VIRTUAL ERROR-CORRECTING CODING

Kotenko V.V..

South federal university

Taganrog, Russia

A distinctive feature of virtualization error-correcting coding is implemented the ability to solve complex problems of noise immunity and cryptographic protection. This feature is supported by the results of the experiment in Table 1. The experiment was performed using NIST STS package.

Table 1. Results of experiment

Virtual coding, protection algorithm	*Source*	*The amount of testing where testing took place more than 99% sequences*	*The amount of testing where testing took place more than 96% sequences*
HAMMING (15,11)	*txt*	*129(68%) - 147(77%)*	*183(96%) - 185(97%)*
HAMMING (15,11)	*mp3*	*124(65%) - 150(79%)*	*182(96%) - 185(97%)*
HAMMING (15,11)	*mp4*	*122(64%) - 151(79%)*	*183(96%) - 185(97%)*
CRC32	*txt*	*129(68%) - 151(79%)*	*185(97%) - 189(100%)*
CRC32	*mp3*	*135(71%) - 153(80%)*	*188(99%) - 189(100%)*
CRC32	*mp4*	*134(70%) - 148(78%)*	*187(98%) - 189(100%)*
REED-SOLOMON	*txt*	*135(71%) - 153(80%)*	*187(98%) - 189(100%)*
REED-SOLOMON	*mp3*	*124(65%) - 147(77%)*	*186(98%) - 189(100%)*
REED-SOLOMON	*mp4*	*132(69%) - 151(79%)*	*183(96%) - 188(99%)*
aes256-cbc	*txt*	*131(69%) - 152(80%)*	*186(98%) - 189(100%)*
aes256-cbc	*mp3*	*129(68%) - 151(79%)*	*187(98%) - 189(100%)*
aes256-cbc	*mp4*	*128(67%) - 147(77%)*	*184(97%) - 189(100%)*

Analysis of the results shows that the virtual noiseless coding ensures the effectiveness of cryptographic protection, comparable with the efficiency of modern standards of cryptographic protection.

References

1. Kotenko VV., Virtualization theory and telecommunications protection: monograph - Taganrog: Publishing house of the TTI SFU, 2011. - 236p.

2. Kotenko VV., Rumyantsev KE. Theory of Information and Protection of telecommunications: Monograph. - Rostov-on-Don: Southern Federal University Publishing House, 2009. -369 p.

3. Kotenko VV Theoretical Foundations of virtualization representation of objects, phenomena and processes // Information countering of terrorism threats: scientific-practical magazine. 2011, №17. P. 32-48

4. Kotenko VV. Virtual assessments theoretical justification of protected telecommunications // XI International scientific-practical conference "Information Security". Part 1 - Taganrog: Publishing house of the TTI SFU, 2010. P. 177-183.

5. Kotenko VV Virtualization continuous data protection process with respect to the theoretical conditions nedeshifruemosti / Information counter the threats of terrorism. 2013. № 20. P.140-147.

6. Kotenko VV, Kotenko SV Identification analysis of cryptographic algorithms from the point of virtualization IDs / Proceedings of the SFU. Technical science. 2015. number 8 (169). P. 32-46.

7. Kotenko VV, Kurt AR encryption algorithm model with virtualization assessments / International Journal of Experimental Education. 2015. № 8-3. P. 411-412.

8. Kotenko VV Virtualization continuous data protection process with respect to the theoretical conditions nedeshifruemosti / Information counter the threats of terrorism. 2013. № 20. P. 140-147.

9. Kotenko VV, Kotenko SV, Rumyantsev KE, Gorbenko YI continuous data protection strategy with a key position in the band virtualization formal relations ensembles. Applied electronics. 2013. T. 12. № 3. P. 308.

10. Kotenko SV, Kotenko VV Methods of identification analysis of error-correcting coding in encoding processes for continuous channel / Information counter the threats of terrorism. 2013. № 20. P.151-157.

11. Kotenko SV Pershin IM Kotenko VV Features of identification analysis on the basis of information in the GIS objects virtualization location images. Proceedings of SFU. Technical science. 2014. number 8 (157). P. 212-219.

12. Kotenko VV Information quantization / Information counter the threats of terrorism. 2007. № 9. P. 97-99.

13. Kotenko VV Information evaluation of the quality of communication / Information counter the threats of terrorism. 2007. № 9. P. 50-55.

14. Kotenko VV Coding theorem for discrete channel with continuous transfer of information sources / Information counter the threats of terrorism. 2007. № 9. P.184-187.

15. Kotenko VV The theoretical justification of virtual assessments of protected telecommunications // Proceedings of the XI International Scientific and Practical Conference "Information Security". Part 1 - Taganrog: Publishing House of TTI SFU, 2010. - P. 177-183.

16. Kotenko VV Virtualization is the process of protecting digital information // Actual questions of science: Proceedings of the II International Scientific and Practical konferentsii.- M .: Publishing House of Sputnik, 2011. - P. 36-40.

17. Kotenko VV Strategy for the use of information flows virtualization theory for solving information security problems // Bulletin of SFU. Technical science. - 2007. - V. 76. - № 1. - P. 26-37.