Networking Future Spaces: Software-Defined LANs for Interconnected Smart Environments

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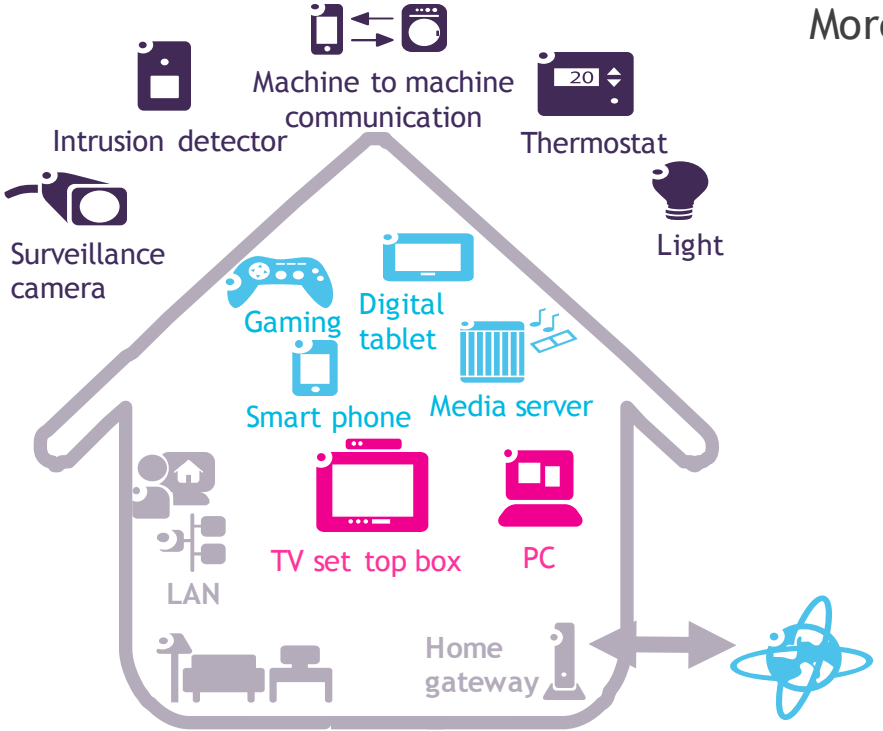
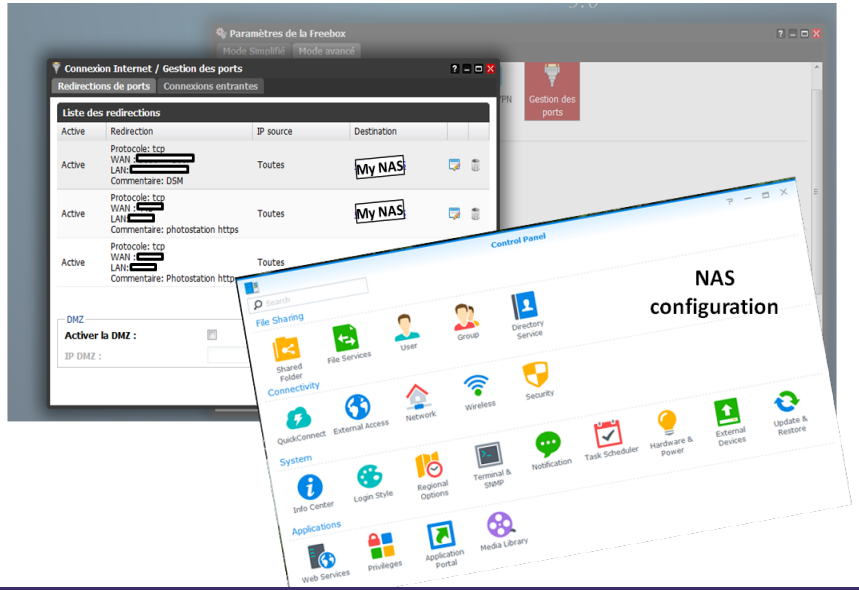
Smart (IoT-based) Environment challenges



More and more (heterogeneous) devices …

… and complex network management

Residential gateway OS



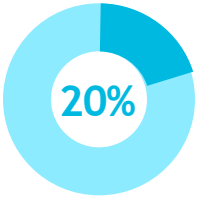
How to support users in managing and connecting their things ?

Security & Privacy: a key challenge for IoT

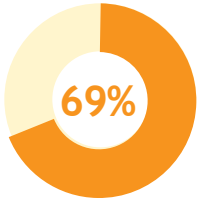
- Security: a 2nd priority in the race for quickly launching appealing IoT devices?
  - Some constrained devices can not implement strong security (or even be updated !), others don't care
  - weak security does not only affect the compromised device

- Privacy:
  - an increasing concern for consumers
  - … and regulators

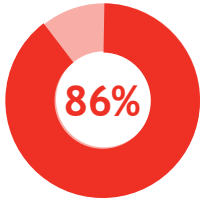
2015 US IoT Privacy Index (TRUSTe, 2015)



Believe the Benefits of smart devices outweigh any privacy concern about their personal information



Think that they should own any personal data collected using a smart device



Concerned about personal information being collected and used in ways they were unware of

How to address security & privacy concerns from a network point of view ?

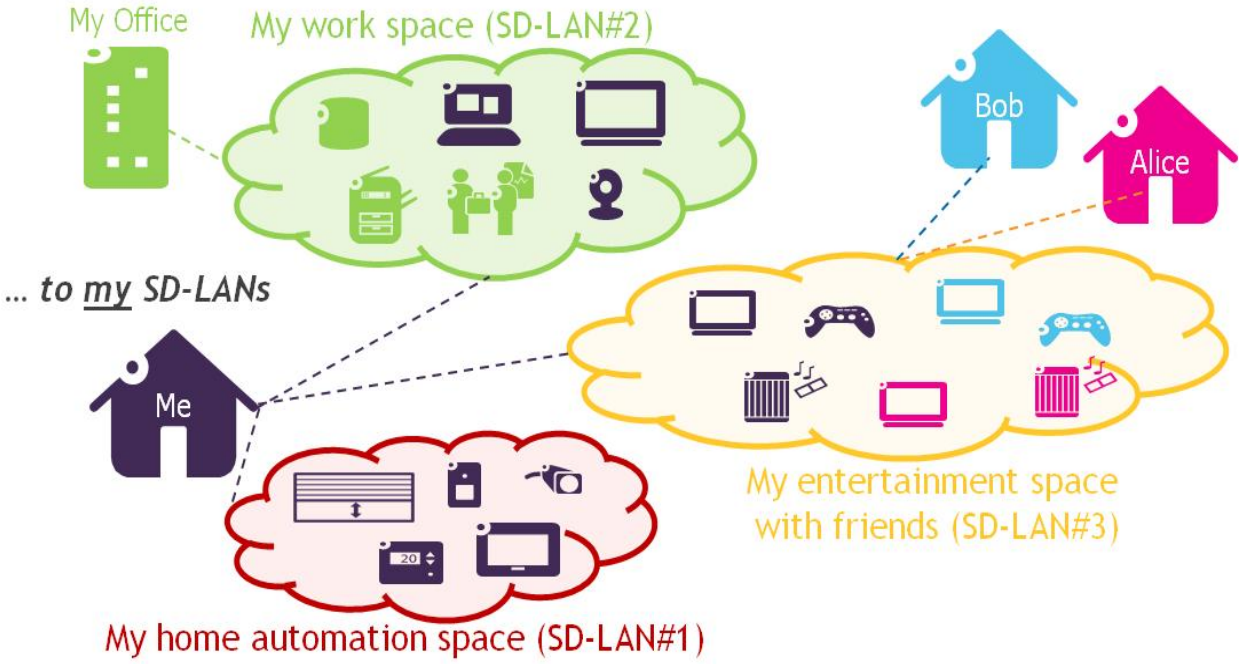
Software-Defined LANs: Managing your Connected/Smart Environments

Privacy & security through network isolation

- Only devices you select can communicate

Automated network control

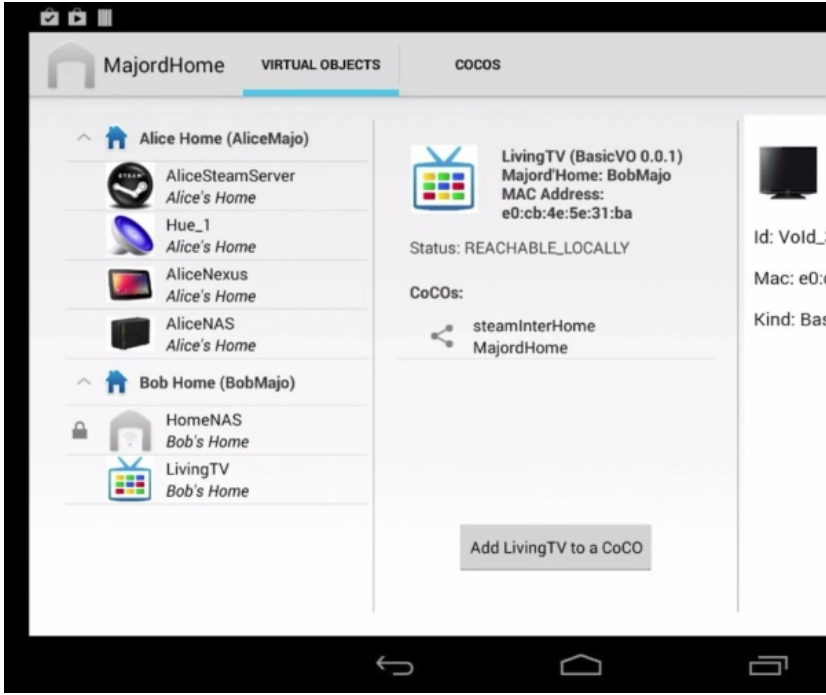
- Simple to use for non tech. users
- Locally: multiple isolated « slices » with access rights
- Remotely: easily shared virtual networks with devices from different domains



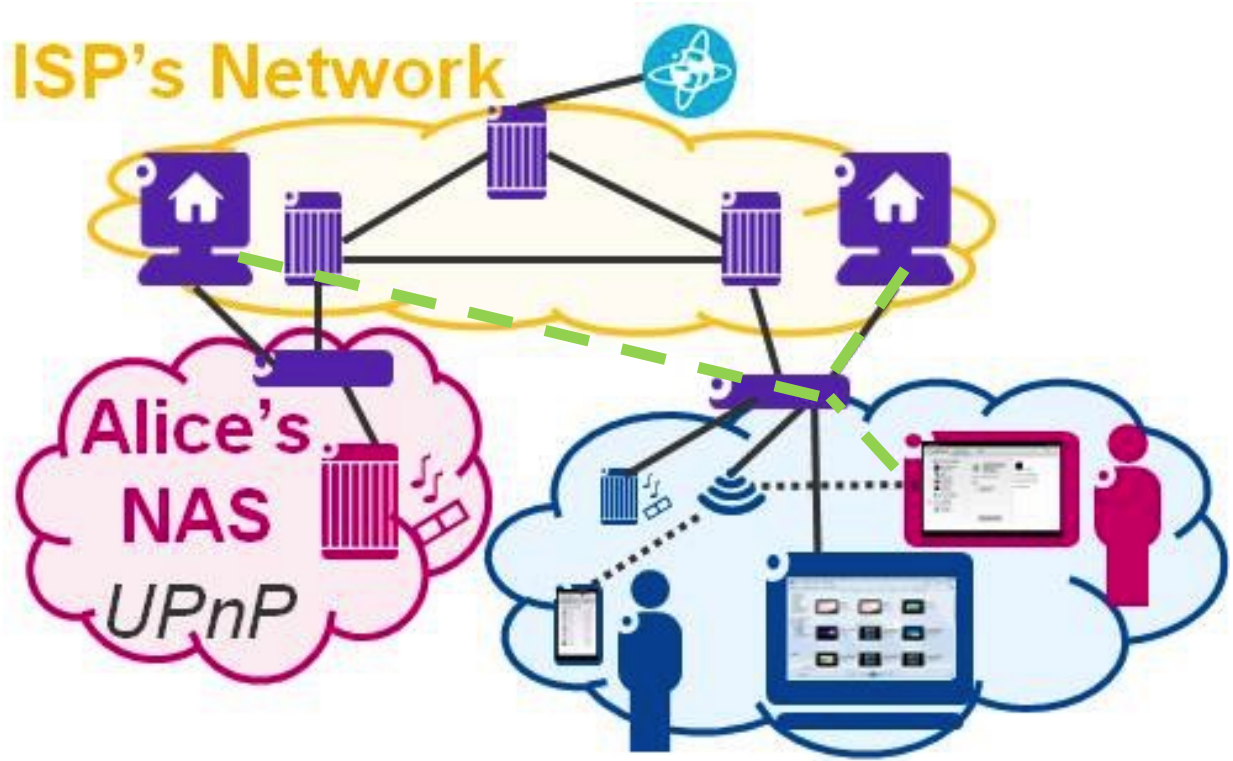
Status
A platform used for Demos

- 2 different scenarios have been demonstrated:
  - a/ Inter-home video diffusion
  - b/ At home tele-working scenario

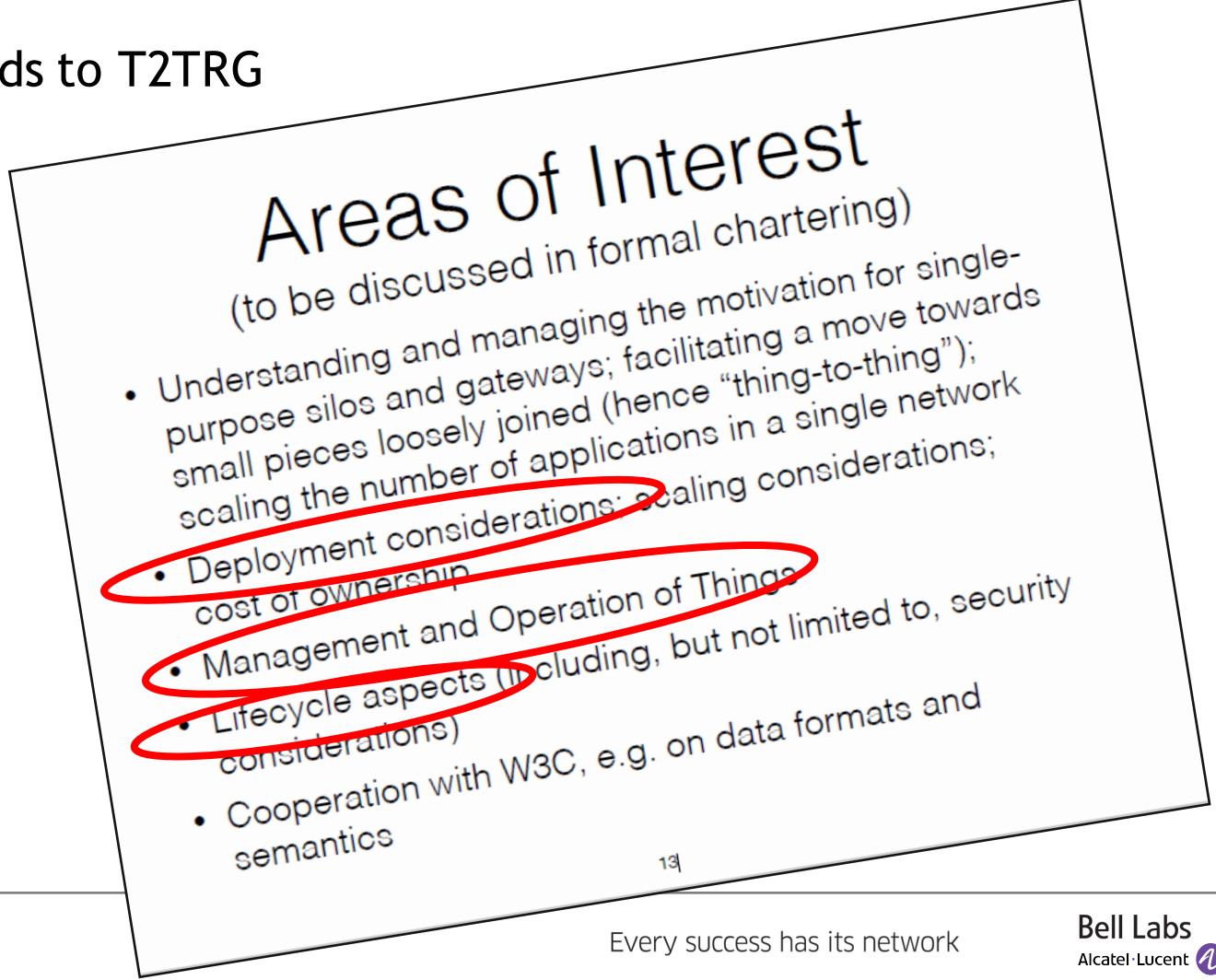
- Platform is composed of:
  - multiple Home LANs with Gateways based on:
    - OVS
    - In-house Network Controller (Open-Flow based)
    - In-house BackEnd Server
  - Interconnecting Network
  - Android Client



Example: Cross-Home video delivery scenario



Situation with regards to T2TRG



Areas of Interest

(to be discussed in formal chartering)

- Understanding and managing the motivation for single-purpose silos and gateways; facilitating a move towards small pieces loosely joined (hence "thing-to-thing"); scaling the number of applications in a single network
- Deployment considerations; scaling considerations; cost of ownership
- Management and Operation of Things
- Lifecycle aspects (including, but not limited to, security considerations)
- Cooperation with W3C, e.g. on data formats and semantics

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Situation with regards to T2TRG