Towards Trustworthy Systems

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We believe that this is highly unsatisfactory, and have embarked on a research program aimed at bringing reality in line with expectations. In this talk describes NICTA’s research agenda for achieving true trustworthiness in systems. The approach is based on establishing the trustworthiness of the lowest level of software, a small microkernel or hypervisor, and then using this platform to provide guarantees to complete systems built on top. A number of important steps in this direction have been achieved, specifically the formal proof of functional correctness of a complete OS microkernel, and subsequently the establishment of further properties, including timeliness and integrity enforcement. Work is progressing on making dependability guarantees for complete real-world systems, comprising millions of lines of code.

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Abstract
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