



Challenges of administering Big Data and the application capabilities of the ENUM technologies

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What are the Big Data aimed at?

- detailed understanding of the **processes nature and the nature of maintenance they ones,**
 - **what needs to be done to improve the system operation,**
 - understanding the **causes of the processes both inside and out outside of system,**
 - **predict the current as well as future of the system processes and activities**
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- **time** determination,
 - specification and assessment of the **place/site,**
 - **tools** that are used,
 - **relationship between objects** both inside and outside appropriate environment
-

How the Big Data could be related with convergence processes within electronic communication environment?

Who can generate and how Big Data appear?

- Digital Objects in the Internet, Internet of Things, and electronic communications
- Digital Objects within the cloud and local storage
- Comprehensive data processing in accordance with properties and features of Digital Objects in the convergence environment
- Transmission and data exchange between Digital Objects more and more without human participation
- Digital Objects generate Big Data
- "Things" of the IoT as the special class of Digital Objects that generates Big Data

**Digital Objects of
the Internet**

**Digital Objects
as "Things" in
the IoT**

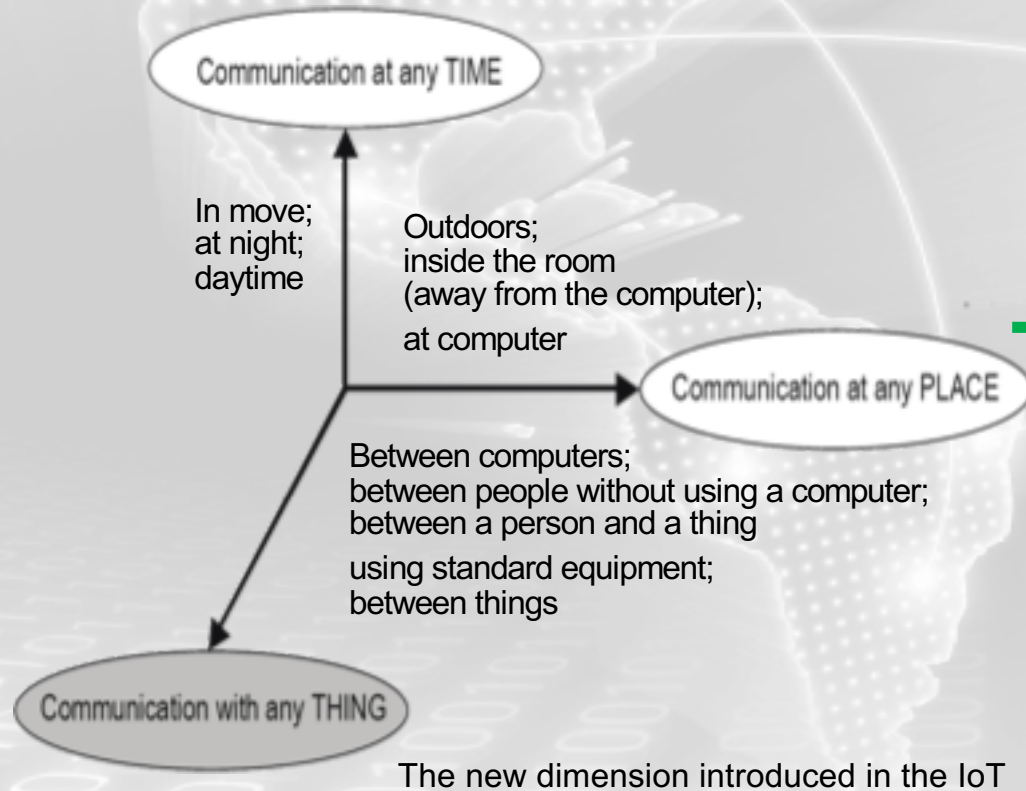
**Digital Objects of
the electronic
communications**

Convergence paradigm

Y.2060 (06/2012)
Overview of the Internet of things

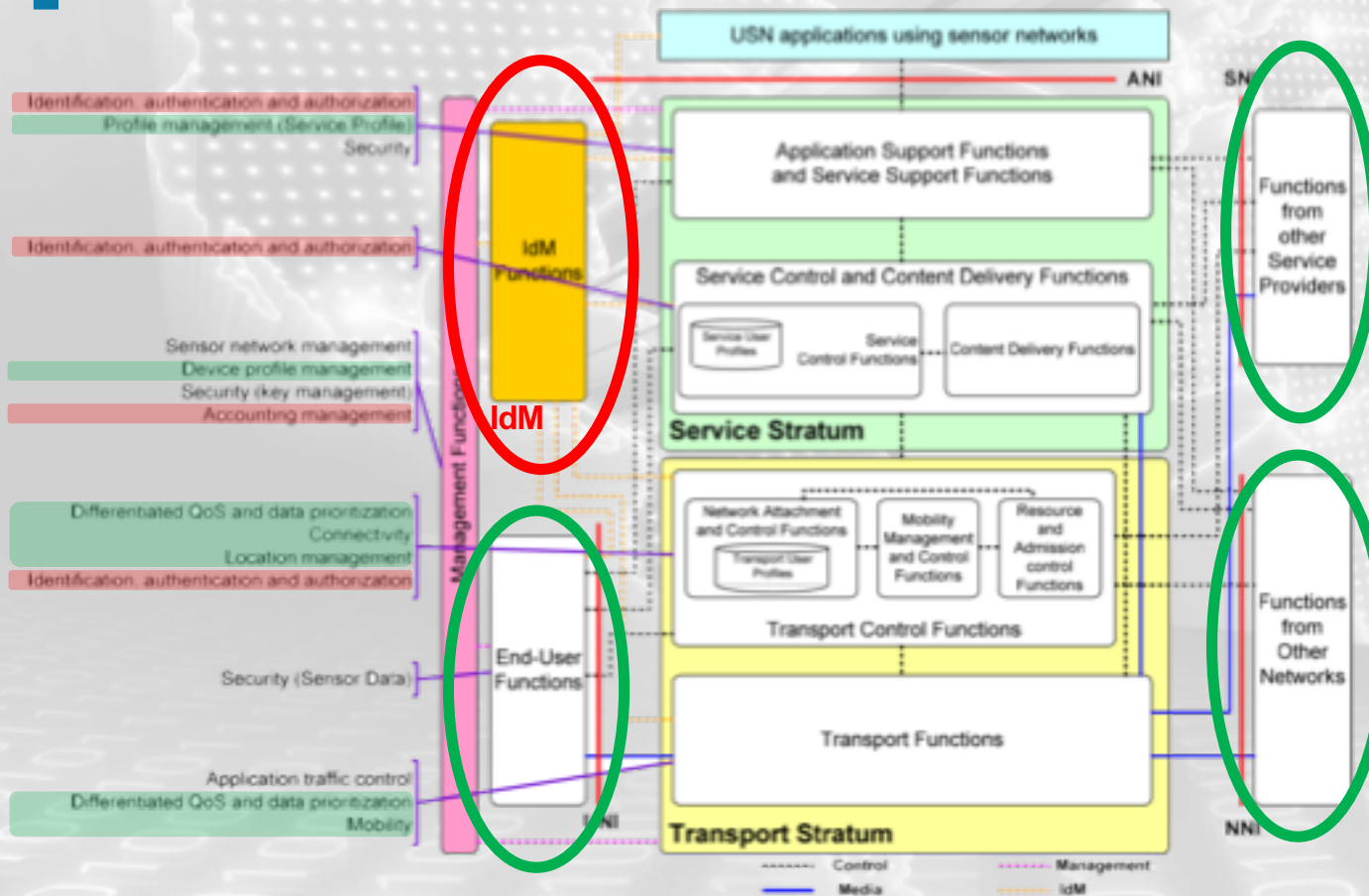
5 aspects of convergence:

- 1) Access
- 2) Interaction & Interconnection
- 3) NNA
- 4) Services
- 5) Rates and Tariffs



Forming the basis of a **convergent environment** in which (1) **any user** at (2) **any time** and in (3) **any place**, using (4) **any own identifier (s)** and (5) **own device (s)**, can receive from (6) **any chosen operator** the necessary (7) **service "here and now"**

Overall functional architecture model



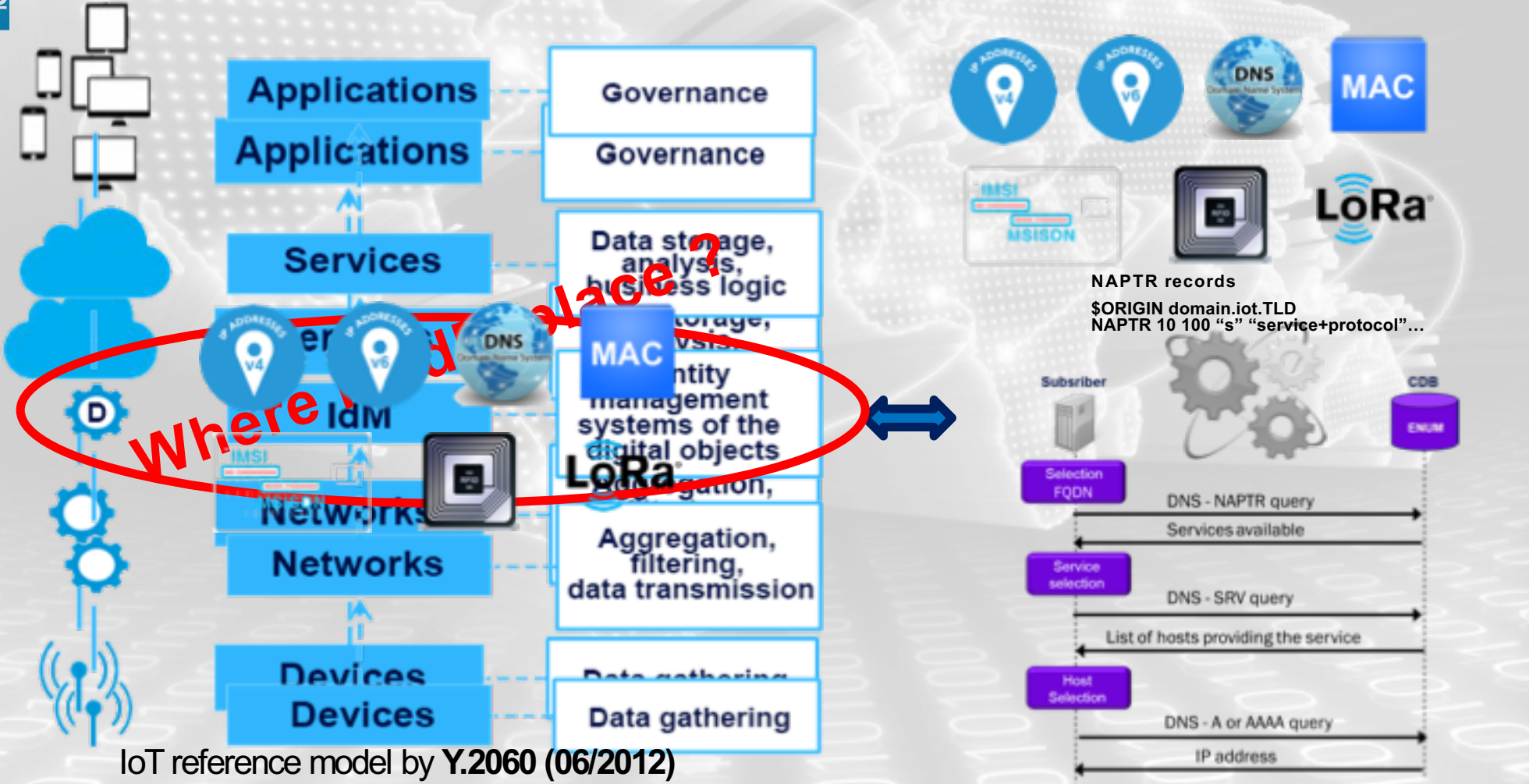
by Recommendation ITU-T Y.2026
Functional requirements and architecture of the next generation network for support of ubiquitous sensor network applications and services

ANI	Application Network Interface
USN	Ubiquitous Sensor Network
UNI	User network interface
SNI	Service node interface
NNI	Network-to-network interface
IdM	ID Management

How should it work and for the purpose of?

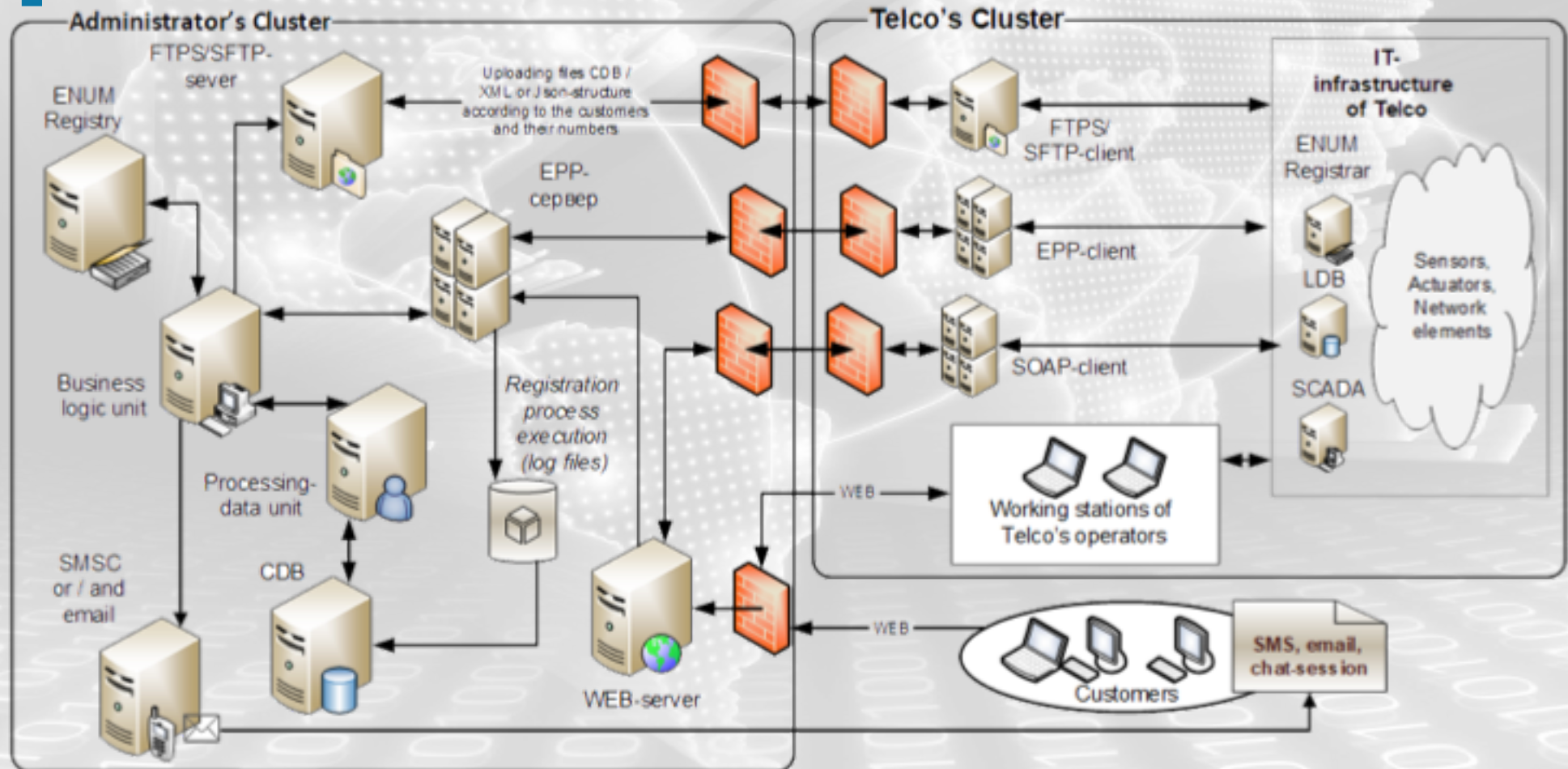
- Big data collection
 - Big data pre-processing
 - Big data analysis
 - Big data transfer
 - Big data storage
 - Big data time synchronization management
 - Big data visualization
 - Big data query
 - Big data security and privacy protection
- by Recommendation ITU-T Y.4114 Specific requirements and capabilities of the Internet of things for big data*
- Open service environment
 - Differentiated QoS and data prioritization
 - Connectivity
 - Location management
 - Scalability
 - Portability
 - Security
 - Personalization
 - Identification
 - Authentication, Authorization, Accounting and charging

Place IdM in the general architecture

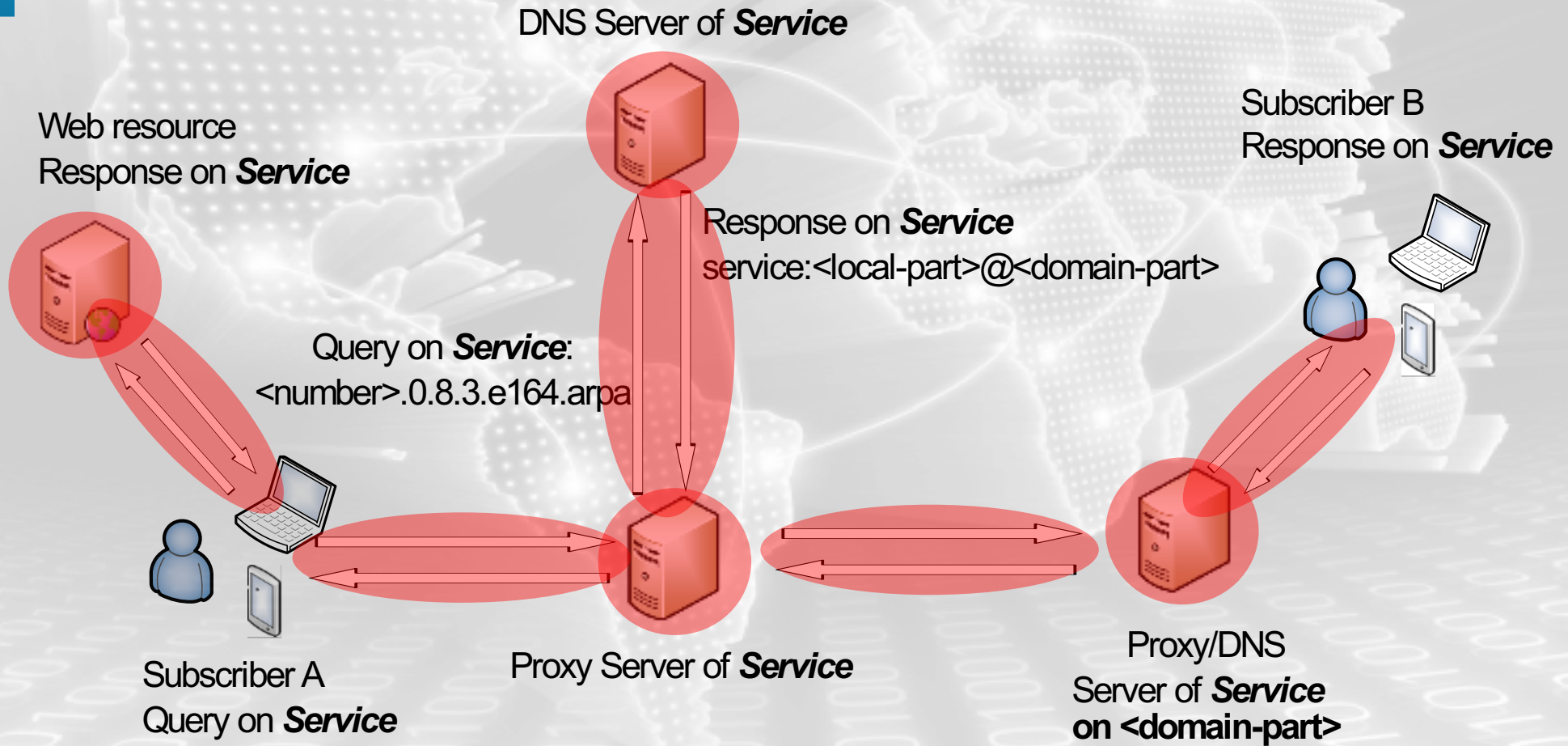


IoT reference model by Y.2060 (06/2012)

The proposed architecture of the IdM system



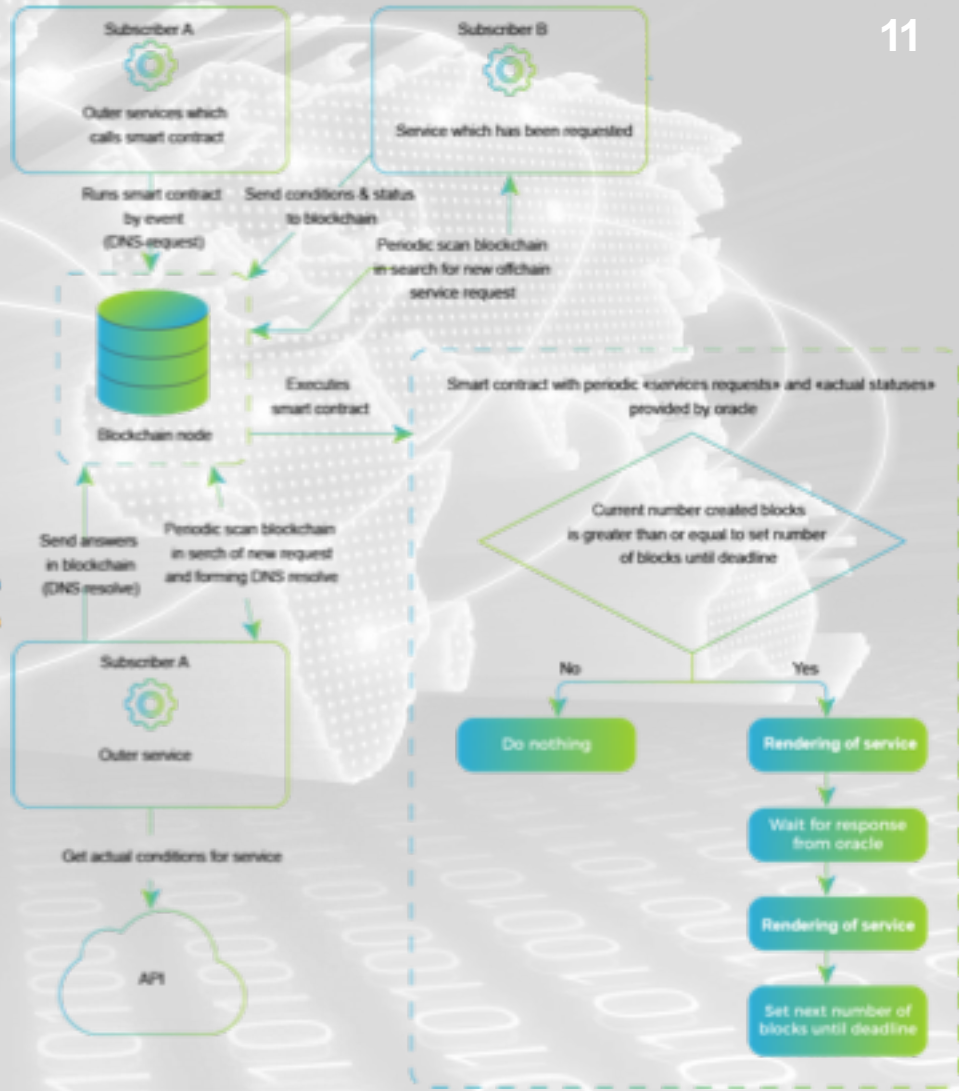
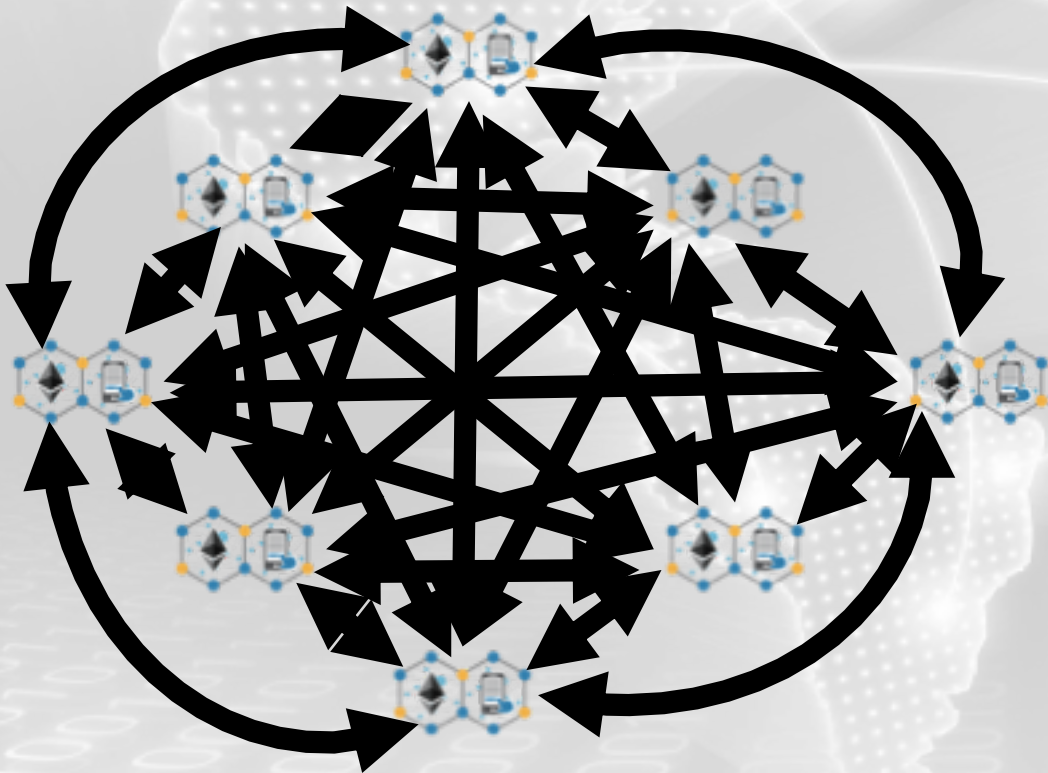
IdM/DNS and security



The background features a stylized world map with glowing white outlines and a grid of small white dots. Overlaid on the map are several glowing white lines that represent a network or data flow. At the bottom of the image, there are several rows of binary code (0s and 1s) in a light gray font, creating a digital landscape effect.

***Practical Case:
Security, Mobility, and Identity***

IdM/Blockchain Security



Effect of the convergence on the IoT properties and features

- ~~Full support USN applications and services~~
- Multistakeholders and multi-user ~~trusting environment within network structures~~
- ~~Easy~~ connectivity of any elements – sensors and actuators
- ~~Personalization of the Services~~
- Technologically ~~independent~~ identification of digital objects and services
- Identifiers' ~~and Services'~~ Mobility
- Security
- ~~Scalability of the Network and Subject Solutions~~

**Thanks!
Questions?**

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