TELECOM SudParis

INSTITUT POLYTECHNIQUE DE PARIS

DISTRIBUTED SYSTEMS, SOFTWARE ENGINEERING AND MIDDLEWARE

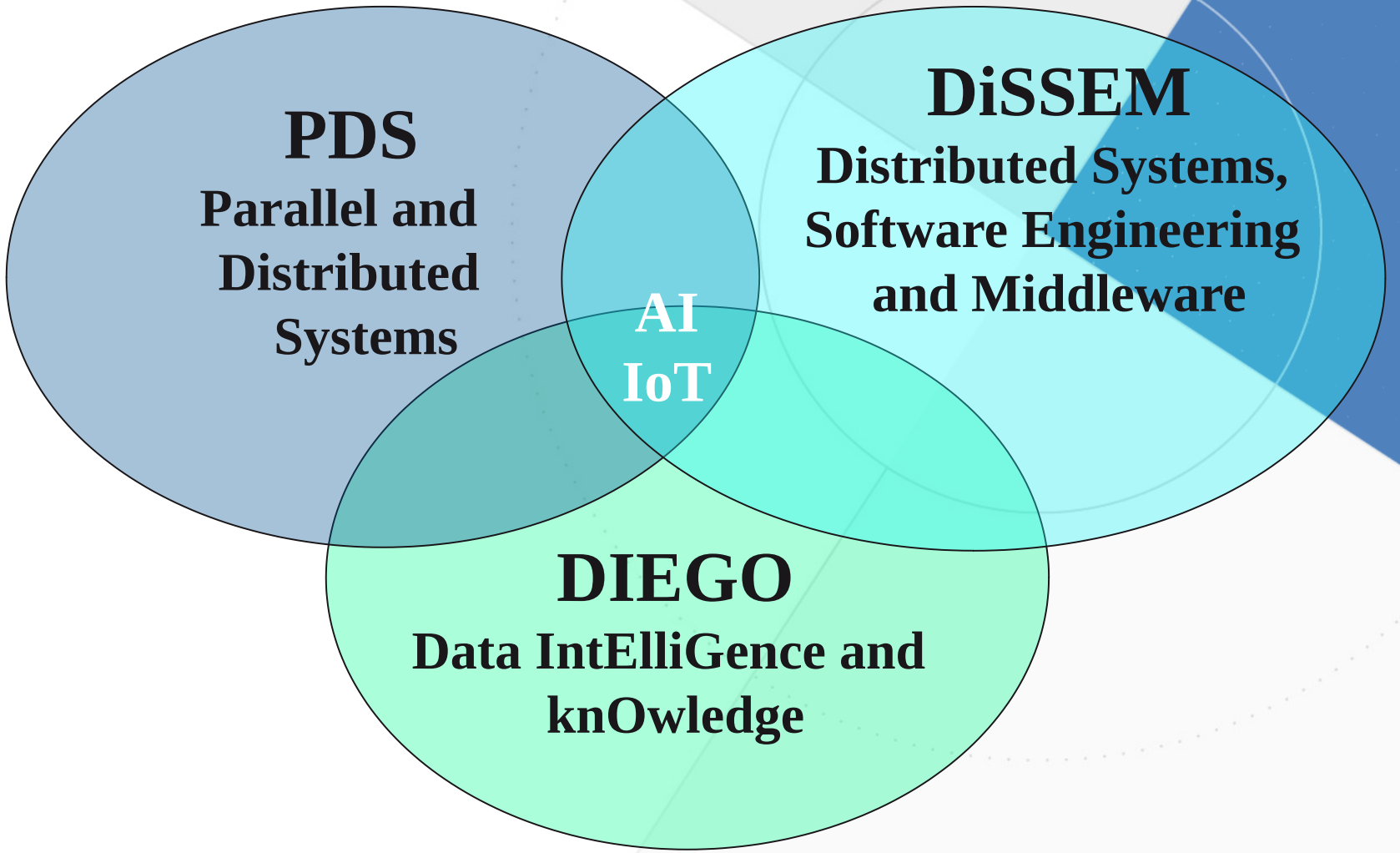
DISSEM GROUP

Institut Mines-Télécom

SAMOVAR/ACMES TEAM
TSP/COMPUTER SCIENCE DEPARTMENT

ACMES TEAM: ALGORITHMS, COMPONENTS, MODELS AND SERVICES FOR DISTRIBUTED COMPUTING

3 GROUPS



DISSEM GROUP

DISTRIBUTED SYSTEMS, SOFTWARE ENGINEERING AND MIDDLEWARE

http://www.inf.telecom-sudparis.eu/departement/dissem

- Hardware and software distributed infrastructures become more and more complex, heterogeneous and dynamic
- **Software engineering** approach for proposing new
  - Middleware
  - Models
  - Abstractions

to facilitate the design and development of distributed applications

MEMBERS

Djamel Belaïd

- Autonomic computing
- Modeling and services for system adaptation
- Hadaptic

Sophie Chabridon

- IoT: Data management, information quality, privacy, ethical aspects
- Middleware, autonomic computing, multi-scalability, self-healing
- MDE, models@run.time

Paul Gibson

- Software Engineering
- Formal Mathematical Modelling/Methods
- Education
- E-voting

Denisse Muñante-Arzapalo

- Software engineering, requirements engineering, MDE
- Cybersecurity, risk analysis

Olivier Berger

- Open source software engineering, Devops, Software quality, reproductibility
- PaaS cloud solutions
- FLIRT: virtual labs for MOOCs

Denis Conan

- Middleware, distributed systems, distributed algorithms, distributed architecture
- IoT, DEBS
- Fault-tolerance

Eric Lallet

- Formal methods
- E-voting
- Hadaptic

Mohamed Sellami

- Service oriented computing
- Business process Management
- Social computing
- Cloud computing, IoT

Georgios Bouloukakis

- Distributed systems
- IoT
- Middleware
- Edge/Fog computing

Walid Gaaloul

- Business Process Management, Process Mining
- Cloud Computing, Service Oriented Computing

Amel Mammar

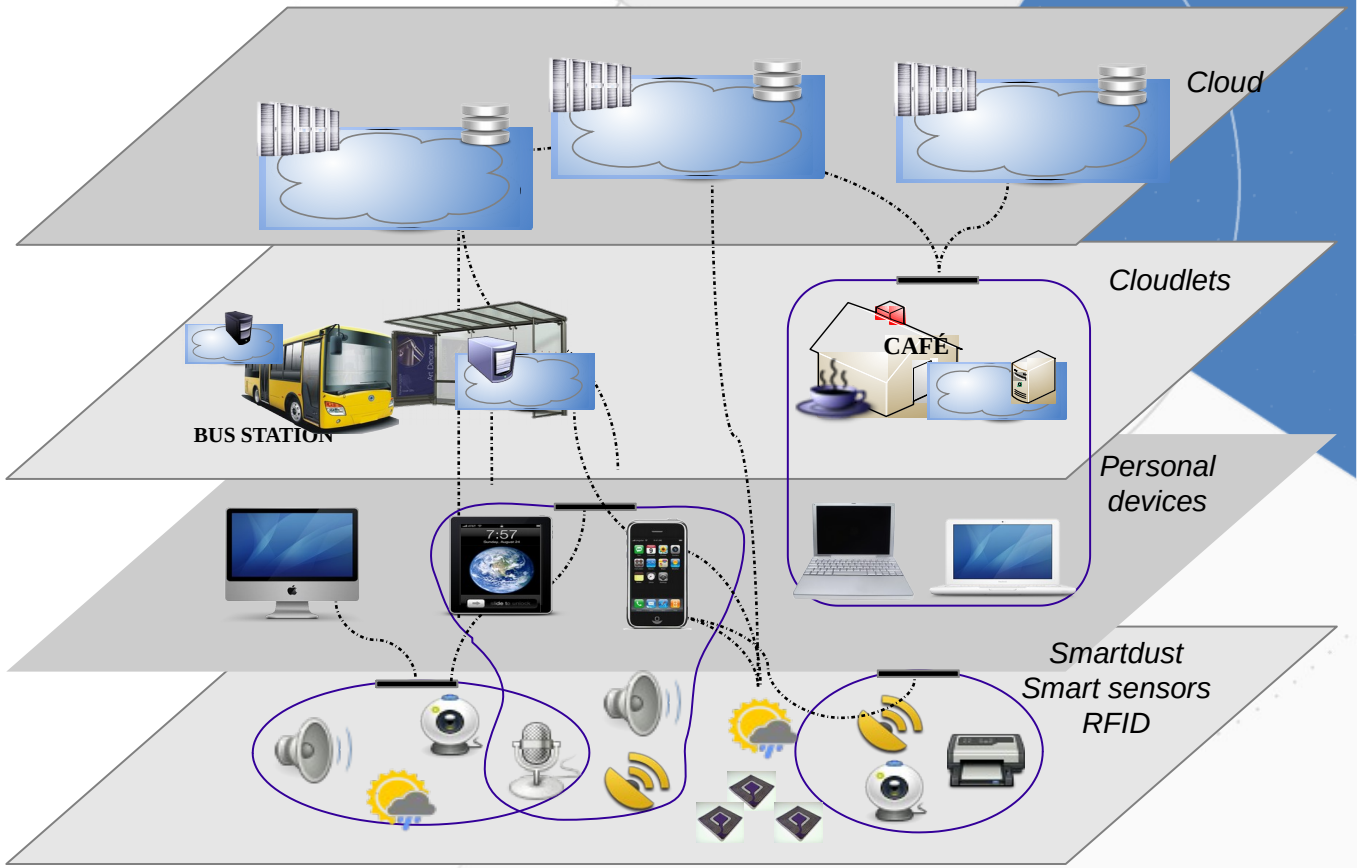
- Formal methods
- Information systems
- Security in transport systems

Chantal Taconet

- Middleware, software abstractions
- IoT platforms with green solutions for client interactions

RESEARCH QUESTIONS

1. How to design, deploy and adapt applications in Cloud, Fog or Edge devices?
2. How to design, deploy and adapt middleware to disseminate data from the IoT at the right scale?



Scientific challenges

- Scalability and multi-scale
- Heterogeneity
- Dynamicity

EXAMPLES OF CURRENT RESEARCH PROJECTS 1/2

Software architecture

- Self-healing microservice-based software architectures

Software engineering

- Model-driven engineering for the cosimulation of Smart Grids
- Requirements driven dynamic adaptation
- Integrating Domain Modeling and Formal Requirements Engineering
- Cyber-physical systems engineering with Formal Methods

Middleware for IoT systems

- Middleware support for energy-awareness in IoT platforms and applications
- Edge-based Data Exchange Infrastructure for Smart buildings
- Enabling Rapid Analysis for IoT Infrastructure Placement

EXAMPLES OF CURRENT RESEARCH PROJECTS 2/2

Cloud computing

- Cost optimization of business processes based on time constraints on Cloud resources
- Restriction-based fragmentation of business processes over the cloud
- Modelling and placement optimization of compound services in a converged infrastructure of cloud computing and IoT

Business processes and the IoT

- Blockchain/Smart contracts for a choreography of processes and IoT services

PUBLICATION COMMUNITY

Journals

FGCS (Future Generation Computer Systems), JISA (Journal of Internet Services and Applications), SCICO (Science of Computer Programming), JNCA (Journal of Network and Computer Applications), Information Systems, Journal of Systems and Software, IEEE Transactions on Services Computing, International Journal on Software Tools for Technology Transfer

Conferences

ACM Middleware, CoopIS, BPM, IEEE ICWS, ACM ICSE, CAISE (Conference on Advanced Information Systems Engineering), RE (Requirements Engineering) conference, IEEE COMPSAC (Intelligent and Resilient Computing for a Collaborative World), IEEE SCC (Conference on Services Computing), ABZ conference (Rigorous State-Based Methods)