*power by design,*
power for design

The Be Operating System

Preview Release for PowerPC

As the Internet expands, and as electronic media becomes more prevalent, the high-performance needs of digital content design and the complex, aging architectures of current mainstream operating systems are coming into conflict. The BeOS is the first new operating system designed to unlock the door to much more powerful personal computers, and extract more performance from the systems we use today.
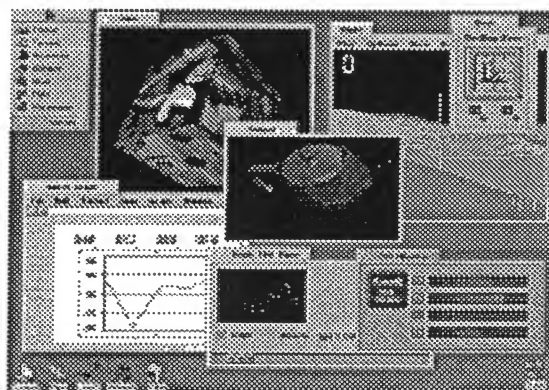
The BeOS is based on a concept called the *Media OS*. It's not enough to add a few features and call an operating system a Media OS, an operating system needs to be architected to deal natively with digital media. The engineering team at Be didn't start with an existing OS and transform it, they started with the Media OS concept and optimized every portion of a new OS for handling digital media. The BeOS is designed to be the first, true, Media OS. And with the Preview Release, it's here today.

High-Performance

The power of microprocessors continues to advance, but the needs of digital content creators and the applications they use, have outstripped even the speed provided by the latest processors. A media oriented operating system can't rely simply on a single processor to handle the load.

The BeOS is designed for today's new generation of high-performance processors, and is optimized for the multiprocessor, media-based systems now emerging. Able to take full advantage of two, four, or more processors, the BeOS is based on a **symmetric multiprocessing** architecture which speeds operations, improves efficiency, and provides the foundation for a high-performance system.

But the BeOS takes multiprocessing a step further by employing **pervasive multithreading** throughout its design,. Multithreading takes large tasks, such as applications, and breaks them down into a myriad of smaller tasks. Pervasive multitasking means that this approach is used throughout, from the kernel, through the graphics and I/O systems, and through BeOS applications. Pervasive multitasking allows the BeOS to rapidly switch between dozens, often hundreds, of smaller tasks quickly. These tasks can be deployed on a single processor, providing a smooth multitasking environment, or across any number of processors in a multiprocessor system.

The BeOS provides a wealth of integrated Internet services. Any BeOS system can act as a **file server** on the network, using the FTP protocols, allowing you to share files with any other computer on the net. **Mail and worldwide web client services** are built-in, as well as **web server capabilities**, allowing you to publish web pages on the network from day one. And the BeOS even provides Telnet server capabilities, allowing you to **access your system remotely** from anyplace on the Internet.


Take an on-line tour of the BeOS Preview Release
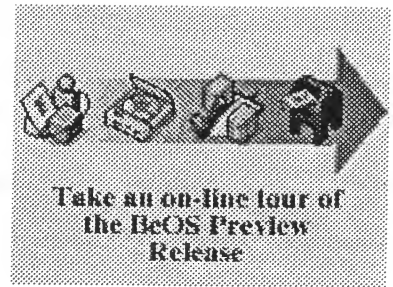
And like its graphics and I/O capabilities, the BeOS networking system is fully modular, allowing you to add new high-speed network capabilities, and new network protocols and services, as they are developed.

Works with Your Current System

Most operating systems demand that you give up your current system and applications when you decide to switch. Not the BeOS. A wide array of **PowerPC systems**, including **PowerMacintosh compatible systems** from PowerComputing, Motorola, Apple Computer and others, are capable of taking advantage of the BeOS. Many new PowerPC systems will even come bundled with the BeOS
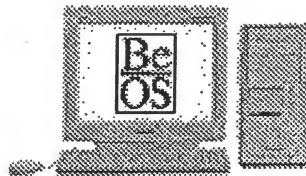
Check out the BeOS Ready pages for a complete rundown on BeOS capable systems

The BeOS can **run side-by-side with the MacOS system.** You can load both operating systems on your PowerPC system, and switch between them to access high-performance applications within the BeOS, and your existing applications from the MacOS.

And the BeOS goes further, allowing you to work with your MacOS disk drives and files from within the BeOS, while retaining the capability of moving data back and forth between the systems - and back and forth with your colleagues. Through the Internet you can exchange even more information with other users on MacOS, Windows, and UNIX based systems. You can even print to any AppleTalk-based laser printers you might have on your Ethernet network.

BeOS: Creating the First, True Media OS

All of this only scratches the surface of the features you'll find in the BeOS. You'll also find the **Tracker** - the core user interface of the BeOS - which gives you access to the power of the Be file system as well as access to your MacOS disks. You'll find **Unicode** support for international-ready applications. You'll find Be's **Replicator** technology, which allows applications to merge parts of themselves into documents and other applications. For the more tecnialy oriented, you'll find support for **Unix/Posix capabilities** and a fully functional bash shell. And more.

The BeOS is designed to be the first true Media OS. But the Media OS is a goal and a philosophy, the definition of a system that will keep evolving over time as we learn more about software and hardware design. There are always new applications and new levels of performance. Inherent in the BeOS, is the ability to advance the operating system in a modular, dynamic manner - even across the Internet. So as the needs of digital content design changes and evolves, so will the BeOS.

If you'd like to learn more about the BeOS, and the reality of a true Media OS, take a look at the details of the BeOS at Be's web site at http://www.be.com/products/

More information on the BeOS:

Pervasive multitasking is as fundamental a shift to software design as the introduction of the graphic user interface was in the early 1980s. No other current operating system implements pervasive multithreading throughout the system as the BeOS has, providing the highest possible performance for media-based applications.

Media Optimized

The BeOS doesn't stop with symmetric multiprocessing and pervasive multithreading. A media-optimized system must deal with very large data files, provide high performance graphics, and support high-efficiency, modular I/O capabilities. In each of these areas, the BeOS is more than up to the task.

The BeOS employs a native, **64-bit file system**, allowing extremely large volumes and files, of terabyte size and more, enough to handle even raw uncompressed, high-resolution video and audio - the foundation for high-quality editing systems. The Be file system goes even further, providing **database capabilities** allowing the storage of multiple attributes and indexes along with files. And the Be file system is a **journaling file system**, providing added levels of protection against corrupted files and reducing start-up time.

Check out the MediaOS technical white paper for more on the Media OS concept
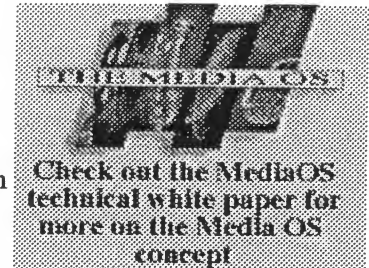
The BeOS provides a fully **multithreaded graphics system**, providing fast 2D and 3D graphics. Anti-aliased type is standard throughout the system. 3D capabilities are provided through the highly interactive 3D Kit, or using the integrated industry-standard **OpenGL** graphics library. And BeOS graphics capabilities are modular, allowing new hardware and software capabilities to be added by software developers.

The modular approach to graphics within the BeOS is also reflected in its I/O system. The BeOS provides a **modular, dynamic, multithreaded I/O system**, allowing drivers for new devices such as DVD drives to be dynamically loaded and unloaded, and allowing for on-the-fly reconfiguration.

Modern OS Features

The capabilities described above go beyond what you'll find in most mainstream operating systems today. Of course, the BeOS includes all of the buzzwords you'll find in articles about "modern" operating systems. The BeOS provides full **preemptive multitasking**, necessary for a multiprocessing and multithreading. **Virtual memory** capabilities are a standard part of the system, and are fully integrated with the multithreading capabilities to provide smooth application switching. And the design of the BeOS, from the lowest level through applications, uses **object-oriented** programming concepts.
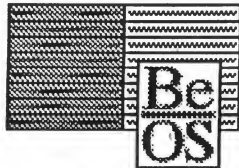
For technical specifications of the BeOS, click here

To prevent you and your applications from sliding from the cutting-edge to the bleeding-edge of software, the BeOS provides applications with **full memory protection** - meaning that if one application crashes, other applications and the rest of the system are protected. The BeOS goes a step further by using a **client-server based internal architecture**, providing even further protection for applications.

Internet Native

The BeOS is designed as an Internet-native system. At its foundation, the BeOS uses the TCP/IP networking protocols, the basic protocols of the Internet.

- Technical white paper on the Media OS concept
- Technical specifications for the BeOS
- Take a tour of the BeOS
- Find out what systems are capable of running the BeOS
- Find out how to get the BeOS

All specifications subject to change without notice.