1. **Load balancer with auto scaling and cloud watch:**

AWS: Has the feature to create Elastic load balancing with auto scaling and Cloudwatch.

GCP: Has the feature to manage cloud balancing with single anycast IP with auto scaling.

Azure: Has the same feature.

Remark: All three cloud platforms has the above feature with similar implementation procedure.

Pricing:

AWS: Classic Load Balancer Pricing:

$0.032 per load balancer-hour (or partial hour)

$0.010 per GB of data processed by an Elastic Load Balancer

Application Load Balancer Pricing:

$0.032 per load balancer-hour (or partial hour)

$0.010 per LCU-hour (or partial hour)

GCP: Item Price per Unit (USD) Pricing Unit

First 5 forwarding rules $0.025 Per Hour

Per additional forwarding rule $0.010 Per Hour

Data processed $0.008 Per GB

Azure: No available data.

1. **Batch and streaming big data processing**

AWS: Amazon Kinesis Streams enables us to build custom applications that process or analyze streaming data for specialized needs.

GCP: Cloud Dataflow, a fully-managed cloud service and programming model for batch and streaming big data processing.

Azure: Azure Event Hubs, that collects, transforms, and stores millions of events.

Remark: Possible to integrate data between resources. Allows to implement custom extensions with standard SDKs.

Pricing:

AWS: Kinesis Processing Unit, Per Hour $0.015 per hour

(Stream processing capacity comprising 4 GB of memory, 1 vCPU compute, and corresponding networking resources)

GCP: Dataflow Mode Price per GCEU per hr

Batch $0.01 2

Streaming $0.015

(All Google Compute instances for a given Dataflow job have a 3-minute clock-time minimum)

Azure: Basic Standard

Ingress events $0.028 per million events $0.028 per million events

Throughput unit

(1 MB/s ingress, 2MB/s egress) $0.015/hr (~$11/mo) $0.03/hr (~$22/mo)

1. **High availability multi master replication DB:**

AWS: Amazon Aurora allows us to create master replicas for high availability. We can also manage failover mechanism.

GCP: Google cloud allows to create read replicas, external read replicas and external master replicas to manage high availability.

Azure: We can achieve high availability and failover Gelara cluster model with Azure.

Pricing:

AWS: High availability

db.t2.medium $0.082

Memory Optimized Instances - Current Generation

db.r3.large $0.290

db.r3.xlarge $0.580

db.r3.2xlarge $1.160

db.r3.4xlarge $2.320

db.r3.8xlarge $4.640 (Per Hour)

GCP:

Machine Type VCPUs RAM (GB) Max Storage Price (hour) Use Price ($/hour)

db-n1-standard-1 1 3.75 10,230 GB $0.0965 $0.0676

Storage

$0.17 per GB/month for SSD storage capacity

$0.09 per GB/month for HDD storage capacity

$0.08 per GB/month for backups (used)

Azure: Max storage per pool MAX DBs PER POOL MAX eDTUs PER DATABASE Price

5 GB 100 5 $0.10/hr

10 GB 200 5 $0.20/hr

20 GB 500 5 $0.40/hr

1. **SAML with SSO:**

AWS: AWS Directory Service provides the ability to allow users to access to the resources with single sign-on. AWS supports SAML with SSO enabled.

GCP: Cloud Platform supports SAML 2.0-based SSO, which provides seamless SSO against Cloud Platform Console.

Azure: Azure Active Directory enabling users to use their primary organizational account to not only sign in to their domain-joined devices and company resources, but also all of the web and SaaS applications needed for their job.

1. **AI:**

AWS: Amazon AI provides Lex (a service for building conversational interfaces into any application using voice and text), Amazon Rekognition (a service that makes it easy to add image analysis to the applications), Amazon Polly (a service that turns text into lifelike speech) and Machine Learning (a service that makes it easy for developers of all skill levels to use machine learning technology).

GCP: Google Machine learning platform provides Google Cloud Jobs API (provides job search that tells what job seekers are looking for and help them discover new opportunities), Google Natural Language API (reveals the structure and meaning of text by offering powerful machine learning models in an easy to use REST API), Google Cloud Speech API (convert audio to text by applying neural network models in an easy to use API), Google Cloud Translate API (programmatic interface for translating an arbitrary string into any supported language) and Google Cloud Vision API (enables us to understand the content of an image by encapsulating powerful machine learning models).

Azure: Has a growing directory of Intelligence and Analytics tools. Machine learning (design, test, operationalise and manage analytics solutions in the cloud), Cognitive Services (APIs and SDKs that enable developers to easily add intelligent services, such as vision, speech, language, knowledge and search capabilities, to their solutions), Azure bot services (intelligent bot development), Power BI Embedded (provides fully interactive data visualisations in your customer-facing apps) and Text analytic APIs, Computer vision APIs, Emotion, Face and Speech APIs are available.

**Price comparison for AWS, Google and Azure.**

In Google Cloud:

1. For one VPS instance with 1 CPU and 4GB RAM with 24/7 up-time, it would cost $25.55 per month. (less than the other two)

2. For Cloud Storage with 16GB single region Storage with 8GB frequently and 4GB most frequently accessed storage with 24/7 up-time would cost $25.98 per month.

3. For a standard MS SQL DB with 8GB space with 24/7 up-time, it would cost up to $76.65 per month.

4. Total would be $128.18

In AWS:

1. One Standard EC2 with 2CPU and 4GB RAM would cost $38.07

2. S3 Cloud Storage with 32 GB would cost $3.25 per month with 10000 in/out requests. (less other than two)

3. RDS with standard small my sql DB would cost $25.84

4. Total cost will be $67.16

In Azure:

1. One Standard VM Standard with one core, 3.5 GB RAM and 50 GB HDD with full uptime costs $50.67.

2. Cloud Storage with 32 GB with 10000 transactions per month will cost $32.52.

3. For RDS with single standard DB with 2GB Storage will cost $4.41 (less other than two, but with lesser size)

4. Total cost will be $87.6

\*AWS using per hour rounded up pricing model where as GCP and Azure using per minute (10 min) rounded up pricing.