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Introduction and Overview of the Omnics System **draft-romosan-omnics-intro-00**

Abstract

The transcendence of the user-operator dichotomy through interactive computing greatly empowered the programmers of early time-sharing systems and subsequent operating systems. Earth is examined in the light of history as the largest known time-sharing system in operation, and Omnics, a synergistic planet operating system, is proposed.

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[1.](#) Introduction

Fifty years ago today, in a time of scarce computing resources, the Multics (Multiplexed Information and Computing Service) system was presented in a series of influential papers.[\[CORBATO\]](#) It pioneered a suite of innovative features to facilitate resource sharing between multiple users and programs, and inspired generations of developers and operating systems. As computer technology reached the critical point where computers became personal, operating systems changed, and some of the features were forgotten and discarded, while others forgotten and kept.

Now is the time of another turning point. With the growth of the Internet and the Web, computing cannot be considered strictly personal any longer. A different set of needs emerges, and a system for planetary computing becomes a priority.

[2.](#) System Requirements

The Internet has made possible what visionary humanists of the past could only hope for. Possible, but not actual. Regarding Earth as a limited cybernetic system, it appears overrun by disregarding users with conflicting programs. Physical and informational resources are allocated on brute force or chance, the programs of the few constrain those of the many, and most damage the system to the detriment of all. The planet is being operated without a proper operating system.

Omnics is an attempt at one and functions as an intermediate layer between low-level resources and high-level applications. By

definition, its creation requires widespread adoption, and for this reason it is to be built on existing operating systems, interpreted languages and application protocols, offering maximum compatibility and minimum difficulty.

3. The Omnics System

The roles of Multics and Omnics are similar, but at different levels. Omnics must orchestrate dissonances harmoniously in the real world, but not through the application, whether believed to be objective or not, of a particular economic theory or political ideology. It should be remembered that never in human history has an ideology proven itself final, complete, or sustainable by force. Therefore, Omnics must start with the least assumptions that could possibly work and evolve alongside its users and their conceptions. Open-endedness is the only presupposition.

4. Design Features of the Hardware

Many technological hurdles which had to be overcome by Multics are no longer an issue, but, as is often the case, the power of technology has surpassed the power of self-control. Brain-computer interfaces have been developed since the seventies, and may critically reduce communication latency one day, but as long as human comprehension lags behind, Omnics has to be designed against miscontrol.

Because a lot of the early computer research was military-funded, concerns for the resilience and reliability of computer systems were primary. Distributed operating systems predate Multics, and their qualities, as well as other network effects, can benefit Omnics through the adoption of the Internet as its framework.

5. Design Features of the Software

A key aspect of operating systems in general, and distributed ones in particular, is inter-process communication. Omnics seeks to elevate this exchange to the level of dialogue[BOHM] as the essential mode of operation, collapsing unidirectional relationships between programmer and user, writer and reader, governor and governed.

The Web has made conversation possible on an unprecedented scale, but as a hypertext system it is not without flaws. Omnics can build upon it in a symbiotic partnership, but not if it functions as contemporary web operating systems, that is to say browser-based desktops maintaining monological assumptions. A truly global operating system is not the transference of personal computer operating systems onto the web, but their transcendence.

The limits of the system are the affordances of its application interface and user interface. Because certain interactions strengthen corresponding behaviors, Omnics must never be thought of purely as an information space. Implicit functions give tacit consent to what may be in conflict with explicit expressions. A correspondence between the two is needed.

6. Design Considerations in the File System

Hierarchical file systems, as we know them today, began with Multics. Whereas it recognized the importance of non-hierarchical links across the tree structure, subsequent operating systems have neglected them. That a task as basic as organizing one's digital photos based on multiple criteria of time, place and people is not easily achievable shows a fundamental flaw of modern information architecture. The topology of the world's information is not hierarchical but networked.

Files, as monolithic blackboxes resisting referencing, recombination, reconceptualization and recontextualization, and folders, as partitions cutting sharply across fuzzy boundaries, reduce understanding and creativity, especially in conjunction with proprietary formats and encodings. The file-folder dichotomy can be transcended through a hyperfile[NELSON] system containing and being directed by hyperdata.

7. Design Considerations in the Communication and Input/Output Equipment

Computing as public utility has been a central concern of Multics from its earliest beginnings. The more recent proliferation of accessible devices has renewed interest in what is now called cloud computing, but its benefits have not been substantial. A computing utility limited to data storing and processing is limited in value if it doesn't assist its users in deriving meaning from the data. Additionally, the privatization of computing in centralized clusters consolidates traditional power structures and commercializes personal information. Decentralization is the defence against control.

8. Security Considerations

Though the subversion of the system by malicious users is made harder by its architecture, even local disturbances are rough problems, and they require elegant solutions. Spamming, sock-puppetting and ballot stuffing are legitimate concerns, but surveillance and invasion of privacy are illegitimate measures. The nature of the solution should be analogous to that of the problem, so that programmatic exploits

are handled algorithmically, and individual abuses personally, but not suppressively.

9. General Considerations

Omnics is not set in silicon. This document constitutes a small step in the creation of a large system whose difficulty lies not the implementation but the elegance and acceptance of its principles. As a first draft, the writing is intentionally non-committal, and the obscurity is an impetus for its development along lines of clarity rather than totality.

10. Conclusion

Ultimately, Omnics is about self-knowledge, mutual understanding and common good. It requires the good will of good people, to set the standard and the tone of the developments and discussions that have to follow.

11. Informative References

- [CORBATO] Corbato, F. and V. Vyssotsky, "Introduction and Overview of the Multics System", November 1965.
- [NELSON] Nelson, T., "A File Structure for the Complex, the Changing and the Indeterminate", August 1965.
- [BOHM] Bohm, D., Factor, D., and P. Garrett, "Dialogue: A Proposal", 1991.

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