SEMINAR: "PREDICTABLE CLOUD COMPUTING: CAPACITY SHORTAGES MADE AFFORDABLE"

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Abstract: Executing software in a cloud environment has numerous advantages, the main one probably being the opportunity to buy and use a set of dedicated resources, as close as possible to the software execution needs. With cloud computing, a sudden raise in the application popularity does not imply failures and crashes but is compensated by the acquisition of additional execution capacity from a remote provider. However, provisioning computing capacity for a time sensitive cloud application is challenging, because content popularity is difficult to predict. This talk presents brownout, a paradigm to deal with capacity shortages, that does not require accurate predictions of content popularity and is able to achieve multiple purposes. A brownout-compliant cloud application is able to dynamically adjust the computational load it imposes on the cloud infrastructure. Brownout is a formally verified control-theoretical approach, which ensures that requests will meet their deadlines and be computed within a specific given time. The talk presents improvements in the predictability of the application behavior despite (a) user variations, (b) resource shortages, and (c) faults

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