



## **DEPARTMENT OF TELECOMMUNICATION ENGINEERING**

**Conducted Guest Lecture on**

### **“CHALLENGES IN STORAGE & COMPUTATION OF DISTRIBUTED NETWORKS”**

Date: 29.8.2017

Time: 09:30 – 11:00 AM

Venue: Smt. Rajalakshmi Seminar Hall

The Department of Telecommunication Engineering was established in the year 1992 with the aim of giving quality education in the field of Telecommunication. To our credit we have VTU ranks. Our department students and faculties have actively participating in national, international conferences and presenting technical papers.

Every semester our department is inviting experts from various industries and organization for delivering the lectures on the current topics in the field of Telecommunication.

This semester we organized a guest lecture on “Challenges in Storage & Computation of Distributed Networks” on 29<sup>th</sup> August 2017 at Smt. Rajalakshmi seminar hall. The guest speaker was Dr. Parimal Parag, Professor, Department of ECE, IISc., Bangalore.

The event started with invocation song followed by welcome address. It proceeded with a short talk about Dr.Parimal Parag. The lecture started at 9:30 AM and ended at 11:00 AM.

Dr.Parimal spoke about the ‘Challenges in Storage & Computation of Distributed networks’. He initiated the talk with the basics of voice communication i.e. the trunk call and FTT system where there was lot of time delay in fetching

information. The talk was carried on with dominant traffic on internet. The study says that the 64.54% of downstream is spent on real time entertainment and 36.56% on mobile access. The most part of upstream traffic is taken for file sharing.

The centralized paradigm- media vault used had the issues regarding the traffic load, service rate and was not robust to hardware failures or malicious. Hence to overcome this alternative to centralized design was introduced i.e. distributed systems. The distributed systems had autonomous nodes with local memory, each node connected to one another. In this way there was an interaction between the connected nodes. Scalability, Resilience, Efficiency, and Fairness were its desirable properties. It faced challenges in concurrency and availability.

Distribution storage included:

- Content streaming: Hotstar, Netflix, Eros.
- Cloud storage : icloud, onedrive, dropbox
- Cloud service: google, Facebook

Distribution system architecture: It can be classified in 3 ways:

- Client – server: - It is the basic architecture of the distribution system. For example ecommerce
- Peer –to –peer: - In this system there is an interaction between the servers. For example OS distribution.
- Hybrid model: - This model uses both client-server and peer-to-peer architectures.

**Content delivery network:** In this system n number of servers are used instead of one central server. This decreases the time delay and fetching of data is much easier as there are servers installed in every locality. The interaction can be master-slave or database centric. Here the load traffic problem is overcome to a certain extent by load balancing. Load balancing is done through file fragmentation i.e. the file to be transferred is divided into fragments and is sent to the different servers.

File can be fetched via repetition method or MDS Coding. In repetition technique the fragmented data stored in the servers has to be fetched one by one. Here the user fetches a part of data from one server and then searches for the next part of the data from another server. This is a very tedious and time consuming process. Hence to overcome this MDS coding technique is used where we can go to any two servers and fetch the fragmented data from completely.

He concluded the session with storage coding technique which was time centralized MDS queue. Overall the session gave us the complete knowledge about the challenges in distributed storage and techniques to overcome the problems. We were honored to have a guest with such knowledge. The event was ended with honorarium to the guest and vote of thanks.