Lecture-21
**Exploring PaaS with App Engine**

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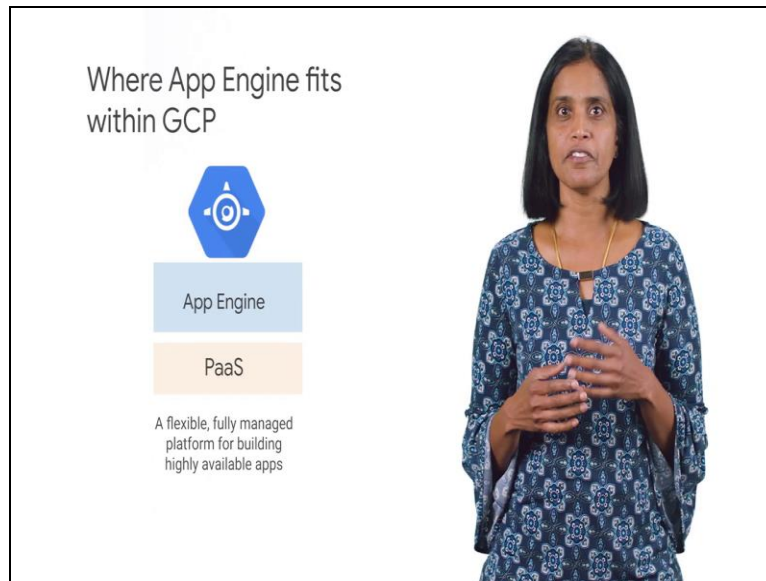
Next you will explore how App Engine can run applications without having your managed infrastructure. App engine allows you to build highly scalable applications fully managed server less platform. App engine is ideal if time to market is highly valuable to you and you want to be able to focus on writing code without ever having to touch a server infrastructure. It is also ideal if you do not want to worry about a pager going off for receiving 5XX errors. App engine allows you to have high availability apps without a complex architecture.

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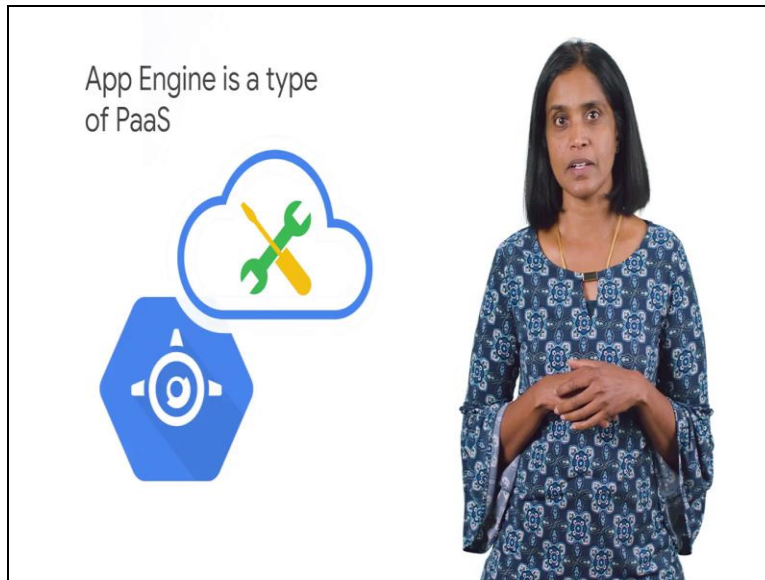
As a fully managed environment app engine is a perfect example of a computing platform provided as a service.

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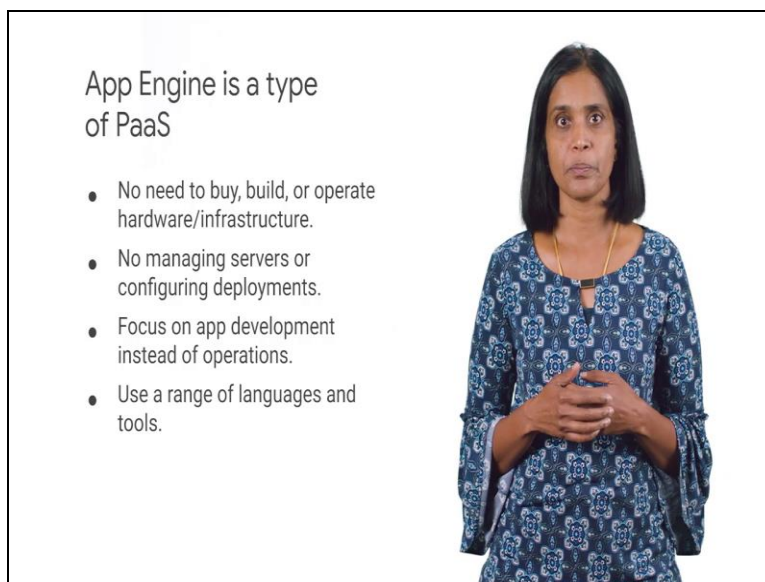
App Engine can save organizations time and cost in software application development by eliminating the need to buy build and operate computer hardware and other infrastructure. This includes no server management and no need to configure deployments. This allows engineering teams to focus on creating high value applications instead of no value operations work. You can quickly building and deploy applications using the range of popular programming languages, like Java, PHP, node.js Python, C sharp, ., Ruby and Go or you can bring your own language runtime and frameworks.

App Engine allows you to manager resources from the command line, debug source code in production and run API back ends easily using industry-leading tools such as cloud SDK cloud source repositories, Intellij Idea, Visual Studio and Portia. App engine also automatically scales depending on the application traffic and consumes resources when code is running. This allows cost to be kept to a minimum.

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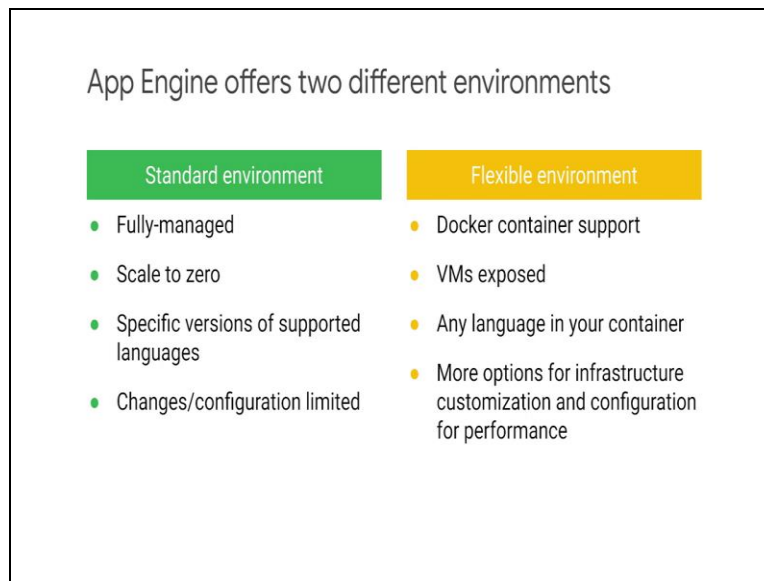
You can run your applications in App engine using a standard flexible environment. And you can also choose simultaneously use both environment and allow your services to take advantage of each environment individual benefits. The standard environment offers a fully managed infrastructure for your application that can scale down to 0 if not in use. This means you stopping to use the service. However, your applications must conform to the top town environment of app engine in standard.

Only the specific version of a few runtime or support. You cannot sign into the system to make changes. You cannot write to a persistent disk in the configuration of the environment is limited. App engine flexible runs your application in docker container environment. You can use any http-based runtime. Virtual machines are exposed allowing you to log into them and write to persistent disk. However the system will not scale down to 0.

You still pay for the service even if the users or not using application because VM instances in the flexible environment are compute engine virtual machines far more options for infrastructure customization, you also able to take advantage of a wide array of CPU and memory configuration. In summary if you just need a high-performance managed infrastructure and can confirm to strict runtime limitations then app engine standard is a great option.

If you need to use custom runtimes or if you need a less rigid environment, but still want to leverage a platform as a service then app engine flexible would be a more suitable option.
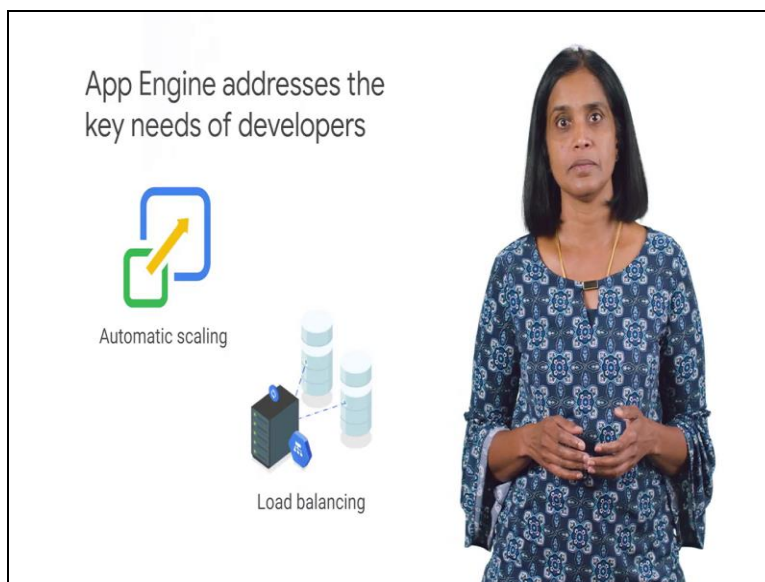
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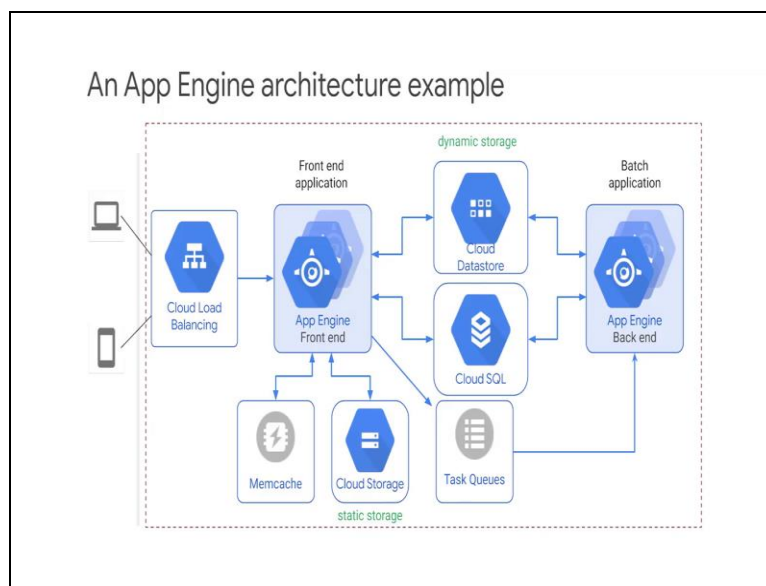
The frontend is often critical to the user experience to ensure consistent performance built in load balancer will distribute traffic to multiple frontends and scale the frontend as necessary. The backend is for more intensive processing. This separation of function of each part to scale as needed. Note that the app engine services modular and this example shows a single service. More complex architecture are possible.

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When using app engine you also have multiple options to store application data including caching through App Engine memcache, cloud storage for any objects upto 5 terabytes size, cloud data storage for persistent low-latency memory for serving data to applications. Cloud sequel which is a relational database that can be run on a persistent is greater than one terabyte in size and cloud bigtable is no sequel database for heavy read write and then analysis.

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The automatic scaling of App Engine allows you to meet any demand and load balancing distribute load balance computer resources in single or multiple regions close to users to meet high availability requirements.

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App Engine allows you to easily host different versions of your app which includes creating development, test, and staging and production environment. Start driver gives you powerful application diagnostic to debug and monitor the health and performance of your app.

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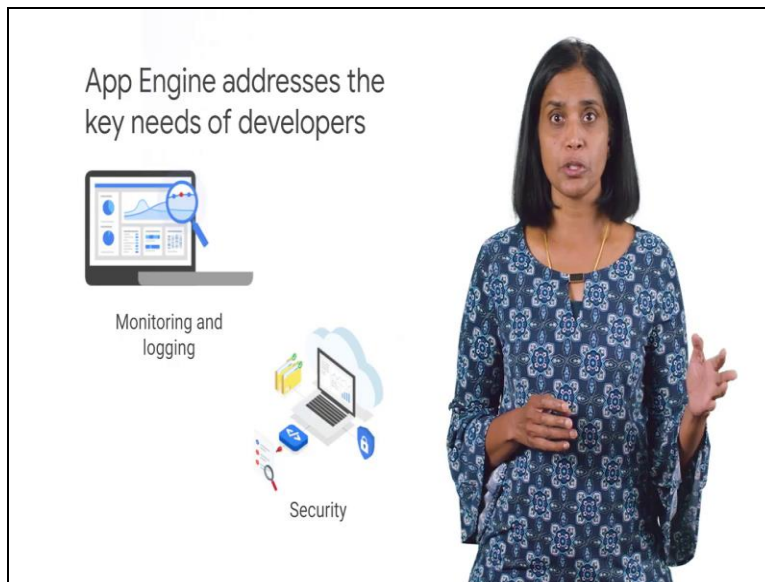
And you can leverage robust security tools like cloud security scanner.