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Г. Абоах, Р. Рувімбо, В. Соболь, А. Луцків канд. техн. наук; доц.

(Тернопільський національний технічний університет імені Івана Пулюя, Україна)

ПОБУДОВА ЗАХИЩЕНИХ ХМАРНИХ СЕРЕДОВИЩ ОПРАЦЮВАННЯ ДАНИХ

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H. Aboah, R. Ruwimbo, V. Sobol, A. Lutskiv, Ph.D.; Assoc. Prof.

DEVELOPMENT OF SECURED CLOUD DATA PROCESSING ENVIRONMENTS

Nowadays the main part of data processing is held in different cloud services. These cloud services could be based on private, public or hybrid clouds. Usually government organizations trying to use private clouds which caused by national laws and government regulations. Secure cloud should guarantee CIA triad: confidentiality, integrity and accessibility.

To build really secured cloud solution cloud engineers should use different meanings and tools on all of the phases of design, development, deployment and usage. All details should be taken into account:
- the physical and geographical location of the data center;
- servers' hardware peculiarities;
- computer networks in all layers of TCP/IP stack;
- operating systems and all system software components and utilities;
- applied and server software;
- underlying services of third-party organizations;

and also the most important human factor.

To not forget about all of these details Cloud Security Alliance designed document[1] which could be treated as a check-list for security engineers and contains the list of all mentioned factors in details. Engineers should follow best practices and recommendations while developing and support cloud solution. These practices usually written by different government and non-profit international alliances. Very important to underline that these guidelines are dictated by practice and not by some business interests.

Important to understand that one of the highest is a risk which could be caused by human factor. This factor risk prevention can be achieved by different technical and legal measures. Also we have to understand that these measures decrease comfortable usability of the system: complicated passwords, two-factor authentication, different limitation etc. While developing software parts important to acknowledge with the Open Web Application Security Project guidelines and best practices. OWASP also suggests different tools to audit security of designed software system.

In a few last years arose the problem with the human privacy. Multiple software giants collect, transfer and share private users' information collected by their applications. By this reason different countries has their own regulations and laws to prevent sharing and using private information. Especially important is General Data Protection Regulation which used in Europe and should be followed by all private enterprises and government organizations in the region. GDPR restrictions should be taken into account by Engineers too.

References.
1. Cloud Controls Matrix v3.0.1. Release Date: 08/03/2019. URL: https://cloudsecurityalliance.org/ artifacts/cloud-controls-matrix-v3-0-1/.
2. Open Web Application Security Project. URL: https://owasp.org/.