

Parallel Computing & Optimization Group

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Fonds National de la
Recherche Luxembourg

MIXvoip



UNIVERSITÉ DU
LUXEMBOURG

Current Position

- PhD Student at University of Luxembourg (since 1 of Nov 2012)
- Title of the project - **Dynamic MixVoip**

Collaborators

- Alexandru Adrian Tantar (University of Luxembourg)
- Johnatan Pecero (University of Luxembourg)
- Andrei Tchernykh (Computer Science Department, Ensenada, Baja California, México)
- Albert Zomaya (University of Sydney)
- Loic Didelot (MIXvoip S.a.)

Project Details: Dynamic MixVoip

- Collaboration with MixVoIP, a Luxembourg based company specialized in VoIP services
- Application of Particle Algorithms, Load Prediction
- Load Balancing for Cloud based Environments
- Assessment Models and Validation

1st year outcomes

- User profiling, call trend
- Configuration of VM : Asterisk
- Development of prediction model for a given time frame -
Publication
 - “Dynamic MixVoIP”, EVOLVE 2013
 - “Predictive modeling in a VoIP system”, Journal of Telecommunications and Information Technology (JTIT), 2013

2nd year outcomes (1)

- Configuration of VM : Asterisk + SIPP
- Technical specification for building the simulator
- Definition of modules of VoIP environment for load balancing
- State of the art - VoIP Load Balancing
 - Commercial solutions
 - Sandpiler
 - Game Theory

2nd year outcomes (2)

- Development of allocation model for simultaneous calls
 - CPLEX, linear programming;
 - high performance cluster;
 - integration with the prediction;
 - removal of overloaded machines and voice nodes.

Future Work

- Extension of LP algorithm and comparison with existing methods;
- Different scenarios for VoIP traffic (over loaded machines; under loaded machines);
- Analyze of the impact of the time frame considered for prediction over the results;
- Collaboration with Andrei Tchernykh
 - Load Balancing in Cloud for VoIP

