



NOV
2022

CIRCUIT TIMES

VOLUME - 1
ISSUE-1

S  **CEI** | SRI VENKATESWARA
COLLEGE OF
ENGINEERING

DEPARTMENT OF
ELECTRONICS AND
COMMUNICATION
ENGINEERING

IN THIS ISSUE:

ARTICLE

- RECENT DEVELOPMENTS IN CUTTING-EDGE FUTURISTIC NETWORKING TECHNOLOGIES AND ITS APPLICATIONS

UPAGRAHA'22

- INSIDE UPAGRAHA'22

ACHIEVEMENTS

- BY FACULTY
- BY ALUMNI
- BY PG STUDENTS
- BY UG STUDENTS

VISION OF THE DEPARTMENT

To excel in offering value based quality education in the field of Electronics and Communication Engineering, keeping in pace with the latest developments in technology through exemplary research, to raise the intellectual competence to match global standards and to make significant contributions to the society.

MISSION OF THE DEPARTMENT

- To provide the best pedagogical atmosphere of highest quality through modern infrastructure, latest knowledge and cutting edge skills.
- To fulfill the research interests of faculty and students by promoting and sustaining in house research facilities so as to obtain the reputed publications and patents.
- To educate our students, the ethical and moral values, integrity, leadership and other quality aspects to cater to the growing need for values in the society.

Program Educational Objectives (PEOs)

PEO1: Create value to organizations as an EMPLOYEE at various levels, by improving the systems and processes using appropriate methods and tools learnt from the programme.

PEO2: Run an organization successfully with good social responsibility as an ENTREPRENEUR, making use of the knowledge and skills acquired from the programme.

PEO3: Contribute to the future by fostering research in the chosen area as an ERUDITE SCHOLAR, based on the motivation derived from the programme.

Program Specific Outcomes (PSOs)

PSO-1: An ability to apply the concepts of Electronics, Communications, Signal processing, VLSI, Control systems etc., in the design and implementation of application oriented engineering systems.

PSO-2: An ability to solve complex Electronics and communication Engineering problems, using latest hardware and software tools, along with analytical and managerial skills to arrive appropriate solutions, either independently or in team.

ARTICLE

Recent Developments in Cutting-Edge Futuristic Networking Technology and its Applications

Dr.G.A.Sathish Kumar , Professor ,ECE

Abstract: *With the integration of the network by decoupling the forwarding hardware (data plane) from the network's control logic (control plane), the concept of SDN (Software Defined Networking) introduced a significant change to traditional networks. Software Defined Networking (SDN) is a new way of using technology that is helping to overcome the limitations of traditional networks. A bright future is expected with the help of this emerging technology paradigm, which will eliminate the need for reliable, secure, flexible, and well-managed next-generation networks. The basic idea behind it is the separation of the control plane from the data plane. SDN has made the networks more programmable.*

What is SDN?

Software-Defined Networking (SDN) refers to the type of dynamic configuration used in providing software-based services in a data center network with an Internet Protocol (IP) address. Fig. 1 depicts the difference between SDN and traditional networks. The main idea of programmability forms the basis for the SDN technology that separates the control plane management of network devices from the data plane that forwards network traffic. Fig. 2 depicts the architecture of SDN.

Any network management software makes use of some form of SDN.

A function is addressed by a name that resolves to an IP address. Initially, the web was a system for addressing content; later on, it evolved into a system that could be used for addressing functionality.

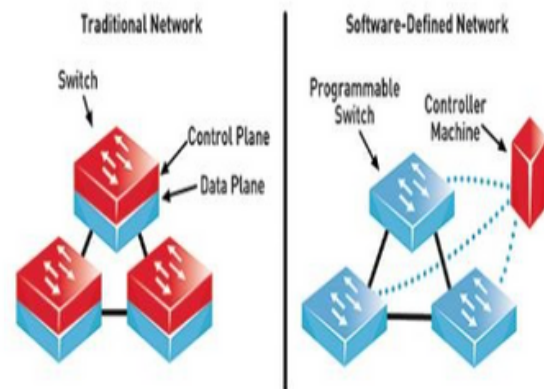


Figure. 1 Difference between SDN and traditional networks

Software architects created distributed applications, with a multiplicity of functions running asynchronously across a mix of servers that no longer needed to share the same facility. Every technology in the 21st century is made possible by some version of software-defined networking.

International Data Corporation (IDC) defined SDN as: "Datacenter SDN architecture features software-defined overlays or controllers that abstract from the underlying network hardware, offering intent- or policy-based management of the network as a whole." This results in a datacenter network that is better aligned with the needs of application workloads through automated (thereby faster)

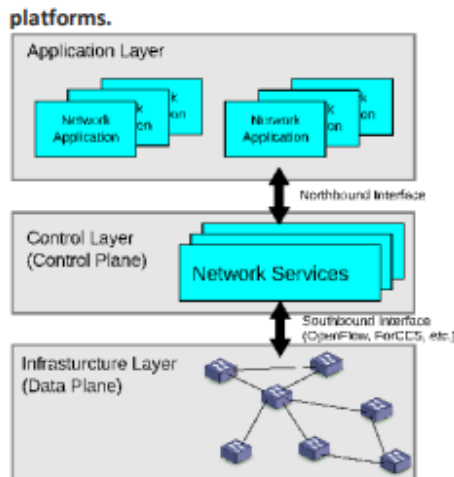


Figure 2. SDN Architecture

SDN promises to reduce the complexity of statically defined networks, by making automatic network functions much easier; and allowing for simpler provisioning and management of networked resources everywhere from the data center to the campus or wide area network.

Separating the control and data planes is the most common way to think of what SDN is, but it is much more than that. At its heart, SDN has a centralized or distributed intelligent entity that has a complete view of the network and can make routing and switching decisions based on that view. "Network routers and switches typically only know about their neighboring network gear on the internet." But with a properly configured SDN environment, that central entity can control everything, from easily changing policies to simplifying configuration and automation across the enterprise.

How does SDN support edge computing, IoT, and remote access?

A correctly configured SDN may facilitate and reduce costs for a number of tasks, including distributing computing resources

to remote sites, transferring data center operations to the edge, implementing cloud computing, and enabling Internet of Things environments. This is shown in Fig 3.

Customers can separate the network from the data plane or management plane to support various applications and configurations since they have access to all of their devices and TCP flows. If they so want, users can more easily segment an IoT application from the production world.

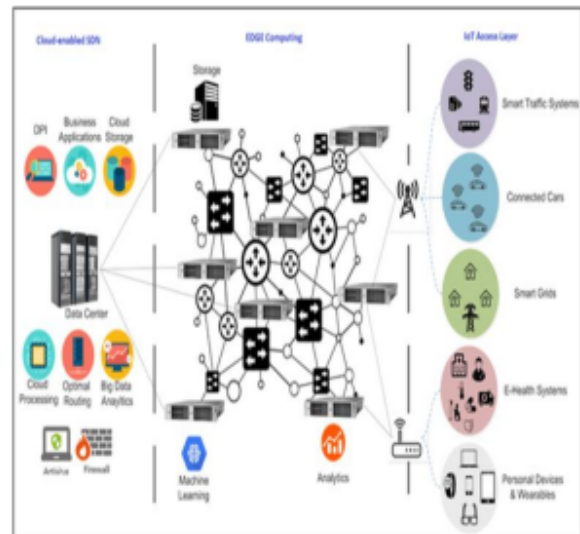


Figure 3. SDN in Cloud, EDGE and IoT

To avoid latency in edge and remote components, some SDN controllers can detect network congestion and increase processing power or bandwidth.

SDN technologies are also beneficial in distributed locations with few IT personnel on site. "Naturally, these places require remote and centralized delivery of connectivity, visibility, and security".

control and automate workflows across many places in the network, and their devices, improve operational reliability, speed, and experience," said Bushong, vice president of enterprise and cloud marketing at Juniper Networks.

How does SDN support intent-based networking?

Network managers can specify what they want the network to accomplish using intent-based networking (IBN), which uses an automated network management platform to establish the desired state and enforce policies to make sure what the business wants happens.

In Fig. 4, the services provided by IBN are shown. To attain even greater levels of operational simplicity and automation, intent-based networking "represents a progression of SDN," according to IDC.

Despite the relatively young of IBN technologies, Gartner estimates that more than 1,000 large corporations will be utilizing intent-based networking systems in production by 2020, up from less than 15 in the second quarter of 2018.

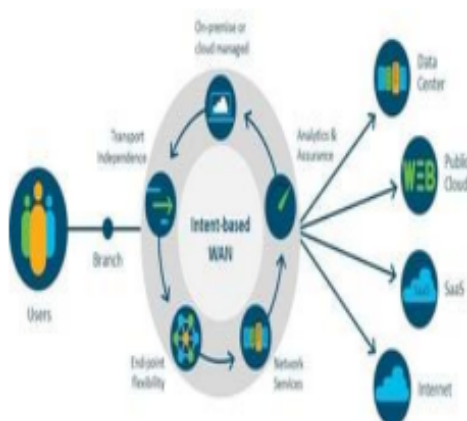


Figure 4. IBN

security?

SDN enables a variety of security benefits. **A customer can split up a network connection between an end user and the data center and have different security settings for the various types of network traffic.** A network could have one public-facing, low security network that does not touch any sensitive information. Another segment could have much more fine-grained remote access control with software-based firewall and encryption policies on it, which allow sensitive data to traverse over it.

"For example, if a customer has an IoT group it doesn't feel is all that mature with regards to security, via the SDN controller you can segment that group off away from the critical high-value corporate traffic," Users of SDN can implement security rules across the network, from the data center to the edge, and if they do so on top of white boxes, deployments can be 30 to 60% less expensive than those using conventional hardware.

In fact, **micro-segmentation has emerged as a noteworthy SDN use case.** The inherent difficulty of developing and maintaining uniform network and security policies across hybrid IT landscapes will be lessened as SDN technologies are expanded to enable multi- cloud environments.

Where does SD-WAN fit in?

An organic way to expand SDN over a WAN is using the Software-Defined Wide Area Network (SD-WAN). **SD-WAN goes beyond the SDN architecture, which is often the foundation in a data center or campus.** SD-WAN has been a promised technology for years, but according to Anand Oswal, senior vice

president of engineering at Cisco's Enterprise Networking Business, "it will be a key driver in how networks are created and reconstructed in 2019."

Future networks, including 5G and beyond, will be built on the key pillars of software-defined networking (SDN) and Network Function Virtualization (NFV), which promise to support new applications like enhanced mobile broadband, ultra-low latency, and massive sensing-type applications while ensuring network resilience. SDN and NFV are shown in a 5G network in Fig. 5.

CONCLUSION: SDN enables the construction of programmable and agile networks. SDN's flexibility and programmability are being used by academic researchers and network engineers to develop methods that streamline the management of data-center LANs and WANs and boost their security. Additionally, SDN aids the new intent-based approach that connects cloud computing and SDN. Networks as a Service (NaaS) will offer packet-processing applications for cloud tenants, while SDN will control forwarding choices and network management.

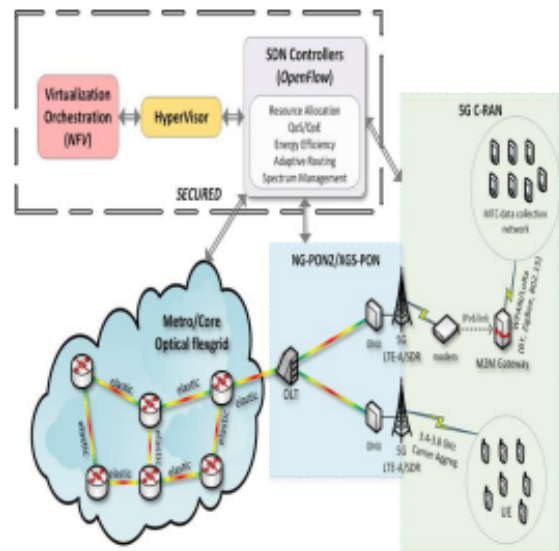


Figure 5. SDN &NFV in 5G network

REFERENCES

1. Mudassar Hussain 1,* , Nadir Shah 2 , Rashid Amin 3,* , Sultan S. Alshamrani 4 , Aziz Alotaibi 5 and Syed Mohsan Raza , "Software-Defined Networking: Categories, Analysis, and Future Directions" , Sensors Journal 2022, 22, 5551. <https://doi.org/10.3390/s22155551> .
2. Nitheesh Murugan Kaliyamurthy,¹Swapnesh Taterh,¹Suresh Shanmugasundaram,²Ankit Saxena,³Omar Cheikhrouhou,⁴and **Hadda Ben Elhadj** "Software-Defined Networking: An Evolving Network Architecture—Programmability and Security Perspective" Journal of Security and Communication Networks, Volume 2021 | Article ID 9971705 | <https://doi.org/10.1155/2021/9971705>.

UPAGRAHA'22

The 2-Days National level inter collegiate symposium UPAGRAHA'22 was organized by the department of Electronics and Communication Engineering in association with the Electronics and Communication Engineers Association (ECEA), Institution of Electronics and Telecommunication Engineers Student Forum of SVCE (IETE SVCE) and Robotics and Artificial Intelligence Club (RAIC). The symposium took place on 1st and 2nd November 2022 at Sri Venkateswara College of Engineering. A total of 380 students participated in the symposium. The Chief Guest for the inaugural function was Dr.Arun Janarthanan, SoC Power, Qualcomm.

Nine technical events were conducted in Upagraha'22.

Day 1 Events

- Mini Hackathon
- Ctrl-Alt-Code
- Pitch Perfect
- The Lost Trial

Day 2 Events

- Project Expo
- Paper Presentation
- Shark Tank
- Maze Bot
- Quad Kader



Dr.Arun Janarthanan addressing the gathering

ACHIEVEMENTS

BY FACULTY

- Dr.S.Muthukumar, HoD/ECE acted as a session chair for the One Week FDP on for Professors to teach tamil to Engineering students in I and II sem.
- Dr.D.Menaka and Dr.S.Ganesh Vaidyanathan, A hybrid convolutional neural network-support vector machine architecture for classification of super-resolution enhanced chromosome images was published in Expert Systems, (Wiley Online Library) listed in Anna University, Annexure 1 with an impact factor of 2.812.
- Dr. Vijay Anand and Dr. A Prasanth, Assistant Professor received the SVCE Intramural Research grant of Rs.1,00,000/- for the project titled Prediction of Rainfall using Machine Learning Techniques on 02/11/2022.

தலைப்பு:

" தொழில்நுட்பம் பேசும் - புதுமைத் தமிழ் "

மதியம் 12.40 முதல் 14.00 வரை:

அமர்வு தலைவர் :

முனைவர். சு. முத்துக்குமார், பேராசிரியர் மற்றும் துறைத் தலைவர், மின்னணு மற்றும் தகவல் தொழில்நுட்பத் துறை

சிறப்புரை:

பேராசிரியர். உ. பாலசுப்பிரமணியம், பேராசிரியர் மற்றும் துறைத் தலைவர் அகராதியியல் துறை, தமிழ் பல்கலைக்கழகம், தஞ்சாவூர்

தலைப்பு:

" தமிழர் பண்பாட்டு மரபும் அறிவியல் சார் சிந்தனைகளும் "



ACHIEVEMENTS

BY ALUMNI

- The first batch of SVCE alumni has instituted a scholarship from the academic year 2018-19 to sponsor the tuition fee for two to four girl students from third semester till final semester based on Economic and Merit criteria. A team of 5 members of First Batch Alumni Trust visited campus on 16.11.2022 to have a meeting with all the beneficiaries. Ms. Yuvasri. A of II ECE (2021-2025) received this scholarship for the academic year 2022-2023.
- The Alumni Association of SVCE conducts the Pro-Connect Series aimed at disseminating knowledge by professionals from various sectors and industries. The AASVCE PROCONNECT -2022 series had a session on "Five Steps to Level Up Your Engineering Career" handled by Mr.Siddharta Govindaraj (An alumnus of ECE 2001 batch) Engineering Coach, Silver Stripe Software Pvt Ltd on 25/11/2022.



PROCONNECT 2022 SVCE ALUMNI ASSOCIATION

Session on "Five Steps to Level up Your Engineering Career."

FRIDAY | 25 NOV
07:00 pm - 08:00 pm

SPEAKER: MR. SIDDHARTA GOVINDARAJ
ECE '01
ENGINEERING COACH
SILVER STRIPE SOFTWARE PVT LTD.

GOOGLE MEET: [HTTP://BIT.LY/3GW005G](http://bit.ly/3GW005G)

JOIN US

svcealumniassociation

BY PG STUDENTS

- Mr.B. Boopathi, II year M.E Communication Systems received innovative intramural funding of Rs. 10,000/- for the final year PG project titled Design of Microstrip patch Antenna for 5G Communications supervised by Dr P Jothilakshmi, Professor, ECE in the academic year 2022-2023.



Kishore M, IV year ECE Student

BY UG STUDENTS

- **Mr.Kishore M, IV year ECE Student** participated in the **International level 36 hour UNESCO India Africa Hackathon 2022** held on November 23rd and 24th 2022 at Gauthama buddha university, Greater Noida, along with 2 Indians and 3 Africans as a 6 member team. **The team won first place for the problem statement "Design a decision support tool for Electric vehicle adoption" and received Rs. 3 lakhs as prize money.**



- Mr.Hariharan and Mr. Ganeshan of III year Electronics and Communication Engineering-A section Won first place with a cash prize of Rs.1500 in National Level Technical Symposium OZMENTA'22 conducted by Velammal Engineering College.

- **Mr.N.S Sribalajy of IV year ECE department, Mr.A.Ramanathan of IV year MECHANICAL department, Mr.Irfan Abdulla of IV year EEE and Mr.Ashiq Mohamed Illahi of IV year EEE secured the First position with a cash prize of Rs. 25000 in Icube Hackathon (Interdisciplinary team) - conducted by Students council in association with SVCE Science Club - A National Level intercollegiate technical event, Sriperumbudur on 18th November 2022.**



N.S Sribalajy and team with principal

- **Mr.Rajit .H ECE-C 3rd year, Ms.Srivani M ECE-C 3rd year and Mr.Sriram V IT-B 3rd year secured the First position with a cash prize of Rs. 25000 in Icube Hackathon (Interdisciplinary team) - conducted by Students council in association with SVCE Science Club - A national level intercollegiate technical event , Sriperumbudur on 18th November 2022**



Mr.Rajit .H ECE-C 3rd year, Ms.Srivani M ECE-C 3rd year and Mr.Sriram V IT-B 3rd year

- **Mr. NAVEEN KUMAR** of third year **ECE** and his **TABLE TENNIS TEAM PLAYERS** of **SVCE** received **Winners trophy** in the **Anna University Zonal tournament** organized in our campus on 19/11/2022.



Table Tennis Team Players

- The **Deepika S** of second year **ECE** in **Table Tennis team (Women)** showed a stunning performance and clinched the **Winners title** in **Anna University Zonal tournament** held at Sri Muthukumaran Institute of Technology on 05/11/2022.

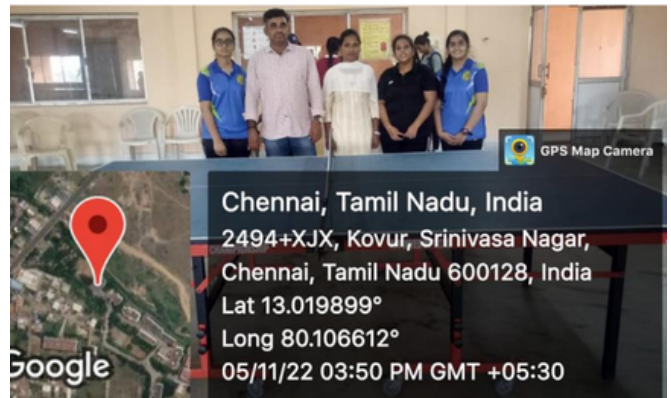


Table Tennis team (Women)

- The badminton players **Mr.SHASIDAR G** of third year **ECE**, **Mr.SATHYAJITH** of first year **ECE** along with his **SVCE** teammates became the **Runners up** in **Anna University Zonal tournament** organized in **SVCE** on 19/11/2022.



Badminton Team Players

EDITORIAL BOARD:

CHIEF EDITOR

Dr.S.MUTHUKUMAR
HOD/ECE

CO-EDITORS

Ms.C.GOMATHEESWARI PREETHIKA

Mr.S.ELANGOVAN

ASSISTANT PROFESSOR, ECE

STUDENT EDITORS

Mr. V.S.PRITHIVIRAJ - III Year ECE

Mr. U.RASWANTH - III Year ECE

Ms. SNEHALATHA.M - III Year ECE

Programme Offered By Department of Electronics and Communication Engineering

- B.E – Electronics and Communication Engineering
- M.E – Communication Systems
- Ph.D / MS (by Research)

Approved as a research center by Anna University, Chennai. (More than 48 Scholars doing their doctoral studies through our research center)

TOP RECRUITERS

