XACML Contributions

Hal Lockhart, Oracle Corp

Topics

- Authorization API
- Finding Input Attributes

Authorization API

- XACML Specifies
  - Policy language evaluation semantics
  - XML format for policy interchange
  - Abstract format for inputs and outputs, expressed in XML
  - Protocol for remote requests using XML input & output format
- XACML does not specify
  - API for requesting policy decision

Authorization API Benefits

- Needed for call to local PDP
  - Local PDP required for low latentency calls
  - Inefficient to serialize data to and from XML
  - XML form not required by the standard
- Also useful to have standard API for remote requests
  - Common code to build message

API General Characteristics

- Java initially, C++ and perhaps others to follow
- Modeled on XACML Request/Response Contexts
- Use XACML datatypes – in format natural to language
- Mostly to be used by infrastructure components
  - Occasionally application may need to provide data
  - Infrastructure could be Container, Aspects, tool-generated code, etc.

Why not Java Authorization/JSR 115?

- Java Authorization (with or w/o JSR 115) based on Permissions
- Passive enforcement by container is a good idea
- Limitations to use of XACML features
  - No convenient, standard way to provide XACML inputs
  - No method to return outputs, e.g. Obligations, missing Attributes
  - New Resource type requires definition of new permissions class (recompile)

Draft API Overview

- Methods to build (and access) Request Context
- Methods to process Response Context
- “decide” method to invoke PDP
  - Single or bulk decisions
- “whatIsAllowed” method to obtain allowed alternatives
  - Operates in the context of some scope
  - Creates invokes a series of decisions
  - Returns allowed alternatives within scope
- Other convenience methods

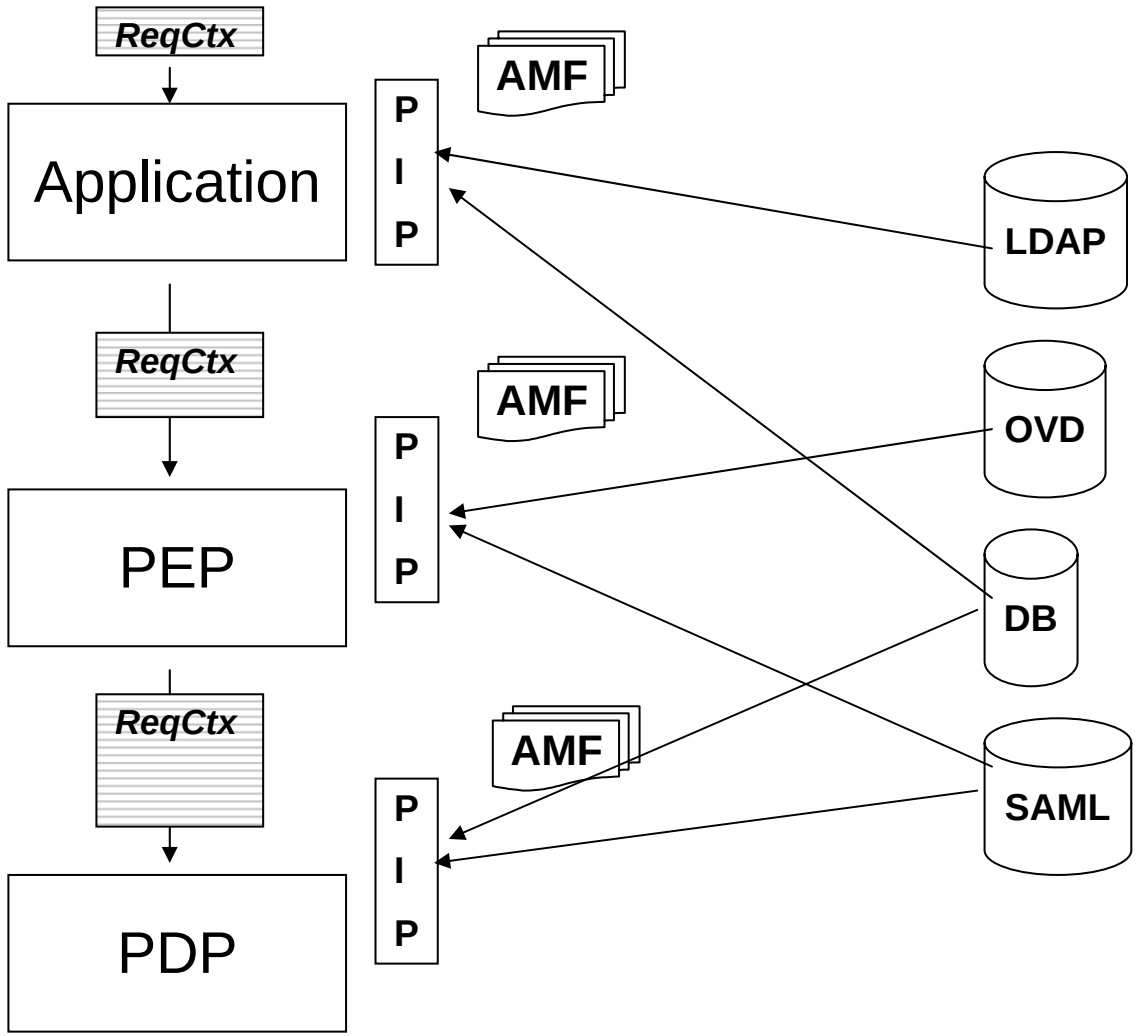
The Input Attributes Problem

- XACML Policies operate on data provided
- Only PDP sees/evaluates policies
- What attributes should be provided?
- Where can attributes be obtained from?
- How can the proper instance value be obtained?

Attribute Manifest File

- File in XML format identifies attributes to be added to Request Context
- Name of Attribute, Issuer, datatype, location, access method, other attribute to use as key
- Not all fields may be present
- Two usecases:
  - PDP advertizes required attributes
  - PIPs are configured to add attributes to Request Context

Multiple PIP's – Enhancing Request Context



Multiple PIP's – Reacting to Missing Attributes