How Does Google Plus Do This?

The photo albums on Google Plus allow you to upload as many as 1,000 images per album, just one of Google Plus's features.

[url='17003']Google[/url] is no stranger to the social game. Back in January 2004, Google launched a social networking site called Orkut. At that time, the other name in the social networking space was [url='449971']Friendster[/url]. Myspace hadn't yet launched and Facebook was more than a year away from its first incarnation. But despite some success in countries like Brazil and India, Orkut never really caught on for the rest of the world.

That didn't stop Google from experimenting with social networking. In 2009, the company introduced an innovative platform called Google Wave. Wave allowed users to communicate in real time, sharing thoughts, links and files in a fluid, dynamic environment. Wave didn't really acquire an audience -- it was difficult to describe the service to someone unfamiliar with it and the limited beta program made it challenging to find people you knew who also had access to the service. Google eventually decided to stop supporting Wave as a standalone product. This social networking tool adds functions to other Google products like Gmail. Google intended the service to let people share information and links more easily, both to groups of friends or to the world in general. Buzz is like an extension -- you can add its functionality to other sites like image sharing service Picasa. But early concerns about privacy issues plagued Buzz and the service didn't take off.

Never a company to call it quits, Google went back to the drawing board. In 2011, the company launched a new social networking site originally codenamed Emerald Sea, now called Google Plus. On the surface, Google Plus is part Twitter, part Facebook and part Beluga. It gives you yet another way to build a social network and share information with other people. Google first launched Google Plus as a private beta with limited invites. For a while, an invite to Google Plus was the hottest ticket on the Web. The initial population of the site looked like a who's-who of tech journalists and geek personalities.

Let's begin with an overview of some of Google Plus's features. Google has allowed users to create profiles for a couple of years. According to Google, the purpose of the profile was to help shape what you see when you search your own name. You control which bits of information are visible to the world. You can build a personal bio, share information like your address, phone number and e-mail, and add in links to your personal or professional Web sites. Google lets you decide which audiences can see each section of information. Don't want the whole world to know where you live? You can choose to share that information with select groups of people or keep it private. If you're sensitive about your private information, you can build a Google profile using only your name -- Google doesn't require you to include additional information.

Before we jump into the tour, we need to learn about circles. In Google Plus, a circle is a collection of people with whom you want to connect. Your Google Plus account comes with

three pre-defined circles: friends, family and acquaintances. You can create your own customized circles. It's up to you to categorize people. You can put people into more than one circle. For example, if you work with Josh Clark but you also consider Josh a friend, you can put him into your friends circle and a customized coworker circle. [b]Circles[/b] let you share information with specific groups of people while excluding everyone else. They also let you read content from those groups while ignoring all the rest of the information on Google Plus. Putting someone in a circle doesn't mean they'll follow you back -- a circle can be a one-way relationship. In this way, Google Plus is a lot like [url='436745']Twitter[/url] -- you can follow people even if they don't follow you back. Your Google profile becomes your "about" page on Google Plus. People on Google Plus can click on the "about" tab on your profile to learn more about you. They can only see the information you've elected to share. Since sharing has multiple levels of privacy, you can customize this as much as you like. For example, you may want to share your address with the people in your friends circle. With a couple of clicks, you can designate who can see the address. If you like, you can even share information with specific individuals rather than an entire circle. Or you can create a circle just for a small group of people with whom you trust that information.

The main activity on Google Plus takes place in the stream. The stream is a lot like the wall on Facebook -- it's where you'll see status updates from the people you've chosen to follow in your circles. You can share your own status updates with specific circles or even individual users. Want to let your friends know what you're up to without alerting your boss? That's easy -- just choose your friends circle when you post your update. If you choose to make a status update public, anyone who has put you into a circle will be able to view it. It may also come up in search. Tagging someone in a status update is easy too -- you can either type @ or + at the beginning of the person's name and Google Plus will help you select the right person.

You can even format your status updates within Google Plus using these tools:

Use the underscore symbol (_) to create italics: _really_ will become really.

Use the asterisk symbol (*) to put a word in bold: *sure* becomes sure.

Use the combination of underscore and asterisk (_ and *) for italicized bold: _*yes, I'll go to the prom with you*_ becomes yes, I'll go to the prom with you. So stop asking.

Use the hyphen symbol (-) for strikethrough text.

Let's take a look at the other features in Google Plus.

Going Public
Google caused a bit of a stir when it announced that all Google profiles would need to be set to public mode in July 2011. Previously, you could have a private Google profile. But since the profile is meant to display search information and act as the basis of a social network,

Google decided private profiles didn't make sense. Any profile set to private after the cutoff date was marked for deletion. Cloud computing services let you access information and applications over the Internet. The actual files and programs live on a server that you connect to using your own computer. One of the attractive features of cloud computing is that you don't have to have a fast computer with a huge hard drive to take advantage of these features.

[b]Picasa[/b] is one of Google's [url='452421']cloud storage[/url] projects. Picasa has two main components: There's a photo viewer and editor application that you can install on your own computer and an online photo Web storage service. It's this second service that ties into Google Plus. Picasa accounts are free and tie in to your Google account. You get 1 gigabyte of free storage space with Picasa with the option to purchase more storage space. But if you upload photos through Google Plus, your images won't count against your 1-gigabyte limit. That's because Google accepts any photo with the longest edge measuring 2,048 pixels or fewer without counting it against your limit. Google Plus automatically resizes any image uploaded through the service so that the longest edge is 2,048 pixels. Google Plus lets you organize pictures into photo albums. Each album has a limit of 1,000 photographs but you can make as many albums as you like. You can also tag photos to identify the people in them. If you take a photo with a GPS-enabled device -- such as a [url='16315']smartphone[/url] -- that information will also display in your Google Plus photo album. You can turn this feature off in the Google Plus settings.

Another feature in Google Plus called sparks is all about pulling in content that matches your interests. When you set up a Google Plus account, you can let Google know which subjects you're interested in following. Clicking on the sparks feature on your profile will let you view news stories covering the topics you've previously identified. It's similar to an RSS reader like Google Reader but more user friendly. Some of the earliest reviews of Google Plus virtually dismissed sparks as being superfluous, though a few journalists said that with some cultivation it could become a useful tool.

Why would Google include a news feature in a social networking site? It might be because we are getting more of our news from sites like Facebook. According to the Pew Research Center, we use our social networking sites to access, filter, share and discuss the news. Google Plus's sparks feature lets you quickly skim news items in fields interesting to you. If you like an article, you can share it on your stream and start a conversation around it.

Next, we'll learn about some interesting ways Google Plus lets you connect with other users.

You're Gonna Be Pop-yoo-lurr
During the early weeks of the beta test for Google Plus, photo albums caused a bit of a stir. At that time, adding a comment to someone's photo would publish that picture in the photo owner's stream. If the photo owner uploaded an album of pictures and was popular, soon their stream would become overwhelmed with each individual picture from the photo album publishing as people commented on pictures. This made navigating streams tricky. You can

send a private message to a friend by creating a status update and setting it so that it only publishes on your friend's stream. But if you want more immediate, two-way communication you still have some interesting options.

Like [url='441726']Gmail[/url], Google Plus incorporates the Google Talk network directly into the Google Plus service. This lets you send and receive instant messages through Google Talk. A history of your chat sessions through [url='450172']Google Talk[/url] exists on your Gmail account. You can also access Google Talk through its own dedicated instant messaging client or one of dozens of third-party clients like Pidgin and Digsby. A hangout is a video chat session. To participate in a hangout, you'll need a webcam and a microphone. Headphones also come in handy since they cut down on echo. You can have a public hangout, limit hangouts to specific circles or even keep it restricted to specific users. Whichever route you choose, you'll be limited to 10 participants total, including yourself.

Once a hangout begins, you'll see a live video window for each participant. Whoever is speaking at any given time will take center stage and have a video window larger than everyone else. As soon as someone else begins to talk, the view will switch and that person will take the focus. If two or more people are talking at once, Google Plus will display whoever is the loudest.

How does Google Plus do this? Each person in a hangout has his or her own video and audio feeds streaming into the service. When Google Plus detects audio from one of the feeds, it switches the view to that person. For multiple audio feeds, Google Plus simply analyzes the amplitude of the sound waves coming in to the system -- we perceive sound wave amplitude as volume.

Once in a hangout, you can chat or even start a [url='436667']YouTube[/url] viewing party. People in the chat room can pick from YouTube clips and display them on the screen. At that point, a hangout may turn into an amateur version of "Mystery Science Theater 3000" or "RiffTrax" as users provide commentary to video clips.

A third way to communicate with other Google Plus mobile users is a huddle. With a huddle, you send out text messages to a specific group of people. Each person needs to have the mobile version of Google Plus installed on a smartphone. Then, you add the people you want to communicate with to the huddle. When you send out a message to the huddle, it goes to each person you've added to the group. Each recipient can respond to the message, which also goes out to the whole group. It turns text messaging into a party chat system. While communication may be asynchronous, meaning not everyone is actively chatting at the same time, it helps keep each member of the group appraised of what is going on.

It's easier to understand with an example. Suppose you want to go see a movie and you'd like to invite several friends. You add each of the people you'd like to show up to a huddle and suggest the movie. Each person can then respond to the whole group and turn it into a conversation. This can help narrow down the time and place you'll go to catch the latest flick.

Huddles resemble other messaging services like Twitter and Beluga. Since building a huddle depends upon your friends owning a mobile device capable of running a Google Plus app, it may not work out for everyone.

Next, we'll look at how Google Plus handles privacy.

Huddle Up
In the early days of the Google Plus private beta, some users discovered that even if they didn't have invitations to send out they could sneak buddies into the system. All you had to do was create a huddle and include your friends who couldn't get into Google Plus. They would receive a message prompting them to make an account, allowing them to bypass the invitation system. Google eventually removed this loophole. On the one hand, you have organizations like the Electronic Frontier Foundation dedicated to protecting user privacy on the Web. On the other hand, you have people like Mark Zuckerberg, the founder of [url='436662']Facebook[/url], saying that the concept of privacy is no longer a social norm [source: [url='http://www.guardian.co.uk/technology/2010/jan/11/facebook-privacy']Johnson[/url]]. We, the users, are caught in the middle. How much of our private information should we expect to hand over to Google?

Google's mission is to organize the world's information. Based on that mission, you might be worried that all your private information would become public record. But Google Plus gives you the option to share as much or as little information as you like. The only catch is you have to use your name to create a Google profile and it has to be public. Otherwise, you can limit whatever information you choose to include. While you must include your gender, you can choose to keep that information private if you wish. You can include other information as well, including your address, e-mail, telephone numbers, employer, schools and a bio. You can control the privacy settings on each field of information so that only the people you designate can see it.

Google Plus includes a feature that allows you to share someone else's status update. By clicking the share feature, you'll publish your friend's status update under your own stream. Google will attribute the shared post to your friend. You can turn the share feature off for any post you make. If you feel the urge to post a message about how much you hate your job or your true feelings about someone you know, you may want to turn off sharing. Otherwise, someone you've allowed to see the post could share it under his or her own feed and the cat is out of the bag.

If someone harasses you on Google Plus, you can choose to add that person to a blocked circle. You won't see any posts from that blocked person and they aren't allowed to comment on any of your own posts. They'll still be able to read anything you publish publically, but that's it. If you don't want to block someone but wish to get a single post off your stream, use the mute post feature. This will remove it from your stream and clear up some of the clutter.

If you're using [url='579986']Google Chrome[/url] to access Google Plus, you'll have some additional options. Next, we'll look at some Google Chrome extensions that affect Google Plus.

What's in a Name?

Google's stance on using your real name for Google profiles caused a stir. Some people on the Web are better known by a handle or pseudonym and wanted to use that to create a Google Plus account. But that's against Google's terms of service and Google began suspending Google Plus accounts that didn't include real names. As of the writing of this article, Google is exploring ways to let people use pseudonyms and handles but hasn't yet implemented such a feature. That's because Google allows developers to build Google Chrome extensions. An extension adds features and functions to the browser. A simple extension might alert you whenever you receive an [url='285']e-mail[/url] message. Others can help you keep tabs on the weather or stock prices, all within your browser. It doesn't matter what Web site you visit -- the extension keeps the information just a click away.

When it comes to Google Plus, extensions can streamline your experience significantly. There are extensions that allow you to collapse comment threads so that they don't clog up your stream. This is particularly useful if you follow popular Google Plus users -- they tend to receive a lot of feedback on their posts. Other extensions allow you to share information on Google Plus with other social networking services like [url='436662']Facebook[/url] and [url='436745']Twitter[/url]. Google offers a tutorial on building extensions, including how to debug extensions that don't work quite the way you intended. You can host extensions for people to download yourself or submit them to the Google Chrome Web Store.

Installing extensions is easy. You choose an extension and allow it to alter Google Chrome. You don't even have to restart your browser to see it take effect. It's also easy to uninstall extensions if you don't like the changes it makes in your browsing experience. While these extensions are useful for tweaking Google Plus, many of them have functionality that extends well beyond the social network. blogging is good for your

Some Google Chrome extensions will likely become superfluous as Google adds in more features to Google Plus. And if you think of a feature that Google Plus should have but doesn't, you can choose to leave feedback to the development team. There's a feedback link built right into Google Plus.

Now let's take a closer look at what makes Google Plus tick.

There are two main components to Google Plus: the front end and the back end. The front end is what you see when you log in to your Google Plus account. It's the user interface (UI) -- the part of Google Plus that lets you do things. The back end is the side you don't see. It resides with Google and the company's massive data centers.

The Google Plus team used [url='17003']Google[/url] Bigtable and Colossus as the

foundation for the back end of the system. [b]Bigtable[/b] is a distributed storage system. It's a heavy hitter for Google -- Bigtable also acts as the foundation for the company's Internet search tool. [b]Colossus[/b] is the follow-up system to the Google File System. While Google optimized the old file system to keep tabs on the content of the Web, a new focus on real-time search required new tools. Colossus is that tool. Despite the similarity in names, these two languages aren't directly related. The syntax for JavaScript bears a resemblance to that of Java's but you don't derive JavaScript from Java.

Java

Java is a programming language that Sun Microsystems developed. Java's creators intended it to be used to build programs rather than as a means of research for computer scientists and academia. It's a class-based, object-oriented language, but what does that mean? An object is the combination of information, process and identity. A class is a categorization of objects. All objects of a certain structure and that follow a particular type of behavior will belong to the same class. When programming in such a language, you build these class categories and organize objects into them. Other class-based languages include C and C++.

Web developers like Java because you can create applets with it. An applet is a small program that can run within a Web page. You can plant it right in the middle of your hypertext markup language (HTML) code and create new features for a Web site. Google Plus relies on Java with an injection framework called Guice. The purpose of Guice is to eliminate the need to build factories. In Java, a factory is a way to protect the program's architecture so that other programmers can add their own code and increase the program's functionality. This side of Google Plus runs on Google's servers.

JavaScript

JavaScript is a client-side scripting language rather than a fully-fledged programming language. Sun Microsystems didn't create JavaScript -- Netscape did. Like a Java applet, JavaScript code can run within a Web browser. Inserting JavaScript code into a Web page's HTML allows you to add functions to your site.

In Google Plus, the JavaScript elements run within the client's browser. Clients are the machines accessing Google Plus, while servers are the machines serving up content. Google also uses a tool called Closure, which streamlines JavaScript and simplifies the process so that developers can make changes quickly to fix issues with the Google Plus UI.

While Java and JavaScript aren't related, Web developers do use both to push the limits of what you can do within a Web page.

Out of all the features on Google Plus, the Hangouts utility may be the most complex. It relies on the extensible messaging and presence protocol (XMPP), extensions to XMPP like Jingle, real-time transport protocol (RTP), session traversal utilities for NAT (STUN) and secure real-

time transport protocol. That's a fancy way of saying the technology behind Hangouts is complicated. Unlike video services like Skype, hangouts don't rely on a peer-to-peer network. Instead, all the processing power is on Google's side of the system. Only engineers at Google know exactly how much processing power goes into keeping all those video hangouts running smoothly.

Will Google Plus be the next Facebook? While the private beta created an exclusive atmosphere among users and spurred a demand for access to the service, only time will tell if Google Plus's popularity will last.

To learn more about Google Plus and other topics, take a look at the links on the next page.[/url]

[url='436662']How Facebook Works[/url]

[url='436745']How Twitter Works[/url]

[url='556']How Java Works[/url]

[url='2420']How does JavaScript work and how can I build simple calculators with it?[/url]

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