

Security in Cloud computing: sharing more than resources

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Growing need of IaaS - Cloud would help:



Smart healthcare



Environment monitoring



Smart cities



Smart transport

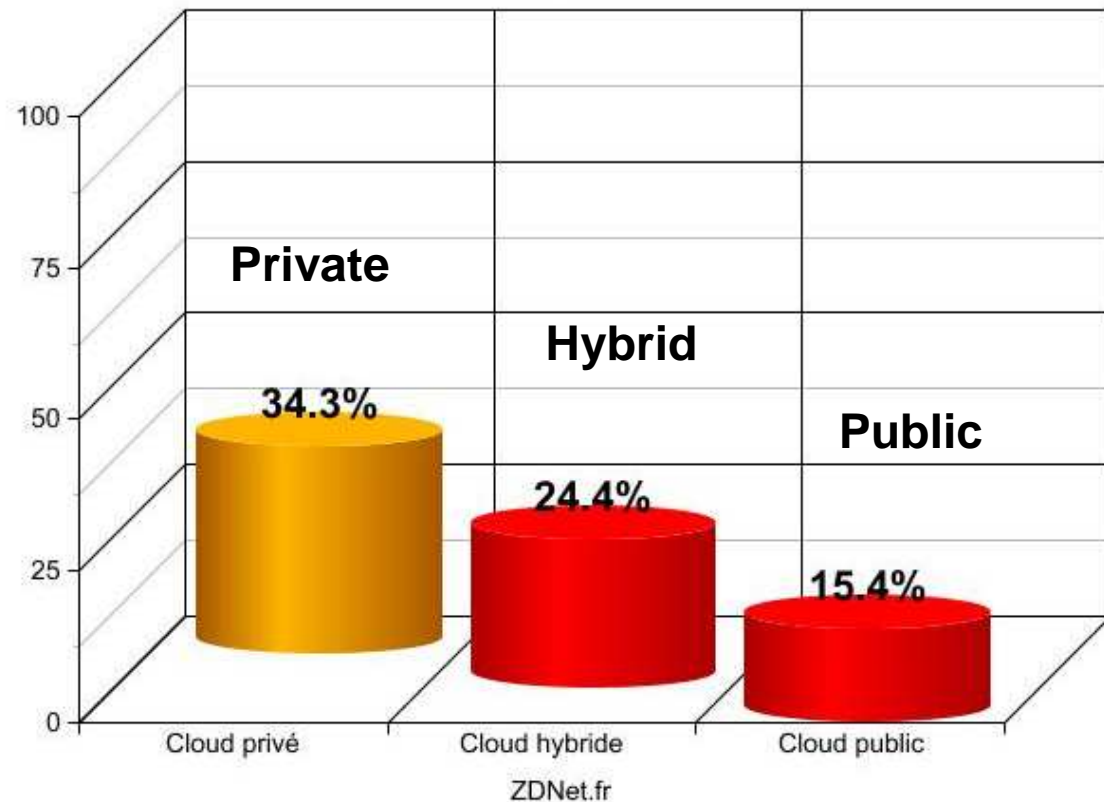


Smart energy

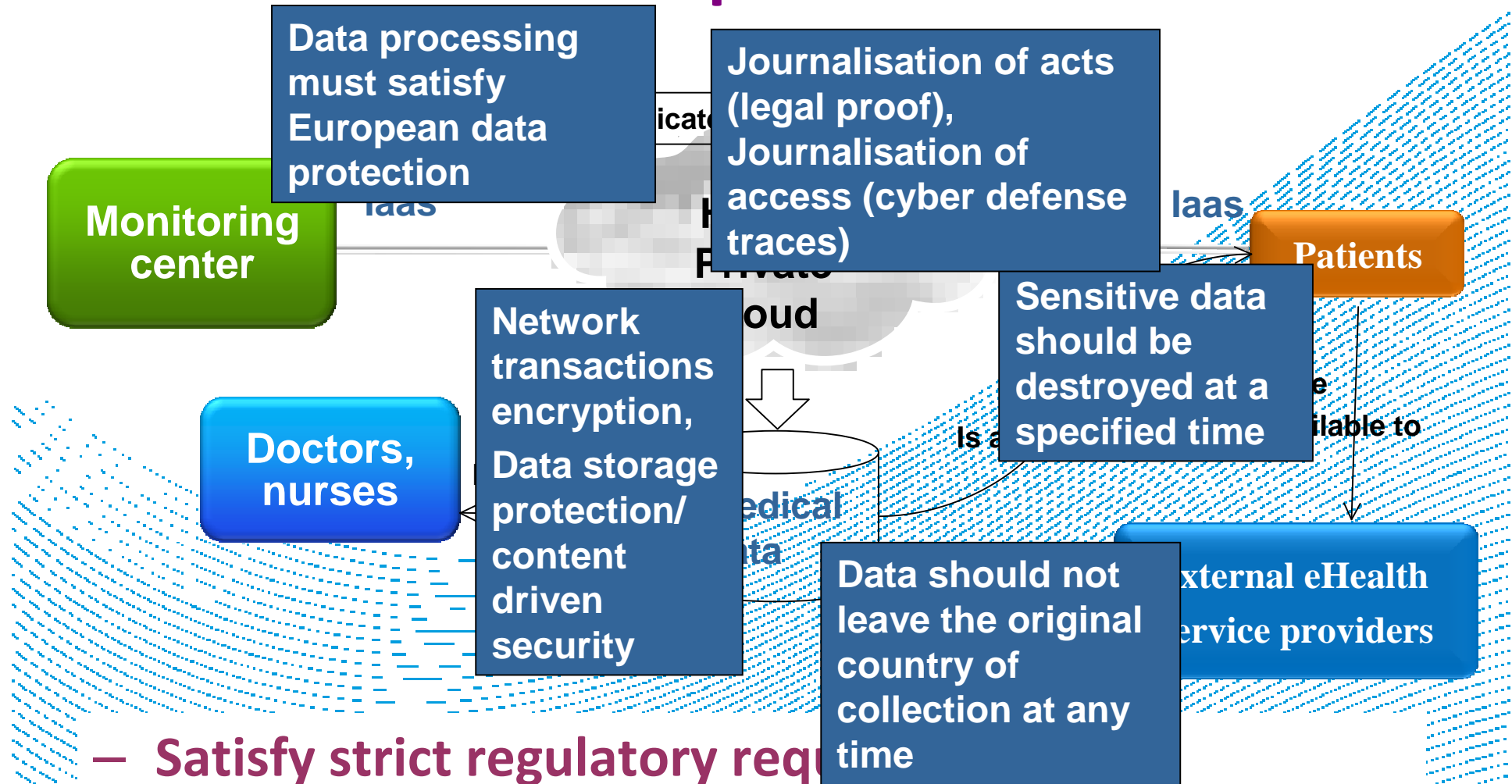
Cloud computing implies loss of control

Choices of cloud offering based on:

- reputation to ensure protection and confidentiality
- ability of the cloud provider to prove that there is 'no' loss of control



eHealth cloud example



- Satisfy strict regulatory requirements
- Very sensitive to negative public perception

Customer's view on security

Are my data secure in the Cloud ?

- ▶ Who can access the data ?
- ▶ Can I access my data at any time ? What is the SLA ?
- ▶ Can I stop my contract at any time ? (reversibility)

Can I comply with laws and regulation ?

- ▶ Where are my data ? What about if disclosure ?
- ▶ How long are my data kept if I ask for suppression ?
- ▶ How is managed the requisition process ?

Who is responsible?

- ▶ Loss of control while maintaining accountability even if operational responsibility falls upon 3rd parties
- ▶ In case of failure in services outsourced to the cloud, the customer cannot meet his duty to his own customers and is exposed to liability

Legal and regulatory challenges

Understand the consequences of decoupling data from infrastructure.

Regulation of cross-border data flows

- ▶ cloud providers operate datacenters in multiple locations and transfer data among them.

Coherent regulations on privacy, data retention

- ▶ EU member states have divergent views as to whether cloud providers need to retain data and for how long.

Enhance criminal enforcement of crimes

- ▶ Aggregation of data in cloud data centers are attractive targets for hackers.
- ▶ Incident response.

Compliant storage certification

Interoperability standards in cloud



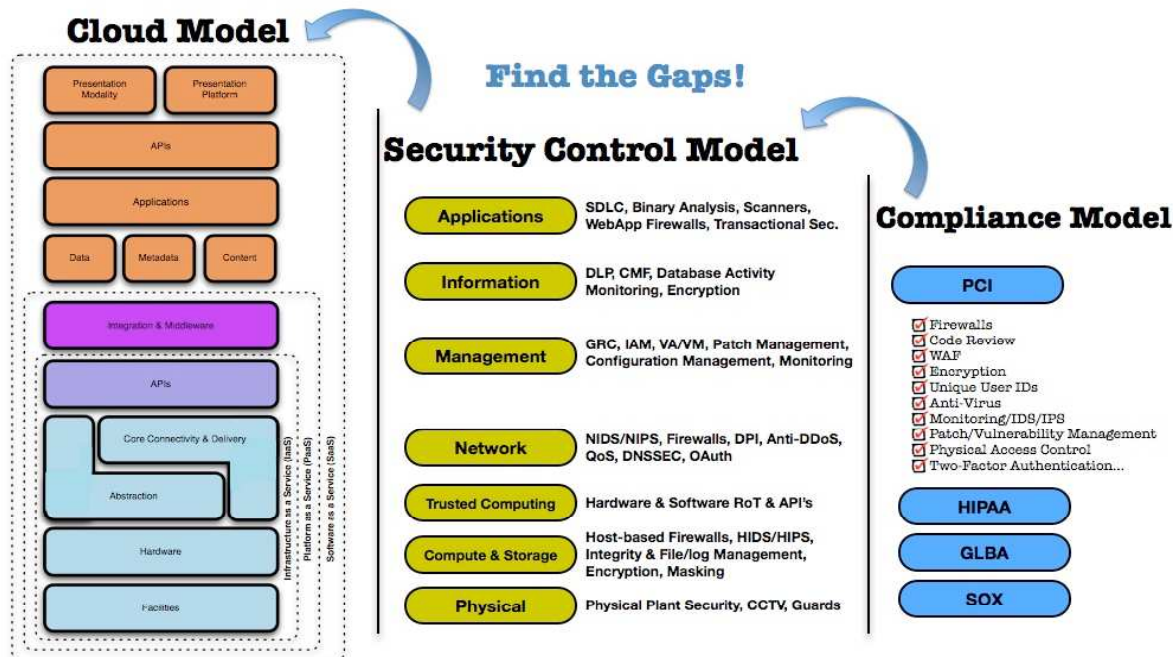
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Security challenges

Quality of service guaranties
 Certification and accreditation
 Compliance to regulations
 ID management, RBAC
 Logging, audit

Multi-tenancy issues and isolation
 Insecure interfaces in federation context
 Data protection
 Cloud infrastructure protection
 Portability, reversibility



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