KKR & KSR INSTITUTE OF TECHNOLOGY & SCIENCES

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Department of Computer Science and Engineering

Workshop
On
AWS

Date: 11 & 12 and 25 & 26 September, 2018
Time: 10:00 AM to 5:20 PM
Venue: Computer Lab 3 and Computer Lab 1
Resource Person: Mr. V. Rupesh Kumar and Mr. Ch. Gopiraj, Mentor, APSSDC

Event Description:

Amazon Web Services (AWS) is a secure cloud services platform, offering compute power, database storage, content delivery and other functionality to help businesses scale and grow. Explore how millions of customers are currently leveraging AWS cloud products and solutions to build sophisticated applications with increased flexibility, scalability and reliability. Amazon Web Services (AWS) is a comprehensive, evolving cloud computing platform provided by Amazon. It provides a mix of infrastructure as a service (IaaS), platform as a service (PaaS) and packaged software as a service (SaaS) offerings.

AWS launched in 2006 from the internal infrastructure that Amazon.com built to handle its online retail operations. AWS was one of the first companies to introduce a pay-as-you-go cloud computing model that scales to provide users with compute, storage or throughput as needed. Amazon Web Services provides services from dozens of data centers spread across availability zones (AZs) in regions across the world. An AZ represents a location that typically contains multiple physical data centers, while a region is a collection of AZs in geographic proximity connected by low-latency network links. An AWS customer can spin up virtual machines (VMs) and replicate data in different AZs to achieve a highly reliable infrastructure that is resistant to failures of individual servers or an entire data center.

At first the trainers make the students to register in APSSDC AWS programme. And students registered in AWS cloud service also to make their further tasks in cloud, that how they can store data in their own cloud, how they can manipulate the existing data and works on services provided by the cloud.

Compute:

Amazon Elastic Compute Cloud (EC2) provides virtual servers -- called instances -- for compute capacity. The EC2 service offers dozens of instance types with varying capacities and sizes, tailored to specific workload types and applications, such as memory-intensive and accelerated-computing jobs. AWS also provides an Auto Scaling tool to dynamically scale capacity to maintain instance health and performance. The Amazon EC2 Container Service and EC2 Container Registry enable customers to work with Docker containers and images on the AWS platform. A developer can also use AWS Lambda for serverless functions that automatically run code for applications and services, as well as AWS Elastic Beanstalk for PaaS. AWS also includes Amazon Lightsail, which provides virtual private servers, and AWS Batch, which processes a series of jobs.

Storage:

Amazon Simple Storage Service (S3) provides scalable object storage for data backup, archival and analytics. An IT professional stores data and files as S3 objects -- which

can range up to 5 GB -- inside S3 buckets to keep them organized. A business can save money with S3 through its Infrequent Access storage tier or use Amazon Glacier for long-term cold storage. Amazon Elastic Block Store provides block-level storage volumes for persistent data storage for use with EC2 instances, while Amazon Elastic File System offers managed cloud-based file storage. A business can also migrate data to the cloud via storage transport devices, such as AWS Snowball and Snowmobile, or use AWS Storage Gateway to enable on-premises apps to access cloud data.

Databases and Data Management:

AWS provides managed database services through its Amazon Relational Database Service, which includes options for Oracle, SQL Server, PostgreSQL, MySQL, MariaDB and a proprietary high-performance database called Amazon Aurora. AWS offers managed NoSQL databases through Amazon DynamoDB. An AWS customer can use Amazon ElastiCache and DynamoDB Accelerator as in-memory data caches for real-time applications. Amazon Redshift offers a data warehouse, which makes it easier for data analysts to perform business intelligence tasks.

Migration and Hybrid Cloud:

AWS includes various tools and services designed to help users migrate applications, databases, servers and data onto its public cloud. The AWS Migration Hub provides a location to monitor and manage migrations from on premises to the cloud. Once in the cloud, EC2 Systems Manager helps an IT team configure on-premises servers and AWS instances. Amazon also has partnerships with several technology vendors that ease hybrid cloud deployments. VMware Cloud on AWS brings software-defined data center technology from VMware to the AWS cloud. Red Hat Enterprise Linux for Amazon EC2 is the product of another partnership, extending Red Hat's operating system to the AWS cloud.

Networking:

An Amazon Virtual Private Cloud (VPC) gives an administrator control over a virtual network to use an isolated section of the AWS cloud. AWS automatically provisions new resources within a VPC for extra protection. Admins can balance network traffic with AWS load balancing tools, including Application Load Balancer and Network Load Balancer. AWS also provides a domain name system called Amazon Route 53 that routes end users to applications. An IT professional can establish a dedicated connection from an on-premises data center to the AWS cloud via AWS Direct Connect.

Development Tools and Application Services:

A developer can take advantage of AWS command-line tools and software development kits (SDKs) to deploy and manage applications and services. The AWS Command Line Interfaceis Amazon's proprietary code interface. A developer can also use AWS Tools for Powershell to manage cloud services from Windows environments and AWS Serverless Application Model to simulate an AWS environment to test Lambda functions. AWS SDKs are available for a variety of platforms and programming languages, including Java, PHP, Python, Node.js, Ruby, C++, Android and iOS. Amazon API Gateway enables a development team to create, manage and monitor custom APIs that let applications access data or functionality from back-end services. API Gateway manages thousands of concurrent API calls at once.

AWS also provides a packaged media transcoding service, Amazon Elastic Transcoder, and a service that visualizes workflows for microservices-based applications, AWS Step Functions.

A development team can also create continuous integration and continuous deliverypipelines with services like AWS CodePipeline, AWS CodeBuild, AWS CodeDeploy and AWS CodeStar. A developer can also store code in Git repositories with AWS CodeCommitand evaluate the performance of microservices-based applications with AWS X-Ray.

Management and Monitoring:

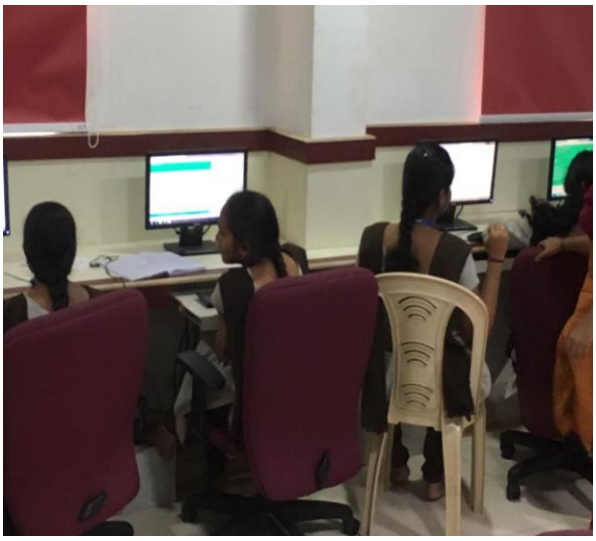
An admin can manage and track cloud resource configuration via AWS Config and AWS Config Rules. Those tools, along with AWS Trusted Advisor, can help an IT team avoid improperly configured and needlessly expensive cloud resource deployments. AWS provides several automation tools in its portfolio. An admin can automate infrastructure provisioning via AWS CloudFormation templates, and also use AWS OpsWorks and Chef to automate infrastructure and system configurations.

An AWS customer can monitor resource and application health with Amazon CloudWatchand the AWS Personal Health Dashboard, and also use AWS CloudTrail to retain user activity and application programming interface (API) calls for auditing.

Security and Governance:

AWS provides a range of services for cloud security, including AWS Identity and Access Management (IAM), which allows admins to define and manage user access to resources. An admin can also create a user directory with Amazon Cloud Directory, or connect cloud resources to an existing Microsoft Active Directory with the AWS Directory Service. Additionally, AWS Organizations enables a business to establish and manage policies for multiple AWS accounts.

The cloud provider has also introduced tools that automatically assess potential security risks. Amazon Inspector analyzes an AWS environment for vulnerabilities that might impact security and compliance. Amazon Macie uses machine learning technology to protect sensitive cloud data. AWS also includes tools and services that provide software- and hardware-based encryption, protect against DDoS attacks, provision Secure Sockets Layer and Transport Layer Securitycertificates and filter potentially harmful traffic to web applications.



At the end of workshop students had listen to the webinars/video lectures provided by APSSDC team which helps them to write an exam regarding cloud services of amazon to get a certification from APSSDC.