



# Client-server system for mass recruitment to secondary schools from metropolitan area

Andrzej P. Urbański

Poznań Supercomputing and Networking  
Center & Poznań University of Technology  
Poland

# Dramatic event as a Motivation

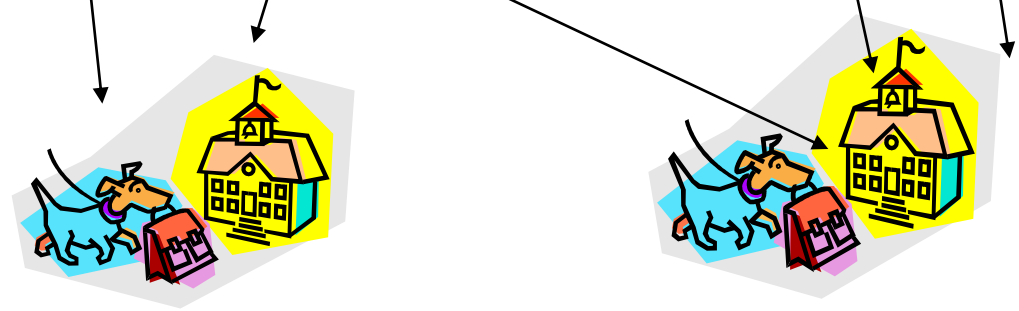
- Recruitment on the basis of certificates only
- but each school calculates points individually
- In 2002 change:  $1 \rightarrow \infty$  admission schools
- In big cities each pupil applies to even ten schools
- The best pupils lock all schools in a city
- and there is no place for the average
- Unlocking continues for weeks causing anxiety

# Recruitment coordination



Candidates

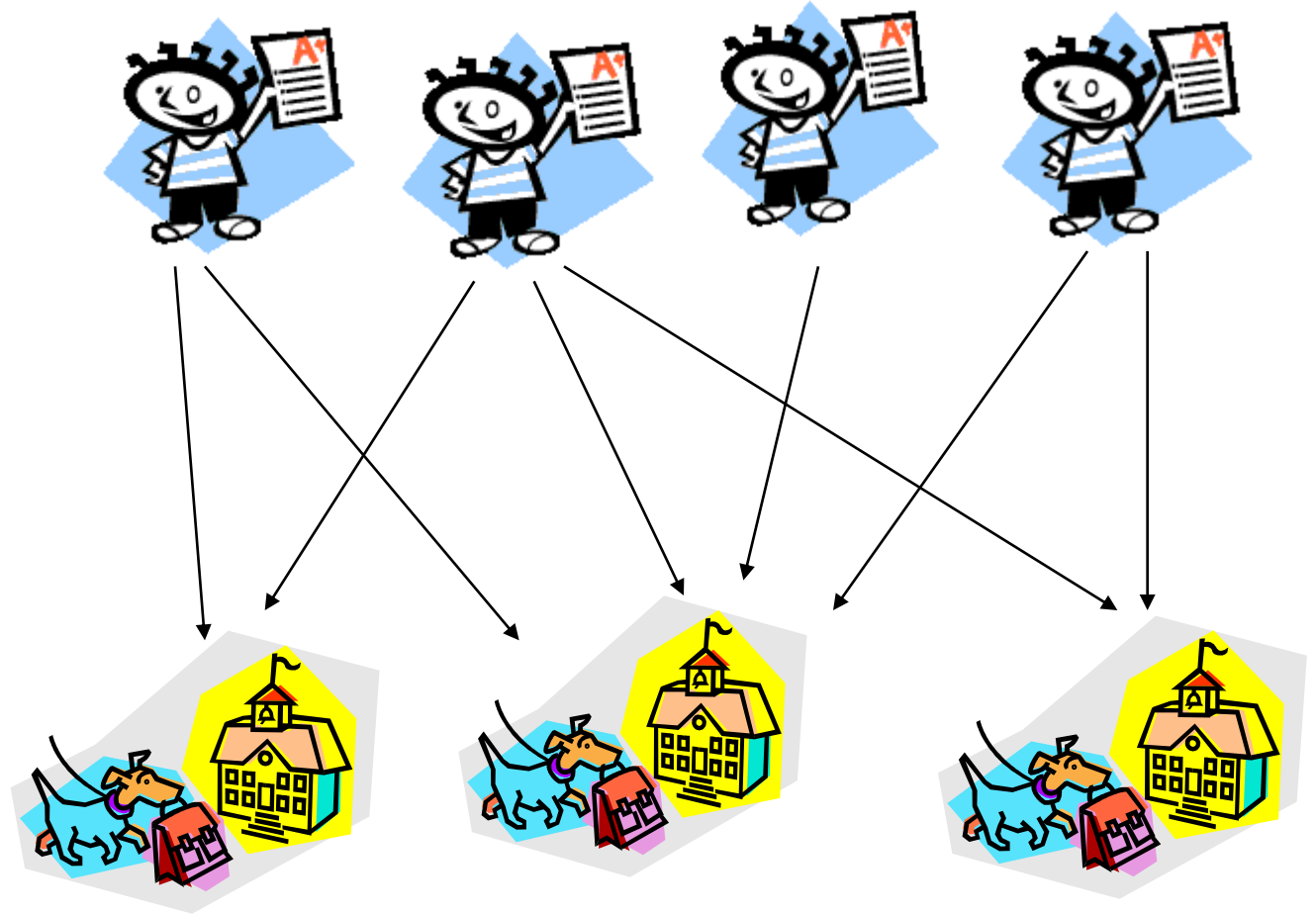
Recruiting



**No problem**

# Recruitment coordination

Candidates



Recruiting

# Research Objectives

- Our objective is to show that efficient and fair mass recruitment requires some sort of coordination
- Proven in 2003 and 2004 practice centralised solution is shown
- A distributed multiagent-based solution for future research is sketched

# Commercial solution modules

- “Inspector”
  - oversees and administers the whole process of recruitment,
  - starts and finishes its individual phases, having access to all data.
  - In this unit the drafting rules of the clauses and personalization of the ration procedure for the whole region are defined.
- “Curator”
  - answers essential problems related to the recruitment;
  - has access to all data stored in the system and also the statistic reports.
- “Operator”,
  - as an employee of a concrete high school, answers the input to system all school data as well as data of candidates who are willing to learn in that school.
- “Candidate”
  - is a pupil of the last junior high school class who contests to get accepted to at least one of the schools in the region.
- “PSNC Service”
  - controls all components of the recruitment systems from the administrative part; it oversees transmission and realizes technical assistance for all users groups.

# Secure data access and management

- “Inspector”, “Operator” and “Curator” – Java applications under „NaborOS” (based on Knoppix, one-disk distribution of LINUX) signed in a unique digital key controlled by the system server
- The “Public” access to data (for candidates) is realized “online” with the use of an Internet browser through a WWW server (separated from the rest of the system), which presents general reports as well as results of the recruitment for concrete candidates through a profiled account.
- The central server connected via the Internet by means of the Polish National Research Network POL 622/PIONIER to workstations located in high schools, the local council and the Curator Office

## Nabór 2004 in practice

- In 2004 we are organizing installations of the Nabór system in five regions: the City of Poznań and its administrative district, Zielona Góra, Szczecin, Białystok and Kalisz.
- Pupils can now use the Internet to
  - prepare their schools preference list
  - read the qualification results



## MultiAgent-based approach

- The Candidate agent – programmed by the candidate to find the satisfying school
- The Recruitment school agent – programmed by school heads to find satisfying candidates

# A simple agent-based algorithm

- **proc** AddToSchool(Cand,School);
- SortedQueue[School].Add(Cand,Rank(Cand));
- **if** SortedQueue.Oversized
- **then begin**
- AddToSchool(SortedQueue[School].LastCand,  
SortedQueue[School].LastCand.NextSchool);
- SortedQueue[School].RemoveLast;
- **end;**
- **end** (\* AddToSchool \*);

## Conclusion and outlook

- no way back to the educational recruitment in secondary schools without an integrated computing system
- all Polish big cities will soon buy such a system which guaranties fairness and efficiency of the recruitment process, and immediately provides statistic data necessary in the recruiting offices
- future of such systems requires much more research even in Agent-based Systems.