Cyber Threats and Countermeasures

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US-CERT

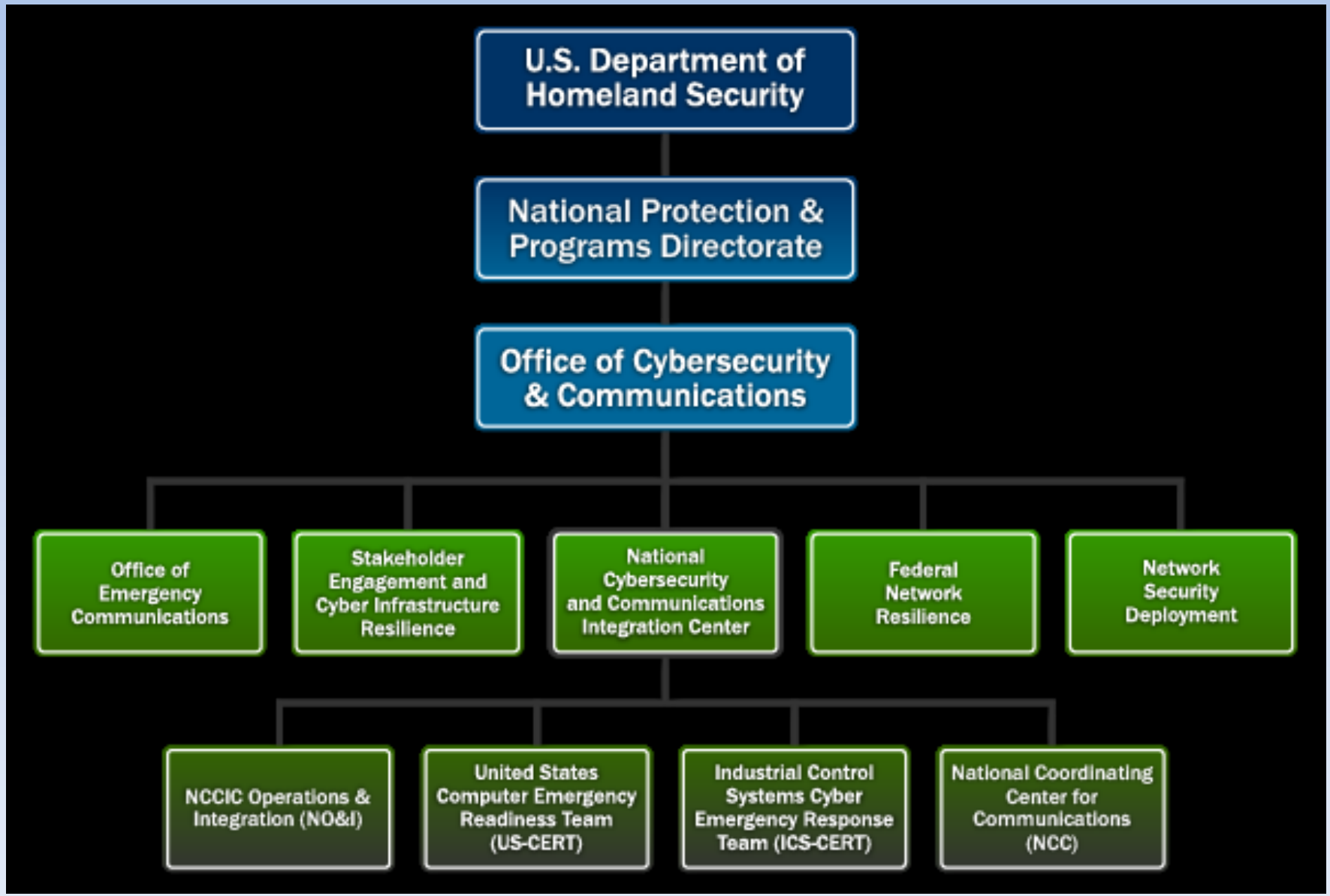
- U.S. Computer Emergency Readiness Team
- Cybersecurity lead for U.S. government
- Protect .gov

ICS-CERT

- Industrial Control Systems
- Respond to water, power, and manufacturing cyber issues
- Supervisory Control and Data Acquisition (SCADA)

NCCIC

- National Cybersecurity and Communications Integration Center
- Coordinate U.S. government responses to physical and cyber threats
- Includes Law Enforcement and Information Sharing and Analysis Center (ISAC) reps


U.S. Department of Homeland Security
National Protection & Programs Directorate
Office of Cybersecurity & Communications
Office of Emergency Communications
Stakeholder Engagement and Cyber Infrastructure Resilience
National Cybersecurity and Communications Integration Center
Federal Network Resilience
Network Security Deployment
NCCIC Operations & Integration (NO&I)
United States Computer Emergency Readiness Team (US-CERT)
Industrial Control Systems Cyber Emergency Response Team (ICS-CERT)
National Coordinating Center for Communications (NCC)

Threats

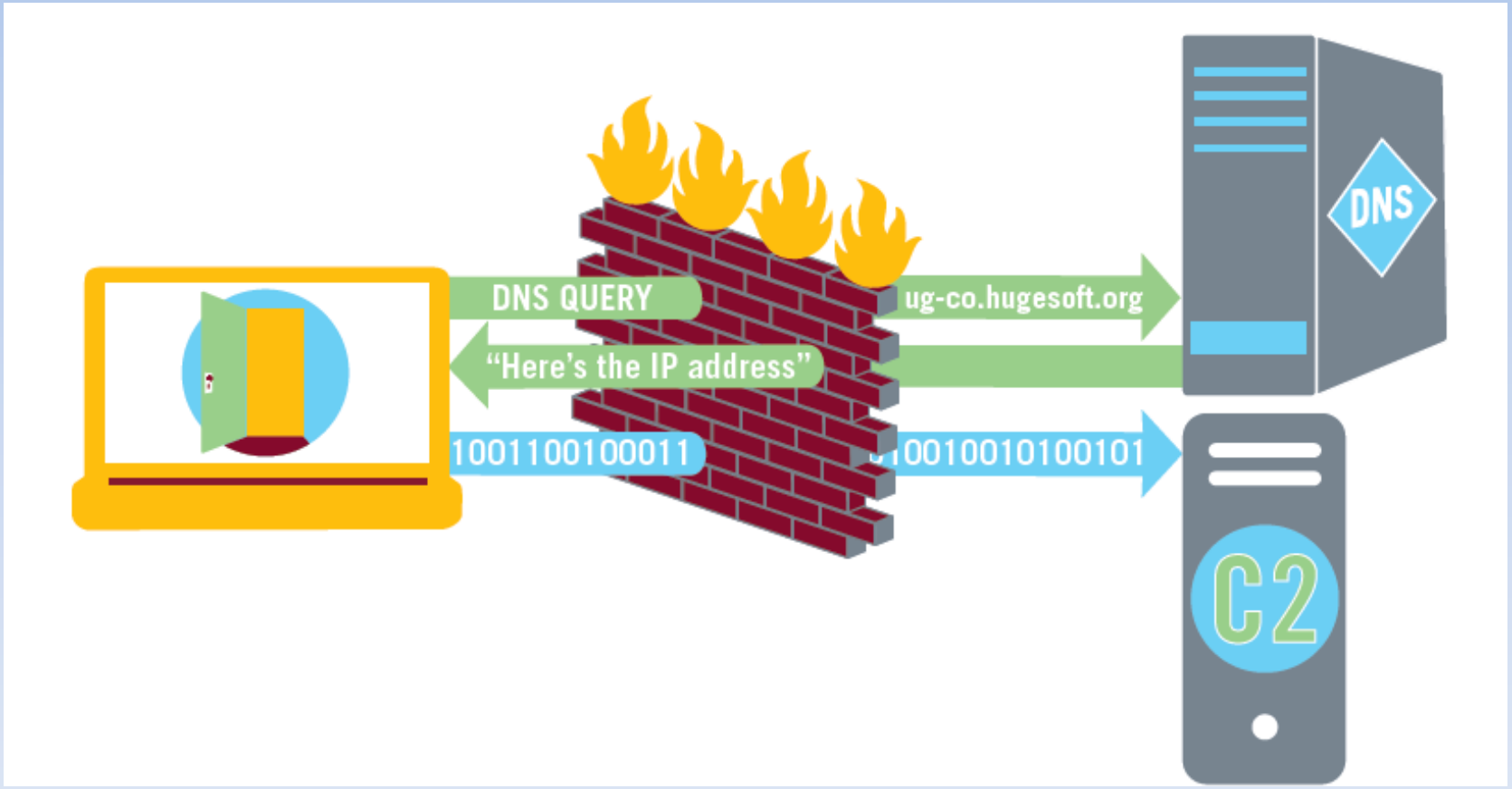
- Criminal
  - $$$
  - Distributed Denial of Service (DDOS)
  - Cryptolocker
  - Bots
    - DDOS, Spam, mine BitCoin, click-fraud
  - Credential Stealing
    - Keyloggers

Threats

- Insider
  - Violate trust relationship

Threats

- Advanced Persistent Threat
  - Advanced
    - Custom malware
    - Zero Day use
    - Establish link to Command and Control (CnC)
  - Persistent
    - Multiple infections
    - Hard to find / eradicate
  - Use established accounts
    - “look like an insider”



Source - Mandiant

Intrusion Steps

- Reconnaissance
- Attack
- Lateral Movement
- Escalate Privileges
- Maintain Access
- Exfil

Countermeasures

Goal

Minimize time between intruder's first unauthorized access and your discovery / eradication

"typical advanced attack is unnoticed for nearly 8 months" - Mandiant

Network Architecture

- Log everything
  - 30 days Netflow
  - Account access date/time
- Segmentation
  - Private Virtual Local Area Networks (VLANS) with port restriction
- 2 Factor Authentication

Top 4 Strategies

- Applications whitelisting
- Patch applications
- Patch Operating System
- Minimize admin privileges

Large Organizations

- Priorities
  - Protect the crown jewels
    - Encryption
  - Manage risk
- Dedicated network security personnel
- Beware the FEAR of the butterfly effect
- Blue team yourself

Personal

- Don’t get Phished
- 2 accounts minimum on your laptop
  - Admin
  - The one you actually use
- Protect your PII
  - Password protect docs