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# Private Multi-Cloud Architectural Solutions for NRDC Data Streaming Services

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science
in Computer Science and Engineering.

by

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## Abstract:

Cloud computing has experienced huge growth in both commercial and research applications in recent years. In order to maximize computing efficiency, virtual machines are collocated on the same processors. In this research, OpenStack is studied as a potential platform to migrate the aging Nevada Research Data Center infrastructure that is built on Microsoft Server 2012. This data center hosts virtual machines that ingest data from remote towers and makes the data available to environmental researchers through a web portal. Comparisons are made between OpenStack and Windows Server. Performance comparisons were done on instance launching and deletion for the OpenStack test cluster to study the effects of the control interface used and virtual resource allocation. Due to hardware failures, a parsimonious solution had to be implemented and this infrastructure is described as well.

## 4:00 pm, Thursday, Decemebr 17, 2020

https://unr.zoom.us/j/87336143466

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