ArgusNet: An Architecture for Collecting Attack Data

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Objective

To develop a solution to analyze attacks
- ➢ Design an architecture to collect attacks transparent to attackers
- ➢ Restrict attackers to exploit only the target machines
- ➢ Analyze the collected data in order to understand the threat of attacks

Functional Components

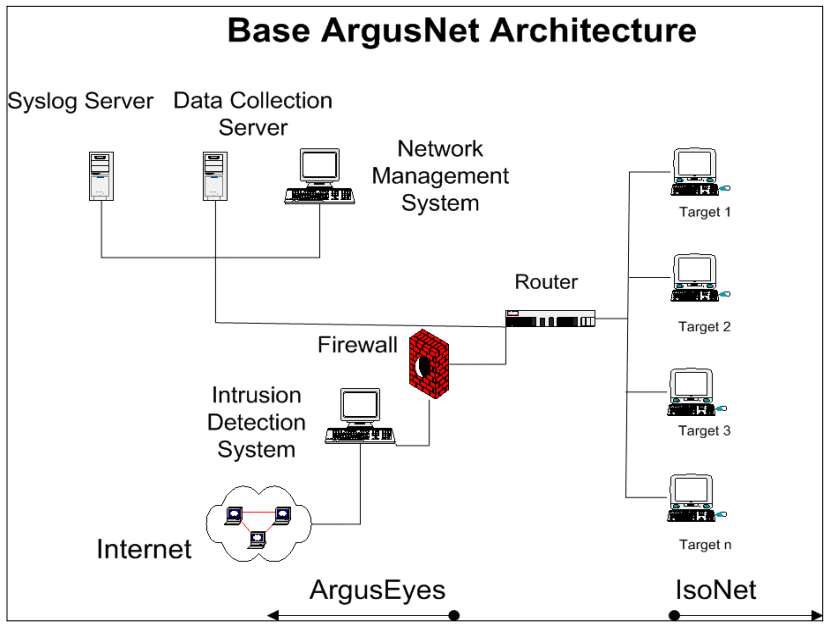
➢Access Control :
Restricts attackers to IsoNet
- ❖ Reverse firewall: limits number of outgoing connections
- ❖Network Intrusion Prevention System: drops outgoing connections based on attack signature

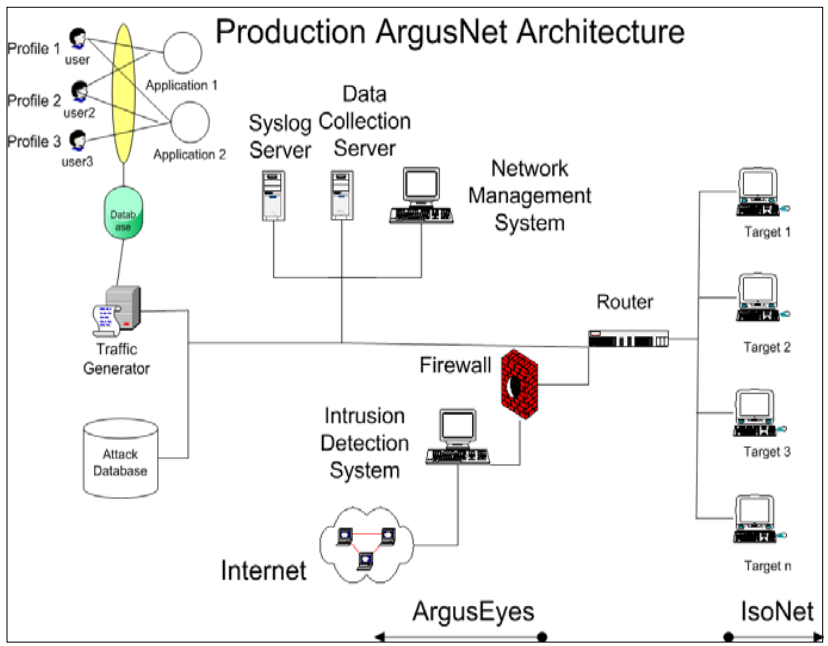
➢Data Collection:
Collects real time data at network, host and application level

➢Event Logging:
Collects and stores system, application and security logs

➢Event Alerting:
Alerts the administrator about any attacker activity and system failure

➢Network Management:
- ❖Monitors the state of all the machines in network
- ❖Collects network statistics





Architecture

➢ArgusEyes: Monitoring Network:
- ❖Reverse firewall
- ❖Intrusion detection system
- ❖Syslog server
- ❖Data collection server
- ❖Network management system

➢IsoNet:Isolated Target Network:
- ❖Modified OS kernel
- ❖Data collection tools
- ❖Monitored applications
- ❖Simulated users
- ❖Simulated application traffic

➢Router: Separates ArgusEyes from IsoNet

Validation

➢Phase1:
- ❖Develop profile of user and application traffic
- ❖Simulate network traffic without launching attacks

➢Phase2:
- ❖Build a database of attacks
- ❖Launch attacks without simulated background traffic

➢Phase3:
- ❖Launch attacks with simulated background traffic
- ❖Analyze the results to tune parameters of access control and data collection modules