





#### Trend Micro LeakProof 3.0 (TMLP)

**Data Leak Prevention** 

#### **Data Leak Prevention: PAIN Worldwide**

 Trend Micro Securing Your Web World

# Manufacturers Losing Profits From Compromised Intellectual Property Rights



THE JOURNAL REPORT

Almost half of survey respondents report lost market share.

Com

Dec

surv

prop

Intell in a desi

doc

**Boeing Breach** 

"Police reported finding a thumb drive that was connected to his computer terminal via a USB cord that ran along the back of the terminal to the storage device that was "hidden in a drawer" in his desk." 7/11/07.

**BREAKING NEWS!** 

**Fidelity NIS Theft** 

"To avoid detection, the administrator appears to have downloaded the data to a storage device rather than transmit it electronically." 7/03/07.

Security

February 21, 2007 Security Woes Snowball For TJ Maxx By <u>David Needle</u>



internetnews.com ®

ouees.

уои

TJ Maxx's (Quote) January report of a database breach exposing customers' financial information was bad enough.

It seems the damage, which led some customers to cancel or change their credit and debit card numbers, was worse than originally reported.

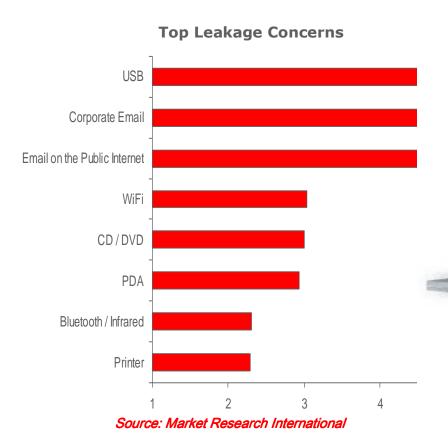
TJ Maxx said in January that it believed the intrusion only took place from May 2006 to January 2007, but the company said today in a statement its computer system was compromised in July 2005 and other dates in that year.

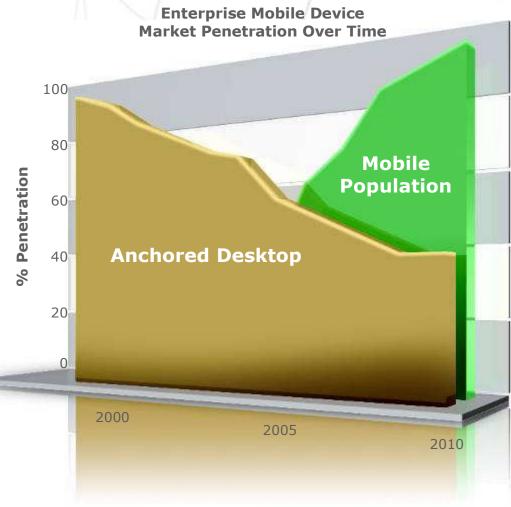


# **Mobile Insecurity**

 Trend Micro Securing Your Web World

 Desktop and Mobile Leakage





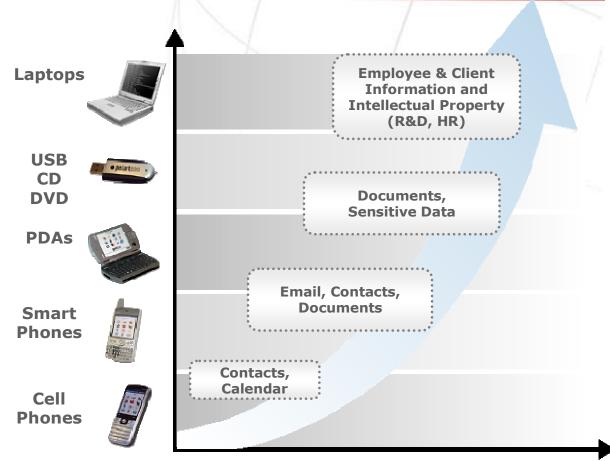
Source: The 451 Group and Infolock



### **Data Security & Protection**

 Trend Micro Securing Your Web World

- Why Data Security?
- Data is more mobile
- Mobile devices more powerful
- Difficult to secure the 'infrastructure' in a mobile world



Content Sensitivity & Threat Potential (source: InfoLock)

According to Gartner, 47% of corporate data resides on mobile devices, and **350,000** mobile devices were lost or stolen in the U.S. over a two-year period



 Trend Micro Securing Your Web World

- 78% of data breaches come from Authorized Insiders
  - PonemonInstitute Study –2006

# Authorized Insiders

#### **Threat**

Accidental or malicious breach

#### Goals

- Monitor, log, prevent breaches
- Assess risk continuously
- Educate employees

# Un-Authorized Outsiders

#### **Threat**

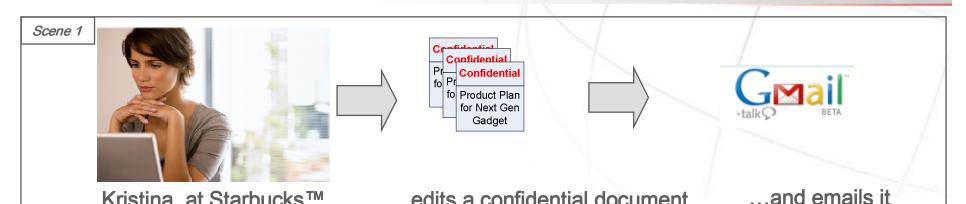
► Lost or stolen data

#### Goals

Prevent use of data by unauthorized people



## Scenes of Mobile Data Leakage

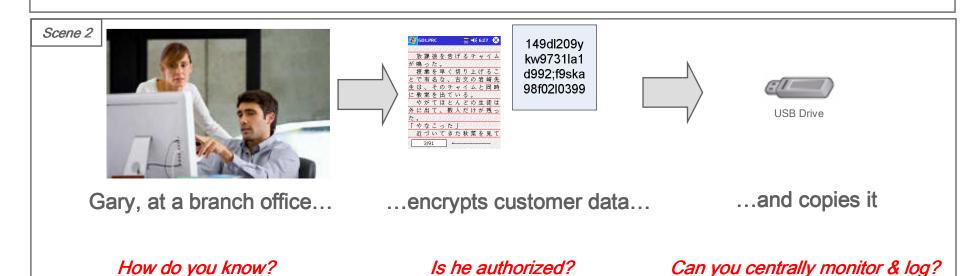


Kristina, at Starbucks™... ...edits a confidential document...

How do you know?

How can you tell it wasn't a love letter?

Could you have stopped it?



### **Securing Enterprise Data**

LeakProof enables companies to reduce the risk of data breaches and ensure privacy and compliance

LeakProof understands the content of data at rest, in use, and in motion on every enterprise endpoint, providing protection of sensitive data



# **LeakProof™ Secures From the Endpoint**

#### **Client Software**

- Intelligent
  - Fingerprint, Regex, Keyword, Meta-data
- Interactive New 3.0
- Invisible
- Independent
- Robust





**Educate** 



Employees of ACME are expected





Anti-leak Client



**Discover** 



#### **Enterprise Management**

- **Policy**
- **Visibility**
- Workflow









# **Defining Sensitive Information**

 Trend Micro Securing Your Web World

- Three Methods of Detecting Content
  - Sensitive Document DataDNA™ Fingerprinting
    - Unstructured Data
  - Entity Templates (Regular Expressions)
    - Structured Data
  - Keyword Lists
    - Structured Data
- Data is categorized by
  - Classification (as many as you need)
  - Sensitivity (High/Low)
  - Regulation (associated with a classification)
- Sensitive Data and Security Policies are linked by:
  - Matching Level Thresholds (High/Medium/Low)
  - Sensitivity Level Thresholds (High/Low)
  - Classification
  - Regulation



#### Sensitive Documents DataDNA™

 Trend Micro Securing Your Web World

- Servers with sensitive data are identified
- Sources (or file paths) within Servers identified
- Sources are given Classification and Sensitivity.
- Examples:
  - \\server\files\contracts\\*.doc = Contract
     Documents/High Sensitivity
  - \myserver\files\CVS\\*.\* = Source Code/Low Sensitivity
- Documents are retrieved by the appliance.
- Fingerprints are added to the database and policy.



# **Unique Fingerprinting Technology**

- **Fast**
- **Small**
- **Accurate**

is that and detect all a skarteanin lation teck detector d the accomhaps wide the some d then, exhaages of ind the anomal

Language independent

age that is superfor to the coverage of any one detector No studies have been fone, however, in which measured effects of diversity in anomaly detectors have been obtained

This paper explores the effects of using diverse as descention algorithms (describe) in turn from de-tection. Experimental results include that while perfor-mancelementage improvements copies fact by sheeted by combining diverse descention algorithms, has going are sur-prisingly not the result of combining ange, non-a erlapping regions of the anomaly space. Rather the gains are seen at the edges of the space, and are heavily dependent on the parameter values of the detectors, as well as on the characteristics of the anomalies.

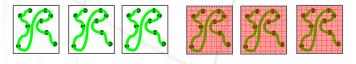
As a consequence of this study, defenders vided with detailed insocieties of diverse desectors, how to combine and parameterize them, and under what conditions, to effect diverse descrion performance that is superior to the performance of a single detector.

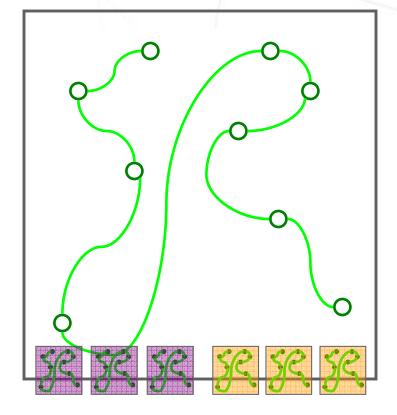
#### 1 Introduction

There are many problems that glague and maly-based intrusion de actoss today, e.g., high folice-alum suns [3], in-consistency of detector performance [10, 30], training is-sues, e.g., pow often should an anomaly direction system be retrains to easter acceptable performance [2], insidentent incorporation of intentive behavior into a detector's concept of advant behavior possibly or using the intrusion to be missed by the detector [13], and so forth

The effort to address the anggish progress in the osen of anomaly-based increasing detection requires a slight shift in for a from the common of ever-more, ever-new, moreoly theches against ms. Strangies are needed that attempt to valuate, undenstand and humers the strengths of the detecters that are already present in the literature [29, 26, 30]. These efforts have served to highlight the practity of evaluation methods for establishing the operational effectiveness of automaly detectors in a manner that is consistent and repentable. The lack of such evaluation strategies makes it stremely difficult to assess the effectiveness of anomaly devictors, compare their relative strengths and weaknesses. make accessoable improvements and - perhaps more interestingly – understand has a select and combine anomaly detectors effectively to enquove detection performance, talea select and combine anomaly: ing advantage of their inherent acceptance diversity.

It is interesting to observe that despite the variety of anomaly detectors currently grees to in the intrusion detection literatuse, these appears to be an implicit assumption that a single anomaly detection algorithm is all that is requised to detect incrusions or attacks on any given sys-tem. This assertion is supported by a further two observations. First, innusion detection systems claiming to perform anomaly detection typically employ a fig o e kind of anomaly detection algorithm (e.g., [8, 10, 9, 32]). There is however, no evidence to suggest that a single anomaly detector will be sufficient for a given intrusion detection task. This is mainly because there is currently no study showing that the kinds of anomalies asising as manifestations of at-







#### Trend Micro Securing Your Web World

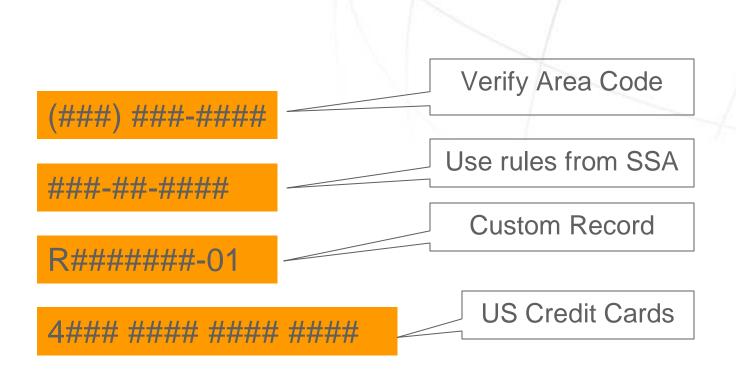
## **Entity Templates**

- Patterns are called Entities (Regular Expressions)
  - SSN or National Identification Numbers
  - Credit Cards
  - Addresses
  - Phone Numbers
- Entities are combined into Templates
- Templates have rules for which Entities must be found.
- Entities have a score assigned as part of the rule
  - Credit Cards + SSN = 100
- Score determines which Security Policy Rule will apply.



### **Defining an Entity Template**

 Trend Micro Securing Your Web World





#### Trend Micro Securing Your Web World

#### **Keyword Lists**

- Multiple lists of words are possible.
- Each list is assigned a Classification and Sensitivity.
- Primary Use: Identify Document Types
  - C Source Code: printf(), scanf(), atoi()
  - Java Source Code: public static void, System.out.println()
  - Legal Documents: indemnification, easement, escrow
  - Medical Documents: anemia, ganglion, pancreatic



#### **Keyword Lists**

#### Programming

atof( atoi( atol( else if #endif errno.h java.applet java.awt java.beans iava.io java.lang

#### **Legal Dictionary**

**MALICE ADJOURNMENT** DISMISSAL **AFFIDAVIT ALIMONY** CURIAE **BIFURCATION TRUST** CAPITAL **GAIN CAPITAL** 

#### **Medical Terms**

Abdominalgia parathyroid gland Vascular Hypoproconvertinemia Polyonychia Gangrene Osteomyelitis spinal curvature Tumor Osteomyelitis chylomicronemia

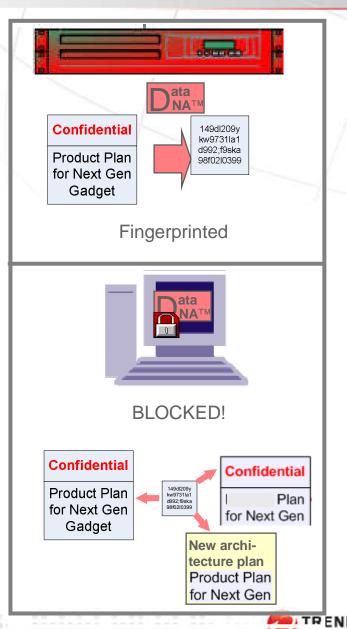


# **Security Policy Components**

- Security Policies are made up of rules
- Each rule has the following components
  - Target (All, Workgroup, Workstation, Group)
  - Sensitive Information Attributes
    - Classification and Regulation
    - Sensitivity threshold (Low or High)
    - Match Level threshold (Low, Medium, or High)
  - OR File Meta Data
    - File extension
    - File Size
    - Special File Types (Archive, Encrypted, Unknown)
  - Activity
    - Email, Web, Instant Message, File Write
  - Action (online/offline)
    - Log, Warn, Block, Forensics, Alerts, Justify



- DataDNA™ Matching Engine
  - High confidence, low false positives
  - Language independent
  - Multiple matching methods
    - Signature/fingerprint
    - Entity / Regex
    - Keyword
    - File meta-data
- Robust Anti-Leak A/L Agent
  - DataDNA matching engine protects
    - Online OR offline
    - On edited, re-saved, cut/pasted content
  - Broadest coverage
    - Devices, channels, applications, email clients, network protocols
    - Authorizes encryption



#### **Leading Agent Performance and Technology**

 Trend Micro Securing Your Web World

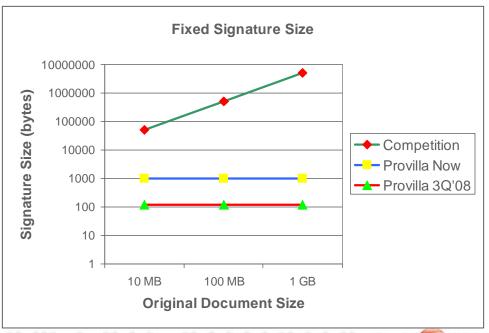
Fast and light

Performance/ Footprint	Provilla A/L Agent
CPU cycles	2.54% (1/2)
Run-time Memory	8,280K (1/5)

- Fastest matching engine
- Smallest signatures

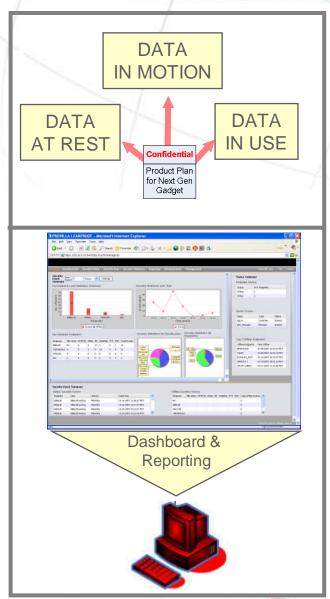
- Unobtrusive, Invisible
  - Not in task manager
  - Not in service list
  - Hidden files/directory

Search	Provilla A/L Agent	Competition
Keywords: 1000	12.0 MB/s (10x)	1.3 MB/s
Entity –SSN, Phone, Date	190 MB/s (40x)	4.75 MB/s



# **Enterprise Workflow & Policy**

- Leak Protection Policies
  - Logging, alerting, blocking
  - Education, Encryption, Justification
  - By endpoint, user, or group
  - By data classification
    - HIPAA, Customer, SOX, SS#
  - Separate online and offline policies
- Inventory & Forensics
  - Discovery
    - By endpoint, group, policy
  - Investigate events, see actual sensitive content
- Scalability, Availability
  - Server clustering
  - Agent monitoring





#### **LeakProof 3.0 Extends Endpoint Leadership**

 Trend Micro Securing Your Web World

- Broadest DLP Threat Protection at the Endpoint
  - USB, Email (Outlook, Lotus Notes), Webmail (MSN, Yahoo, Gmail, AOL), IM (MSN, AIM, Yahoo), Network (HTTP/HTTPS, FTP, SMTP)...
- New Windows Vista / Office 2007, PrintScreen Blocking
  - Interactive Employee Education & Workflow
    - Log, Block, Client Alert
- New Education: Custom messages and URL links
- New Encryption for USB copying
- New Justification
  - Discovery of Sensitive Data
- New Stand-alone discovery/scan module
  - Administrative Workflow

Enhanced – Dashboard, Policies, and Monitoring



### **Compelling Results**











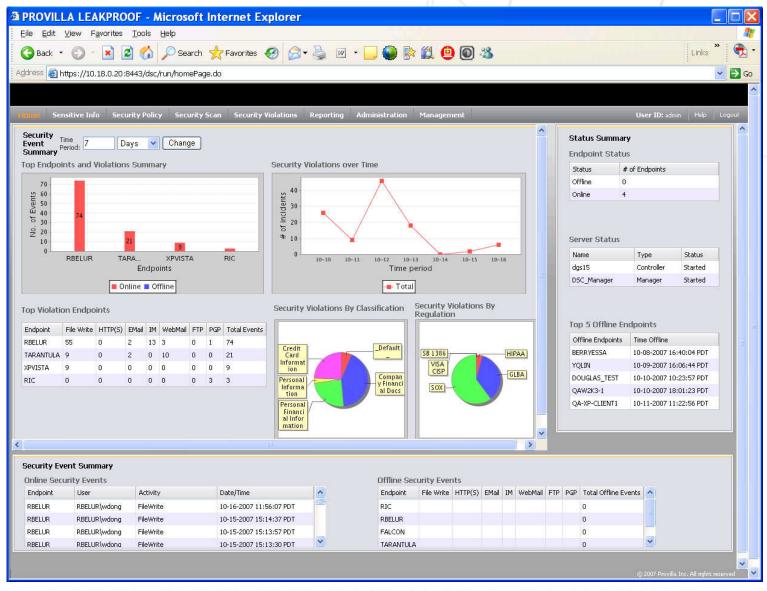




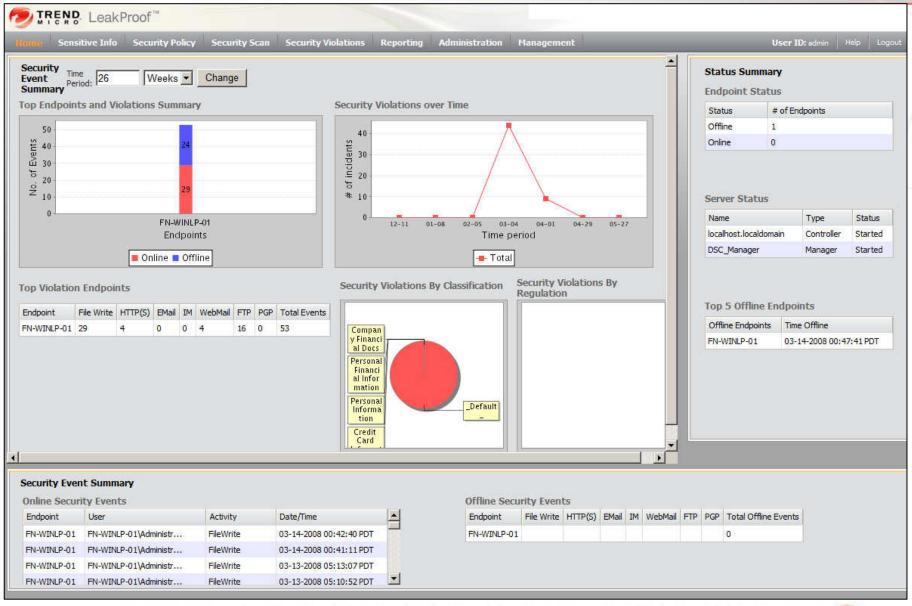
- Sony Ericsson: Global mobile handset manufacturer
  - Over 100 security violation incidents in first 3 weeks
- ISSI: Technology manufacturer
  - Detected large number of file copies after employee resigned
- Leading financial services company
  - Protected customer privacy to address compliance regulations GLBA etc



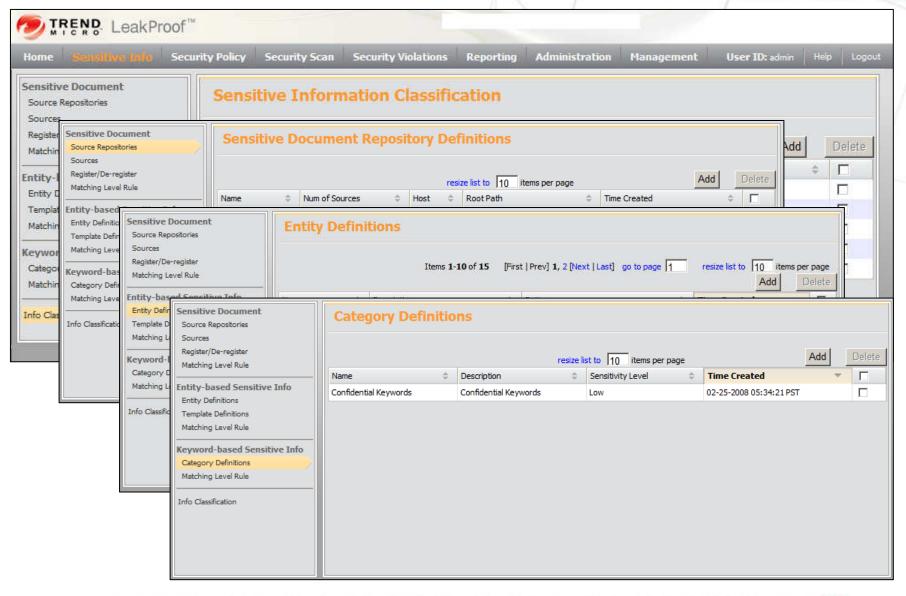
#### **New Dashboard and Workflow**



## **LeakProof Management – Summary**

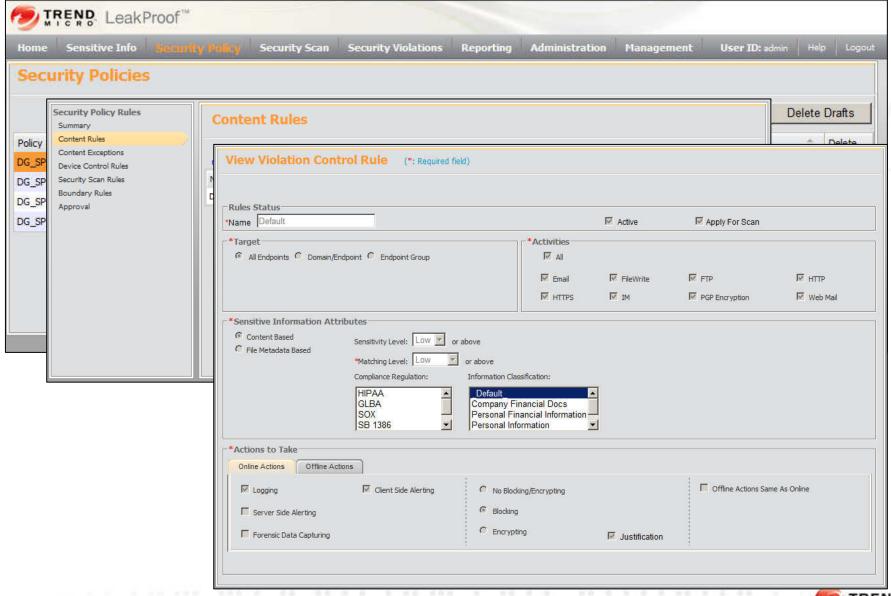


#### LeakProof Management - Sensitive Info Securing Your Web World

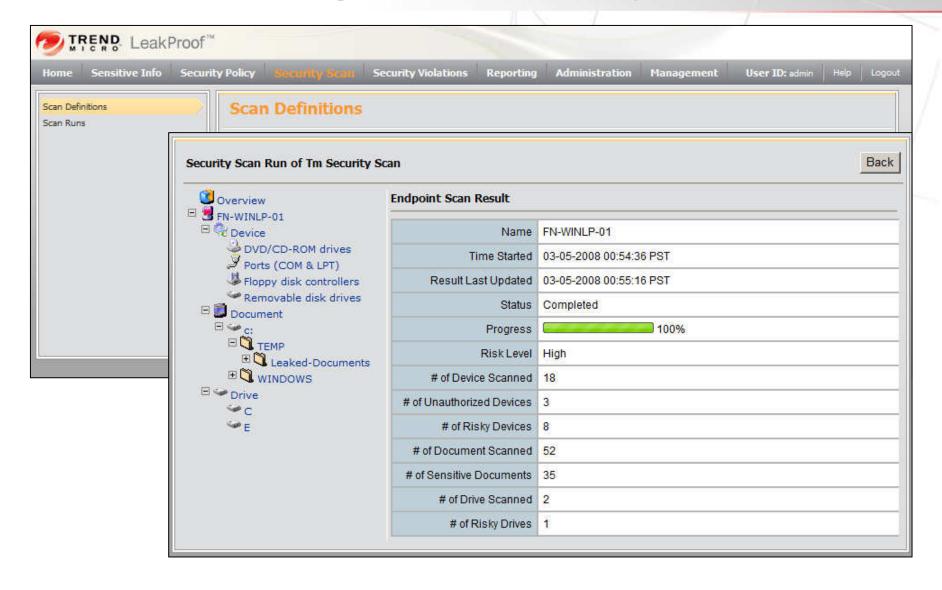




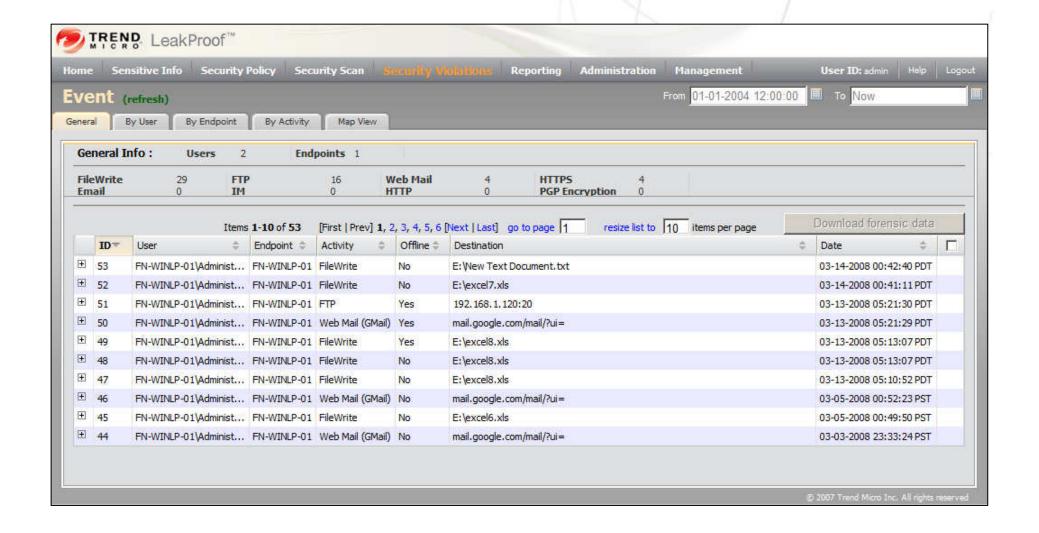
# LeakProof Management - Security Policy Trend Micro Web World



# LeakProof Management - Security Scan Security Web World



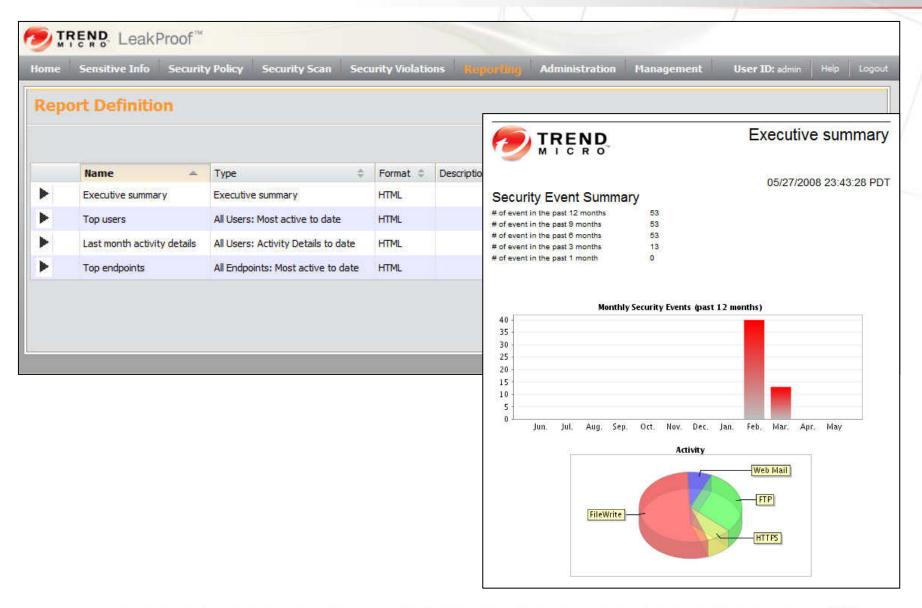
## LeakProof Management - Security Violations of Web World





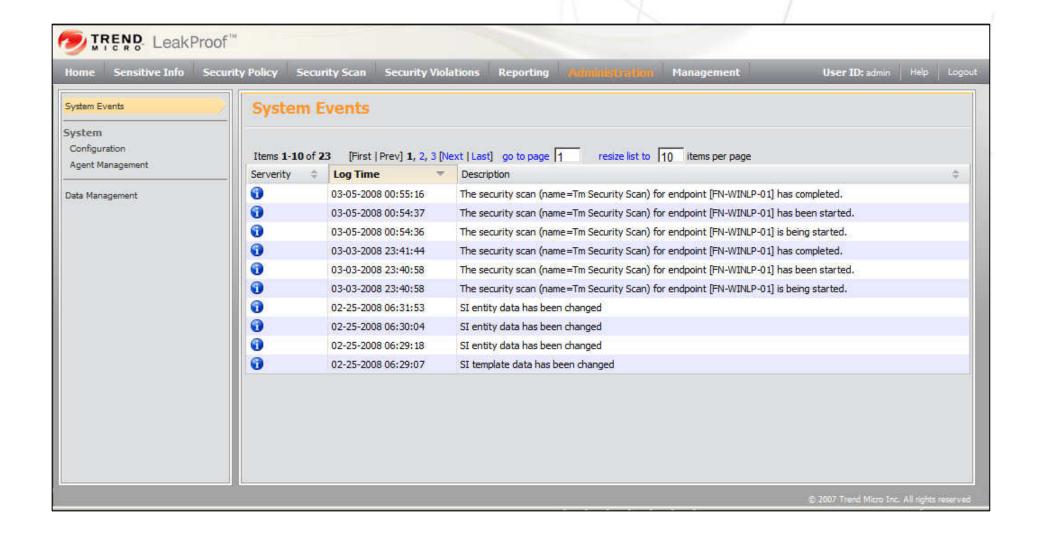
# **LeakProof Management – Reporting**

Trend Micro
 Securing Your Web World



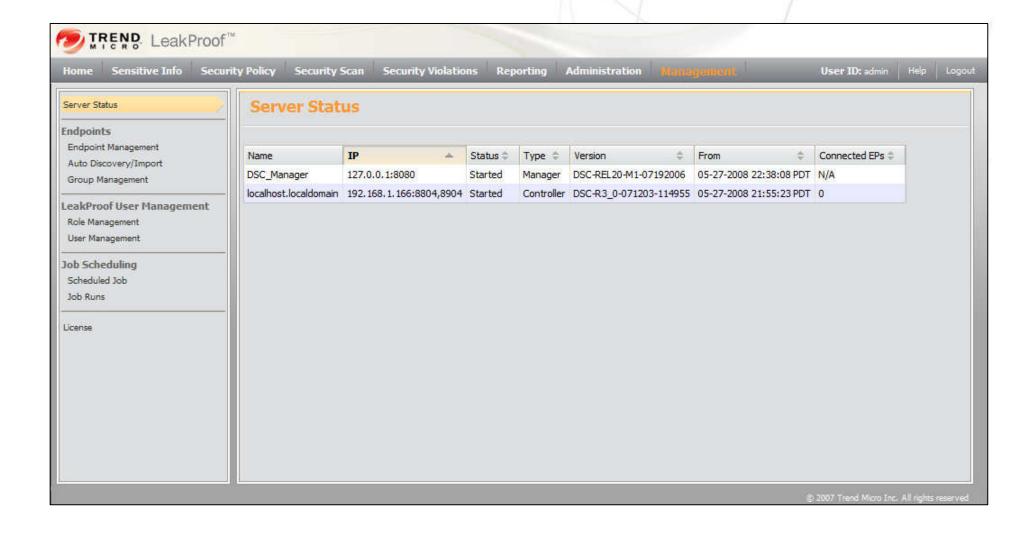


# LeakProof Management - Administration Trend Micro Nour Web World

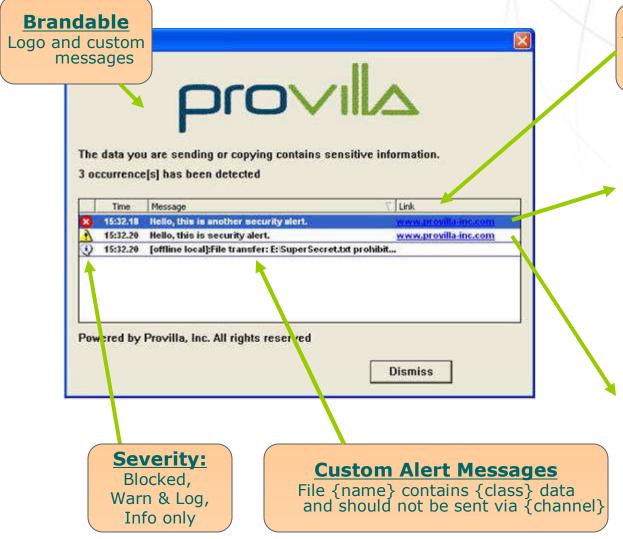


#### **LeakProof Management – Management**

 Trend Micro Securing Your Web World



## **LeakProof Client – Summary**



**Custom Links** Company

**Policies** 

ACME Laboratories - Microsoft Internet Explorer 🔾 Back \* 🖒 · 🗷 🙎 🔥 🔎 Search 🤺 Favorites 🚱 🔗 🦫 🔟 • 🔲 🚳 🐘 🛍 🚇 🔘 🔉

ACME Customer Privacy Protection Employees of ACME are expected to protect sensitive information containing customer information such as names, account numbers, social security numbers etc. Please report any ... Call the helpdesk or email.

ACME Laboratories - Microsoft Internet Explorer G Back · O · 🗷 🗷 🏠 🔑 Search 🤺 Favorites 🚱 🔗 🎍 🔟 · 📙 📦 🖹 🛍 🚇 🔘 🔉

Protection of Intellectual Property The IP of ACME is very valuable to us, and we expect all employees to help protect this data. Files containing IP secrets should not be emailed, copied to USB, ... If you have any questions about

this, please contact HR at...

# **LeakProof Client – Employee Education**

ACTION FEG	uired - Please respond promptly. 164 seconds.
a reason fo	t you are sending or copying contains sensitive data. Please enter your action (at least 10 characters long), then select 'Submit'. will be allowed and your reason logged. Select 'Cancel' to cancel
Content	I:\LuceneTest.cpp
Not	e: Prohibited symbols - < > ' '' ? - will be replaced by space,
W (370)A-40-20-20-20	
Action req	uired - Please respond promptly. 169 seconds. 🔀
The file you a password long) and si select 'Cha For encrypt	uired - Please respond promptly. 169 seconds.  are copying contains sensitive data and should be encrypted with before copying. Please enter a password (at least 6 characters elect 'Submit'. If you would like to copy this file without encryption, lenge' to override encryption. You will be asked to enter a reason. ed files, double-click or open the encrypted file, and enter the o decrypt. Select 'Cancel' to cancel your copy.
The file you a password long) and si select 'Cha For encrypt	are copying contains sensitive data and should be encrypted with before copying. Please enter a password (at least 6 characters elect 'Submit'. If you would like to copy this file without encryption, lenge' to override encryption. You will be asked to enter a reason. ed files, double-click or open the encrypted file, and enter the o decrypt. Select 'Cancel' to cancel your copy.
The file you a password long) and si select 'Cha For encrypt password to	are copying contains sensitive data and should be encrypted with before copying. Please enter a password (at least 6 characters elect 'Submit'. If you would like to copy this file without encryption, lenge' to override encryption. You will be asked to enter a reason. ed files, double-click or open the encrypted file, and enter the odecrypt. Select 'Cancel' to cancel your copy.  [:\LuceneTest.cpp]
The file you a password long) and si select 'Cha For encrypt password to Content	are copying contains sensitive data and should be encrypted with before copying. Please enter a password (at least 6 characters elect 'Submit'. If you would like to copy this file without encryption, lenge' to override encryption. You will be asked to enter a reason. ed files, double-click or open the encrypted file, and enter the order open.    Character   Cancel to cancel your copy.   Character   Cancel to cancel your copy.   Character   Cancel to cancel your capy.   Character   Charac
The file you a password long) and so select 'Cha For encrypt password to Content	are copying contains sensitive data and should be encrypted with before copying. Please enter a password (at least 6 characters elect 'Submit'. If you would like to copy this file without encryption, lenge' to override encryption. You will be asked to enter a reason. ed files, double-click or open the encrypted file, and enter the order open.    Character   Cancel to cancel your copy.   Character   Cancel to cancel your copy.   Character   Cancel to cancel your capy.   Character   Charac

Action required	- Please respond promptly. 175 seconds.	×
password before co long) and select 'Su	bying contains sensitive data and must be encrypted with apying. Please enter a password (at least 6 characters abmit'. Double-click or open the encrypted file, and enter crypt. Select 'Cancel' to cancel your copy.	
Content	I:\LuceneTest.cpp	Ī
Password		777
Retype password		1
Action required	Please respond promptly, 155 seconds.	
for this file, then sele	on (at least 10 characters long) for overriding encryption ect 'Submit'. Your copy will be allowed and your reason cel' to cancel your action.	
Content I:\Luce	eneTest.cpp	
CORRER Jr. SEGO	это гозоорр	4
Note: Prohib	ited symbols - < > ' '' ? - will be replaced by space.	
		_
1		
Sub	omit Cancel	

- Trend Micro LeakProof<sup>™</sup> prevents enterprise data leaks with a unique approach that combines endpoint-based enforcement with highly accurate fingerprinting and content matching technology.
- The LeakProof Anti-Leak Client communicates with the LeakProof DataDNA™ Server appliance for intelligent content filtering and security policy enforcement. Patent-pending technology detects sensitive data with real-time filtering. Powerful algorithms extract information from content to create a unique DNA sequence or "fingerprint" for each document that enables endpoint-based enforcement on or offline.
- A web-based interface supports administrative workflows for discovery, classification, policy setting, and reporting. Interactive alerts educate employees on the proper handling of confidential information. LeakProof supports regulatory compliance by protecting sensitive information and customer privacy.



**Trend Micro** 

Securing Your Web World







Veli-Pekka Kusmin Pre-Sales Engineer



Trend Micro Baltics & Finland Pakkalakuja 7, 3<sup>rd</sup> floor FI-01510 Vantaa Finland

Telephone +358 9 4730 8300 Direct +358 9 4730 8302 Fax +358 9 4730 8999

Mobile +358 40 596 7181

veli-pekka\_kusmin@trendmicro.com http://fi.trendmicro-europe.com