CACAO Introduction

(https://www.ietf.org/mailman/listinfo/Cacao)

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What is CACAO?

- **C**ollaborative **A**utomated **C**ourse of **A**ction **O**perations for Cyber Security
  - A standard that defines actions for threat response, including
    - **Creation** of those actions
    - **Distribution** of those actions across systems
    - **Monitoring** of those actions and their results
  - It includes documenting and describing the steps needed to **prevent**, **mitigate**, **remediate**, and **monitor** responses to a threat, an attack, or an incident

- What it is not...
  - This is not a standard for sharing arbitrary content or data
  - This is not about documenting an incident or indicators of compromise

Why CACAO?

- Threats
  - Threat Actors and Intrusion Sets are advancing
  - Number of attacks are increasing / Attack surface is growing

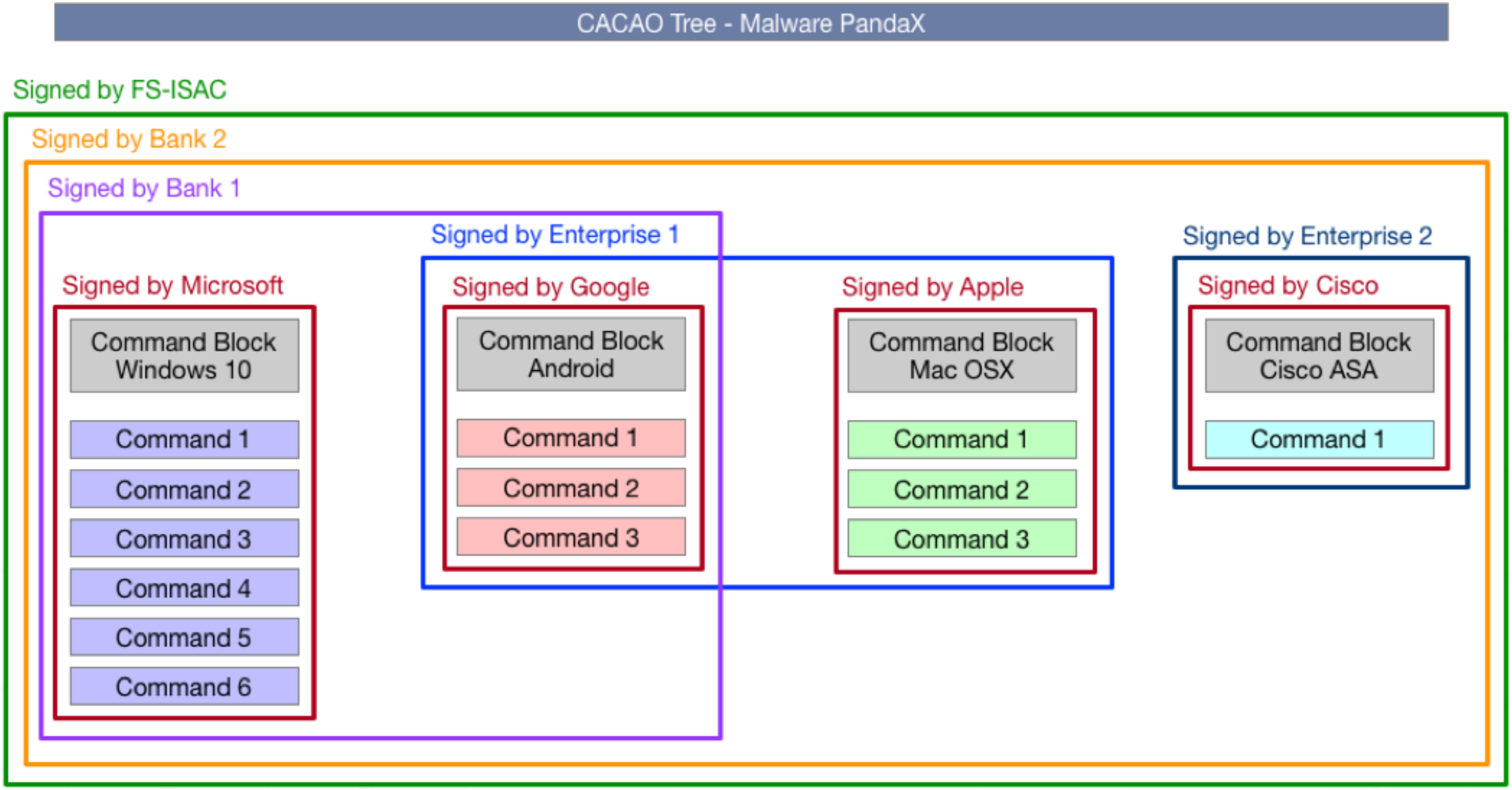
- Defense
  - Manual, reactive, and siloed
  - Many different groups inside an organizations are part of the response
  - No easy way to share threat response expertise
  - Organizations need to respond in machine relevant time across multiple coordinated systems
  - ISACs and ISAOs could disseminate solutions with Threat Intelligence

Core Requirements

- Multiple Actions
- Sequencing of Actions
- Temporal Logic
- Conditional Logic
- System Integration

- Reporting
- Versioning
- System Targeting
- Security
- Transport

Collaboration Example - Industry Wide Response



CACAO Tree - Malware PandaX

Signed by FS-ISAC

Signed by Bank 2

Signed by Bank 1

Signed by Microsoft

Command Block
Windows 10

Command 1

Command 2

Command 3

Command 4

Command 5

Command 6

Signed by Enterprise 1

Signed by Google

Command Block
Android

Command 1

Command 2

Command 3

Signed by Apple

Command Block
Mac OSX

Command 1

Command 2

Command 3

Signed by Enterprise 2

Signed by Cisco

Command Block
Cisco ASA

Command 1