

Website: [www.dw-learnwell.com](http://www.dw-learnwell.com)

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## Amazon Web Services Syllabus

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### ❖ You will learn how to:

- ✓ Build and deploy cloud applications and develop an effective implementation strategy
- ✓ Leverage cloud vendors Amazon EC2 and Amazon S3
- ✓ Exploit Software as a Service (SaaS) to optimize cost and resources
- ✓ Create, deploy and secure applications and services with Platform as a Service (PaaS)
- ✓ Commission a computing Infrastructure as a Service (IaaS) with Amazon EC2 and Eucalyptus
- ✓ Develop robust, flexible and cost-effective cloud solutions with Amazon Web Services
- ✓ Implement highly durable and reliable storage systems using Amazon S3, RDS and SimpleDB
- ✓ Customize Elastic Compute Cloud (EC2) images to meet your business needs
- ✓ Deploy and host web applications using AWS Elastic Beanstalk and Amazon CloudFormation.
- ✓ Leverage the Amazon Virtual Private Cloud to provision secure, isolated resources

### Introduction to Cloud Computing

- **Defining cloud computing**
  - Components of a computing cloud
  - Differentiating types of clouds: public, private, hybrid
- **Delivering services from the cloud**
  - Categorizing service types
  - Comparing vendor cloud products: Amazon, Google, Microsoft and others
  - Adopting the Cloud

### Introduction to Cloud Storage Service

- Amazon Cloud Drive
- Google Drive
- DropBox

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### Virtualization Concepts

- Defining virtual machines (servers and workstations)
- Advantages of deploying Vms
- VMware Workstation

### Exploiting Software as a Service (SaaS)

- **Characterizing SaaS**
  - Streamlining administration with centralized installation
  - Optimizing cost and performance with scale on demand
- **Comparing service scenarios**
  - Improving collaboration with business productivity tools
  - Simplifying business process creation by integrating existing components
  - Describing Gmail, Webex and Amazon EC2 etc

### Exploring the technical foundation for PaaS

- Specifying the components of PaaS
- Analyzing vendor PaaS provisions
- Selecting an appropriate implementation
- **Building services with solution stacks**
  - Evaluating the architecture of vendor-specific platforms

### Deploying Infrastructure as a Service (IaaS)

- **Accessing IaaS**
  - Provisioning servers on demand
  - Handling dynamic, Elastic IP and static IP addresses
  - Tools and support for management and monitoring
  - Accessing Amazon AWS management console
  - Recognize AWS Global Infrastructure
  - Security Majors

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### Administering Amazon Web Services

- **Getting started with Amazon cloud**
  - Creating accounts and analyzing the cost breakdown
  - Evaluating Service Level Agreements (SLA)
  - Console, command-line tools and API
- **Overview of the architecture**
  - **Ec2**
    - On Demand, Spot and Reserved instances
    - Launching Linux and Windows EC2 instance
    - Setting up the security groups
    - Private IP, Public IP, Elastic IP
    - Logging into instances Linux and Windows
    - Creating AMI, Copying AMI
    - Tagging EC2 instances, Bootstrapping
  - **S3**
    - Managing S3 buckets
    - Adding objects to buckets
    - Uses of S3 storage
    - Permissions of S3
    - Versioning and Life cycles in S3
    - Data archiving and backups in Glacier
  - **EBS**
    - Creating and Deleting Volumes
    - Attaching and detaching volumes
    - Creating snapshots
    - Increasing volume size
    - Mounting and un-mounting volumes
  - **Beanstalk**
  - **RDS**
    - Creating and managing RDS instances
    - Connecting to RDS instances
    - Creating and restoring snapshots

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- RDS security groups, parameter groups, Subnet groups
- What is Multi-AZ
- **VPC**
  - Using VPC wizard, setup different network types
  - Creating new VPC
  - Managing NACL and Security groups
  - Public and private subnets
  - Route tables, IGW
- **CloudFront**
- **SimpleDB**
- **AWS CloudTrail**
  - Understanding API call logs and monitoring
- **SQS**
- **CloudWatch**
  - Monitoring AWS service health dashboard
  - Different services under cloud watch and there metrics
  - Setting up notifications
  - Creation of topics
  - Subscribing to topics
  - Setting notification for EC2
- **AWS Route53**
  - Managing hosted zones
  - Creating record sets
  - Types of routing policies
  - Creating health checks
- **AWS Calculator**
  - Estimating the monthly cost using calculator
- **Elastic Load Balancer**
  - Creating load balancer
  - Internal and external load balancer
  - Load balancing Protocols
  - Configuring health check
  - Attaching instances to load balancer

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- Troubleshooting “Out of Service”

### Achieving Agility with Ec2

- **Managing the Ec2 infrastructure**
  - Browsing Amazon Machine Images (AMI)
  - Specifying security groups and key pairs
- **Provisioning resources**
  - Evaluating Elastic Block Store (EBS) and instance store root devices
  - Assigning elastic IP addresses
  - Mapping instance types to computing needs

### Implementing Durable and Reliable Storage

- **Storing data in the cloud**
  - Persisting off-instance storage with EBS volumes
  - Creating backups with snapshots
  - Achieving high durability with SimpleStorage Service
  - Transmitting data in/out of the Amazon cloud
- **Simplifying the database infrastructure**
  - Achieving high-availability of non-relational data with SimpleDB
  - Effortlessly implement a relational database with Relational Database Service (RDS)
- **Creating cost-effective distributed solutions**
  - Decoupling applications with Simple Queue Service
  - Leveraging CloudFront for high-performance edge cache content delivery
  - Delivering static and streaming content

### Adapting Ec2 to Your Business Needs

- **Customizing virtual machines**
  - Modifying existing images
  - Creating new images off of running instances
  - Converting an instance store AMI to an EBS AMI

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- **Creating an AWS cloud architecture**
  - Applying best practices for a cloud solution
  - Selecting a cloud setup for different use case scenarios

### Handling Dynamic Resource Requirements

- **Monitoring from inside or outside of the cloud**
  - Visualizing utilization metrics with CloudWatch
  - Setting alarms to send and receive notifications
- **Transparently scaling to meet load variations**
  - Distributing incoming traffic with elastic load balancing
  - Dynamically adding and removing instances with Auto Scaling
  - Setting capacity thresholds
  - Configuring Launch configuration
  - Configuring auto scaling policies
  - Using auto scaling with Load balancer
  - Knowing elasticity, scalability, HA, DR concepts

### Hosting Applications with Elastic Beanstalk

- **Improving application delivery with Platform as a Service (PaaS)**
  - Deploying scalable applications on the AWS cloud
  - Selecting and launching an application environment
- **Managing application environments**
  - Customizing and configuring platform stacks
  - Provisioning application resources with Cloud Formation

### AWS Security Features

- **Controlling account security**
  - Configuring access credentials
  - Managing users with Identity Access Management (IAM)
- **Leveraging the Virtual Private Cloud (VPC)**
  - Provisioning isolated AWS resources
  - Bridging Ec2 instances to your internal network with a VPN

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- Launching Ec2 instances on dedicated hardware

**Live Scenarios for all the topics listed above will be taken including the real time project.**

