

## Traditional Computing

The evolution of traditional computing has seen a significant transformation from its origins with limited resources and batch processing to the dynamic systems of today. Traditional office environments, anchored by PCs linked to networks, have shifted due to advanced web technologies and expanded network bandwidth. Companies now utilize web portals for seamless internal server accessibility, incorporating network computers in scenarios prioritizing enhanced security and simplified maintenance. The synchronization between mobile devices and PCs has redefined portability, allowing efficient access to company information via wireless and cellular networks.

Simultaneously, home computing has evolved from single computers connected to slow modems to high-speed network connections. Home computers now serve as active contributors, hosting web pages, managing networks, and implementing robust security measures through integrated firewalls. The integration of fast data connections has expanded access to information, empowering home users to navigate a myriad of online resources with unprecedented ease. The widespread adoption of sophisticated scheduling techniques and the standardization of multitasking across various devices illustrate the adaptability of traditional computing, meeting the evolving needs of users in the contemporary technological landscape.

## Cloud Computing

Cloud computing revolutionizes the way computing services are delivered by offering computing power, storage, and applications as on-demand services over a network. Rooted in virtualization, cloud computing leverages technologies like the Amazon Elastic Compute Cloud (EC2), boasting an extensive infrastructure with thousands of servers, virtual machines, and massive storage accessible to users over the Internet. Users are billed based on their monthly utilization of these resources, exemplified by various cloud computing models such as public clouds (accessible to paying users on the Internet), private clouds (operated exclusively by a company), and hybrid clouds (combining both public and private components).

Moreover, cloud computing introduces service-oriented models, including Software as a Service (SaaS) for applications, Platform as a Service (PaaS) for ready-to-use software

stacks, and Infrastructure as a Service (IaaS) for servers or storage. The integration of traditional operating systems, virtual machine monitors (VMMs), and cloud management tools like VMware vCloud Director underscores the complexity of these environments. In essence, cloud computing represents a transformative shift in the provisioning of computing resources, enabling flexible, scalable, and cost-effective solutions for businesses and individuals alike.

## **Mobile Computing**

Mobile computing has transformed the way we interact with digital technology, referring to the use of portable devices such as smartphones and tablets. Initially, these devices traded off certain features like screen size and memory capacity for the convenience of on-the-go access to services like email and web browsing. However, advancements in technology have rendered contemporary mobile devices as powerful counterparts to traditional computers, challenging the distinctions between consumer laptops and tablets. Mobile systems now encompass a wide range of functionalities, including multimedia consumption, digital content creation, and high-definition video recording and editing.

Key to the versatility of mobile computing are unique features like GPS chips, accelerometers, and gyroscopes. GPS chips enable precise location determination, proving valuable in navigation applications that guide users and provide information about nearby services. Accelerometers detect device orientation and movements, leading to innovative interfaces in games and applications, such as augmented reality. Mobile devices primarily access online services through wireless standards like IEEE 802.11 or cellular data networks. Despite their compact design and on-the-go convenience, mobile devices face limitations in terms of memory capacity and processing speed when compared to traditional PCs. Dominated by operating systems like Apple's iOS and Google's Android, mobile computing has become an integral part of our daily lives, offering a seamless blend of functionality and portability.