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Module 8 Journal

**Reverse engineering IoT:** Why can reverse engineering be used to improve cloud-based information technology (IT) systems? Reverse engineering can be used to discover vulnerabilities in cloud-based applications, and then give you the ability to fix them. You can also use reverse engineering to for interoperability purposes to allow the application to run on a system it wasn’t designed for.

**Patching:** How is reverse engineering used to patch cloud-based IT systems? First a vulnerability must be found, either through reverse engineering or a more standard method. Once the vulnerability is understood and a fix is created, reverse engineering can be used to create a patch to fix the vulnerability. This would mostly be used on legacy code that no source code is available for since reverse engineering is fairly difficult compared to updating source code.

**Vulnerability:** Why is it that so many IoT devices are already infected with malware and many more are vulnerable to exploitation? IoT devices typically aren’t designed for security and probably don’t update as often as they should. In addition to this a lot of times default username and passwords are never changed and are easy to get into. Quick development and limited resources on the device like ram, flash, and memory tend to keep the code as efficient as possible and don’t handle all vulnerabilities.

**Impact:** How does reverse engineering impact new IT technologies, such as IoT and cloud computing? Reverse engineering should be used to check for unexpected vulnerabilities. However, this should be done in the last stages of testing and only to double check your application after other thorough testing has been done. It is time intensive and therefore expensive to do and if you have source code which you should for any new technology is unneeded. The only real reason to reverse engineer a new technology is to steal it and that is obviously in violation of the DMCA.

**Future:** Are there other new technologies that you can think of that either already use reverse engineering or should consider using reverse engineering in the future? I would imagine that reverse engineering could be used to understand AI and machine learning better, since they are extremely unpredictable, and their programmers have a hard time figuring out how they learn, although I’m not sure if seeing the assembly for the code will really give more insight than seeing the source code.