

Service Oriented Internet [★]

Jaideep Chandrashekar¹, Zhi-Li Zhang¹, Zhenhai Duan¹, and Y. Thomas Hou²

¹ University of Minnesota, Minneapolis, MN 55455, USA,
{jaideepc, zhzhang, duan}@cs.umn.edu

² Virginia Tech, Blacksburg, VA 24061, USA,
thou@vt.edu

Abstract. Effective service delivery capabilities are critical to the transformation of the Internet into a viable commercial infrastructure. At the present time, the architecture of the Internet is inadequately equipped to provide these capabilities. Traditionally, overlay networks have been proposed as a means of providing rich functionality at the upper layers. However, they suffer from their own drawbacks and do not constitute a perfect solution. In this paper, we propose a novel, overlay based *Service Oriented Internet* architecture that is meant to serve as a *flexible, unifying and scalable* platform for delivering services over the Internet. As part of this architecture, we introduce a new two-level addressing scheme and an associated *service layer*. We also describe the functionality of the new network elements that are introduced, namely *service gateway* and *service point-of-presence*, and subsequently discuss algorithms that are responsible for distributing *service reachability* across the overlay framework. We also present a few examples of application services that benefit significantly when deployed on our architecture.