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Peer Review

Review of: "Agent Centric Operating System – A Comprehensive Review and Outlook for Operating System"

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The paper provides a comprehensive analysis of operating systems (OS), tracing their evolution, current status, and future trajectories. It effectively establishes the OS as a critical foundation of modern computing.

It presents an organized review of operating system categories, including embedded, desktop, mobile, and server platforms. The paper highlights the unique functionalities and applications of each, showcasing their adaptability to different technological demands.

The introduction of the Agent-Centric Operating System (ACOS) as a novel architectural paradigm is a key contribution. ACOS emphasizes modularity, adaptability, and cross-platform compatibility, aiming to enhance OS efficiency and scalability.

The paper examines advancements in real-time processing, distributed computing, and AI integration. It effectively demonstrates how these innovations influence the operational and design frameworks of modern operating systems.

Historical Context and Insights:
The inclusion of chronological timelines and tables provides a well-structured historical perspective on the progression of OS across various computing eras, aiding in understanding their evolution.

It identifies critical challenges in current OS, such as managing heterogeneous resources, optimizing energy efficiency, and achieving robust load balancing. Proposed AI and ML-driven solutions are well-articulated, showcasing potential enhancements in these areas.

The paper discusses the growing relevance of IoT, cloud computing, and AI, underlining their role in reshaping OS design and implementation. The integration of these technologies is presented as a core

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focus for future systems.

Detailed discussions on ML-based optimisations in scheduling, memory management, and I/O operations highlight the paper's focus on innovative methodologies. These techniques offer promising avenues for enhancing system performance and reliability.

The conclusion synthesises insights into the current OS landscape while proposing future research directions. The emphasis on intelligent, flexible, and scalable architectures like ACOS aligns with the technological advancements discussed.

The paper is well-structured, with clear objectives and a logical progression of ideas. Its focus on both existing technologies and speculative innovations positions it as a significant contribution to the field of OS research.

Declarations

Potential competing interests: No potential competing interests to declare.