

TEAM BOUVRY – YEAR MEETING 2014

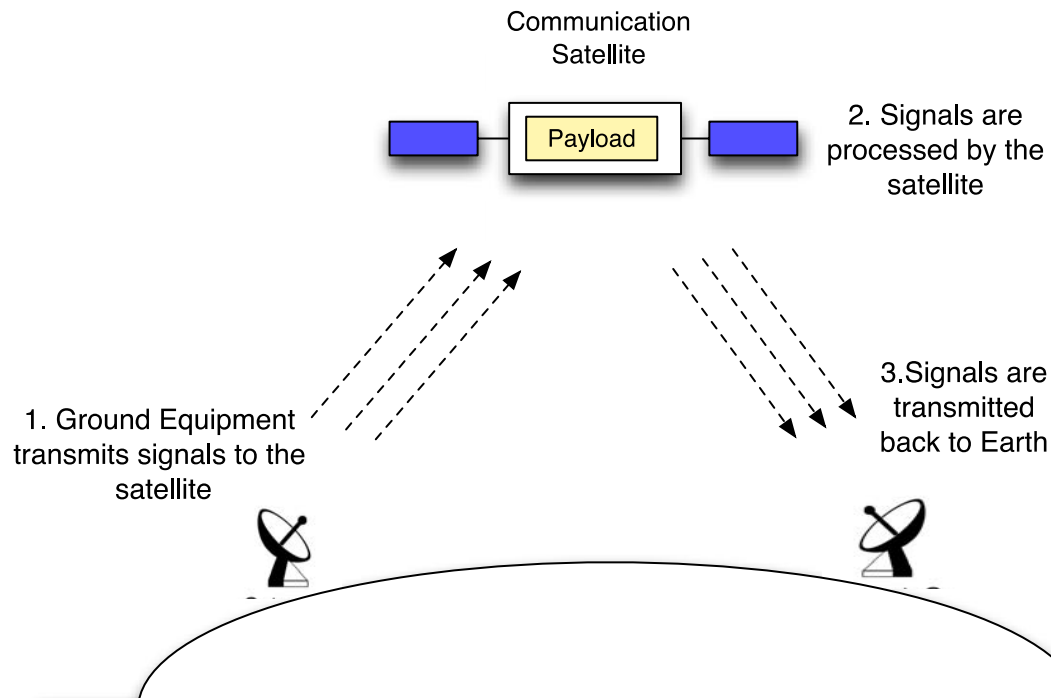


Apostolos Stathakis

A few things about me

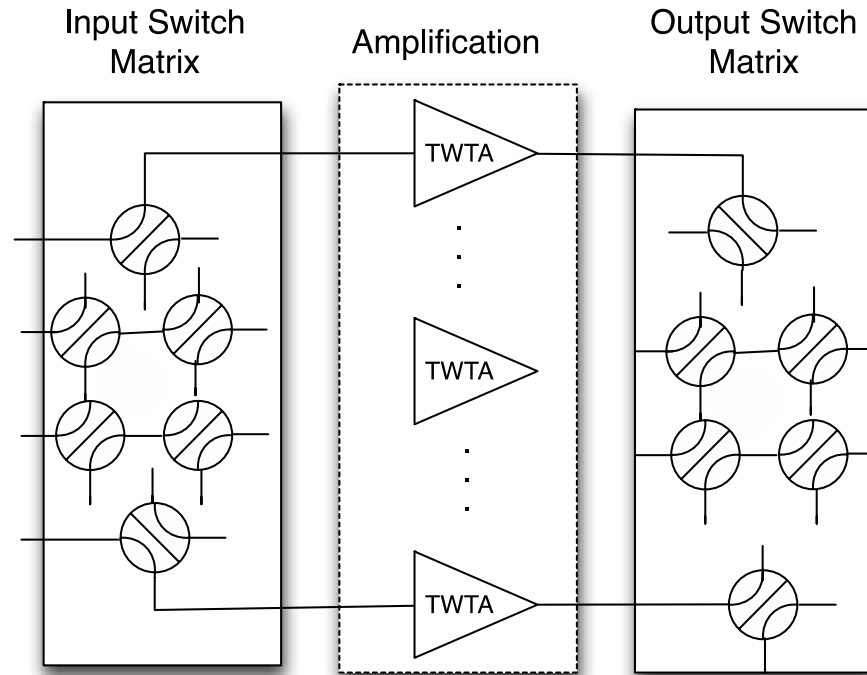
- Master in Information and Computer Sciences, University of Luxembourg
- Member of the team Bouvry since 2010
- PhD completed two weeks ago
- Title of my PhD: Satellite Payload Reconfiguration Optimisation
 - Project in collaboration between Snt and SES S.A
 - Supported by AFR according to PPP (Public-Private Partnership) Framework

General Context of my PhD



- Communication satellites provide services such as Internet, TV
 - The market is rapidly evolving and competitive
- Payload : the main system to perform the satellite mission
 - Reception, amplification, frequency conversion, routing and retransmission of signals

Motivation



- Switch matrices ensure the flexible routing of signals in the payload
- Manual management of payload switch matrices is no longer possible
- Our motivation is to help engineers to reconfigure the switch matrices
 - ❑ Many objectives to reach that can be conflicting
 - ❑ Many technical constraints to satisfy

Contributions

- ✓ We proposed techniques to help engineers on their decision making
- Using Exact Methods
 - Development of optimization model
 - Variants of the model used for all operational objectives and for different payloads
 - Single and Multi-objective
- Using Metaheuristics
 - Single solution, population-based
 - Hybrid Metaheuristics
- Optimisation framework developed in SES
 - Integrates the proposed techniques
 - Interacts directly with payload operations internal tools
 - Applicable on 3 satellites

Conclusion

- Being part of team Bouvry was a great experience for me
 - I thank all team members for the interaction we had
 - Helped me improve my personal and scientific skills

- Special thanks to Pascal and Grégoire

- Next week is my last week at the University of Luxembourg after 6 years
- ✓ Goodbye drink
 - Monday at 18.30
 - Café des Tramways

Thank you