Penetration Tests on Virtual Environment

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Abstract

In the battle for on-line information both attackers and defenders of computer systems try to gain complete control over the system. To maximize their control, they have migrated to low-level, operating system code. In this conditions we present the idea of using a virtual machine to share services and information over the Internet. In case of an attack the virtual machine resources will be affected while the real machine resources will be safe.

Index terms: information security, virtual environment, virtual machine

References

- Barham P., Dragovic B., Fraser K., Hand S., Harris T., Ho A., Neugebauer R., Pratt I., [1] Warfield A., "Xenand the Art of Virtualization", 19th ACM Symposium on Operating Systems Principles - SOSP 2003.
- Bernaschi, M., Grabrielli, E., Mancini, L., "Operating System Enhancements to Prevent [2] the Misuse of System Calls", Proceedings of the ACM Conference on Computer and Communications Security, 2000.
- Bernaschi, M., Grabrielli, E., Mancini, L., "REMUS: A Security-Enhanced Operating [3] System", ACM Transactions on Information and System Security, Vol 5, 2001,
- Blunden, B., "Virtual Machine Design and Implementation in C/C++", Wordware Publ. [4] Plano, Texas - USA, 2002.
- [5] Chen, P., Noble, B., "When Virtual Is Better Than Real", Proceedings of the 2001 Workshop on Hot Topics in Operating Systems (HotOS), 2001.
- [6] Dike, J., "A User-mode port of the Linux Kernel", Proceedings of the 4th Annual Linux Showcase & Conference. Atlanta – USA, 2000.
- Dunlap, G., King, S., Cinar, S., Basrai, M., Chen, P., "ReVirt: Enabling Intrusion Analysis [7] through Virtual-Machine Logging and Replay", Proceedings of the 2002 Symposium on Operating Systems Design and Implementation (OSDI), 2002.
- Garfinkel, T., Rosenblum, M., "A Virtual Machine Introspection Based Architecture for [8] Intrusion Detection", Proceedings of the Network and Distributed System Security Symposium (NDSS), 2003.
- Goldberg, R., "Architecture of Virtual Machines", AFIPS National Computer [9] Conference, New York, USA, 2001.
- [10] King, S., Chen, P., "Operating System Extensions to Support Host Based Virtual Machines", Technical Report CSE-TR-465-02, University of Michigan, 2002.
- [11] King, S., Dunlap, G., Chen, P., "Operating System Support for Virtual Machines", Proceedings of the 2003 USENIX Technical Conference, 2003.
- [12] Sugerman, J., Ganesh, V., Beng-Hong L., "Virtualizing I/O Devices on VMware Workstation's Hosted Virtual Machine Monitor", Proceedings of the 2001 USENIX Annual Technical Conference, 2001.
- [13] VMware Inc., "VMware Technical White Paper", Palo Alto CA USA, 1999.
- [14] Whitaker, A., Shaw, M., Gribble, S., "Denali: A Scalable Isolation Kernel", Proceedings of the 10th ACM SIGOPS European Workshop, Saint-Emilion – France, 2002.
- [15] VMware Emulator, http://www.vmware.com, accessed on May 2011.