Monitoring and Response Overview

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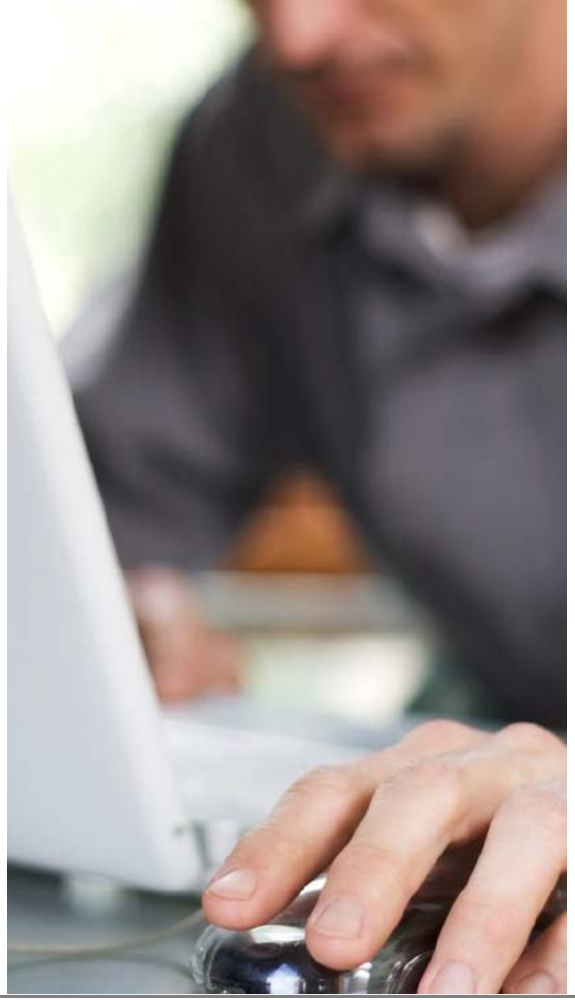
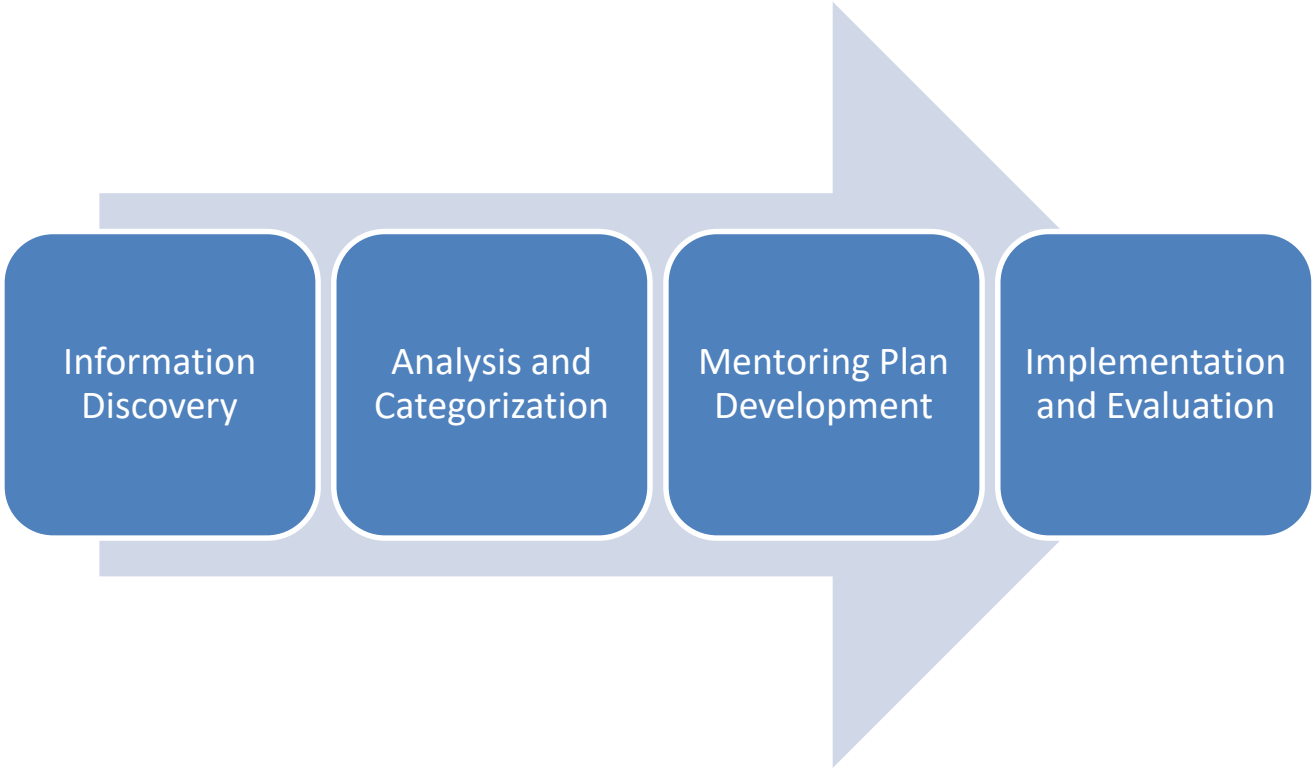
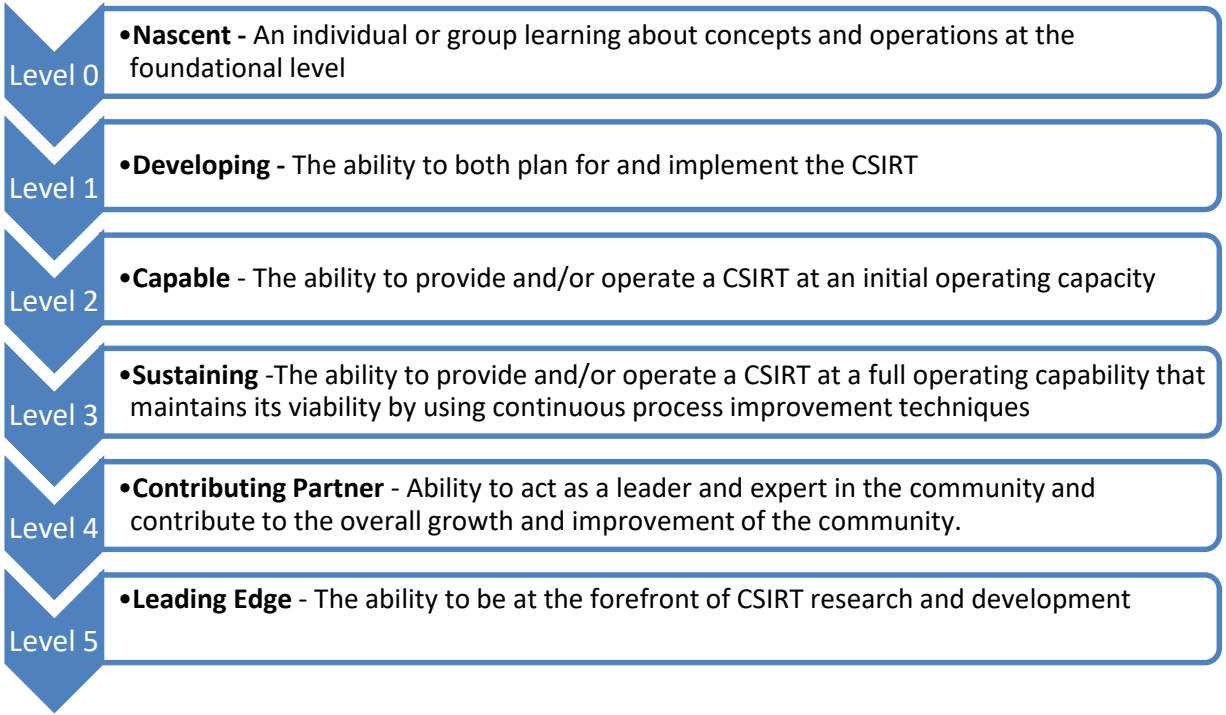
Security Operations Capacity Development



Mentorship Framework



CSIRT Capacity Development Continuum



Engagements in Africa

- **Objectives:**
  - **Promoting Public Awareness**
  - **Facilitate Collaboration**
  - **Conduct Targeted Training**
  - **Provide Institutional Support**
  - **Cyber Workforce Development**
  - **Facilitating increased coordination Among Stakeholders in the Region.**

Cote d' Ivoire National CSIRT (CI-CERT)

Primary Sponsor for FIRST Assessment and Membership

- CI CERT Approved September 2016

Conducted Training Workshops

- Advanced Incident Handling
- DDoS
- Botnets
- Joint Presentations
  - San Juan, Puerto Rico
  - Dar es Salaam, Tanzania

Engagements in East Asia and Pacific

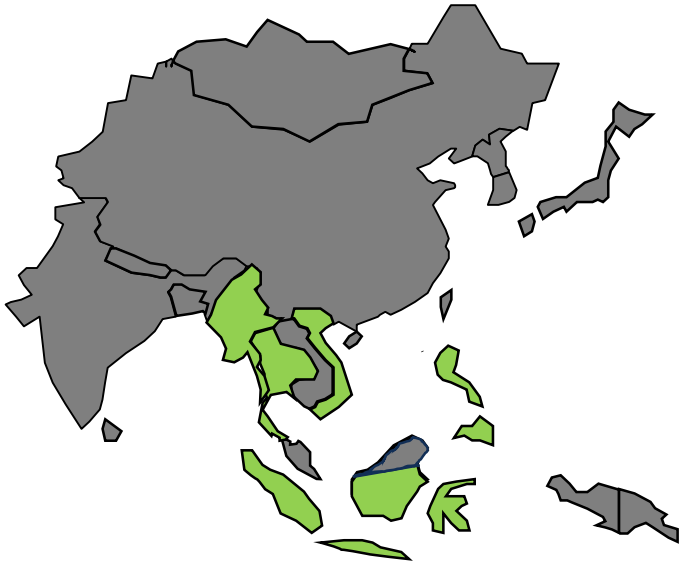
Indonesia

Myanmar

Philippines

Thailand

Vietnam



Vietnam

VN-CERT

FIRST Sponsor

Training Workshops

- Data Sources
- Threat Awareness
- Open Source Tools

Upcoming Workshops

- Cyber Workforce Development
- Train the Trainer

Indonesia
Id-SIRTII/CC

Working with the national CSIRT

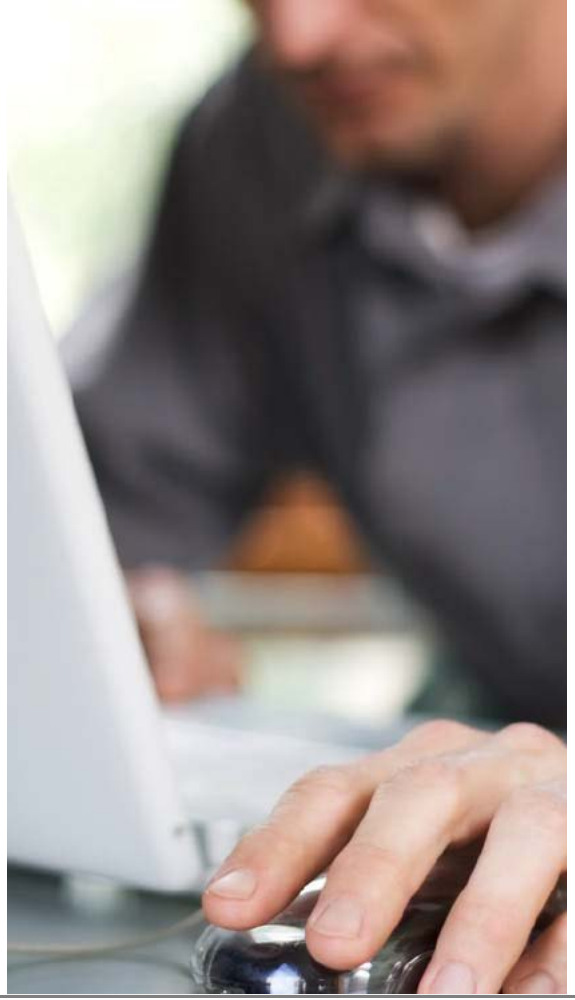
- Intrusion Detection and Prevention Systems
- Analyzing Network Service Traffic

Whole of Government

Perspectives:

- Implementation of national cybersecurity strategy
- Dedicated Funding
- Partnering with critical infrastructure managers
- Capacity building
- Organization of CyberDrills (Exercises with stakeholders) for the strengthening of the operational teams (IT Staff) of the stakeholders

Situational Awareness



Team overview

Solutions (macro)

- Architecture
- Tool evaluation and selection (including RFI support)
- Workflows
- Best practices

Analysis (micro)

- Analytic techniques and methods
- Specifics: data, threats, algorithms

Teamwork and collaboration internally and with other CERT groups

Typical engagements

- Architecture development and recommendations
  - Network architecture
  - Tool deployment/sensing infrastructure (Internet-connected and closed networks)
- Analytic development
  - Signature-based
  - Anomaly detection
- Data analysis
  - Not restricted to network flow or pcap
- RFI support, product evaluation
- Open source and classified research projects
- Training and mentoring (frequent collaboration with Sec Ops)

Recent work

Analytic development

- SiLK analytics to identify clients with low standard deviations for source port of DNS requests—potentially vulnerable to DNS cache poisoning
- Use of Bollinger Bands to measure network volatility for events of interest
- Proof of concept implementations of mean shift algorithm and tensor decompositions to cluster or identify anomalies in Bro log data

Training and mentoring deliveries (in-person or prerecorded videos)

- SQL for Analysts
- SiLK/E1 for Technical Managers
- E1 to Profile Network Services

Recent work (cont.)

Architecture and tools work

- Assessment of and recommendations for methods and locations at which to perform break and inspect of encrypted traffic to maximize security, while minimizing impact on performance
- Initial evaluation of three platforms for full packet capture, based on open source information
- Proof of concept deployment of internal SiLK sensors on a large USG network
- Research and white paper on commercial DNS service providers
- Research and white papers on architecture of cloud-based systems, threats to such systems, and recommended best practices for migrating USG systems and services to the cloud

Current areas of interest

- Increase in encrypted traffic: implications for cybersecurity, privacy, and associated policies
  - TLS 1.3
  - DNS over HTTPS
- Machine learning for cybersecurity
  - How to identify the problems for which ML is an appropriate solution?
  - How to avoid the "hammer looking for a nail" approach?
- Use of IoT/"smart building" capabilities to support cybersecurity

Contact Information

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