
Internet Fax Machines

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Internet Fax Machines

- What are Internet-Ready fax machines?
- Why is SCHARP moving images via the Internet?
- Mechanics of Internet relay
 - Relay models used by SCHARP
 - Plug and play solutions
- The “Cons” of Internet faxing
- Summary

What are Internet fax machines?

- Fax machine with a Network Interface Card (NIC Fax)
- Network and telephone capabilities
- Plugs into the regular telephone lines
- Also plugs into network to send/receive faxes as email attachments (SMTP / POP)



How does this fit in at SCHARP?

- Just one of our DataFax faxing solutions:
 - ▶ Internet fax machines (mostly international)
 - ▶ Regular fax machines (mostly domestic)
 - ▶ Scan and fax (mostly developing countries)



How do they work?

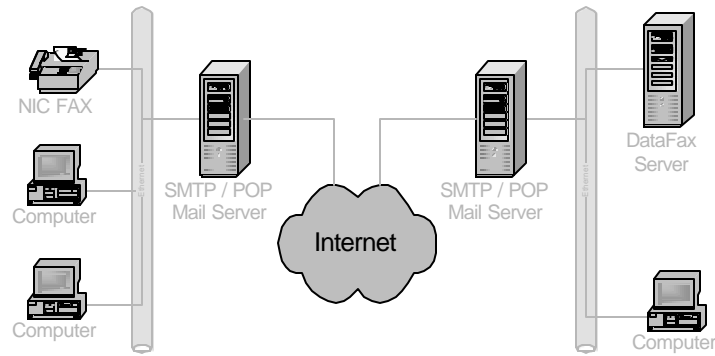
- Alphanumeric keyboard + quick dials for entering telephone numbers *and* email addresses
- Can fax to a regular fax machine via the telephone line
- Or a “fax” to an email address via the Internet

The details of sending ...

- Scanned pages are converted to email with a TIFF attachment addressed to “datafax@scharp.org”
- Connects to a SMTP server to deliver the email via Internet to “datafax” at SCHARP
- DataFax automatically processes the fax
- Solutions discussed require *no DataFax changes*

The details ...

- Scanned pages are turned into an email with a TIFF attachment



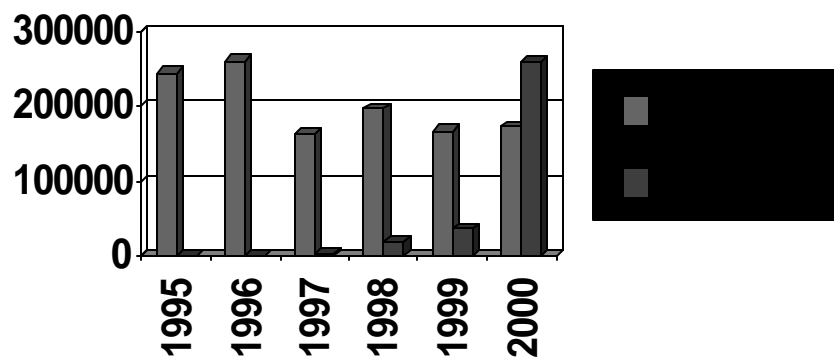
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Why SCHARP uses the Internet for faxing

- International trials in distant locations
- Large number of participants / forms
- (Relatively) small number of sites
- Long term sites with several studies
- Impossible task otherwise!

SCHARP actually does uses the Internet for faxing!



Why Internet Transfer?

- Reduce long distance costs
- Faxing costs - is it worth it?

$$\begin{array}{r}
 \text{cost of fax machine} \\
 + \\
 \text{fixed costs per month X number of trial months} \\
 + \\
 \frac{\text{telephone cost per minute X number of pages}}{\text{pages per minute}}
 \end{array}$$

Example 1:

- Small, 2-year, domestic trial, telephone
- Site supplies fax machine

Cost of faxing = \$1,600

$$\begin{array}{r}
 \$0.00 \\
 + \\
 25.00 \times 24 \\
 + \\
 \frac{\$0.10 \times (100 \text{ crfs} \times 200 \text{ patients})}{2}
 \end{array}$$

Example 2:

- Large, international trial, telephone
- Sponsor supplies fax machine

Cost of faxing = \$103,700

\$2,500.00

+

\$50.00 X 24

+

\$2.00 X (100 crfs X 1000 patients)

2

Example 2:

- Large, international trial, Internet
- Sponsor supplies fax machine

Cost of faxing = ~~\$103,700~~ \$13,100

~~\$2,500.00~~ \$3,500.00

+

~~\$50.00 X 24~~ \$400.00 X 24

+

~~\$2.00 X (100 crfs X 1000 patients)~~

2

Why Internet Transfer?

- Reduce long distance costs
- Using the Internet allows a large number of faxes to be sent at a fixed cost
- Assumptions / Site Requirements:
 - Direct Internet access
 - Unlimited Internet access
 - No / low local telephone access charges
 - Reasonable cost Internet connection

Why Internet Transfer?

- Increase reliability
- Faxes are encoded and transferred digitally
- Mail protocol (SMTP) guarantees deliver
- “bounced” email notification can be delivered back to site staff

Why Internet Transfer?

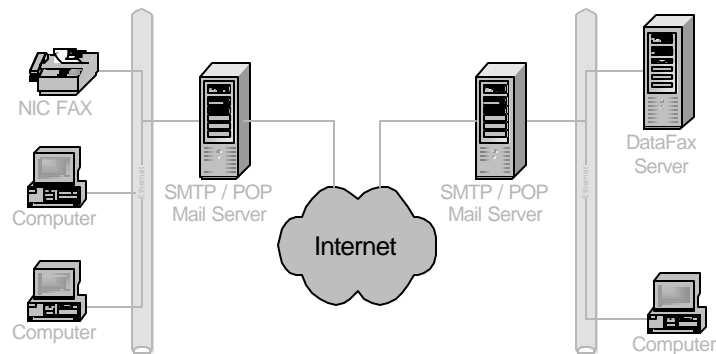
- Increase reliability
- Eliminating the telephone line should reduce fax noise, dropped connections, etc.
- But is reliability an issue? Comparing fax noise QCs, missing pages, re fax ratio of fax v.s. email produced mixed results at SCHARP

Why Internet Transfer?

- Increase reliability
- Cofactors such as study design, sites, form design, visit/page map problems, visit code errors outweigh faxing problems
- But site perception of "I faxed that page" is reduced

Relay models used by SCHARP

- Basic Site -> SCHARP

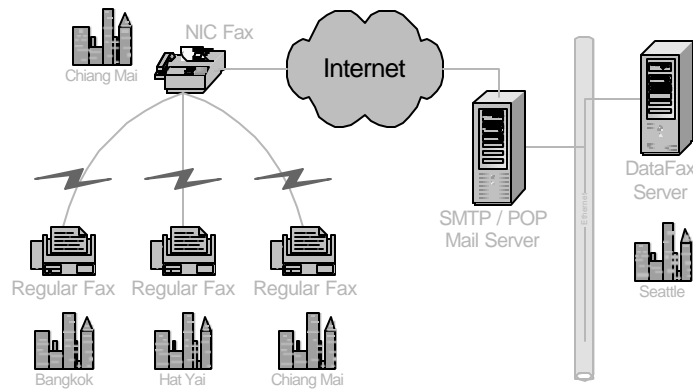


Relay models used by SCHARP

- Site -> SCHARP
- Site has a NIC fax connected to the Internet
- Uses quick dial programmed to "datafax@scharp.org" to "fax" CRFs to DataFax at SCHARP
- DataFax receives and processes faxes

Relay models used by SCHARP

- Sites -> Relay -> SCHARP

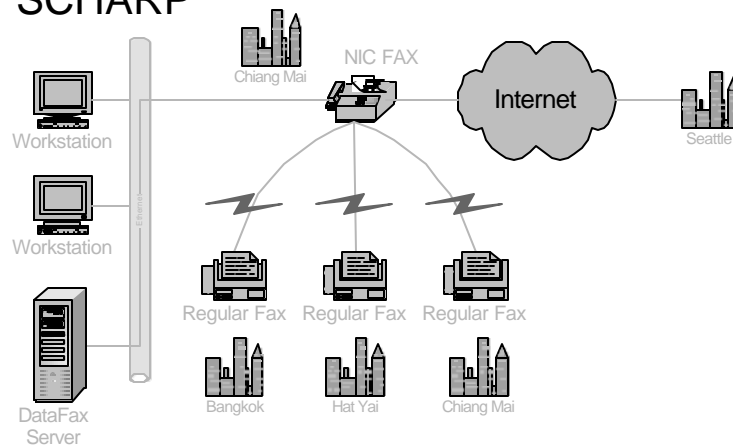


Relay models used by SCHARP

- Sites -> Relay -> SCHARP
- “Local” sites fax to the regional NIC fax
- Based on the Terminal ID (TID) of the sending fax, faxes are redirected automatically to “datafax@scharp.org”
- Cost is reduced to regional telephone costs

Relay models used by SCHARP

- Sites -> Relay -> Remote DataFax -> SCHARP



Relay models used by SCHARP

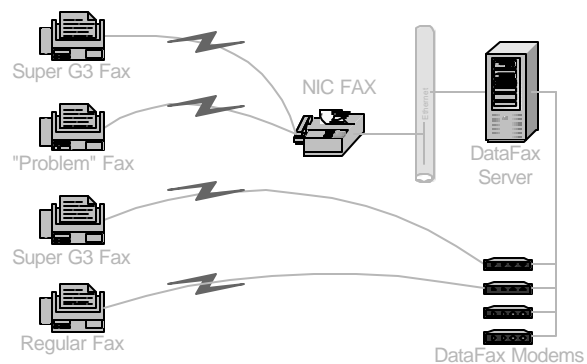
- Sites -> Relay -> Remote DataFax -> SCHARP
- “Local” sites fax to the regional NIC fax as before
- Based on TID, faxes routed to local DataFax installation *and* “datafax@scharp.org” (simultaneous)
- Equivalent can be done without NIC fax

Relay models used by SCHARP

- Sites -> Relay -> Remote DataFax -> SCHARP
- Why?
 - Client <-> CRO applications
 - Training for new DataFax sites
 - Limited data entry / CRF viewing
 - International branch offices
- Provides for simultaneous images but *not* simultaneous databases

Relay models used by SCHARP

- Super G3 -> NIC fax
- "Problem" Fax -> NIC fax



Relay models used by SCHARP

- Super G3 -> NIC fax
- NIC fax supports newer Super G3 standard (10+ pages/minute)
- A similar-brand fax machine at the site can use various speed increasing features and Super G3
- Based on TID, NIC fax routes faxes via LAN to "datafax@scharp.org"

Relay models used by SCHARP

- Super G3 -> NIC fax
- Standard MultiTech modems lack these proprietary features
- Many times modems are "throttled back" to increase reliability

Relay models used by SCHARP

- “Problem Fax” -> NIC fax
- Some sites are always “problems sites” when it comes to faxing
- For whatever reason, they claim that faxing works for them *except* when faxing to DataFax
- Point them at the NIC Fax, and redirect the faxes to DataFax via the LAN

Plug and Play Solutions

- Proven to work “out of the box” with DataFax at SCHARP
- Standardized on the following Ricoh fax machine models (with NIC option):
 - Ricoh 4800L, 5000L
 - Gestetner 9978, 9980
 - Savin 3699
 - Nasuatec P699

The “Cons” of Internet Faxing

- Domestic long distance is actually really cheap!
- Internet connectivity == world of pain in some settings
- No fax sender context, time to receive info
- Internet security concerns

Summary

- Internet-ready fax machines have become our preferred faxing solution
- If site infrastructure supports it, it combines the ease of a fax machine and reliability of internet email
- Technology has made it possible for several large trials