

5G Open Platform: An Operator Strategy

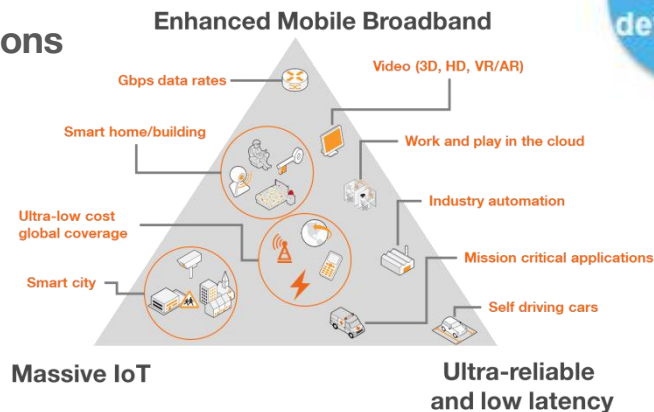
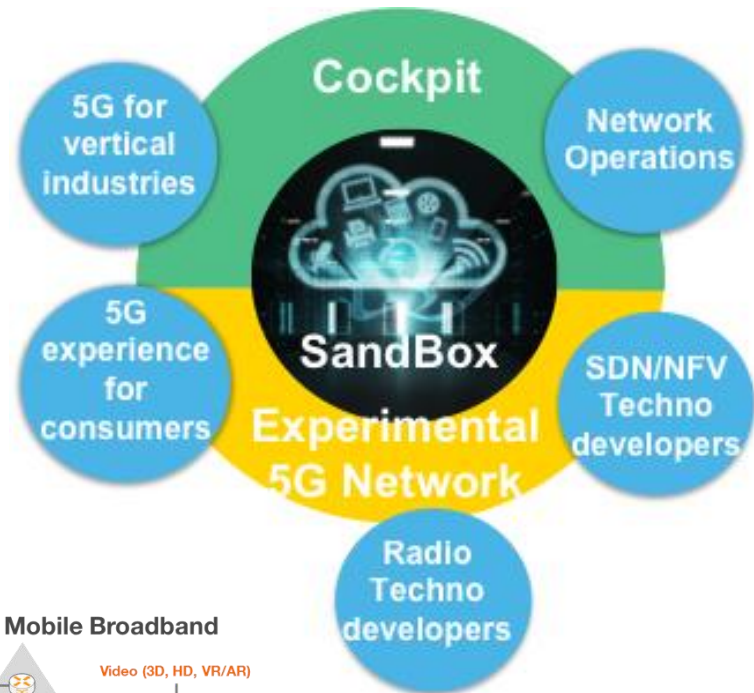
Lucy Project: Marion Duprez

**Special thanks to Ayoub Bousselmi & Sofiane Imadali for
the Lucy Playground**



Context & Ambition

- Lucy is the Research PF of Orange to experiment 5G
- 5G is key for Orange, with strong expectations by customers
- towards open & programmable networks
 - de facto standard sw, opensource communities
 - OpenAirInterface, OPNFV, OpenStack, ONAP, Docker, Kubernetes, ...
- 5G success depends on a large panel of expertises
 - radio, virtualisation, cloud, software development, security, operations ...
- → integrative research
- → in-vivo experimentation, in near-field conditions



Lucy's goals

→ From « playground » to « 1.0.0 »

- Propose to research projects the tools & resources needed to build their innovations
- Do research on these tools to prepare the next steps
- Favor a reproducible research and downstream reusability of the tools developed by research

→ 5G use case... but not only

- Notably on the basis of the « 5G - connectivity as a service » demo (uses OAI)
- Create a self-service dynamic on the available tools, to favor creativity

→ Prepare with operational people the 'cockpit of the future system'

- Operational people from build & run : test the most relevant tools for visualisation, interaction, DevOps ...
- Operational people in charge of marketing offers : offer evolutivity (DevOps)



The Lucy Ecosystem



How to use?

Which tools?

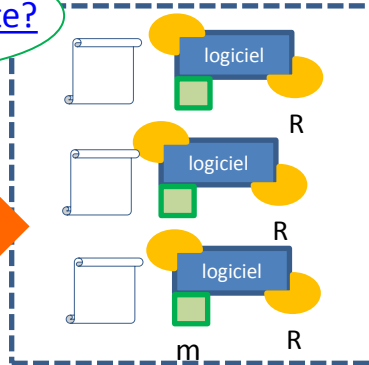
User



How to contribute?

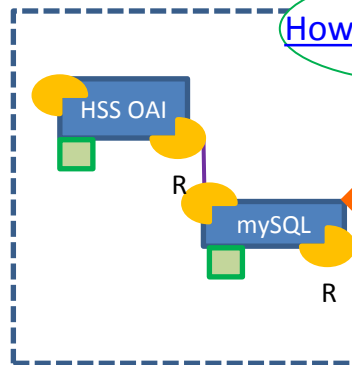


Service
Developer



- deployment engine
- views
- metrology
- Terms of use

How to contribute?



Bundle
Developer



Which infra?



Platform
Broker & Admin



IT Infrastructure:

- Gitlab
- Jenkins/Gitlab-ci
- Artifactory
- Mattermost
- Openwatt
- Limited number of private servers for bare metal

Radio:

- To be done
- Should be connected to the IT Infra

Atom:

- Could be anything from a container image, to a VM image to an artefact
- Can be combined with other atoms

Tools developed so far

Lucy

Test atoms/molecules on the go, see: [Try with PWD] on the repo, github.com/sofianinho/clearwater-docker

This is a gist with entries from experiments on the playground (accessible with an API, you could imagine other sources of gist entries)

LucyWall

PlayGround

WebPortal

AtomStore

AtomDocs

AtomAnalytics

ToolBox

Already built molecules (RANaaS, IMS, OpenFaaS) inspired by federalabs

Atoms and documentation are created with CI/CD from gitlab

1. Achievements: tool suite for a self-service reproducible research

- **AtomStore**: I publish my developments
- **AtomDocs**: I documente my developments
- **ToolBox**: turnkey systems pre-configured for specific use cases
- **PlayGround**: place to test and experiment, Sandbox-like
- **LucyWall**: to publish and share the tests results done on the PlayGround

2. Key properties

- **100% open source** (as initial point and target)
- **100% automatisation**: CI/CD from the ground up
- **100% portable**: non adherence to the deployment environment thanks to Docker
- **100% collaborative**: everything is explained online, self-service tutos

2018 perspectives

- Opening to partners
- Live radio emission
- Use case « verticals »
- 5G cockpit

- → Demonstrate an end-to-end chain (radio to cockpit)
- → Interact with mid/short terms (sandbox)



Thanks for your attention, and see you soon in Lucy's galaxy!



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