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.
BAMBUU 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

Openflow switches
Bambu Testbed
Remessa
Pilot applications

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

**PILOT 2**: High-volume video data transferring

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

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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