Towards the Smart City concept
let’s discover
Summary

Why do we need Smart Cities?

Is the IoT enough?

CACHACA - let’s discover
1 Why do we need Smart Cities?
Cities are growing quickly

Credit: WWF Living Planet Report 2012.
New challenges to face
New challenges to face
New challenges to face
A Smart City\(^1\) needs integration

- efficiency and sustainability.
- integrate all the infrastructures and services.
- monitor and control via intelligent devices.

The Internet of Things (IoT), connectivity for anything

“from *anytime* and *anyplace, anyone* will now have connectivity for *anything*”\(^2\)

\(^2\)ITU Internet Reports. *The Internet of Things*. 2005.
THE INTERNET OF THINGS
AN EXPLOSION OF CONNECTED POSSIBILITY

Credit: www.i-scoop.eu - based on Cisco data.
First takeaways

- Cities need to be *smarter*.
- A Smart City needs integration.
- IoT is called to play a key role.
2

Is the IoT enough?
IoT applications are based on different architectures, standards, and platforms.
The Cloud of Things (CoT)³

- Sensing-as-a-service model
- Semantic web technologies (i.e., Linked-Data)

...takeaways...

- CoT overcomes IoT’s limitations in the Smart City context.
- Discovery of “appropriate” resources is a challenge.
3

CACHACA - let’s discover

Confident-based Adaptable Connected objects discovery to HArmonize smart City Applications
CACHACA’s context

Figure: node (square), sensor (circle).
CACHACA evaluates and classifies neighborhood and services for each node

- existing Neighbor Discovery protocol
- adding info about “service(s)” offered by each node
- using Fuzzy logic
- introducing 2 metrics (physical and service confidence)
# CACHACA’s Neighbors Table

<table>
<thead>
<tr>
<th>ID</th>
<th>Service</th>
<th>ω</th>
<th>φ</th>
<th>...</th>
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<tr>
<td>...</td>
<td></td>
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</tbody>
</table>
CACHACA discovers almost all the services available
CACHACA for Smart Buildings
...takeaways

- Cities need to be smarter.
- IoT is not enough to enable the Smart City vision.
- Discovering “appropriate” service(s) is a challenge.
THANKS!

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