IF-MAP in a Nutshell

Interface to Metadata Access Point

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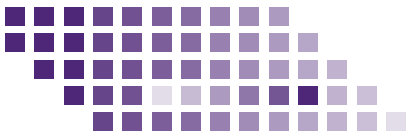
March 15, 2011
MASSIF Meeting
Fraunhofer SIT Darmstadt



Trust@FHH
Fachhochschule Hannover
University of Applied Sciences and Arts

Trust@FHH Research Group

Figure: University Building

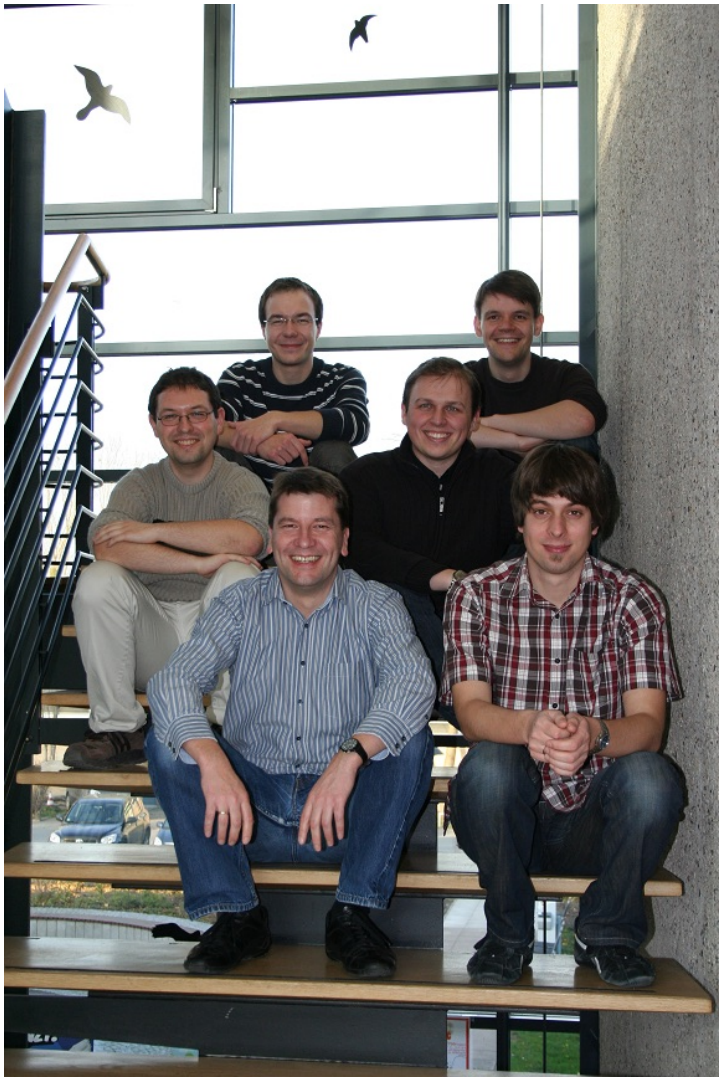


Figure: Trust@FHH Team (slightly outdated)

Trust@FHH Research Group

Team

- chair: Prof. Dr. Josef von Helden
- 3 research associates
- 4 student assistants

Research Fields

- Trusted Computing
- Network Security
- Mobile Security

More Information

- `http://trust.inform.fh-hannover.de`

IF-MAP Overview

Some IF-MAP Facts

IF-MAP is ...

- a protocol for sharing arbitrary (meta)data across arbitrary entities
- an open standard proposed by the Trusted Computing Group (more precisely: a part of their TNC framework)
- a pretty new technology (first release in 2008)

IF-MAP is not ...

- directly related to any Trusted Computing approaches (TPM)
- widely adopted yet

How is IF-MAP specified anyway?

Dedicated TCG Work Group

- TCG is organized in work groups that address several topics
- TNC work group is responsible for TNC framework
- dedicated MAP sub group of TNC work group addresses IF-MAP

The Set of IF-MAP Specifications

- one specification defines the base protocol
- N specifications define standard metadata for arbitrary use cases
- currently available: IF-MAP 2.0 + IF-MAP Metadata for Network Security

IF-MAP Background

Original Motivation

- improve TNC based Network Access Control
- share network security metadata (AAA, IDS events, addresses)
- make NAC solution leverage IF-MAP metadata when making decisions

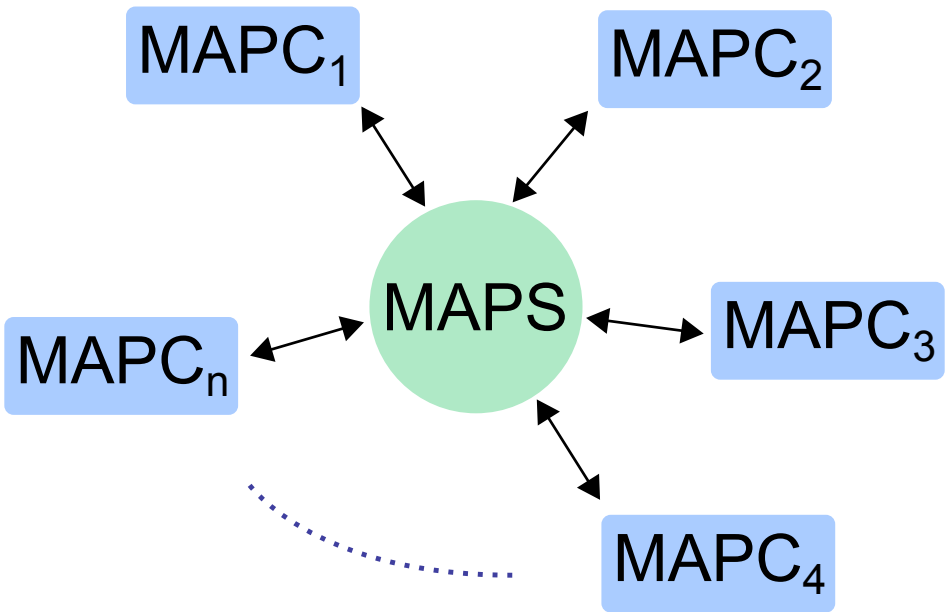
Now

- IF-MAP (expected to be) useful for a more broader set of use cases
- goal: general purpose protocol for sharing data in real-time

IF-MAP Architecture

Entities

- central MAP Server (MAPS) as silo for metadata
- arbitrary MAP Clients (MAPC) send/receive metadata via MAPS
- request/response based communication: MAPC $<->$ MAPS



How does IF-MAP fit into the TNC Framework?

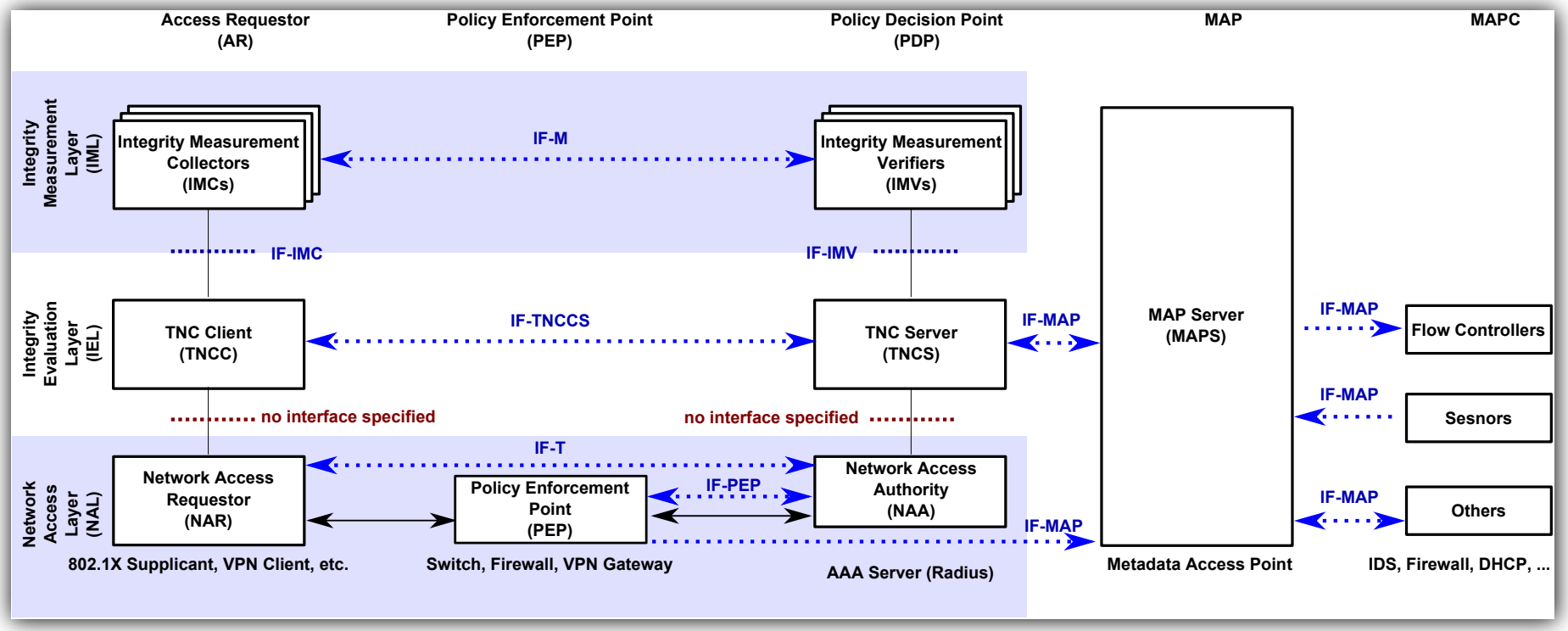


Figure: TNC Architecture Version 1.4

IF-MAP Protocol Details

IF-MAP Protocol Details

Technological Basis

- XML messages exchanged via SOAP/https

Communication Protocol

- request-response protocol
- defines set of valid operations, their syntax and semantics

Metadata Model

- extensible framework for metadata
- defined by XML schemata

Metadata Model

Components

- *identifier*: IP-Address, MAC-Address, Access-Request, Device, Identity
- *metadata*: AAA, Role, Layer2-Information, ... (basically `xsd:any`)
- *link*: relationship between two identifiers
- metadata can be placed both on identifiers and on links

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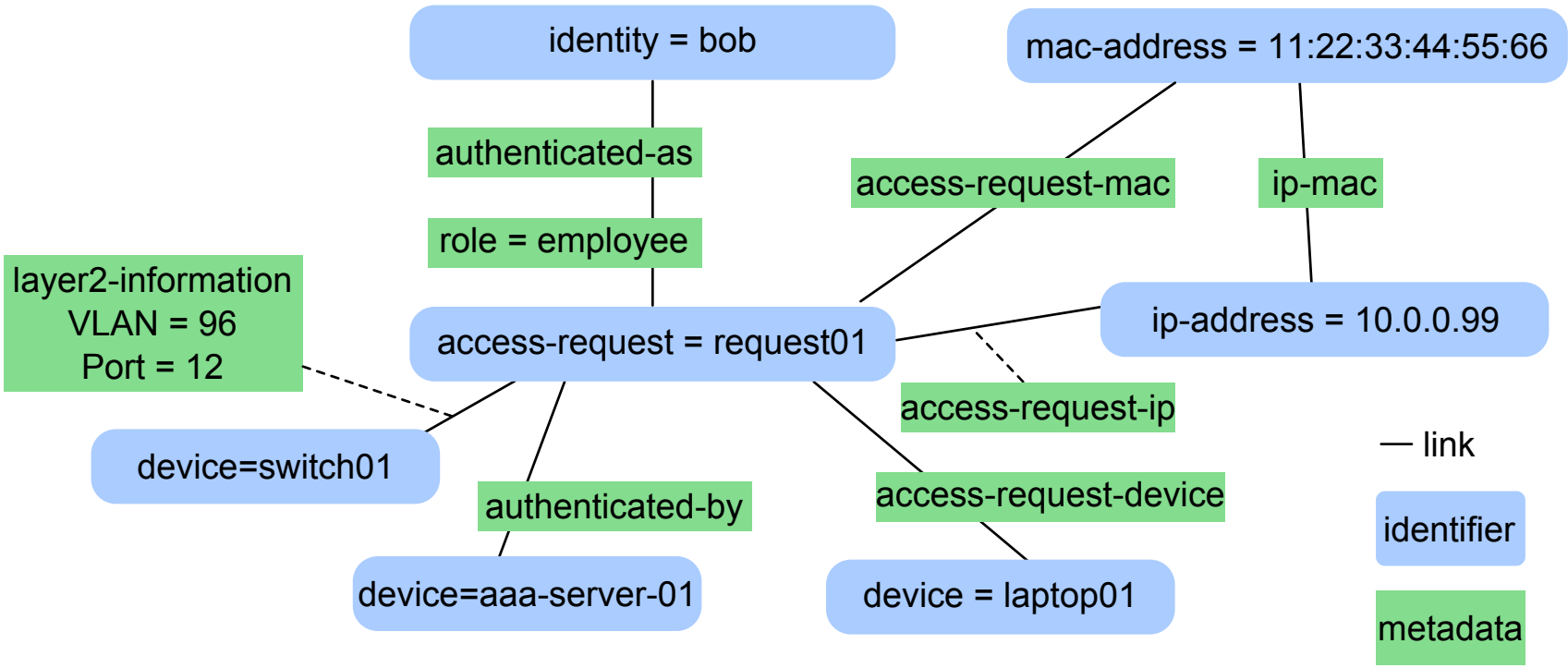


IF-MAP Communication Protocol

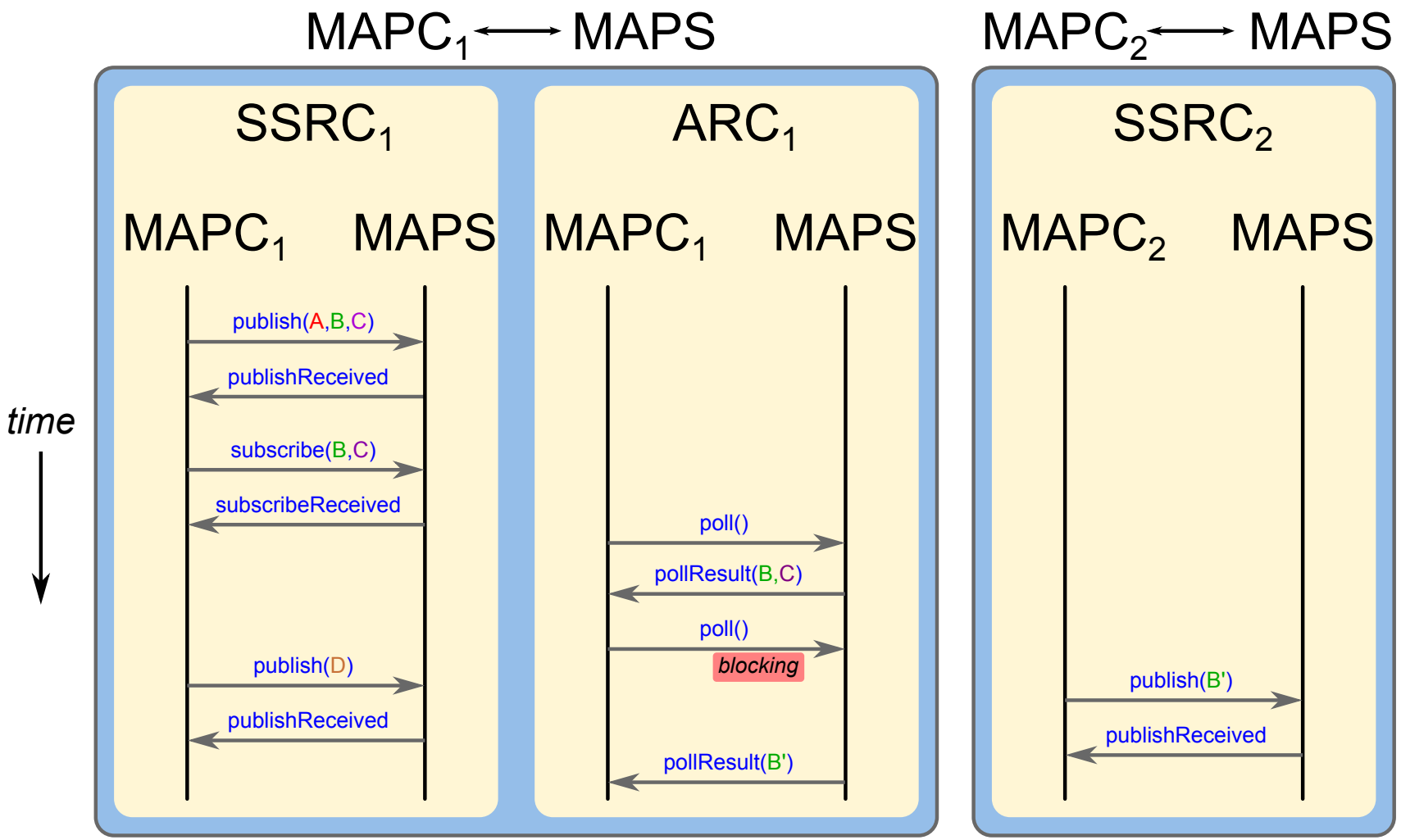
IF-MAP Operations

- publish: update/delete/notify MAPS metadata
- search: search for existing metadata in MAPS
- subscribe/poll: observe metadata in MAPS

Session Handling

- MAPC and MAPS establish a session
- session consists of two communication channels
- SSRC (mandatory): publish, search, subscribe
- ARC (optional): poll

IF-MAP Example Flow of Operations



IF-MAP Demo

IF-MAP Demo Software

MAP Server

- irond
- Apache License 2
- `http://trust.inform.fh-hannover.de`

MAP Clients

- irongui
  - Apache License 2
  - `http://trust.inform.fh-hannover.de`
- soapUI
  - LGPL 2.1
  - `http://www.soapui.org`

IF-MAP Experiences from Adoption

IF-MAP Experiences from Adoption

:-)

- quality of the specs
- approach seems reasonable and feasible
- MAP subgroup is very responsive
- level of interoparability
- commercial products and open source tools are available

:-(

- complexity (analysis, search expressions)
- some details are ambiguous (connection handling, size-calculation)
- the spec is a *moving target*

Thank You
Questions?