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Developing Fault Tolerance Metrics of Web and Mobile Applications

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Abstract : Applications with higher fault tolerance index are considered more reliable and trustworthy to drive quality. In recent years application development has been shifted from traditional desktop and web to native and hybrid application(s) for the web and mobile platforms. With the emergence of Internet of things IOTs, cloud and big data trends, the need for measuring Fault Tolerance for these complex nature applications has increased to evaluate their performance. There is a phenomenal gap between fault tolerance metrics development and measurement. Classic quality metric models focused on metrics for traditional systems ignoring the essence of today's applications software, hardware & deployment characteristics. In this paper, we have proposed simple metrics to measure fault tolerance considering general requirements for Web and Mobile Applications. We have aligned factors – subfactors, using GQM for metrics development considering the nature of mobile we apps. Systematic Mathematical formulation is done to measure metrics quantitatively. Three web mobile applications are selected to measure Fault Tolerance factors using formulated metrics. Applications are then analysed on the basis of results from observations in a controlled environment on different mobile devices. Quantitative results are presented depicting Fault tolerance in respective applications.

Keywords : web and mobile applications, reliability, fault tolerance metric, quality metrics, GQM based metrics
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