Cloud Computing Assignment

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Question Statement:

1. Make a report by comparing any two products providing the same service from different cloud vendors. Minimum two products to be taken for comparison and minimum of 5 metrics to be selected by the students for comparing the same.

Ans.

**Google Container Engine (GKE)**

Google Container Engine (GKE) is a [cluster](https://www.webopedia.com/TERM/C/clustering.html) management and [container](https://www.webopedia.com/TERM/C/containerization.html) orchestration system developed to run and manage [Docker](https://www.webopedia.com/TERM/D/docker.html) containers.

Google Container Engine is powered by the open-source [Kubernetes](https://www.webopedia.com/TERM/K/kubernetes.html) system that Google originally created to help the company in its own operational management of containers, and it can be deployed for use on [on-premises](https://www.webopedia.com/TERM/O/on-premises.html), [hybrid cloud](https://www.webopedia.com/TERM/O/on-premises.html) or [public cloud](https://www.webopedia.com/TERM/P/public_cloud.html) infrastructure.

GKE schedules containers into a cluster and then manages them automatically based on defined stipulations and requirements. Interaction with GKE can be conducted via the gcloud [command-line interface](https://www.webopedia.com/TERM/C/CLI.html) (CLI) or the Google Cloud Platform Console.

**Amazon EC2 Container Service (Amazon ECS):**

It integrates with tools from AWS ecosystem such as AWS Code Pipeline, AWS Code Build, AWS CloudFormation, AWS Elastic Load Balancer, Amazon EC2 Container Registry, AWS CLI. And for monitoring CloudWatch, Datadog, statsd, ELK, Prometheus, Graphite, and so on. ECS is using load balancers for servicediscovery. External as well as internal services are accessible through load balancers. The Application Load Balancer (ALB) offers path- and host-based routing as well as internal or external connections. ECS is using load balancers for **service discovery**. External as well as internal services are accessible through load balancers. The Application Load Balancer (ALB) offers path- and host-based routing as well as internal or external connections.

**Comparisons as follow:**

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| Metrics | Google Container Engine (GKE) | Amazon Aws Ec2 service (ECS) |
| Orchestration | Kubernetes | Based on a proprietary clustering technology |
| Pricing | Cluster management: Free up to 5 nodes, more than 5 nodes Google charges $0.15 per cluster per hour.  Nodes instances: You will be billed for these instances according to Compute Engine's pricing, until the nodes are deleted | Cluster management: Amazon EC2 Container Service is a free.  Nodes instances: You pay for AWS resources (e.g. EC2 instances or EBS volumes) you Create to store and run your application. |
| security | Leverage Kubernetes security features Control access in the cluster with your Google accounts and role permissions | Parameter Store and task IAM roles or custom integration with Vault or Key Whiz.  Encryption of secrets with custom keys with  KMS |
| Service discovery | Only requests from outside the cluster are passed through a Load Balancer. A virtual IP provides access to internal services without need for a load balancer. | ECS is using load balancers for service discovery. External as well as internal services are accessible through load balancers. The Application Load Balancer (ALB) offers path and host-based routing as well as internal or external connections. |
| Dev-ops and Integrations | Google Container Builder, CircleCl, Code fresh, Code ship, Jenkins, Semaphore, Shippable, Solano Cl, Spinnaker, TeamCity, Wercker, Cloud Shell, Google Container Registry | AWS Code Pipeline, AWS Code Build, and AWS  CloudFormation, Amazon EC2 Container. |
| Advantages | * + Customers get Higher Uptime and Reliability   + Easy to integrate with other Google Cloud Services   + Fewer Data stored on Vulnerable Devices | * + Highly secure as policies can be configured to manage permission and control access.   + No upfront fees or commitments.   + Many supported third party services.   + . Powerful and more customizable |
| Disadvantages | 1.Downloading data from Google Cloud Storage is expensive  2.Prices in both Microsoft Azure or Back blaze B2 are lower than Google Cloud Storage | 1.Consistency is less when compared with Azure.  2.Lack of insight into registry usage. |