Need-Based Network Traffic Collection

Nathan Dell and Angela Horneman

Report Documentation Page	*Form Approved* *OMB No. 0704-0188*

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1. REPORT DATE **15 FEB 2015**	2. REPORT TYPE **N/A**	3. DATES COVERED

4. TITLE AND SUBTITLE **Need Based Network Traffic Collection**	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S) **Horneman /Angela**	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Software Engineering Institute Carnegie Mellon University Pittsburgh, PA 15213**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release, distribution unlimited.

13. SUPPLEMENTARY NOTES

The original document contains color images.

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT **SAR**	18. NUMBER OF PAGES **14**	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**			

This material is based upon work funded and supported by Department of Homeland Security Department of Defense under Contract No. FA8721-05-C-0003 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center sponsored by the United States Department of Defense.

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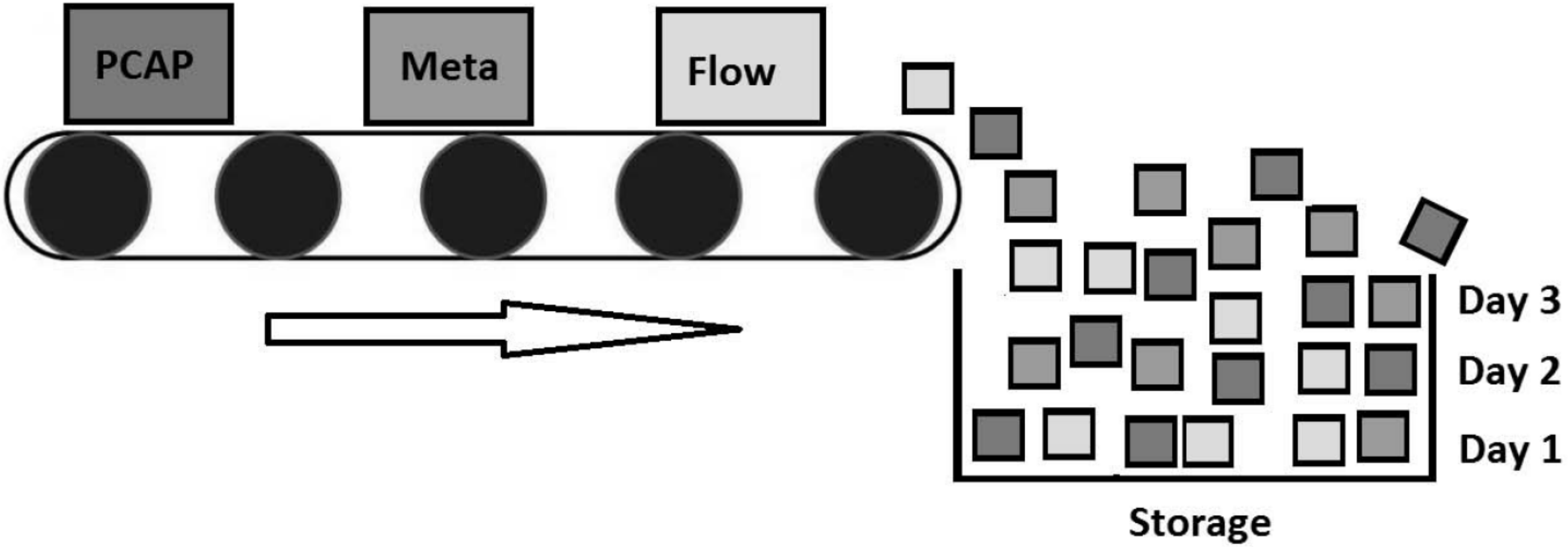
DM-0002061

Background

Network traffic monitoring is important.

Storage is important.

Analysis is important.



The Problem

“Collect everything mentality” is not effective.

- Network data typically rolls off before it becomes useful to analysts
- Some data collected has little to no value ever.
- Too much data inhibits analysis.
- Storage can become expensive.

When you can’t keep everything, what do you do?

The Solution

A methodology to help organizations to collect

- the right network information
- at the right tiers
- for the right amount of time

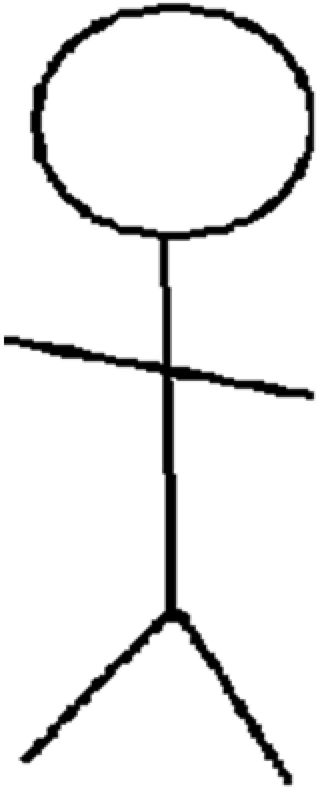
Smart Collection and Storage Method for Network Traffic Data

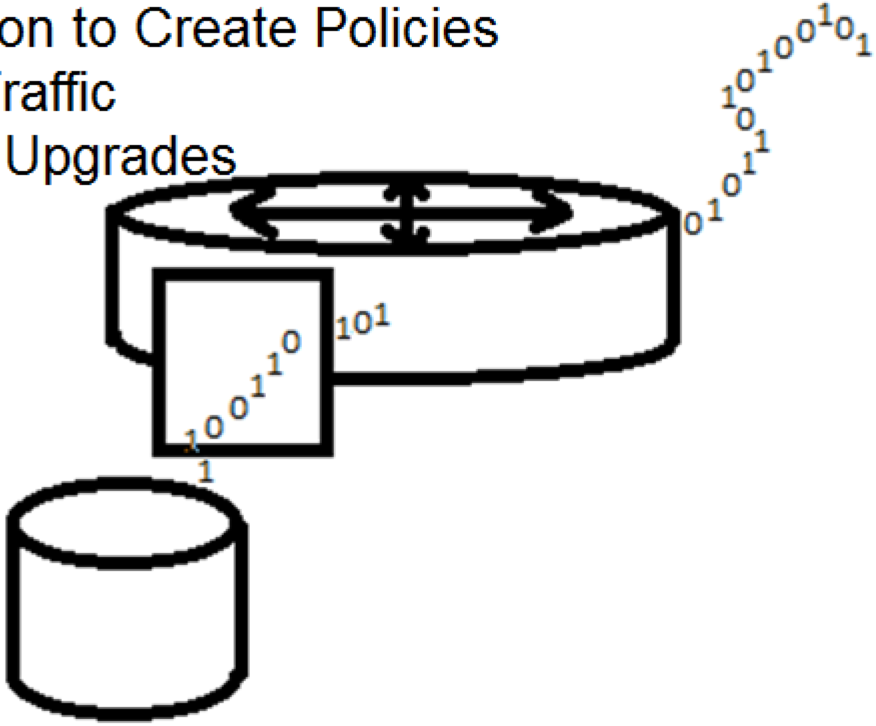
Available online in the SEI Digital Library

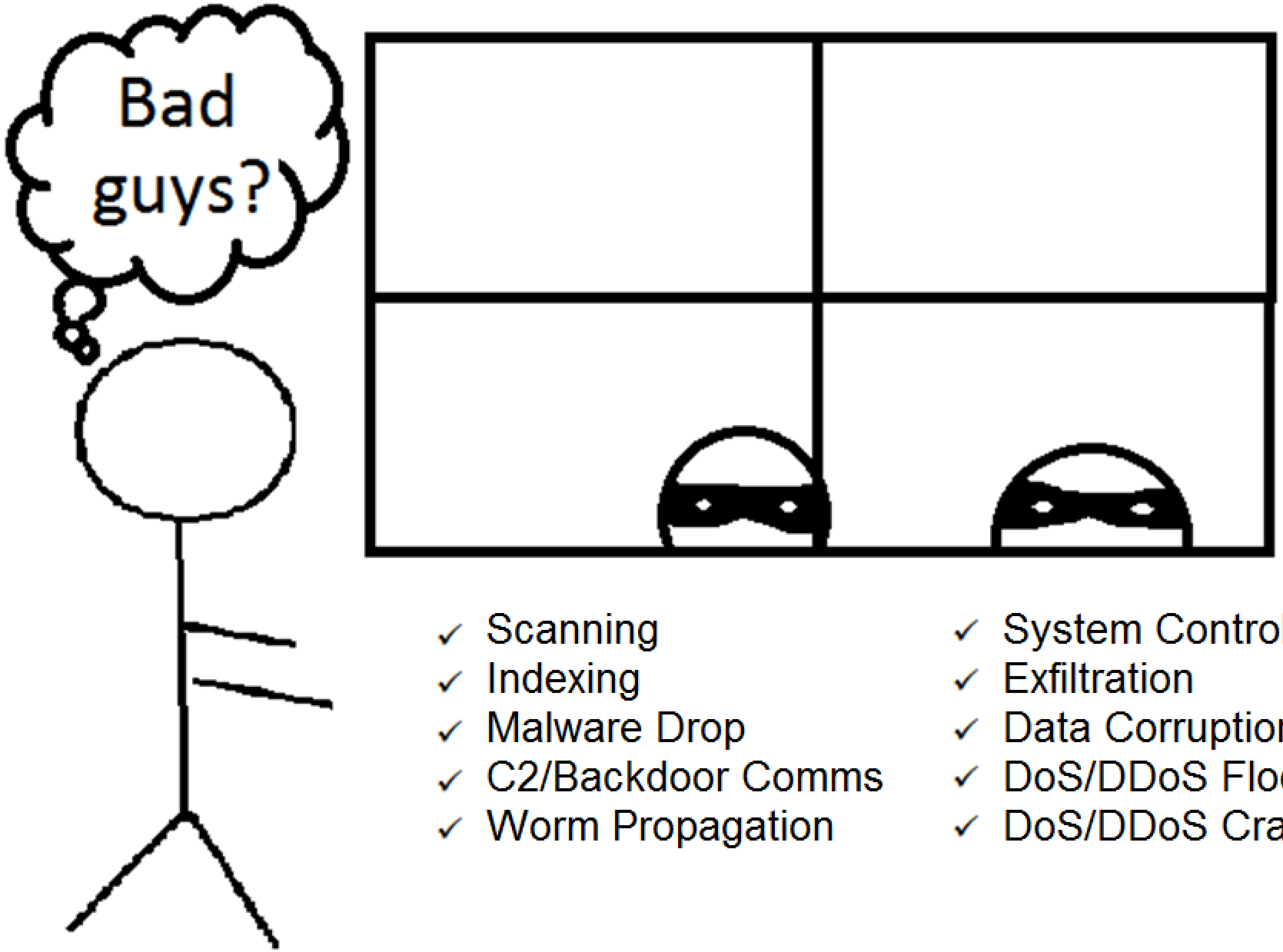
http://resources.sei.cmu.edu/library/asset-view.cfm?assetid=304860

Why do I need this?

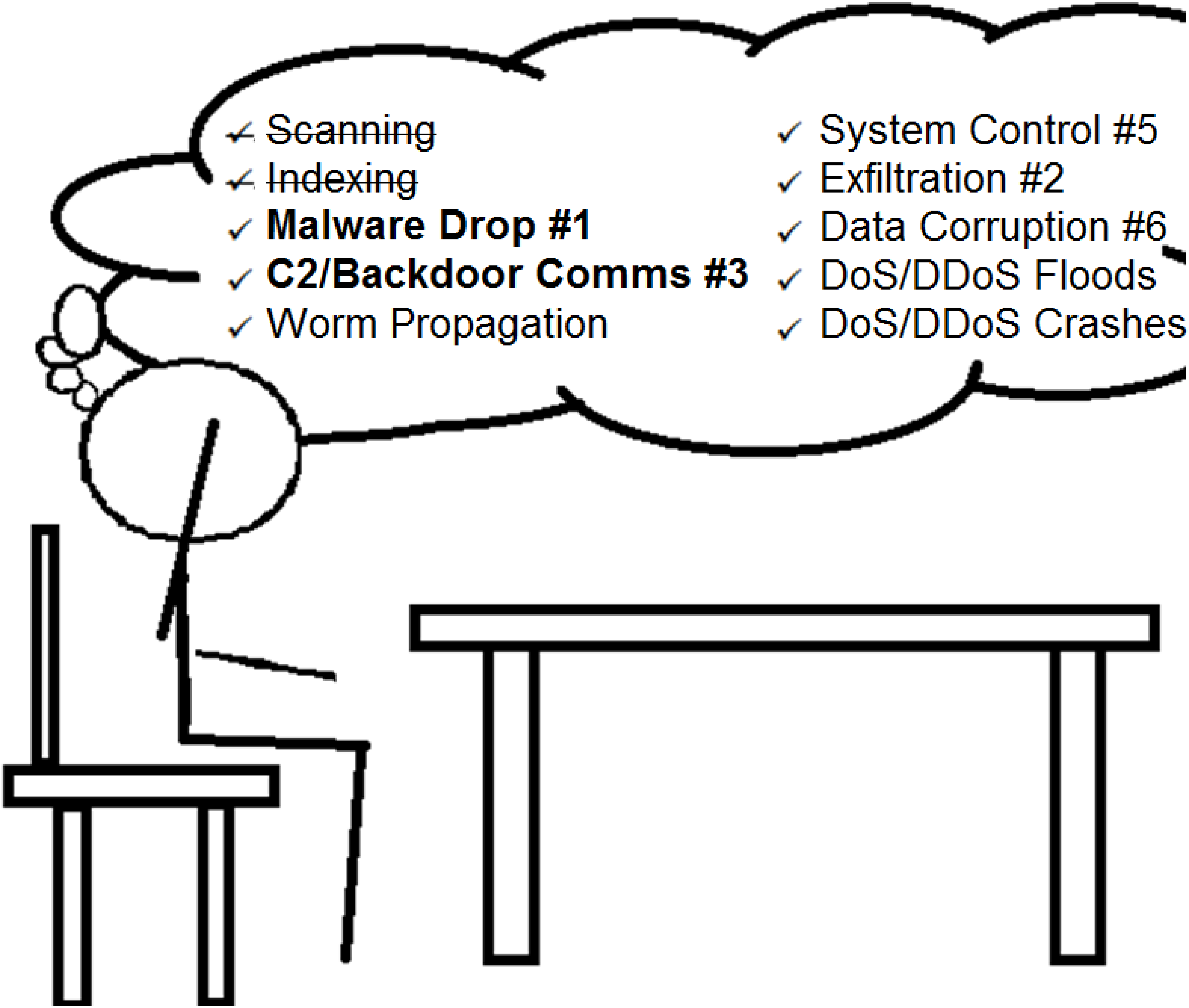
- ✓ Investigate Attacks
- ✓ Enforce Policies
- ✓ Provide Information to Create Policies
- ✓ Profile Network Traffic
- ✓ Plan for Network Upgrades



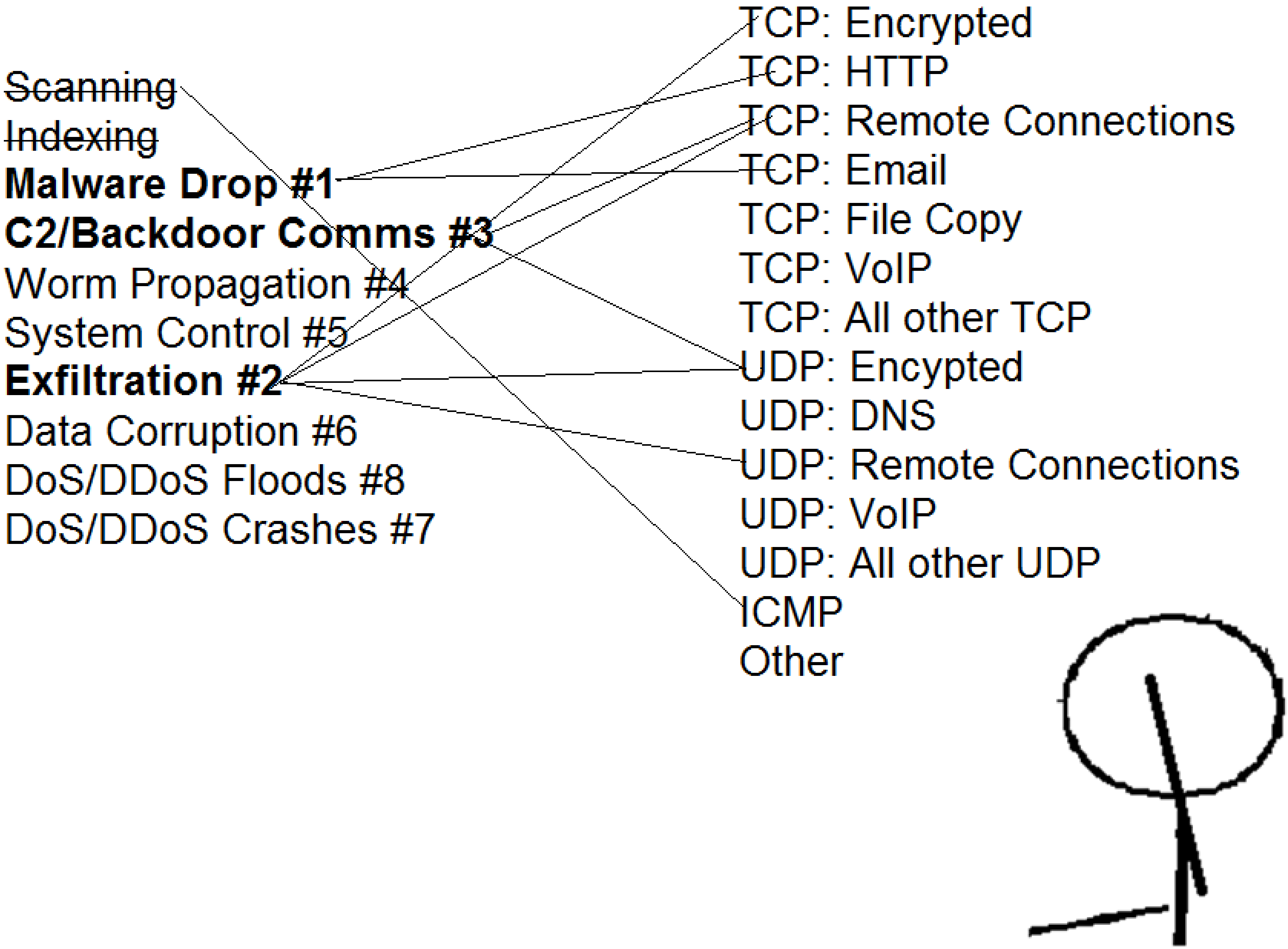




- ✓ Scanning
- ✓ Indexing
- ✓ Malware Drop
- ✓ C2/Backdoor Comms
- ✓ Worm Propagation
- ✓ System Control
- ✓ Exfiltration
- ✓ Data Corruption
- ✓ DoS/DDoS Floods
- ✓ DoS/DDoS Crashes

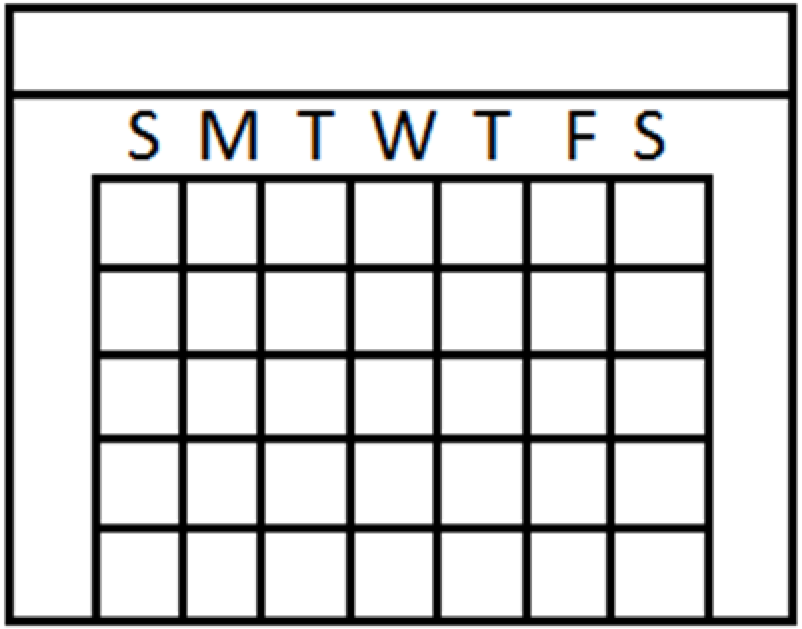


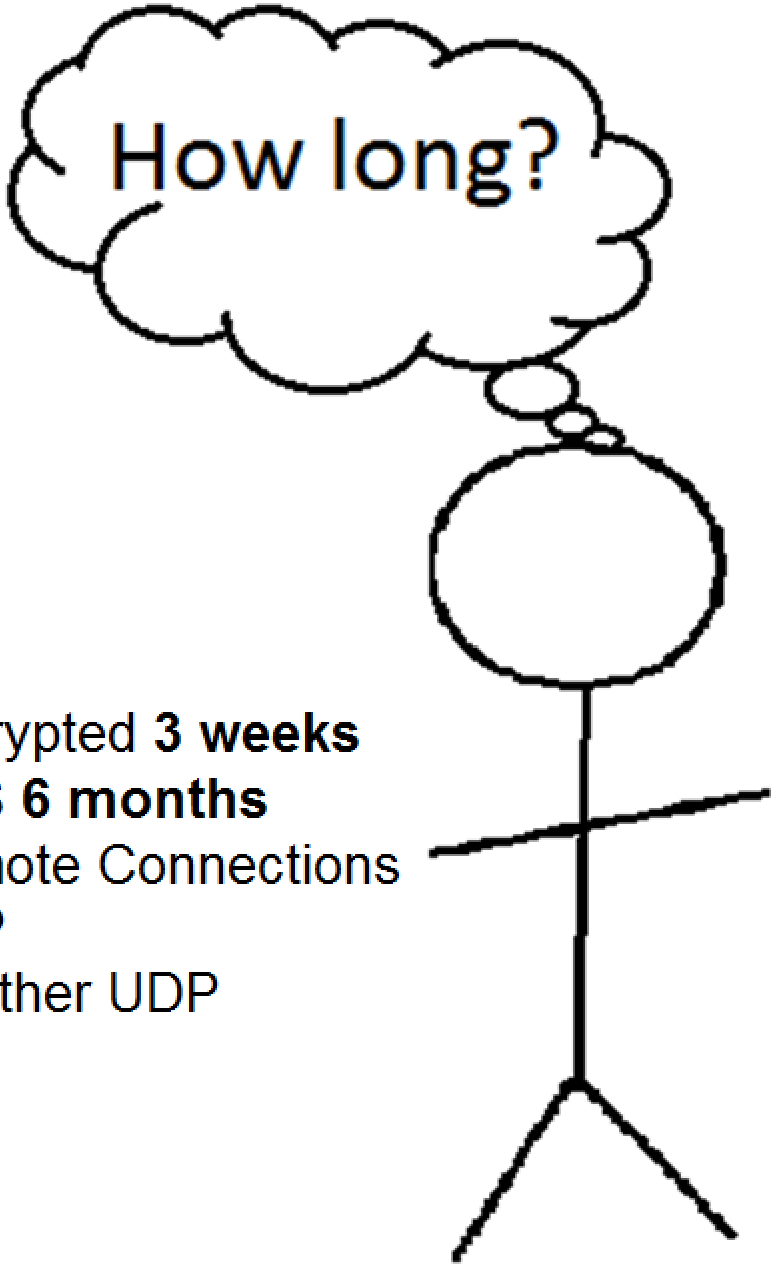
- ✓ ~~Scanning~~
- ✓ ~~Indexing~~
- ✓ **Malware Drop #1**
- ✓ **C2/Backdoor Comms #3**
- ✓ Worm Propagation
- ✓ System Control #5
- ✓ Exfiltration #2
- ✓ Data Corruption #6
- ✓ DoS/DDoS Floods
- ✓ DoS/DDoS Crashes



~~Scanning~~
~~Indexing~~
Malware Drop #1
C2/Backdoor Comms #3
Worm Propagation #4
System Control #5
Exfiltration #2
Data Corruption #6
DoS/DDoS Floods #8
DoS/DDoS Crashes #7

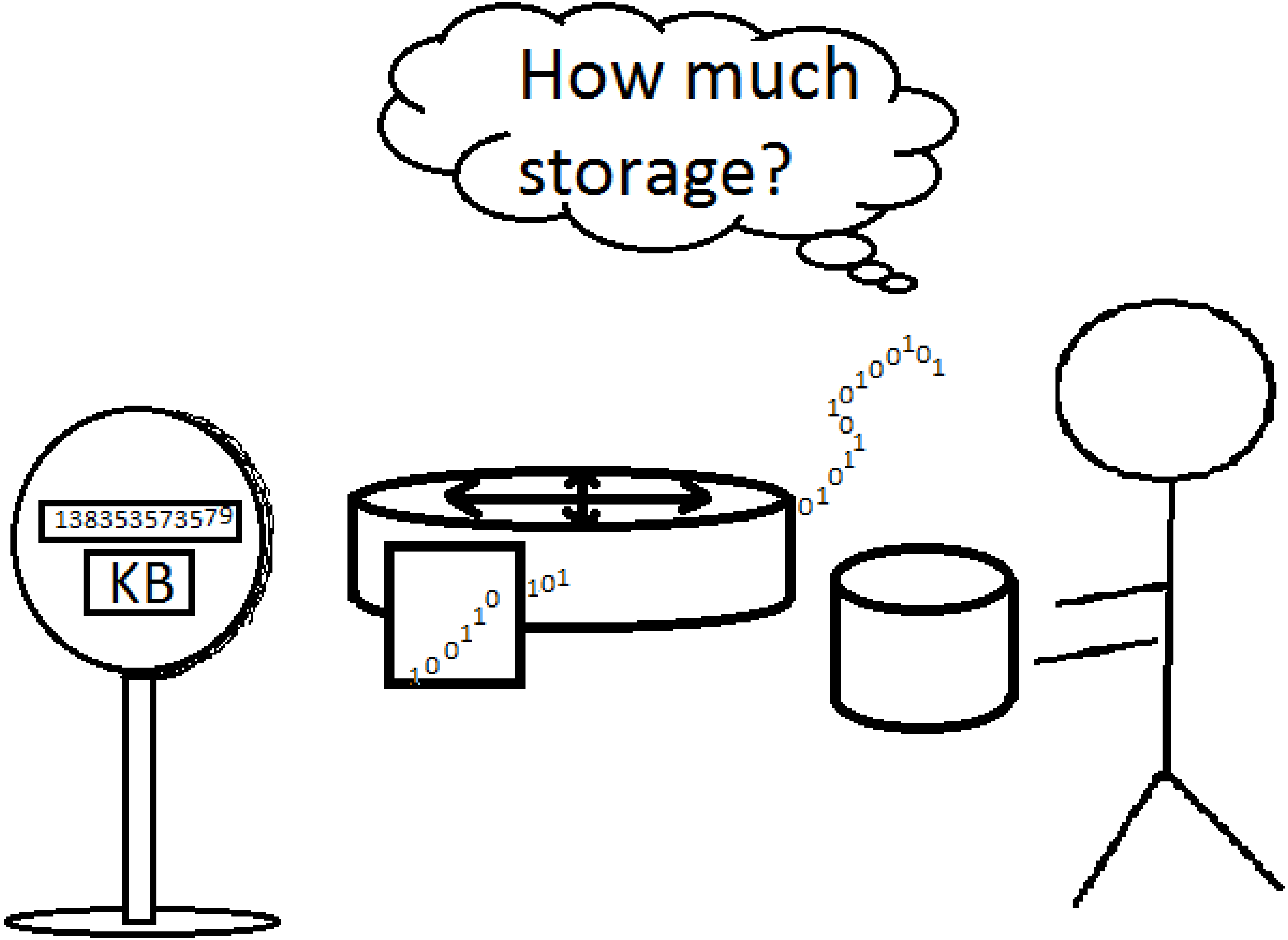
TCP: Encrypted
TCP: HTTP
TCP: Remote Connections
TCP: Email
TCP: File Copy
TCP: VoIP
TCP: All other TCP
UDP: Encypted
UDP: DNS
UDP: Remote Connections
UDP: VoIP
UDP: All other UDP
ICMP
Other

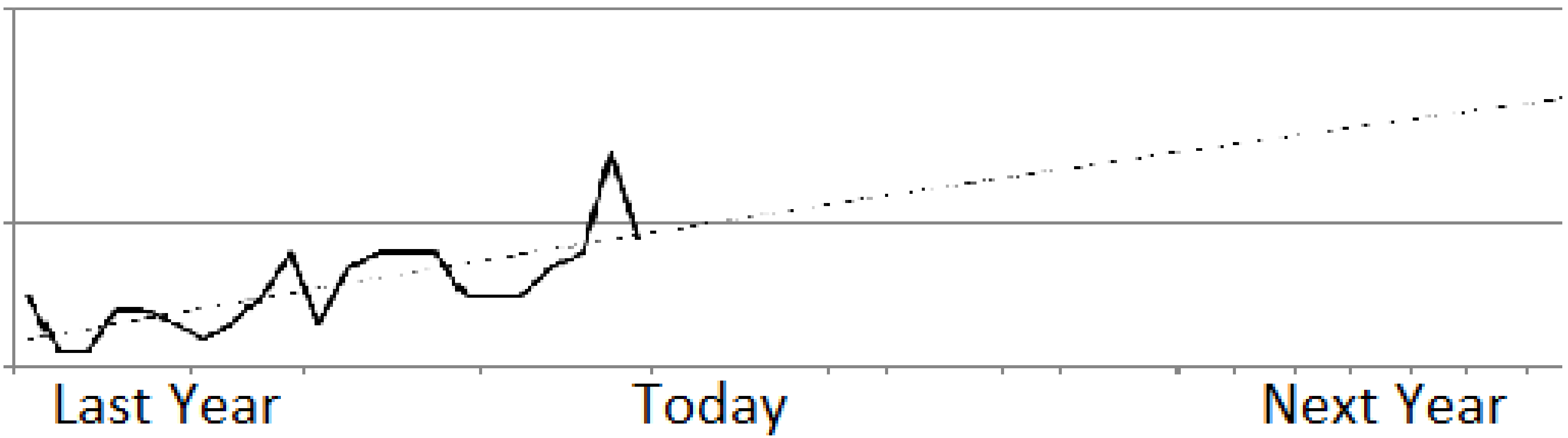




TCP: Encrypted **3 weeks**
TCP: HTTP **6 months**
TCP: Remote Connections
TCP: Email **2 years**
TCP: File Copy
TCP: VoIP
TCP: All other TCP

UDP: Encrypted **3 weeks**
UDP: DNS **6 months**
UDP: Remote Connections
UDP: VoIP
UDP: All other UDP
ICMP
Other


How much storage?
138353573579
KB
101
10011100
01011010101000101


Last Year
Today
Next Year

Plan ahead!

Application of the Methodology

$$\text{Current Storage X} \; (\,(1 \; + \; \text{Growth Rate})^{Months} \left(\frac{ending\ value}{starting\ value}\right)^{\left(\frac{1}{\#\ months}\right)} - \; 1$$

	Monthly Growth Rates				Storage per Day in 24 Months: All			Storage per Day in 24 Months: Peak		
	All Traffic (Bytes)	Peak Traffic (Bytes)	All Traffic (Flows)	Peak Traffic (Flows)	N (in GBs)	A (in GBs)	P (in TBs)	N (in GBs)	A (in GBs)	P (in TBs)
TCP: HTTP	0.92%	2.47%	0.92%	2.47%	292.7	443.3	223.9	351.4	532.3	268.9
TCP: Encrypted HTTP	0.92%	2.47%	0.92%	2.47%	154.0	~~233.3~~	~~128.1~~	184.9	~~280.2~~	~~153.9~~
TCP: VoIP	0.61%	3.41%	0.61%	2.16%	0.0	0.0	~~0.0~~	0.0	0.1	~~0.0~~
UDP: VoIP	0.92%	2.47%	0.92%	2.47%	2.9	4.3	~~0.0~~	3.4	5.2	~~0.1~~
UDP: Encrypted VoIP	0.61%	1.85%	0.61%	1.85%	0.0	0.1	~~0.0~~	0.0	0.1	~~0.0~~
				Unfiltered: Filtered:	808.8	~~1225.3~~ 978.3	~~603.1~~ 469.1	982.3	~~1494.0~~ 1197.4	~~728.6~~ 567.5

Questions?

Angela Horneman

ahorneman@cert.org

Nathan Dell

nathand@cert.org