



A Framework of Distributed Agent-Based Network Forensics System

By

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Presented At

The Digital Forensic Research Conference

DFRWS 2004 USA Baltimore, MD (Aug 11th - 13th)

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A Framework of Distributed Agent-based Network Forensics System

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Agenda

- Concepts
- Classification
- Approaches
- Goals
- Architecture
- Functions
- Tools
- Characters
- Challenges

Network Forensics

On the First DFRWS:

The use of scientifically proven techniques to collect, fuse, identify, examine, correlate, analyze, and document digital evidence from multiple, actively processing and transmitting digital sources ...

What is it?

My Opinion:

- Digital Forensics in Network Environment
- E-evidence **IN** network obtained
- Obtain e-evidence **VIA** network

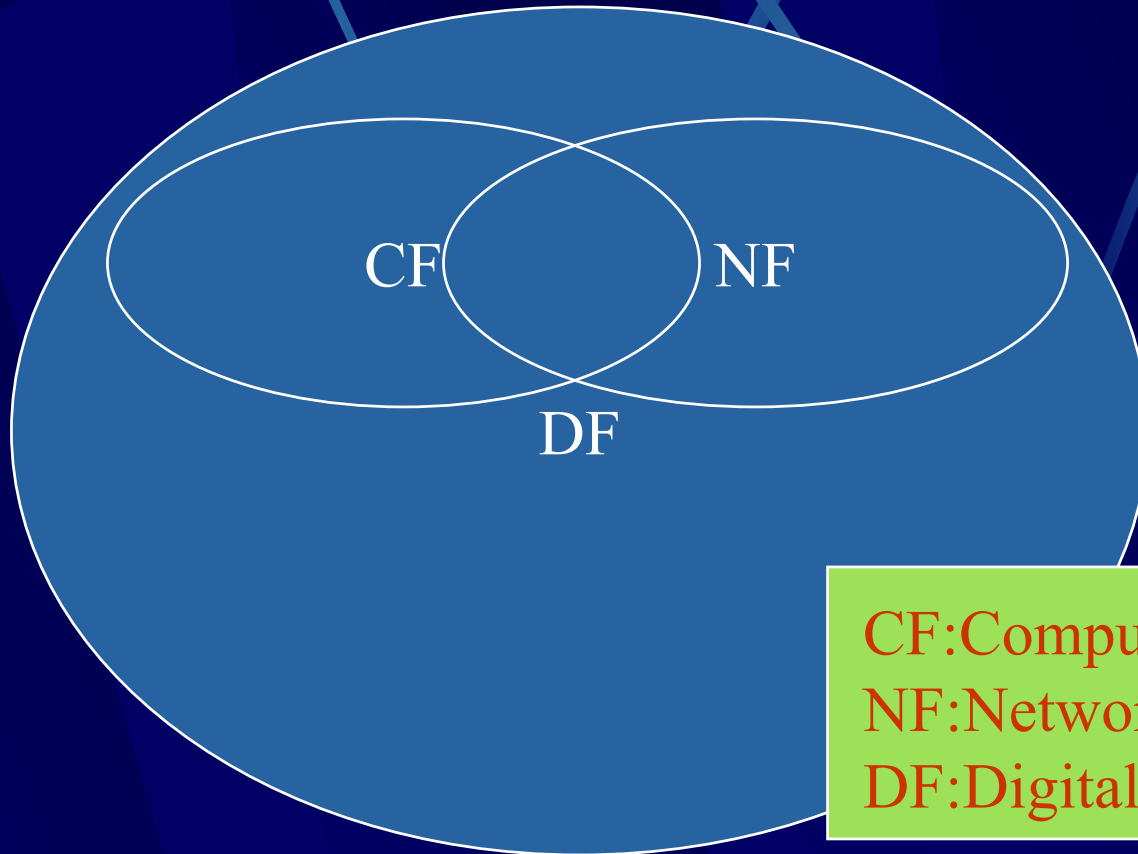
IN network

- Firewall log
- HIDS log
- NIDS alert
- Host System Event
- Network Packets

VIA network

- Log Analysis
- Log Integration
- Packet Capture
- Protocol Analysis
 - POP3,SMTP
 - FTP,TELNET,HTTP

Where is it?



CF:Computer Forensics
NF:Network Forensics
DF:Digital Forensics

Brother Or Child?

Internet Forensics

Wireless Forensics

Online Forensics

Approaches

- Packet Capture
- Packet Filter
- Protocol Analysis
- Data Fusion
- Distributed Agent
- Data Mining
- IP Traceback
- Mapping IP to Geographic Location

Goals

- Adaptive Capture of Network Traffic
- Integration of Forensics Data
- Active Response for Investigational Forensics
- Guide the Enhancement of Firewall and IDS system

System Architecture

- Network Forensics Database
- Network Forensics Server
- Network Forensics Distributed Agents

Server Function

- Build the Database of Mapping Topology
- Capture the Network Traffic
- Filter and Dump the Traffic Steam
- Transform Traffic Steam into Database
- Forensics Database Mining
- Network Protocol Analysis
- Network Surveying
- Network Attack Analysis and Visualization

Distributed Agent Function

- Integration with Distributed Firewall
- Integration with Distributed IDS
- Integration with HoneyNet
- Integration with the System Monitor
- Remote Network Forensics

Tools

- TcpDump/Windump
- Snort
- Ethereal
- VisualRoute
- SamSpade
- Nmap

Characters

- Adaptive
- Intelligent
- Cooperative
- Agent-based
- Distributed
- Integrative

Challenges

- Custody of Chain
- Privacy Protection vs Traffic Monitor
- Encrypted Traffic
- Traffic Volumes
- Covert Channel
- IP Spoof/Compromise Hops
- Anti Sniff

Web Site

- DFRWS
- IJDE (International Journal of Digital Evidence)
- JDI (Journal of Digital Investigation)
- National Center for Forensic Science
- Economic Crime Institute (ECI)
- SANS institute
- Global Information Assurance Certification
- FIRST
- CERT Coordination Center
- CERIAS

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Acknowledgement

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Q&A

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