

The Rise of Real-time Linux

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New real-time Linux enhancements open a whole new world of possibilities for Linux, ranging across the latest 3G technologies and as near as the mobile handset in your pocket. The purpose of modifying the Linux kernel with real-time functionality: to dramatically reduce interrupt and task preemption latency, thus enabling the 2.6 kernel for use in high-performance multimedia applications and those requiring extremely fast, task level reliable control functions. Real-time Linux has come a long way - where is it now and where is it heading?

Linux has survived many stages of its evolution as a disruptive technology. Today, it is alive, dynamic, and thriving on broad acceptance in a vast, rapidly growing array of application domains.

Reactions to the emergence of Linux have ranged widely, from scepticism to outright hostility. Linux has proliferated within the open source community, and risen over time to become a standard by which many of its predecessors are now measured.

Linux represents a well-tested, and reliable, open operating environment, which can be leveraged to rapidly create technology ranging from simple, battery-powered gadgets to complex, autonomous, AI-integrated motion control systems, like humanoid robots.

Supply-and-demand economics today validates Linux as the operating system of choice for developers and integrators combined. Developers seek operating systems that allow customisation, provide high reliability, and support application longevity by design. Linux is continuing to meet and exceed these requirements in a growing multitude of applications.

The Rise of Linux

Before Linux became generally accepted as a full-fledged operating system, other factors contributed to its evolution. Open source collaboration is the root of Linux's versatility, reliability and performance. The latter two are the easily quantifiable metrics that ultimately led to Linux's proliferation throughout the technology industry.

Many original Linux installations were Windows PCs, retired for newer, faster models. But the retired CPUs were useful running Linux, due to the efficiency and reliability of the fledgling Linux OS. Linux offered advanced networking capabilities and the applications to use them, long before Windows even supported TCP/IP networking. Linux outperformed the formerly inhabitant Windows OS in uptime and it became the ideal teaching and learning platform.

A majority of the basic design decisions that governed Linux development have favoured fairness, progress and

resource sharing. This trinity of design characteristics ensured that even heavily overloaded systems continued to make progress and did not drop network connections or starve applications.

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