

# Secure Intellectual Property Management

## A Corporate View

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# What are the top three threats to IP security?

**1.**

**2.**

**3.**



# Is the security of intellectual property really a problem?

- Let's look at the numbers:
  - An enterprise with 125,000 email accounts:
    - Creates 1.5 million emails per day
    - Storage of the messages amounts to 90 gigabytes per day
    - Average 60,000 bytes per email
    - 70,000 laptop computers, 40 gigabytes of information each + USB
    - 20,000 cell/PDA, 1 gigabyte of information each
  - Tom's business email account
    - Creates and sends an average of 33 emails per day
    - Average 217,000 bytes per sent email (attachments-ppt, vsd)
    - Receives an average of 148 emails per day
    - Average 152,000 bytes per received email
    - Average 7 emails sent outside the enterprise per day
  - Google original indexing goals were built on the premise:
    - 250 M US citizens each create 10,000 bytes of information per day



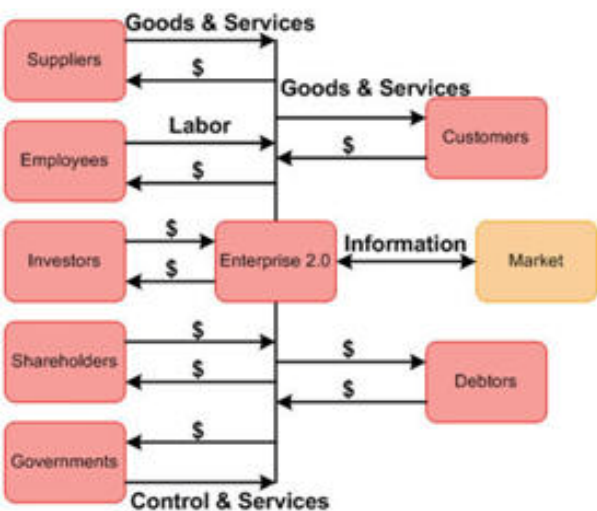
# Is the security of intellectual property really a problem?

- Let's look at society's tenets:
  - An ever-increasing need for more and more relevant information
  - A growing need to quantify uncertainty with greater precision
  - Technology will be used to amplify cultural components
  - What makes us smarter than machines is; our ability to adapt
- Let's look at trend data-points (67 tracked):
  - Always connected information explosion
  - The need-to-share trumps need-to-know, even in the military
  - Belief that data content should be free
  - New economic model of fast, flexible, open, and productive
  - Cost of collaboration is decreasing
  - Bandwidth increasing, with less unit information cost
  - Freedom of work movement expanding
  - The size, power and demands of the N-generation growing
  - Decreasing employee and employer loyalty

# Models of the Next Generation Enterprise 3.0



## 2.0 Economic Input/Output Model



## 2.0 Business Function Model

### Operating Processes

1. Develop Vision and Strategy
2. Design and Develop Products and Services
3. Market and Sell Products and Services
4. Deliver Products and Services
5. Manage Customer Service

### Management and Support Services

6. Develop and Manage Human Capital
7. Manage Information Technology and Knowledge
8. Manage Financial Resources
9. Acquire Construct and Manage Property
10. Manage Environmental Health and Safety
11. Manage External Relationships
12. Manage Improvement and Change

## 2.0 Information Access Model

1. Goal – "Protect everything from employees, suppliers, competition"
2. Need-to-know over-rides all
3. Enterprise Firewalls
4. Ad Hoc Sharing with suppliers
5. Coarse Granularity – All or Nothing



## 2.0 Transformation to 3.0

**Transformation Drivers**

**Economic:** + Increasing, - Decreasing  
 Lifetime of Products and Services -  
 Global Innovation +  
 Innovation and Growth Cycle 2008-2016 +  
 Enterprise Number of Employees -  
 Number of Independent Contractors +  
 Work Movement Freedom +  
 Enterprise Efficiency +  
 Enterprise Revenues -  
 Enterprise Profits +  
 Multi-Language +  
 Constant Change +  
 All Systems Complexity +  
 Economic Instability +  
 Individual Education Level + [Some Countries]  
 Cost of Collaboration -  
 Open Intellectual Property +  
 Building 21 Century Economic Model (Fast, Flexible, Productive) + [USA, UK, ...]  
 Internet Industry Winners – Energy, Computing and Electronics, Telecommunications, Retailing, Financial Services, Travel +

**Social:** + Increasing, - Decreasing  
 Individual Life Span + [Some Countries]  
 Population +  
 Need to Share Information -  
 Belief Access to Digital Content is Free +  
 Work Ethic -  
 Openness +  
 Peering +  
 Sharing +  
 Multi-User-Participation +  
 Connected at all Times +  
 Security Concern +  
 Security Incidents +  
 Privacy -  
 Size of workforce – [Except China and India]  
 Size of N-Generation +

**Business:** + Increasing, - Decreasing  
 Need for Predictability +  
 Time to Market -  
 Collaboration within Ecosystem +  
 Customer Personalization +  
 Personal Interaction +  
 Electronic Business +  
 Value Products and Services +  
 Cost of Products and Services -  
 Transaction-Based Pricing +  
 Market to N-Generation +  
 Organization Dynamic Configuration +  
 Western Business Tenets (Rule of Law, Economic Liberty, Individual Rights) +  
 Employee and Employer Loyalty -

**Environment:** + Increasing, - Decreasing  
 Green + [Except China, India, Russia]  
 Nuclear Power Generation + [China leading]  
 Energy Cost +  
 Natural and Un-natural Disasters +

**Technology:** + Increasing, - Decreasing  
 Technology Amplifies Culture +  
 Network-Centric Enterprise +  
 Ubiquitous Edge Devices +  
 Information Explosion +  
 Web 3.0 Semantic +  
 Integration of SW Engineering and Sys Eng +  
 Complexity of IT Systems and Systems of Sys +  
 Criticality of Software-Intensive-Systems +  
 Agents and Sensors +  
 Security Context Awareness +  
 Enterprise Use of Animation +  
 Bandwidth to [Home Office Center] +  
 Processing Power + [Including Parallel]  
 Modeling and Simulation Usage +  
 Hardware Component Power & A C Consumption -  
 Search Engine Predicting +  
 Open Source Platform Usage +  
 Legacy Systems Value -  
 Nanotech Value +

## 3.0 Economic Input/Output Model



## 3.0 Additional Economic Entities

## 3.0 Business Function Model

### Operating Processes

1. Develop Vision and Strategy
  2. Design and Develop Products and Services
  3. Market and Sell Products and Services
  4. Deliver Products and Services
  5. Manage Customer Service
- Management and Support Services**
6. Develop and Manage Human Capital
  7. Manage Information Technology and Knowledge
  8. Manage Financial Resources
  9. Acquire Construct and Manage Property
  10. Manage Environmental Health and Safety
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## 3.0 Expanded Business Functions

13. Security
14. Intelligence
15. Modeling & Simulation
16. Collaboration

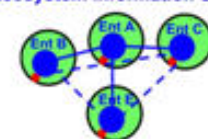
## 3.0 Information Access Model

1. Goal – "The enterprise eco-system must only learn something once"
2. Need-to-share over-rides need-to-know
3. Fine Granularity Sharing– Data Element
4. New eco-system information sharing models

### Sum of a Single Enterprise's Information



### Partner Ecosystem Information Sharing



→ Proof E1 → Proof E5  
 Proofs E2, E3, E4, E6

# Intellectual Property Defined





# Intellectual Property Key Terms

- **Invention = Conception of an idea + reduction to practice**
  - Reduction to practice may be actual or constructive
    - Clear description of how to do something (instructions and drawings)
    - Prototype or production not required
  - The U.S. is still a “first-to-invent” country; most countries are “first-to-file”
- **Patent ≈ Utility Patent for the enterprise**
  - A utility patent is the **legal right to exclude** others from making, using, selling, importing, or marketing an invention
    - Required to register it with government (s); others can apply to license it.
    - Granted in exchange for full public disclosure
    - The patent application (specification) must enable a person skilled in the art to make and use the claimed invention “without undue experimentation.”
    - Utility patents last up to 20 years from the date of filing
- **Trade Secret = Advantaged formula, pattern, device, or information**
  - Best known example : Coca-Cola formula
  - To have trade secret status, a business must
    - Prove that it adds value
    - Take reasonable measures to safeguard the secret
  - The extent of the protection is the extent the secret is maintained
  - A trade secret can be legally discovered by reverse engineering or independent invention.



# IP Disclosure/Protection Continuum

## Disclosure Legally Required

Certain levels of disclosure are required, e.g.,

- Patent specifications
- Certain earnings forecasts

## Disclosure Legally Permissible

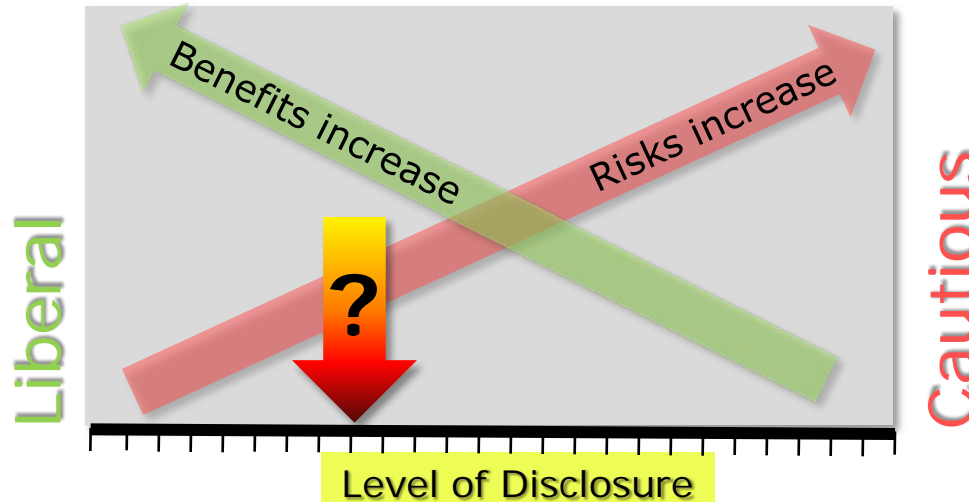
IP disclosure is neither required nor prohibited.

- Disclosure of IP can have positive or negative ramifications
- Risks/benefits must be evaluated
- Guidelines must focus on net value

## Disclosure Legally Prohibited

Certain levels of protection are required, e.g.,

- Trade secrets
- NDAs





# Intellectual Property Responsibilities

## Inventor

- Is trained to recognize potential IP
- Creates documents with potential embedded IP
- Complies with requirements for saving documents in enterprise repository
  - Automatic indexing

## IP Management Organization

- Defines IP Policies
- Defines & maintains business & technical ontology & keywords for IP documents
- Routinely scans repository and communications for documents with IP identifiers
- Marks IP documents as classified
  - Standard text marker, watermark, & metadata
- Communicates & enforces IP policies
- Automatic audit trails
  - Embedded Universally Unique Identifiers or MAC addresses
  - Dissemination policies enforced through email interception and repository access interception



# Digital Loss Prevention Tools

Reports All Reports

Network  
Incident Snapshot 07268382 Report Run 10/30/08 - 5:41 PM

Status New Severity Info Prev Next Report

Remediation Escalations False Positive, Users PI GLBA escalation Notify Manager More

SMTP

Incident Context

Server [Plano Mail 301](#)

Date 10/29/08 - 4:33 PM

Sender

Recipient

Subject [RE: Presentation from today](#)

Message Body

Subject: Presentation from today

Mike

Can I get a copy of the presentation from today. some slides

Microsoft PowerPoint

1 / July 2008 / **EDS Confidential**

... not limited to any **trade secret**, rem copyright, p...

Policy

Trade Secret Documents #match 3  
[\[view policy\]](#)  
 TS and Confidential 3

Correlations Find Similar

Value	#Incidents/#days	/7	/30	All
Sender		2	2	4
		1	1	1
		1	1	1
Subject				
Presentation from today		1	1	1
Policy				
Trade Secret Documents		40	176	52...

History Add Comment

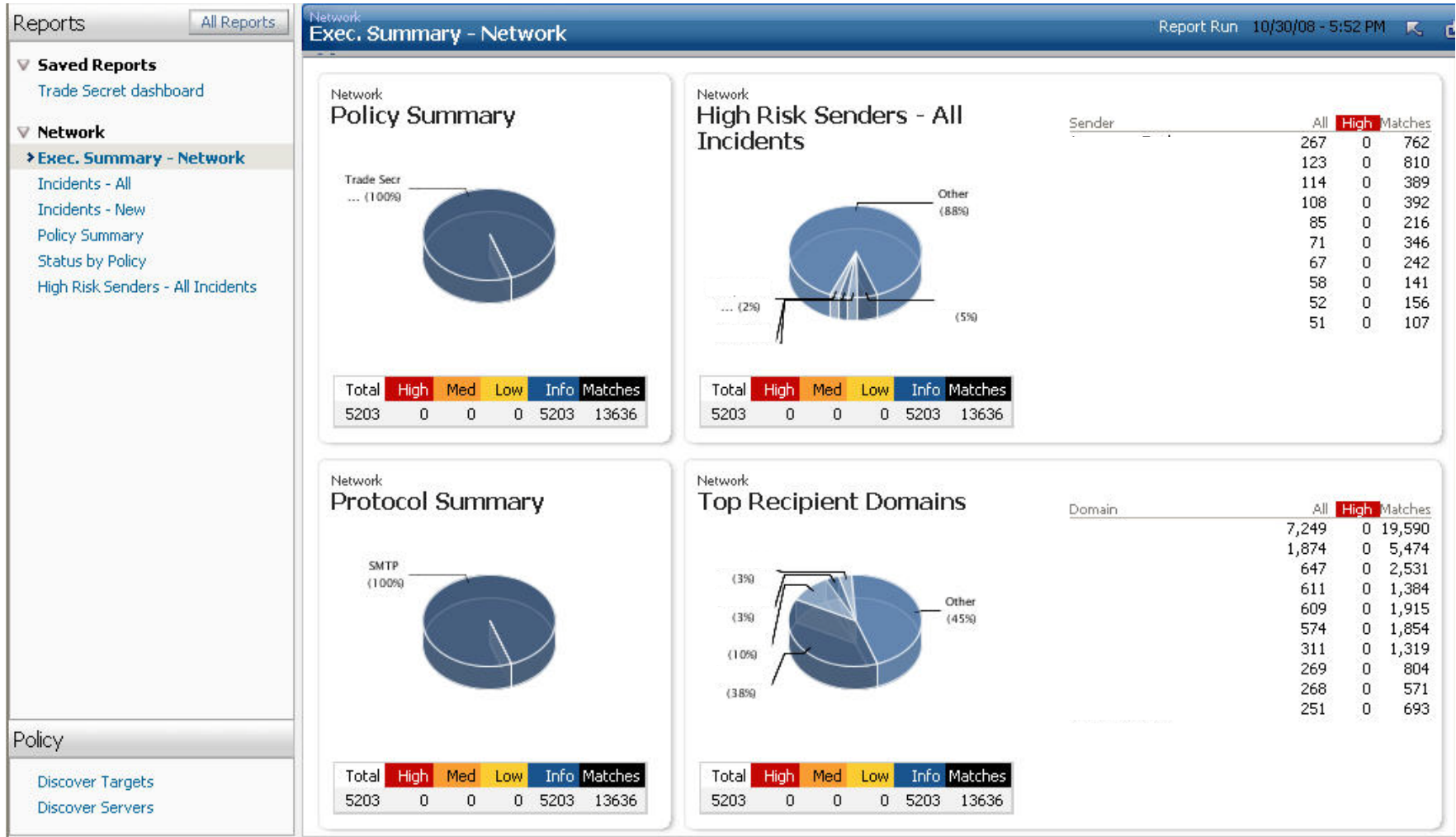
10/30/08 - Administrator 8:32 AM **Attribute Lookup Completed**

Resolution= EDSnetID  
 Dismissal\_Reason=  
 First\_Name=Michael  
 Assigned\_To= La  
 st\_Name=Castilow Bus  
 iness\_Unit=ASFO AMER  
 277336 Sender\_Email=  
 Employee\_Code= Off  
 ic=ASFO AMER LIC LP

Discussions Done Discussions not available on https:// Local intranet

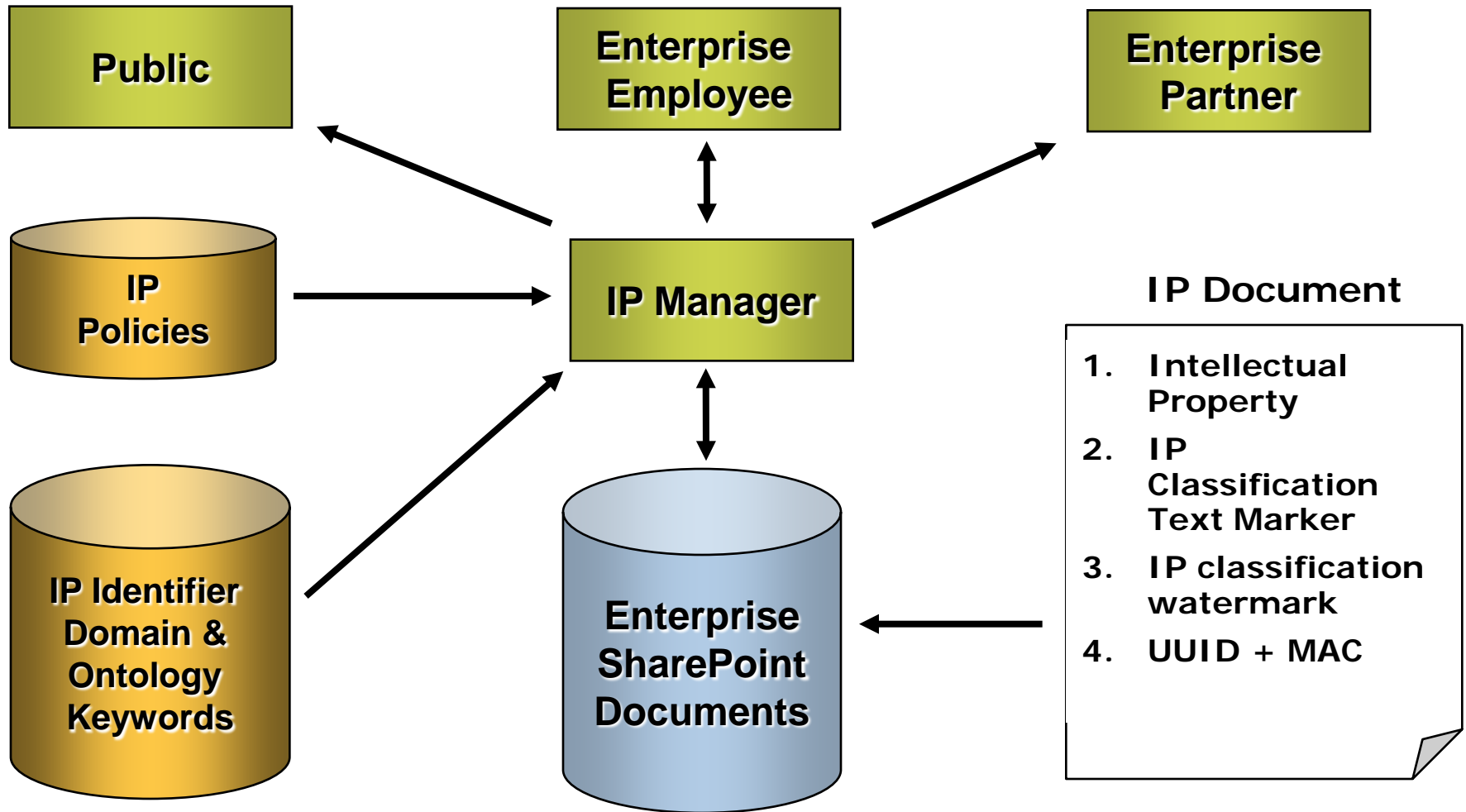


# Digital Loss Prevention Tools





# Future Implementation Architecture





# What are the top three threats to IP security?

**1.**

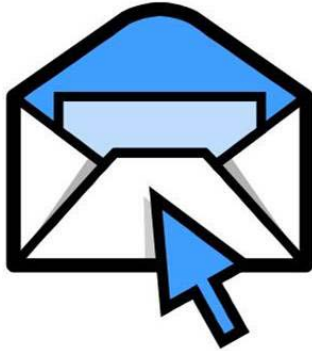
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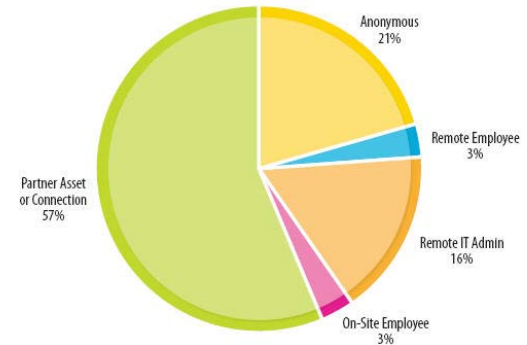
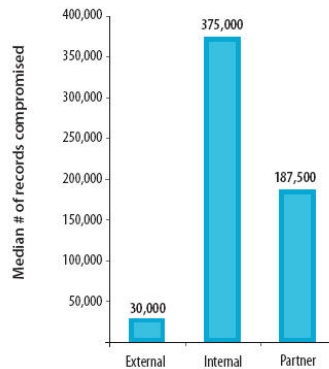
1.



2.



3.





# Is the security of intellectual property really a problem?

## Yes

- Intellectual Property (intangible assets) should be protected, managed, and leveraged with the same diligence as tangible business assets
  - To prevent the unauthorized use of inventions by others
  - To provide incentives for employees to produce scientific and creative works that benefit society and the enterprise, by allowing them to profit from ideas that are reduced to practice
  - To defend against claims of infringement with a IP portfolio
- Clear policies, processes, and responsibilities for IP management must be established—**and enforced**

## Thank you- Questions?