



vrije Universiteit

**IIDS** Intelligent Interactive Distributed Systems

amsterdam

# Organized Anonymous Agents

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www.iids.org



## Problem:

Identity revealing information (profiling) in domains (commerce, medical, government) where this is unwanted.

## Solution:

Anonymous Communication between Agents

## Approach:

- Generate a new pseudonym (a handle) for an agent per communication event
- Integrate in agent platform by offering an anonymizing service
- Proof of concept in AgentScape

A need for anonymity

Due to demands of the domains such as:

- medical (e-health)
- legal (in Courts of Law)
- finances (e-cash)

and due to individual needs:

- e-commerce, auctions (buyer profiling)
- e-voting
- ...

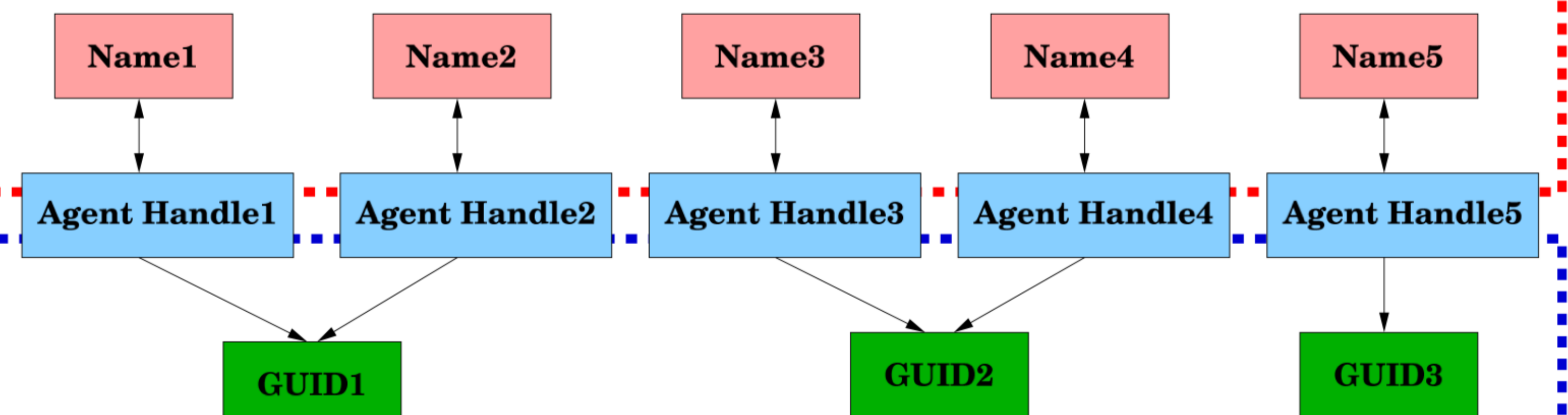
- Agents have one (secret) Global Unique Identifier (GUID)
- Agents use handles to communicate with each other
- An agent can have as many handles as it requires
- Handles are mapped back to GUID's by a lookup service that can only be used by the agent platform

$handle_1 = sha(GUID + 1)$   
 $handle_2 = sha(GUID + 2)$

...  
or more general:

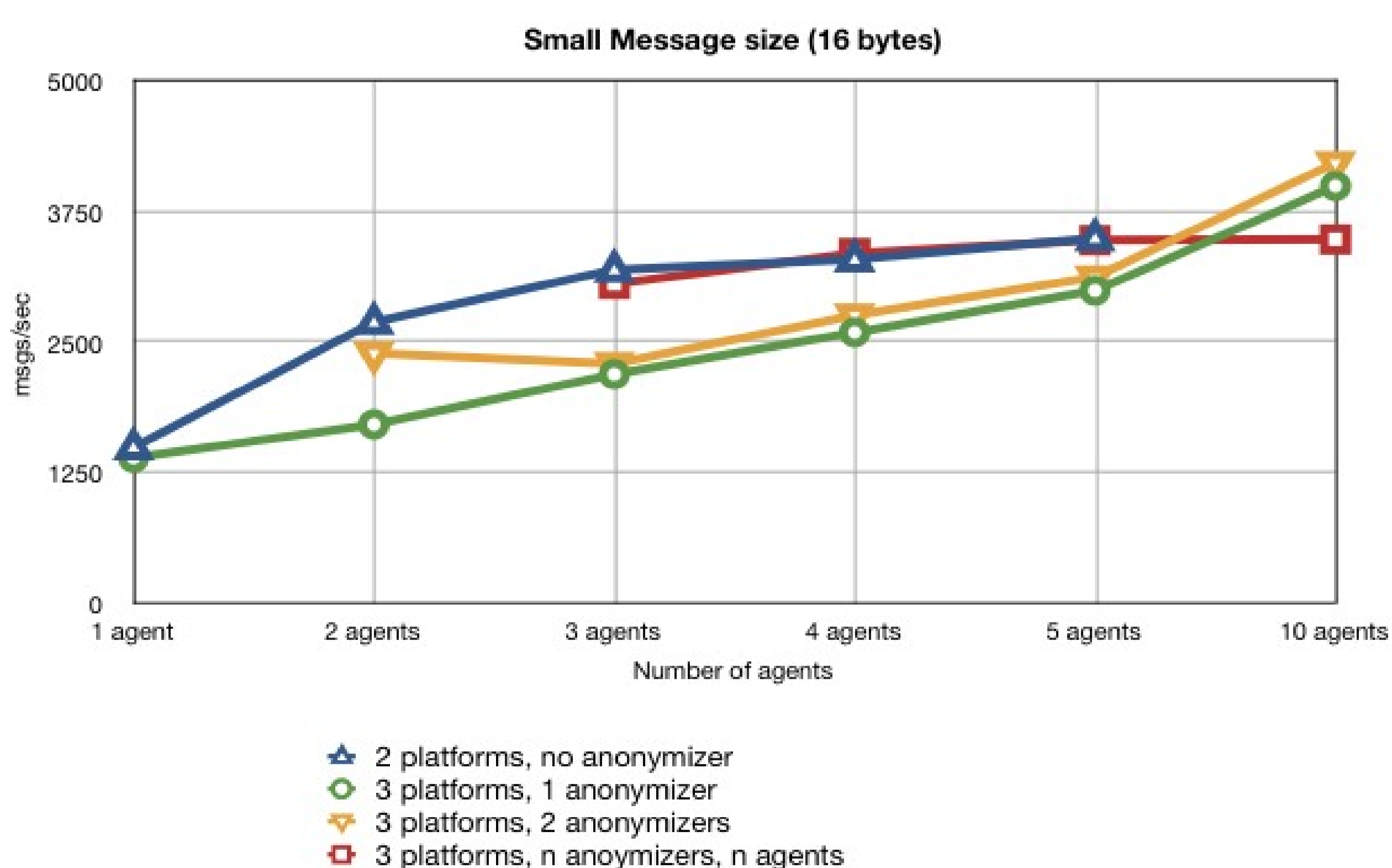
$handle_n = sha(GUID + n)$   
with  $n \in \mathbb{N}^+$

Public lookup service



Private lookup service, only available to the middleware

The implementation in AgentScape scales well and has a limited overhead



- The anonymizer service (A), arranges automatic anonymous communication between Agent B & C.
- It works as a router and generates new handles per communication event.
- The logical communication (red arrow) stays the same.

