

# PPSELF HEALING SYSTEMS – A FUNDAMENTAL REVIEW

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## ABSTRACT

The main obstacle to further progress in Information Technology (IT) industry is software complexity. An important area of focus in complex systems development is the capability to adapt to various runtime environmental resources and to accommodate runtime system failures. The worries of software engineers were not restricted with the potential failures of individual components, but with the failure of the whole system; not only from the perspective on how to put several components together, but also on the process to achieve this. The research in this area is broadly termed as ‘Self-healing’ and has recently aroused increasing attention to complex systems. Self-healing systems become important because they offer systems’ adaptability, dependability, survivability and flexibility. We summarized the literature and self-healing research issues in distributed systems, middlewares and embedded systems. We also discussed only two of many approaches applied for self-healing solutions (i.e. architectural-based and bio-inspired). Suggestions for further research are listed at the end of the paper.

**Keywords** : Self-healing, self-adaptive, fault tolerance, survivable systems, autonomous systems