# Federated ONS Platform for Evaluating IoT

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# Outline

- Background
- WINGS Project
- DNS-based F-ONS Platform
- Further Work

# Background

## What is ONS (Object Naming Service) ?

- Uses part of DNS infrastructure and resolution mechanism
- Open standard for GS1 community (eg, supplychain, logistics…)
- Answers specific needs: Store and access information on the Internet related to well identified objects (typically RFID-equipped ones)

## Why Federated ONS (F-ONS)?

- At the root level, ONS is currently managed by a single authority (Verisign)
- European stakeholders ask for a federated model (multiple collaborative but independent authorities)

# WINGS Project

- Oct.2009 – Oct.2011
- Funded by French National Research Agency
- Both Industrial and Academic partners

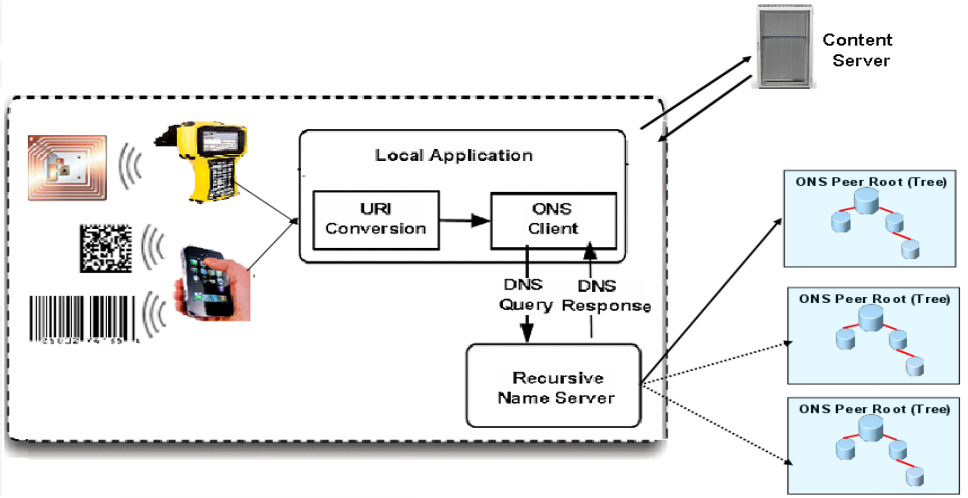
**Main Objectives :**

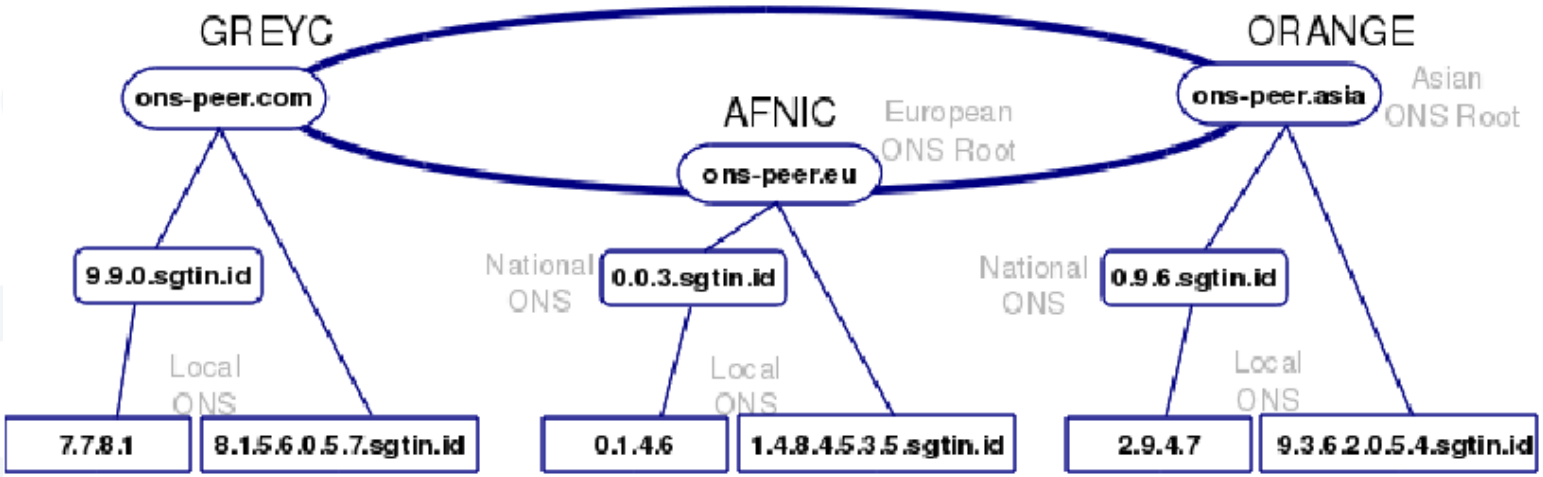
- Propose, experiment and evaluate two alternative F-ONS architectures: DNS-based approach (by AFNIC) and P2P approach (by INRIA-LIP6)
- Evaluate interaction with Multiple Discovery Services (by GREYC)
- Contribute to the Federated ONS standardization process

# High Level Requirements for a Federated IoT Naming Service

- No single authority
- All ONS Roots are equal (Peer Roots)
- Non fragmentation of the EPC namespace
- Dynamic Service Definition
- Accomodation of other identifiers than EPC

# DNS-Based F-ONS Platform



# AFNIC's contributions

- The DNS-based F-ONS platform proposed by AFNIC satisfies the high level governance/technical requirement of the EU stakeholders
- Experience from the WINGS project helped to contribute to standardization activities such as "ONS requirements committee" and the "F-ONS Mission Specific Working Group"
- Experience from the WINGS project helped to contribute to real ONS use case : Proxi-Produit, French project led by GS1 France (mobile use case with barcodes)

# Evaluation of the Platform for a Federated IoT Naming Service

| | |
|---|---|
| No Single Authority | OK |
| All ONS Peer Roots are equal | OK |
| Transparency between different Roots | OK |
| Interoperability between F-ONS and Single Root ONS | OK |
| Support in case where the separation between company prefix and object qualifier in not known | OK |
| Dynamic Service Definition | OK |
| Accomodation of non GS1 identifiers | Study ongoing |
| Uniqueness of the Object identifier | Study ongoing |
| Privacy / Security / Integrity | Study ongoing |

# Future Work

- The F-ONS platform needs to be provisioned and experimented by real user data for quantitative validation
- Remaining research issues (like security, ONS agnostic to object identifiers other than the EPC) need to be solved
- Need to widen the scope of the F-ONS platform by testing other use cases of IoT

# Bibliography

- WINGS Project site: http://www.wings-project.fr
- Video of F-ONS work: http://www.afnic.fr/afnic/r_d/ons
- Detailed Presentation: http://www.slideshare.net/AFNIC/federated-ons-experimental-platform-demo