Understanding Network Traffic from Billing Traces: customers' behavior analysis

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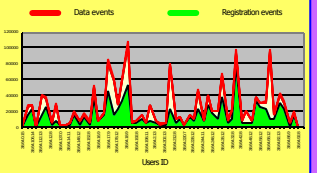
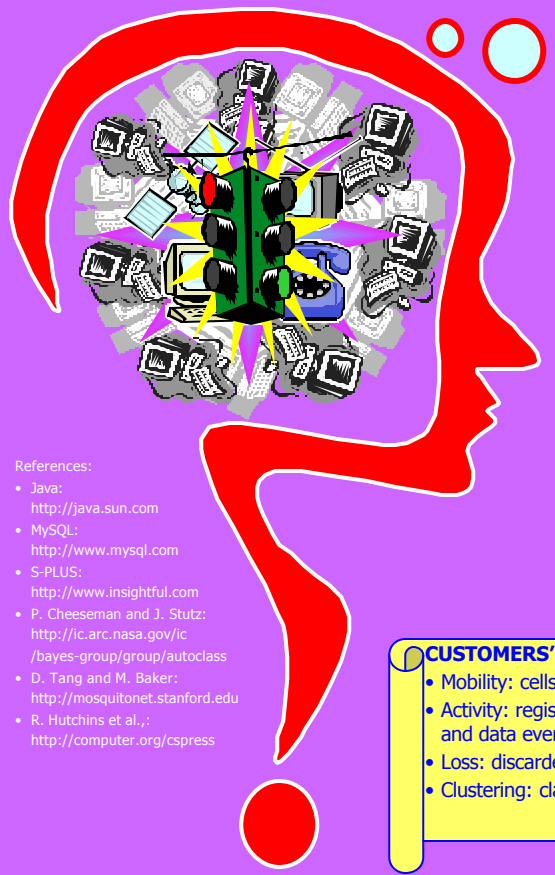
WHAT ARE OUR BILLING TRACES?

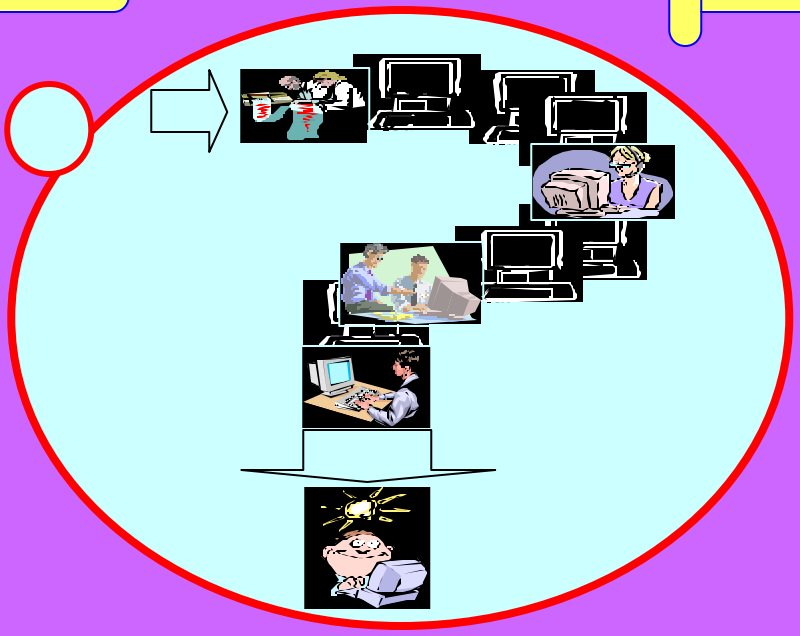
- Data summarizing customers' activities for billing purposes
- From Cellular Digital Packet Data network
- Contain Header and Traffic Matrix Segments with registration, de-registration, and data events

DATA EXTRACTION TOOLS

- Structured Query Language Server: MySQL
- Data formatting with Java code
- Automatic classification: AutoClass
- Statistical package: S-PLUS



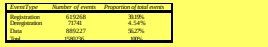


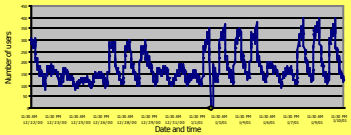


NETWORK CHARACTERISTICS

Static:
- Network topology
- Network elements
- Total events

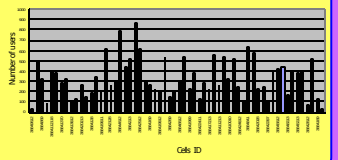
Dynamic:
- Number of users
- Data packets
- Discarded packets





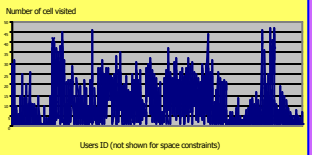
CELL ACTIVITY

- Number of users
- Registration events
- De-registration events
- Data events
- Data packets per user



CUSTOMERS' BEHAVIOR

- Mobility: cells visited per user
- Activity: registration, de-registration, and data events per user
- Loss: discarded packets per user
- Clustering: classification of users



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