

# **A Docking Experiment: Swarm and Repast for Social Network Modeling**

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# INTRODUCTION

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- Docking
  - Verify simulation correctness and subsumption
  - Discover pros & cons of software
- Open Source Software Community
- Agent-based Simulation
  - Swarm
  - Repast

# OSS Network

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- Goals
  - Structure, topology
  - Dynamic mechanisms, evolution
- Two Entities: developer, project
- Actions
  - Create projects
  - Join projects
  - Abandon projects

# OSS MODEL

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- Entity: **developer**
- Each time interval:
  - Random number developers generated
  - New developers: create or join
  - Old developers: create, join or abandon
  - Update preference

# SWARM SIMULATION

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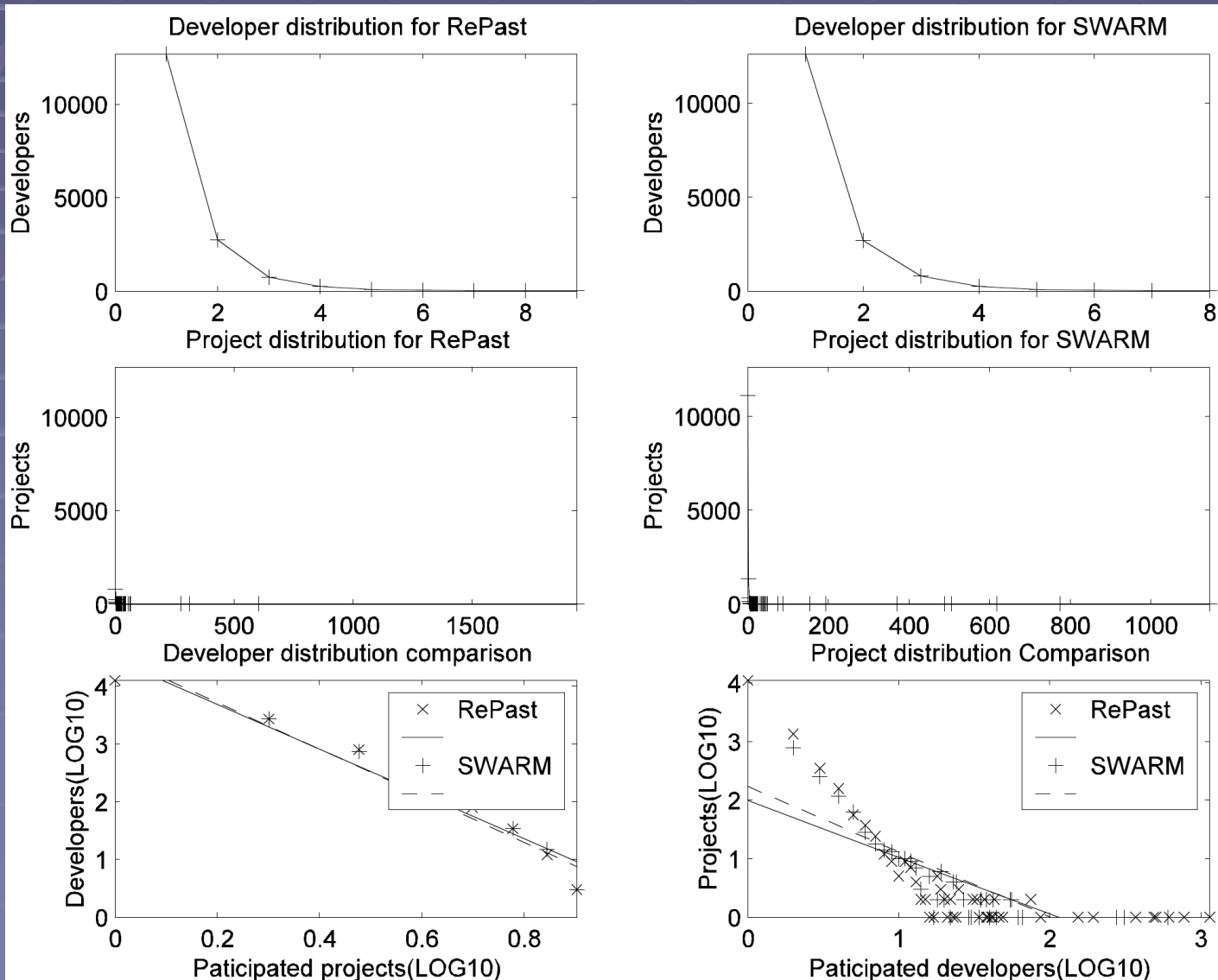
- Agent
  - Developer and properties
- ModelSwarm
  - creates and controls the activities of developers in the model;
- ObserverSwarm
  - collects information and draws graphs

# REPAST SIMULATON

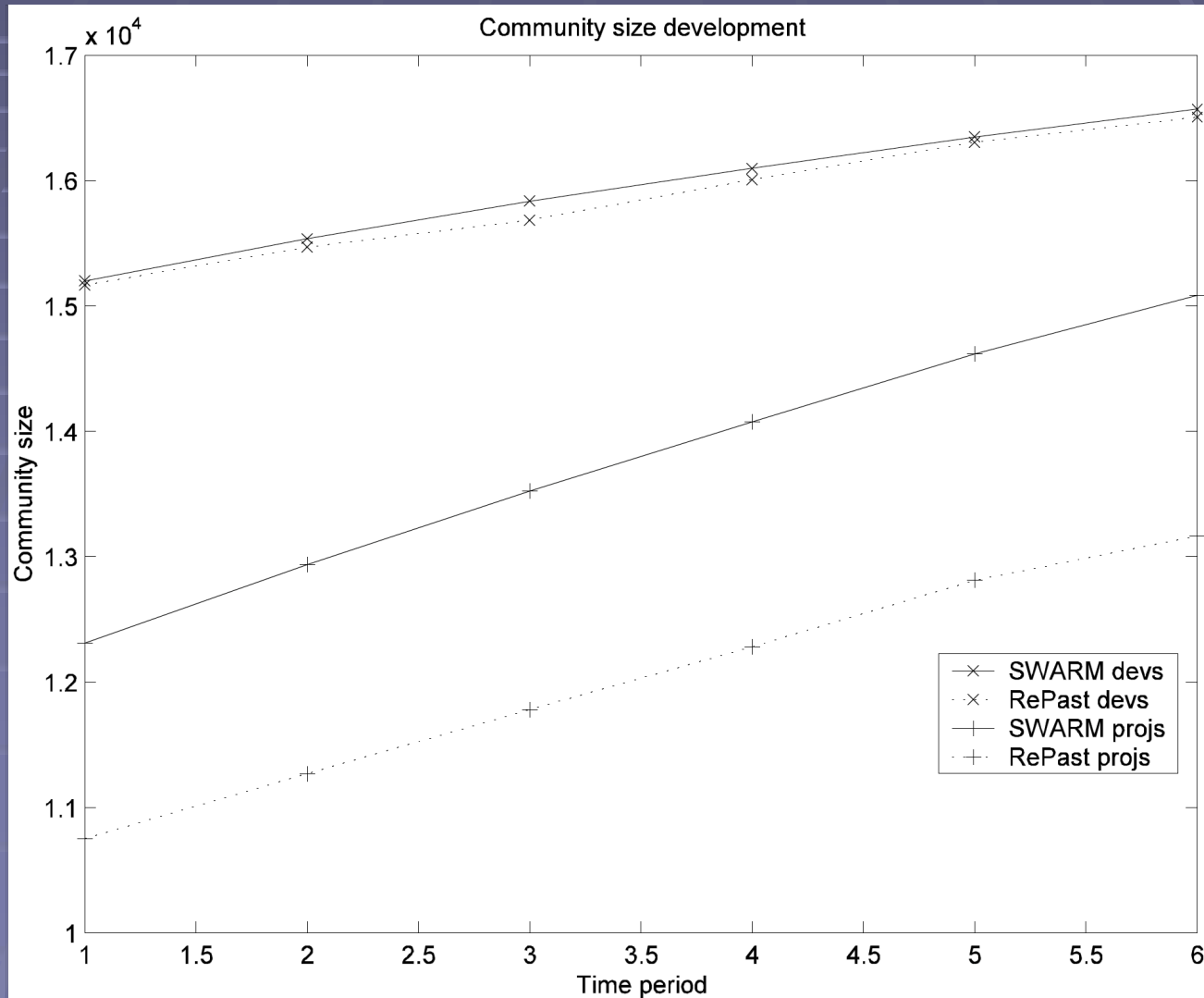
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- Agent
  - Developer and property
- Model
  - creates and controls the activities of developers
  - collects information and draws graphs
    - **Networkdisplay**
    - Movie
    - snapshot

# DEVELOPER DISTRIBUTION

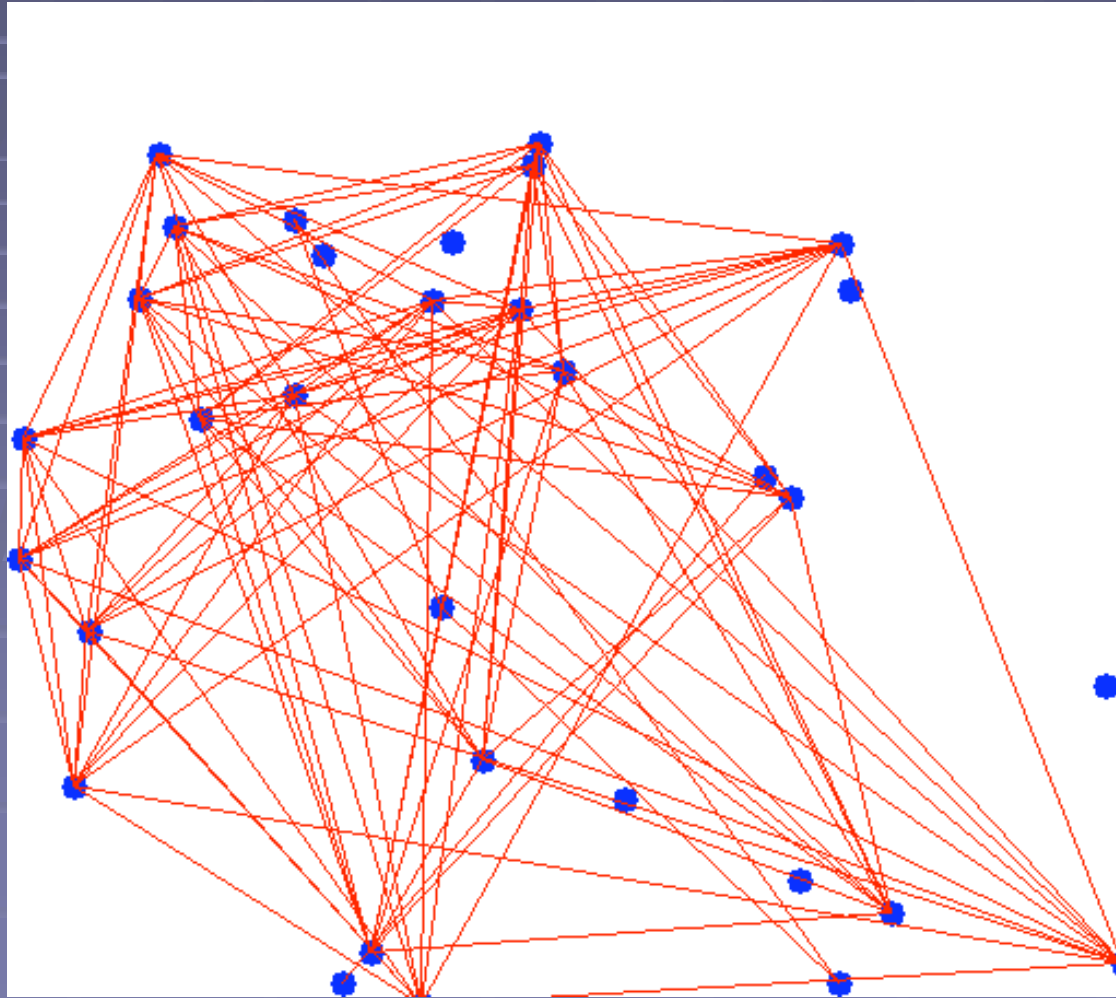


# COMMUNITY SIZE DEVELOPMENT



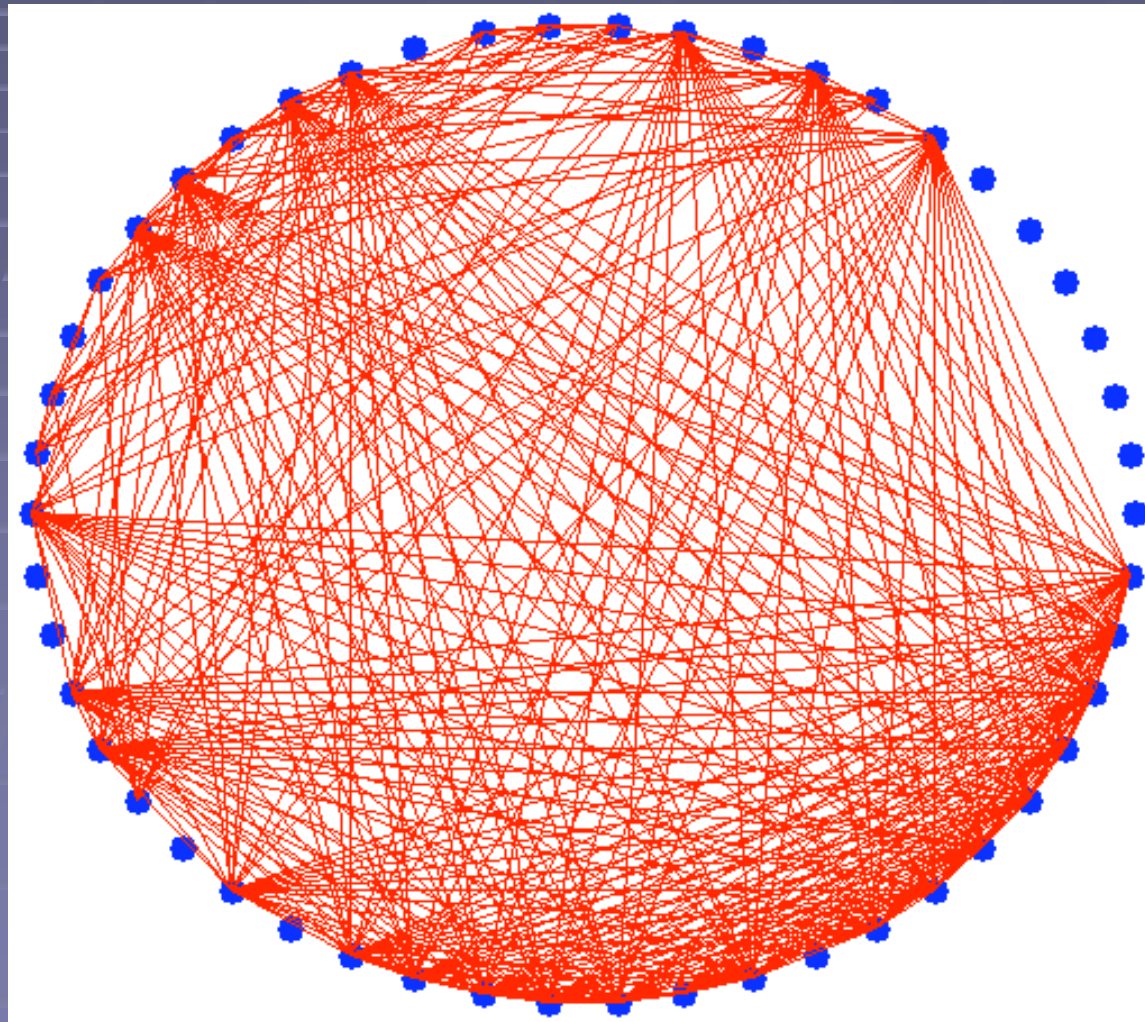
# RANDOM LAYOUT

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# CIRCULAR LAYOUT

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# CONCLUSION

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- Same results for both simulations
- Better performance of Repast
- Better display provided by Repast
  - `networkdisplay`