RIT – KCT MOU Activities

The following are the broad scope of possible activities under the MoU between RIT and KCT.

A. Short and long-term teaching and seminar development, and other forms of faculty collaboration, between RIT's Department of Information Sciences and Technologies and the KCT's School of Computing/Department of Computer Science and Engineering.

B. Collaborative Research, Discovery, Innovation, Learning and Teaching, and other scholarly activities.

Joint Activity carried out between RIT and KCT

Resource Person:

Dr. Nirmala Shenoy, Professor, Department of Information Sciences and Technologies, Director, Lab for Wireless Networking and Security, Rochester Institute of Technology, Rochester NY, 14623, email: nxsvks@rit.edu

1. Three UG student projects on new protocols development were carried out under the guidance of Dr. J. Cynthia, Prof. KCT and Dr. Nirmala Shenoy, Prof. RIT
2. Dr. Nirmala Shenoy visited KCT on June 20 & 21, 2017 and the following activities were carried out,
   - Technical seminar on Meshed Tree Loop Avoidance Protocol to faculty of CSE, IT and MCA
   - Seminar on higher studies prospects at RIT was given to Final year students of KCT
   - Discussion with few final year students of IT was carried out in which the problem scope was defined for the project to be carried out in 2017-2018.
   - Meeting with international office was held to discuss about possible collaborations and MoU.

Photos:

Seminar on Research in networking area at KCT by Dr.Nirmala Shenoy

Meeting at IR cell on possible collaborations with KCT

Visit to CCNA Laboratory at KCT

Interaction with CSE and IT students regarding higher studies prospects at RIT and US

Research Projects Undertaken

Dr. Nirmala shenoy, Professor, has guided three UG student projects in the area of Software Defined Network through regular skype meetings and has provided us with an opportunity of testing and evaluating our protocol in real time GENI test bed, where we tested our protocols in real routers available in various US universities.

2016-2017

1. **REAL TIME ANALYSIS OF MESH TREE PROTOCOL IN GENI TESTBED -**

High-speed data networks require infrastructure that is resilient to network changes. To build such a network infrastructure one needs to introduce redundancy in the system. This redundancy can be achieved either by adding redundant nodes or redundant physical links. Introducing redundant physical links can cause network loops that in turn cause broadcast storms causing huge network congestion. Numerous loop avoidance algorithms were used in the past that prevent network loops by blocking ports of a node logically. Earlier approaches look promising. However, the downside is that they either have a high convergence time after a link failure or introduce the overhead of link state routing.

This project uses the idea of meshed tree algorithm (MTA) to reduce the convergence time of spanning tree based protocols and also avoid complexity of link state routing.

To implement a protocol that can solve the convergence issues of Spanning Tree Protocols and also avoid the overhead of link state protocols in data link layer.

2. **PERFORMANCE ANALYSIS OF RAPID SPANNING TREE PROTOCOL**

The performance of the traditional networks depends more on network hardware performance. Hence any change in protocol requires reconfiguration of hardware. Network performance growth is bound by the performance of proprietary hardware like CISCO. The cons of these are overcome with the help of the architectural framework named Software Defined Networking (SDN) that alleviates the hardware from the job of control plane. The most important routing protocols for reducing loops and the redundant paths are the Spanning Tree Protocol (STP) and its advanced version named Rapid Spanning Tree Protocol (RSTP). In this project we analyse the performance of these protocols using simulation tool named Packet tracer and test bed developed using real time routers and switches. In the Trace file of the Real Time Test Bed implemented in CCNA lab we could see the changes in the port states from blocking to forwarding through listening. The packet loss in both STP and RSTP are compared using the simulation tool. With STP alone the packets lost are found to be around 60% but on implementing RSTP it is lesser with only 10%.

2017-18

3. PERFORMANCE ANALYSIS OF RSTP & MTP PROTOCOL using Open Flow Switch, Real Time test bed and CISCO Packet tracer

An Open Flow switch is a software program or hardware device that forwards packets in a software-defined networking (SDN) environment. In a conventional switch, packet forwarding (the data plane) and high-level routing (the control plane) occur on the same device. In SDN, the data plane is still implemented in the switch itself but the control plane is implemented in software and a separate SDN controller makes high-level routing decisions. The switch and controller communicate by means of the Open Flow protocol. The performance of the traditional networks depends more on network hardware performance. Hence any change in protocol requires reconfiguration of hardware. Network performance growth is bound by the performance of proprietary hardware like CISCO. The cons of these are overcome with the help of the architectural framework named Software Defined Networking (SDN) that alleviates the hardware from the job of control plane. The most important routing protocols for reducing loops and the redundant paths are the Spanning Tree Protocol (STP) and its advanced version named Rapid Spanning Tree Protocol (RSTP). In this project we analyse the performance of these protocols using simulation tool named Packet tracer and test bed developed using real time routers and switches.

2022-2023

RIT – KCT JOINT RESEARCH PROJECTS

Faculty Investigators:

4. Dr. Nirmala Shenoy, Professor, Department of Information Sciences and Technologies, Director, Lab for Wireless Networking and Security, Rochester Institute of Technology, Rochester NY, 14623, E-mail: nxsvks@rit.edu
5. Dr.J.Cynthia, Professor, Department of Computer Science and Engineering, Kumaraguru College of Technology, Coimbatore. E-mail : cynthia.j.it@kct.ac.in

Research Scholars:

1. Mr. Peter Willis, RIT, US E-mail:pjw7904@rit.edu
2. Ms. Kriti Goel, RIT, US E-mail: kg8849@g.rit.edu

KCT Students:

S.NO	NAME	Roll NO.
1.	Abhay Mohanan	20BCS001
2.	Allwin Kenneth P	20BCS008
3.	Vishaalini R M	20BCS112
4.	Kanissha P P	20BCS047
5	Swetha Srinivasan	19BCS047
6	Manavallan	19BCS087
7	Rithik Sarvesh	19BCS007
8	Jithenthiriya	19BCS048

Interactions at KCT & RIT

Team Student Ms. Swetha Srinivasan, got admission for MS Program at RIT, US with scholarship of $30,000 and is working with Prof. Nirmala shenoy currently.

MS.SWETHA, KCT student has joined MS at RIT,Newyork,US.

- Acquired Scholarship of $30,000 to pursue her MS at RIT
- Had been awarded Teaching Assistantship under Prof. Nirmala Shenoy with monthly stipend While Pursuing her MS Program.
-

RIT Admission:

RIT

Graduate Enrollment Services
Rochester Institute of Technology
Bausch & Lomb Center- Room A130
58 Lomb Memorial Drive
Rochester, NY 14623-5604
Tel: 585-475-2229
Fax: 585-475-7164
http://www.rit.edu

April 17, 2023

Ms. Swetha Srinivasan
4/1, Sccb Colony, Mahendrapuri
Salem, Tamil Nadu 636008
India

Dear Swetha,

Congratulations! It is with great pleasure that I offer you admission to the Information Technology and Analytics, MS program for the Fall 2023 term at Rochester Institute of Technology. Your admission is contingent on completing the requirements outlined on the RIT Graduate Admission Contingency form. In addition, graduate study at RIT requires excellent English language skills. Your academic department has admitted you contingent upon your successful completion of English language courses through RIT's English Language Center, in addition to the courses required for your graduate program.

Your application and supporting documents detailing your accomplishments convinced the Admissions Committee that you have the scholarly aptitude to flourish in a diverse community of scholars, entrepreneurs and humanitarians. Admission to graduate study at RIT is a selective process; you should take pride in this attainment.

RIT is a university where brilliant minds assemble in service of innovative ideas and creative solutions. Among the nearly 4,000 colleges and universities in the U.S., **RIT ranks in the top 4 percent** for selectivity and is considered a "best value" university according to *U.S. News & World Report*. We invite you to accept our offer and avail yourself of the rich academic resources available to you.

To accept our offer of admission and complete the enrollment process, please complete the online Reply to Offer of Admission form by May 1, 2023, which can be found on your Application Status page at join.rit.edu/account/login. After accepting our offer of admission, please pay the $500.00 Advance Tuition Deposit by May 1, 2023. This reserves your place in the program, allows you to apply for campus housing and access online resources. Your academic department will provide you with registration procedures and course schedules.

If any questions arise, please check our website, rit.edu/admissions/graduate/accepted-students, contact us at gradinfo@rit.edu, or call us at 585-475-2229. From this point on, we will send you a series of emails containing important information about your admission to RIT. Be sure to add gradinfo@rit.edu to your approved sender list.

Again, congratulations, I am thrilled to welcome you to RIT.

Sincerely,

Paul Keller
Interim Director
Graduate Enrollment Services

University ID: 405005252

RIT Scholarship:

RIT

Rochester Institute of Technology
Office of Financial Aid and Scholarships
56 Lomb Memorial Drive
Rochester, NY 14623-5604
Tel: 585-475-2186
Fax: 585-475-7270
http://www.rit.edu/financialaid

April 17, 2023

Ms. Swetha Srinivasan
Student ID: 405005252

Dear Swetha,

Congratulations! On behalf of the Graduate Scholarship Committee for Information Technology and Analytics, MS, I am pleased to inform you that you have been selected to receive an RIT Graduate Scholarship to support your graduate studies at RIT. This scholarship was awarded based on a review of your application and academic record.

Your award is based on current tuition rates and enrollment of 9 credits per semester beginning with the Fall 2023 term. The scholarship will be adjusted based on your actual credit hours enrolled with the percentage of tuition covered by the scholarship remaining the same. For further explanation of your scholarship, please contact your graduate program director.

Award	Term 1	Term 2	Percentage of Tuition	Estimated Annual Total*
RIT Graduate Scholarship	$6,399	$6,399	30%	$12,798

**The Estimated Annual Total is based on two terms and on the 2023-2024 tuition rates. Refer to page 2 of this letter for more details.*

The scholarship is automatically credited to your student account each semester after the drop/add period and is for tuition only. In accordance with current tax laws, scholarships are not taxed unless they exceed the cost of tuition, books, and fees. To assist you in planning for your educational costs here at RIT, an estimate of annual expenses including tuition, fees, and living expenses is available at www.rit.edu/admissions/aid/costs.

You must be in good academic standing to be considered for the renewal of your scholarship funding for future terms. Please contact your graduate program director to discuss the criteria for the scholarship renewal process.

We look forward to working with you as you pursue your graduate degree. We are certain that you will find your graduate studies at RIT to be fruitful and rewarding.

Sincerely,

Meaghan M. Drumm
Executive Director
Office of Financial Aid and Scholarships