[Doaa Ashraf Taha]

THEORETICAL

1. Name 5 AWS services and their usage

I finished my search

1. AWS EC2 – Elastic Compute Cloud

- Amazon Elastic Compute Cloud (EC2) provides you the ability to spin up virtual machines on the fly with no major infrastructure investment and minimal startup costs.
- Quickly provision new servers, using the AWS admin console or automation scripts for production and testing environments and shut them down when no longer needed.
- ***Typical use cases of AWS EC2 include:***
  1. Host a variety of software from simple web sites to enterprise-grade web applications on an on-demand infrastructure. Easy to lift-and-shift from on-premises since you have full control of the operating system. Spot pricing can help save up to 80-90% on hosting costs.
  2. Create fault tolerant architecture with auto-scaling and load balancing options.
  3. If you need heavy computation and GPU power for deep learning/ machine learning, choose EC2 accelerated computing instances.

2. AWS Lambda

- AWS Lambda is an event-driven, serverless computing service that lets you run code without provisioning or managing servers.
- With Lambda, you can upload your code as a ZIP file or container image, and Lambda automatically and precisely allocates compute

execution power and runs your code based on the incoming request or event.

- You can write Lambda functions in your favorite language (Node.js, Python, Go, Java, and more) and use both serverless and container tools, such as AWS SAM or Docker CLI, to build, test, and deploy your functions.

- ***Typical use cases of AWS Lambda include:***

1. Image transformation for newly uploaded images.
2. Real-time metric data processing.
3. Streaming data validation, filtering, and transformation.

3. AWS ECS – Elastic Container Service

- ECS is a highly scalable, high-performance container orchestration service that supports Docker containers and allows you to easily run and scale containerized applications on AWS.
- Amazon ECS eliminates the need for you to install and operate your own container orchestration software, manage and scale a cluster of virtual machines, or schedule containers on those virtual machines.
- ECS is also deeply integrated into the rest of the AWS ecosystem.
- ECS comes with two launch types: EC2 and Fargate. The containers can run on a serverless infrastructure that is managed by AWS Fargate. Alternatively, for more control over your infrastructure, you can run your tasks and services on a cluster of Amazon EC2 instances that you manage.
- AWS Fargate removes the need to provision and manage servers. Instead, you simply specify the resources per task, which also improves security through application isolation by design.

4. AWS EKS – Elastic Kubernetes Service

- Amazon EKS is a managed service that you can use to run Kubernetes on AWS without needing to install, operate, and maintain your own Kubernetes control plane or nodes.
- Kubernetes is an open-source system for automating the deployment, scaling, and management of containerized applications.
- Amazon EKS:

1. Runs and scales the Kubernetes control plane across multiple AWS Availability Zones to ensure high availability.
2. Automatically scales control plane instances based on load, detects and replaces unhealthy control plane instances, and it provides automated version updates and patching for them.
3. Is integrated with many AWS services to provide scalability and security for your applications
4. Applications that are running on Amazon EKS are fully compatible with applications running on any standard Kubernetes environment, no matter whether they're running in on-premises data centers or public clouds. This means that you can easily migrate any standard Kubernetes application to Amazon EKS without any code modification.

5. AWS SQS – Simple Queue Service

• Amazon SQS is a fully managed event-queuing service that enables you to decouple and scale microservices 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. If no workers pull jobs from SQS, the messages stay in the queue.

- SQS offers two types of event queues. **Standard queues** offer maximum throughput, with best-effort ordering and at-least-once delivery. **SQS FIFO queues** offer event processing in the exact order that events are sent, with exactly once processing guarantee, although it comes with a throughput constraint.
- Since it is a fully managed message queuing service, SQS eliminates the complexity and overhead associated with managing and operating message-oriented middleware and empowers developers to focus on their core tasks.

6. AWS DynamoDB – NoSQL Database Services

- DynamoDB is Amazon's NoSQL database solution that supports document and key-value data models. It's a fully managed, multi-region, multi-active, durable database with built-in security, backup and restore, and in-memory caching for internet-scale applications.
- DynamoDB is an ideal fit for internet-scale mobile, web, gaming, IoT, retail, media, and entertainment applications that require single-digit millisecond low latency data access and need to support petabytes of data. DynamoDB can automatically scale up/ down, and provides ACID transactions support. Your DBAs do not need to provision, patch, or manage servers. There's no software to install, maintain, or operate.

[Mohamed Raafat Abdel Aziz]

THEORETICAL

1. Name 5 AWS services and their usage

I'm still working on it

add your search here …

PRACTICAL

1. Create one of those services under the free tier !!

I'm still working on it

add your search here …

[Mohamed Alsaed Alabasy]

THEORETICAL

1. Name 5 AWS services and their usage

I finished my search

AWS services are Amazon’s cloud platform products. They play an inevitable role in the cloud services industry across the globe. In fact, there are about 200+ AWS services offered by Amazon to meet the requirements of a variety of applications. Here, in this blog, we have listed and briefed 5 AWS services.

1. AWS Aurora

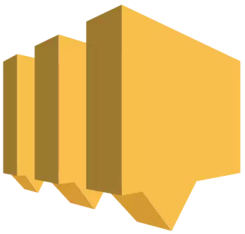
Amazon Aurora is the next addition to this list of top AWS services in demand. Why? It is a MySQL and PostgreSQL compatible relational database with high performance. Believe it or not, it is five times faster than standard MySQL databases. And it allows for automating crucial tasks such as hardware provisioning, database setup and backups, and patching. Amazon Aurora is a distributed, fault-tolerant, self-healing storage system that could scale automatically as per needs. Besides, you can even reduce costs significantly and enhance databases' security, availability, and reliability.

2. Amazon VPC

Amazon VPC is the Virtual Private Cloud, which is an isolated cloud resource. It controls the virtual networking environment, such as resource placement, connectivity, and security. And it allows you to build and manage compatible VPC networks across cloud AWS resources and on-premise resources. Here, it improves security by applying rules for inbound and outbound connections. Also, it monitors VPC flow logs delivered to Amazon S3 and Amazon Cloudwatch to gain visibility over network dependencies and traffic patterns. Amazon VPC also detects anomalies in the patterns, prevents data leakage, and troubleshoots network connectivity and configuration issues.

3. Amazon SNS

It is the Amazon Simple Notification Service (SNS). It is a messaging service between Application to Application (A2P) and Application to Person (A2Person). Here, A2P helps many-to-many messaging between distributed systems, microservices, and event-driven serverless applications. And, A2P supports applications to send messages to many users via mail, SMS, etc. For instance, you can send up to ten messages in a single API request. With effective filtering systems, subscribers will receive messages that they are interested in. Besides, Amazon SNS works alongside Amazon SQS to deliver messages accurately and consistently.



4. Amazon Kinesis

It is the AWS service that analyses the video as well as data streams. Amazon Kinesis collects, processes, and analyzes all types of streaming data. Here, the data may be audio, video, application logs, website clickstreams, and IoT telemetry. Then, it generates real-time insights within seconds once the data has arrived. With the help of Amazon Kinesis, you could stream and process a large quantity of real-time data with low latencies, very simply.

5. Amazon Lightsail

Amazon Lightsail is the website and applications building AWS service. This service offers Virtual Private Server instances, containers, databases, and storage. It allows a serverless computing service with AWS Lambda. With Amazon Lightsail, you can create websites using pre-configured applications such as WordPress, Magento, Prestashop, and Joomla in a few clicks and at a low cost. In addition to this, it is the best tool for testing, so you can create, test, and delete sandboxes with your new ideas.

PRACTICAL

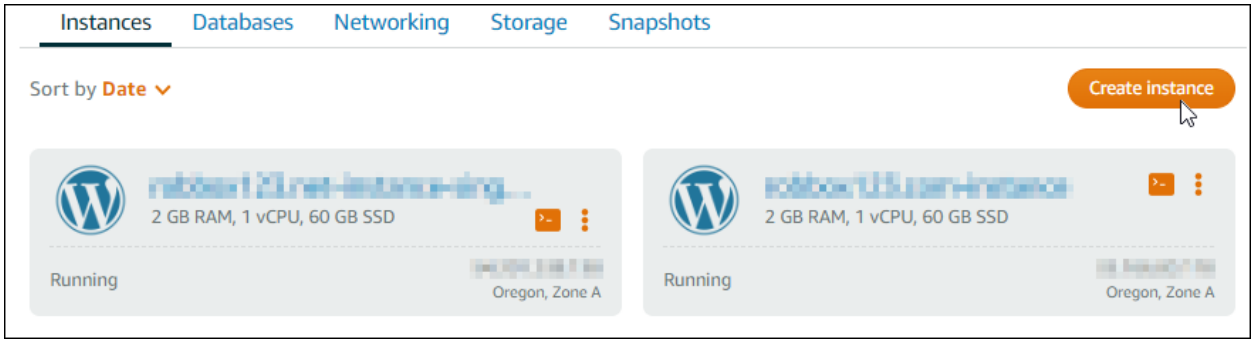
1. Create one of those services under the free tier !!

I finished my search

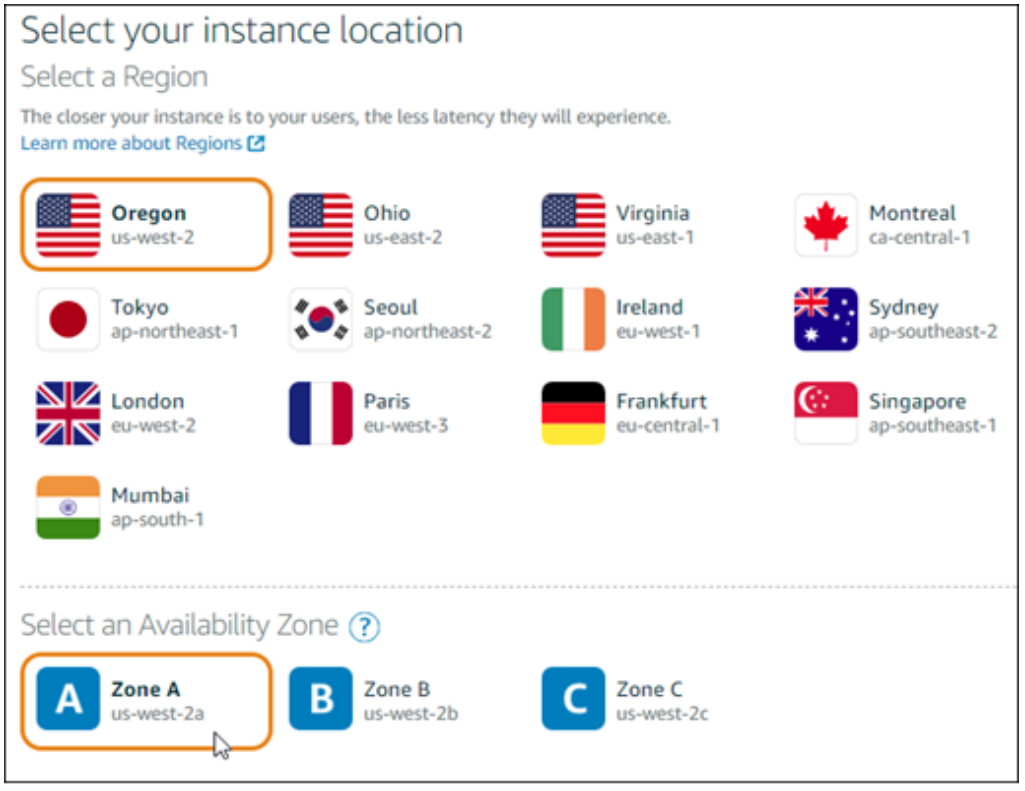
Step 1: Create a LAMP instance in Lightsail

Get your LAMP instance up and running in Lightsail. For more information about creating an instance in Lightsail, see Creating an Amazon Lightsail instance in the Lightsail documentation.

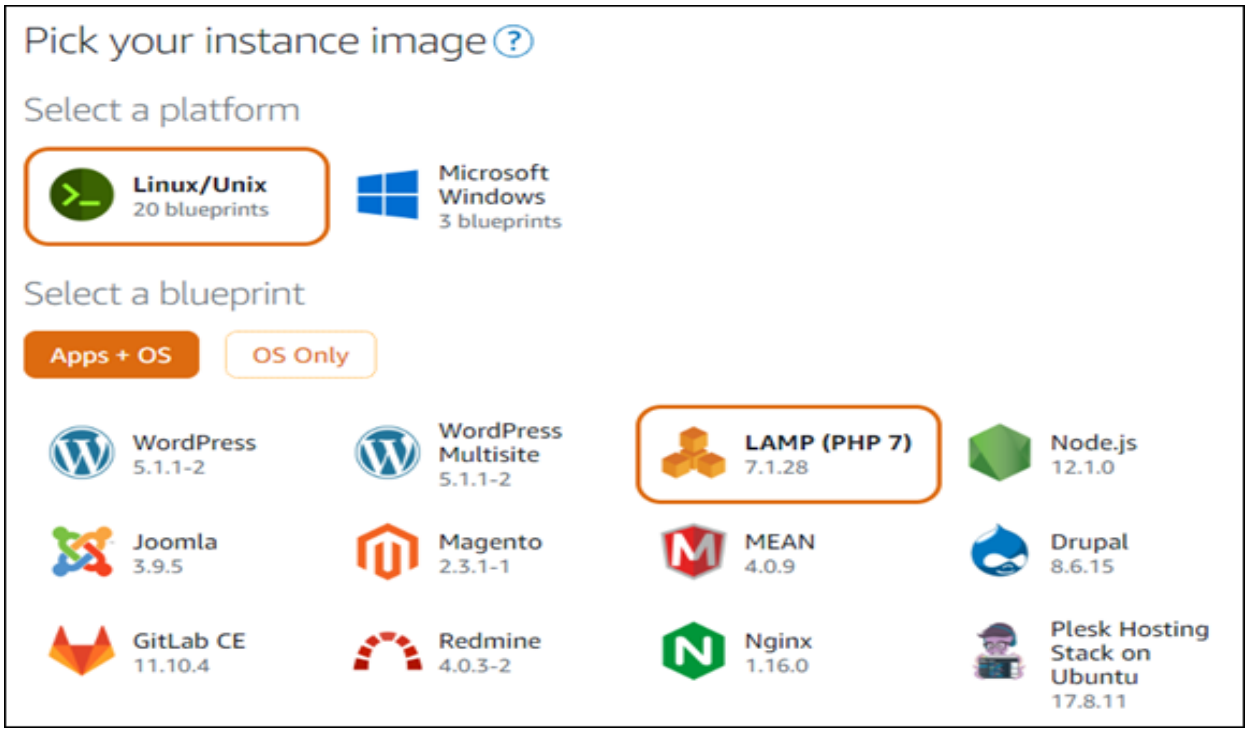
1. Sign in to the Lightsail console.
2. On the Instances tab of the Lightsail home page, choose Create instance.



3. Choose the AWS Region and Availability Zone for your instance.



4. Choose your instance image.
    a. Choose Linux/Unix as the platform.
    b. Choose LAMP (PHP 7) as the blueprint.

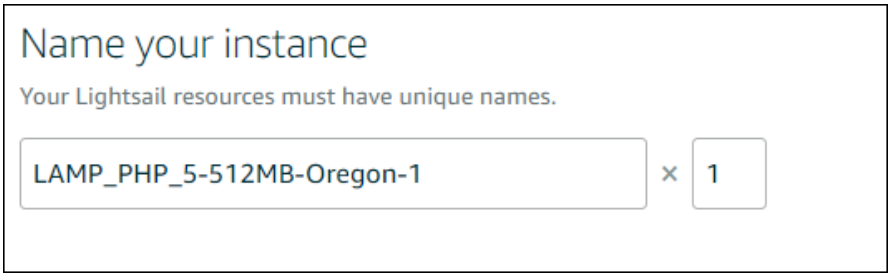


5. Choose an instance plan.
   A plan includes a low, predictable cost, machine configuration (RAM, SSD, vCPU), and data transfer allowance. You can try the $3.50 USD Lightsail plan without charge for one month (up to 750 hours). AWS credits one free month to your account.

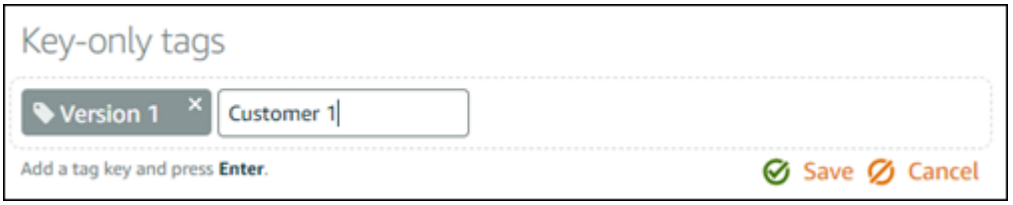
6. Enter a name for your instance.

   Resource names:

    a. Must be unique within each AWS Region in your Lightsail account.
    b. Must contain 2 to 255 characters.
    c. Must start and end with an alphanumeric character or number.
    d. Can include alphanumeric characters, numbers, periods, dashes, and underscores.



7. Choose one of the following options to add tags to your instance:
    a. Add key-only tags or Edit key-only tags (if tags have already been added). Enter your new tag into the tag key text box, and press Enter. Choose Save when you're done entering your tags to add them or choose Cancel to not add them.



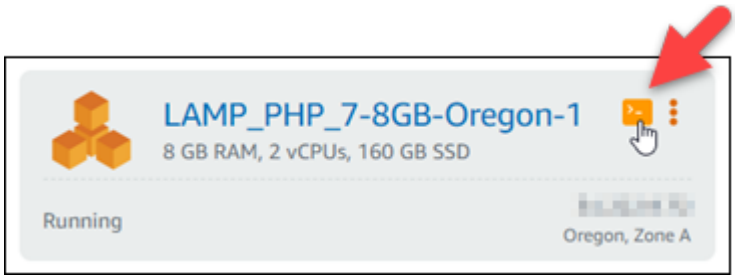
    b. Create a key-value tag, then enter a key into the Key text box, and a value into the Value text box. Choose Save when you're done entering your tags or choose Cancel to not add them.

    Key-value tags can only be added one at a time before saving. To add more than one key-value tag, repeat the previous steps.

Step 2: Connect to your instance via SSH and get the application password for your LAMP instance

The default password to sign in to your database in LAMP is stored on your instance. Retrieve it by connecting to your instance using the browser-based SSH terminal in the Lightsail console and running a special command. For more information, see Getting the application user name and password for your Bitnami instance in Amazon Lightsail.

1. On the Instances tab of the Lightsail home page, choose the SSH quick-connect icon for your LAMP instance.



2. After the browser-based SSH client window opens, enter the following command to retrieve the default application password:

```
cat bitnami_application_password
```

3. Make note of the password displayed on the screen. You use this password later to install Bitnami applications on your instance or to access the MySQL database with the user name of the root.

Step 3: Install an application on top of your LAMP instance

Deploy your PHP application on top of your LAMP instance, or install a Bitnami application. The main directory to deploy your PHP application is

`/opt/bitnami/apache2/htdocs`

Copy your PHP application files to that directory and access the application by browsing your instance's public IP address.

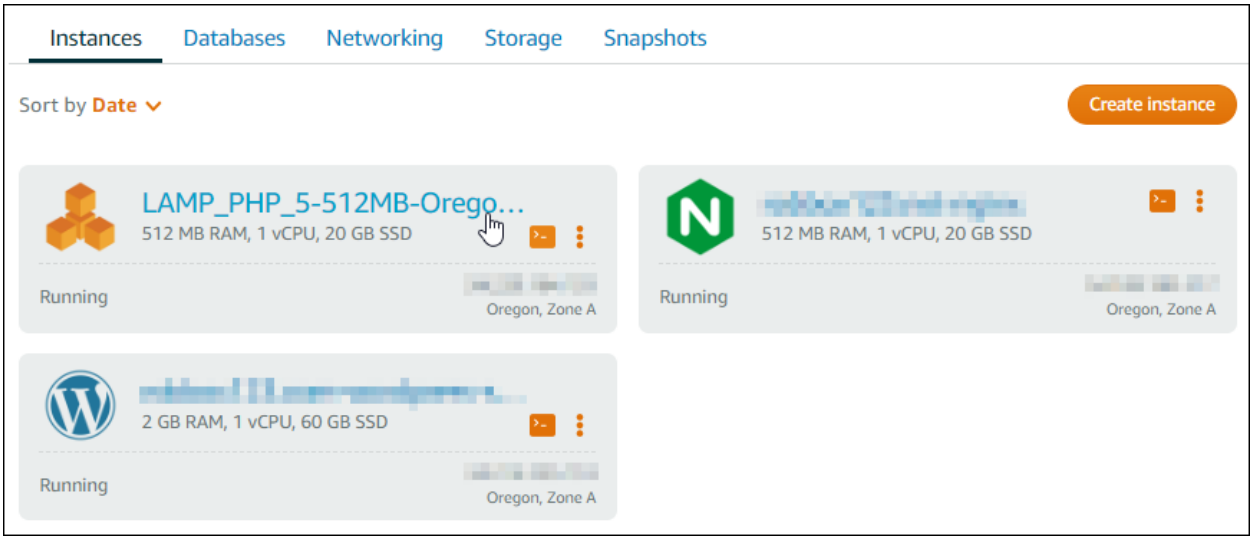
You can also install a Bitnami application using module installers. Download WordPress, Drupal, Magento, and Moodle among other applications from the Bitnami website, and extend the functionality of your server. For more information about installing Bitnami applications, see Add applications on top of LAMP in the Bitnami documentation

Step 4: Create a Lightsail static IP address and attach it to your LAMP instance

The default public IP for your LAMP instance changes if you stop and start the instance. A static IP address, attached to an instance, stays the same even if you stop and start your instance.

Create a static IP address and attach it to your LAMP instance. For more information, see Create a static IP and attach it to an instance in Amazon Lightsail in the Lightsail documentation.

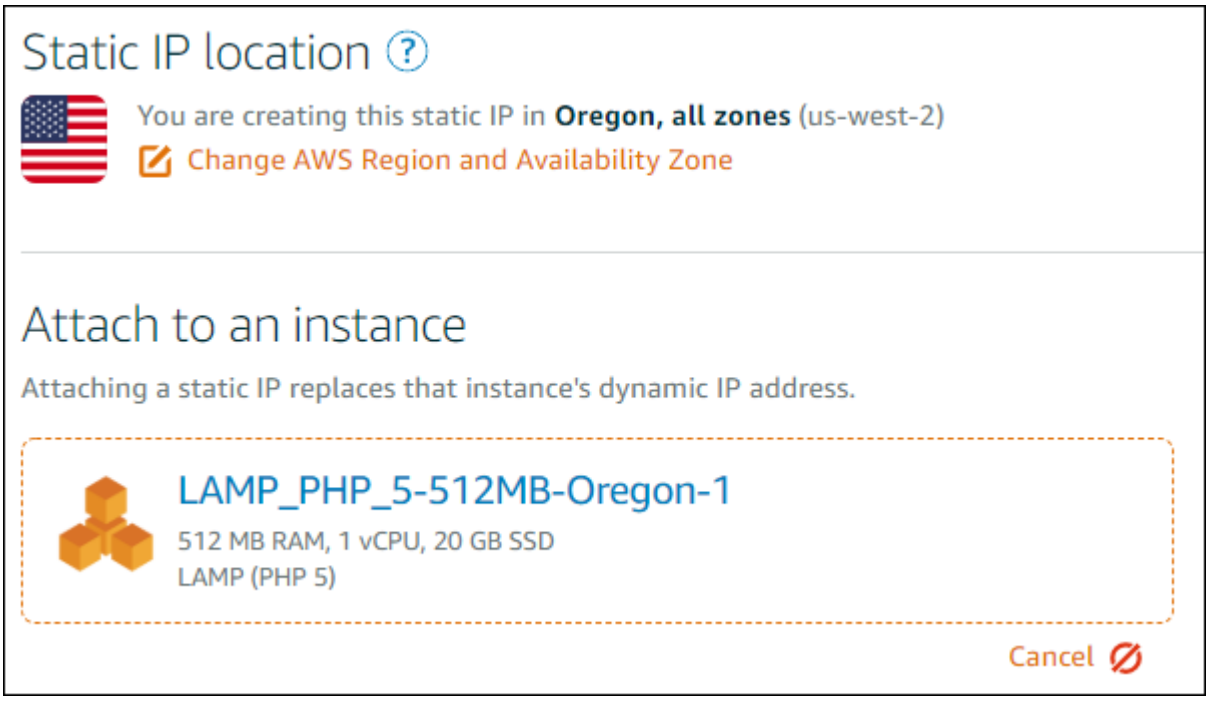
1. On the Instances tab of the Lightsail home page, choose your running LAMP instance.



2. Choose the Networking tab, then choose to Create static IP

.

3. The static IP location and attached instance are pre-selected based on the instance that you chose earlier in this tutorial.



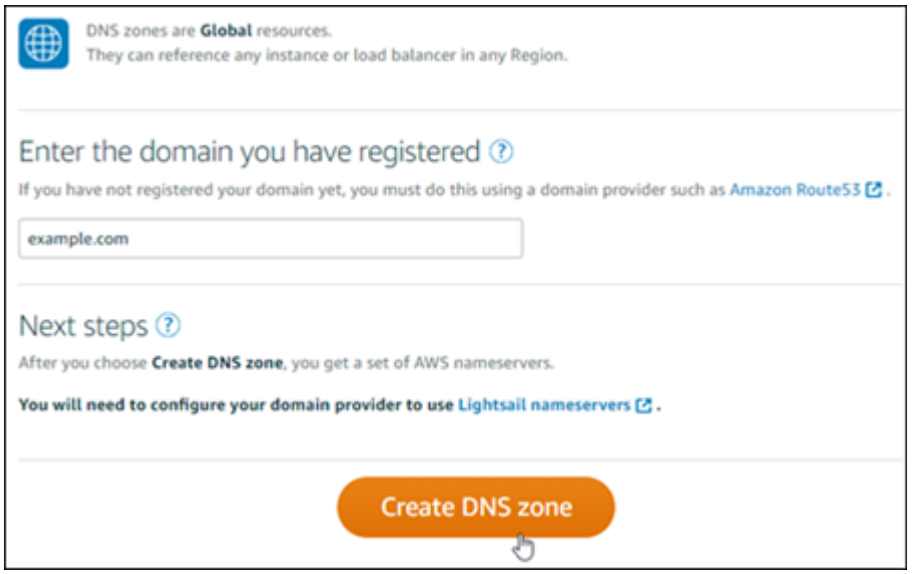
4. Name your static IP, then choose to Create.

Step 5: Create a Lightsail DNS zone and map a domain to your LAMP instance

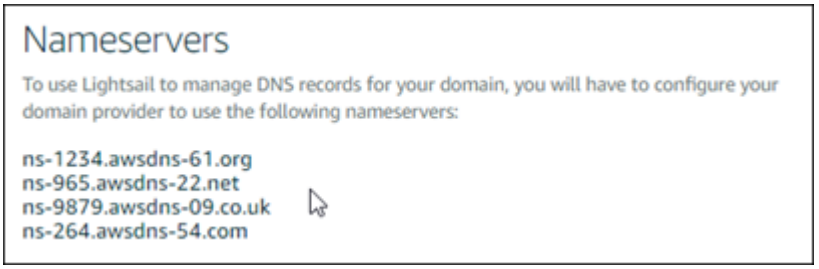
Transfer management of your domain's DNS records to Lightsail. This allows you to more easily map a domain to your LAMP instance, and manage all of your website's resources using the Lightsail console. For more information, see Creating a DNS zone to manage your domain's DNS records in Amazon Lightsail in the Lightsail documentation.

1. On the Networking tab of the Lightsail home page, choose to Create DNS zone.

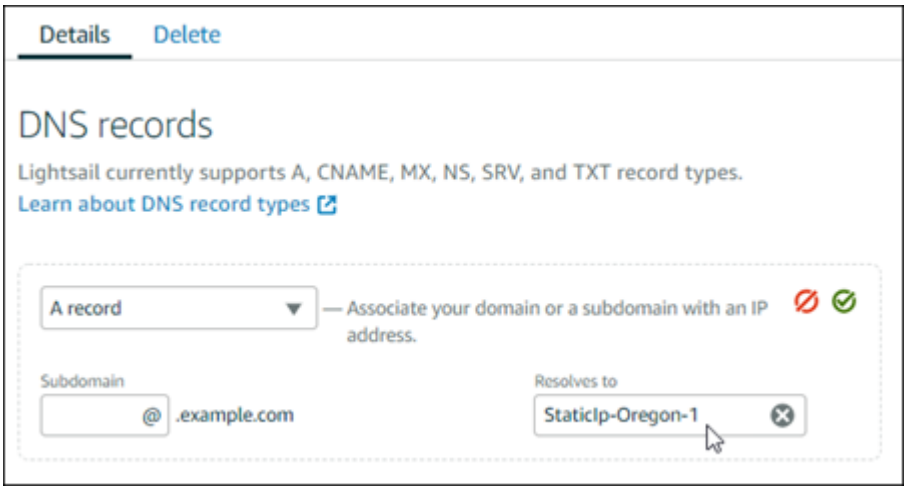
2. Enter your domain, then choose to Create DNS zone.



3. Make note of the name server addresses listed on the page.



4. After the management of your domain's DNS records are transferred to Lightsail, add an A record to point the apex of your domain to your LAMP instance, as follows:
    a. In the DNS zone for your domain, choose Add record.
    b. In the Subdomain box, enter an @ symbol to map the apex of your domain (such as example.com) to your instance. The @ symbol explicitly symbolizes that you're adding an apex record. It is not added as a subdomain.
    c. In the Maps to box, choose the static IP that you attached to the LAMP instance in the previous step of this tutorial.
    d. Choose the save icon.



For Free Product Offers of aws

Free Product Offers

Build compute solutions using these product offers from the AWS Free Tier.

PRODUCT	DESCRIPTION	FREE TIER OFFER DETAILS	PRODUCT PRICING
Amazon EC2 Elastic Cloud Computing	Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides secure, resizable compute capacity in the cloud.	**12 MONTHS FREE** **750 hours** per month of Linux, RHEL, or SLES t2.micro or t3.micro instance dependent on region **750 hours** per month of Windows t2.micro or t3.micro instance dependent on region	Amazon EC2 Pricing
Amazon Lightsail Simple Virtual Private Servers	Lightsail is an easy-to-use virtual private server (VPS) that offers you everything needed to build an application or website, plus a cost-effective, monthly plan.	**3 MONTH FREE TRIAL** (750 hours per month) Try the $3.50 USD Lightsail plan free for one month when using Linux/Unix Try the $8 USD plan free for one month when using Lightsail for Microsoft Windows Server	Amazon Lightsail Pricing
AWS Lambda Serverless Computing	AWS Lambda is a serverless compute service that lets you run code without provisioning or managing servers, creating workload-aware cluster scaling logic, maintaining event integrations, or managing runtimes.	**ALWAYS FREE** **1,000,000** free requests per month **Up to 3.2 million seconds** of compute time per month	AWS Lambda Pricing
Amazon Elastic Container Registry Fully Managed Container Registry	Amazon Elastic Container Registry (ECR) is a fully managed container registry that makes it easy to store, manage, share, and deploy your container images and artifacts anywhere.	**12 MONTHS FREE** **500 MB** per month of Storage	Amazon ECR Pricing
Elastic Load Balancing Distribute Network Traffic	Elastic Load Balancing automatically distributes incoming application traffic across multiple targets, such as Amazon EC2 instances, containers, IP addresses, Lambda functions, and virtual appliances.	**12 MONTHS FREE** **750 Hours** per month shared between Classic and Application load balancers **15 GB** of data processing for Classic load balancers **15 LCUs** for Application load balancers	Elastic Load Balancing Pricing