

**CHENNAI – PONDICHERRY**

**Converged Network–Cloud Service Composition with End-to-End Performance Guarantee**

**Abstract:**

The crucial role of networking in Cloud computing calls for federated management of both computing and networking resources for end-to-end service provisioning. Application of the Service-Oriented Architecture (SOA) in both Cloud computing and networking enables a convergence of network and Cloud service provisioning. One of the key challenges to high performance converged network–Cloud service provisioning lies in composition of network and Cloud services with end-to-end performance guarantee. In this paper, we propose a QoS-aware service composition approach to tackling this challenging issue. We first present a system model for network–Cloud service composition and formulate the service composition problem as a variant of Multi-Constrained Optimal Path (MCOP) problem. We then propose an approximation algorithm to solve the problem and give theoretical analysis on properties of the algorithm to show its effectiveness and efficiency for QoS-aware network-Cloud service composition. Performance of the proposed algorithm is evaluated through extensive experiments and the obtained results indicate that the proposed method achieves better performance in service composition than the best current MCOP approaches.

**Existing System:**

Cloud provider via networks (most often the Internet). Services received by end users consist of not only computing functions provided by Cloud infrastructure but also communication functions offered by networks. Recent research results have indicated that networking performance has a significant impact on Cloud service quality. The end-to-end performance evaluation between network and Cloud systems conducted in showed that networks may form a bottleneck that limits Cloud service performance. In addition research reported in found that networking system is an important element for improving Cloud service reliability.

**Proposed System:**

High-performance Cloud computing requires predictability in networking performance, coordination of both computing and networking resources, and application-driven network control and management. However, traditional networks are designed specifically to support a narrow range of precisely defined communication services, which are implemented on fairly rigid infrastructure with minimal capabilities for ad hoc reconfiguration. Recent advances in networking technologies, especially network irtualization, Software Defined Network (SDN), and application of the Service-Oriented Architecture (SOA) in networking, has significantly enhanced network control and management for supporting Cloud service provisioning.