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Solicitation Token Authenticated Mail Protocol

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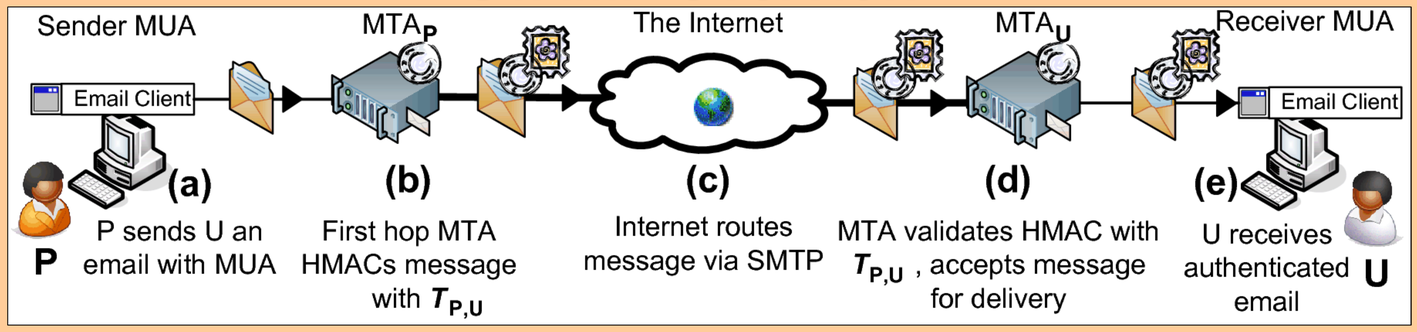
Problem

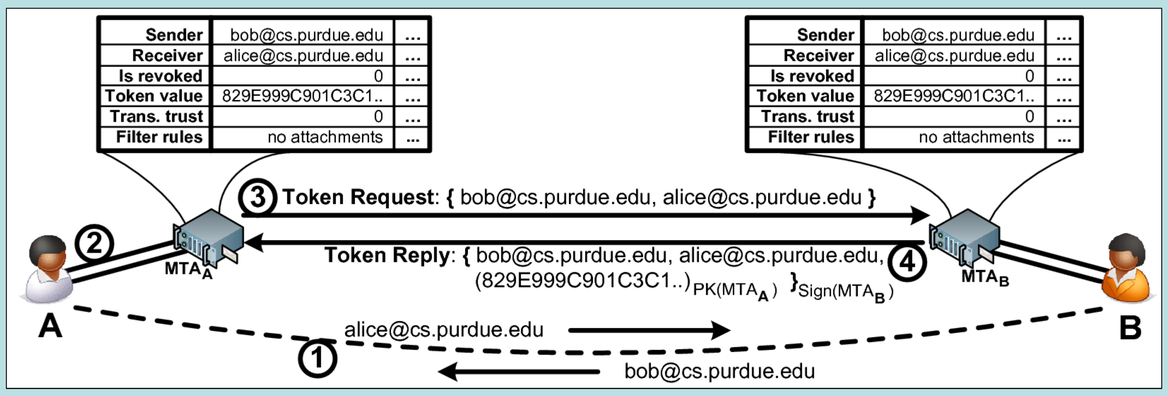
Unsolicited mail threatens to grind email productivity to a halt, costing billions annually. Users have no access control over their inbox once their email address is leaked.

STAMP Overview



- Server-side solution to provide token-based, user-grain email message authentication
- Distribution of token is protected from adversaries
- Treacherous contacts and email leaks are identified and revoked immediately at the receiver-side
- Phases: **Solicitation**, **Authentication**, and **Revocation**

Solicitation



1. Both parties exchange email addresses out of band
2. Both enter them into the contact list in their email client, which configures the local mail server for token exchange
3. Sender's server sends an authenticated Token Request message
4. The receiver-side server responds with a Token Reply message, including the encrypted token that will be used to authenticate messages between them.

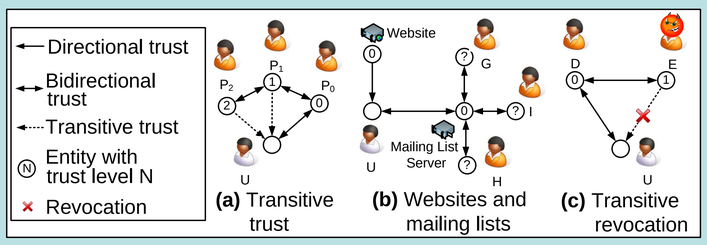
Authentication

- Sender's server appends message HMAC to message using token as key
- Recipient server validates HMAC by recomputing it with the secret token

Revocation

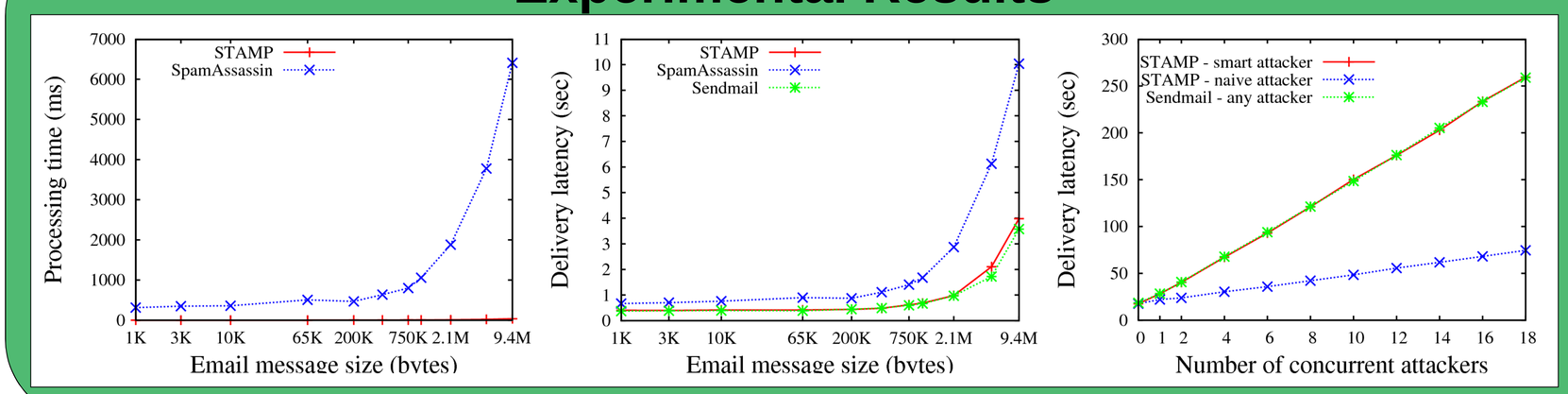
- The sender of all spam received can be identified by dereferencing the authenticating token
- Revocation is immediate on the receiver's local mail server

Transitive Trust Model



- Trusted contacts can extend their token to third parties
- Auditing chains are maintained for accountability
- Transitive revocation is granular to transitive degree

Experimental Results



Conclusions

1. STAMP authentication is more efficient than Bayesian content filtering by orders of magnitude
2. STAMP incurs negligible computation cost relative to SMTP transfer processing

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