

# Next-generation Information Sharing Infrastructure

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Burkhard Schafer (Joseph Bell Centre)

Scottish Police





**Police  
domain**



**Social care  
domain**

**Information  
sharing**



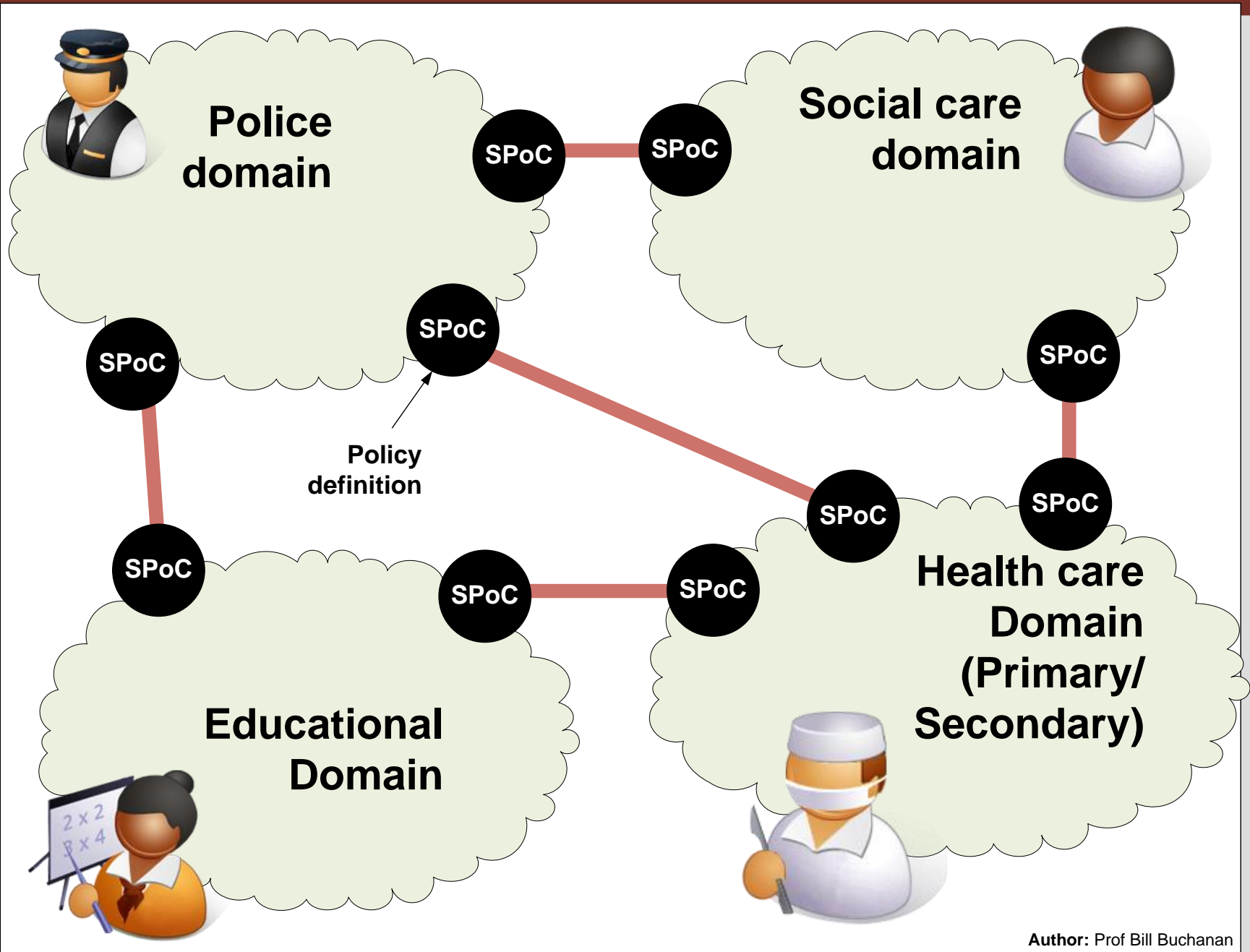
**Educational  
Domain**



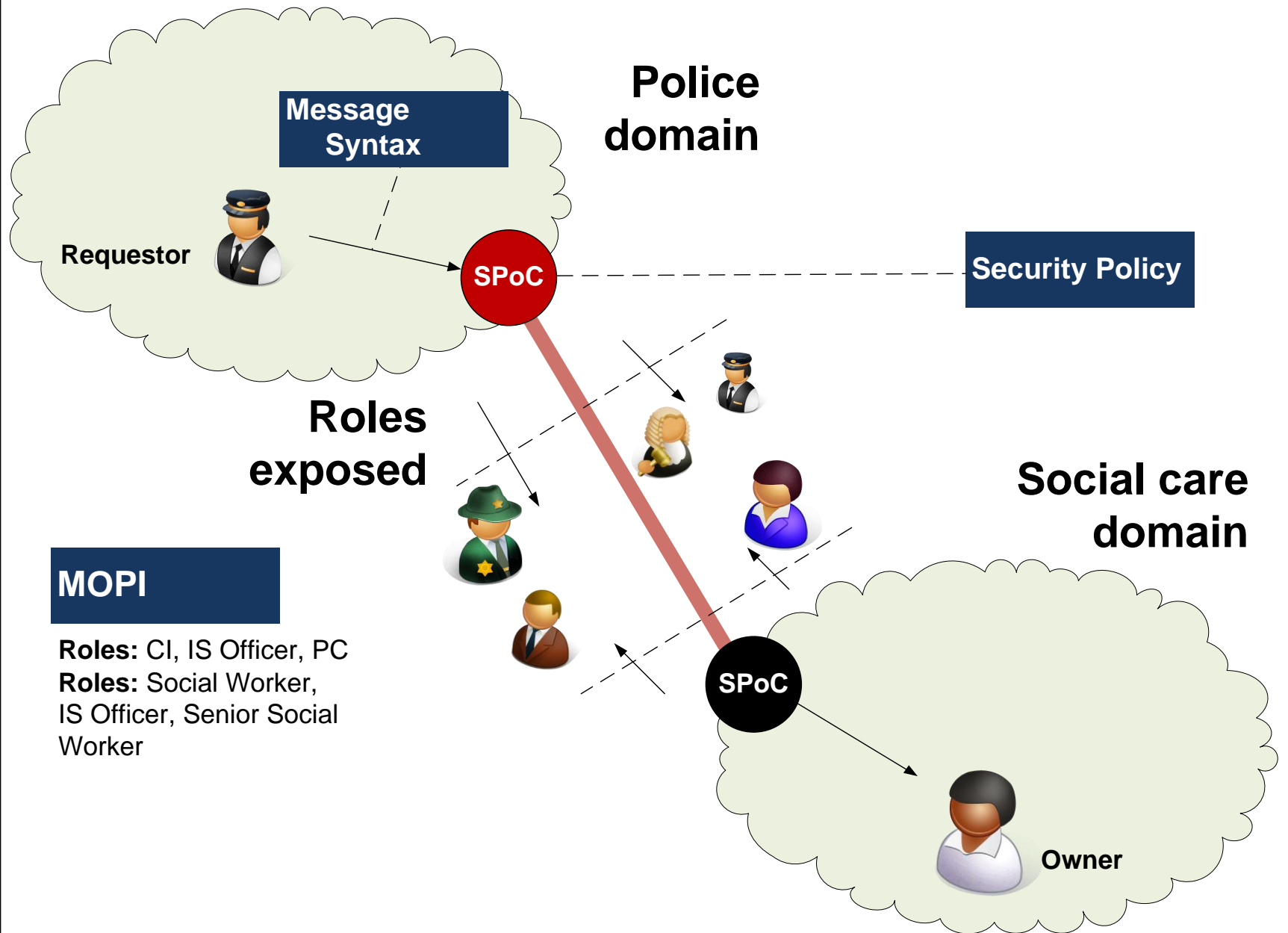
**Health care  
Domain  
(Primary/  
Secondary)**

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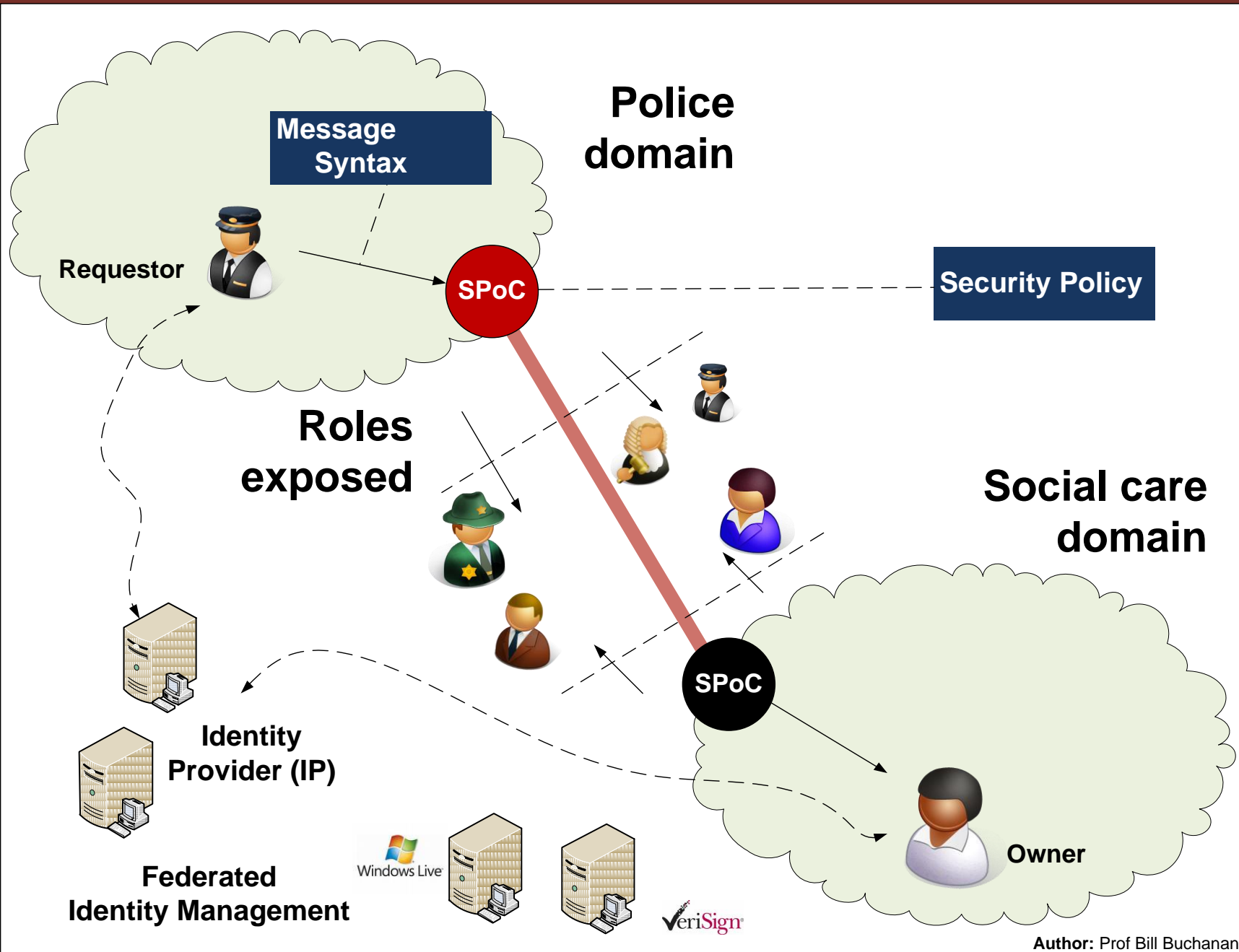
**Sharing between domains**



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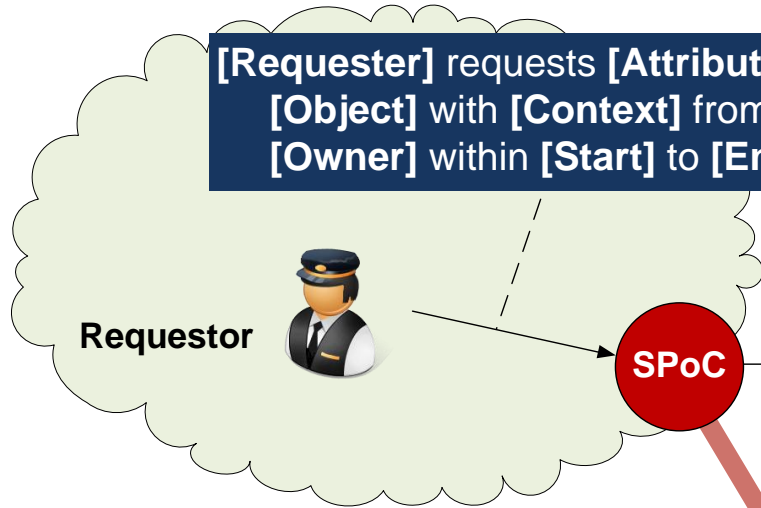
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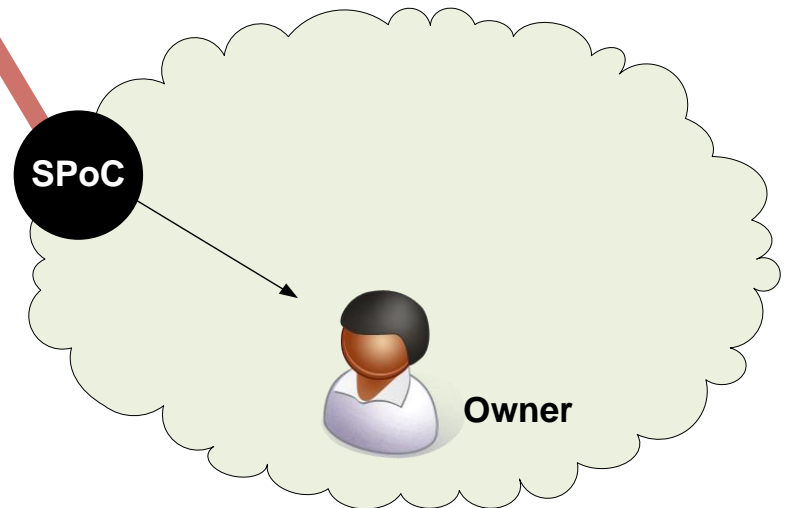
[Requester] requests [Attribute] of [Object] with [Context] from [Owner] within [Start] to [End]

## Police domain



[permit | deny] [Requester] requests [Attribute] of [Object] with [Context] from [Owner] for [N] records in [TimeWindow] using [Compliance]

## Social care domain



Author: Prof Bill Buchanan

## Police domain

[Requester] requests [Attribute] of [Object] with [Context] from [Owner] within [Start] to [End]

Requestor



SPoC

[permit | deny] [Requester] requests [Attribute] of [Object] with [Context] from [Owner] for [N] records in [TimeWindow] using [Compliance]

## Social care domain

SPoC

Owner



- **REQUESTER** = {Social worker, Doctor, Police Inspector...}.
- **ATTRIBUTE** = {Location, Identity, History, Behaviour, Interaction, Association}.
- **OBJECT** = Any searchable entity about which information is held and which is mapped to a UID within the domain.
- **CONTEXT** = {Crisis, Terrorism, Murder, Missing Person, Child/Adult Protection, Drugs, Volume Crime, Petty Crime, General Request}.
- **OWNER** = {Business Unit 1, Business Unit 2, ...}.
- **TIMERANGE**= Definition of time.
- **RECORDS**= {n}.

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# Police domain

[Firearm Registration Officer] requests [Location] relating to [John Doe] for [Firearm Crime] reason from [Social Worker] within [2008] to [2009]

Requestor



SPoC

DENY [Firearm Registration Officer] requests [Location] relating to [John Doe] for [Firearm Crime] reason from [Social Worker] for [2009]

Invalid access

# Social care domain

PERMIT [Firearm Registration Officer] requests [Location] relating to [John Doe] for [Firearm Crime] reason from [Social Worker] for [2009]

SPoC



Owner

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# Police domain

[Firearm Registration Officer] requests [Location] relating to [John Doe] for [Firearm Crime] reason from [Social Worker] within [2008] to [2009]

Requestor



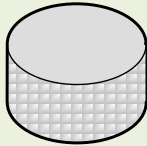
SPoC

PERMIT [Firearm Registration Officer] requests [Location] relating to [John Doe] for [Firearm Crime] reason from [Social Worker] for [1 year] with [10] records

Too many records – please refine the search

# Social care domain

SPoC



100 records Return!



Owner

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[Firearm Registration Officer] requests [Location] relating to [John Wilson Doe] for [Firearm Crime] reason from [Social Worker] within [2008] to [2009]

## Police domain

Requestor



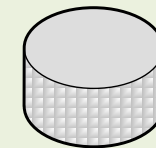
SPoC

PERMIT [Firearm Registration Officer] requests [Location] relating to [John Doe] for [Firearm Crime] reason from [Social Worker] for [1 year] with [10] records

Location: G1 1FX, Time: 1/2/2009  
Location: G2 3FX, Time: 1/2/2009  
Location: G10 1HH, Time: 1/2/2009  
Location: G11 1FG, Time: 1/2/2009  
Location: G1 1FX, Time: 1/2/2009

## Social care domain

SPoC



5 records Return!

Owner

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Successful request



Requestor

Login Information Request Results

Request

Your current role: Senior Social Worker 

Information Request: Location

Object: John Wilson Doe

Context: Firearm Crime

From: Police Firearms Unit

Date from: 28 January 2010

Date to: 28 January 2010

[Make request>>](#)

Secure connection enabled

## Requestor

[Firearm Registration Officer] requests [Location] relating to [John Wilson Doe] for [Firearm Crime] reason from [Social Worker] within [2008] to [2009]



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**Requestor**

Requestor

Request: Information Request | Results

Your current role: Senior Social Worker

Information Request: Location

Object: John Wilson Doe

Context: Firearm Crime

From: Police Firearms Unit

Date from: 28 January 2010

Date to: 28 January 2010

Secure connection enabled

Make request >>

[Firearm Registration Officer] requests [Location] relating to [John Wilson Doe] for [Firearm Crime] reason from [Social Worker] within [2008] to [2009]

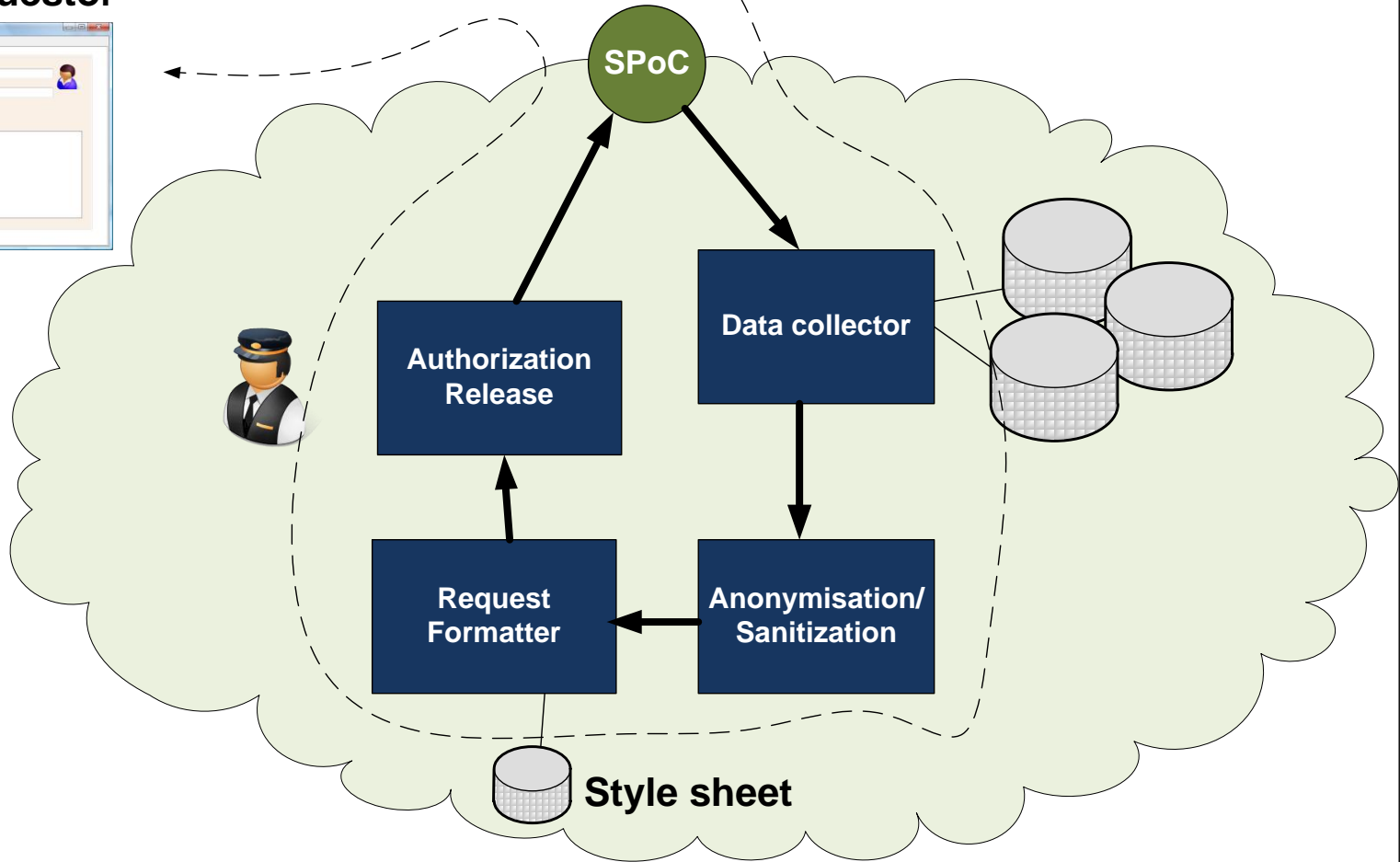
Requestor

Response

Requestor: John Wilson Doe

Your current role: Senior Social Worker

Location: G1 1PX, Time: 1/2/2009  
 Location: G2 2PX, Time: 1/2/2009  
 Location: G10 1PX, Time: 1/2/2009  
 Location: G11 1PX, Time: 1/2/2009  
 Location: G1 1PX, Time: 1/2/2009



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[Requester] requests [Attribute] of [Object] with [Context] from [Owner] within [Start] to [End]

# Police domain



Requestor

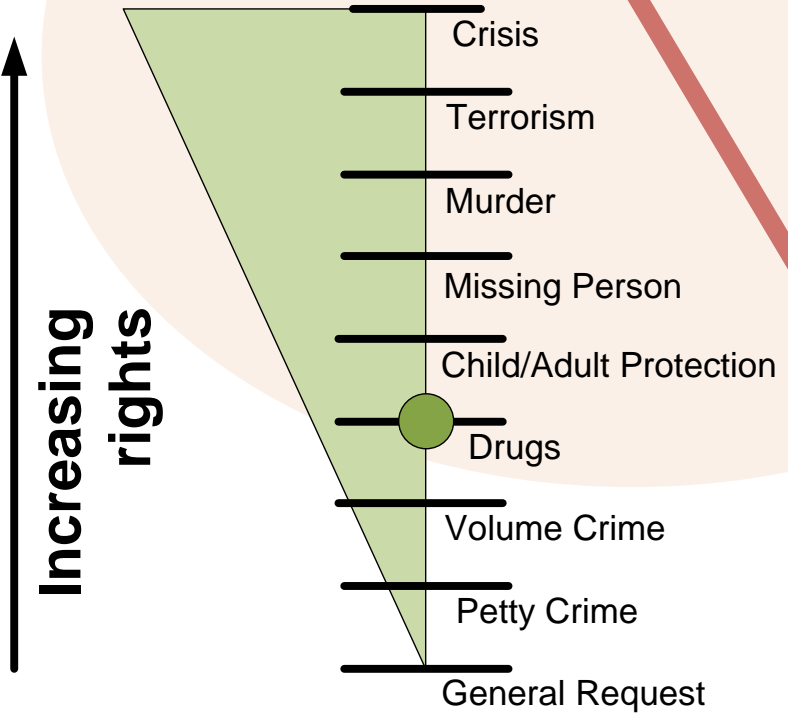


[permit | deny] [Requester] requests [Attribute] of [Object] with [Context] from [Owner] for [N] records in [TimeWindow] using [Compliance]

# Social care domain



Owner

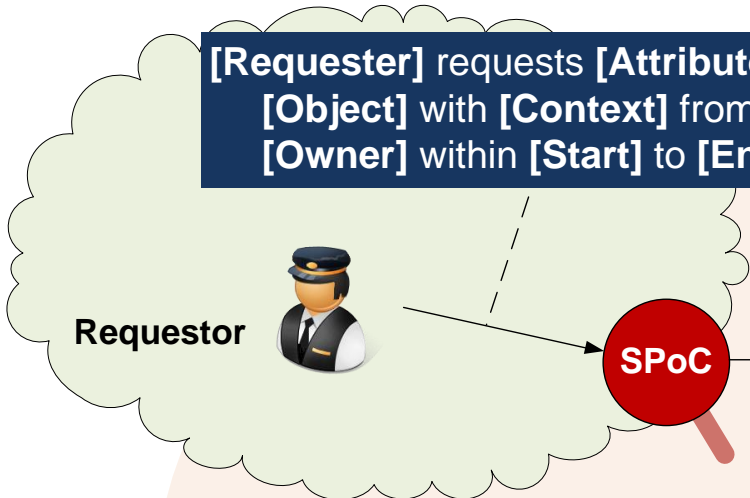


[Requester] requests [Attribute] of [Object] with [Context] from [Owner] within [Start] to [End]

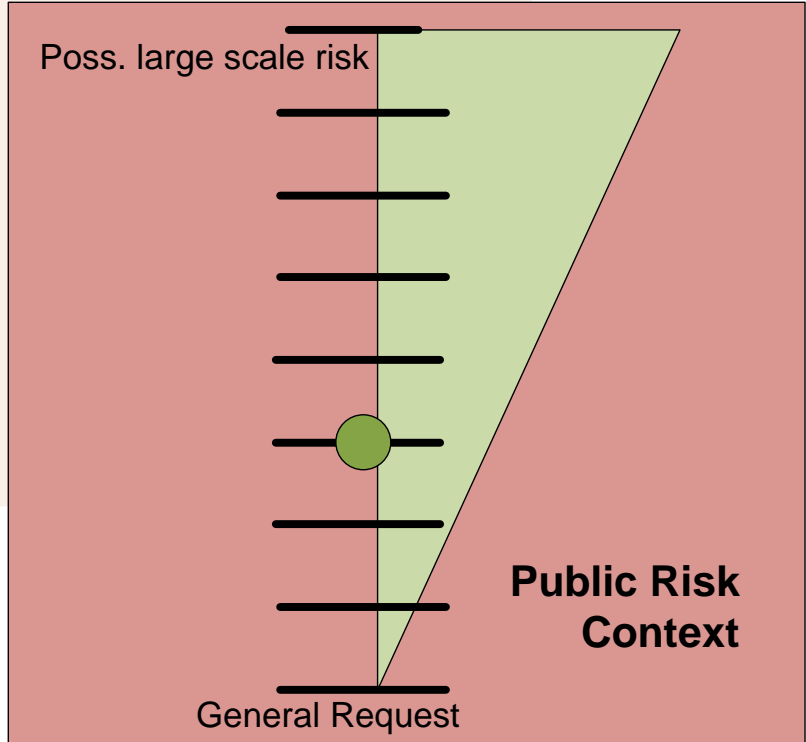
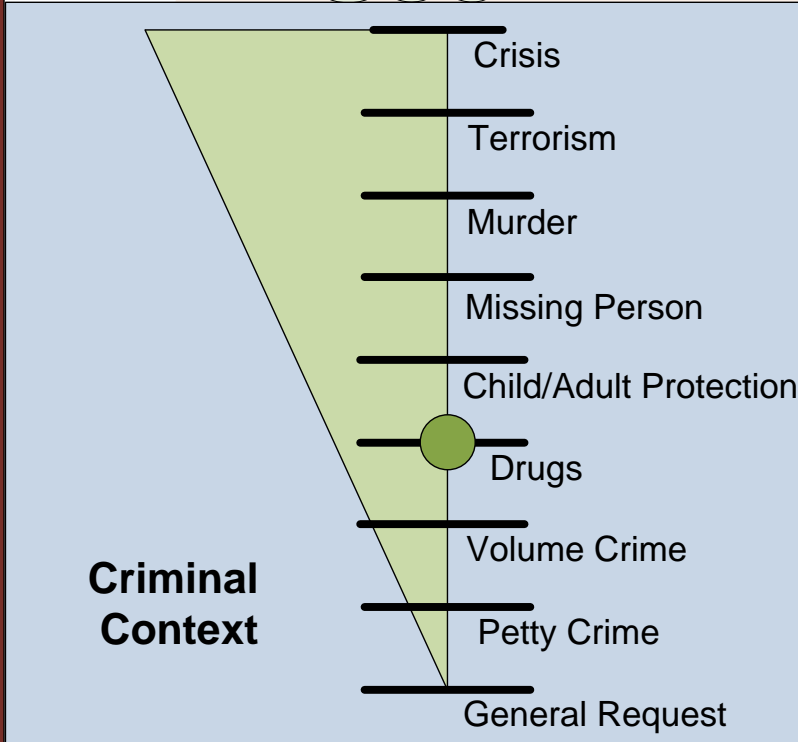
Police domain

Level III
Level II
Level I

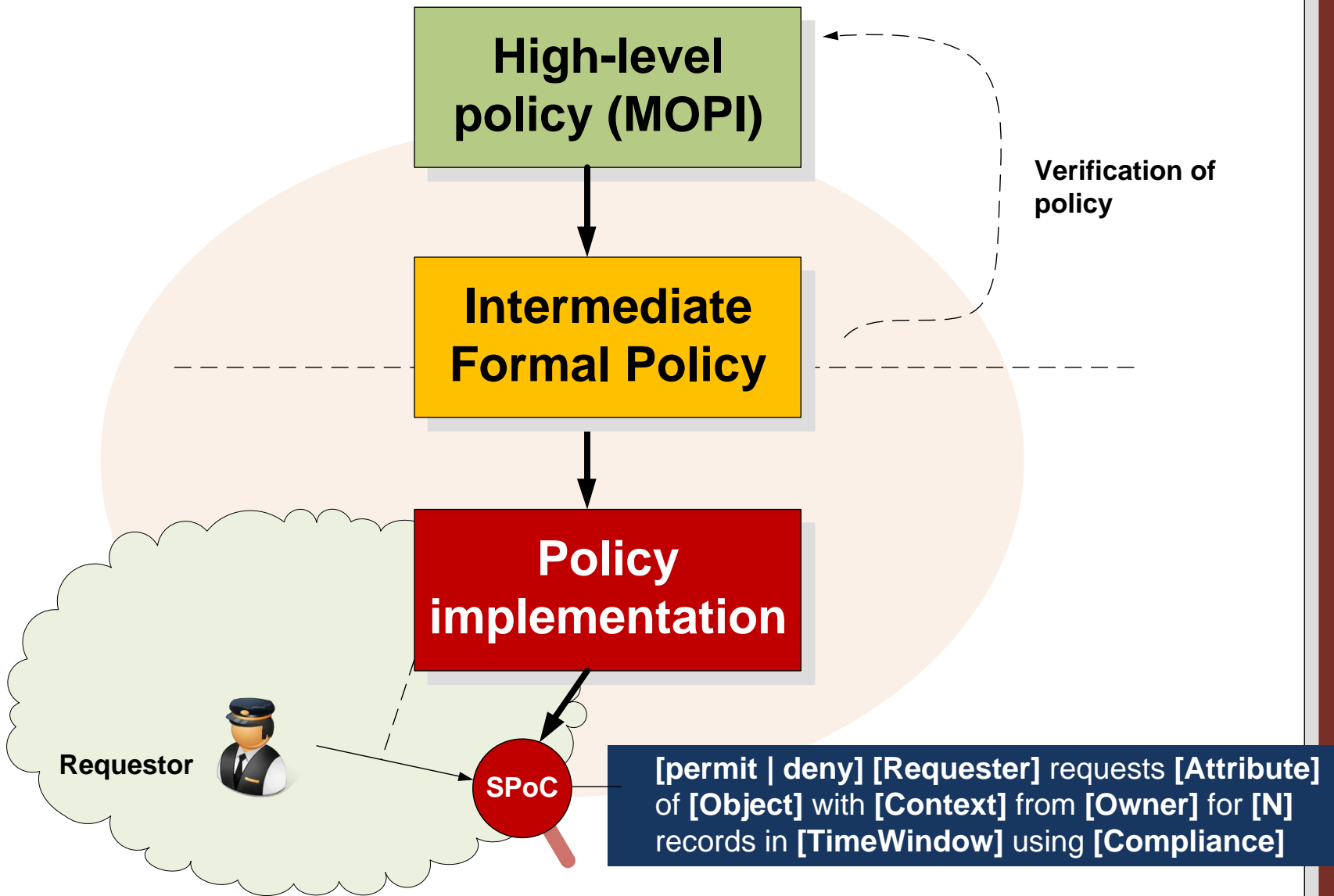
NIM



[permit | deny] [Requester] requests [Attribute] of [Object] with [Context] from [Owner] for [N] records in [TimeWindow] using [Compliance]



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**Layer 3 (After the event)**

**Values**

Right to life.  
Right to property  
Right to religion,  
Etc

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**Layer 2 (Intervention)**

**Criminal  
Context**

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**Layer 1 (Community)**

**Values**

Author: Prof Bill Buchanan



# Next-generation Information Sharing Infrastructure

- Scalable architecture.
- Enhanced security.
- No need to expose data structure to other domains.
- Well defined policies.
- Integrated auditing/compliance.
- Context allows access, if required.
- Lock-down (explicit deny).
- Interchange between any domain.
- Links to any domain.
- Customised policies between domains.

