
**Forum on Internet of Things: Empowering the New
Urban Agenda**

Geneva, Switzerland, 19 October 2015

**IoT Standardization, Challenges and
Perspectives – IPv6 Convergence**

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Standards – IEEE perspective

Fundamental building blocks for product development

by establishing consistent protocols that can be universally understood and adopted.

- **Enable compatibility and interoperability**
- **Simplify product development**
- **Speed time-to-market**
- **Make it easier to compare competing products**
- **Fuel international trade through global adoption**
- **Assure interconnectivity**

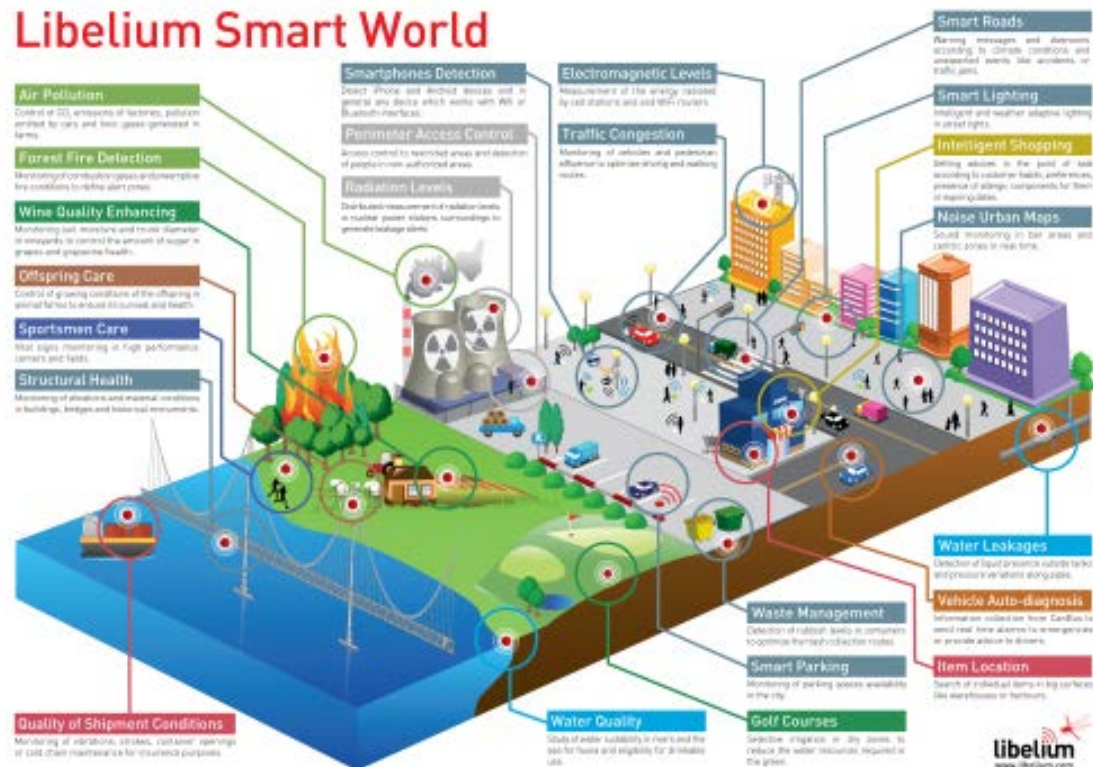
Standards fuel the development and implementation of technologies that influence and transform the way we live, work and communicate.

http://standardsinsight.com/ieee_company_detail/what-are-standards-why-are-they-important

IoT Challenges

Heterogeneity
Interoperability
Scalability
Security
Reliability
Cost

Libelium Smart World



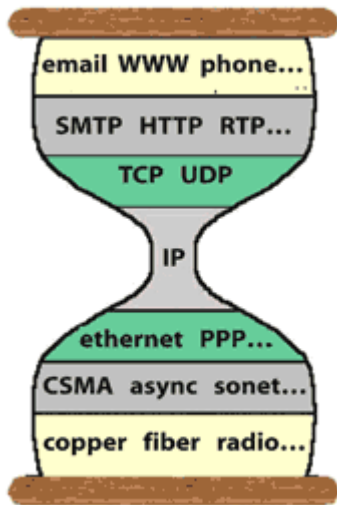
IoT Standards trends

Convergence

- Open
- Global
- Cross-domain interoperability



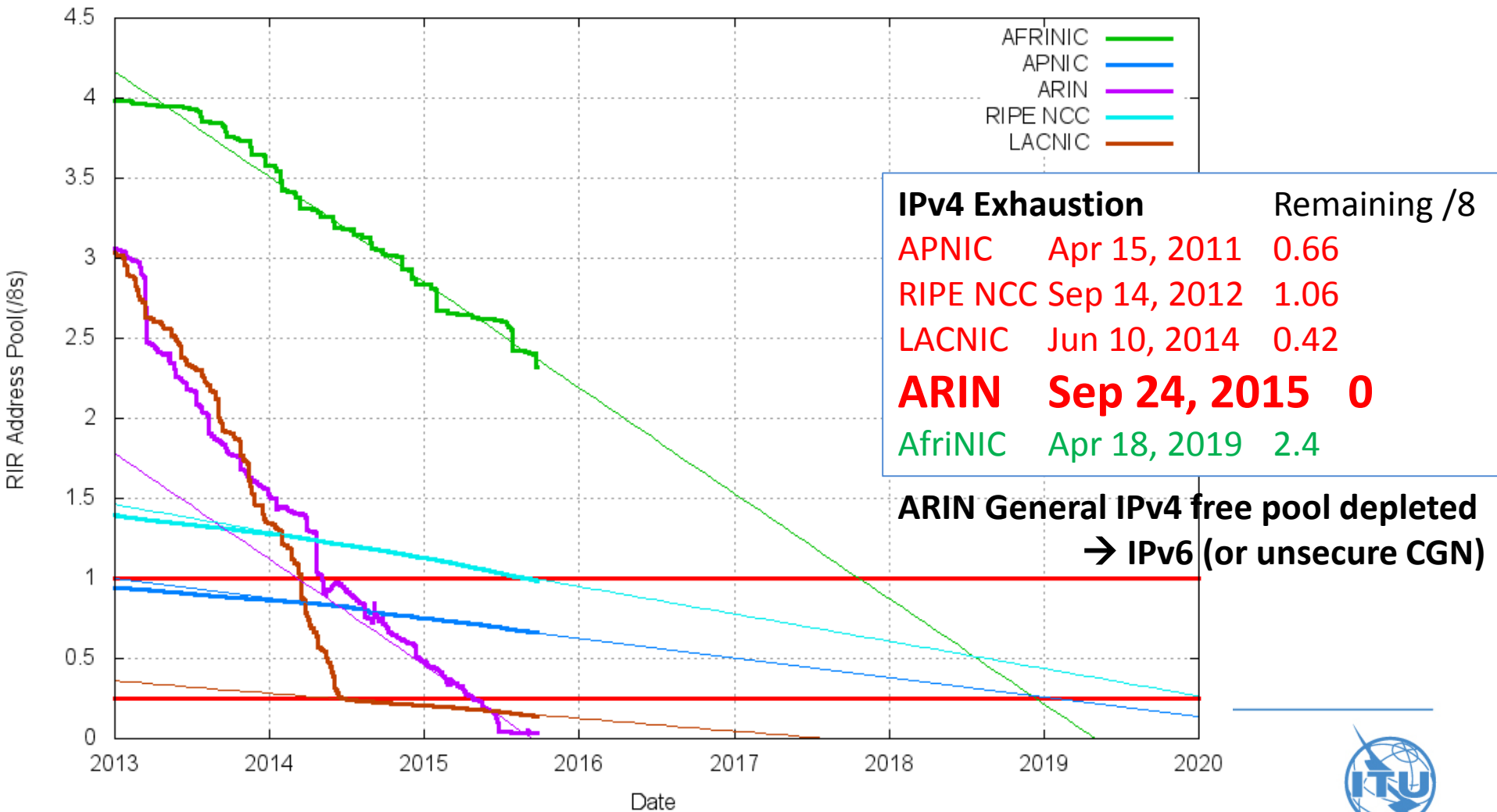
Starting from the Core



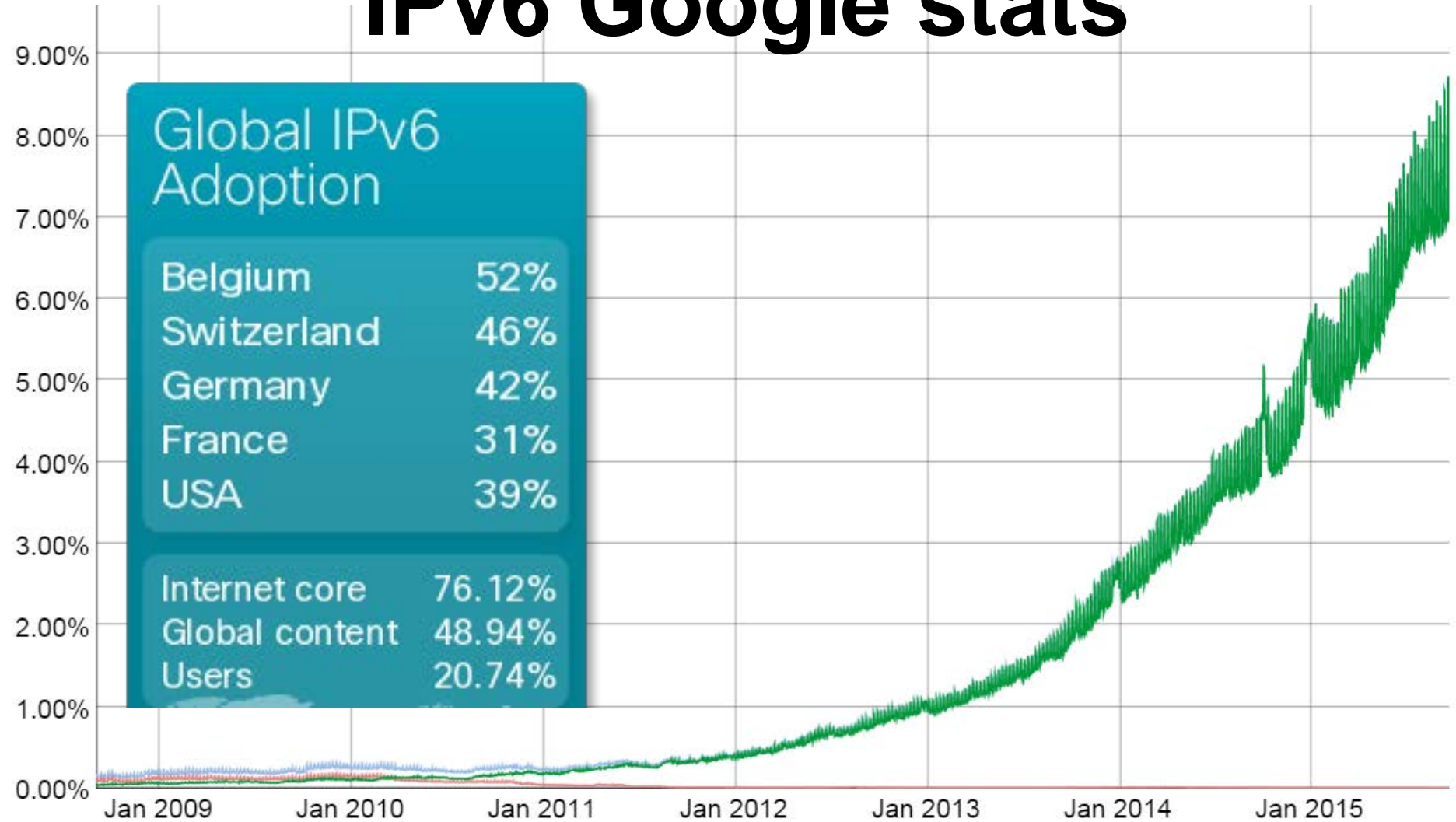
**Network layer
Internet Protocol**

IPv4 depletion

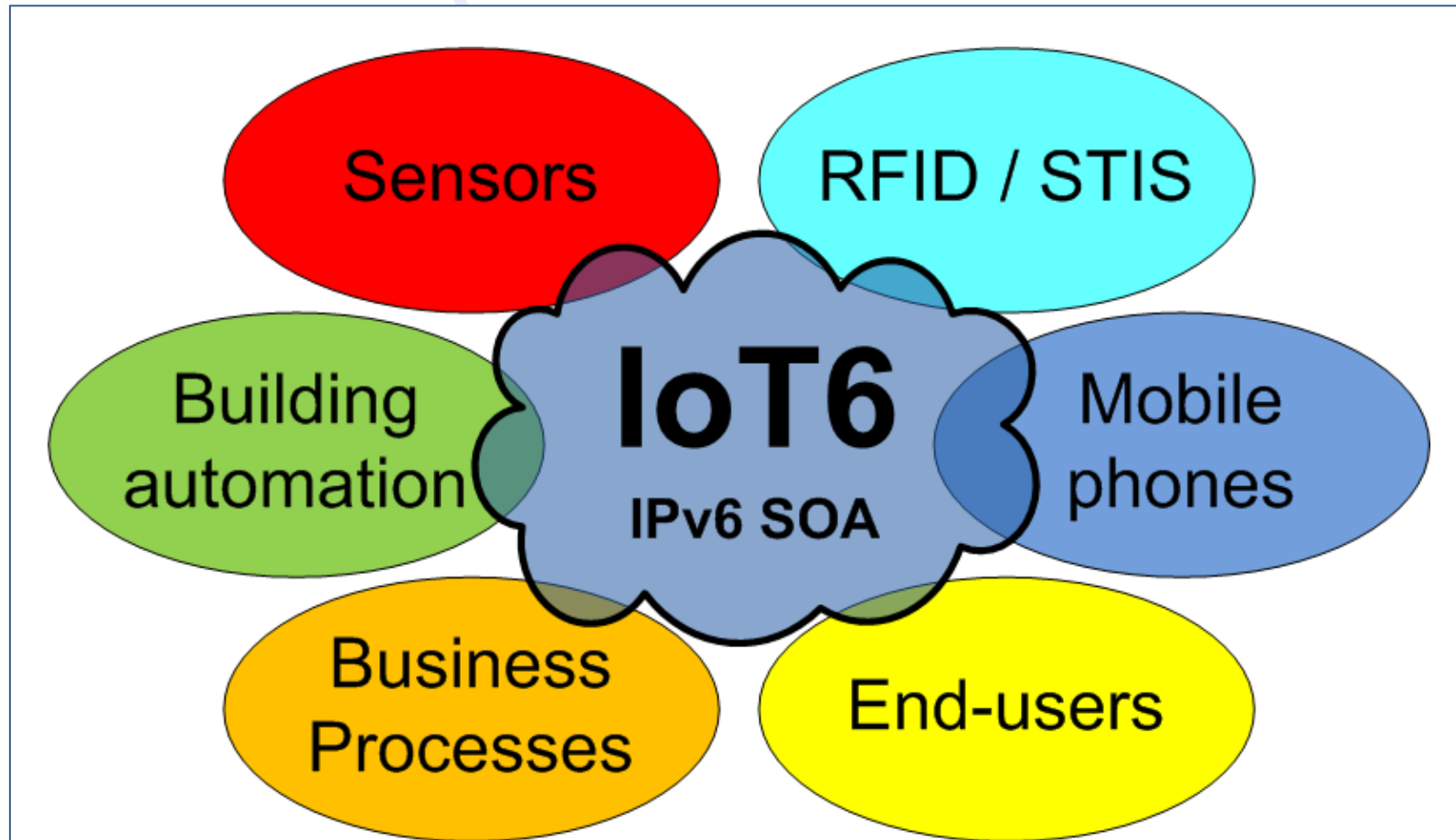
RIR IPv4 Address Run-Down Model



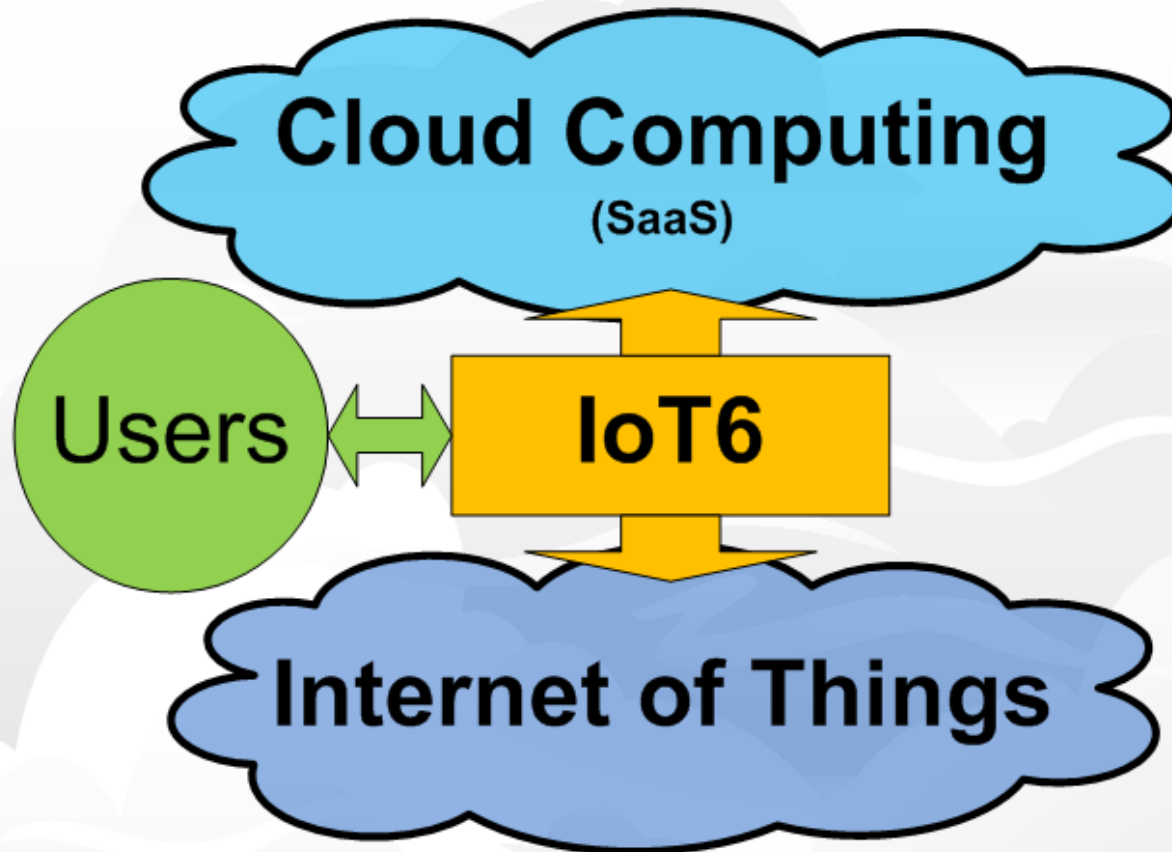
IPv6 Google stats



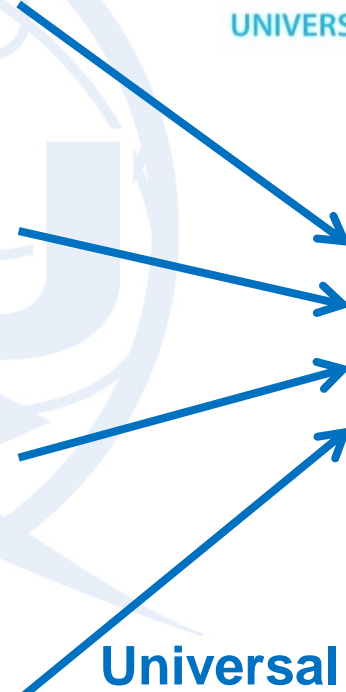
Cross-domains integration



IoT – Cloud integration



Multi-protocol integration

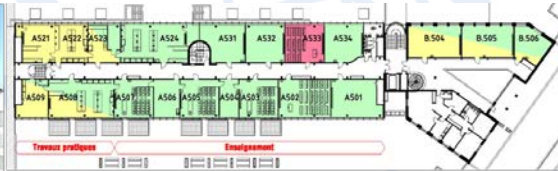
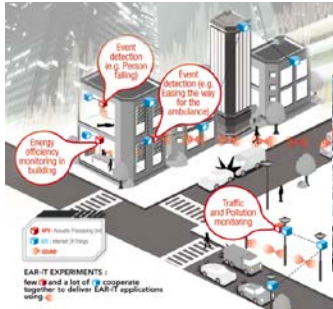


Universal Device Gateway
www.devicegateway.com

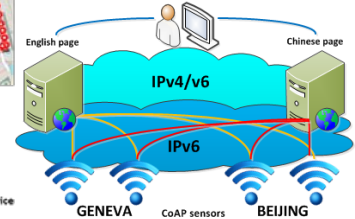
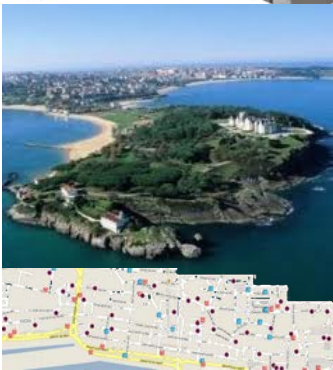
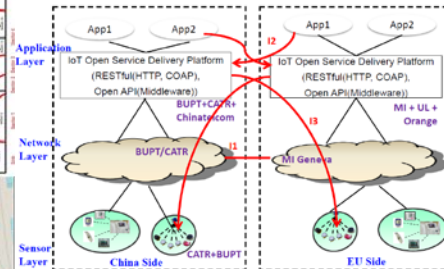
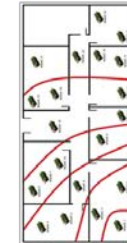


IoT Scalable integration

IoT Lab
European Research Project



IPv6



15 1865
2015

www.iotlab.eu



IPv6 potential in brief

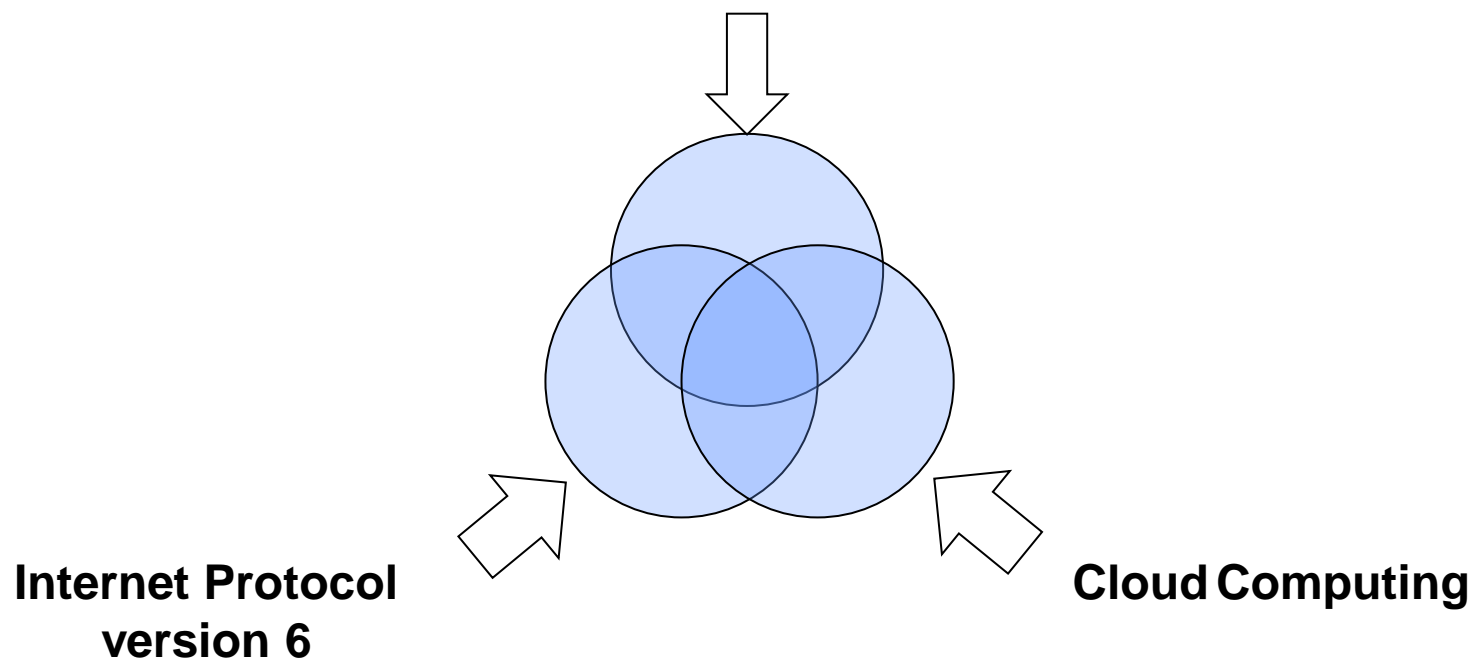


- 👉 **Scalability** (2^{128} addresses)
- 👉 **On-going global adoption**
- 👉 **End-to-end (NAT free) = authentication...**
- 👉 **Security** (IPSec, etc.)
- 👉 **IoT compliance** (6LoWPAN, CoAP, 6TiSCH)
- 👉 **Cross domains / cross systems integration**
- 👉 **Mobility**
- 👉 **Stateless Address Autoconfiguration (slaac)**
- 👉 **Fully Internet compliant**
= direct interaction with the World



Triple convergence

Internet of Things



Thank You !