    - Which benefits would you gain over EC2 combined with AutoScalingGroup?
    - Can you illustrate how your new infrastructure design would look like?
- (1 mark) What problem does Service Discovery solve? What is the Service Discovery AWS offering for your Container Orchestration and Compute option?
- (1 mark) What problem does Service Mesh solve? What is the AWS Service Mesh offering for your Container Orchestration and Compute option?

Hint: don't forget the the Container Registry component

Part III. AWS Native Architecture design (10 marks total)

Research, design, draw figures.

Design exercise requirements:

- The client wishes to build a news aggregator web app to earn money with Google Ads
    - The backend constantly look for latest news from many different news websites. Some sites require refreshing data every 10 seconds, some sites less frequently
    - Save the aggregated news headline and links into a no management database with infinite scale
    - The backend should use a no management APIGW to allow for the static website to make API calls to
- The website should be ideally
    - Very cheap to host, and
    - Deployed to a globally available CDN
    - Completely billed by on-demand pricing models
    - Has no management effort required, except for incident resolution
- Both the APIGW and the static website have domain name
    - Static website has CNAME `www.` points to `bestnewsaggregator.com`
    - APIGW has domain record `api.`
    - The APIGW should be protected against Layer 7 attacks such as SQL injection, or DDOS protection
    - Both needs to be secured by SSL certificate from a publically trusted CA
- The backend should be consisted of:
    - `GET /news API` to get the latest news from the static website. It may look at geolocation, device, and browser information to customize the news resource
    - `GET /news API` response should also be cached to save infrastructure cost
    - Only the Origin `www.` should be able to make request to `api.` (CORS)
    - A scheduler component that trigger scalable backend job to fetch for lastest news articles

    - Fetched links need to be checked if they are actually new according to the internal database with infinite scale mentioned earlier
    - The combination infrastructure of scheduling + fan-out scheduling event to the list of new source + get news executor should be fast, management free, and scalable
    - Some news sources are only updated once daily while others are known to have new articles to be released at any given moment. Thus, the design should be able to trigger news source aggregators tailored for individual websites at a different rate, depending on the frequency settings of each of the crawled websites. Note that there are thousands of websites thus the chosen scheduling setup should be scalable to reduce overheads on the engineers to add more sources.

As the lead engineer, you are tasked with designing this architecture to fulfill all of the customer requirements using AWS Cloud.

Expected submission formats are:

- Produce your architecture design into graphics files `.drawio` or exported `.png` in high resolution
- Make short notes on the AWS Components on how some of the requirements are fulfilled
- It is encourged to reference to `.png` images inside file `Part III/Answer.md`

You should be able to design the architecture with only AWS services (don't have to use all of these) such as:

- EventBridge scheduler
- SNS
- SQS
- S3
- CloudFront
- APIGW
- WAF
- Route53
- ACM
- DynamoDB
- Lambda
- StepFunction
- EventBridge

Part IV. AWS Native Software