



Cairo University

NOVEL FAT TREE TOPOLOGIES AND ROUTING SCHEMES FOR DATA CENTER NETWORKS

By

MennaTallah Adel Ahmed Mazen Hussein

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
ELECTRONICS AND COMMUNICATIONS ENGINEERING

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Under the Supervision of

Prof. Dr.
Mohamed Hazim Tawfik

Prof. Dr.
Tamer Elbatt

.....
Professor of Wireless Communications
Communications and Electronics
Department, Faculty of Engineering,
Cairo University

.....
Associate Professor
Communications and Electronics
Department, Faculty of Engineering,
Cairo University

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Approved by the Examining Committee:

Prof. Dr. **Mohamed Hazim Tawfik**, Thesis Main Advisor

.....

Prof. Dr. **Tamer Elbatt**, Thesis Advisor

.....

Prof. Dr. **Magdi El-Soudani**, Internal Examiner, Professor of
Communications

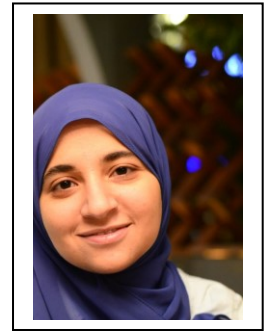
.....

Dr. **Fadel Digham**, External Examiner, Executive Director of R&D,
National Telecom Regulatory Authority (NTRA)

.....

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
2017

Engineer's Name: MennaTallah Adel Ahmed Mazen Hussein
Date of Birth: 15/08/1989
Nationality: Egyptian
E-mail: Menna_mzn@yahoo.com
Phone: +201002355199
Address: 45 Khedr elTony, Nasr City
Registration Date: 1/10/2012
Awarding Date: 14/8/2017
Degree: Master of Science
Department: Electronics and Communications Engineering



Supervisors:

Prof. Mohamed Hazim Tawfik
Prof. Tamer Elbatt

Examiners:

Prof. Fadel Digham (External examiner)
Prof. Magdi El-Soudani (Internal examiner)
Prof. Mohamed Hazim Tawfik (Thesis Main Advisor)
Prof. Tamer Elbatt (Thesis Advisor)

Title of Thesis:

Novel Fat Tree Topologies and Routing Schemes for Data Center Networks

Key Words:

Data Centers, Fat Trees, Extra Links, Load balancing, Aggregate bandwidth.

Summary:

This thesis explores optimized datacenter topologies for large scale networks. In particular, we study the Fat Tree topology [1] and propose novel topologies and routing schemes to enhance the bandwidth aggregated at the host end.

Network models of each topology and associated routing algorithms were developed for simulation. Performance evaluation is presented using different traffic patterns including extreme worst cases. The Use of 60 GHz wireless technology in the novel topologies is then studied. Results show that improved performance and interesting insights.

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Dedication

I will dedicate this work to Adel Mazen and Eman Shokry; my ever loving and caring Father and Mother .May Allah protect you always.

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