HYDROSCOPE

- Data Network

- Local and Distributed Database
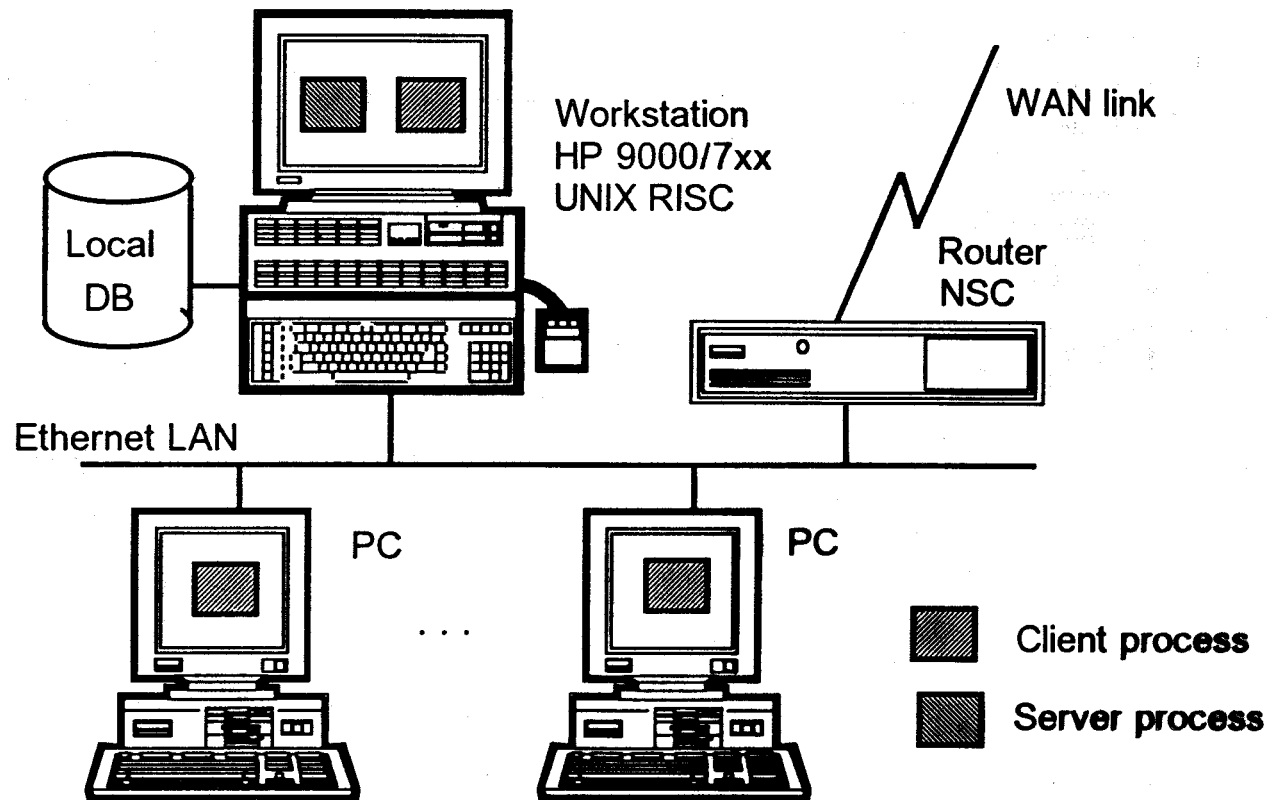
- System architecture and functionality

HYDROSCOPE: Data Network

- 12 nodes in Athens and Thessaloniki

- One node per participating agency

- Local Area Network (LAN) at each node

- Wide Area Network (WAN): interconnects all nodes

Node Architecture

Workstation
HP 9000/7xx
UNIX RISC

WAN link

Local
DB

Router
NSC

Ethernet LAN

PC

PC

. . .

Client process

Server process
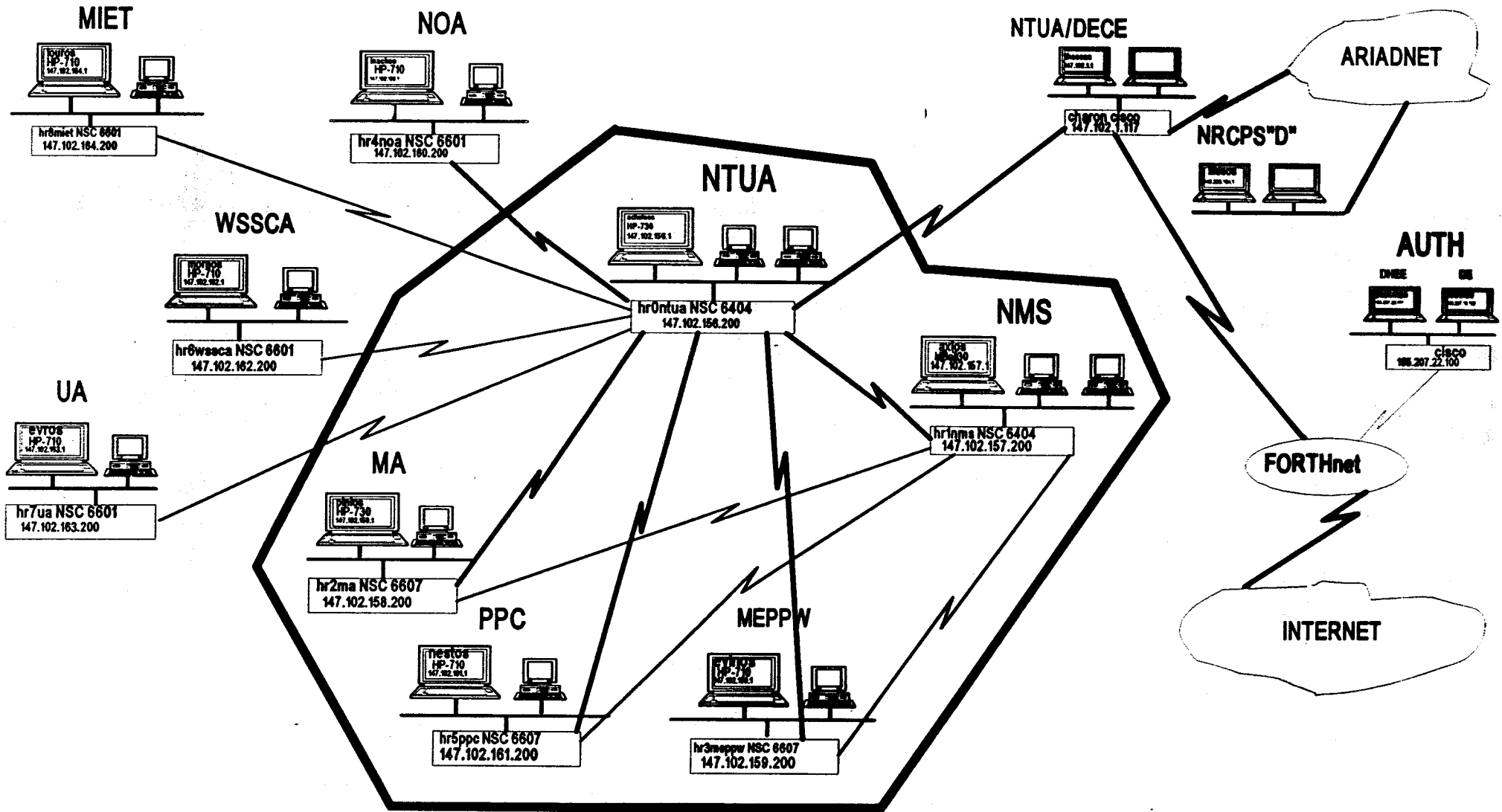
WAN design

- **Main goals:**
  - ➡ Total interconnection
  - ➡ High speed
  - ➡ Reliability
  - ➡ Autonomy
  - ➡ Extendability & Flexibility
  - ➡ Automated operation & Simplified Administration
  - ➡ Low initial & operational cost

- **Alternatives:**
  - ➡ Public Data Network (HELLASPAC)
  - ➡ Academic Network (ARIADnet)
  - ➡ Private Network (Leased Lines)
  - ➡ Combined solution

Wide Area Network

HYDROSCOPE: Database

- ● **Distributed database**
  - ➡ Autonomy
  - ➡ Reliability
  - ➡ Decentralisation & computing power distribution
  - ➡ Lower cost
  - ➡ Location transparency
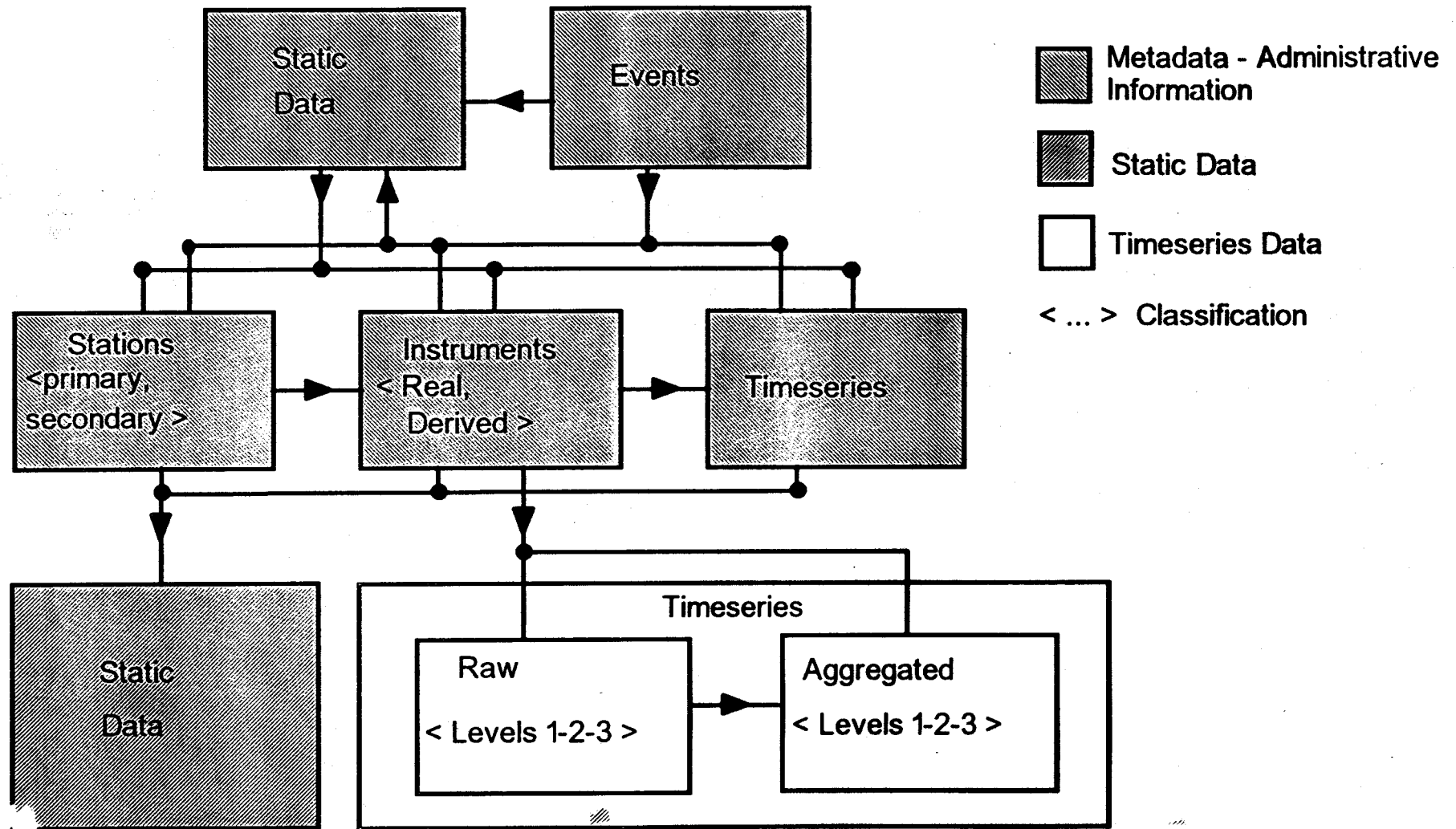
- ● **Security subsystem**
  - ➡ User groups
  - ➡ Database object groups
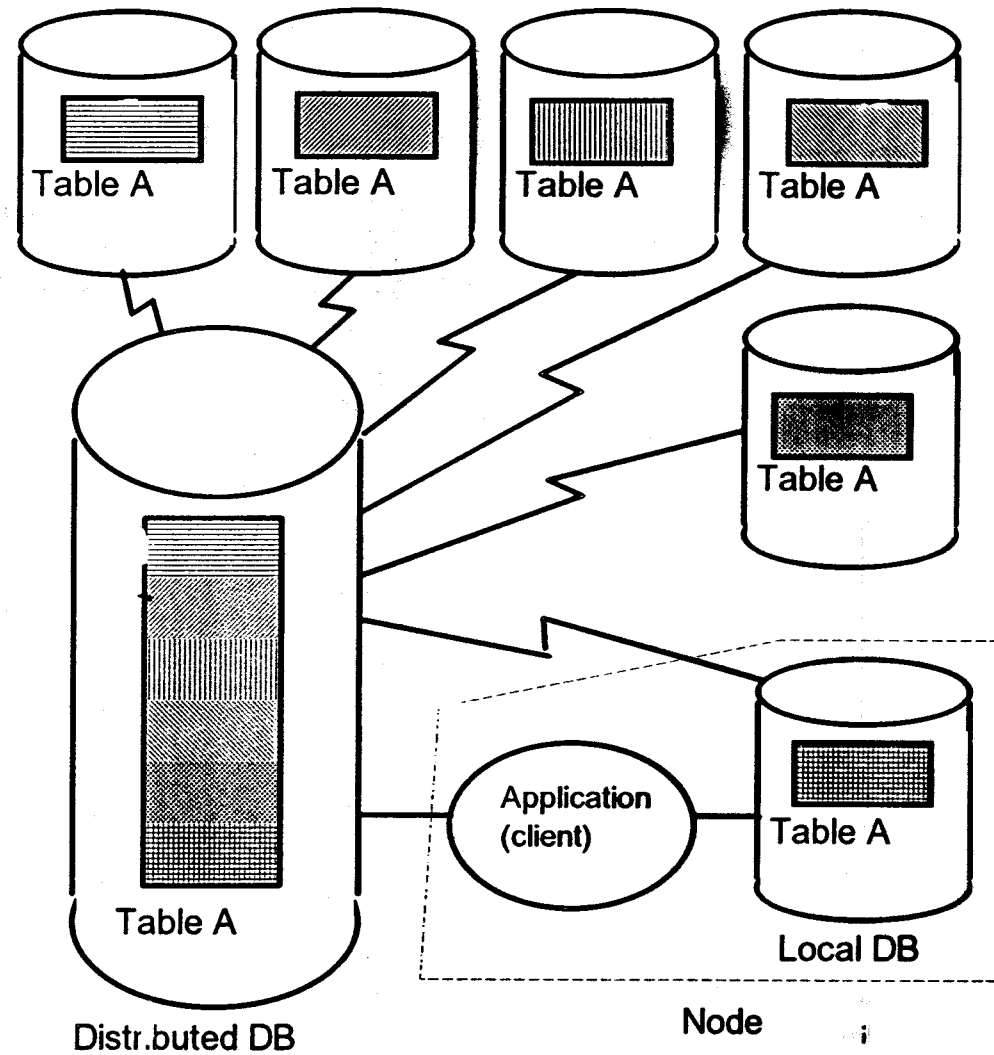 - ➡ Differentiation of local & remote access

- ● **Accounting subsystem**
  - ➡ Precise recording of type & quantity of retrieved data and of **connection time**

Information classification

Applications operation

Table A

Table A

Table A

Table A

Table A

Application
(client)

Table A

Distr.buted DB

Table A

Local DB

Node

Special techniques

- Administrative information replication
- Integer values storage
- List storage
- Linear storage
- Retrieval limits