



- You want to get an app on the cloud, the Google App Engine is the perfect tool to use to make this dream become reality.
- In essence, you write a bit of code in Python, tweak some HTML code, and then you've got your app built, and it only takes a few minutes.
- Having knowledge of Python certainly helps, but it isn't a deal-breaker, because Python is a lot like other scripting languages.
- Java is very prevalent on the cloud. It is a very robust scripting tool and one that programmers know well. But its complexity is probably hurting it more than helping.
- On average, hosting for Java applications begins around US\$10 per month, while Python services start at around US\$2 per month.
- Google was able to tweak the language slightly so that dangerous operations are not allowed, like writing to the file system. This prevents robust uploading services and spawn subthreads.



- Google built this in by design, given the fact that new programmers are likely to screw up and make an app that falls into an endless loop. App Engine is better for the front ends of databases that don't have to do a lot of independent thinking or computation.
- The database is integrated well with Python, but only allows basic search and store functions that you would need to tuck away users' information.
- Data objects are set up in Python, and then you use the save method and all the data disappears into the cloud where instances of the app can find it.
- Python looks a lot like SQL, but with a different syntax. That means that you can't use any of the millions of already scripted SQL tools to generate reports or produce graphs.
- App Engine doesn't store joins, which will break some of the code written for traditional databases. Google App Engine isn't perfect.
- The documentation mentions web services and Asynchronous JavaScript and XML (AJAX), but there isn't much support for them.



Payment :

- Google is charging when applications exceed certain limits. For instance, Google says that you can only get “200 million megacycles of CPU per day.”
- This can be a little frightening, because Google can skew the number in odd ways that are beyond your control. Further, you could see resources being used up as the database stores information on more than one server.
- One server starts asking for information, interserver traffic can slow everything down, and if two users are trying to get at the same data at the same time, access can become slow and expensive. On the plus side, App Engine will bring up new servers when demand rises.
- Google has the power to do whatever they want with your creation. Lock-in can be a problem, but at least it is somewhat offset by the open-source nature of the scripting language.
- App Engine is best for simple applications that plan on staying simple. The cloud can scale the application as needed, but if you have dreams of making your application big, Google says it reserves the right to “pre-screen, review, flag, filter, modify, refuse or remove any or all Content from the Service.”



Force.com and Google

- Salesforce.com struck up a strategic alliance with Google with the availability of Force.com for Google App Engine. Force.com for Google App Engine is a set of tools and services to enable developer success with application development in the cloud.
- The offering brings together Force.com and Google App Engine, enabling the creation of entirely new web and business applications.
- Force.com for Google App Engine builds on the relationship between Salesforce.com and Google, spanning philanthropy, business applications, social networks, and cloud computing.
- “Developers now can take advantage of the easy to use and rapidly scalable cloud computing infrastructures from Google and Salesforce.com to build and deliver powerful business applications.
- “At Google, as at Salesforce.com, we are committed to enabling developer success with cloud computing,” said Tom Stocky, director of product management at Google.
- “Bringing together Google App Engine and Force.com will foster the creation of new Web applications and further demonstrate the power of the Web as a platform.”



- Force.com for Google App Engine provides a set of tools and services meant to foster the creation of new kinds of web and business applications built and delivered entirely in the cloud.
- Instead of managing and maintaining their own client/server infrastructure, developers can use cloud computing infrastructure from Google and Salesforce.com to build, run, and deliver new applications on the Web.
- Web applications developed on App Engine are easy to build, easy to maintain, and easy to scale as traffic and data storage needs grow. App Engine offers a developer community and libraries to power consumer oriented interactive web applications.
- Force.com provides developers a complete environment to quickly build business applications that run on Salesforce.com's trusted global infrastructure. Now, consumer-oriented web applications built on App Engine can leverage enterprise data stored in Force.com.
- For end users of these applications, the integration of Force.com and Google App Engine means that applications can be powered by both systems.
- Using Force.com for Google App Engine, developers can build applications that span both Salesforce.com and Google's cloud computing platforms, and take advantage of the sum of their features as desired.



Force.com for Google App Engine provides:

- A means to leverage Python in a scalable cloud environment and interact directly with database, workflow, and logic capabilities in Force.com.
- Force.com for Google App Engine enables the creation of Python libraries that, when placed on Google App Engine, allow App Engine apps to read and write to Force.com using the Force.com API.
- App Engine developers get access to Force.com services and capabilities including mobile, analytics, security and sharing models, user authentication, Multilanguage and currency support, and more.
- Enterprise partner. “Force.com for Google App Engine brings together the leaders in cloud computing to help address those needs and allows corporate IT to easily scale up or down to meet changing business conditions.”
- The companies have been working together beginning in 2003 with joint work around the creation of Google.org, the alliance has been extended to work together on mashups, Salesforce for Google AdWords, Group Edition featuring Google AdWords, OpenSocial, Salesforce for Google Apps, Force.com for Google Data APIs, and now Force .com for Google App Engine.



- More than 5,000 Salesforce.com customers are using Google Apps, and more than 10,000 are using Salesforce for Google AdWords. And five of the top ten most popular applications on the Force.com AppExchange marketplace come from Google-related partners.
- Force.com for Google App Engine helps developers create new web and business applications that leverage the capabilities of App Engine, at the same time allowing access to Force.com data and APIs from directly within App Engine projects and applications.

Force.com for App Engine includes :

- Getting started guide
- Python library documentation
- Examples showing Python code accessing Force.com
- Testing harness for the provided library
- Wiki FAQ page on developer.force.com with best practices and latest tips and trick



Google Gears :

- Another development tool that Google offers is Google Gears, an open-source technology for creating offline web applications. This browser extension was made available in its early stages so that the development community could test its capabilities and limitations and help Google improve upon it.
- Google's long-term hope is that Google Gears can help the industry as a whole move toward a single standard for offline capabilities that all developers can use.
- Google Gears addresses a major user concern: availability of data and applications when there's no Internet connection available, or when a connection is slow or unreliable.
- "With Google Gears we're tackling a key limitation of the browser in order to make it a stronger platform for deploying all types of applications and enabling a better user experience in the cloud," said Eric Schmidt, CEO of Google.
- Google offers Google Gears as a free, fully open-source technology in order to help every web application, not just Google applications. As an example of what is possible, the Google Reader feed reader (<http://reader.google.com>) is available with Gears-enabled offline capabilities.



Sample Applications - Gears API - Google Code

http://code.google.com/apis/gears/sample.html

Google Code

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Gears API

Install Google Gears
Sample Applications

Developer's Guide

- Getting Started
- Tutorial
- Architecture
- Security
- Resources and Tools
- Gears on Mobile Devices

API Reference

- Summary
- Factory
- Blob
- Database
- Desktop
- Geolocation
- HttpRequest
- LocalServer
- Timer
- WorkerPool

Upcoming Release

- Developer's Guide
- API Reference

Sample Applications

This page lists sample applications that use Gears API. Sample code is found in the /samples directory of the the zipfile provided below, or by using the view source feature of your browser.

Download the sample code from the [Resources and Tools](#) page.

"Hello, World" Samples

Note: To see the sample applications working, you must first [install Gears](#).

- Database.Demo**
Shows how to read and write data locally using the [Database](#) module.
- File System.Demo**
Demonstrates using the file picker for choosing multiple files; filtering on MIME type; and displaying the results to the screen.
- Geolocation.Demo**
Demonstrates basic usage of the [Geolocation](#) module.
- ResourceStore.Demo**
Uses the [LocalServer](#) module to capture a URL so that it can be viewed while offline.
- ManagedResourceStore.Demo**
Uses the [LocalServer](#) module to capture a versioned set of URLs, and updates the entire set to a new version.
- Shortcut.Demo**
Shows how to create desktop shortcuts using the [Desktop](#) module.
- WorkerPool.Demo**
Performs a long-running computation without blocking the UI, using the [WorkerPool](#) module.

Sample Application: Gearpad

Gearpad is simple web-based notepad which allows you to read and write notes, even offline. Gearpad transitions between online/offline states seamlessly, even when the network connection is intermittent.

Source location: /samples/gearpad

Modules used: Database, LocalServer.

To run Gearpad:

- Set up a PHP server and a MySQL database
- Create a database using the db.sql script
- Place the Gearpad files under you PHP server's document root
- Customize _dbconfig.php if necessary

Sample Application: RunningMan

A simple JavaScript application that uses the Gears APIs on Android. RunningMan is a location-aware stopwatch that measures both the time and route taken for a journey, showing the journey on a map.

Check out the [RunningMan tutorial](#) for step-by-step instructions.

Modules used: Database, Desktop shortcuts, Geolocation, and LocalServer.



In this Google Gears application, some searched phrases are maintained on the local machine.



- Google intends to work closely with all members of the web community to converge upon a standard so developers have one consistent API for offline functionality.
- “The Gears API will also be available in Apollo, which enables web applications to run on the desktop, providing developers with consistent offline and local database solutions.”
- “Opera and Google share the common goal of making Web applications richer and more robust,” said Håkon Wium Lie, CTO, Opera Software. “Developers have long desired the functionality and flexibility Google Gears can offer browsers.
- Opera has always prioritized giving our users what they want, we’re excited to work with Google to extend the reach and power of Web applications.”
- Google Gears builds on the Web’s existing programming model by introducing new JavaScript APIs for sophisticated data storage, application caching, and multithreading features.
- With these APIs, developers can bring offline capabilities to even their most complex web applications. Google Gears works with all major browsers on all major platforms: Windows, Mac, and Linux. A sample of Google Gears in use is
- Google Gears is available at <http://gears.google.com>.



Developing Applications-Microsoft *Go, change the world®*

- Microsoft's Azure Services Platform is a tool provided for developers who want to write applications that are going to run partially or entirely in a remote datacenter.
- The Azure Services Platform (Azure) is an Internet-scale cloud services platform hosted in Microsoft datacenters, which provides an operating system and a set of developer services that can be used individually or together.
- Azure can be used to build new applications to run from the cloud or to enhance existing applications with cloud-based capabilities, and it forms the foundation of all Microsoft's cloud offerings.
- Its open architecture gives developers the choice to build web applications, applications running on connected devices, PCs, servers, or hybrid solutions offering the best of online and on-premises.
- Azure allows developers to quickly create applications running in the cloud by using their existing skills with the Microsoft Visual Studio development environment and the Microsoft .NET Framework.
- In addition to managing code languages supported by .NET, Microsoft plans more support for additional programming languages and development environments.



Developing Applications-Microsoft *Go, change the world®*



Microsoft's Azure offers a number of applications that you can use right away.



Developing Applications-Microsoft *Go, change the world®*

- Infrastructure management is automated with a platform that is designed for high availability and dynamic scaling to match usage needs with the option of a pay-as-you-go pricing model.
- Azure provides an open, standards-based, and interoperable environment with support for multiple Internet protocols, including HTTP, REST, SOAP, and XML.
- Microsoft also offers cloud applications ready for consumption by customers such as Windows Live, Microsoft Dynamics, and other Microsoft Online Services for business such as Microsoft Exchange Online and SharePoint Online.
- The Azure Services Platform lets developers provide their own unique customer offerings by offering the foundational components of compute, storage, and building block services to author and compose applications in the cloud.
- Azure utilizes several other Microsoft services as part of its platform, known as the Live Mesh platform.



Live Services :

- Live Services is a set of building blocks within the Azure Services Platform that is used to handle user data and application resources.
- Live Services provides developers with a way to build social applications and experiences across a range of digital devices that can connect with one of the largest audiences on the Web.

Microsoft SQL Services :

- Microsoft SQL Services enhances the capabilities of Microsoft SQL Server into the cloud as a web-based, distributed relational database.
- It provides web services that enable relational queries, search, and data synchronization with mobile users, remote offices, and business partners. It can store and retrieve structured, semistructured, and unstructured data.

Microsoft .NET Services :

- Microsoft .NET Services is a tool for developing loosely coupled cloud-based applications. .NET Services includes access control to help secure applications, a service bus for communicating across applications and services, and hosted workflow execution.
- These hosted services allow the creation of applications that span from on-premises environments to the cloud



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Microsoft SharePoint Services and Dynamics CRM Services :

- Microsoft SharePoint Services and Dynamics CRM Services are used to allow developers to collaborate and build strong customer relationships.
- Using tools like Visual Studio, developers can build applications that utilize SharePoint and CRM capabilities.
- Design Azure is designed in several layers, with different things going on under the hood.

Layer Zero :

- Layer Zero is Microsoft's Global Foundational Service. GFS is akin to the hardware abstraction layer (HAL) in Windows. It is the most basic level of the software that interfaces directly with the servers.

Layer One :

- Layer One is the base Azure operating system. It used to be code-named "Red Dog," and was designed by a team of operating system experts at Microsoft.
- Red Dog is the technology that networks and manages the Windows Server 2008 machines that form the Microsoft hosted cloud.



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Red Dog is made up of four pillars:

- Storage (a file system)
- The fabric controller, which is a management system for deploying and provisioning
- Virtualized computation/VM
- Development environment, which allows developers to emulate Red Dog on their desktops.
- Red Dog is designed by Microsoft such that it only has to be deployed on a single machine, and then multiple instances of it can be duplicated to the rest of the machines in the cloud.

Layer Two :

- Layer Two provides the building blocks that run on Azure. These services are the aforementioned Live Mesh platform. Developers build on top of these lower-level services when building cloud apps.
- SharePoint Services and CRM Services are not the same as SharePoint Online and CRM Online. They are just the platform basics that do not include user interface elements.

Layer Three :

- At Layer Three exist the Azure-hosted applications. Some of the applications developed by Microsoft include SharePoint Online, Exchange Online, Dynamics CRM, and Online. Third parties will create other applications.