CWSF 2017 - Regina, Saskatchewan

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CPU Load Covert Channels Exploiting Interrupt Latency

Challenge: Innovation
Category: Intermediate
Region: Waterloo-Wellington
City: Waterloo, ON
School: Waterloo Collegiate Institute

Abstract: A covert channel security vulnerability was discovered that allows a remote adversary to perform easy deanonymization of anonymous Internet users. This attack exploits the fact that latency to reply to network requests decreases when load on the computer being attacked is increased. It is suggested to mitigate this attack by maintaining a running process that will always cause full load on one processor core.

Biography

I've been working with computers as long as I remember. At age four, I had a project to find the IP address of every computer on the network at my house. At age five, my parents showed me how to use HTML. To their surprise, they came home the next day to find I had created an entirely new webpage. At age six, I began with software development, with the Visual Basic programming language. At age thirteen, I participated in the Hack The North programming competition, receiving an honorable mention for the sponsor prize from Pebble. The summer between grades seven and eight, I took an interest in computer security, consuming large amounts of online talks and Wikipedia articles, even designing some of my own protocols. Later on during eighth grade, I designed a number of cryptographic primitives, including a block cipher, mode of operation, and hash function. In my spare time, I write software, devour old electronics for spare parts, and play grand strategy video games, Minecraft, and Kerbal Space Program.

Awards	Value
Excellence Award - Intermediate - Bronze Medal Sponsor: Youth Science Canada	
Western University Scholarship Bronze Medallist - $1000 Entrance Scholarship Sponsor: Western University	$1 000
Total	$1 000