Alma, module CGA

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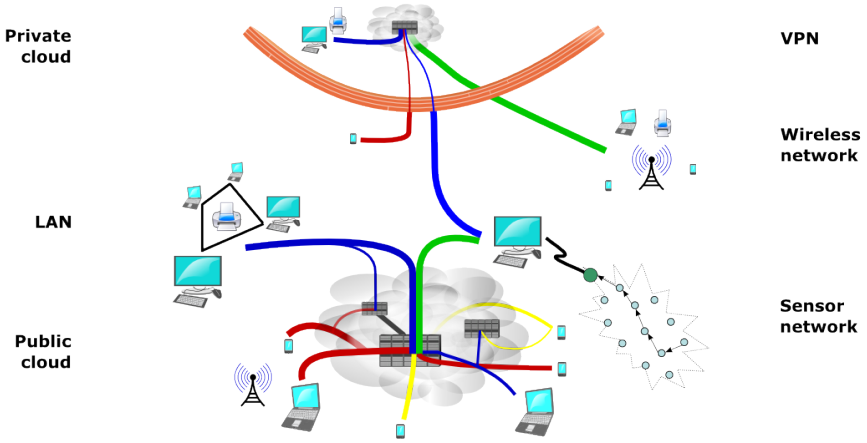
Contents

Introduction

Course contents: the Cloud and Cloud programming

Bird's eye perspective

The Cloud/Web: **the** information system



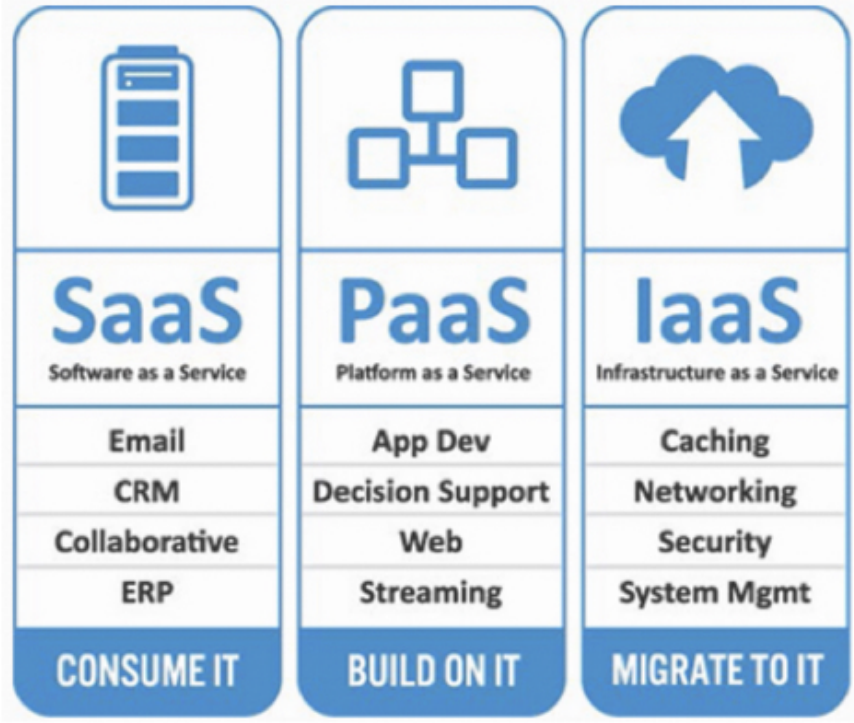
Characteristics

Mutualization: storage and computations
Elasticity : acquire/release resources dynamically
Pay as you go: only pay for used ressources

Main issues

Efficient, adaptable applications with minimal time-to-market
Maximal efficient sharing of infrastructure with minimal cost

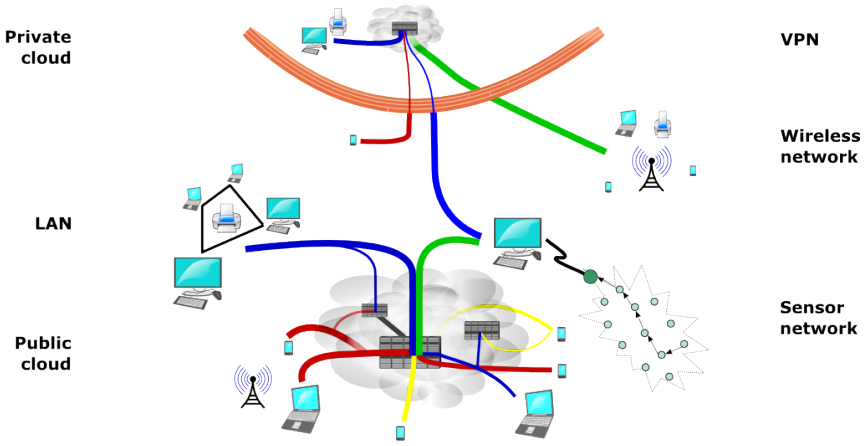
Large varieties of applications



Deep software stack: services, platforms, infrastrutures
Large-scale applications and **architectures**
Dependence on **complex crosscutting functionalities**: security, distributed data bases ...
Many programming languages, **frameworks**, **libs** ...

- Most popular: C, C++, Java, Javascript, Python, Go
- "Coolest": SQL, XML, R, Closure, Haskell

Many heterogenous infrastructures



Servers in data centers
Routers, **gateways** etc. in networks
Fixed machines, **mobile phones**, **tablets** and **wearable devices**
Sensors and **actuators** in sensor networks, manufacturing enterprises

Admin

Planning: two parts

1. **Cloud programming, applications and security**
    - Lecturer: **Mario Sudholt**
2. **Cloud infrastructures and energy optimization**
    - Lecturer: **Jean-Marc Menaud**

24 hours in total : 3 afternoons per 4 hours per part

Evaluation

Two course evaluations ("cours continus")
A graded practical exercice ("TP")

Intro to the Cloud

Cloud programming

A myriad ways of programming program

- Web clients and server
- P2P systems
- n - tier systems
- Tierless programming

Java, Python

Security in the Cloud

Intro

A systemic, crosscutting functionality