CentMail – A Micropayment System for E-mail

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Introduction

Goal
To provide a micropayment system for sending and receiving e-mails that is “cost-neutral” to ordinary users while adding a financial cost to those users who send excess mail or spam thus reducing the overall amount of spam.

Spam - The Problem
- Estimated that up to 75% of total e-mail traffic worldwide is spam which costs millions of euro each year in terms of bandwidth, storage and prevention
- Spam filtering removes some of the spam, but also removes legitimate e-mails which in some cases can be worse

Current Cost Based Solutions
Current systems are HashCash and CertifiedEmail. HashCash uses CPU cycles as payment and attaches a proof of payment to the e-mail. CertifiedEmail routes e-mails through a central server and charges for the sender per e-mail.

How the System Works
CentMail uses Sendmails Milter API to interact with the e-mails being sent and received. The Milter API uses call back commands from each SMTP command to the CentMail process that allows e-mails to be rejected, deleted and modified in real time.

How CentMail Combats Spam
By adding a cost to send e-mails, spammers are no longer assured profit from sending millions of spam e-mails thus discouraging them from sending any to begin with.

Spammer:
Sent: 1 million e-mails
Cost: ~€0
0.01% buy advertised product for €10 each
Profit: €1,000

Without CentMail

Spammer:
Sent: 1 million e-mails
Cost: €10,000
0.01% buy advertised product for €10 each
Profit: €-9,000

With CentMail

Results and Conclusions

User Trial Carried out
- 16 users, over 100 e-mails sent in total.
- 13 users ended up with the same or more credits than they started with.
- Only 3 users ended up with less credits than they started with.
- A spammer account set up to spam the other accounts ended up with a lot less credits.

Implementation Successful
The design was completed using the Milter API and Hash Chains, showing that hash chains can be used to charge for e-mail.