

TRINITY COLLEGE DUBLIN

# *Abstract*

Computer Science Department

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Integrated Masters In Computer Science

## **End-to-end Capacity Reservation in Software Defined Networks**

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Software Defined Networking (SDN) is an emerging paradigm in computer networking that enhances network programmability by providing an interface to the control plane of networking devices. Bandwidth is the lifeblood of the Internet and as a result Bandwidth on Demand (BoD) is becoming an increasingly important requirement for service providers with the continuous growth of Internet traffic levels. The aim of this dissertation is to provide an insight into the field of Software Defined Networking. It's contribution to the field is an examination of capacity reservation in SDN and what open source SDN controllers can offer networking operators in implementing BoD. Through describing the steps necessary to implement a bandwidth reservation system using Ryu, an open source SDN controller, this dissertation highlights that open source SDN controllers provide sufficient functionality to carry out capacity reservation. Although lacking functionality in certain areas, the results gathered indicate that open source SDN controller solutions can compete with their proprietary equivalents.