STATEMENT

From prof. Georgi Tuparov, PhD,

Department of Informatics at New Bulgarian University

on a dissertation work for the acquisition of the educational and scientific degree "Doctor" in the field of higher education 4. "Natural sciences, mathematics and informatics", professional field 4.6 "Informatics and computer sciences", doctoral program "Informatics"

Author of the dissertation: Rosen Petrov Hristev

Topic of the dissertation: Recovering Information Arrays in a Cloud Environment

By order of the Rector of the Plovdiv University "Paisii Hilendarski" (PU) No. RD-21-2230/27.11.2023, I have been appointed as a member of the scientific jury for the defense of Rosen Petrov Hristev, a doctoral student in the professional field "Informatics and Computer Sciences", doctoral program "Informatics" for awarding the educational and scientific degree "Doctor".

My opinion has been prepared on the basis of the ZRASRB, the Rules for the implementation of the ZRASRB (PPZRASRB) and the Regulations of PU for the implementation of the ZRASRB (PRASPU).

The submitted documents for the procedure, the dissertation work and the abstract meet the requirements of the ZRASRB, PPZRASRB and PRASPU.

Doctoral student Rosen Petrov Hristev was enrolled in the doctoral program of the Department of Computer Technologies of the Faculty of Mathematics and Informatics in 2019 and was awarded with the right of defense in due course in 2022 by the same faculty.

The dissertation is written in Bulgarian and has a total volume of 114 pages. The main text consists of three chapters, including 14 figures and two tables, a statement of claims for contributions, a list of author publications and a list of references. The literature used includes 81 sources, of which three are in Cyrillic, and the rest - in English, of which 15 are Internet resources. The sources are correctly cited in the text of the dissertation. In general, up-to-date literary sources were used, which shows that the doctoral student knows well the current state of the issues of the dissertation work.

Relevance of the problem, main goal and tasks of the dissertation work

The entry of information technologies into all spheres of life has caused an exponential increase in the data generated, processed and stored in the process of functioning of any modern

organization. Currently, data is among the most vulnerable resources of the IT infrastructure, and its secure storage and protection from unauthorized access is of critical importance for the functioning of the information society. Beyond the standard issues related to natural disasters, human error, faulty hardware, software bugs, new ones arise related to malware attacks. All this requires the development of new approaches and methods to ensure data protection and recovery in the conditions of the increasingly widespread penetration of cloud services for data storage and processing.

The main goal of this dissertation is to develop:

- a method for deploying cloud into an existing infrastructure, and
- methods and tools for restoring deleted information arrays and previous versions of files stored in cloud infrastructure.

I find the topic of the dissertation to be completely up-to-date, and the set goal of the research and the tasks formulated for achieving this goal to be adequate and in line with the rationale for the relevance of the researched problems.

Dissertation contributions

The doctoral student has presented his claims for contributions in the dissertation, which I will take the liberty of reformulating as follows and classifying them as scientific-applied (1-4) and applied (5):

1. An analysis of the main types of threats that lead to the loss of information arrays in modern IT infrastructures was carried out.

2. A method has been created to move from standard infrastructure to cloud data storage.

3. A method for restoring deleted and overwritten data stored in cloud infrastructure has been developed.

4. A method has been developed to restore previous versions of files stored in cloud infrastructure.

5. Created scripts to automate the application of the methods in contributions 3 and 4.

Reliability of the obtained results

Based on the presented materials, I can accept the obtained results as reliable.

Publications that reflect the dissertation work

Three publications were made on the dissertation. Two of them (2 and 3 according to the

list) were published in journals indexed in Scopus, the first of which was with SJR. At the moment (January 4, 2024) the publication placed at number 1 in the list of publications cannot be found in Scopus and Web of Science neither by the names of the authors, nor by its title, nor by DOI, and for it the doctoral student should not to have claims for indexation under PPZRASRB. However, with the two indexed publications, the doctoral student fulfills the scientometric indicators requirements for obtaining the educational and scientific degree "Doctor".

Critical notes and recommendations

I recommend the doctoral student to continue with publications in indexed scientific publications in accordance with the scientometric requirements in professional field 4.6 "Informatics and Computer Sciences".

Abstract

The abstract consists of 32 pages. It has been prepared in accordance with the requirements of the ZRASRB and PPZRASRB. As a content, it sufficiently accurately and fully reflects the content and results of the dissertation work.

Conclusion

Dissertation work, abstract and publications submitted for review meet the requirements of ZRASRB, PPZRASRB, PRASPU, and no plagiarism was found in them. My assessment of them is positive.

The achieved scientific-applied and applied results give me reason to recommend to the respected scientific jury to award to Rosen Petrov Hristev the educational and scientific degree "Doctor" in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.6 Informatics and Computer Sciences.

January 4, 2024   Referee:

                                                          Prof. Georgi Tuparov, PhD