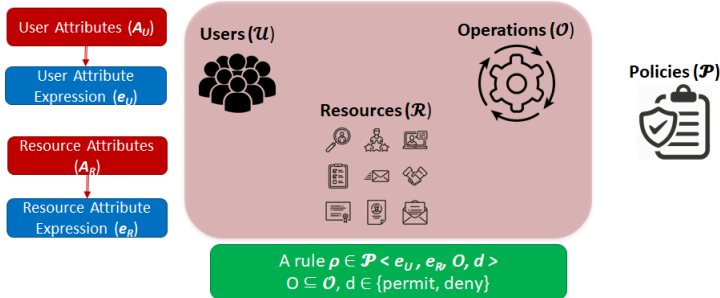


Polisma - A Framework for Learning Attribute-based Access Control Policies



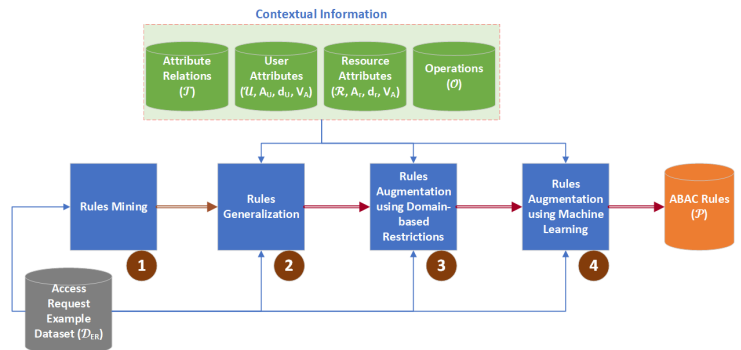
Amani Abu Jabal (Purdue), Elisa Bertino (Purdue), Jorge Lobo (Pompeu Fabra), Mark Law (Imperial), Alessandra Russo (Imperial), Seraphin Calo (IBM US), Dinesh Verma (IBM US)

ABAC Policies



Polisma Framework

- 1 Rules Mining
- 2 Rules Generalization
- 3 Rules Augmentation using Domain-based Restrictions
- 4 Rules Augmentation using Machine Learning



ABAC Policy Specifications

- Specifying ABAC policies is a **complex task**.
- Specifying access control policies is **time consuming**.

Migrating to ABAC Policies

- Migrating an access control system adopting a low-level model (e.g., RBAC) to ABAC can be **challenging**.

Goal: Automate policy specification and migration.



Proposed Approach (Polisma)

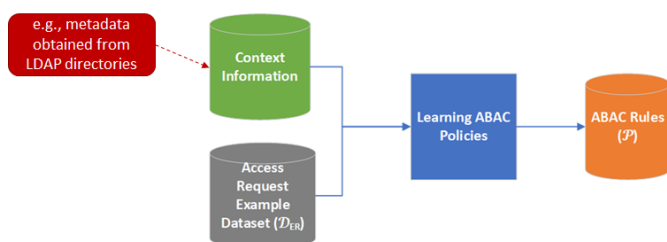
- Generating ABAC policies automatically by:
 - Utilizing many data sources



– Using machine learning (ML) techniques

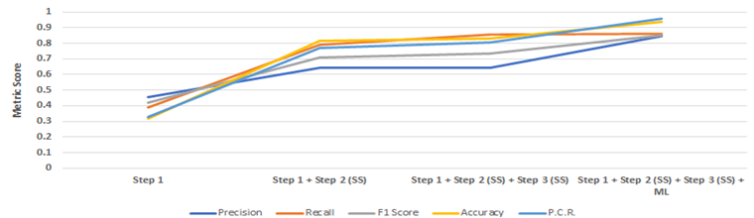


Problem Description

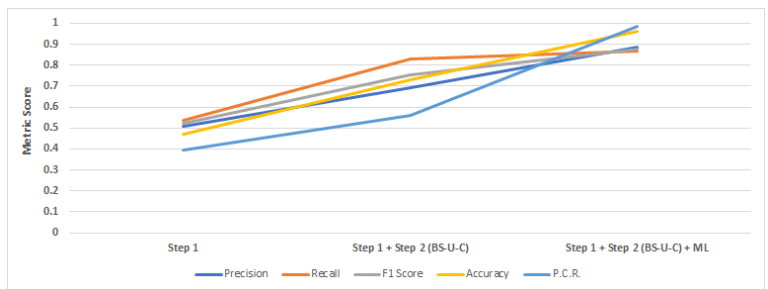


Evaluation

Using the Project Management dataset (**Synthesized**)



Using the Amazon dataset (**Real**)



Polisma vs. Pure Classification Approach

