Osborne 1 portable computer (see Figure 1-1) was a whopping success. It featured a full-size keyboard, two 5½-inch floppy drives, but a teensy, credit-card-size monitor. It wasn’t battery powered, but it did have a handy carrying handle so that you could lug around the 24-pound beast like an overpacked suitcase. Despite its shortcomings, 10,000 units a month were sold; for $1,795, you got the computer plus free software. Unlike today, it was useful software too.

![Figure 1-1: A late-model Osborne.](image-url)
The loveable luggables

The Osborne was portable, but not conveniently so. Face it: The thing was a suitcase! Imagine hauling the 24-pound Osborne across Chicago’s O’Hare airport. Worse: Imagine the joy expressed by your fellow seatmates as you try to wedge the thing beneath the seat in front of you.

Computer users yearned for portability. They wanted to believe the advertising images of carefree people toting the Osborne around — people with arms of equal length. But no hip marketing term could mask the ungainly nature of the Osborne: Portable? Transportable? Wispy? Nope. Credit some wag in the computer press for dreaming up the term luggable to describe the new and popular category of portable computers.

Never mind its weight. Never mind that most luggable computers never ventured from the desktops they were first set up on — luggables were the best the computer industry could offer in the arena of portable computing.

In the end, it wasn’t the Osborne computer’s weight that doomed it. No, what killed the Osborne was that the world wanted IBM PC compatibility. The Osborne lacked that. Instead, the upstart Texas company Compaq introduced luggability to the IBM world with the Compaq 1, shown in Figure 1-2.
The Compaq 1, introduced in 1983 at $3,590, proved that you could have your IBM compatibility and haul it on the road with you — as long as a power socket was handy and you had good upper-body strength.

Yet the power cord can stretch only so far. It became painfully obvious that for a computer to be truly portable — as Adam Osborne intended — it would have to lose that power cord.

**The Model 100**

The first computer that even remotely looks like a modern laptop, and was fully battery powered, was the Radio Shack Model 100, shown in Figure 1-3. It was an instant, insane success.

The Model 100 wasn’t designed to be IBM PC compatible, which is surprising considering that PC compatibility was all the rage at the time. Instead, it offered users a full-size, full-action keyboard, plus an eensie, 8-row, 40-column LCD display. It came with several built-in programs, including a text editor (word processor), communications program, scheduler, and appointment book, plus the BASIC programming language, which allowed users to create their own programs or buy and use BASIC programs written by others.
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Portability and communications

Long before the Internet came around, one thing that was deemed necessary on all portable computers was the ability to communicate. The laptop computer had two communications duties. First, it had to be able to talk with the desktop computer, to exchange and update files. Second, it needed a modem to be able to communicate electronically over phone lines.

Nearly every portable computer, from the Radio Shack Model 100 onward, had to have a modem, or at least an option for installing one. This was before the Internet era, back when a modem was considered an optional luxury for a desktop computer. On the road, a portable computer required a modem in order to keep in touch with its companion desktop systems.

The Radio Shack Model 100 was really all that was needed for portability at the time, which is why the device was such a resounding success.

- The Model 100 provided the form factor for laptops of the future. It was about the size of a hardback novel. It ran for hours on standard AA batteries. And, it weighed just 6 pounds.

- So popular was the Model 100 among journalists that it was common to hear the hollow sound of typing on its keyboard during presidential news conferences.

- Despite its popularity and versatility, people wanted a version of the Model 100 that would run the same software as the IBM PC. Technology wasn’t ready to shrink the PC’s hardware to Model 100 size in 1983, but the Model 100 set the goal for what users wanted in a laptop’s dimensions.

The lunch buckets

Before the dawn of the first true laptop, some ugly mutations slouched in, along with a few rejects from various mad scientists around the globe. I call them the lunch bucket computers because they assumed the shape, size, and weight of a typical hard-hat’s lunchbox. The Compaq III, shown in Figure 1-4, was typical of this type of portable computer.

- The lunchbox beasts weighed anywhere from 12 to 20 pounds or more, and most weren’t battery powered.

- The lunch bucket portables were the first PCs to use LCD monitors. (The Osborne and Compaq portables used glass CRTs.)
Incidentally, around the same time as the lunch bucket computers became popular, color monitors were becoming standard items for desktop PCs. All portables at the time, even those with LCD monitors, were monochrome.

Honestly, the lunch buckets did offer something over the old transportable or luggables: less weight! A late-model lunch bucket PC weighed in at about 12 pounds, or half the weight and about one-eighth the size of the suitcase-size luggables.

**Early PC laptops**

The computer industry’s dream was to have a portable computer that had all the power of a desktop computer, plus all the features, yet be about the same size and weight as the Model 100. One of the first computers to approach that mark was the Compaq SLT, back in 1988, as shown in Figure 1-5.

The Compaq SLT was the first portable computer that resembles one of today’s laptops: A hinged lid swings up and back from the base, which contains the keyboard. This design is known as the *clamshell*.
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Feature-wise, the SLT had what most PC desktop users wanted in a portable system: a full-size keyboard, full-size screen, floppy drive, and 286 microprocessor, which meant that the computer could run the then-popular DOS operating system. The computer lacked a hard drive.

Weight? Alas, the SLT was a bowling ball, at 14 pounds!

What the Compaq SLT did was prove to the world that portability was possible. A laptop computer was designed to feature everything a desktop computer could, plus run off batteries for an hour or so. Yeah, believe it or not, people were delighted.

The search for weightlessness

Just because the marketing department labeled the computer a “laptop” didn’t mean that it was sleek and lightweight. For a while there, it seemed like anyone could get away with calling a portable PC a laptop, despite the computer’s weight of up to 20 pounds — which is enough to crush any lap, not to mention kneecaps.

In the fall of 1989, NEC showed that it could think outside the laptop box when it introduced the UltraLite laptop, shown in Figure 1-6.
The UltraLite featured a full-size screen and keyboard, but no disk drives or other moving parts! It used battery-backed-up memory to serve as a *silicon disk*. The silicon disk stored 1 or 2MB of data — which was plenty back in those days.

As was required of all laptops, the UltraLite featured a modem, and it could also talk with a desktop computer by using a special cable. Included with the UltraLite was software that would let it easily exchange files and programs with a desktop PC.

The weight? Yes, the UltraLite lived up to its name and weighed in at just under 5 pounds — a feather compared to the obese laptops of the day. And, the battery lasted a whopping two hours, thanks mostly to the UltraLite’s lack of moving parts.

**From laptop to notebook**

The UltraLite marked the line between what was then called a *laptop* to what is now called a *notebook*. Although manufacturers had perverted the term *laptop* to include heavy, bulky portables that were anything but lap-friendly (such as the cannonball-heavy Compaq III), the UltraLite raised the bar and created the notebook category.
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Any laptop that weighs under 6 pounds and is less than an inch thick is technically a notebook. Some even lighter units earned the moniker subnotebook. Keep in mind that all these terms are for marketing purposes; all these computers, regardless of weight, size, or what the brochure says, are now called laptops.

Calculating laptop weight: The missing pieces

When computer companies specify the weights of their laptops, I’m certain that they do it under ideal conditions, possibly on Venus or at some other location where gravity is weak. The advertised weight is, like they say, “for comparison purposes only.”

Commonly left out of the laptop’s weight specs is the power brick, the AC adapter used to connect the laptop to a wall socket. When the laptop isn’t running on batteries, you need the power brick to supply the thing with juice, so the power brick is a required accessory — something you have to tote with you if you plan to take the laptop on an extended trip.

In the old days, what they didn’t tell you in the advertisements was that the power brick often weighed half as much as the laptop itself! Either that, or the power brick was even bulkier than the laptop, as shown in the figure, in the Dell 320LT’s obnoxiously big power brick (and heavy 30-minute batteries). Lugging around such items isn’t convenient. Things are better today.
**The modern notebook**

As technology careened headlong into the 1990s, it became apparent that users were desperate for three things from their laptop computers — in addition to the basic PC compatibility, portability, and communications features that were long ago deemed must-haves —

- **Light weight**
- **Long battery life**
- **Full hardware compatibility with desktop systems**

Over time, all these qualities were achieved — at a price. Today, the holy grail of a lightweight, PC-compatible laptop that boasts a long battery life isn’t elusive; it’s just expensive!

- **Weight:** Depending on how much you want to pay, your laptop can be anywhere from a half-inch thick to just under an inch thick and weigh between 2 to 6 pounds. The weight and size also depend on the features you want in your laptop, with more features adding more weight.

- **Battery life:** Although the batteries themselves haven’t improved much in the past several years, thanks to power-management hardware and software, modern laptops can extend battery life from the once-standard two hours to about three or four hours.

- **Hardware compatibility:** Since the late 1990s, all laptops come with color screens, just like desktop systems do. Most also sport CD-ROM or DVD drives, just like desktops. Laptops feature modems, networking (wired and wireless), and expansion options. Special laptop microprocessors and other types of hardware have been developed over the years, keeping laptop hardware small and energy efficient.

**The tablet computer**

Computer manufacturers have long attempted to create the electronic equivalent of a pencil and pad of paper — a very expensive pencil and pad of paper. Basically, what they’re after is a portable computer with a monitor but no keyboard. Data is input by writing directly on the screen using a digital stylus.

Over the years, this digital triptych has had various names attached to it: the PenGo computer, the Apple Newton, Pen Windows, and eventually the Tablet PC.
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The Tablet PC began life a few years back as its own computer category. The machine was about the same size as a laptop, but it didn’t fold open; the monitor was “face up” all the time. But that model failed miserably. The Tablet PC now exists as a laptop hybrid: The machine can be used like any other laptop, but the display can be pivoted and laid flat over the keyboard, as shown in Figure 1-7. The result is a flexible computer system that is a laptop with Tablet PC features.

![A Tablet PC.](image)

- Even as a hybrid, Tablet PC sales haven’t taken off. Apparently, writing on the screen isn’t a feature that laptop users are eager to have.
- Tablet PCs are discussed throughout this book and specifically in Chapter 7.
- The ancients used something called a *tabulae ceratea* to write temporary messages. Every Greek or Roman schoolboy took with him to class a folding wooden tablet. The insides were coated with a black wax. Using a stylus (basically a stick), the student would write into the wax, again and again. Oh, we’ve truly come such a long way.

**The future of the laptop**

Human laps aren’t getting any smaller. Human eyes can only comfortably read text that’s so big. Most importantly, human fingers have trouble with keyboards that are too tiny. Because of these limitations, the laptop of the future will probably remain about the same size as a laptop of today. (Even though scientists could make the keyboard and screen smaller, the human form wouldn’t appreciate it.)
On the horizon are the UMPCS or Ultra-Mobile PCs, as well as the so-called NetBook computers. Both are smaller types of laptops designed specifically for light computer usage: Internet, e-mail, word processing, and other mundane purposes. I predict a coming price war over these new types of laptops, which may eventually make them the most popular types of PC ever.

In the long run, the laptop won’t completely replace the desktop computer system. The current trend is to use both a laptop and a desktop computer. Smaller portable devices exist, such as the popular BlackBerry or Palm Treo, but the laptop holds its own as a fully functional, truly portable computer.

Technology continues to make laptop hardware smaller, more energy efficient, and better able to handle the portable environment. But one area that needs vast improvement is battery technology.

The battery of the future is the fuel cell, which is like a miniature power plant directly connected to your laptop PC. Fuel cell technology promises power that lasts for weeks instead of hours, which will prove a boon to portable gizmos of every kind — but only when the fuel cell makes sense economically. Although fuel cells are available now, they’re just too expensive and bulky for laptops. Scientists and other people in white lab coats are predicting that the first practical fuel cell will be widely available by the end of the decade. Until then, laptop users will have to slug it out with rechargeable batteries and power packs.

(See Chapter 9 for more information on batteries as well as on other power-management issues.)

Why You Need a Laptop

Obviously, Adam Osborne was right: Computers need to be portable! The question should really be “Why buy a desktop computer that’s stuck in one spot all the time?”

Naturally, a desktop computer is more powerful, expandable, and cheaper than a laptop. But you can’t take it with you! Well, you could, but hauling around all that desktop stuff would make you look like a dork.

On the other hand, it’s impossible to look like a dork with a laptop. Imagine yourself sitting in that trendy coffee shop and sipping some overpriced caffeinated beverage while poring over your e-mail and chatting on a cellphone — that’s hip! That’s so five-minutes-from-now!
Seriously, you want a laptop for one of the following reasons:

✔️ **As your main computer**
  
  Why dither over saving money with a desktop when you really want the portability of a laptop?
  
  A desktop computer cannot pretend to be a laptop, but a laptop can certainly fake being a desktop: You can use a full-size keyboard and monitor with your laptop. You can also connect any number of popular desktop peripherals, such as a printer, a scanner, or an external hard drive. But, unlike with a desktop system, you're free to disconnect the laptop and wander the world whenever you want.

✔️ **As a space-saving computer system**
  
  Unlike with desktops, you don’t have to build a tabletop shrine to your laptop computer — that is, you don’t need a computer desk. If space is tight in your house, apartment, or dorm room, keep the laptop on the shelf or in a drawer. Then set it up on the kitchen table or coffee table whenever you’re ready to work. Forget about the constant mess and clutter that orbit the typical desktop computer station. Viva Adam Osborne!

✔️ **As a second computer**
  
  Why buy a second desktop computer when you can get a laptop and enjoy not only the presence of a second computer but also the ability to make that computer system portable? Furthermore, you can network the two computers, allowing them to share the Internet connection and printers as well as each other’s data and files. And, you still have the luxury of having one system that’s portable.

✔️ **As your on-the-road computer**
  
  Laptops let you take your work on the road. After a few moments of *synch* (transferring current files between your desktop and laptop, covered in Chapter 16), you’re off and running to anywhere you like (although being in direct, bright sunlight can make it difficult to see the laptop screen).
  
  When you return from your “road warrior” trip, you perform another synch, and both computers get all caught up for the day.
  
  • Laptops let you escape the confines of your office and do work anywhere you like for a few hours. Or, if there’s power at your location, you can plug in and work all day.
  
  • The laptop lets you take your work with you when you travel. It lets you experience the reality of using a computer on an airplane (which isn’t as smart as it sounds).
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Why You Don’t Need a Laptop

Laptops aren’t cheap. They’re also expensive to fix. Forget about upgrading the hardware. They can easily get stolen. The battery life never lives up to the printed specifications. It’s tough to get work done on a jet or in a café because people either look over your shoulder or ask you questions about the laptop. Ack! But those are minor quibbles.

Thanks to their light weight, long battery life, and increasing computing power, laptops make ideal computers for just about anyone. If you don’t own a laptop now, you will someday.

Taking that laptop off to school

It was hard to deny being a computer nerd back in the old days. At school, you would see these guys, not known for their muscle, struggling to tote several pounds of serious PC equipment up the hard concrete stairwell to their dorm rooms. Today, everyone uses a laptop at school. No one considers it geeky, any more than an iPod is considered geeky. In fact, it’s practically an insult if your college-bound high school senior doesn’t get a laptop as a graduation present. Some parents . . .

Laptops allow students to take full-powered computers with them anywhere on campus. Students can get work done in a dorm just as easily as they can in the library, under a tree, or anywhere else that their feet can take them (or anywhere that they can find a power outlet to mooch from). Laptops were meant for college.

Most colleges and universities state their laptop requirements either in the registration or orientation packet or online. That information tells you which type of hardware you should look for when purchasing a laptop to use at that school. But it doesn’t happen often enough.

Laptops at college are subject to two of the nastiest assaults on computer users: various ugly programs that can infiltrate a PC over the Internet and theft. See Chapter 14 for vital information regarding online security, and Chapter 18 for preventing theft. That stuff is required reading for parents and their children who are taking laptop computers to school.