Sender-pays E-mail Schemes

APCAUCE Panel Discussion
on RMX Records and Mail Authentication

APRICOT, KL 2004

The Rationale

- Make mail "costly" in some way
  - If every spam "costs" something, spammers won't be able to afford to send out millions of messages
- Make the "cost" infinitesimal
  - That way only spammers, who depend on sending in huge bulk, will be affected.

The Proposals

- Two primary models have been proposed
  - "Cost" as time spent in calculation
  - "Cost" as a real expenditure of money
- Another model, the "Turing Test" was suggested...
  - In this, some form of verification is made that proves the message was sent by a human.
  - This proposal does not seem to have made much headway, although it is mentioned in MS's "Penny Black" research.
  - This model may simply be too hard to implement.

"Cost" as Expenditure of Time

- Proposals have been around since 1999
- HashCash, by Adam Back
  - Uses a time-consuming complex one-way function to produce a hashed representation of the message.
  - Contains provisions to deal with Moore's Law (that processor speed can be expected to double approx. every 18 months).
  - Favours positive weighting.
- "Penny Black", a Microsoft-sponsored research project
  - Considered various ideas, some of them very similar to HashCash.
  - Favours negative weighting.

"Cost" as Expenditure of Money

- Made the headlines..
  - When "Uncle Bill" promoted it at Davos late last year
  - Microsoft's long-term position appears to be that charging for e-mail is both inevitable and desirable.
- But the idea is not as revolutionary as it seems..
  - Ironport, Vanquish and more recently GoodMail have begun offering bulk-mail focused payment-based certification.
- The idea has had advocates since 1999
  - For an example of such advocacy, see Forrester Research http://news.com.com/2030-1028-5125275.html

Cost as Expenditure of Money

- Daum "OnlineStamp" System
  - Daum is a Korean ISP that charges a fee to bulk mailers for passing mail through their servers.
  - A refund and credit system exists so recipients can issue "credits" for mail they find worthwhile.
- The Vanquish System
  - Works on similar lines, with bulk mailers purchasing "tokens"
  - Under this system, charges are levied as a result of recipient objection to any specific message.

Negative and Positive Weighting

- Negative weighting
  - The recipient rejects any mail that does not have a suitable "proof of postage" marking.
  - Clearly only viable if uptake is considerable.
- Positive weighting
  - The recipient effectively whitelists mail with "proof of postage" markings, allowing it to bypass filtering.
  - Usable and useful even if uptake is either small or slow.
- Microsoft appears to favour Negative Weighting

Problems with Money-based Systems

- Who collects the funds?
  - Microsoft? The Government?
- How does authentication occur?
  - A vast PKI infrastructure would be required
- Who gets the money
  - .25c per message == $11 billion per annum
- How is the money collected?
  - Microcharging? Vouchers?
- Who handles disputes? Polices abuse?

Problems in General

- What about legitimate opt-in marketers?
- What about operators of high-volume mailing lists?
- What about developing economies?
  - The "Cost as Money" model could result in considerable outflow of capital from such economies.

Risks

- Are we throwing out the baby with the bathwater?
  - Be sure that if these systems become entrenched, they will continue even after spam ceases to be a problem.
- Do these systems compromise communication?
  - Communication should be regarded as a right, not a privilege
- Are we inviting a new wave of cost-plus "services"?
  - Microsoft and Yahoo have already indicated that they see this as a valuable revenue generating opportunity.