

Influential Operating Systems



Now that you understand the fundamental concepts of operating systems (CPU scheduling, memory management, processes, and so on), we are in a position to examine how these concepts have been applied in several older and highly influential operating systems. Some of them (such as the XDS-940 and the THE system) were one-of-a-kind systems; others (such as OS/360) are widely used. The order of presentation highlights the similarities and differences of the systems; it is not strictly chronological or ordered by importance. The serious student of operating systems should be familiar with all these systems.

As we describe early systems, we include references to further reading. The papers, written by the designers of the systems, are important both for their technical content and for their style and flavor.

Bibliographical Notes

Description of looms and calculators are described in [Frah (2001)] and shown graphically in [Frauenfelder (2005)].

The Manchester Mark 1 is described by [Rojas and Hashagen (2000)] and its offspring, the Ferranti Mark 1, is described by [Ceruzzi (1998)].

The Atlas operating system is described by [Kilburn et al. (1961)] and [Howarth et al. (1961)].

The XDS-940 operating system is described by [Lichtenberger and Pirtle (1965)].

The THE operating system is described by [Dijkstra (1968)] and by [McKeag and Wilson (1976)].

The Venus system is described by [Liskov (1972)].

The RC 4000 system is described by [Brinch-Hansen (1970)] and [Brinch-Hansen (1973)].

The Compatible Time-Sharing System (CTSS) is described by [Corbato et al. (1962)].

The MULTICS operating system is described by [Corbato and Vyssotsky (1965)] and [Organick (1972)].

TSS/360 is described by [Lett and Konigsford (1968)].

CP/67 is described by [Meyer and Seawright (1970)] and [Parmelee et al. (1972)].

DEC VMS is described by [Kenah et al. (1988)]. TENEX is described by [Bobrow et al. (1972)].

The Apple Macintosh is described by [Apple (1987)]. For more information on these operating systems and their history, see [Freiberger and Swaine (2000)].

The Mach operating system and its ancestor—the Accent operating—is described by [Rashid and Robertson (1981)]. Mach’s communication system are described by [Rashid (1986)], [Tevanian et al. (1989)], and [Accetta et al. (1986)]. The Mach scheduler was described in detail by [Tevanian et al. (1987a)] and [Black (1990)]. An early version of the Mach shared-memory and memory-mapping system was presented by [Tevanian et al. (1987b)].

The MCP operating system for the Burroughs computer family is described by [McKeag and Wilson (1976)]. The SCOPE operating system for the CDC 6600 is described by [McKeag and Wilson (1976)].

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