

Secure and Cloudy M2M Infrastructure for Future Internet Services

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Reminder: The Success of Today's Internet

Open

- Everybody can easily put up a service
- Innovation enabled

Easy to use

- At least compared to the systems at the time

Federated

- Limited Central Control
- Relatively easy to connect networks/system (still static)

Fairness

- Resources sharing based on fairness principles

And sure there are problems with those

Vision of a FI Core Platform

Platform for information ...

- **Exchange** -> Various information types incl. M2M, sensor, content,
- **Brokering** -> Federation across multiple organizations
- **Handling** -> Various aggregation, analysis tools (depends on applications)
- **Use** -> Various Application types

Security aspects

- Identification of producer, consumers of information
- Identification of users for secure and reliable handling (information, service, and network level)
- Privacy and usability issues

Service aspects

- Large-scale back-end processing (on demand)
- Federation of Services across clouds
- Easy installation and deployment of services

Network

- Information oriented
- Network as a service

Operation and Management

- Automation of service and network operation processes (life-cycle management, self-organization, ease-of-use)

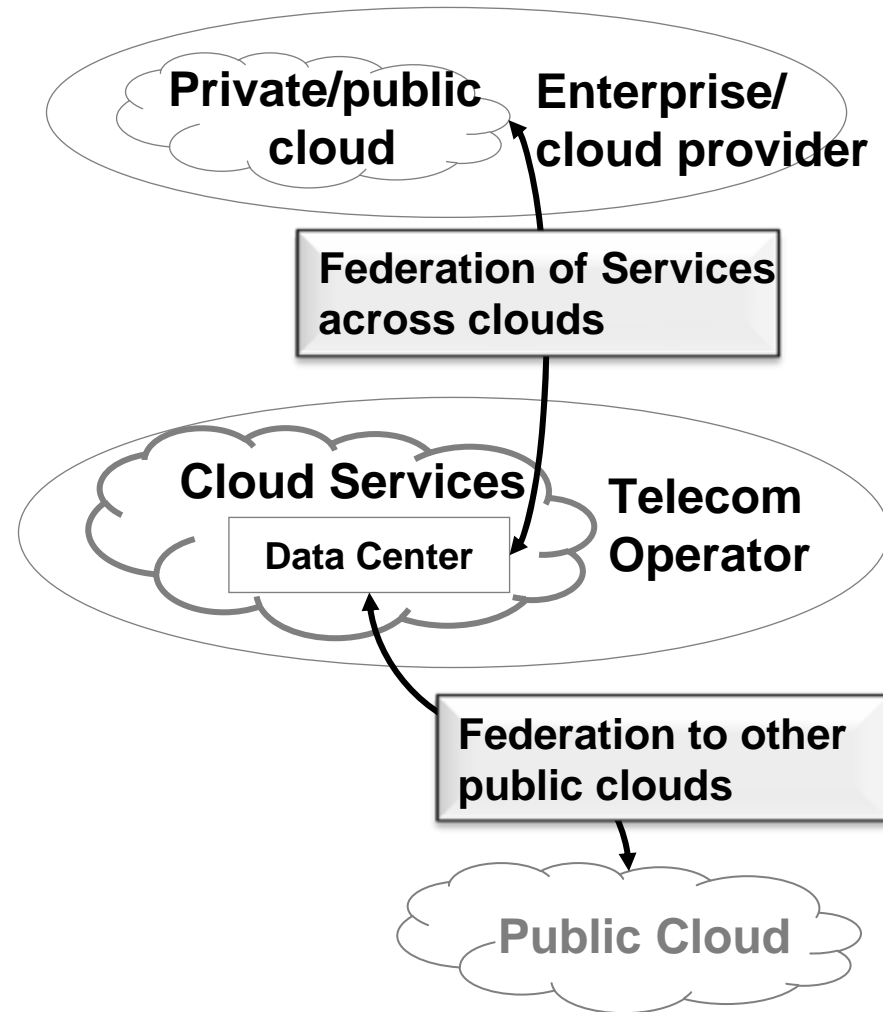
Cloud federating service environment for back-end processing

- Enabling cross-domain services between different clouds, especially including public clouds,

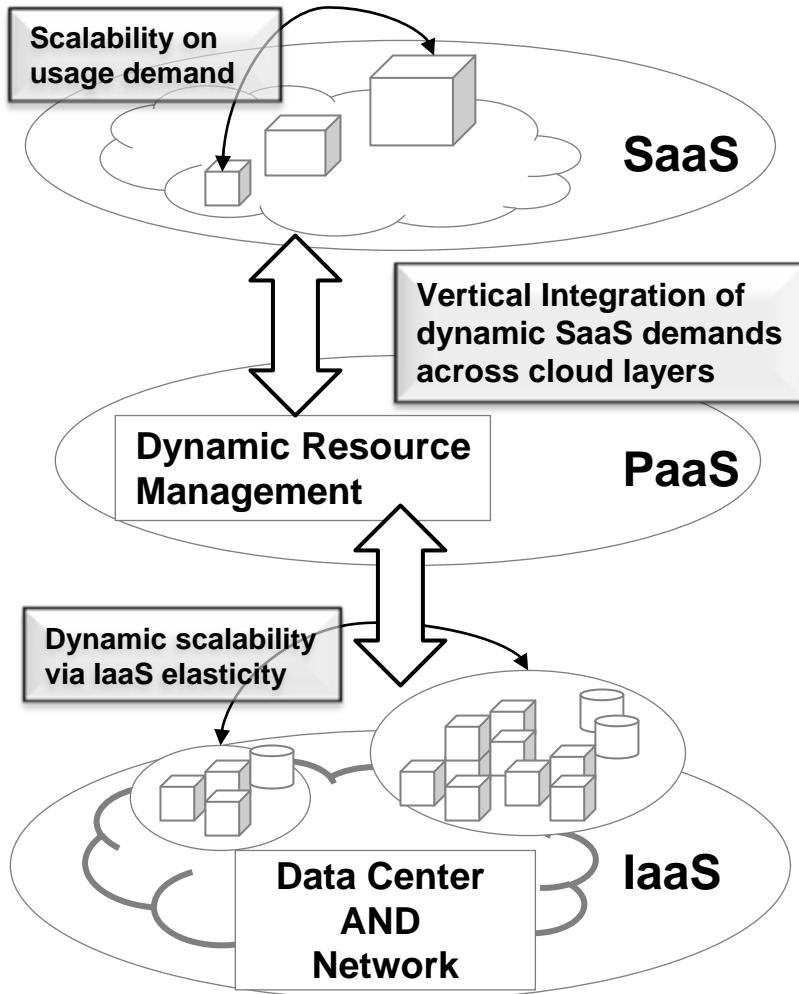
- Offers new value proposition in a role as service aggregator by exploiting their expertise in operational integration of various vendors over their networks.

Target:

- **Creation of a cloud-oriented service environment** supporting federation between different cloud models (private/public)
- Utilizing cross-domain access and virtual organization support to allow services to orchestrate across clouds
- Network as a Service
 - To cloud operators/providers
 - Network functions as a service, e.g., AAA



Vertical Integration for dynamic elastic cloud services



Deployment needs to link with the exploitation of IaaS scalability integrated to the needs of the service logic.

Target:

- **Dynamic scalability** of services exploiting the cloud elasticity vertically within and between the cloud layers (from IaaS/network elasticity up to the specific SaaS demands)
- Management of services via **single self-service** portal
 - ease life-cycle management for cloud services customers
- **Cloud APIs for interoperability and portability** for integration across cloud models (private/public/hybrid)
- IT/NW Converged SLA management

FI Security & Privacy

All layers have a need for identification, potentially with different security properties

- Network, content, service and application instances
- Implicit or explicit

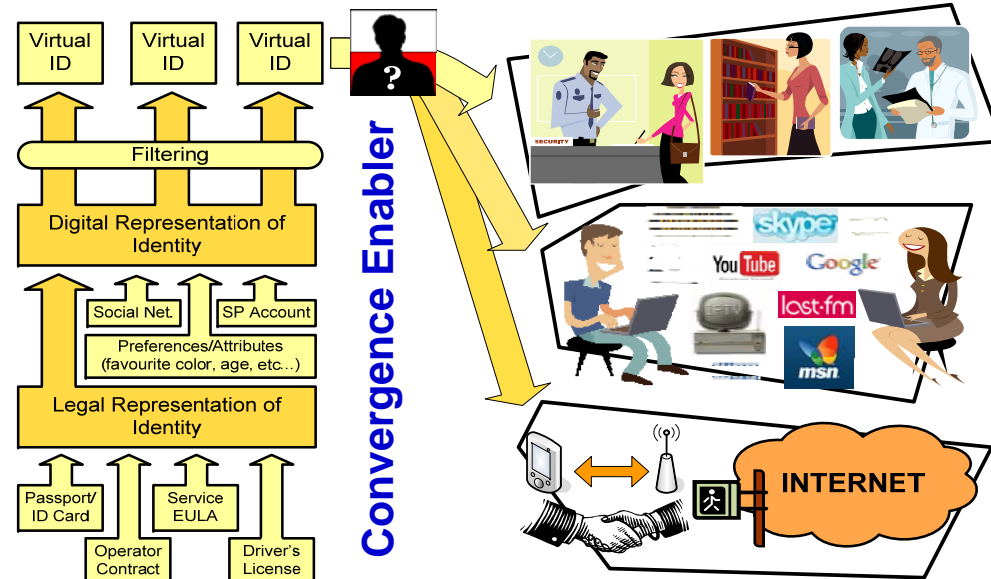
All layers require some sort of routing, finding, discovery, etc

- Makes it **easier/seamless to use services**

Identification/security platform with different security and privacy properties required (across net, service, content, apps / connect users to users)

- connectivity aware Identity-based routing, incl resolution
- Policies and multi/level enforcement to provide the right level of privacy
- Flexible technology to adapt to different regulation and application environments

Cross-Layer Identity Solutions



Competence

- Security for Restricted Devices (specifically for Sensors)
- Cross-stack identity and access management framework
- Identity Management as a Service

Application Areas

Transportation

- Various projects in car2X
- On-board units for various applications
- Trial participation
- Ecological Transportation Control
 - Based on large-scale data mining

Energy

- Smart metering
- Power Grid Control System
- Energy-Saving for ICT

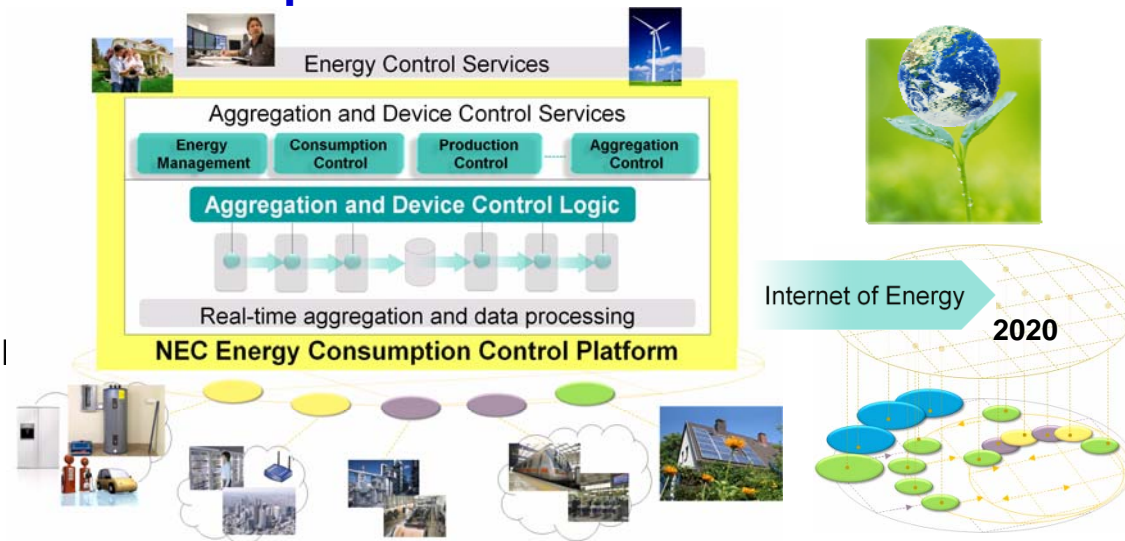
eHealth

- Secure transport, access control and privacy protection technology for healthcare scenario

For example: Car-to-Car Communication to improve driving safety & convenience



For Example: Smart Power Grid: Energy Consumption Control



Empowered by Innovation

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