[Keynote Talk]: Software Reliability Assessment and Fault Tolerance: Issues and Challenges

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Abstract : Although, there are several software reliability models existing today there does not exist any versatile model even today which can be used for the reliability assessment of software. Complex software has a large number of states (unlike the hardware) so it becomes practically difficult to completely test the software. Irrespective of the amount of testing one does, sometimes it becomes extremely difficult to assure that the final software product is fault free. The Black Box Software Reliability models are found be quite uncertain for the reliability assessment of various systems. As mission critical applications need to be highly reliable and since it is not always possible to ensure the development of highly reliable system. Hence, in order to achieve fault-free operation of software one develops some mechanism to handle faults remaining in the system even after the development. Although, several such techniques are currently in use to achieve fault tolerance, yet these mechanisms may not always be very suitable for various systems. Hence, this discussion is focused on analyzing the issues and challenges faced with the existing techniques for reliability assessment and fault tolerance of various software systems.
Keywords : black box, fault tolerance, failure, software reliability
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