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(57) Abstract :

In light of the growing cloud-leveraged ICT convergence trend, cloud-native computing is quickly becoming the de facto paradigm, together with MSA(Microservices Architecture)-based service composition for agility and efficiency. In addition, many new cloud-based software programmes are rapidly developing as a result of the interconnection between the IoT and the cloud. IoT-Cloud services, for instance, which are cloud-leveraged inter-connected services with distributed IoT devices, make dynamic use of geographically-distributed multiple clouds because mobile IoT devices can selectively connect to the near-by cloud resources for low-latency and high-throughput connectivity. Contrarily, most public cloud providers may lead to vendor lock-in issues, which in turn restricts the interoperability of service compositions. Therefore, this document proposes a new overlay approach, called Dynamic OverCloud, to address the aforementioned limitations. Dynamic OverCloud is a specially-arranged razor-thin overlay layer that provides users with an inter-operable and visibility-supported environment for MSA-based IoT-Cloud service composition over the existing multiple clouds. We then create a software framework to construct the offered idea in a live environment. We also provide a comprehensive account of how the software architecture with workflows was really implemented. Finally, we prove its viability by implementing the proposed operating lifecycle for a smart energy IoT-Cloud service.

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