Web Privacy: an Essential Part of Electronic Commerce

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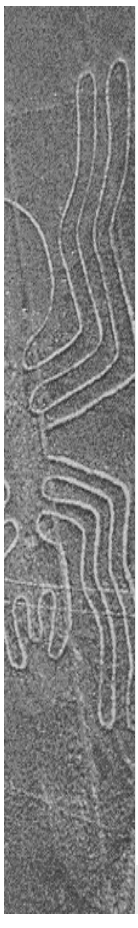
International Interdisciplinary Conference on Electronic Commerce
ECOM-03



Outline

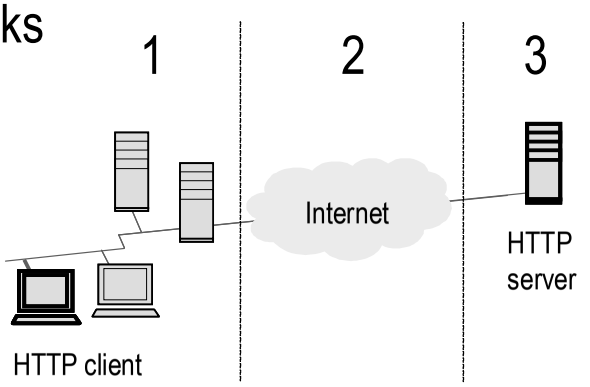
- **Privacy risks**
- **Current solutions** –

  client-side utilities, third party proxy servers, P3P, chaining with encryption
- **Our proposal**

  VAST system
- **VAST performance**

Classification of privacy risks (1/2)

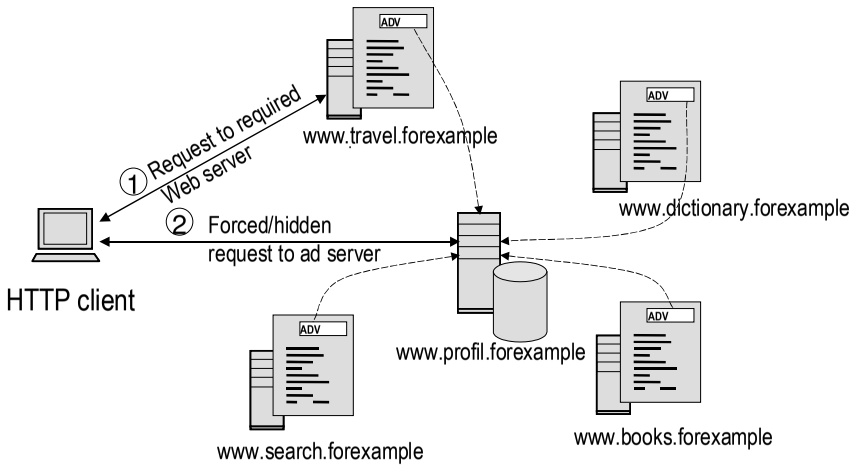
1. Internal Risks - Internet service providers, LAN administrators, employers, other third parties
2. Communication Link Originated Risks
   - *sniffing*



Three groups of privacy risks

Classification of privacy risks (2/2)

3. Web Server Originated Risks - server administrators, ad servers, banner ad networks



Web users profiling scheme

Current Solutions

- Client-side Utilities
  personal firewalls, system cleaners, cookie managers, banner ad blockers, trojan horses detectors
- Third Party Proxy Servers
  Anonymizer, Magusnet Proxy, Rewebber, Surfola, SafeWeb
- New Protocol
  Platform for Privacy Preferences Protocol
- Adaptation of Chaining with Encryption Technique
  Onion Routing, Crowds, Freedom

Vast system overview

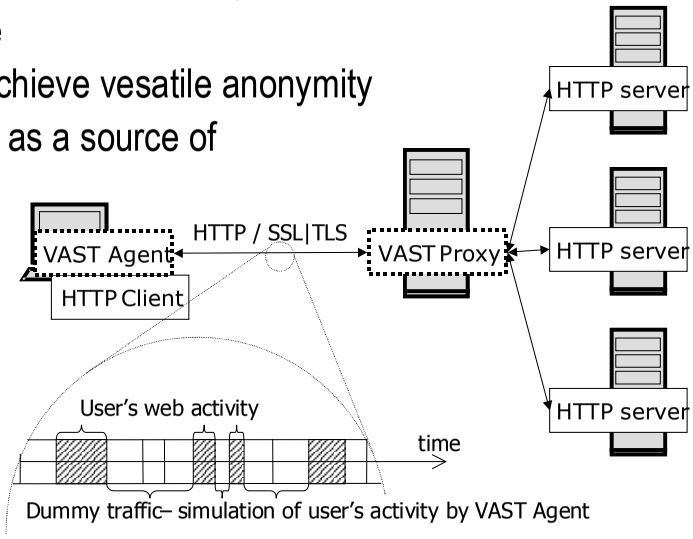
- **V**ersatile **A**nonymous **S**ys**T**em for Web Users
- Original system developed at Institute of Telecommunication, Warsaw University of Technology

*The prairie realm – **v a s t** ocean's paraphrase –*
Rich in wild grasses numberless, and flowers
Unnamed save in mute Nature's inventory
No civilized barbarian trenched for gain.

———
"Tecumseh", Charles Mair (1838-1927)

Vast concept

- Specyfic technique of *dummy traffic* generation
- Only one proxy node
- Use of *free* time to achieve vesatile anonymity
- Web search engines as a source of *dummy traffic*
- Secure connection between client and proxy
- Open source code of agent applet



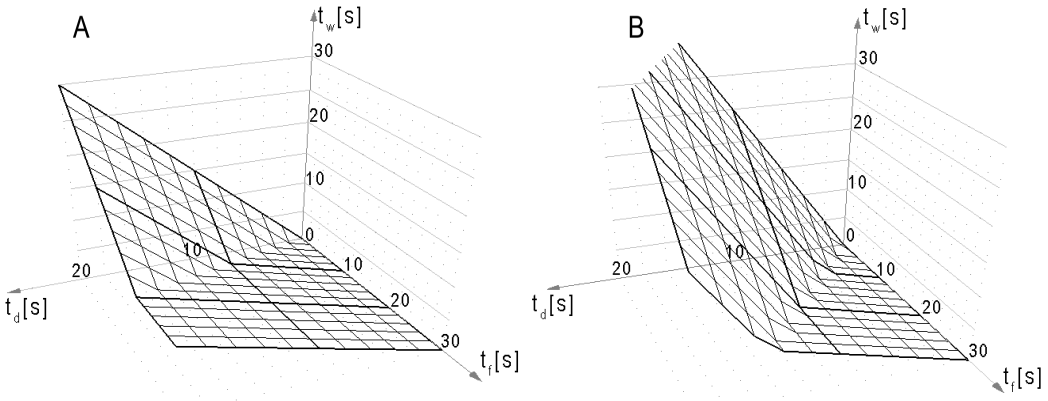
VAST system scheme

Vast performance

t_d - average time of downloading of single Webpage

t_f – average time of familiarizing with page content

t_w – average delay in Webage downloading induced by VAST system in comparison to traditional proxy server



Delays induced by VAST system in comparison to traditional proxy server (A – one dummy session, B – two dummy sessions)

Summary

- Today's popular tools are not perfect
- VAST overcomes weaknesses of existing systems
- Specific *dummy traffic* generation technique may be in some cases viewed as its weakness

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