Boosting the Development of ASP-based Applications in Mobile and General Scenarios

Francesco Calimeri **Davide Fuscà** Stefano Germano
Simona Perri Jessica Zangari

15th International Conference of the Italian Association for Artificial Intelligence

Department of Mathematics and Computer Science, University of Calabria, Italy
embasp@mat.unical.it

Motivations

- *Declarative* and *Imperative* languages integration
- *Answer Set Programming (ASP)* technologies are mature for practical applications and used worldwide
- Ease the development of *ASP-based applications*, in both educational and real-world contexts

- ICT industry is moving towards the mobile scenario
- Lack of works about ASP systems natively running on *mobile devices*

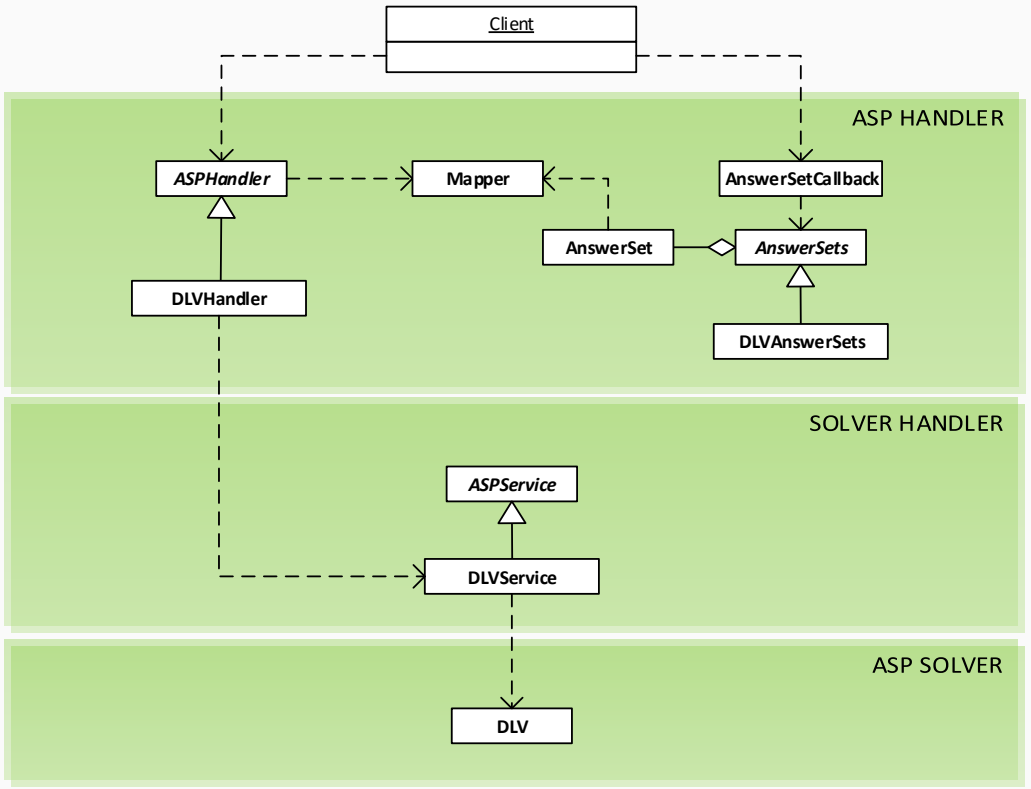
Contributions

- EmbASP: an abstract framework for the integration of ASP in external systems for generic applications
- An actual Java implementation of the framework specialized for the *Android* platform and the DLV system
- *GuessAndCheckers*: a native mobile application using EmbASP

Freely available at:

`https://www.mat.unical.it/calimeri/projects/embasp/`

EmbASP: Embedding ASP



- Layered Architecture
- Separation of Concerns (or Levels of Analysis)
- Native DLV execution on Android

GuessAndCheckers

A ***native mobile application*** that works as an helper for users that play “live” games of the (Italian) ***checkers*** (i.e., by means of physical board and pieces)

GuessAndCheckers

A *native mobile application* that works as an helper for users that play “live” games of the (Italian) *checkers* (i.e., by means of physical board and pieces)

- by means of the *device camera* a picture of the board is taken
- the information about the current status of the game is properly inferred thanks to the *OpenCV* library
- an *ASP-based* artificial intelligence module then suggests the move