

**ITU Kaleidoscope 2013**  
**Building Sustainable Communities**

**RESEARCH ON ICT SERVICE ENERGY  
IMPACT ASSESSMENT METHOD: HOW  
MUCH ENERGY TO MANUFACTURE A CHIP**

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**(1) France Télécom - Orange Labs**

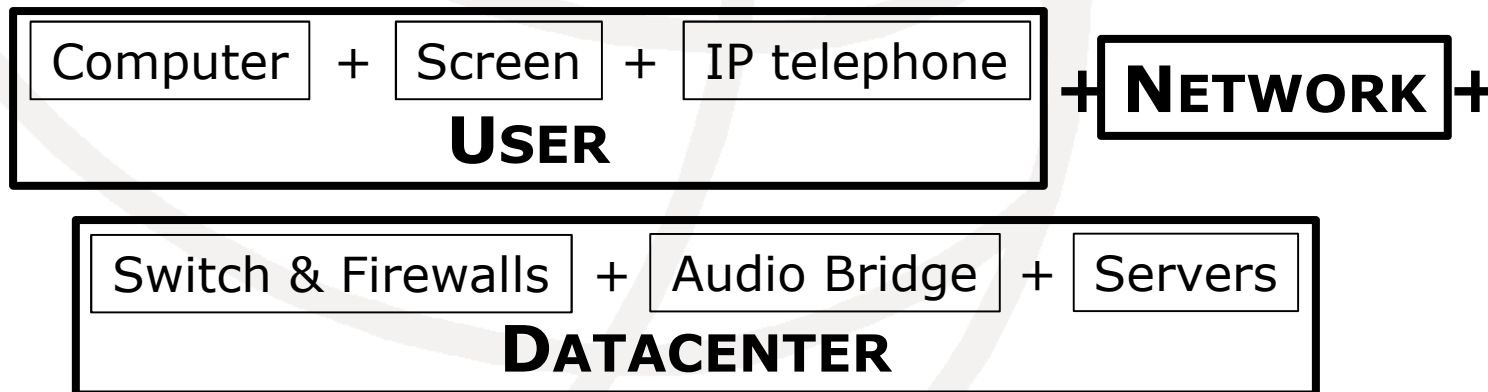
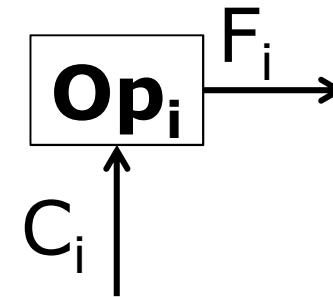
**(2) Université Paris Diderot - IPGP**

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# Method to assess a service consumption

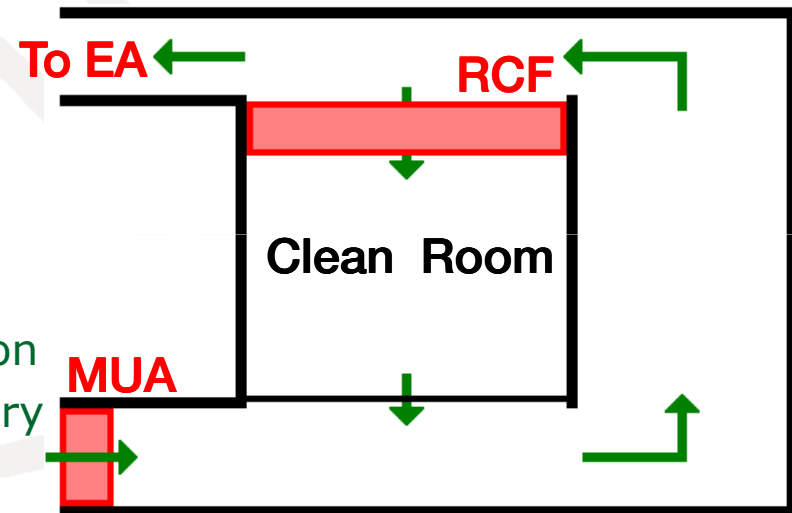
- Method developed by University Paris Diderot to assess the efficiency of energy fields, adapted by France Telecom – Orange Labs to telecommunications
- The service is decomposed in modules studied independently
- For each module, the energy efficiency indicator in the consumption per provided service
- We compare the service of a module with the telecom service



# Study of the lithography factory

- Main consumption of the service: computer fabrication.  
~50%: fabrication of the chips, mainly during lithography [1]  
→ NEED DEEPER STUDY

- Air circuit: main consumption of this phase. Parameters:
  - **Climate** of the place of the clean room (temperature and humidity)
  - Clean room **class / Particles** regulation
  - The production of the lithography factory must be **close to its capacity**



- The consumption of the fabrication of a computer usually used may be overestimated