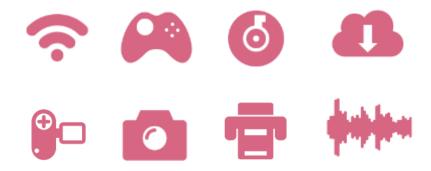




#### **TECHNOLOGY IS EVERYWHERE**

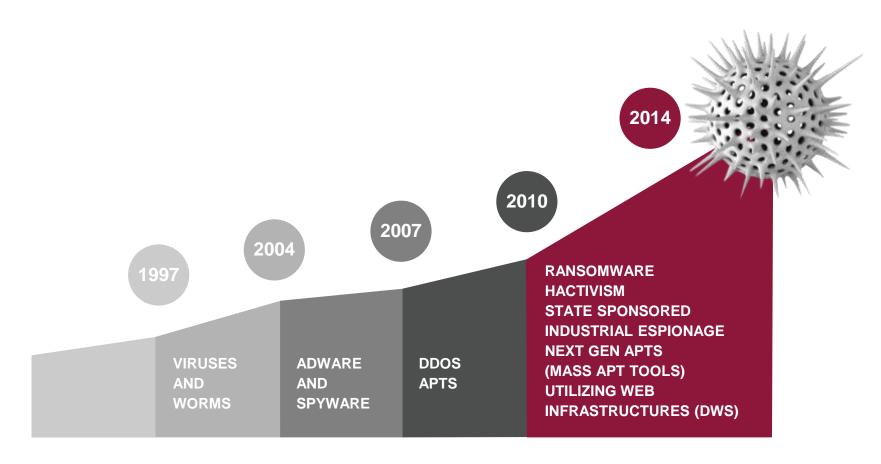


The Internet of things BRINGS WITH IT NEW challenges



#### AN EVER- CHANGING THREAT LANDSCAPE

Every year THREATS are becoming more sophisticated and MORE FREQUENT





#### THREATS BECOME A COMMODITY

## **ZERO-DAY EXPLOITS PRICE LIST**

ADOBE READER	\$5,000
MAC OSX	\$20,000
ANDROID	\$30,000
FLASH OR JAVA	\$40,000
MICROSOFT WORD	\$50,000
WINDOWS	\$60,000
FIREFOX OR SAFARI	\$60,000
CHROME OR INTERNET EXPLORER	\$80,000
IOS	\$100,000

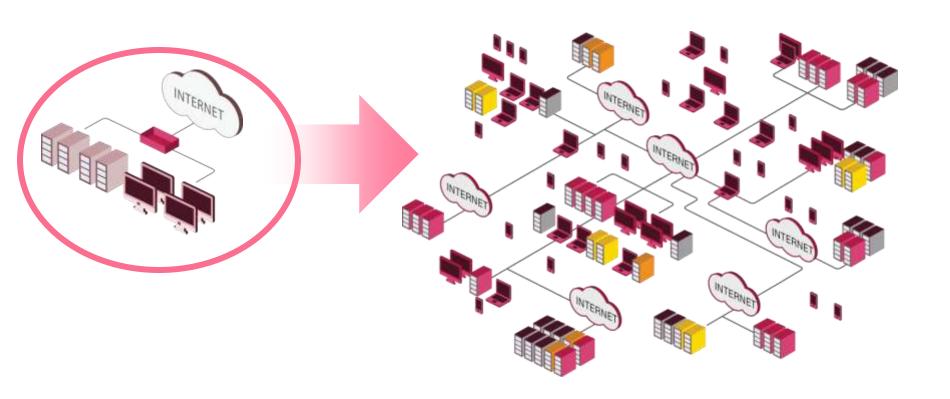


<sup>\*</sup>Source: http://www.forbes.com



#### **EVOLVING AND COMPLEX IT ENVIRONMENTS**

IT environments have **EVOLVED** with new **EMERGING** technologies





# WE NEED SECURITY that is

# MODULAR AGILE SECURE!!!





### Introducing

#### SOFTWARE - DEFINED PROTECTION

Today **SECURITY** for Tomorrow's **THREATS** 





#### **SOFTWARE - DEFINED PROTECTION**

#### MANAGEMENT LAYER

Integrates security with business process

#### **CONTROL LAYER**

Delivers real-time protections to the enforcement points

#### **ENFORCEMENT LAYER**

Inspects traffic and enforces protection in well-defined segments





## **ENFORCEMENT LAYER**

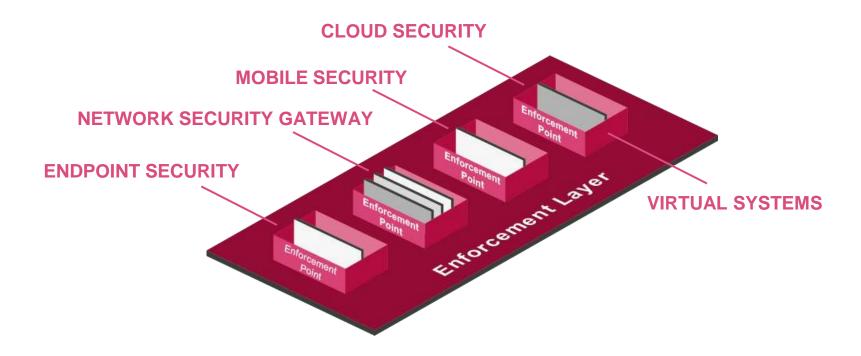
RELIABLE and FAST to deal with demanding IT networks and hosts.





#### **ENFORCEMENT LAYER**

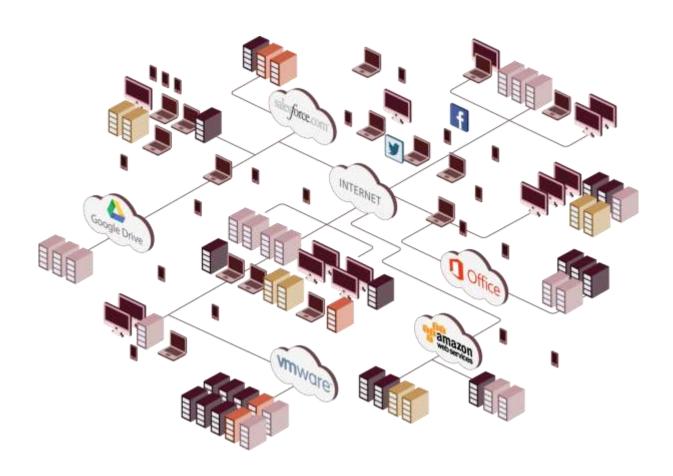
Enforcement points **MEDIATE** interactions between users and systems and **EXECUTE** protections



10



# HOW TO PROTECT BOUNDLESS ENVIRONMENTS?





#### **SEGMENTATION IS THE NEW PERIMETER**

In today's **NETWORKS**, there is no single perimeter.

Smartphones, clouds, and cloud move **DATA** and networks across boundless computing environments.





#### SEGMENTATION METHODOLOGY

STEP 1

#### **ATOMIC SEGMENTS**

Elements that share the same policy and protection characteristics

STEP 2

#### **SEGMENT GROUPING**

Grouping of atomic segments to allow modular protection

STEP 3

#### CONSOLIDATION

Protect interactions and data flow between segments

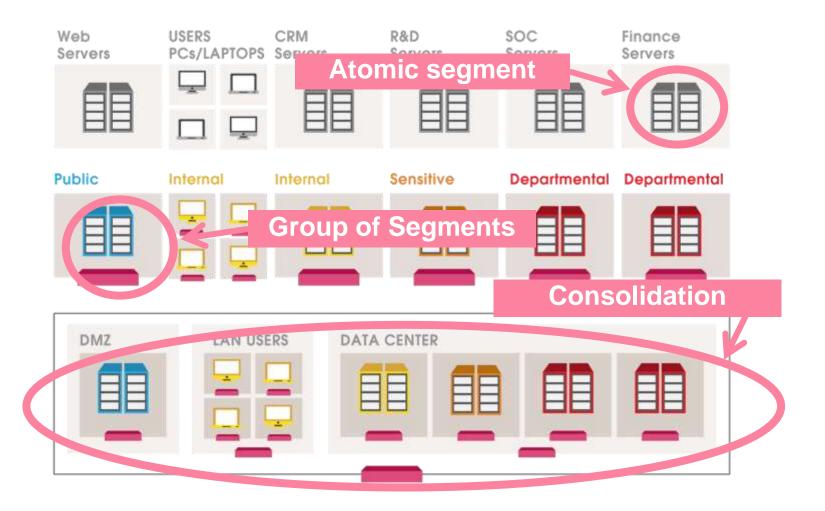
STEP 4

#### TRUSTED CHANNELS

Of physical and virtual components, as network security gateways or as host-based software



#### SEGMENTING YOUR NETWORK





### **CONTROL LAYER**

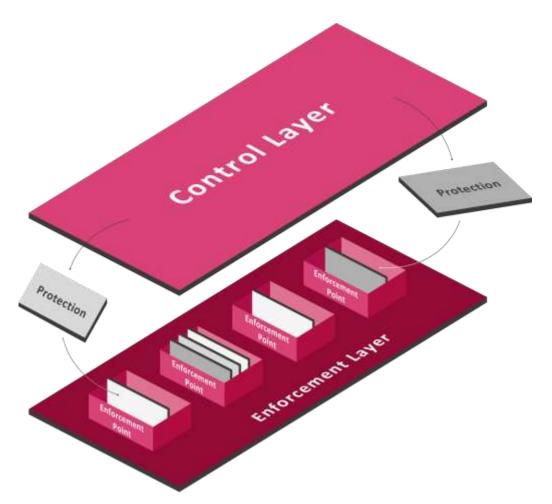
Generates **SOFTWARE-DEFINED** protections and deploys them at the appropriate **ENFORCEMENT** points.





#### **CONTROL LAYER**

#### **Generate PROTECTIONS**

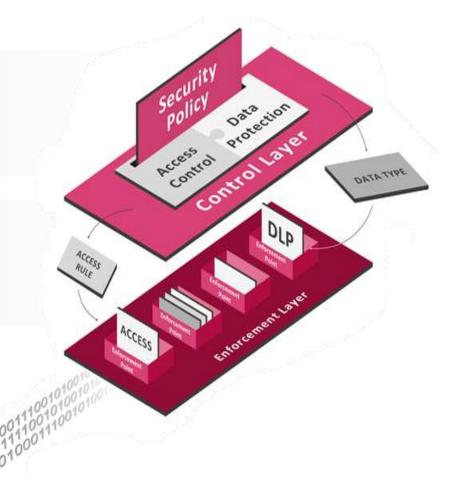




## **ACCESS CONTROL AND DATA PROTECTION**

Control interactions between users, assets, data and applications

Protect data in motion and at rest







# WHAT ABOUT PROTECTING AGAINST THE BAD GUYS?



#### THE THREATS WE NEED TO PREVENT

# **Known Knowns**

Threats we know

**ANTI VIRUS** 

**ANTI BOT** 

**IPS** 

# Known Unknowns

Threats we know we don't know

THREAT EMULATION

**ANTI BOT** 

# Unknown Unknowns

Threats we don't know we don't know

# **Check Point Multi-Layered Threat Prevention**





**IPS** 

Stops exploits of known vulnerabilities





**Antivirus** 

Block download of malware infested files





**Anti-Bot** 

Detect and prevent bot damage



### **IPS Software Blade Summary**



#### Security – Sophisticated and Accurate

- Industry leading threat coverage
- Multi-Method Detection Engine
- NSS Recommended in IPS Group Tests



## Integrated Turn-Key Appliances

- Multiple models covering performance spectrum
- Integrated hardware and software bypass
- Flexibility with integrated, turn-key appliances

## Management – Operational Efficiency

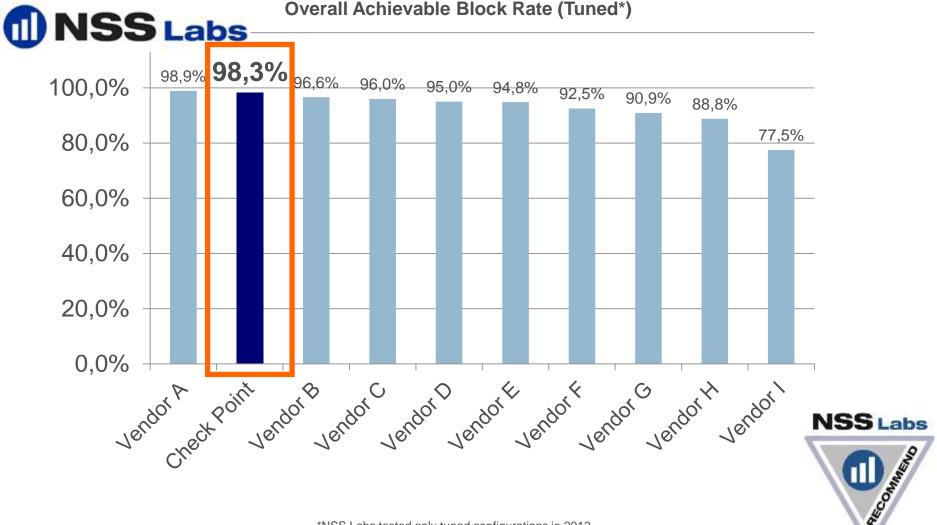
- Unified management of Check Point IPS products
- Easy deployment, configuration and management of IPS policy, features
- Efficient and effective policy and IPS operations management



# Increase Security NSS IPS Group Test Results (2012)









\*NSS Labs tested only tuned configurations in 2012

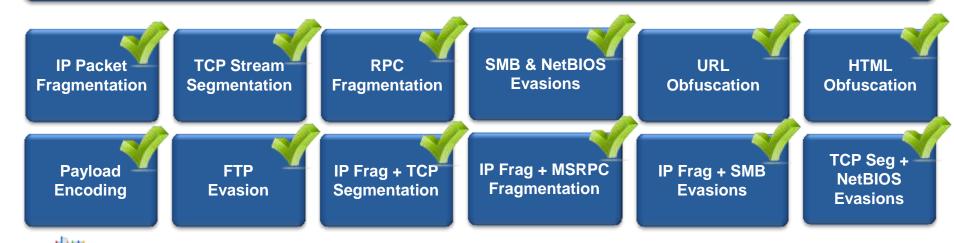
# Increase Security – NSS IPS Group Test Results



#### **Resistance to Evasion Attacks**

Missing a type of evasion means a hacker can use an entire class of exploits to circumvent the IPS, rendering it virtually useless

# Check Point IPS Software Blade delivered 100% resistance to evasion



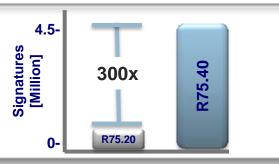
#### **Antivirus Software Blade**



### **Extended Protection using ThreatCloud™**

Stop Incoming Malware Attacks

Protect with 300x more signatures!



Prevent
Access to
Malicious Sites

Over 300,000 sites!



Constantly updated

Security intelligence with ThreatCloud™

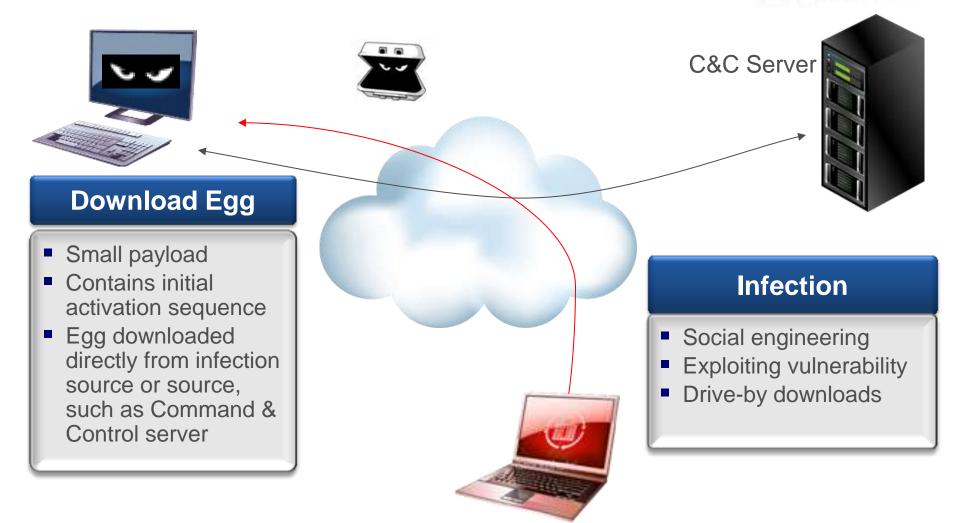




### **Botnet Operation: The Infection**







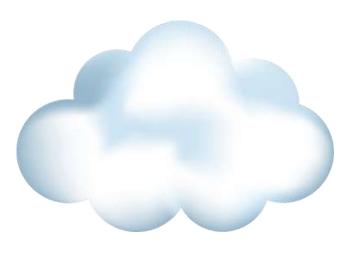
#### **Botnet Operation: Self-Defense**





#### Self Defense

- Stop Anti-Virus service
- Change "hosts" file
- Disable Windows Automatic Updates
- Reset system restore points



Command & Control Server



### **Botnet Operation: The Damages**







Command & Control Server

#### **Payload Pull**

- Spam
- **Denial of Service**
- **Identity Theft**
- Propagation
- Click fraud



# Anti-Bot

#### **Anti-Bot Software Blade**



#### **DISCOVER and STOP Bot Attacks**

Discover Bot infections

Multi-tier discovery



Communication patterns



Attack signs and types



Prevent Bot damage

Stop traffic to remote operators





Investigate Bot infections

**Extensive** forensics tools



## *ThreatSpect*<sup>™</sup> Engine



*ThreatSpect*™ Engine

# Maximum security with multi-gig performance

#### Reputation

- Detect Command & Control sites and drop zones
- Over 250 millions addresses in ThreatCloud™
- Real time updates

Network
Signatures

- Over 2000 bots' family unique communication patterns
- Dozen of behavioral patterns

Suspicious Email Activity

Over 2 million outbreaks



# **Check Point Multi-Layered Threat Prevention**





IPS

Stops exploits of known vulnerabilities

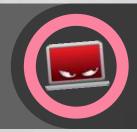




**Antivirus** 

Block download of malware infested files





**Anti-Bot** 

Detect and prevent bot damage







# TARGETED ATTACKS BEGIN WITH ZERO-DAY EXPLOITS

**Duqu Worm Causing Collateral Damage in a Silent Cyber-War** 

Worm exploiting zero-day vulnerabilities in a Word document





#### **Exploiting Zero-day vulnerabilities**



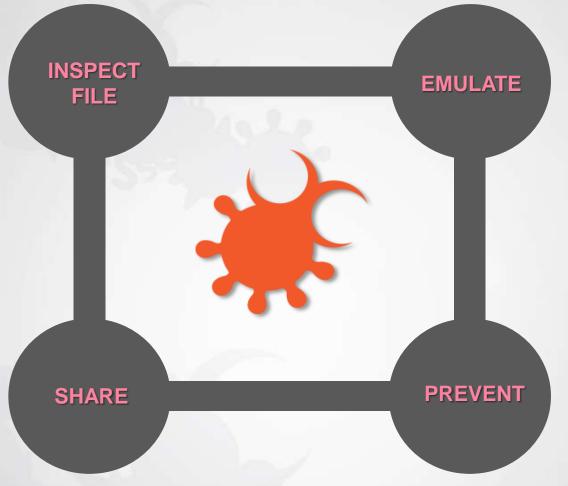




"nearly 200,000 new malware samples appear around the world each day"

- net-security.org, June 2013





# Stop undiscovered attacks with Check Point Threat Emulation





Requires no infrastructure change or adding devices

in email attachments and downloads over the web

## **INSPECT**

101010 010101 101010

Exe files, PDF and Office documents

Send file to virtual sandbox





# Emulating Multi OS environments

WIN 7, 8, XP & user customized

Open file and monitor abnormal behavior

# **EMULATE**



# Monitored behavior:

- file system
- system registry
- network connections
- system processes







Inline stopping of malicious files on any gateway



SHARE

THREATCLQUD™

Immediate update of all gateways

## **Emulation @ Work**



#### Joseph H. Nyee

12345 Street Name Ave, New Orange, WA 11111

555-555-5555 (Home) 555-555-5555 (Cell)

xxxxx@resumewriters.com

Flexible, results-oriented and meticulous Professional interested in continuing work as a Maintenance Technician/ Electrician

#### **QUALIFICATIONS**

Experienced, Knowledgeable, Versatile, Adaptable and Dependable

#### PROFESSIONAL EXPERIENCE

NORTHWEST ELECTRICAL CORP., New Orange, WA Maintenance Electrician 1999 - 2005

- Used laptop and desktop workstations to troubleshoot problem sources on PLC and CNC program controlled
  equipment in the machining, production and assembly areas of the plants. Filed reports and looked up parts.
- · Assisted other trades in pinpointing mechanical, hydraulic and pneumatic problems.
- · Corrected/Repaired equipment.
- Worked on construction projects as needed and continually performed PM tasks.

WONKOR CORP., Pamoma, OR

1994 - 1999

#### Master Electrician

- · Broadened knowledge base since there were only two skilled trades-Mechanical and Electrical.
- · Sharpened troubleshooting efficiency skills to match high volume production schedule.
- Provided production machining and assembly line support. Machine center contained G.E. Fanus-controlled Toyoda and Chirron mills, Okuma lathes and digital servo drives; assembly lines had Allen Bradley PLC 5 controllers, Miller/Hobart wire-feed and stud welders, large spot welders, and various small presses.

GENERAL DYNAMICS, Lima, OH Journeyman Maintenance Electrician 1984 - 1993

- · Began inside maintenance career.
- Repaired and maintained welders, presses, machining centers, hoists, cranes, shape cutting oxy fuel and plasma arc units, and coordinated axis drive systems.
- Worked on Allen Bradley PLC, PLC 2 and PLC 3 controllers, Gould Modicon PLCs and Allen Bradley 7300, 8200 and 9000-series CNC machine controllers.

I.B.E.W./Local 683, Columbus, OH

1979 - Present

#### Journeyman Inside Wireman

 Worked on industrial and commercial construction projects. Tasks included print reading, job layout, conduit bending, wire pulling, heavy machine and switchgear moving and installation, industrial power distribution and motor control center installation. Trained and supervised apprentices.

#### EDUCATION

OHIO INSTITUTE OF TECHNOLOGY/DEVRY, Columbus, OH

1975

Diploma, Electronic Technician

SPRINGFIELD LOCAL 669 JOINT APPRENTICE TRAINING COUNCIL, Springfield, OH

Journeyman Inside Wireman

1980

Certifications, Off job site training on Allen Bradley PLC 2-3-5 R.S.LOGIX, troubleshooting, repair and programming, G.E.FANUC 15M CNC controllers and digital servo drives, Toyoda Machining Center spindle maintenance.

## A STANDARD CV?



## **Emulation @ Work**



#### Malware Report



Emulated On: Microsoft Windows XP 32 bit, Service Pack 3, Office 2003 (11.5604.5606), Office 2007 (12.0.4518.1014), Adobe Acrobat Reader 9.0





#### Joseph Nyee.pdf

#### Malicious Activity Detected

Type

A pdf

MD5

3173d2a0a607eccf21707a3dc5de30da

SHA1

b18de396e6392e9e241e816e662e8f5abdb68a99



**Emulation Screenshot** 



#### 9 Affected Files

3 Files Created | 8 Files Modified | 1 File Deleted

C:\Documents and Settings\All Users\Application Data\google\googleservice.dll

C:\Documents and Settings\All Users\Start Menu\Programs\Startup\googleservice.exe

C:\Documents and Settings\admin\Application Data\google\googleservice.dll

C:\Documents and Settings\admin\Local Settings\Temp\AdobeARM.dll

more

#### **31** Affected Registry Keys

31 Entries Set | 0 Entries Deleted

HKCU\Software\Microsoft\Direct3D\MostRecentApplication\Name HKCU\Software\Microsoft\Internet Explorer\Main\Window Placement HKCU\Software\Microsoft\Internet Explorer\Security\P3Sites HKCU\Software\Microsoft\Internet Explorer\Toolbar\Locked

#### 4 Affected Processes

4 Processes Created | 1 Process Terminated | 0 Processes Crashed

C:\Documents and Settings\All Users\Start Menu\Programs\Startup\googleservice.exe

C:\Program Files\Adobe\Reader 9.0\Reader\AcroRd32.exe

C:\Program Files\Internet Explorer\iexplore.exe



#### 1 Attempted Network Connections

winssl.dyndns.org



more

## **Emulation @ Work**



### Abnormal file activity



#### 9 Affected Files

3 Files Created

8 Files Modified

1 File Deleted

C:\Documents and Settings\All Users\Application Data\google\googleservig

### Tampered system registry



## **31** Affected Registry Keys

31 Entries Set

0 Entries Deleted

 $HKCU \setminus Software \setminus Microsoft \setminus Direct 3D \setminus MostRecent Application \setminus Name$ 

HKCU\Software\Microsoft\Internet Explorer\Main\Window\_Placem

HKCU\Software\Microsoft\Internet Explorer\Security\P3Sites

HKCU\Software\Microsoft\Internet Explorer\Toolbar\Locked

### "Naive" processes created



### 4 Affected Processes

4 Processes Created

1 Process Terminated

C:\Documents and Settings\All Users\Start Menu\Programs\Startup\googleservice.exe

C:\Program Files\Adobe\Reader 9.0\Reader\AcroRd32.exe

C:\Program Files\Internet Explorer\iexplore.exe

#### Command & Control Sites



oogles

rvice.c

**1** Attempted Network Connections

winssl.dyndns.org

C:\Documents and Settings\admin\Local Settings\ I emp\AdobeAkivi.dli more



#### 31 Affected Registry Keys

31 Entries Set | 0 Entries Deleted

HKCU\Software\Microsoft\Direct3D\MostRecentApplication\Name

File System Activity

in\Wind urity\P3 lbar\Lo

System Registry

**1** 

1 Attempted Network Connections

winssl.dyndns.org

System Processes

Network Connections

## **Threat Emulation Deployment Options**

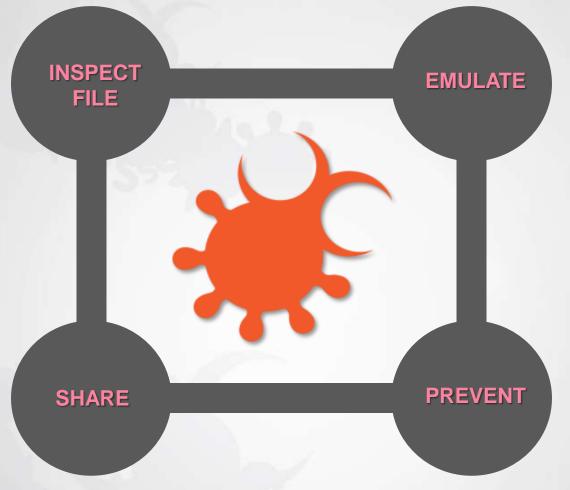




# THE ONLY SOLUTION TO PROVIDE MULTIPLE DEPLOYMENT OPTIONS







# Stop undiscovered attacks with ThreatCloud Emulation Service



## **THREAT PREVENTION**

Updated protections in **REAL-TIME** 





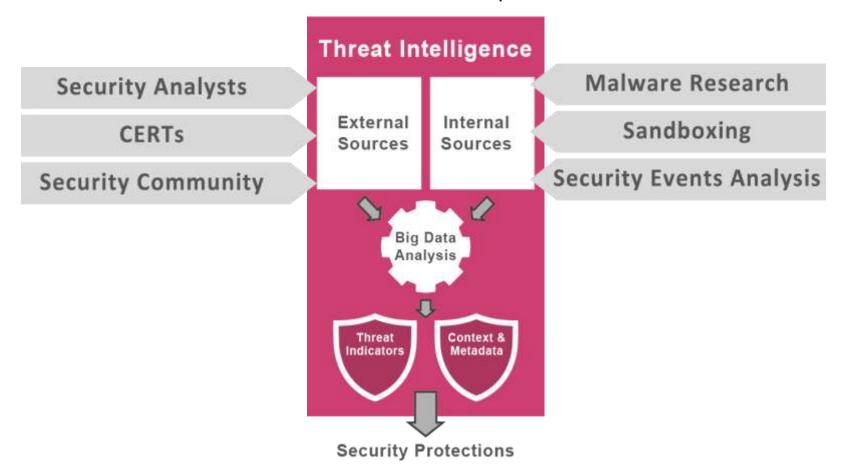
# EFFCTIVE THREAT PREVENTION IS BASED ON INTELLIGENCE





## THREAT INTELLIGENCE

**REAL-TIME** collaborative and open **INTELLIGENCE** translate into **SECURITY** protections.



45

## ThreatCloud™ First Collaborative Network to Fight Cybercrime





Over 250 Million
Addresses
Analyzed for Bot
Discovery

Over 4.5 Million
Malware
Signatures

Over 300,000

Malware-Infested

Sites

## ThreatCloud™ -**Dynamically Updated Intelligence**



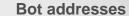
**SensorNET** 















**Check Point** ThreatCloud™

Global network of sensors to identify emerging threats

**Collect attack** information from gateways

**Industry-best** malware feeds



## **Boosting the Collaborative Power of ThreatCloud**





Real-time sharing for immediate Protection



## ThreatCloud™ Model: High Performance with Extended Protection



## Threat Database is kept in the cloud

- Malicious URLs
- Real time signatures
- C&C IP Addresses





Security updates normalized to the ThreatCloud

**Extended Protection** 

Gateway consults the cloud



Download updates to the gateway

- Binary Signatures
- Heuristic Engine
- Traffic Anomaly Check



**High Performance** 





## **MANAGEMENT LAYER**

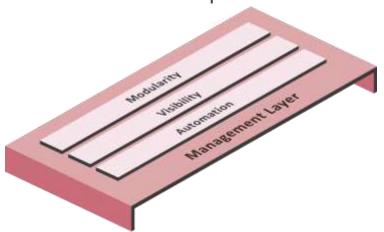
The MANAGEMENT Layer ORCHESTRATES the infrastructure and brings the highest degree of AGILITY to the entire architecture.





## **MANAGEMENT LAYER**

BRINGS the SDP architecture to LIFE by integrating security with business processes



#### **MODULARITY**

Support segmentation and segregation of management duties

#### **AUTOMATION**

Automates security policy administration and synchronizes it with other systems

#### **VISIBILITY**

360 degree situational awareness

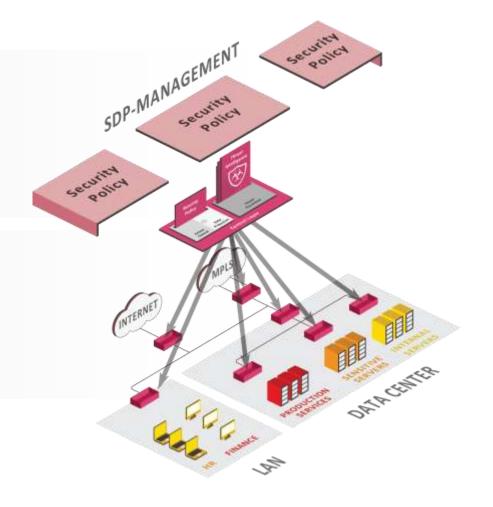


## **MODULARITY**

#### **ENDLESS FLEXIBILITY with LAYERS of POLICIES**

Management modularity provides the flexibility to manage each segment and control

Segregation of duties Layers of policy

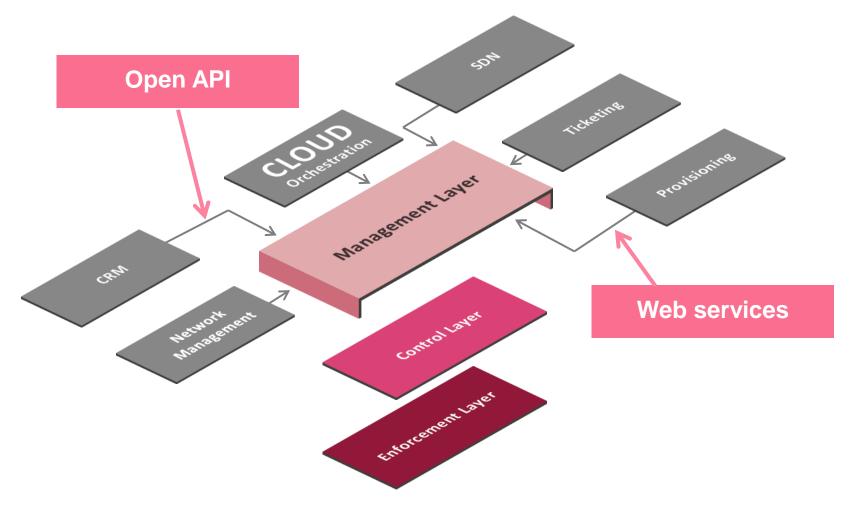


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## **AUTOMATION**

**OPEN INTERFACES** support business process changes





## **SDP AND SDN WORKING**

**IN SYNERGY** 

## SDN

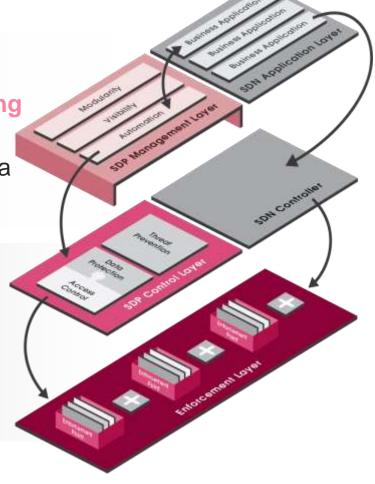
An emerging network architecture, decoupling network control and data planes.

Data flows between network nodes controlled via a programmable network SDN controller.

## SDP

An overlay architecture enforcing security traffic flows within an SDN network

Data flows are programmed to pass through SDP enforcement points





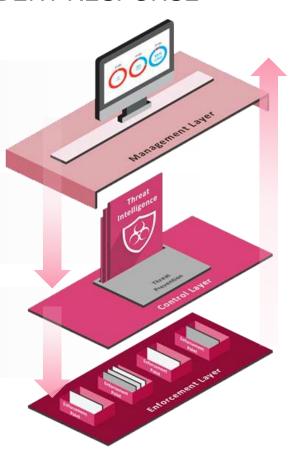
## **VISIBILITY**

#### **SITUATION AWARENESS & INCIDENT RESPONSE**

Collects information from every enforcement point

Situation awareness view

Generation of new protections





## **Management Challenges**

**Too Much Log Data** 

**A Multitude of Devices** 

No Time to View Events







Finding the Relevant Events

**Knowing What Poses** the Real Threat







## Getting Actionable Information

Leveraging Information to Stop Attacks Across the Enterprise





## **Check Point SmartEvent**



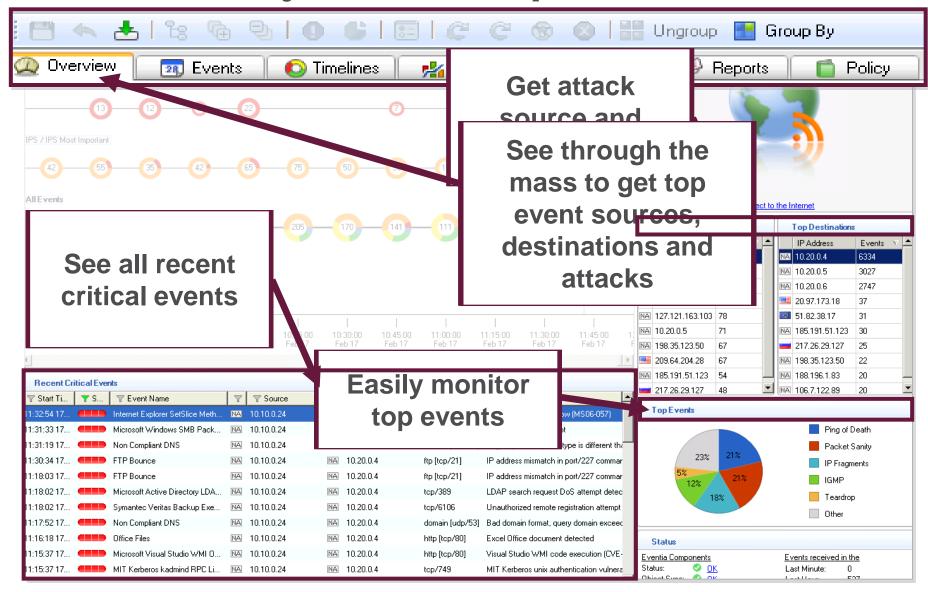
Check Point translates security information into action

Identify critical security events from the clutter with visual timelines

Correlate events across all security systems

Stop attacks straight from the event screen

## Monitor Only what is Important!



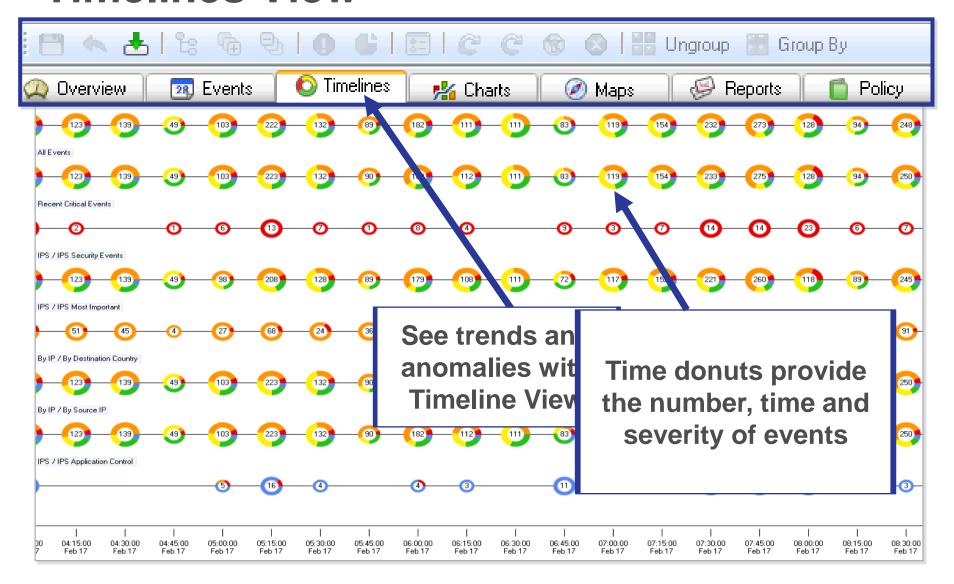


## **Best Integration**

Monitor all events for IPS, DLP, endpoint and more

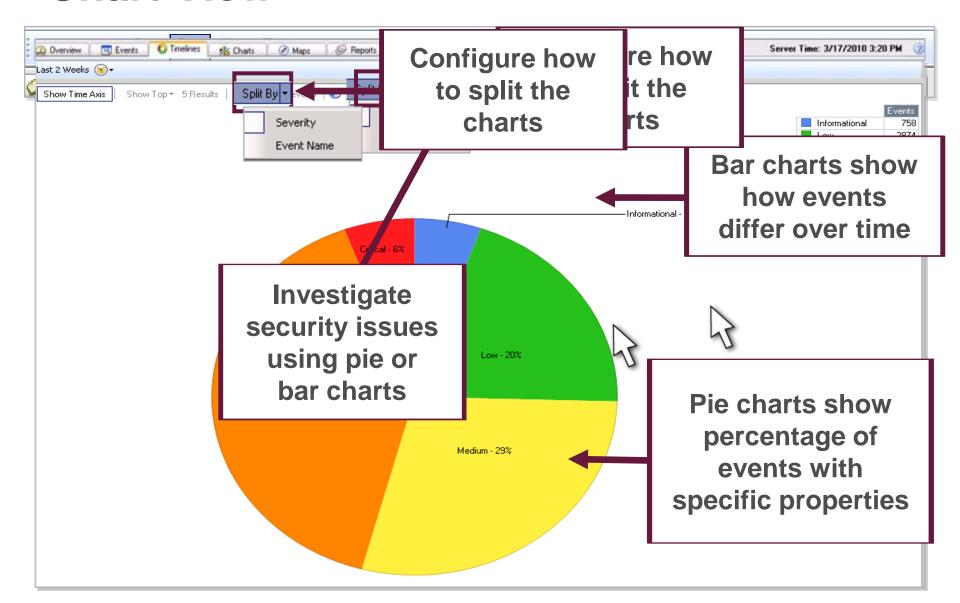


## **Timelines View**

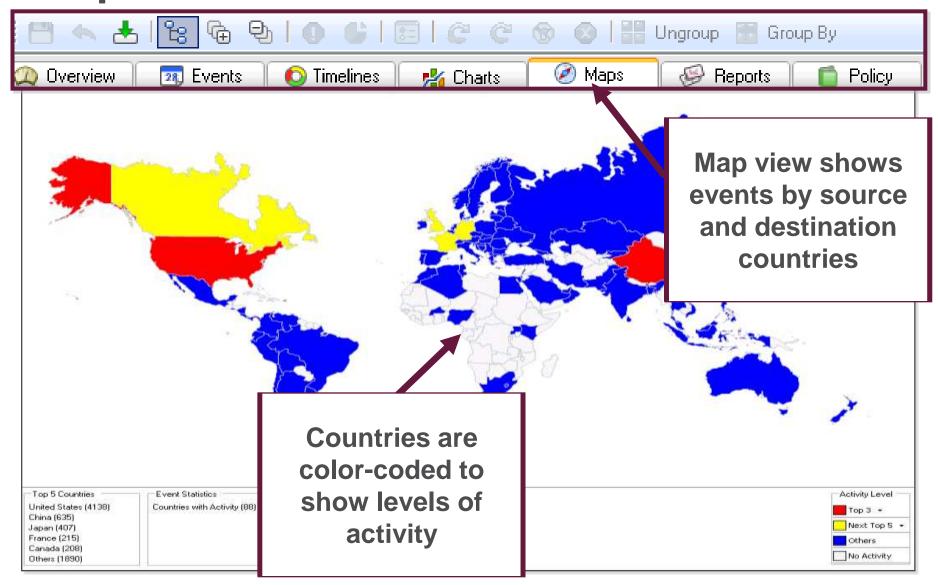






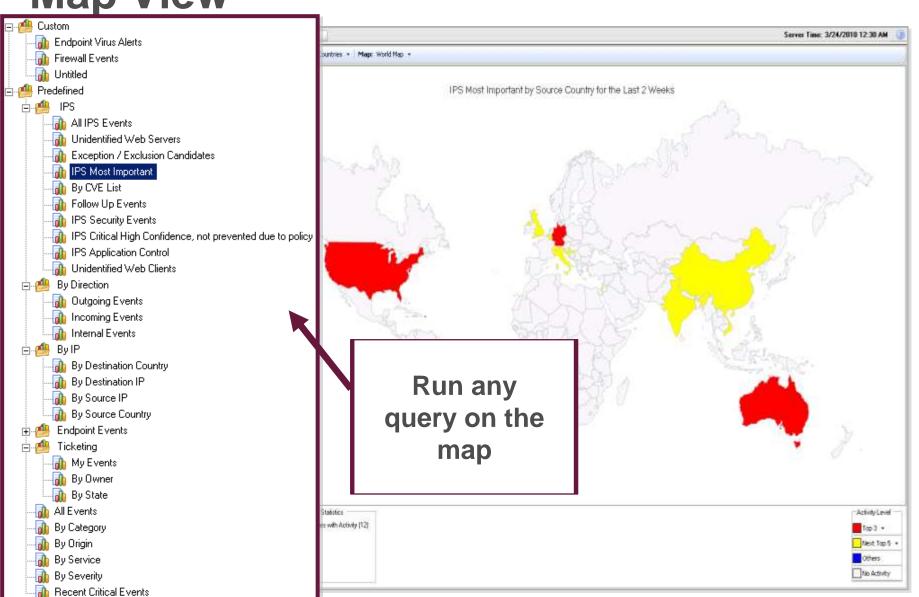


## **Map View**





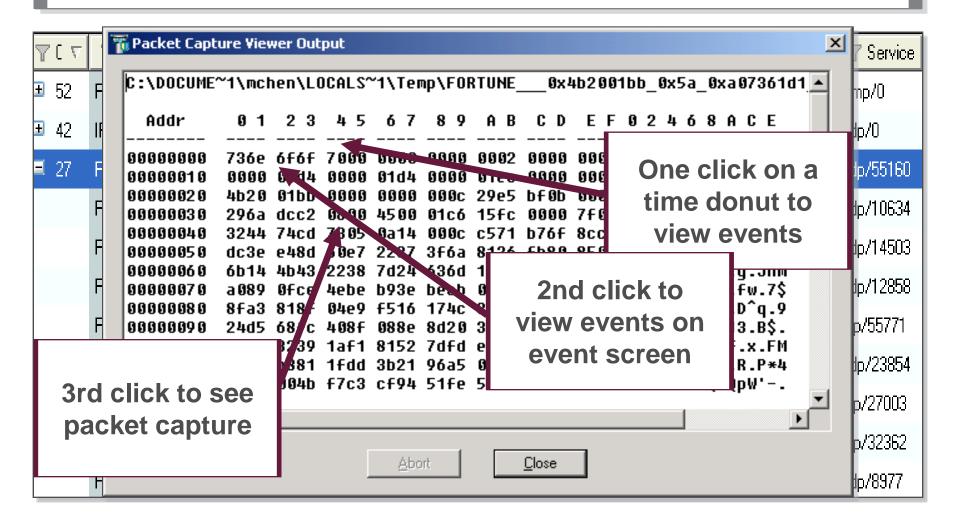






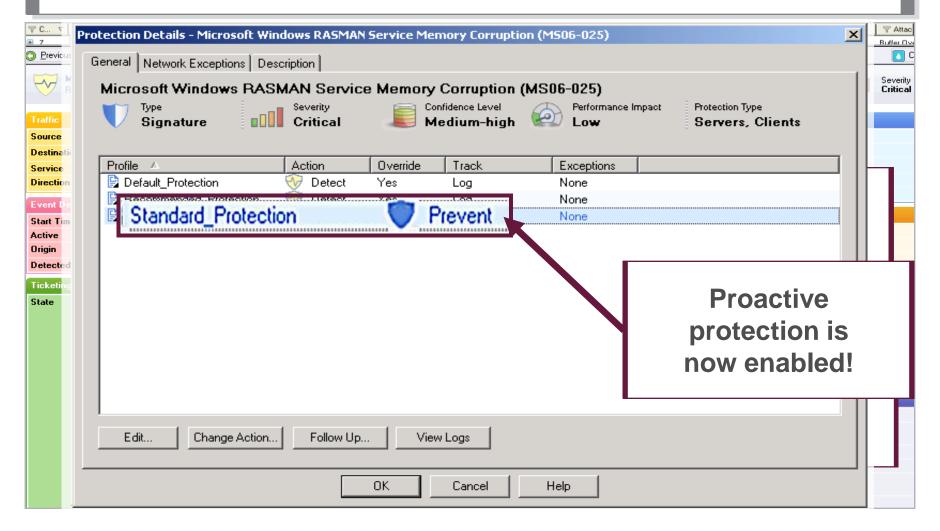
## **Easy Drill-Down**

## From business view to forensics in 3 clicks

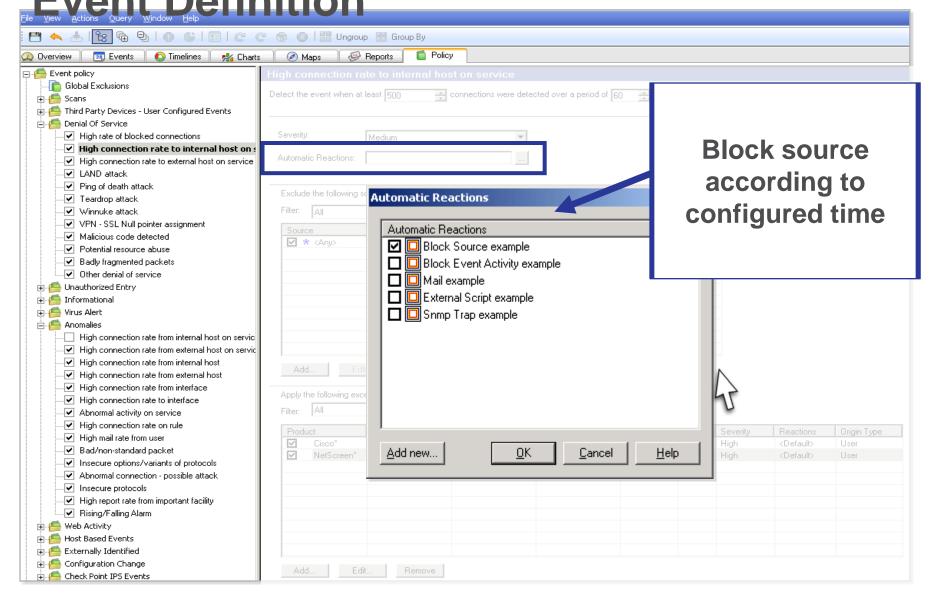


## **Better Remediation**

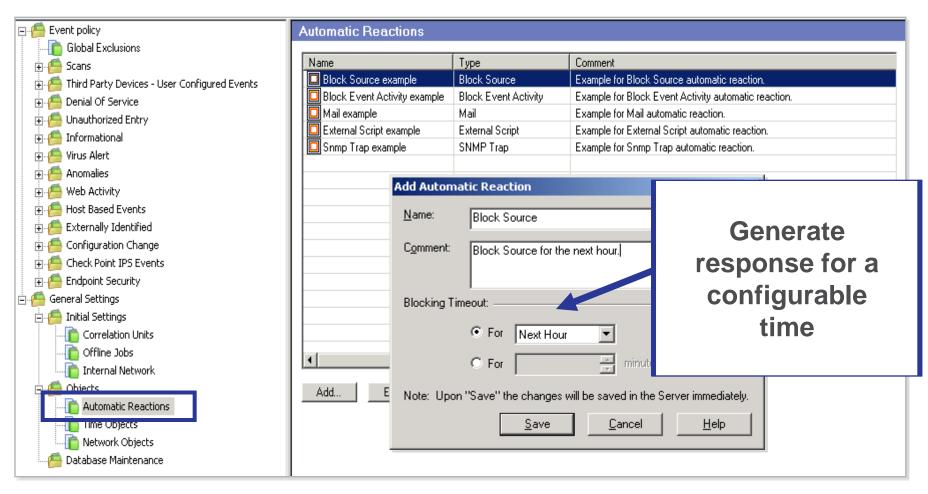
## Add protections on the fly



Setting Automatic Response for Event Definition



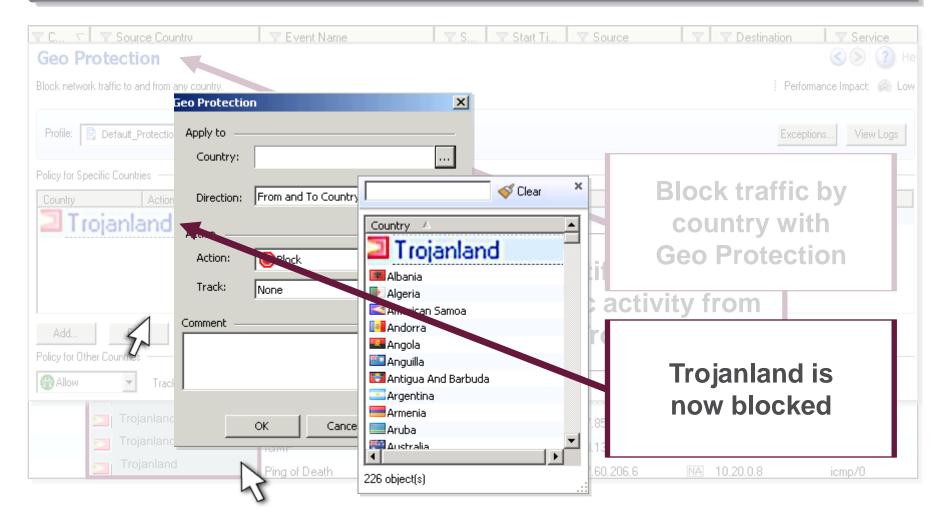
## **Configuring Automatic Responses**





## Better Remediation—Geo Protection Check Point

## The entire rogue nation is blocked!





## **SUMMARY**





## **SOFTWARE – DEFINED PROTECTION**

## MODULAR AND DYNAMIC SECURITY ARCHITECTURE

FAST AND RELIABLE ENFORCEMENT WITH REAL-TIME INTELLIGENCE

TODAY'S SECURITY ARCHITECTURE FOR TOMORROW'S THREATS



# CHECK POINT SOFTWARE – DEFINED PROTECTION

#### MANAGEMENT LAYER

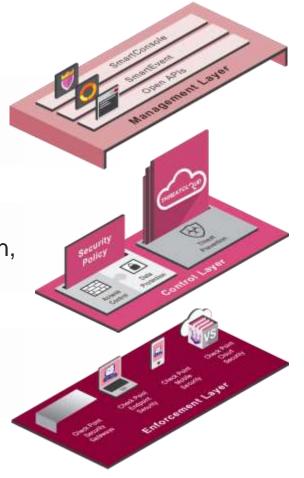
Check Point Next Generation Security Management

#### **CONTROL LAYER**

Next Generation Firewall, Threat Prevention, ThreatCloud™

#### **ENFORCEMENT LAYER**

Network, Host, Mobile, Cloud





# GO TO <u>WWW.checkpoint.com/sdp</u> TO DOWNLOAD THE WHITE PAPER

