

OPINION

By prof. DSc. Boris Ivanov Evstatiev,

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on a dissertation thesis for awarding the educational and scientific degree “Doctor”
in professional field 5.3 “Communication and computer engineering”, doctoral
program “Computer systems, complexes and networks”.

Author: Iliyan Grozdanov Iliev

Topic of the dissertation thesis: Optimizing the transition from asset
management to service management in complex federated systems in the public
sector

1. General description of the abstract for the dissertation work

The submitted dissertation includes an introduction, five chapters with conclusions at the end, general conclusion, contributions, opportunities for future research, a list of publications on the dissertation, a list of known citations and references in a total volume of 153 pages.

2. Relevance of the problem

The topic of the dissertation is related to the optimization of the transition from asset management to service management in complex federated systems. It is aimed at providing potential solutions to limit the consequences of exiting problems related to the uneven development of the communication infrastructure on the territory of Bulgaria and the subsequent limitations in the quality of the services provided in some regions. All this shows that the topic is particularly relevant both for Bulgaria and for other countries in which the same patterns are observed.

3. Knowing the status of the problem

In the first chapter of the dissertation, the author makes a brief retrospective of the development of communication technology in Bulgaria, analyzes the features of federated systems, basic communication services, etc. The total number of references

is 127, which indicates a good knowledge of the issues under consideration.

4. Approach and solution to the problem

The methodology of the dissertation follows a clearly expressed logical sequence, including: analysis of the state of the problem; analysis of methods for protecting communication services and the influence of random number generators; analysis of methods for accessing streaming content; development of a concept for service management in complex federated systems; development of an architecture that allows optimizing the transition from asset management to service management; analysis of the problems that can be solved based on the proposed approaches.

5. Reliability of the results obtained

For quantitative and qualitative assessment of the various problems and proposed solutions, different software tools, such as Wireshark and Python, as well as the built-in capabilities of operating systems and routers in a simulated or real environment, have been used. The main contributions of the dissertation work are presented in publications indexed in world-renowned databases. All this is an indicator of the reliability of the results obtained.

6. Main contributions

In general, I accept the views of the doctoral student on the contributions of the dissertation, which have a scientific-applied and applied nature. The scientific-applied contributions include the developed concept for the transition from asset management to service management, the proposed architectures for VoIP, federated AIS cloud architecture and architecture for providing administrative and computing services, as well as the proposed methods for secure video streaming. The applied contributions include the analysis of cryptographic risks and methods for generating random numbers.

The indicated contributions are significant for science and technology and can be attributed to the following groups: enrichment, specification and refinement of existing scientific knowledge; application of existing methods for solving a specific

problem.

7. Publications on the topic of the dissertation and personal contribution of the author

The publications on the dissertation are 6: 3 of them are indexed in Scopus and/or Web of Science. In 4 of the publications, the doctoral student is the first author, and in 2 others – the third, which shows that the doctoral student has personally contributed to the results obtained. Four of the publications have been presented at international scientific conferences, in particular the International Conference on Communications, Information, Electronic and Energy Systems (CIEES) and the Annual Meeting of the Bulgarian Section of SIAM, while two others have been published in the journal *Information & Security: An International Journal*.

The total number of points from publications on the dissertation is 50, while the minimum national requirements expect 30 points, which means the requirement is met and exceeded.

8. Using the results obtained in practice

This dissertation focuses on solving existing problems in the telecommunications systems in Bulgaria. The results obtained provide an opportunity to improve the quality of the Internet and VoIP services offered by providers in some regions of Bulgaria, where the infrastructure is less developed. That is why I believe that they are of significant interest for practice.

9. Critical notes and recommendations on the dissertation

I have the following remarks and recommendations to the doctoral student:

- Do not use expressions such as "... I will elaborate on...", "We are talking about...", "They operated on the market...", "The first chapter traced...". In the Bulgarian scientific literature, it is accepted impressions to be made in an impersonal form.
- Some figures are difficult to read due to their small size (for example, 1.11, 1.12, 1.13, etc.). I recommend to increase their size by stretching them to the width of the page.
- Section "1.5.1. Criteria for optimizing the transition to service management" should be moved to Chapter 5 of the dissertation.
- The equations should be numbered.

- The thesis should be formatted identically everywhere. For example, on page 54, the first and second paragraphs do not have a left margin.
- It is accepted that the table captions should be placed above the tables.
- I think that Fig. 3.8 is redundant and should be removed.
- There is a subsection 4.2.1, but no 4.2.2. In such a situation, item 4.2.1 should be integrated into 4.2.
- When using Harvard citation style, sources without a year (such as websites) should be cited with the addition "n.d." (abbreviated from "no date") instead of a date. For example, "(GPU Accelerated Data Science, n.d.)".

10. Conclusion

Despite the remarks and recommendations made, I believe that the dissertation entitled "Optimizing the transition from asset management to service management in complex federated systems in the public sector" meets the requirements of the Act on the Development of Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, and also the Procedural Rules for the Acquisition of Scientific Degrees and Occupancy of Academic Positions of IICT-BAS.

Therefore, I give a positive assessment of the dissertation and propose that Iliyan Grozdanov Iliev be awarded the educational and scientific degree "Doctor" in the scientific specialty "Computer systems, complexes and networks", professional field 5.3. Communication and Computer Engineering.

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