



Dept. of Computer Science

# Enforcing Privacy in Interoperable E-Government Applications

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# 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.

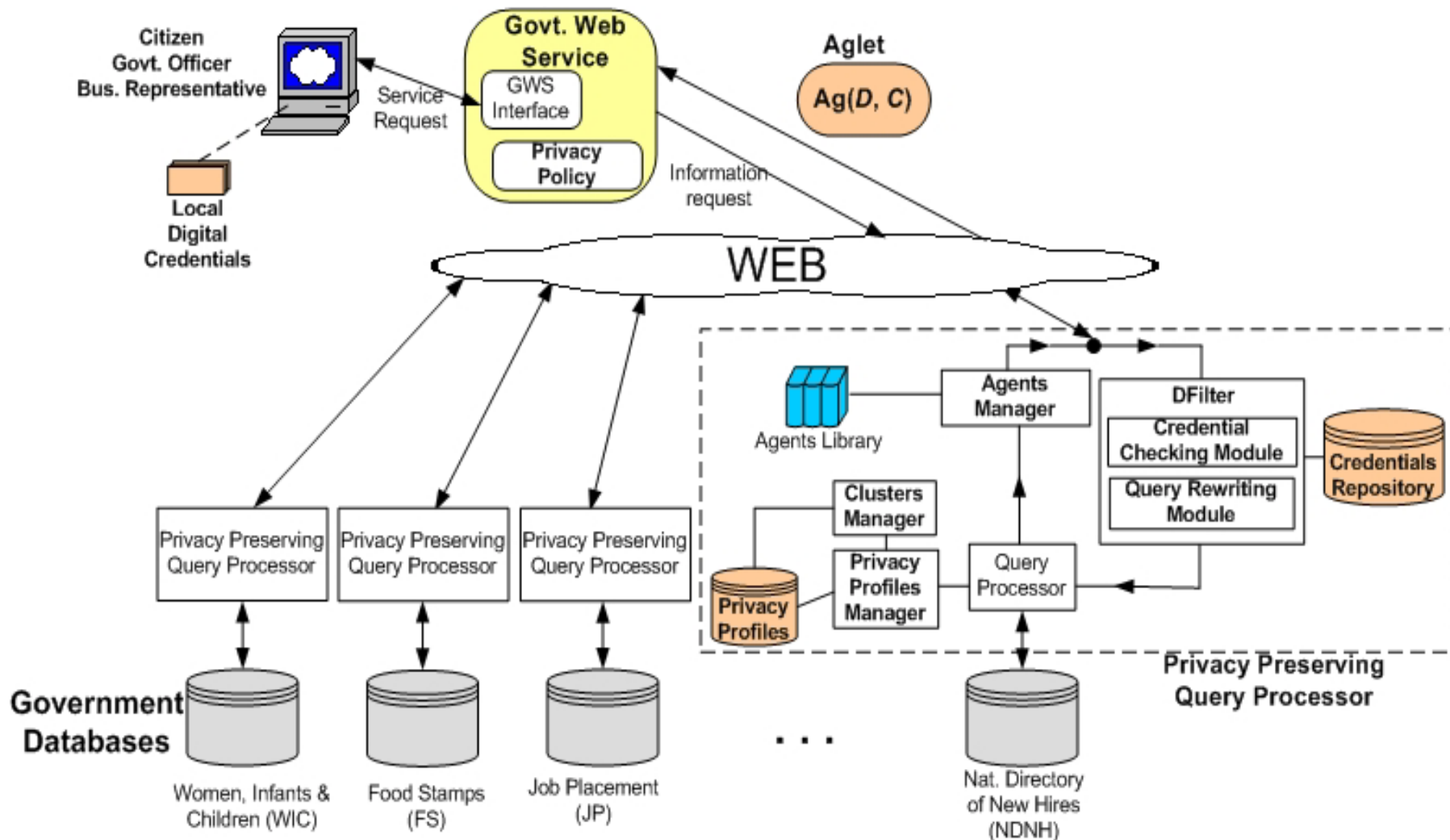
## Data Filters:

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>