

## Techno Talks

### Mission

- To create and disseminate knowledge through learning, innovation, and research in order to enhance society in meaningful and sustainable ways.
- To encourage students to acquire multidisciplinary skills-sets by providing innovative education and research opportunities.
- To strengthen ethical IT professionals and entrepreneurs through problem-solving and lifelong learning skills.



There's always something going-on on the SSIPMT campus, and it's developed into a fascinating destination for the world's best minds to come together and share their vast reservoirs of knowledge and skills, and it has become a popular destination for students. The Institute devotes a significant amount of time and resources to assist students with innovations and startups. In addition, the institution provides assistance with their communication skills, critical thinking capacity, sense of responsibility and ethical values and ultimately enhances the placements on the campus.

At SSIPMT, we are committed to provide our students with the best possible start in life. As part of our goal, we wish to inculcate in our students a passion for learning that will enable them to make a positive contribution to the world in which they live. Students, parents, and the institution all contribute to the creation of a vibrant learning environment on our campus. The success of our students is a direct outcome of the quality of our collaborative effort.

**Shri Nishant Tripathi**  
Chairman (B.G), SSIPMT

### Vision

To empower the young minds as world-class engineering professionals equipped with value-based contemporary skills and tools in the field of Information Technology.



It gives me immense pleasure to pen a few words about our newsletter meant for churning out the latent writing talent which bears immense potentiality of sharpening student's communication skill as part of student's overall personality development. I congratulate all the contributors and the editorial board for bringing out such a beautiful magazine.

In SSIPMT, it is believed and practiced that excellence is a continuous process and in pursuit of which the institute has made deep forays into contributing world-renowned technocrats, successful entrepreneurs, competent & innovative engineers.

My Best wishes to the TechnoTalks to achieve all of its objectives.

**Dr. Alok Kumar Jain**  
Principal, SSIPMT



It brings me great pleasure to congratulate the Information Technology department's students, faculty, and staff on the release of the department's inaugural newsletter. The department's newsletter, which is published biannually, is regarded as a vital source of information on academics, student and staff accomplishments, and departmental innovation. The newsletter is a fantastic way to inspire teachers and students to share their perspectives and ideas with the world, while also assisting them in their academic development. My conviction is that "one must find meaning in one's daily labor". When you know that the work you are doing will have a positive impact on the lives of others, you know you are performing at your best. Even after all these years, working in an atmosphere where everyone is eager to go the extra mile is still a wonderful honor. I wish the best of luck to all the team members for the publication of the newsletter.

**Mr. Riju Bhattacharya**  
Associate Professor ,SSIPMT



## MEMORANDUMS

Amazon Web Services (AWS) provides an IT infrastructure called cloud computing to the organizations with inside the shape of internet. One of the important thing advantages of cloud computing is the possibility to update up-the front capital infrastructure prices with low variable fees that scale

together along with your requirements. With the Cloud, you can now not want to plot for and acquire servers and different IT infrastructure weeks or months in advance. Instead, they could right away spin up masses or hundreds of servers in mins and supply effects faster.

Today, Amazon Web Services offers a quite reliable, scalable, low-price infrastructure platform with inside the cloud that powers masses of hundreds of organizations in a hundred ninety international locations across the world. With information middle places withinside the U.S., Europe,

Brazil, Singapore, Japan, and Australia, clients throughout all industries are taking benefit of the subsequent advantages:

- Low Cost
- Agility and Instant Elasticity
- Open and Flexible
- Secure

To benefit the hands-on revel in you could join up without cost and choose from 3 one-of-a-kind sorts of offerings, a 12-month Free Tier, an Always Free offer, and short-time period trials. Services with 12-month Free Tier permit clients to apply the product without cost as much as certain limits for 12 months from the date the account become created.



**-Mr. Sunil Dewangan**  
(Faculty,SSIPMT)

Amazon Web Services (AWS) is the world's most comprehensive and broadly adopted cloud platform, Millions of clients including the fastest developing start-ups, biggest enterprises, and leading government agencies are using AWS. Each association, large or little, is moving its applications, infrastructure, and legacy systems to the cloud.

Through AWS Educate, student extended their insight about AWS services and tried their abilities. For a learning achievement, they took on the challenge of getting AWS Certified.

Through AWS Educate, they learned the basics of solutions architecture, DevOps, machine learning, data integration, and only the tip of the iceberg, barely enough to secure a strategic understanding of cloud services and apply the information to real projects.



**-Dr. Gurpreet Singh Chabra**  
(Faculty,SSIPMT)

Programming is an exciting role and when enter this arena will encounter new challenges and may have to crack some problems which no one has solved before or their solution doesn't exist everywhere. At that time anticipated to come up with an explanation in the least possible time using problem-solving and logical ability.

Competitive programming is **“To prepare a computer programmer such that his/her analytical ability increases and is capable to write code for the challenging situation.”**

Competitive programming useful for students because it will help

- Career preparation and advancement.
- Higher-quality work.
- Brain exercise and ability to deliver results under pressure.
- The ability to better self-assess and rate others' work.
- More ways of analyzing and solving problems, and the ability to solve more complex problems.
- Competitive programming is also helpful in placements because it is the part of written test of most of the companies.



**-Mr. Mahendra Sahu**  
(Faculty,SSIPMT)

Placement training plays a major role in shaping up the career goals of students. It is a vision of every engineering student to get placed in a top organization visiting their campus for recruitment. Keeping this key feature into consideration, it is realized that training is important for students to improve their employability skills and achieve good placement in various industries.

we are providing a list of soft skills we provide:

Aptitude Building, Competitive Coding, Technical Interview Practices, Interpersonal & Communication Skills, Personality Development, Personal Interview, Mock Test, Practice set.



**- Mr. Teshu Gaurav Singh**  
(Faculty,SSIPMT)

## WHAT IS AWS ALL ABOUT

Amazon Web Services (AWS) has the largest and most dynamic community, with millions of active customers and tens of thousands of partners globally. Customers across virtually every industry and of every size, including start-ups, enterprises etc. Amazon Web Services is a cloud computing platform that provides customers with a wide array of cloud services. We can define

AWS (Amazon Web Services) as a secured cloud services platform that offers compute power, database storage, content delivery and various other functionalities. Back in 2006-2007, companies were using their own private servers to create services like for storage, computing, etc. But now with internet speeds becoming better, companies big or small have started understanding the power of the cloud, therefore they are shifting their data to the cloud for improved performance, so that they can focus on core-competency. As the lead cloud computing platform, Amazon Web Services (AWS) is the primary profit driver for Amazon. AWS provides servers, storage, networking, remote computing, email, mobile development, and security.

AWS accounts for about 13% of Amazon's total revenue. AWS offers a broad set of global cloud-based products including compute, storage, databases, analytics, networking, mobile, developer tools, management tools, IoT, security and enterprise applications. These services help organizations move faster, lower IT costs, and scale.



- Niharika Laheja  
(IT, 5<sup>th</sup> Semester)

## Storage and content delivery

Amazon Web services is a reliable, scalable and secure place for your data, here are description regards storage and content delivery:

Storage in AWS-

S3 Standard is suitable for frequently accessed data that needs to be delivered with low latency and high throughput

This introduction to Amazon Simple Storage Service (Amazon S3) provides a detailed summary of this web service. After reading this section, you should have a good idea of what it offers and how it can fit in with your business.

This guide describes how you send requests to create buckets, store and retrieve your objects, and manage permissions on your resources. The guide also describes access control and the authentication process. Access control defines who can access objects and buckets within Amazon S3, and the type of access (for example, READ and WRITE). The authentication process verifies the identity of a user who is trying to access Amazon Web Services

CloudFront works seamlessly with any AWS origin, such as Amazon S3, Amazon EC2, Elastic Load Balancing, or with any custom HTTP origin. You can customize your content delivery through CloudFront using the secure and programmable edge computing features CloudFront Functions and AWS Lambda@Edge

Content delivery in AWS:-

Amazon CloudFront is a fast content delivery network (CDN) service that securely delivers data, videos, applications, and APIs to customers globally with low latency, high transfer speeds, all within a developer-friendly environment.



-Shreya Chandrakar  
(IT, 5<sup>th</sup> Semester)

## Interesting Fact: -

*Biggest multinational giants use AWS: Netflix, Reddit, NASA, Quora, Airbnb, Foursquare, etc. are using AWS*

## What is Cloud Computing

Cloud Computing is often referred to as "the cloud", in simple terms means storing or accessing your data and programs over the internet rather than your own hard drive.

Everything nowadays is moved to the cloud, running in the cloud, accessed from the cloud or may be stored in the cloud. Hence, the demand

for Certified Cloud Architects is increasing across all sectors of the economy. It is the use of remote servers on the internet to store, manage and process data rather than a local server or personal computer.

How we can get started:

There are tons of cloud providers out there to choose from. Let us take the most prominent ones.

Azure: It's a cloud computing platform by Microsoft founded in 2010.

AWS: Amazon Web Services is a cloud computing platform by Amazon in 2006.

There are basically 3 service model or 3 categories in cloud computing:

- SaaS
- PaaS
- IaaS

After service there comes deployment, there are 3 deployment model:

- Public cloud
- Private cloud
- Hybrid cloud

Some advantages of cloud computing serve:

- Fast Implementation
- Instant Scalability
- Access Anywhere
- Maintenance Free
- Better Security



- Shraddha Khandelwal  
(IT, 5<sup>th</sup> Semester)

## AWS Database

AWS databases are built for business-critical, enterprise workloads, offering high availability, reliability, and security. These databases support multi-region, and provide full oversight of your data with multiple levels of security, including network isolation, and end-to-end encryption.

Why AWS Database?

With AWS Database Services, we just have to focus on your application code and business expansion. The rest will be managed and taken care of by AWS, i.e., all the hardware upgrades, security patches, and even the software upgrades are taken care of by AWS, that too free of cost!

When I say free, I mean to say that we just have to pay AWS for the time you used their database services, nothing extra for the hardware up-gradations, etc.

That sounds amazing, doesn't it? Imagine the amount of savings this model will bring to you, you don't have to maintain a Database Maintenance team, and most importantly, you can just focus on your business problems and leave everything for AWS to handle.

Types of AWS Database Services

1. Relational Database: In relational databases, the data is usually stored in a tabular format. Relational databases particularly use structured query language (SQL) to run queries to perform operations such as insertion, updating, deletion, and more. AWS provides following relational database services.

- Amazon RDS
- Amazon Redshift
- Amazon Aurora

2. Key-Value Database: The key-value database is a type of NoSQL database where the method of having a value attached to a key is used to store data. Meaning that the data is composed of two elements, keys and values.

- Amazon DynamoDB

3. In-memory Database: This type of database is primarily based on the main memory for computer data storage. Basically, an in-memory database keeps the whole data in the RAM. Meaning that each time you access the data, you only access the main memory and not any disk. And the reason that the main memory is faster than any disk is why in-memory databases are so popular.

- Amazon ElastiCache



-Viveik Tripathi  
(IT, 5<sup>th</sup> Semester)

## Networking

AWS networking services offer a wide range of databases and networking options which are scalable, on-demand, and available always. Users are able to access, develop and adjust building blocks to support any workloads.

AWS has proven to become a cloud-based computing force to be reckoned with, when it comes to delivering on-demand, scalable cloud-based networking services, setting new standards and opening new horizons for capacity development for the organization.

AWS provides networking services with the highest reliability, most security features, and performance in the world.

Most secure:

AWS Networking capabilities are designed to meet the most stringent security requirements, to help ensure the confidentiality, integrity, and availability of your data.

Highest network availability:

The AWS Region/AZ model has been recognized by industry analysts as the recommended approach for running enterprise applications that require high availability.

Consistent high performance:

The AWS global network lets you run your workloads on the cloud that delivers the best support for the broadest set of applications.

Broadest global coverage:

AWS has the largest global infrastructure footprint of any provider; this allows the AWS global network to deliver customer applications and content anywhere in the world over a private network.



- **Dasica Dewangan**  
(IT, 5<sup>th</sup> Semester)

## Security and Identity

Security is one of the most important factors when implementing cloud services as you must ensure that the data you are storing on the Cloud remains restricted, controlled, monitored, maintained, and secured to the correct level.

AWS has developed a number of AWS security services and management tools to help you protect your data and environment from unwanted exposures, vulnerabilities and threats.

There are various security services such as: -

- Identity and Access Management (IAM):

It enables you to manage access to AWS services and resources securely. Using IAM, you can create and manage AWS users and groups, and use permissions to allow and deny their access to AWS resources.

- AWS Key Management Service:

It is a managed service that makes it easy for you to create and control encryption keys, the encryption keys used to encrypt your data.



- **Sneha Singh**  
(IT, 5<sup>th</sup> Semester)

### Interesting Fact: -

*Going green: AWS is fully committed in going green by using renewable sources of energy. Approximately 25% of AWS uses renewable source of energy*

## Management Tools

Management Tools helps the user to manage the components of the cloud and their account. It programmatically allows the user to provision, monitor, and automate all the components. There are different management tools in Amazon

- AWS CloudFormation

AWS CloudFormation provides a common language to provision foundational assets in your cloud instance. Using a basic text file.

- AWS Service Catalog

AWS Service Catalog enables users to oversee a robust index of services primed for use on AWS. With services that incorporate everything from virtual machine images, servers, applications and databases.

- Amazon CloudWatch

Amazon CloudWatch provides monitoring administration services for AWS cloud resources and applications.

- AWS Config

AWS Config helps users monitor the many configurations of their AWS instance and services. This is a time-consuming process without the right tools.

- AWS OpsWorks

AWS OpsWorks lets you write small instances of code to automate configurations. Using instances of Chef and Puppet designed for AWS.



- **N. Chitra**  
(IT, 5<sup>th</sup> Semester)

## Application Services

AWS includes simple services like notifications, emailing and queuing.

- Amazon Simple Email Service (SES) -

It is cost-effective and flexible emailing service which is built on the scalable and reliable infrastructure of Amazon.com. Amazon SES's flexible IP deployment and email authentication options help drive higher deliverability and protect sender reputation, while sending analytics measure the impact of each email.

- Amazon Simple Notification Service (SNS)-

Amazon SNS is a web service offered by AWS that manages the delivery of messages to subscribed endpoints or clients . It provides service for both application-to-application (A2A) and application-to-person (A2P) communication.

The A2A pub/sub functionality provides topics for high-throughput, push-based, many-to-many messaging between distributed systems, microservices, and event-driven serverless applications.

The A2P functionality enables you to send messages to users at scale via SMS, mobile push, and email.

- Amazon Simple Queue Service (SQS)-

Amazon SQS is fast, reliable and fully managed message queuing service that enables you to decouple and scale microservices, distributed systems, and serverless applications.

Using SQS, you can send, store, and receive messages between software components at any volume, without losing messages or requiring other services to be available. SQS eliminates the complexity and overhead associated with managing and operating message-oriented middleware, and empowers developers to focus on differentiating work.



- **Vaishali Raheja**  
(IT, 5<sup>th</sup> Semester)

## Amazon EMR

If you're looking for a big data platform that can handle massive volumes of data using open-source technologies like Apache Spark, Apache HBase, Apache Hive, Apache Hudi, and Apache Flink then WS EMR (Amazon EMR) is the best option for you. The Amazon EMR may be utilised in a wide variety of situations and to achieve a wide variety of objectives.

Extract, transform and load (ETL) operations may be used to sort, aggregate and connect huge datasets for the purpose of Big Data technologies first and foremost. A second advantage of EMR is that it includes a large number of machine learning tools, such as Apache Spark MLlib, Apache MXNet, and TensorFlow, that can be used to scale machine learning algorithms and to create custom AMIs and bootstrap actions. This will allow us to incorporate libraries and tools of our choosing into the building of our own predictive analytics toolbox.

Apache Kappa, Amazon Kinesis and various other streaming data sources may all be streamed in real-time using this platform.



-**Shivam Chandak**  
(IT, 3<sup>rd</sup> Semester)

## Amazon Pricing

AWS offers you a pay-as-you-go approach for pricing for over 160 cloud services. With AWS you pay only for the individual services you need, for as long as you use them, and without requiring long-term contracts or complex licensing. AWS pricing is similar to how you pay for utilities like water and electricity. You only pay for the services you consume, and once you stop using them, there are no additional costs or termination fees.

Pricing can also change frequently, with shifts of demands for different Amazon services.

AWS Pricing Principles are

- Pay as You Go
- Use More, Pay Less
- Save When You Reserve
- Free Usage Tier

Amazon Pricing Model -

Amazon's pricing model is based around keeping prices as low as possible for the buyer. This means the prices of products can change numerous times, even during a single day. Keeping prices low drives loyalty within their customer ranks, and ultimately results in Amazon benefitting from merchants competing for the Buy Box.

Amazon's pricing model also takes things one step further using convenience. We all see the convenience of buying online. But when you have so many merchants competing to be a top seller for just one product, you always have a depth of easy choice for customers, that almost never runs out of stock. This again drives loyalty, increases sales, and keeps both merchants and customers coming back for faster-rolling profits and purchases.

Different types of services lend themselves to different pricing models. For example, Amazon EC2 pricing varies by instance type, while the Amazon Aurora database service includes charges for data input/output (I/O) and storage.

In addition, Amazon provides discounts in the following cases:

- Discount for reserving services for periods of 1 or 3 years (known as Reserved Instances)
- Discount for spare computing capacity by bidding on Amazon's Spot Instance market
- Savings Plans—a commitment to purchase a certain quantity of Amazon resources across your entire organization



- **Naina Damecha**  
(IT, 5<sup>th</sup> Semester)

## Newsletter Team



Dear Students,

Congratulations to the members of the newsletter's editorial team! Congratulations on the successful launch of our first IT department newsletter. We appreciate your support. The fact that we were able to do this was due to our dedication and hard work. I'd want to use this time to show my appreciation to every member of the team on this project. To the Managing Bodies, to the faculties, and to the News Letter staff, I owe a debt of appreciation that has enabled me to do this.

In the near future, we will be working on a new topic for our newsletter that will be produced with even more energy and emotion. Thanks

- **Mrs. Parul Dubey**  
(Faculty Incharge)

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**Shivam Chandak**  
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