



Dept. of Computer Science

Enforcing Privacy in Interoperable E-Government Applications

A. Rezgui, Z. Wen, A. Bouguettaya

{rezgui, zwen, athman}@vt.edu

E-Commerce & E-Government Research Lab

<http://www.nvc.cs.vt.edu/eceg>

Outline

- **Privacy in E-Government**
- **Privacy Model**
- **Approach**
- **Conclusion**

Privacy in E-Government

- **Government Agencies ...**
collect, store, process, and share citizens' information
- **Government services ...**
must preserve citizen's privacy
- **Privacy:**
Right to conceal personal information and to decide, what, when, and to whom any of that information may be revealed

Privacy Model

User Privacy:

determines privacy as perceived by the user of a Govt. service.

Service Privacy:

determines privacy as exposed to the user by a Govt. service.

Data Privacy:

determines privacy as supported by the underlying DBMS.

Approach

Digital Privacy Credentials (DPCs):

define the access scope of an entity to another entity's sensitive data.

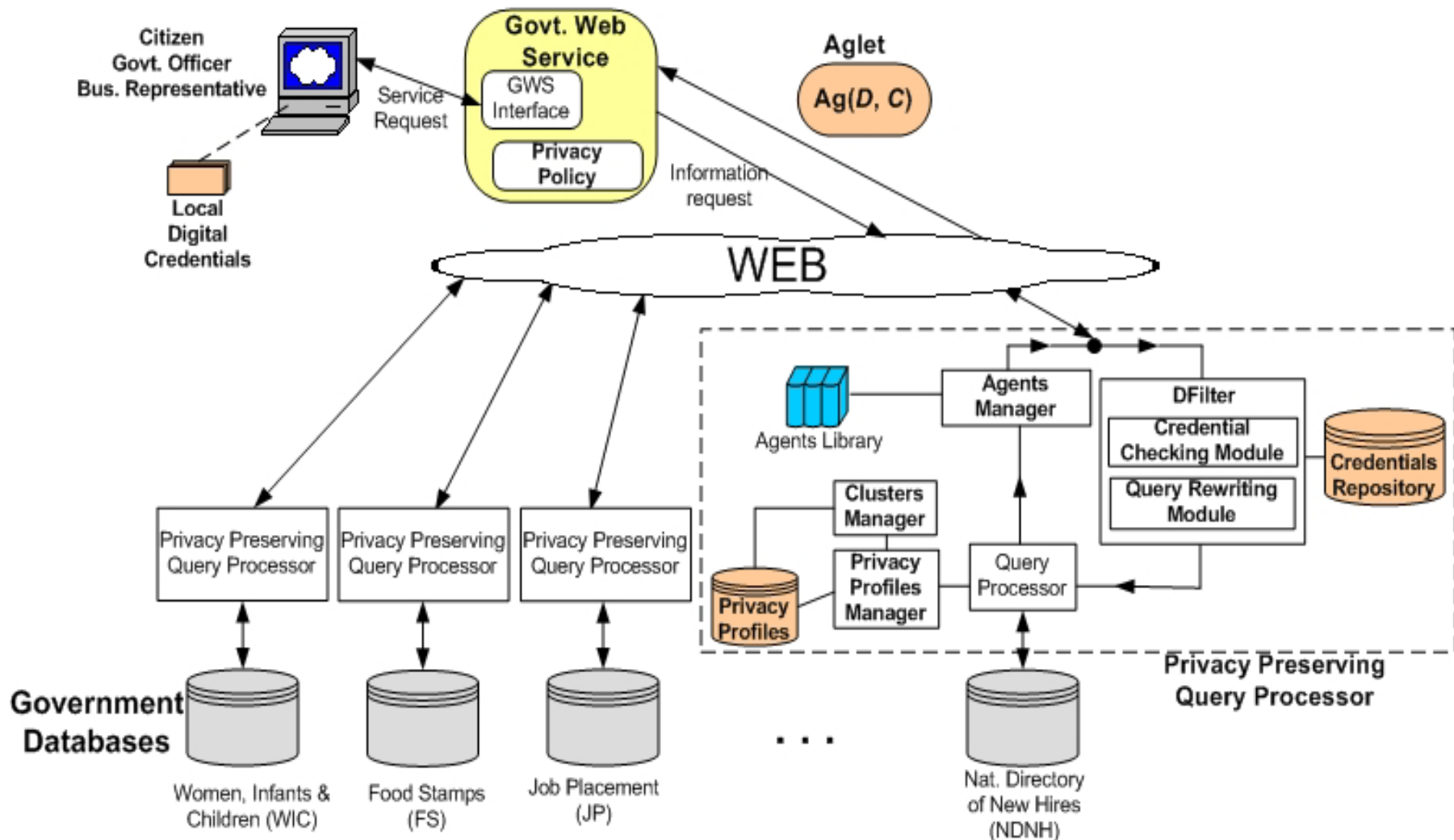
Data Filters:

uses DPCs to control the access of remote entities to local data.

Mobile Privacy Preserving Agents:

guarantee that the remote entity does not violate the local entity's privacy requirements.

The Architecture



A Service Request

- A user first obtain **digital privacy credentials (DPCs)** from the Govt. Web Service (GWS)
- Subsequent service requests are submitted with a DPC
- GWS translates the request into a data query Q.
- Q is submitted to a government agency's DBMS.
- Q is first processed by the DBMS's Data Filter.

A Service Request (cont'd)

- **Data Filter** has 2 components:
 1. **Credential Checking Module (CCM)**: determines whether Q has the required credential
 2. **Query Rewriting Module (QRM)**: redacts the query Q so that local/global privacy policies are not violated and submits the result to the Query Processor.
- **Query Processor (QP)**:

cooperates with the **Privacy Profile Manager (PPM)** to generate the query result.

Conclusion

- **Preserving Privacy in Government Web Services**

- **Online demo available at:**

<http://www.nvc.cs.vt.edu/~dgov>