



Health Care

NETWORK AND COMPUTER SECURITY

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HEALTH CARE

Privacy provision is a key issue for successful secure access to patients health information. Current approaches do not always provide patients with the ability to define suitable rules to access to their information in a secure way. This report presents an approach to give patients control over their information by means of external services. In this way, health information management and access control are kept independent and more secure.

1. Problem

A patient's medical records are extremely sensitive data. The historical records made by doctors facilitate the process of diagnosing a patient, ensuring their quality, which helps clinical staff to treat quickly and accordingly.

This data should be kept private, allowing only the discriminating staff to access it. We believe, that all healthcare facilities should have access to this type of information so that patients can receive healthcare anywhere and at any time. Therefore, the data should be protected from external agents (i.e., outside the medical institutions) and from unauthorised people within the institutions.

1.1. Solution Requirements

Client application requirements:

As a user I should be able to...

- Read/write medical records (send requests to the system);
- Receive responses from the system (receive replies from the system).

As the system administrator I should be able to...

- Modify/set user privileges.

Security requirements:

As a system, I must...

- Ensure confidentiality and integrity of medical records;
- Ensure confidentiality and integrity of communications with the web application;
- Ensure that only authorised medical staff and patients have an account;
- Ensure different "roles" have access to different privileges;
- Ensure there is only one account per citizen;
- Prevent access to medical records if the user does not have privileges;
- Allow user A to change the privileges of user B, if user A is a system administrator;
- Ensure successful authentication of users;
- Mitigate brute force attacks on the authentication system (e.g. blocking IP's);
- Minimize the impact of failures within the system (solution: do an "I'm alive with timeout" to the backup server);
- Minimize the impact of attacks inside the system.

As a user, I cannot repudiate my actions.

1.2. Trust Assumptions

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2. Proposed solution

TO DO

2.1. Overview

TO DO Figura 1. Arquitetura geral

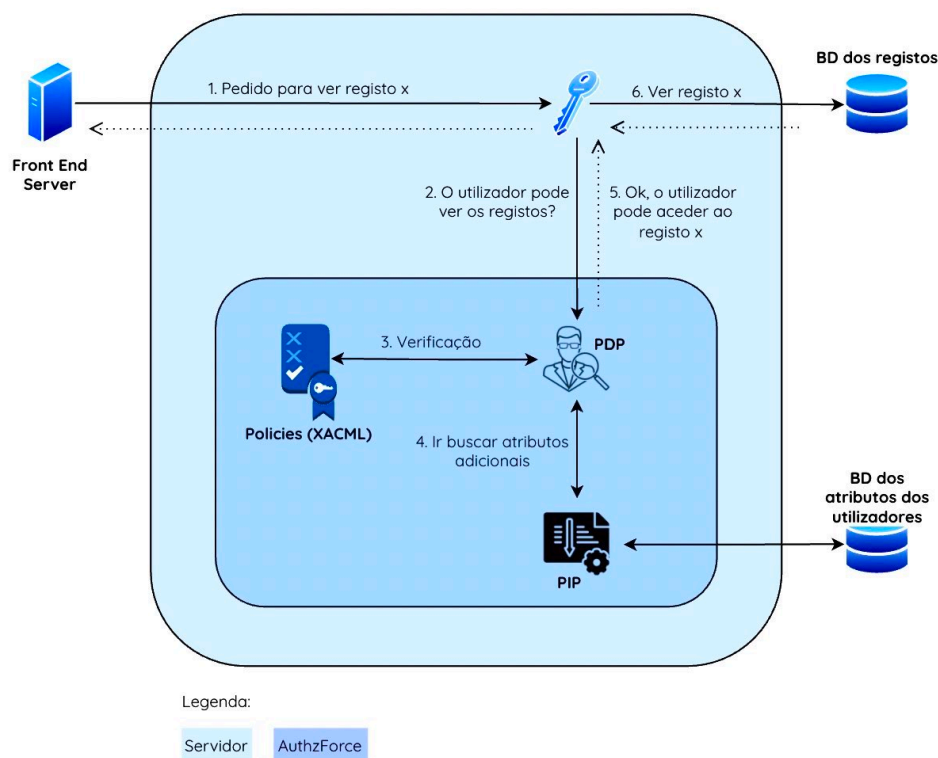


Figure 2: Happy Path - Record Access Control Architecture.

Basically the service analyzes the request and then generates an XACML authorization request, which is "fed" into the AuthzForce PDP Engine. Then the PDP evaluates the request according to the policies it is configured with, and, if necessary, also retrieves other attribute values from the database in order to execute its decision (PIP). This decision is then sent back from the engine, and depending on the result, the server generates a response and sends it to the client application.

2.2. Deployment

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2.3. Secure channel(s) to configure

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2.4. Secure protocol(s) to develop

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3. Considered technologies

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4. Plan

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4.1. Milestones

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4.2. Effort commitments

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5. References

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