Abstract

of attestation master's degree work

subject:

“Investigation of the software for a single-level Grid architecture-based Condor”

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Actuality of work

GRID today is a popular and promising infrastructure that is evolving rapidly. GRID allows you to combine the computing resources of various types, regardless of their location.

The set of implemented and planned projects that are based on this system, allow humanity to evolve and solve emerging problems and in a shorter time than was previously possible. Development of Grid original concept led to the creation of several approaches for the implementation of algorithms, depending on the type of the existing organization and architecture of computing systems - a two-level and single-level architecture.

The use of single-level organization of Grid in enterprise networks is a promising method of using the existing fleet of computers that had accumulated in humanity and is not used in full. Sibling Grid can be an alternative to upgrade computers and renting or buying with the installation of a cluster in any organization that requires more computing resources to perform certain tasks.

Since the time of occurrence of the first projects implemented with the use of GRID, appeared quite a lot of software for single-layer Grid. Existing systems are set up the goal of achieving a single objective - the organization of joint use of available computing resources, but the ways and methods of implementing such systems are different. Therefore, the investigation of software for single-level grid is very urgent problem.

The purpose of work

The aim is to study software for single-layer grid reference to the use of Condor in a segment of the corporate network of the CAD Department, and develop recommendations for selection and use of existing systems to implement GRID-projects.

Tasks solved in work

1. Analysis of single-level grid applications, in terms of tasks, architectural features and patterns of job scheduling.

2. Analysis of existing systems, single-layer grid, in terms of application areas and using the Internet and Intranet networks.

3. Determination of criteria for comparing single-level Grid systems and conduct their relative performance.

4. Formulation of recommendations for selecting a single-level grid system for use in corporate networks, depending on their resources and tasks.

5. Investigating the use of Condor software on corporate networks from the viewpoint of the establishment and maintenance, training, jobs and treatment outcomes.

The achieved results

Solving the problems posed in the paper, the author defends:

- The results of the analysis of single-level organization, in terms of tasks, architectural features and patterns of planning objectives;
- The results of the analysis, architectural features, the model of planning tasks and complex tasks of existing single-layer grid, in terms of global and local networks, comparative characteristic for choosing a single-level Grid software on the criteria necessary for a specific task;
- The results of studies of Condor on the example of its use in a segment of the corporate network of the CAD Department, in terms of establishing and maintaining, preparing assignments and data processing;

- Recommendations for selecting and using software to organize a single-level GRID-infrastructure of corporate networks, depending on its resources and tasks.

Scientific novelty

Scientific novelty of the work lies in the fact that:

- Analyze the use of single-layer grid and means for implementing such systems;
- The advantages and disadvantages of existing software, a single-level grid, the criteria and comparative characteristics;
- develop recommendations on the use of Condor for example, segment a corporate network of the CAD Department.

Practical value

The practical value of the work lies in the fact that:

- defined criteria for comparison of existing single-level Grid systems and comparative characteristics, which can be used for the selection of real software for organizing a one-level grid in a corporate network, depending on its resources and tasks;
- develop practical guidance on setting up a network and use software single-level grid, the example of the use of Condor in a segment of the corporate network of the CAD Department.

Conclusions

1. Analyzed the features and architectural decisions on the organization of Grid, the area of its use.
2. Analyzed the main applications of Grid sibling, in terms of tasks, architectural features and patterns of job scheduling.

3. The main currently existing systems for organizing a single-level grid and identified their strengths and weaknesses in terms of tasks, architectural features and patterns of job scheduling.

4. Defined criteria and comparative characterization of single-level Grid software, for the practical choice under certain conditions of use.

5. Investigated the Condor system as an example of its application in the segment of the corporate network of the CAD Department, in terms of the establishment and maintenance, training, jobs and treatment outcomes.

6. The recommendations on the use of single-level Grid software, depending on the class of tasks.

The paper on 92 sheets contains a 1 table, 8 illustrations, 19 sources.

Keywords: GRID, single-level GRID, desktop GRID computing, comparative characteristics, Condor, corporate network.