Honeypot

Cart 211:

Internet Of Things

Presented to

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By

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November 1st 2015

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Preface
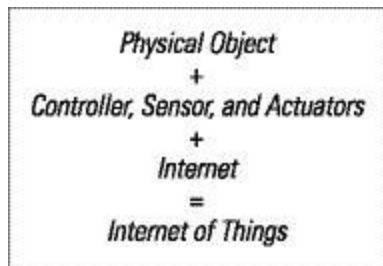
What is the Internet of Things[1]?

from Designing the Internet of Things-Wiley[2]

At the rate that technology advances, the Internet of Thing might be a future that awaits us all. The low cost of the hardware makes it more accessible. The developing documentation is open to everyone with an internet connection. Anyone can become a creator with reasonable time investment.

Creating something original and never-before-seen to amaze the public was my first direction, but as a security-conscious developer I could not stop wondering about what an insecure world we would be living in. You can go to places like *dx.com* to explore the variety of IoT objects available at lowest costs, but who developped them? What kind of Software runs on them? Where is the source code? A developer has to invest quite some time in investigating these questions, while the interrogations won't even come up in the mind of others. You have to remember that all of these IoT objects will have : A) an internet connection, implying that a hacker can get access to it and B) a connection to physical devices. What harm would it cause if a hacker took control of my lamp that is changing colors depending on the time of the day?

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[1] https://en.wikipedia.org/wiki/Internet_of_Things
[2]
http://hybrid.concordia.ca/bizounoir/CART_211/pdf/Adrian%20McEwen,%20Hakim%20Cassimally-Designing%20the%20Internet%20of%20Things-Wiley%20%282013%29.pdf

Well, any device can be altered to perform other functions that were not even implemented in the start. Each remote device uses an Operative System. Thus, it can perform other tasks than what is expected of it. Also, keep in mind that developing robust secured system takes years of formation and a huge time investment that demands a lot of financial investment.

There should be a simple device accessible and comprehensive to public in order to give an insight on the malicious virtual attacks that can cause damage to your physical world / jeopardize your privacy.

Honeypot, a colorful agent.

A Honeypot[3] is based on an existing computing security concept that is implemented in many different spheres. It would be interesting to reassemble its different devices implementations under one organization.

This project features a miniature physical Honeypot that mimics certain home devices to detect and alert you of an intrusion or attack happening in your home network, using colored lights and sounds.

It has 7 key features:

1. An SD card port to insert your honeypot software

> The system will evolve, patches will be written. It must be an Open Source project under GPL to give control to the developers / public.

2. It has an AUX port to enable a connection to speakers to use a sound alert of the user's choice if there is any.

3. It has a certain type of batteries or charging device entry.

> Depending on the ecological sphere, it could either be light absorbant, have a standard electrical plug, battery entry or something else.

4. It has led lights below and inside to change the colors depending on the alert type.

5. Wifi antenna

6. Physical switch to shutdown the network / certain devices in your home in case of an attack.

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[3] https://en.wikipedia.org/wiki/Honeypot_%28computing%29

In this model, the honey spoon that you can quickly remove could shut down a selection of mapped devices to this switch. Once it is put back inside, the network / devices could be get back online.

7. A physical LCD screen with a simple interface to see alerts details, logs etc.

It should not have a wirelessly accessible control panel because if a hacker can access your control panel because he can see that you interact with it on your network, the mimic goal of the object will fail and it will not be accurate.

This is it! We have our basic specification for the Honeypot device. The configuration is up to the user depending on her/his preferences such as type of color/sound alerts.

Basic Visual Model

This is an example of possible physical model. I acknowledge that I took that Honey pot model from Le Creuset[4] but solely for non-commercial educational purpose of a demonstration.

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[4] http://www.amazon.com/Le-Creuset-Stoneware-16-Ounce-Honey/dp/B002JKMSZY