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How does email work? The basics of internet email

How does email work?

This is a question we get asked very often, so we thought we ought to put together a quick guide to explain the basics of how the standard email systems work over the internet.

Have you ever wondered what an "SMTP" or "POP3" server is? You're often asked for these when setting up your email accounts in your email program, but most people are not sure what they are. Read on and hopefully you'll have a much better idea at the end of this.

Essentially internet email systems are a way of transferring text from one user to another, using a simple email program. You could say it was similar to sending postcards in the normal post, or like sending a text from a mobile phone.

With all these systems, in order for you to be able to get the message from you to your recipient you need someone to take it from you, carry it to its destination and then deliver it to the recipient.

For ordinary mail you would address your postcard with the recipient's details, write a message and then drop it into a letterbox. It will wait in the letterbox until the postal service come and collect it and take it away. They will decide which sorting office it should go to

according to the address of the recipient. When it arrives there it waits in a box again. From there it will either be collected by the recipient when they go to their local post office, or be delivered direct to their door by the local postman.

It's also very similar for text messages, as they are addressed to the recipient by way of a mobile phone number, and then sent from your phone to your mobile phone service provider. There it will wait in a box until it gets collected and then it is sent to the recipient's provider where it will sit in another box. From there it will be collected by your recipient's mobile phone when it next has the opportunity.

Email works in a very similar way. You compose your email in your email program. You address it to the recipient using their email address and then send it. When you send the email it will get collected by your service provider and wait in an outbound delivery area. Like a real mail service, your service provider will decide where it has to go, according to its address and then send it to the service provider for the recipient. It will arrive in a mailbox at your recipient's provider, waiting for them to collect it. Next time they load their email program it will collect all their mail from their mailbox.



Simple!

Simple, isn't it?! Essentially it really is that simple. In all the methods above it has been developed this way as the person sending the message is not really able to reach the recipient directly at the very minute he wishes to send the message. This kind of immediate transfer of information would require a phone call or a fax, where both parties are there at the same time with their equipment on and available to use. Or in internet terms these days, that would mean using an instant messaging service, which means that the messages are delivered directly to the recipient as soon as they are sent.

By using 'sending and delivery' services you are able to send your messages whenever it suits you and the recipient can receive and read the messages whenever it suits them. In the early days of the internet and before broadband times, yes, there were times before broadband, this was absolutely vital as very few machines were online and connected to the internet all the time. Even now, most people would not be able to guarantee that they would have a machine on ready to receive email 24 hours a day, 7 days a week without any break.

Hopefully now you have a better understanding of how your email moves around the internet. "Yes, but how does that relate to all those technical sounding terms I keep hearing?", you ask. The next section will cover those and then you should have a good basic understanding of how email works.

The "Technical Bits"

Ok, here we go with the technical bits! We'll try in this section to de-mystify the technical stuff, as the basics are not that hard to understand.

When you send your email it leaves your machine and travels to your Internet Service Provider (ISP) and stays there until it gets moved on to the ISP for your recipient. So, your mail program needs a method of talking and sending email data to your ISP. This needs to be done in a standard way, so that it doesn't matter who your ISP is and use a language that both ends can understand. A special language was developed for doing this, called the **Simple Mail Transfer Protocol**. In other words, SMTP. See, it's not that technical after all!

Simple Mail: a simple system for mail
Transfer Protocol: language for transferring programs to use

So, your email program uses the SMTP method for sending mail to your ISP. Following that, your ISP uses the SMTP method for then sending the mail to your recipients ISP. So every time an email moves from one place to another, it will use the SMTP method.

That means that your ISP must have a computer there all the time talking this language in order for you to be able to send to it. This is known as an "SMTP Server". So, now you know when your email program asks you for the "SMTP Server" name, it is the name of the server through which you will send your emails. This is normally provided either by your ISP, or by the company that provides your email account.



POP3?

Ok, that's pretty straight forward, so what's "POP3" then? Well, when your email has finally reached the ISP for the recipient, it will normally sit in a mailbox waiting for the recipient to collect it. Much like a real postal service, you can have a mailbox where your mail is kept until you go and collect it. This is often a Post Office. For emails the concept is quite similar. Your emails will sit in mailboxes on a computer, in a Post Office type arrangement, with a box to hold mail for every customer.

Your email program on your computer will now need to talk to the Post Office where all the mailboxes are, in order to collect the emails waiting for it. Again, a standard language has been developed for this, called **Post Office Protocol**. It is currently at Version 3, so there we have POP3.

So, once again your ISP or email provider must have a machine there all the time talking this language, in order for your computer to talk to whenever it likes to retrieve the waiting emails from the mailbox. This is known as a "POP3" Server. So now you know when your email program asks you for a "POP3 Server" name, it is the name of the server from which you collect your incoming emails. This is normally provided either by your ISP, or by the company that provides your email account.

Summary

So by now you have a good basic understanding of how a standard internet email system works. Below is a summary of what happens in the email process.

- You send an email from your computer using your ISP's SMTP server.
- Your ISP sends the email using SMTP to your recipient's ISP.
- Your recipient's ISP moves the email into your recipient's mailbox on their POP3 Server.
- Your recipient's mail program uses POP3 to collect their emails from their mailbox on their ISP's POP3 server.
- **Your email is received!**

Whilst this is a very simplified version of what actually happens when you send an email, it contains all the essential steps. If you'd like more details, then drop us an email.

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