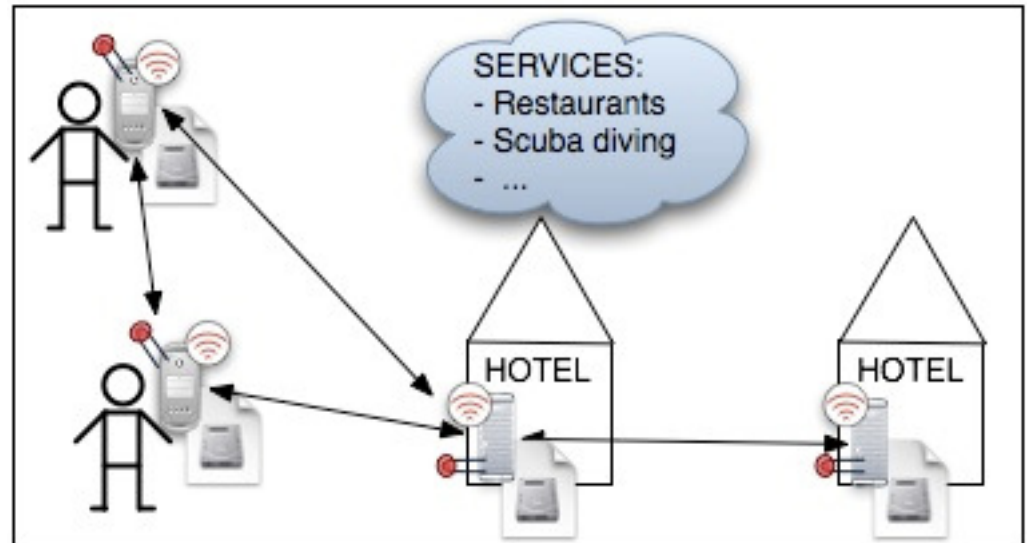




# The All-About Diary

Claudia Becker  
Jacek Cichon  
Marco Palombi  
Gabriella Castelli  
Chris McEwan

# Scenario



- Mobile users visiting foreign location
  - What do people do here?
  - What is on offer that I am interested in?
- Static “places” in the locality
  - Where do visitors come from?
    - Geographically and also referrals from other places
  - Where do they go next?

# Functionality



- Aggregating population data in local region
  - Between users and places
  - Between places and places
  - Between users and users?
- Comparing and adapting to personal history in individual device

Something like social network, but for locations rather than people

# What is innovative?



- No need for
  - global infrastructure like Internet
  - global agreement on naming or applications
- User and administrator interaction optional
  - Default behaviour in both devices is autonomous
- Sufficiently general for 3<sup>rd</sup> party extension
  - On user device
  - On static device?

# What is adaptive?



- **The static device**

- Adapt to what is relevant, timely etc under constraints of amount of users interacting at one time
- Initial inference of data to pass to individual users

- **The user device**

- Learns what user's preferences are from history
- Detailed inference based on these preferences and retrieved population data

- **The infrastructure**

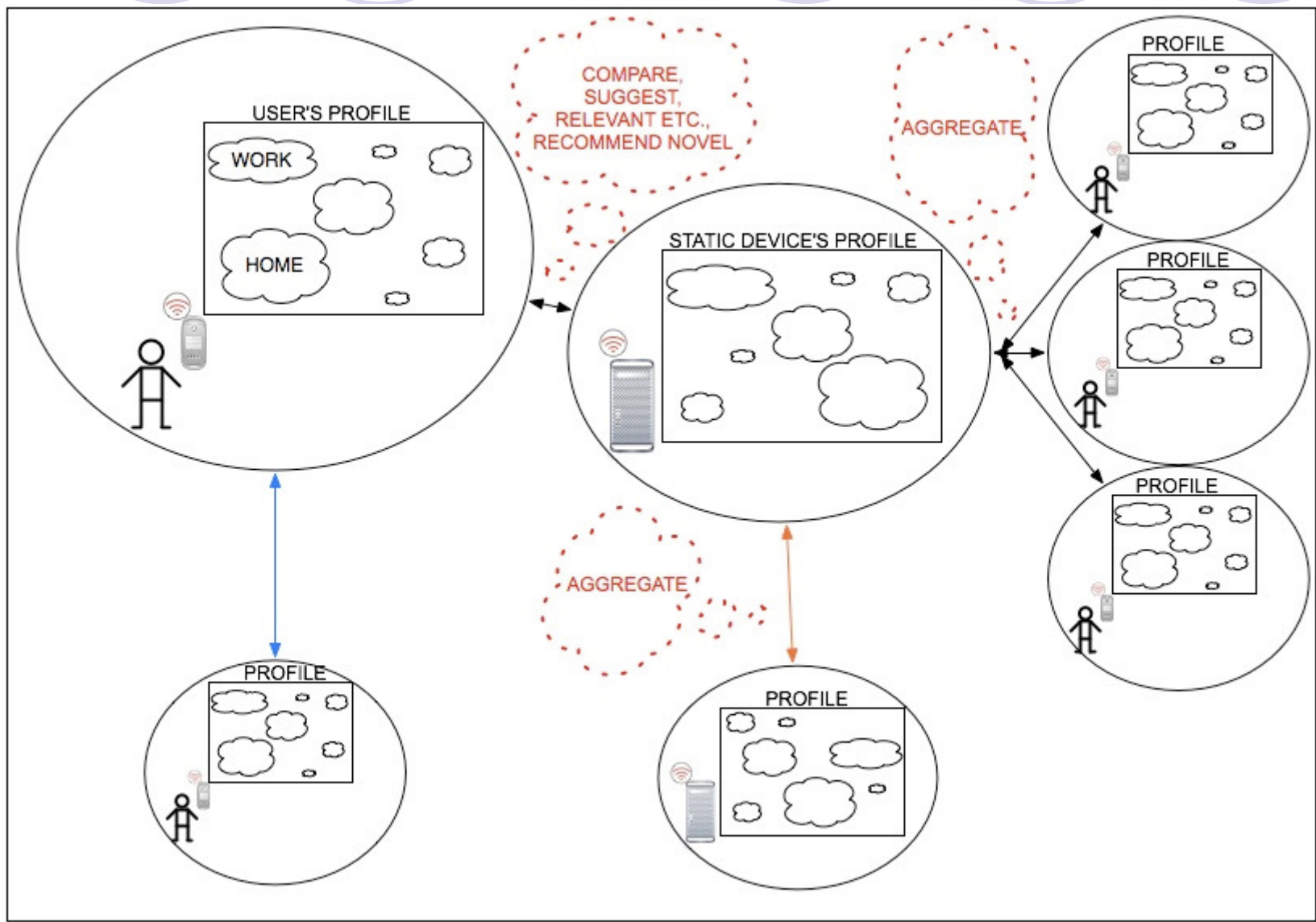
- Adapt aggregation mechanisms, e.g. how data is routed between devices to service local information needs

# How does it work?

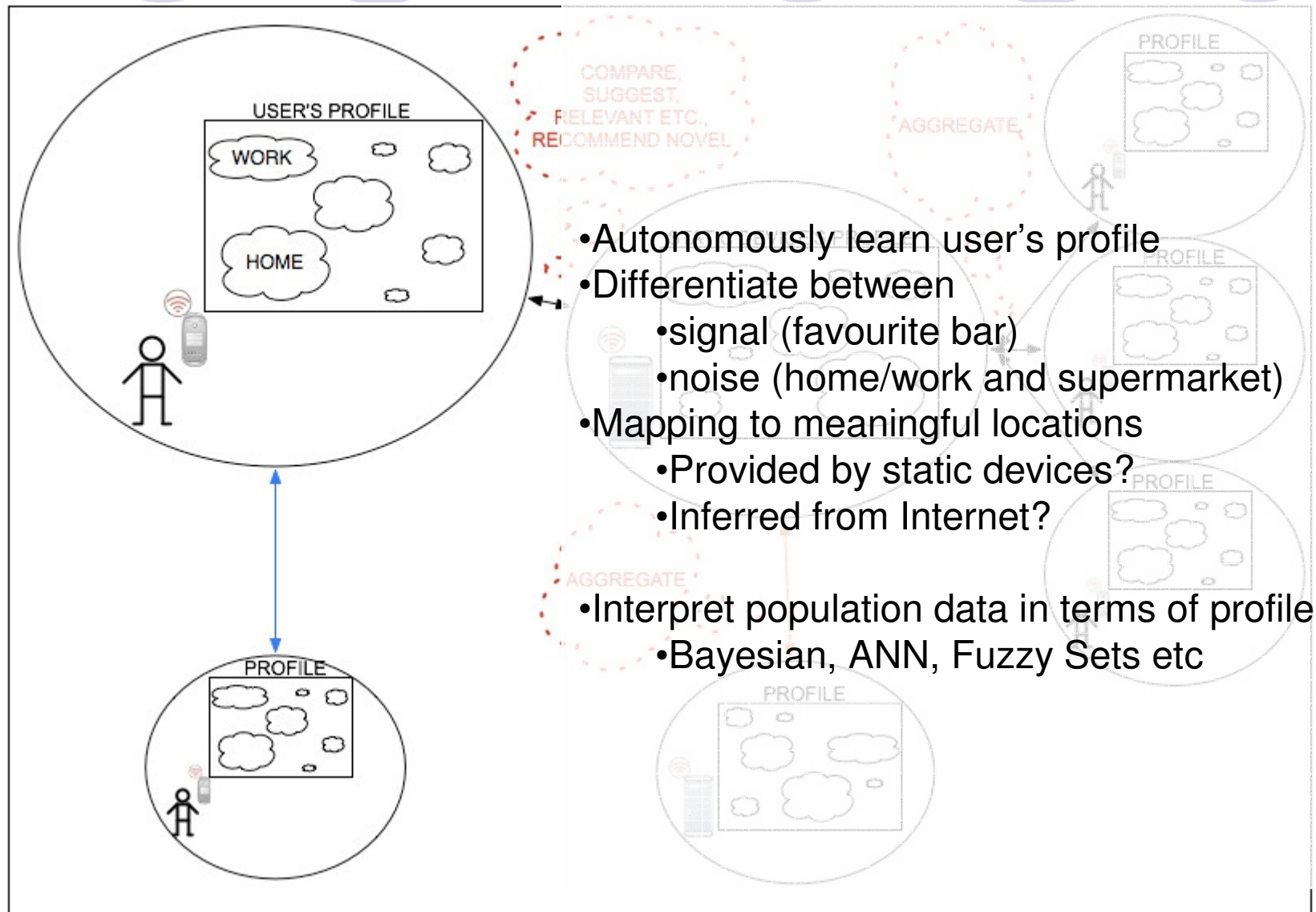


- Each user's profile is a 2D probability distribution over GPS coordinates
  - Each "tuple field" defines a different distribution that may be application/context specific
  - Some way to map GPS data to meaningful locations (e.g. the gym)
- Aggregate population data in specific area is a similar distribution
  - A bit like pheromone trails (but no need for decay?)

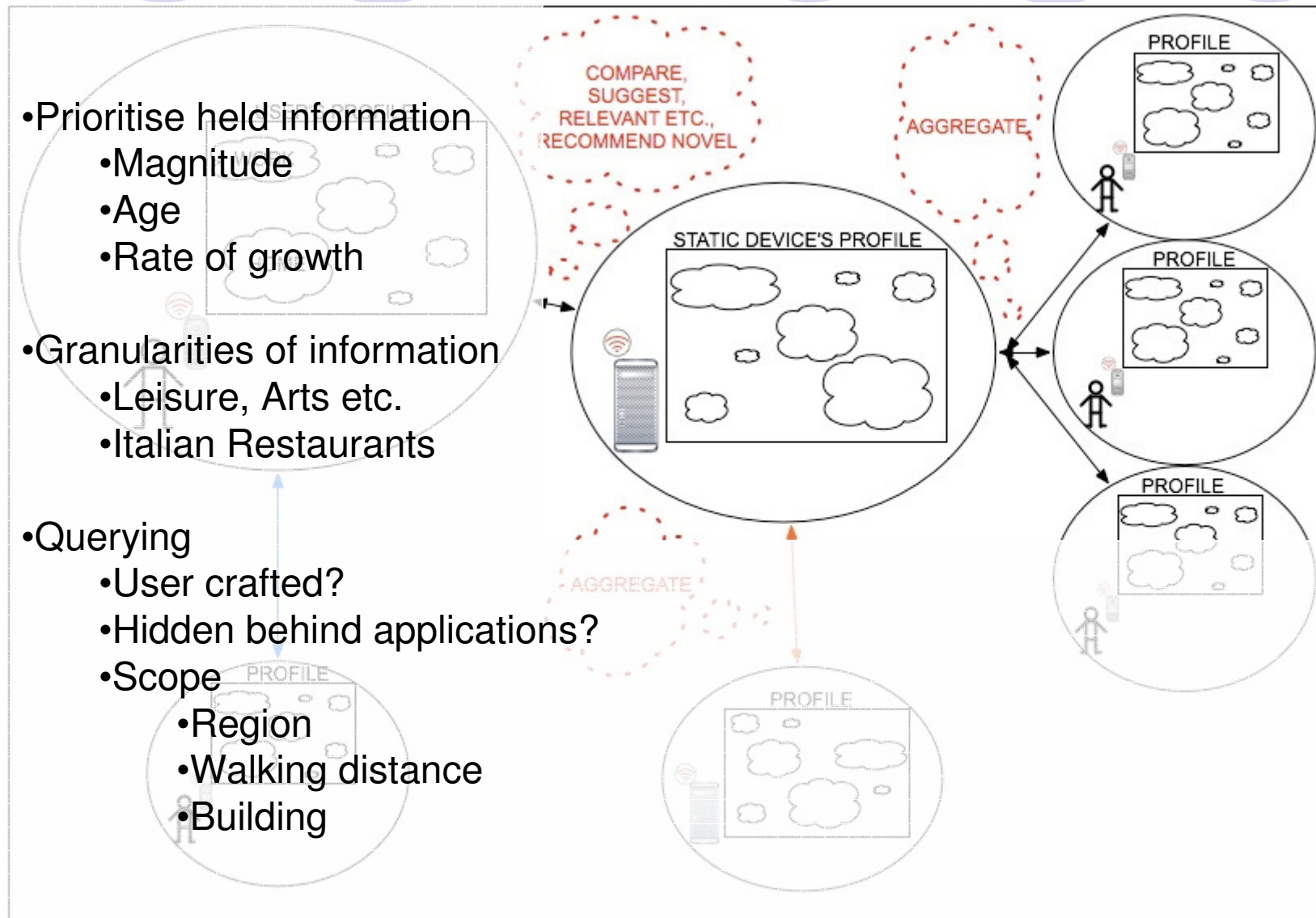
Adaptive inferences and system behaviours occur over these distributions



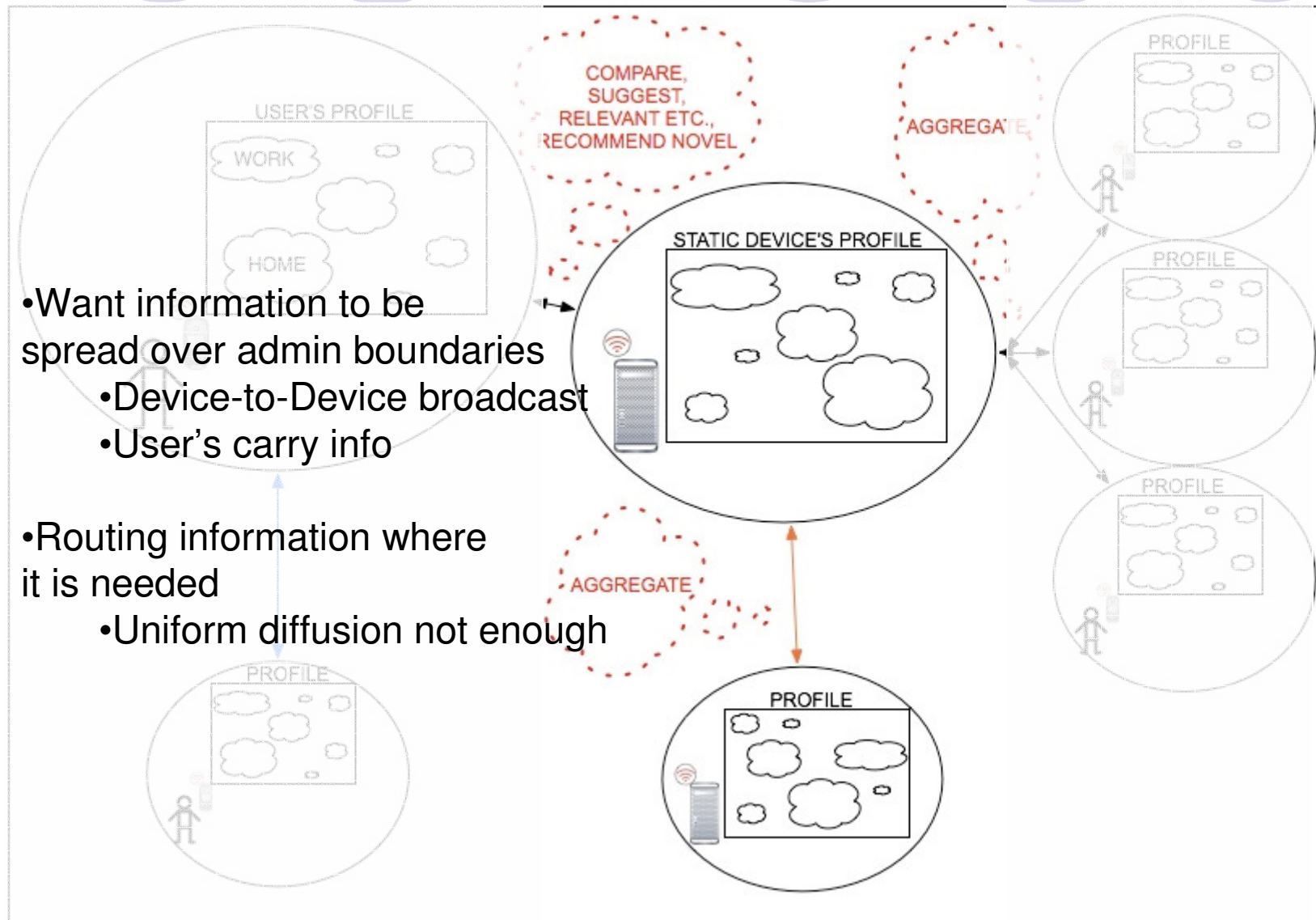
# Adapting to the user



# Adapting to the population (1)



# Adapting to the population (2)



# Privacy Concerns



- Ideally, do not want identifiable information kept during aggregation process
  - To limit potential abuses and individual attacks
- However, we do not want duplicate information (which requires an identifier to differentiate)

Perhaps using **location** and **timestamp** is enough to ensure uniqueness with high probability, without retaining identifiers

- What about deliberate duplication abuses???



# Conclusion

- Group had initial difficulty establishing common agreement on what “adaptation” meant and where it applied...
  - These details can be subtle and risk undermining the fantasy aspect of work
  - It all makes sense when talking in generalities
- Novel but not completely “fantastic”
  - Could probably be put into production now with current technology
  - Good or bad?