

# Technical Aspects of Internet Fax or e-fax

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Electric Printing Telegraph was introduced in the year 1865. Telephone invented after a decade. Scanning phototelegraph came in 1881. Telautograph was the first Fax machine (1888). Internet fax or e-fax uses the Internet Protocols to send a fax rather than using traditional phone networks with fax machine. This includes web fax, email fax, and also VoIP fax.

However, IP fax is technically different. IP fax transmits data over an intranet from a networked device another IP address. IP fax does not require a dedicated server or mail server. Here is brief technical aspects of Internet Fax or e-fax.

## Advantages of Internet Fax or e-fax

The term virtual fax or Internet fax or e-fax service applies to sending and receiving fax using various means such as email without to the need to have traditional requirements such as

fax machine, telephone line, and other traditional consumables. The main difference with traditional faxing lies in the way of faxing. Now even a physical line connection or a physical machine to send and receive faxes is no longer needed. As a result we can send and receive faxes from anywhere, by simply having internet connection and a device able to open such PDF documents, word, etc.

We are not needing no additional hardware or software, telephone line, paper for fax and also e-fax is integrated with email, can store faxes online securely encrypted, can receive multiple faxes simultaneously, reduces phone costs, possibility to receive fax wherever Internet access is present from mobile phones, smartphones and tablets too.

## Technical Aspects of Internet Fax or e-fax

A fax machine is a scanner, a modem, and a printer which transmits data in the form of pulses to a recipient fax machine which then transforms these pulses into images and prints them on paper. The phone connection must not be a packet-based system, but old PSTN. Line diagram of a traditional fax system can be :

1 Fax machine → Phone line → Fax machine

In case of Internet Fax, the hardcopy is converted to PDF or image data and is sent via TCP/IP directly. So, there can be two line diagrams :

```
1 Computer → Phone line → Fax machine
2 Fax machine → Phone line → Computer
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A rough replica of Minimal layout in html5.

Common method is computer-based faxing which involves a fax server/gateway to convert the documents between faxes and emails. This is called fax to mail or mail to fax. This is superior over the traditional fax machine. So, there can be two line diagrams :

```
1 Fax machine → Phone line → Fax gateway → email
2 message (over Internet) → computer email account
   Computer → Internet → Fax gateway → Phone line →
   Fax machine
```

## Business Aspects of Internet Fax or e-fax

Note that – fax has a number. That fax number is assigned to user, who will use a compatible device – be it traditional fax machine or Internet Fax. There are also virtual fax number. Cheaper service may not allow to receive faxes from traditional fax at all!

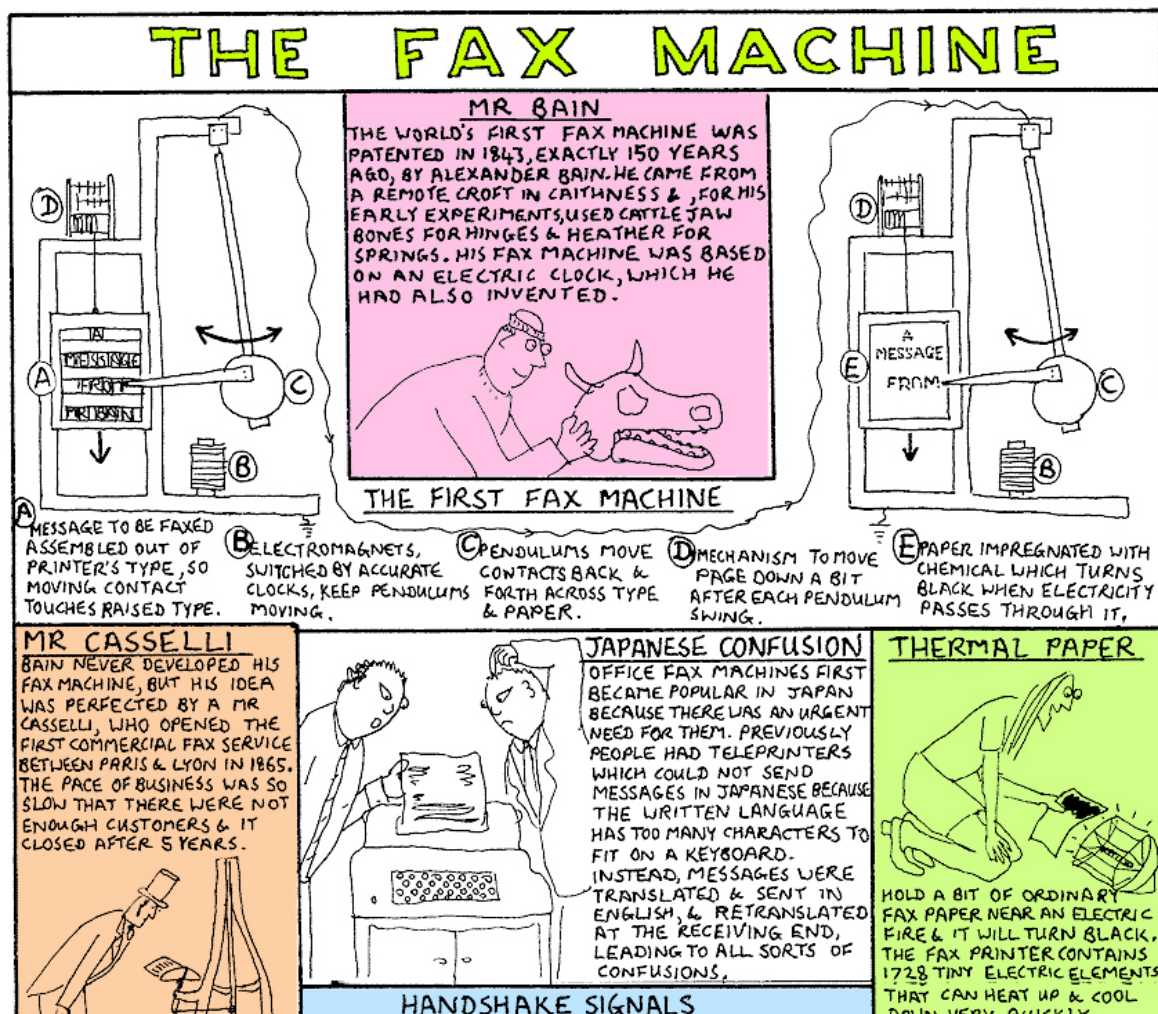
For example, [XMedius provides enterprise grade e-fax service](#). XMedius is fully officially compatible and has documentation for Cisco and Xerox's devices. For sending 0-10 faxes per year, one can easily use FaxZero plus k7.net's


service, which will be free.

Pay as you go model is impractical as you need to pay for that fax number part (like domain names). Internet fax is basically a software that is able to use the FAX communication protocol. In internet fax as no telephone connection is involved in sending a fax over the Internet, the cost of sending faxes is the Internet connection fee. The recipient machine must also be compatible with Internet fax. There are basically three types of fax services :

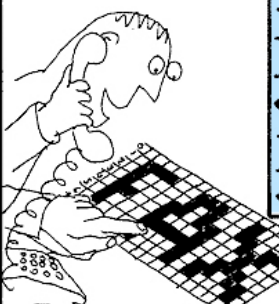
- 1 Internet based third party services or cloud fax
- 2 Self hosted/installed software on computer or server
- 3 Fax services integrated with email

Most commonly used is the first type.





### HOW TO BECOME A HUMAN FAX




- ① DRAW PICTURE OR MESSAGE ON SQUARED MATHS PAPER
- ② FILL IN ANY SQUARE THAT IS MORE THAN HALF BLACK & RUB OUT ANY THAT ARE MORE THAN HALF WHITE
- ③ RING A FRIEND & ASK HIM TO GET A BLANK BIT OF SQUARED PAPER
- ④ READ OFF THE COLOURS OF THE SQUARES, A LINE AT A TIME. (E.G. ONE WHITE, THREE BLACK, TWO WHITE, THREE BLACK). THE FRIEND WILL REPRODUCE YOUR MESSAGE. THIS IS EXACTLY WHAT HAPPENS IN A FAX MACHINE.

FAX MACHINES 'TALK' TO EACH OTHER BEFORE SENDING THE FAX. THE PROCEDURE IS SIMILAR TO STARTING A PHONE CONVERSATION.

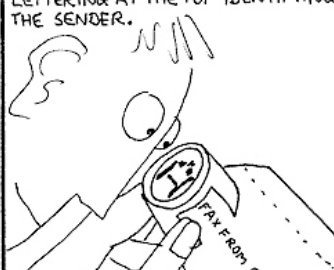
FAX	PHONE
← CALLED SUBSCRIBER IDENTIFICATION	'HALLO, REX HERE'
← DIGITAL IDENTIFICATION SIGNAL	'CALLING FROM HOME'
→ TRANSMITTING SUBSCRIBER IDENTIFICATION	'HALLO, TIM HERE'
→ DIGITAL COMMAND SIGNAL	'CAN YOU UNDERSTAND ME IF I SPEAK THIS FAST?'
→ TRAINING CHECK FORMAT	'CHAT, CHAT, CHAT'
← CONFIRMATION FOR RECEPTION	'YES, I CAN UNDERSTAND YOU, GO AHEAD'
→ SEND FAX	'CHAT, CHAT, ETC'
→ END OF PROCEDURE	'THAT'S ALL I'VE GOT TO SAY'
← MESSAGE CONFIRMATION	'EVERYTHING UNDERSTOOD, BYE'

BLACKENING TINY SQUARES OF THE PAPER AS IT PASSES.




### MAGNIFIED SQUARES

THE SQUARES ON A REAL FAX ARE SO SMALL THAT THEY'RE NOT USUALLY NOTICEABLE. HOWEVER THEY SOMETIMES DO SHOW UP CLEARLY ON THE SMALL LETTERING AT THE TOP IDENTIFYING THE SENDER.




### STANDARDS

THE MAIN REASON FOR THE FAX MACHINE'S SUCCESS IS THAT EVERY COUNTRY IN THE WORLD USES THE SAME STANDARD, CALLED GROUP 3. GROUP 4 MACHINES, WHICH WORK FOUR TIMES FASTER, ARE ALREADY AVAILABLE BUT THEY CAN ONLY WORK WITH DIGITAL TELEPHONE EXCHANGES, AND SOME ENGINEERS BELIEVE THAT GROUP 3 STILL HAS GREAT POTENTIAL FOR IMPROVEMENT.



CREDIT FOR THE ABOVE ILLUSTRATION IS SECRET LIFE OF MACHINES

### INTERNET FAX



- (A) SMART PHONE INTERNET FAX APP
- (B) DESKTOP INTERNET FAX APPLICATION
- (C) TRADITIONAL FAX MACHINE
- (D) TRADITIONAL PSTN LINE
- (E) THIRD PARTY SERVICE

