INFORMATION TECHNOLOGY ASSET MANAGEMENT SYSTEM

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NCAR   UCAR COMMUNITY PROGRAMS   UCAR   NSF

INTRODUCTION

- Definition

- Scope

- Motivation

- Process
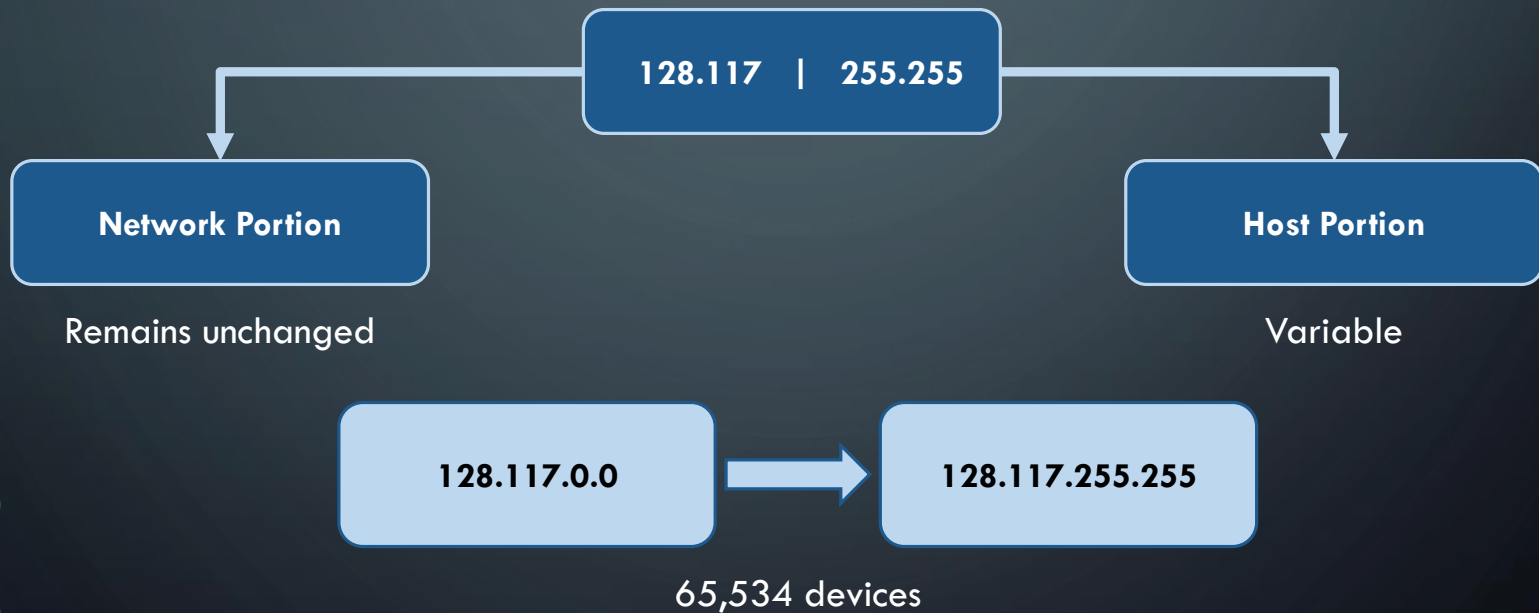
- Methods

- Obstacles

- Results

- Future

WHAT IS AN ITAM?

- Collection of assets congregated in a dedicated database

- Every device with a network interface card

SCOPE

- UCAR/NCAR has a class B IPv4 address space

128.117 | 255.255

Network Portion

Remains unchanged

Host Portion

Variable

128.117.0.0 → **128.117.255.255**

65,534 devices

WHAT WE TRACK

MAC Address	IP Address	Device Name	Domain	VLAN
A1-B2-C3-D4-E5-F6	128.117.255.254	Router-12	ucar.edu	25

Current State	Speed	Physical Port	First Seen	Last Seen
Active	1G	Gi2/0	2017-09-26 15:15:08	2018-07-26 6:29:17

Device Type	Manufacturer	Model No.	Serial No.	Building	Room
Router	Cisco	3900	NCK800001	Mesa	570

THE PROCESS
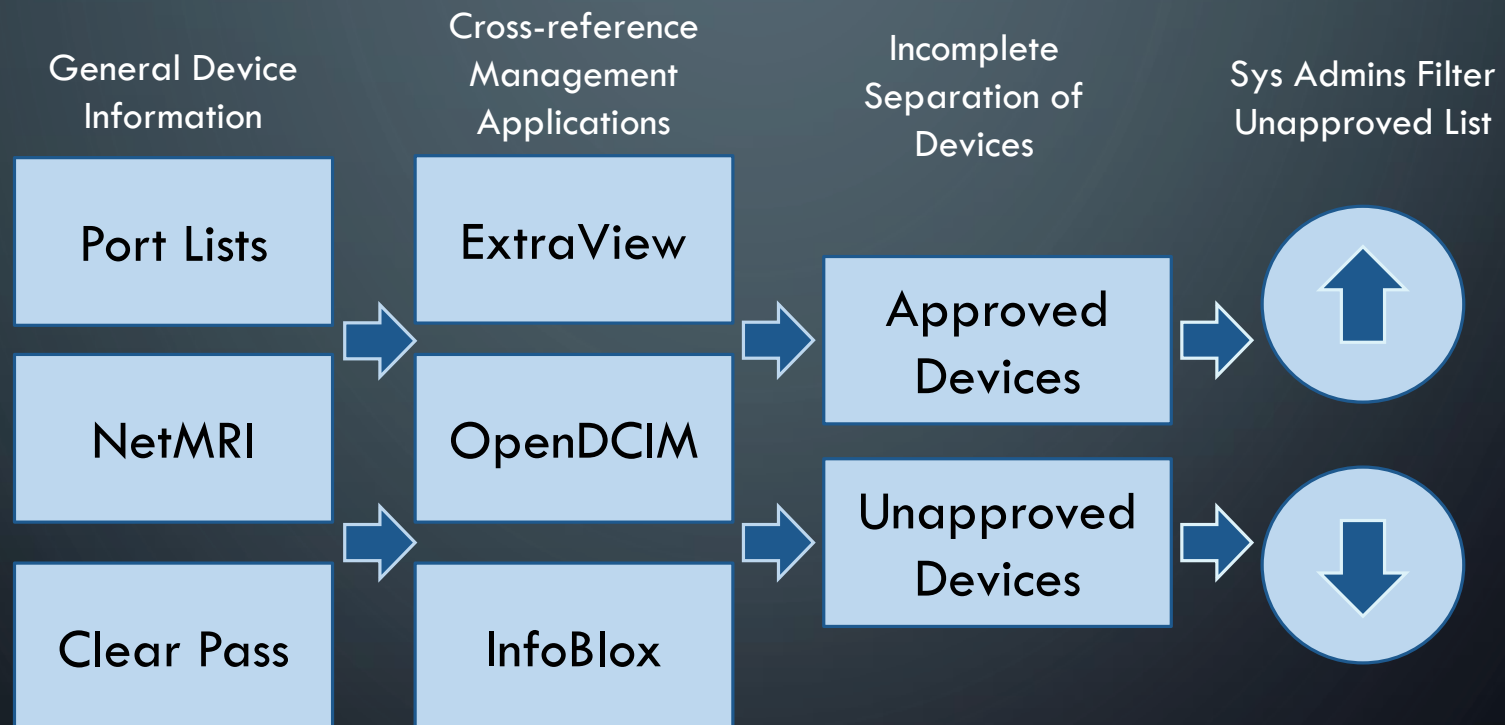
METHODS

- All programmed in Python

- Import data via API calls, JSON exports, CSV dumps, and parsing HTML

- AES-128 Password Encryption

gAAAAABbMpk5CN6lAyRbRrDVqc054CGQS__-G4MylDZ01yqVlZzQnNbifObmNleD4AdrPmuGTsh-+

UgqE315tDpjZCEA86Jb903I9ma7mdP7NslzIKB-ZwRX8=

Password123

- It would take at the very least 1 quintillion years to brute force this

- HTML Formatting

- Support across Windows, Mac, and Linux

OBSTACLES

- Learning Python

- Scattered IT infrastructure

  - Scheduling meetings

  - Waiting for authorization

- Recreating MACTracker

RESULTS

- Much better understanding of what is on the network

  - What, where, and how assets are being utilized

  - Roughly 7500 devices

- Working asset inventory system that references 4 outside sources

  - NetMRI and Clear Pass are not yet included

- Output to a CSV file and visualized using HTML tables in Jupyter Notebook

FUTURE WORK AND LONGEVITY OF THE PROJECT

- Used by the security team for the foreseeable future

- Implemented into a relational database

- Development will be continued

  - Adding the remaining sources

- The sys admins from each lab will gladly participate

- Network Access Control capabilities will be added

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