

## Homework #8

### **1. What was the intended target of the Stuxnet attack, and why was it deemed a high-value target?**

The Stuxnet virus was designed to infiltrate and sabotage Iran's Natanz uranium enrichment facility. This site was a major part of Iran's nuclear program, producing the enriched uranium needed for both energy and potentially nuclear weapons. Because of its role in advancing Iran's nuclear capabilities, Natanz was seen as a critical and high-value target by those seeking to delay or disrupt Iran's nuclear progress.

### **2. Who is believed to have created and launched the Stuxnet attack, and what motivated them to do so?**

Most evidence points to the United States and Israel as the creators of Stuxnet. Their motivation was to slow down or cripple Iran's nuclear enrichment efforts without resorting to open warfare. The cyberattack was a covert way to cause real physical damage to Iran's centrifuges, buying time and reducing the risk of a larger military confrontation in the Middle East.

### **3. How was Stuxnet able to evade detection for such a prolonged period, and what led to its eventual discovery?**

Stuxnet stayed hidden for so long because it was extremely sophisticated. It exploited multiple unknown (zero-day) vulnerabilities, used legitimate-looking digital certificates, and only affected very specific industrial equipment. Most computers it infected showed no signs of trouble, which helped it remain unnoticed. It was finally discovered after it spread outside Iran's isolated systems and began infecting computers worldwide, drawing the attention of cybersecurity experts.

### **4. Which two U.S. government labs were utilized, and what specific activities occurred at each facility?**

Two American research facilities, the Oak Ridge National Laboratory and the Idaho National Laboratory, were involved in parts of the Stuxnet operation. Oak Ridge helped analyze the kinds of centrifuges used in Iran's enrichment process, studying how they could be disrupted. Meanwhile, Idaho National Lab focused on testing and understanding industrial control systems. Specifically, how to manipulate Siemens PLCs, the same type used in Iran's nuclear plant.

### **5. Which two U.S. Presidents were involved in the Stuxnet attack, and what were their respective roles in the process?**

Both President George W. Bush and President Barack Obama played key roles in the Stuxnet operation. The program was first launched under Bush, who approved the initial development of the cyberweapon as part of a broader effort to contain Iran's nuclear ambitions. Obama later continued and expanded the program, authorizing its ongoing use even after he took office,

making Stuxnet one of the first major cyberweapons deployed under consecutive U.S. administrations.