BAMBU: A Metropolitan Innovation Testbed for Promoting Future Internet Research

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We going to talk about …

- Motivations for the initiative
- The Bambu project
- The testbed topology
- Pilot applications
- Future plans

Large-scale testbeds

- Consist of far-reaching initiatives
- Provide resources for experimentation in large-scale contexts
- International initiatives and collaboration
- CMFs that benefit network managers and users (experimenters)

What is still missing?

- Computing resources for network-related researches in **regional and small contexts**
  - How to deal with local experiments?
- Granting of experimentation resources for other **non-participant institutions**
- Incentives and assistances for **knowledge acquisition** about technologies used in testbeds.

BAMBU project

- It aims to design and implement **a metropolitan innovation testbed for promoting practical Future Internet research** in the city of Salvador, Bahia.
- Approved for funding in FAPESB's 013/2015 call for research project proposals (**R$ 801.357,69**)

Our team

Regional partners

UFBA: Leobino Sampaio, Marcos Barreto, Luciano Rebouças

IFBA: Allan Edgard, Romildo Martins

Fiocruz-Ba: Artur Queiroz, Maurício Barreto

National partners

UFES: Magnos Martinello
LNCC: Artur Ziviani
RNP: Iara Machado

International partners

FIU: Jerônimo Bezerra
Phillips Research: Talmai Oliveira

- Different levels of expertise:
  - ✓Undergraduate and graduate students
  - ✓Msc and Ph.D candidates
  - ✓Network engineers, and application developers.

Why BAMBU?

- Bambu is a plant that enables the innovation of a diverse set of **flexible**, **robust** and **scalable** products

BAMBU Goals

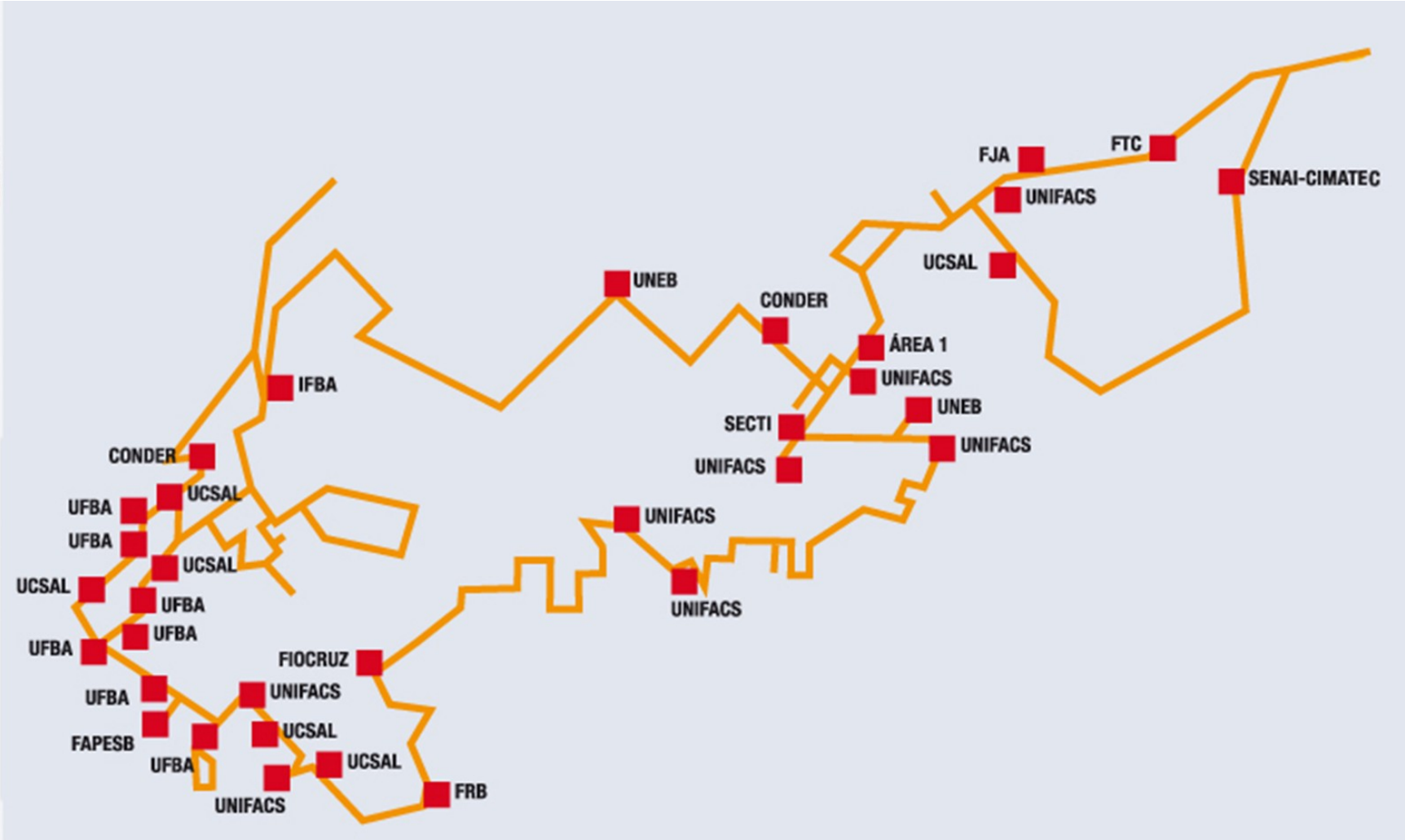
- Besides the testbed itself, we also plan to
  - deploy an experimental FIBRE “island” at UFBA
  - build a local virtual laboratory for students and researchers from the participant institutions
  - study new SDN-based network solutions
  - create a training environment for knowledge acquisition in programmable networks
  - demonstrate the testbed benefits through pilot applications or showcases

Bambu network

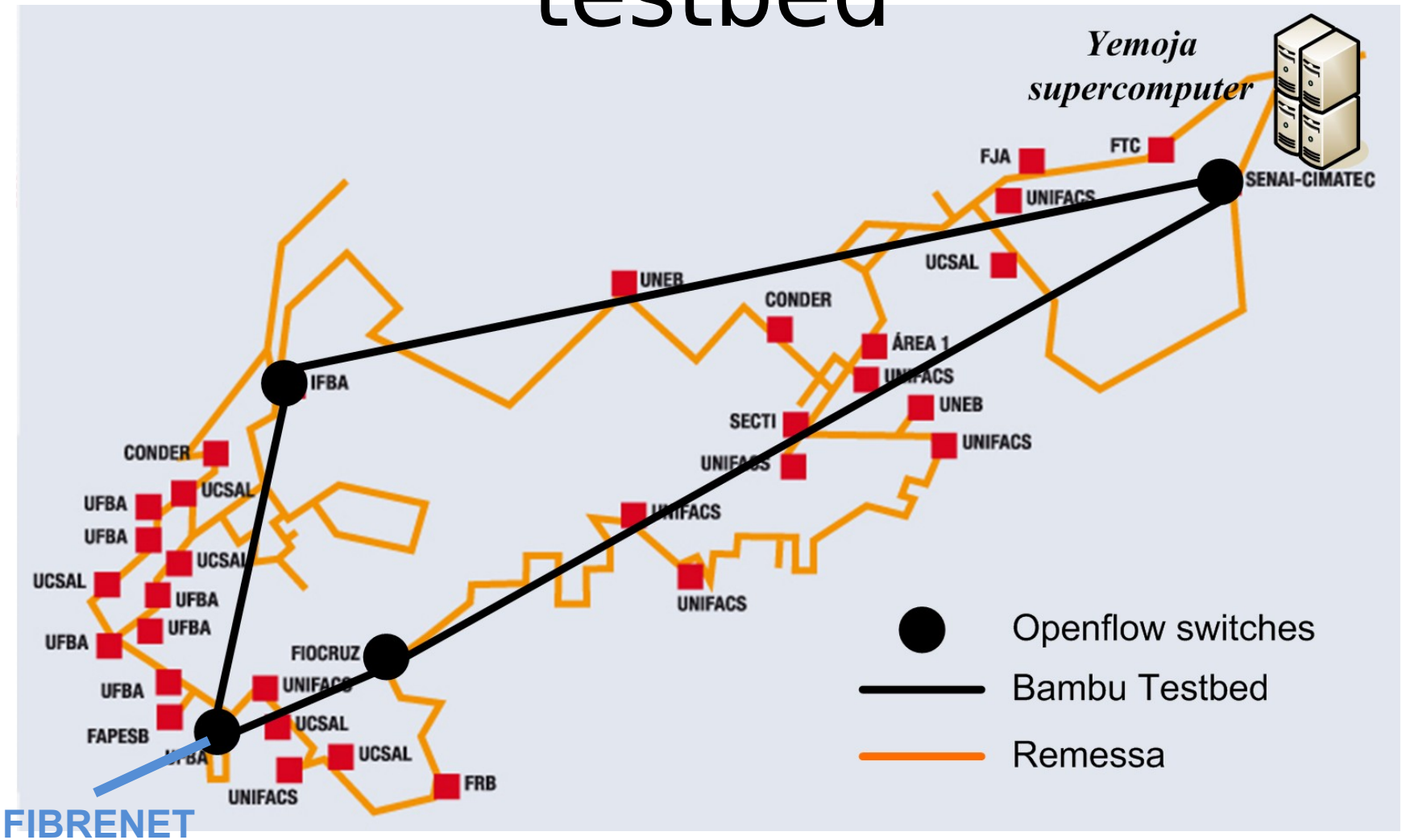
- An overlay network on the Remessa infrastructure.
  - It is already equipped with dark fibres and some obsolete switches
  - Update Remessa infrastructure with (Datacom?) Openflow switches
  - 10Gbps network interfaces
  - Connect the project partners through an optical ring (VLANs + Dark Fibres)

Remessa network

Remessa network

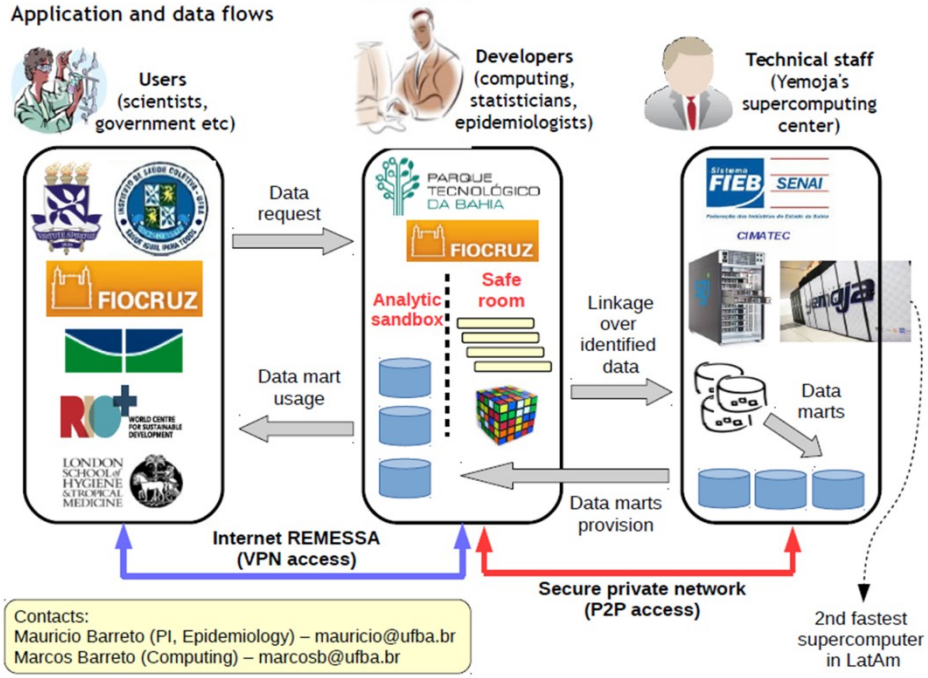


Remessa network / Bambu testbed



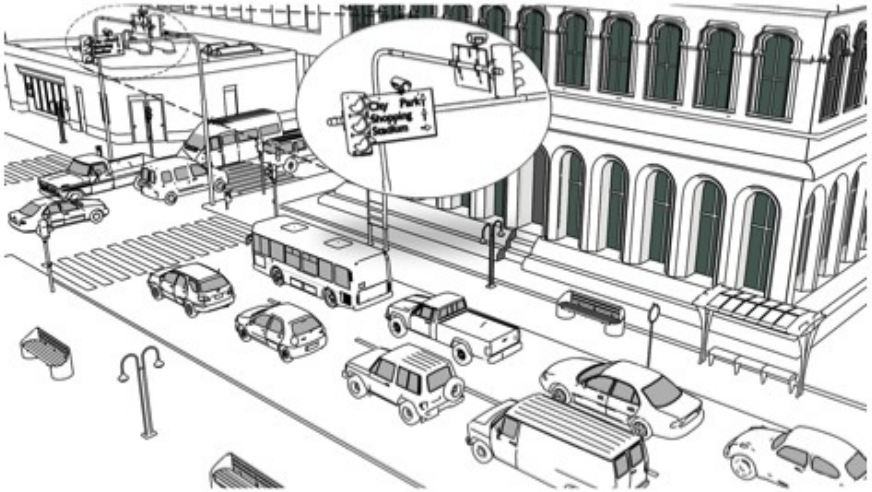
Pilot applications

PILOT 1: Probabilistic linkage of public healthcare data: the 114 million Brazilian cohort



PILOT 3: An Internet of Things framework for supporting smart cities

PILOT 2: High-volume video data transferring



OLIVEIRA, LUCIANO; Nunes, Urbano. Pedestrian detection based on LIDAR-driven sliding window and relational parts-based detection. In: IEEE Intelligent Vehicles Symposium, p. 328-333, 2013.

Future plans

- The project has been just approved!
- We already started students recruitment
- Some planned activities for 2015
  - Kick-off meeting
  - Discussions about network topology and pilot applications
  - Project review

Thanks!
Questions?

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