Chapter 10

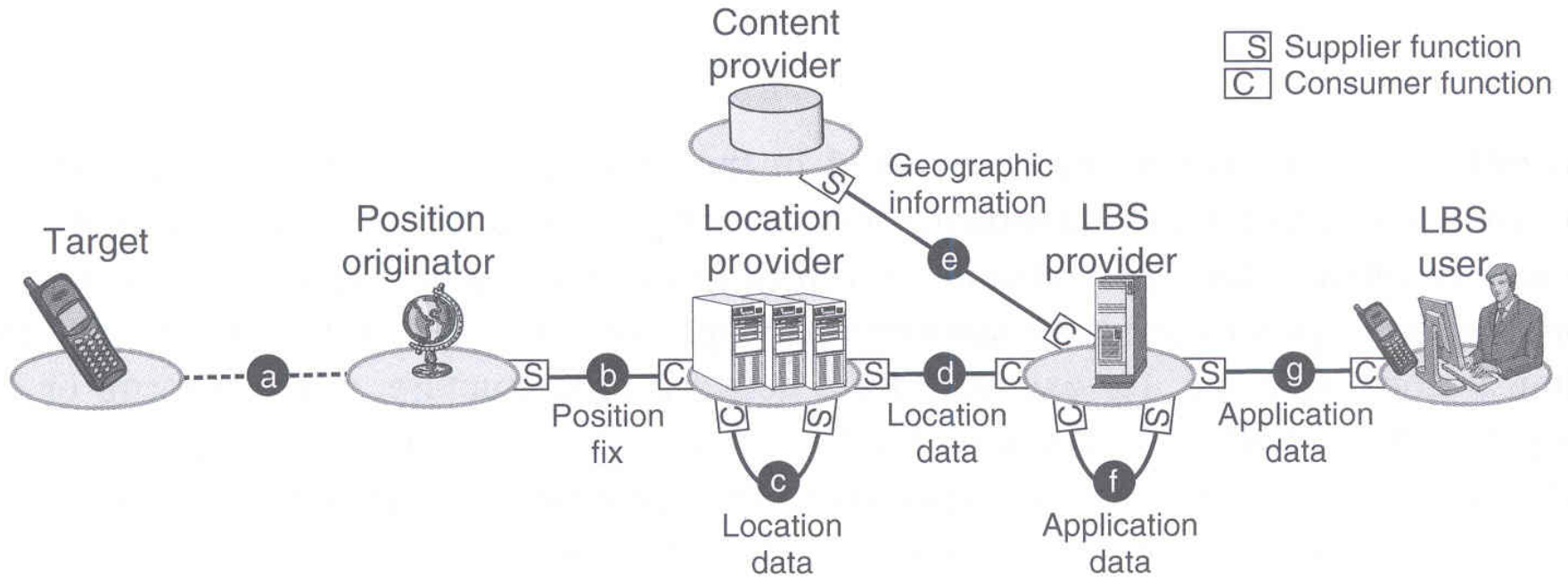# Interorganizational LBS Operation

10.1 LBS Supply Chain

Figure 10.1 LBS supply chain.

- **Target**

- **Position originator**

- **Location provider**

- **LBS provider**

- **Content provider**

- **LBS user**

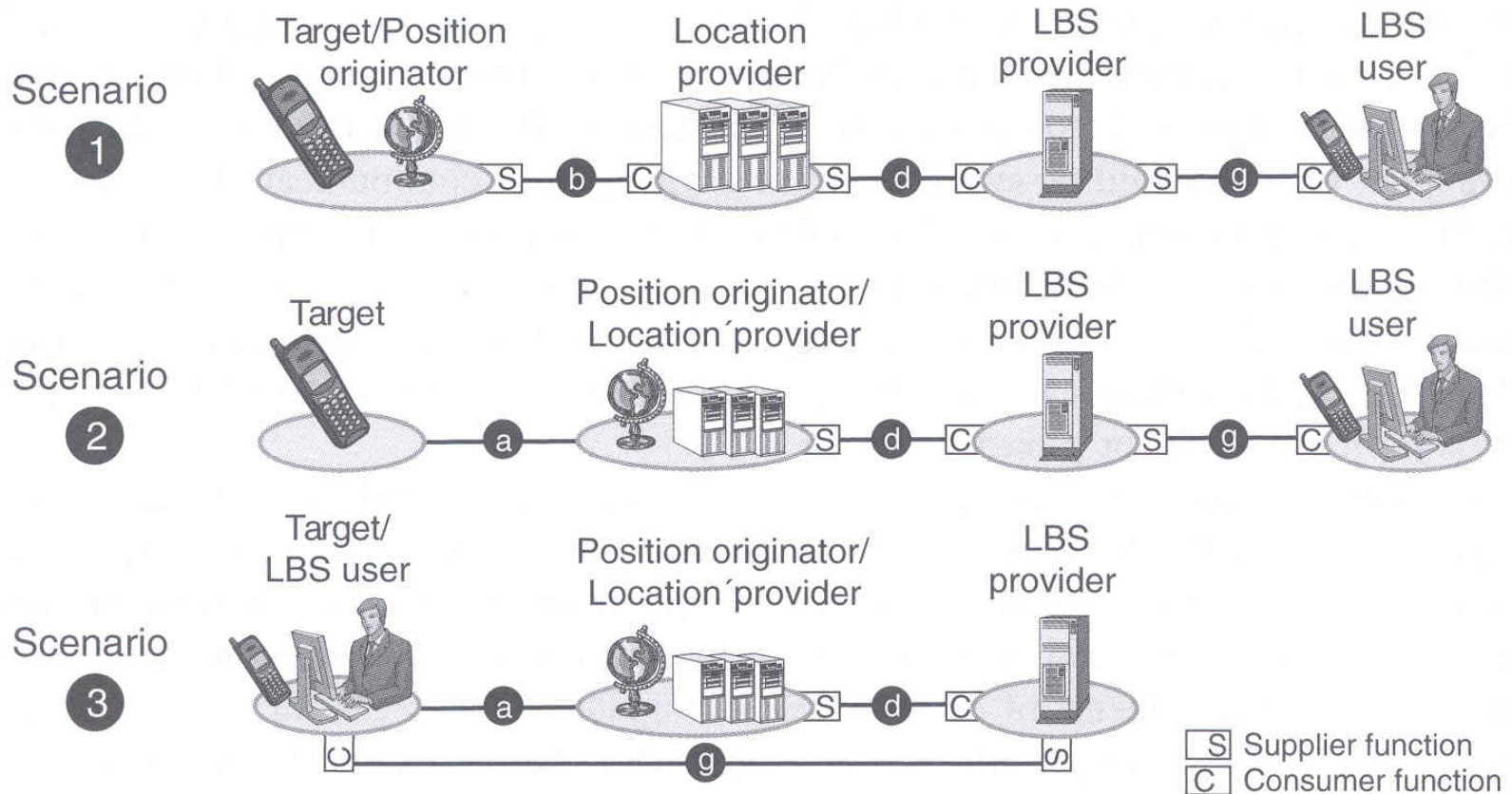# 10.2 Scenarios of the LBS Supply Chain
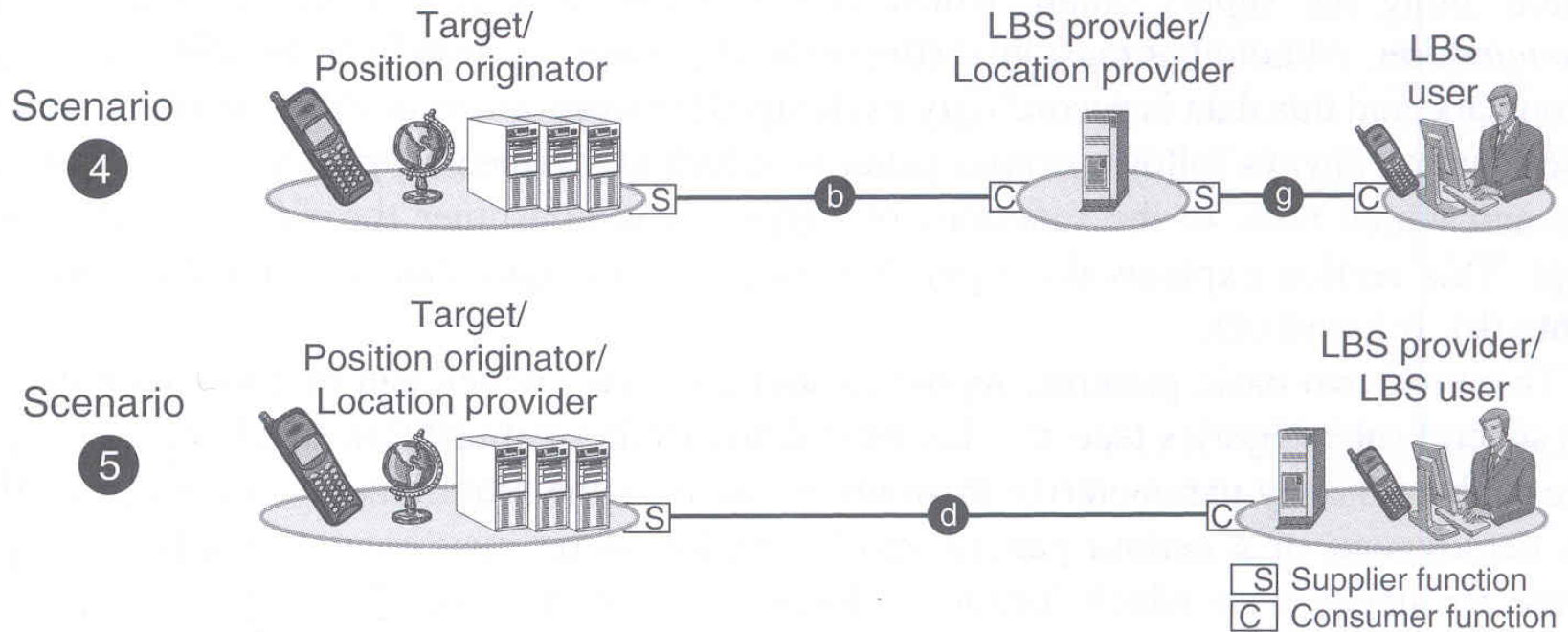

Figure 10.2 Supply chain scenarios 1–3.

Figure 10.3 Supply chain scenarios 4 and 5.

10.3 Supplier/Consumer Patterns for Location Dissemination
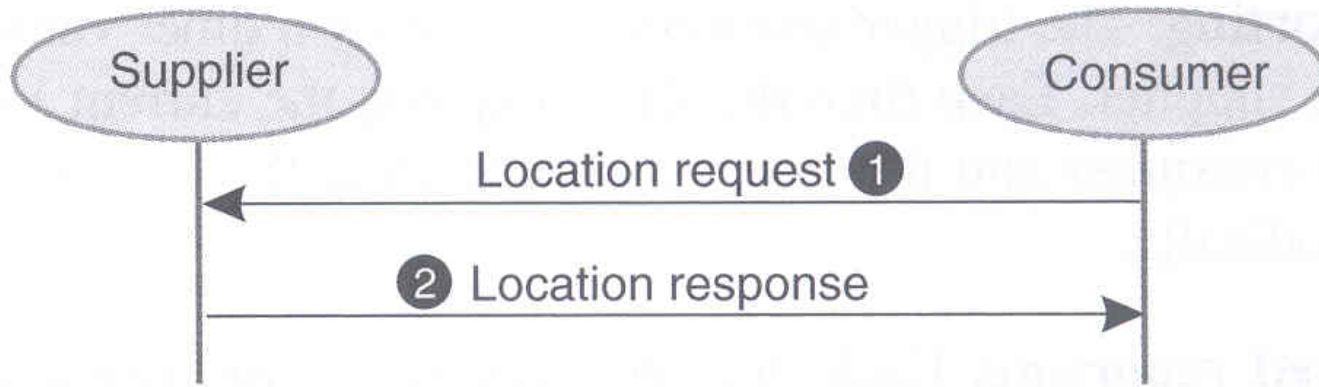
10.3.1 Querying

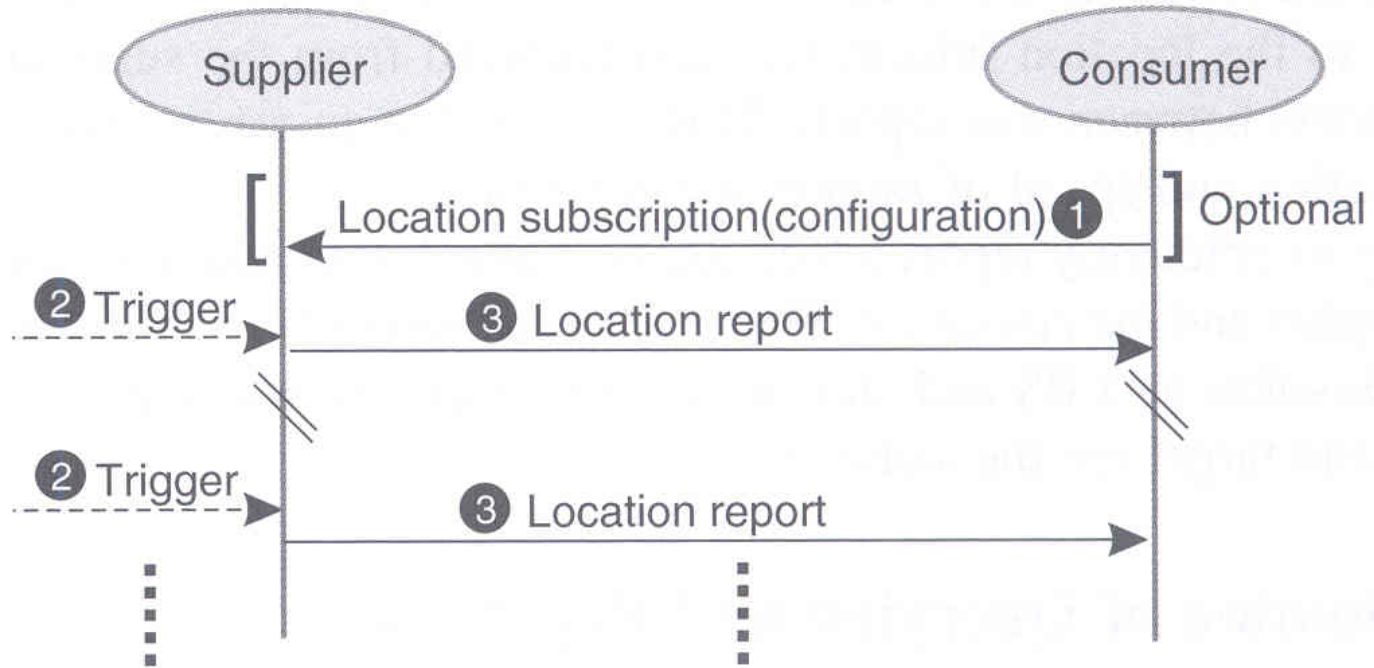Figure 10.4 Sequence diagram for querying.

10.3.2 Reporting

Figure 10.5 Sequence diagram for reporting.

- **Immediate reporting**

- **Periodic reporting**

- **Distance-based reporting**

- **Zone-based reporting**

10.3.3 Evaluation of Querying and Reporting

10.4 Privacy Protection

10.4.1 Characteristics of Privacy Protection for LBSs

10.4.2 Definition of Privacy

- **Anonymity**
- **Solitude**
- **Intimacy**
- **Reserve**
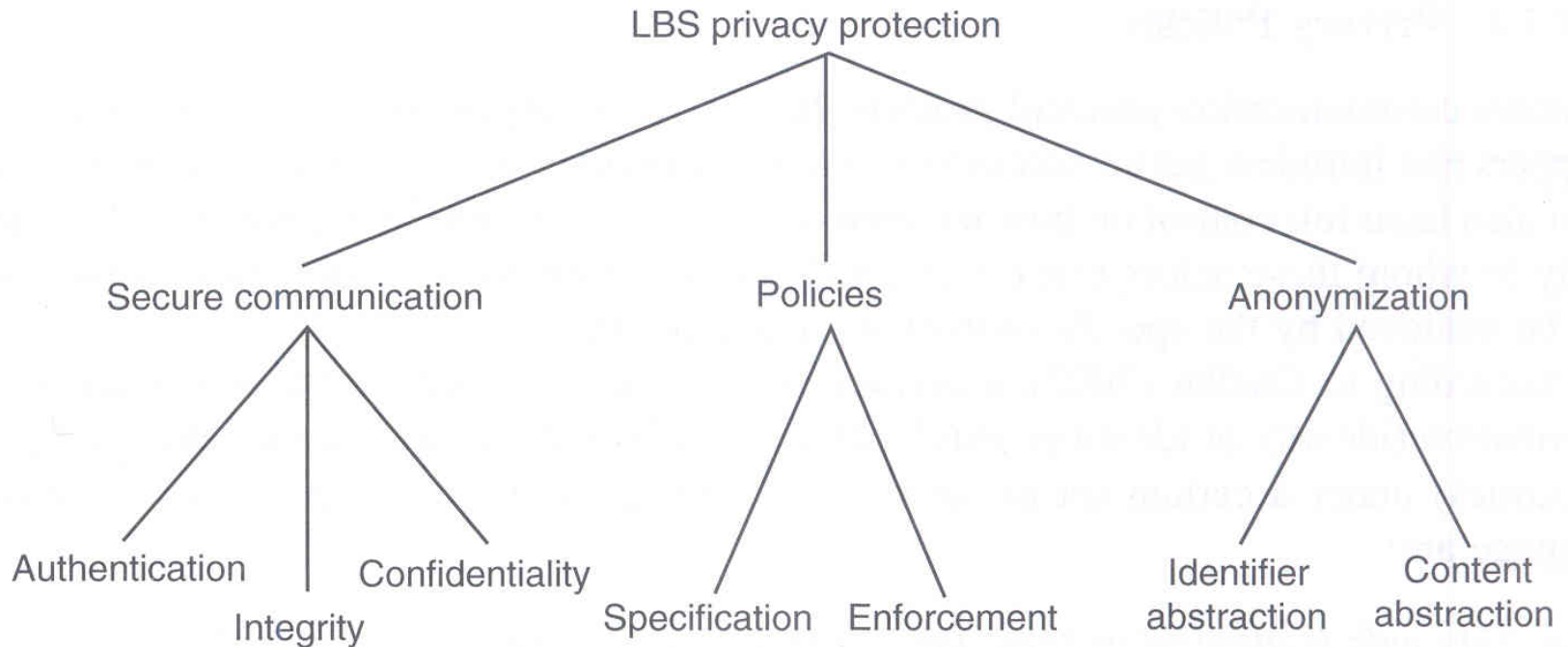
10.4.3 Concepts and Mechanisms for Privacy Protection

Figure 10.6 Overview of LBS privacy protection.

10.4.3.1 Secure Communications

10.4.3.2 Privacy Policies

- Actor constraints

- Service constraints

- Time constraints

- Location constraints

- Notification constraints

- Accuracy constraints
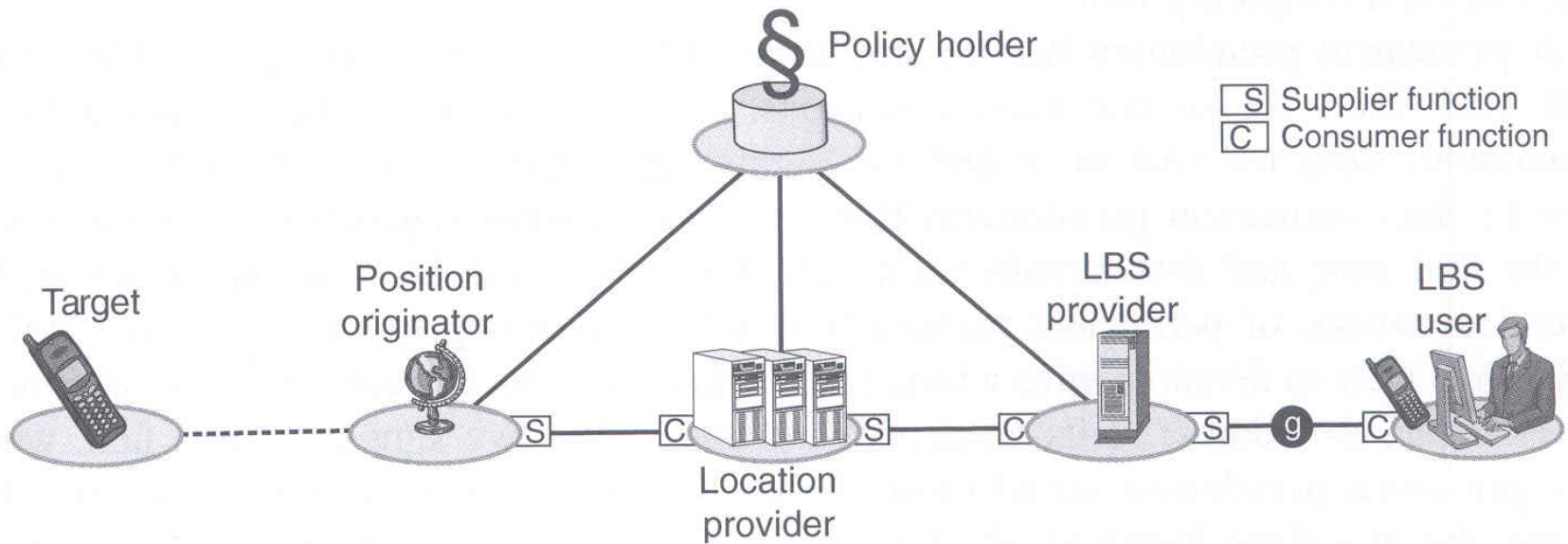
- Identity constraints

Figure 10.7 Integration of policy holder into the LBS supply chain.

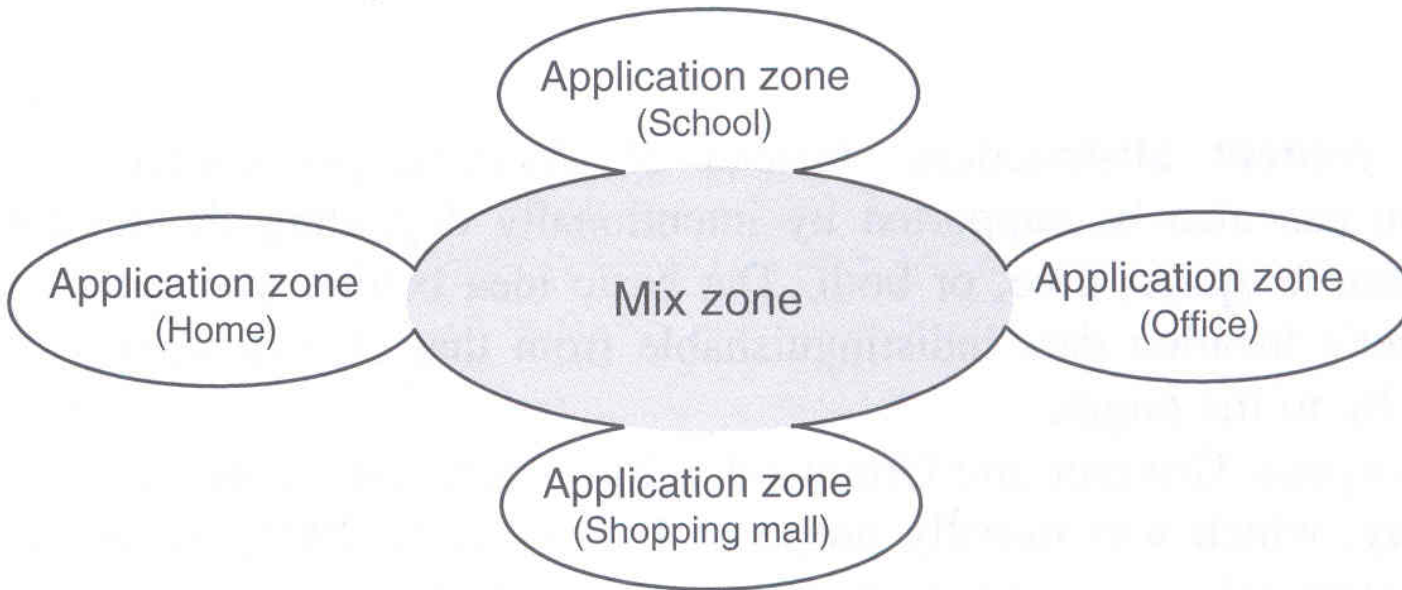## 10.4.3.3 Anonymization

Identifier abstraction

Figure 10.8   Arrangement of mix and application zones.
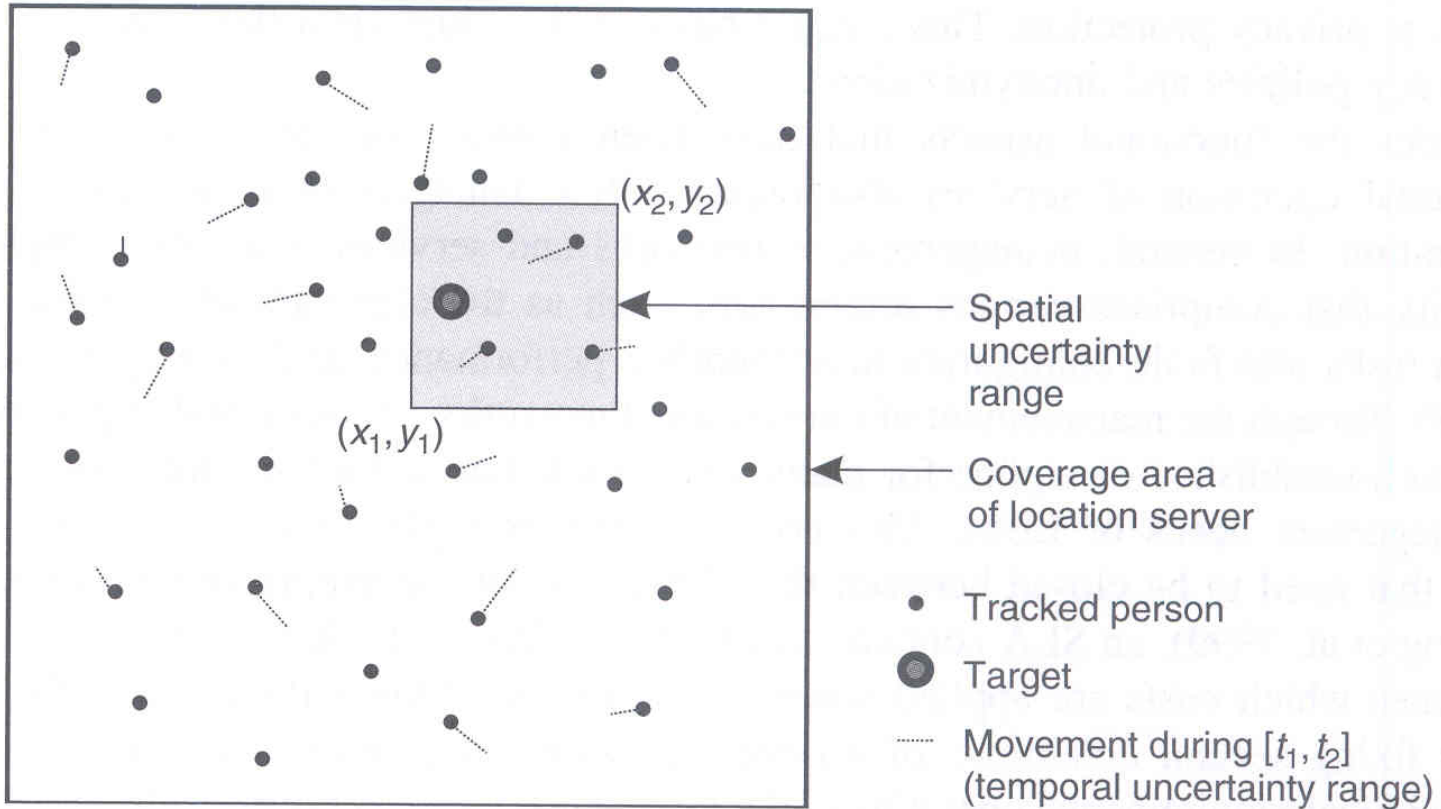
Information content abstraction

Figure 10.9 *k*-anonymity in the spatial and temporal domain for $k = 5$.

10.5 Conclusion