R E V I E W

by Acad. Ivan P. Popchev – BAS

of dissertation for acquiring the educational and scientific degree "Doctor"

In professional direction 4.6 "Informatics and computer science"

Doctoral Program "Informatics"

Titled: **"Recovery of information arrays in a cloud environment"**

by **Rosen Petrov Hristev**

By order № РД-21-2230/27.11.2023 of prof. Rumen Mladenov, PhD – Rector, in accordance with Act on Development on the Academic Staff in the Republic of Bulgaria and by decision of the Faculty Council of the Faculty of Mathematics and Informatics in connection with the procedure for acquiring the educational and scientific degree "Doctor" in professional direction 4.6 "Informatics and computer science" Doctoral Program "Informatics" by Rosen Petrov Hristev with a PhD thesis on "Recovery of information arrays in a cloud environment", I am appointed a member of the Scientific jury.

For the evaluation of the dissertation paper, the conditions of the Act on Development of Academic Staff in the Republic of Bulgaria (ADASRB) and the Regulation on the Implementation of the Development of Academic Staff in Republic Act (RIDASRBA) (Decree № 202 of 10.09.2010, amend and suppl. SG 15/19 February 2019) will therefore be accurately transmitted:

1. Pursuant to Art. 6 (3) of the ADASRB "The dissertation paper must contain scientific and applied science results being and original contribution to science. The dissertation paper must show that the applicant got deep theoretical knowledge in the respective speciality and the capacity for independent scientific research".
2. According to Art. 27 (2) of the RIDASRBA "The dissertation paper must be presented in a form and volume corresponding to the specific requirements of the primary unit. The dissertation paper must contain: a title page, contents, introduction, presentation, conclusion – summary of the obtained results with declaration for originality, bibliography.

The **scientific supervisor** of the dissertation is prof. Angel Golev, PhD.

The objective of the dissertation thesis on p. 7 is: to (A) to create a method for integrating cloud services into an existing infrastructure, as well as (B) develop methods and tools for recovering deleted information sets among with previous versions of files stored in a cloud infrastructure.

The tasks on p. 8 are:

1. Research and classification of data threats withing IT infrastructure clusters.

2. Study of storage and approaches for information arrays within IT infrastructures.

3. Analyse the possibilities of recovering deleted data from IT infrastructure.

4. Analyse possibilities of recovering previous versions of files.

Focused at the goal and the tasks, the dissertation paper, in the volume of 113 pages includes:

Contents (1-2).

List of figures (3).

List of tables (4).

List of abbreviations (5-6).

Introduction. Dissertation paper's objective and tasks (7-9).

Data storage and security threats in IT structures (**Chapter 1**, 10-46).

Access to data stored in IT infrastructures (**Chapter 2**, 47-66).

Recovering deleted and overwritten data in IT infrastructures (**Chapter 3**, 67-99).

Conclusion (100-101).

Summary of the contribution obtained (102).

Future work (103).

Approbation (104).

List of author's publications on the dissertation thesis (105).

Declaration for originality (106).

Bibliography (107-113).

The bibliography covers 72 titles.

On page 105 are "**List of author's publications on the dissertation thesis**". An analysis of these publications shows the following:

- 2 publications are in Scopus, SJR (No.No. 1 and 2);

- 1 publication is in Eurasia Proceedings (No. 3).

All publications are co-authored.

The presented **"List of noticed citations"** includes total 4 citation.

The conditions of the RIDASRBA for the educational and scientific degree "Doctor" in 4.6 Computer Science and Informatics have been fulfilled.

Pursuant to Article 6 (3) of the ADASRB "**the dissertation thesis must contain scientific and applied science results being an original contribution to science**". In the dissertation paper

(p. 102) are formulated contributions, for which it is not determined whether they constitute an original contribution to science.

In short, the **results** in the dissertation can be systematized as follows:

1. An analysis of the types of threats leading to the loss of information arrays in IT infrastructures.
2. A method MICI facilitating the transition from a standard infrastructure to cloud data storage.
3. A method RDSC has been developed for the recovery of deleted and overwritten data stored in a cloud infrastructure. Scripts have been created to automate the method.
4. A method RVSC has been developed for restoring previous versions of files stored in cloud infrastructure. Scripts have been created to automate the method.

Critical remarks:

1. According to Art. 6 (3) of ASRBA "the dissertation must contain scientific or scientific-applied results", not "contributions".
2. In the dissertation are publications written incompletely. For example: no pages, ISSN or ISBN, etc.

Questions on the dissertation paper:

1. According to Art. 6(3) of ASRBA, what exactly are the "scientific or scientific-applied results that represent an original contribution to science"?
2. Why on p. 102 the publications are 3, but in bibliography are 5?

The **abstract** is in Bulgarian and English.

Conclusion

The dissertation paper meets the conditions of the ADASRB and RIDASRBA.

I give a positive conclusion for acquisition of the educational and scientific degree "Doctor" of **Rosen Petrov Hristev**.

I propose to the Scientific Jury to vote unanimously on Rosen Petrov Hristev the educational and scientific degree "Doctor" on professional direction 4.6 "Informatics and computer science", Doctoral Program "Informatics".

14.12.2023

Reviewer: ....

/Acad. Ivan P. Popchev/