

On the Characterization of Mobile Calling Behaviors

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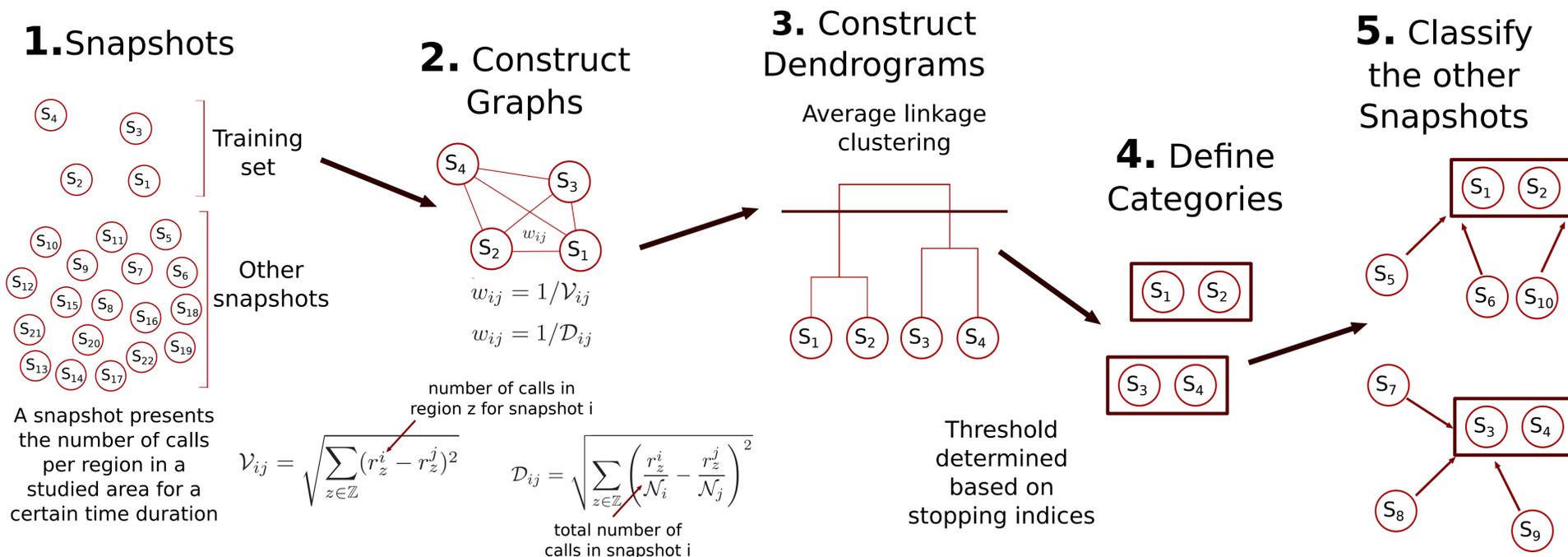
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Context

- Introduce a framework for the characterization of mobile phone data
- Define categories of mobile call profiles and classify network usages accordingly
- Test the framework over a large-scale dataset in a metropolitan environment

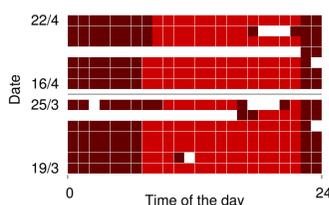
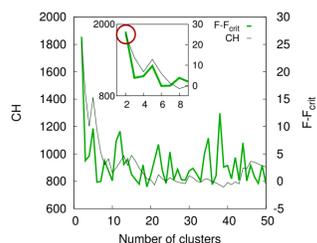
Framework



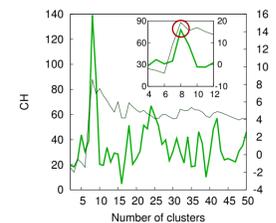
Results

The studied dataset includes information about Orange customers in Abidjan with more than 300 million calls over a period of 5 months from December 5th, 2011 until April 22nd, 2012

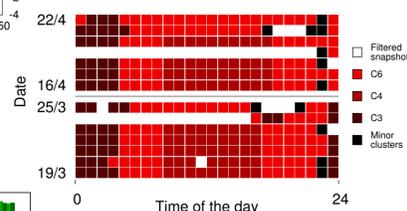
Volume Variation



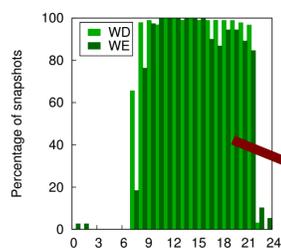
Volume Distribution



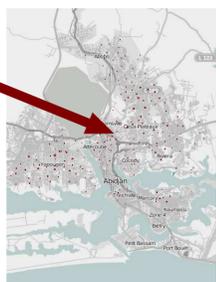
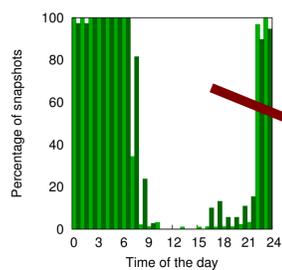
8 Categories are detected by the stopping indices



Stopping indices unveil the presence of 2 categories



Content of categories



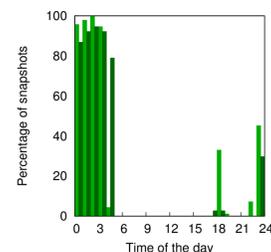
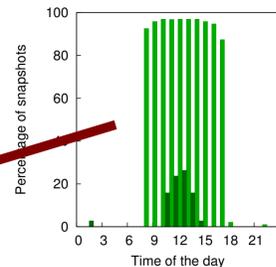
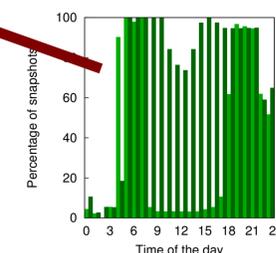
Sunday 08/01/2012 0:00

Sunday 01/01/2012 0:00

Friday 06/04/2012 15:00



Friday 20/04/2012 15:00



The 3 major categories

Conclusions

- Propose a clustering and classification framework for mobile phone data usages
- Separate between typical and outlying call profiles in terms of volume variations and volume distributions

In the future:

- Explore the presence of possible subcategories
- Consider other parameters: call duration, incoming/outgoing calling volume