

S T A T E M E N T

By Prof. Asen Kanchev Rahnev, PhD

Of a dissertation on the topic of

“Recovery of information arrays in a cloud environment”

**Author of the dissertation: Rosen Petrov Hristev
for awarding the educational and scientific degree “Doctor”**

**Field of higher education: 4. Natural sciences, Mathematics, and Informatics;
Professional field 4.6 Informatics and Computer Science**

Doctoral program: Informatics

By order № RD-21-2230/27.11.2023 of the Rector of the University of Plovdiv “Paisii Hilendarski” (PU), I have been appointed a member of the Scientific Jury to participate in a procedure for the defense of a dissertation on the topic of “Recovery of information arrays in a cloud environment” for acquiring the educational and scientific degree “Doctor” in field of higher education 4. Natural sciences, Mathematics, and Informatics; professional field 4.6 Informatics and Computer Science, doctoral program: Informatics. The author of the dissertation is Rosen Petrov Hristev - a full-time doctoral student at the Department of Computer Technologies with scientific supervisor Prof. Angel Atanasov Golev, PhD, University of Plovdiv.

In my capacity as a member of the scientific jury, I have received the full set of materials on electronic media from Rosen Petrov Hristev in accordance with Art. 36 (1) from the Law on the Development of the Academic Staff of PU.

The dissertation “Recovery of information arrays in a cloud environment” developed by Rosen Petrov Hristev presents in a finished form the results of an in-depth study in a topical area. The dissertation consists of 113 pages and contains: an introduction, three chapters, a conclusion, development perspectives, contributions, publications, an approbation, and a bibliography including 72 sources.

The processes of digitization and data storage make servers for storing information arrays very common. The topic becomes particularly relevant after 2020 in connection with the Covid-19 pandemic.

The aim and objectives of the study are well defined in the introduction. The aim of the study

is clearly formulated: To create a method for deploying a cloud in an existing infrastructure, and to develop methods and tools for recovering deleted information sets and previous versions of files stored in a cloud infrastructure.

The doctoral student has good theoretical training, practical skills and experience with the technologies necessary to achieve the goal of the dissertation work.

Chapter One contains a study and analysis of data storage methods in a modern IT infrastructure. The differences between public and private clouds are discussed. Some of the threats in information sets that lead to data loss are analyzed. Chapter Two examines the methods of accessing information arrays in IT infrastructures. The main differences in storing and accessing data stored in standard and cloud infrastructures are analyzed. Developed an authored method for integrating cloud infrastructure into existing infrastructure and migrating from standard infrastructure to cloud data storage. The method has been approbated in various sizes of real IT infrastructures. In Chapter Three, the possibilities of recovering deleted and overwritten information sets stored in cloud infrastructures are discussed. In this context, two authored methods have been developed, to recover deleted and overwritten data stored in a cloud environment and to recover previous versions of files. The author scripts have been created to automate both methods. These methods and scripts are important tools for recovering data in cloud environments and contribute to greater security and resilience of data stored in cloud infrastructures. The main results of the dissertation are resumed in the conclusion. The relationships between the contributions, aims, objectives of the dissertation and the publications made are clearly described in a table. Prospects for future development are also briefly noted as opportunities for continued research on the topic.

The PhD student has submitted a list of 3 publications on his dissertation, refereed in SCOPUS, 2 of them with impact rank, which satisfies the minimum national requirements for the educational and scientific degree "Doctor". The publications are in English.

Part of the results obtained in the study have been used in 3 university and one national scientific project. Rosen Hristev presented his work at 4 international conferences related to the research results.

The abstract of the dissertation is submitted according to the requirements in Bulgarian and English, in the amount of 32 pages, and in terms of volume and content it meets the requirements for complete and concise reflection of the dissertation thesis.

I have known Rosen Hristev since 2014, when as a student he was employed as a system administrator in the UKZ unit at FMI at PU. Even then he impressed me with his knowledge. Rosen Hristev is a responsible colleague who can work in a team. He actively participates and assists in the organization at FMI of scientific forums, school and student competitions and olympiads and other events.

I recommend the PhD student in his future scientific work to publish his results in specialized informatics journals and proceedings of scientific conferences indexed in WoS, Scopus, IEEE.

Conclusion: My assessment of Rosen Petrov Hristev's dissertation thesis, abstract, scientific publications, and scientific contributions is positive.

The presented dissertation fully complies with the requirements of the Act for the Development of the Academic Staff in the Republic of Bulgaria, the Rules for the Implementation of the Act for the Development of the Academic Staff in the Republic of Bulgaria, the Law on the Development of the Academic Staff of the University of Plovdiv, and the specific requirements of the Faculty of Mathematics and Informatics at the University of Plovdiv "Paisii Hilendarski" for the acquisition of the educational and scientific degree "Doctor".

The achieved results give me a reason to confidently propose to award the educational and scientific degree "Doctor" to Rosen Petrov Hristev in field of higher education: 4. Natural sciences, Mathematics, and Informatics; professional field: 4.6 Informatics and Computer Science, doctoral program: Informatics.

03.01.2024
Plovdiv

Reviewer:

/Prof. Asen Rahnev, PhD/