Lessons From Our Past Fuel The Success Of Our Future

John N. Stewart

Vice President, Chief Security Officer

14 June 2011

FIRST Conference 2011

My 3 Goals For This Session…

1. To have you walk away considering these ideas
2. To ensure I don't attend another security conference and talk about:
   - Private-Public Partnerships
   - Information Sharing
   - The Evolving "Threat"
3. To create tangible action items before Malta that we can report out on

What I've Shared to Date

"Those who cannot learn from history are doomed to repeat it."

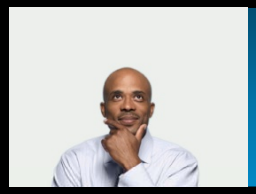
~ George Santayana

Learning #1

Once we have a handle on something, it changes…

Cloud

Virtualization

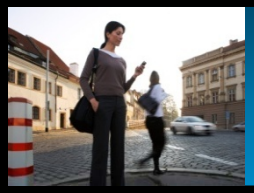


Information

Collaboration

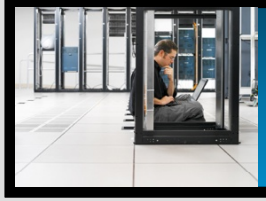
Application Security

Applications and Databases



Endpoint Security

Mobility and Access



Perimeter Security

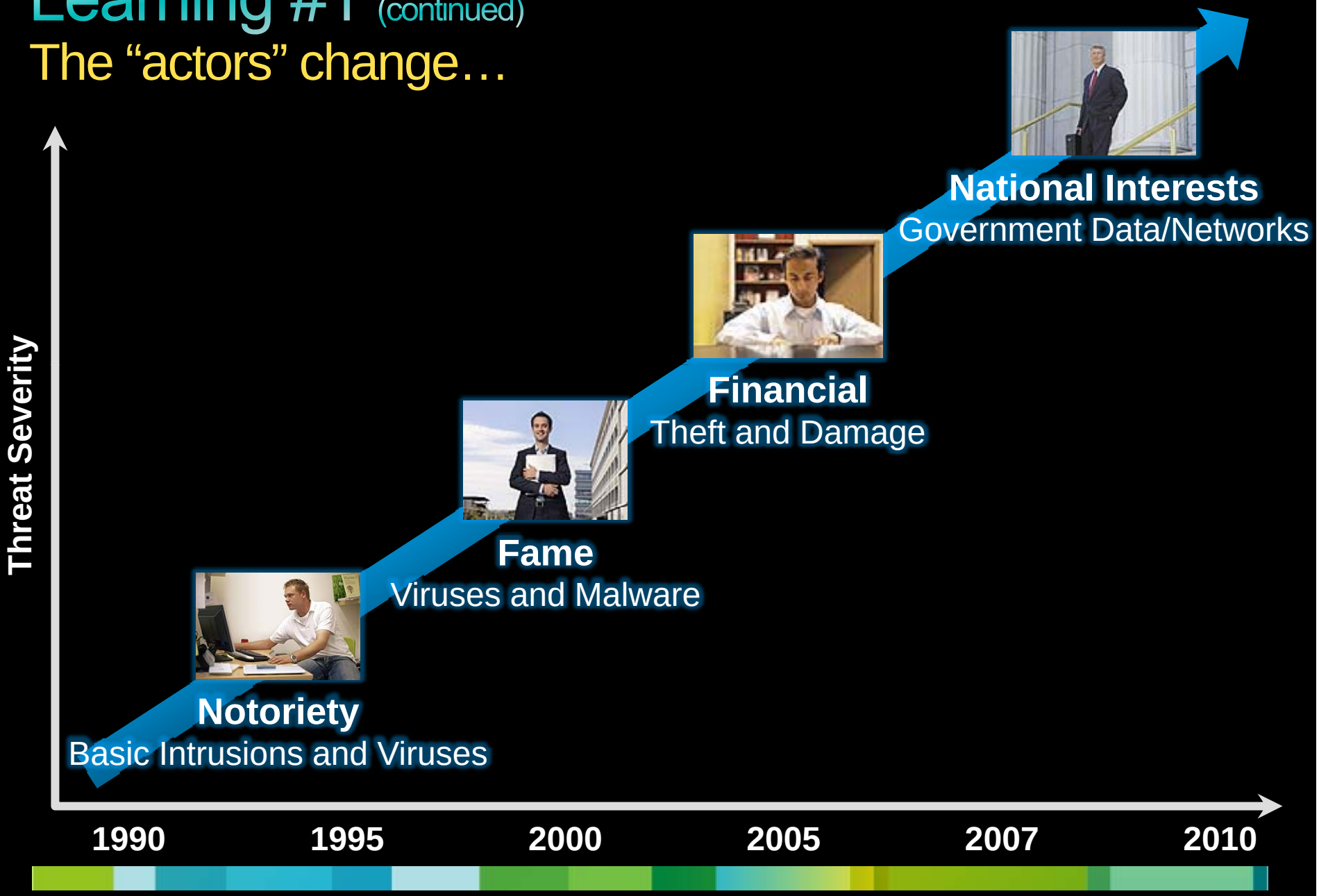
Datacenter Centric

Risks

Time

Learning #1 (continued)

The "actors" change…



Learning #1 (continued)
The technology changes…

US hospital stolen laptop: 14,000 patients records

400+ mobile malware threats exist, 1,000 expected by year end

Skype creates backdoor

Wireless FireSheep makes news

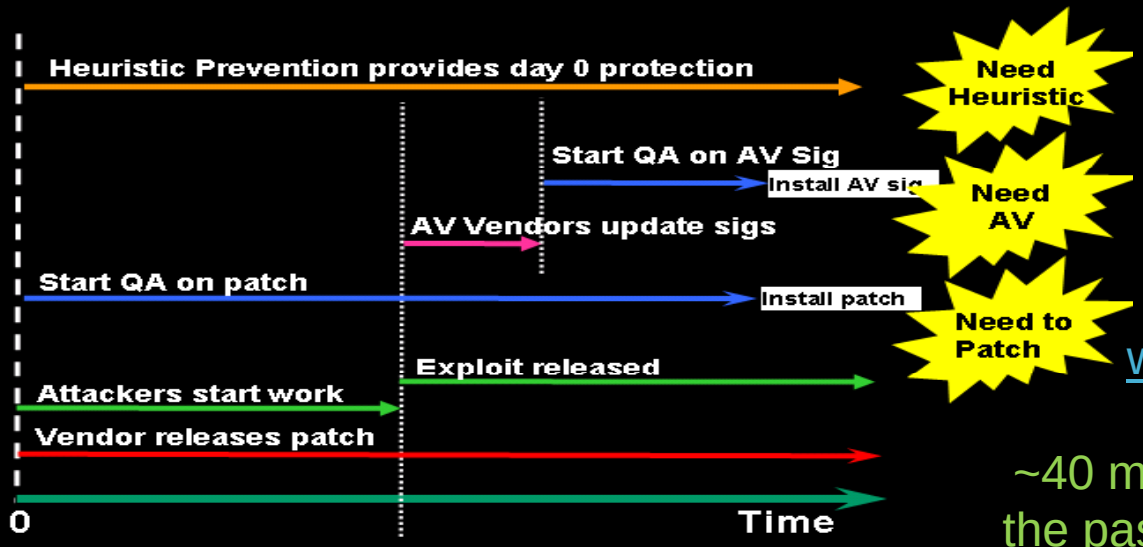
New attack surface - Virtual Machine and Hypervisor

Lack of control on internal virtual network blinds security policies

Learning #1 (continued)
The world changes…

Learning #2

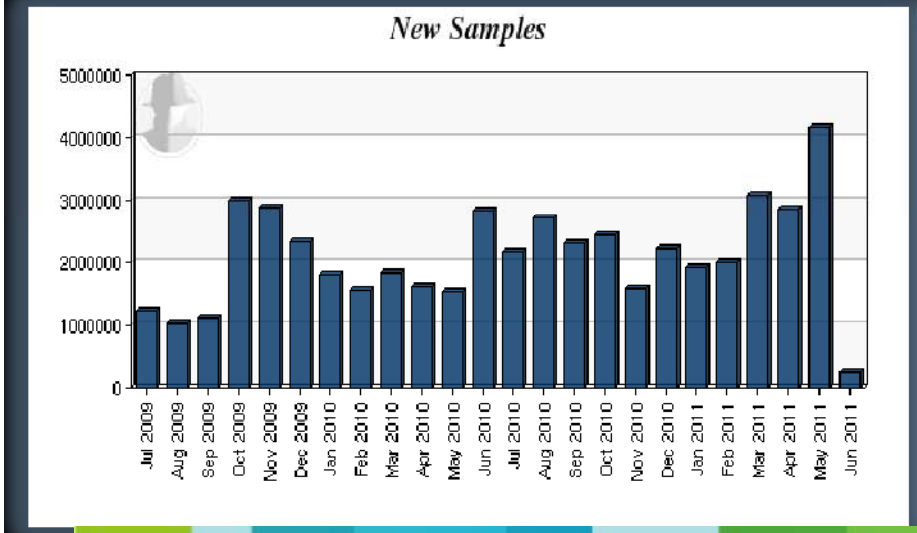
We rely on our practices far too long: e.g., patching, AV

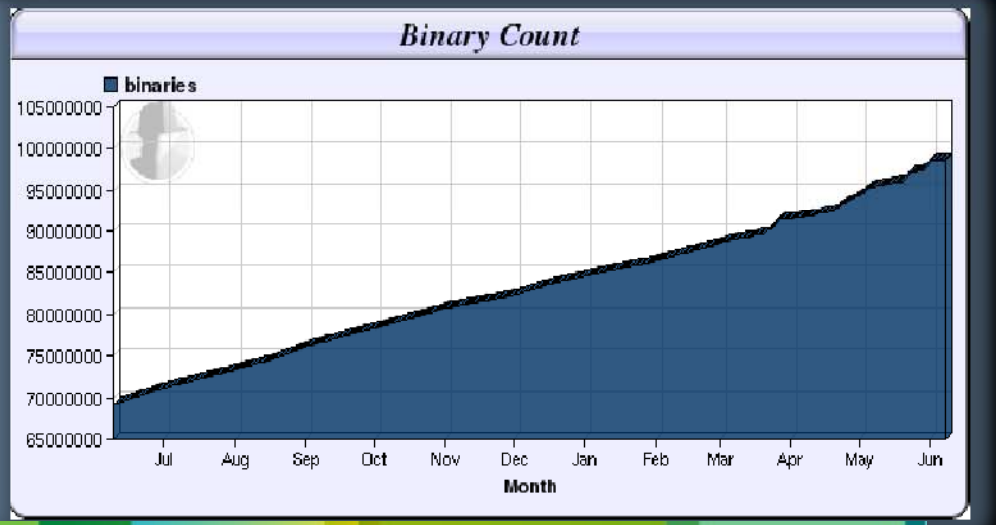


www.shadowserver.org/

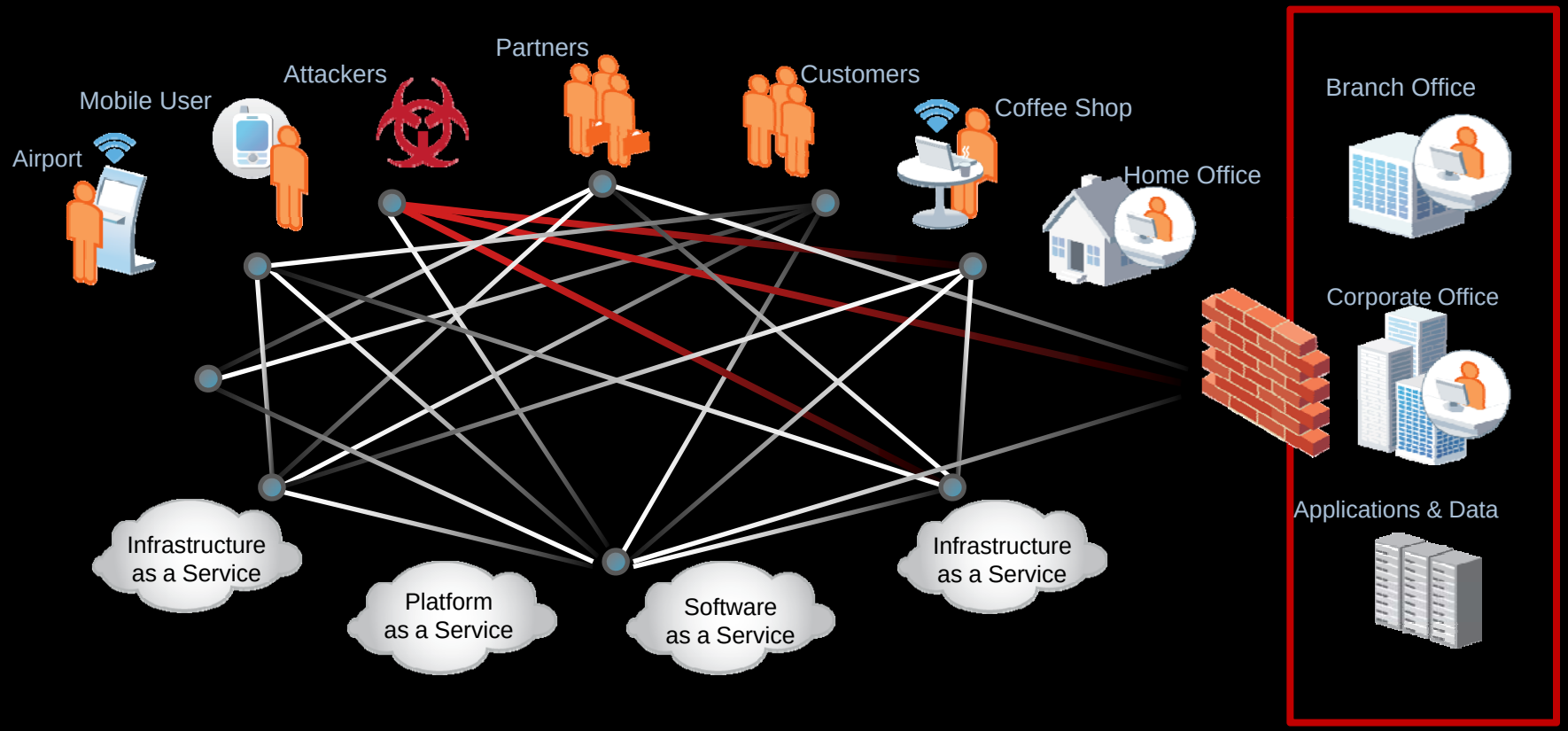
10 June 2011

~40 million new hashed binaries in the past year; ~98 million total seen





Learning #2 (continued)
Perimeter security



Learning #2 (continued)
Endpoint security

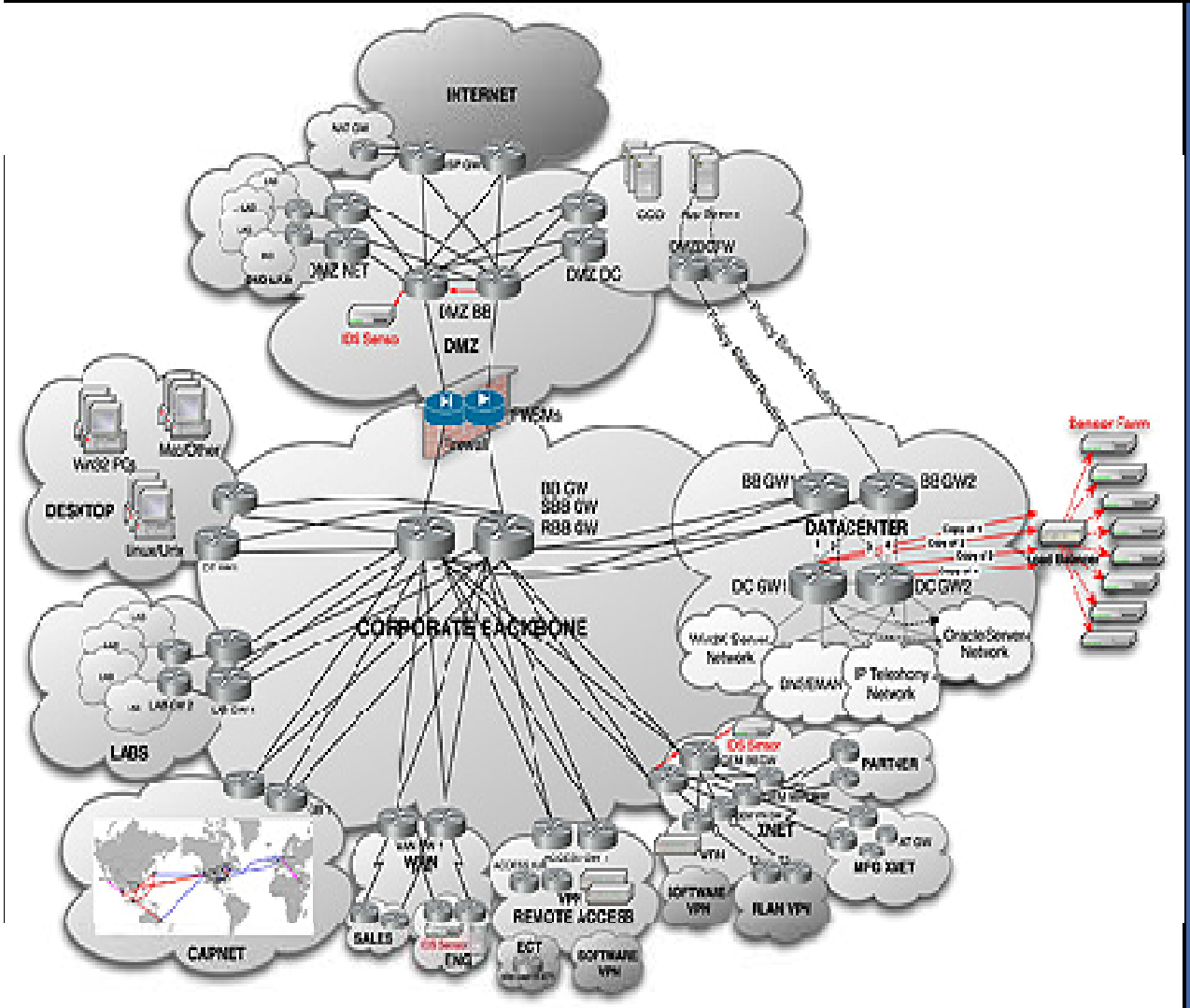
CHALLENGE

Highly mobile workers require access to network and cloud services

Variety of user-owned devices blend user and corporate profiles

Device loss/theft – highest risk of corporate data loss, compliance breach

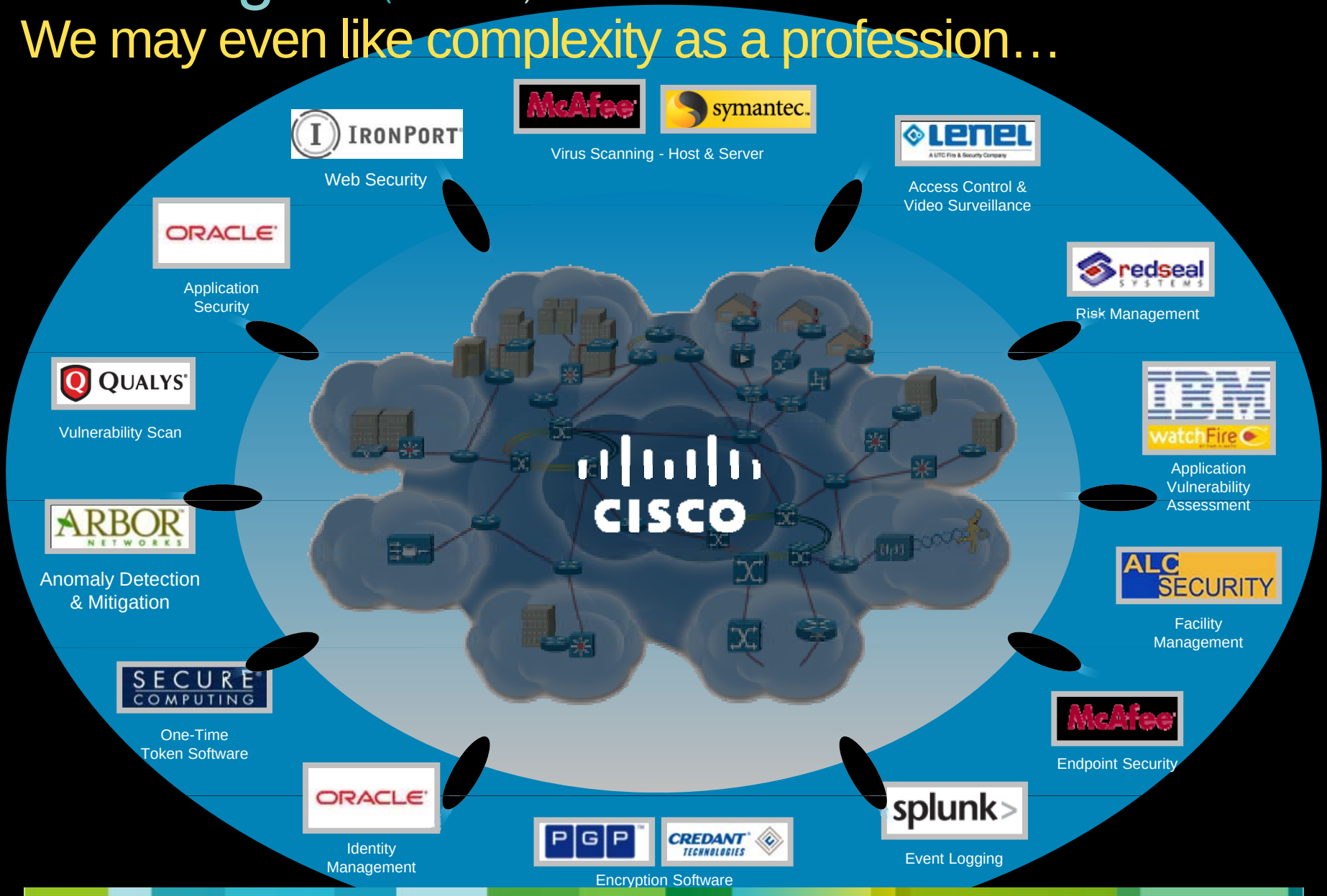
Learning #3
We created this complex problem…



- **IPv6**
  - 3ffe:1900:4545:3:200:f8ff:fe21:67cf or
  - fe80:0:0:0:200:f8ff:fe21:67cf or
  - fe80::200:f8ff:fe21:67cf
- **Tunneling**
  - Router-to-router
  - Router-to-host
  - Host-to-router
  - Host-to-host
  - Multi-homing
- **Mobile Ad-Hoc Networks**
  - Mesh
  - Wireless
  - Vehicle MANET
  - Intelligent vehicle MANET
  - Internet-based MANET
- **Miniaturization**
- **Multi-Purpose Devices**
- **Eradication of Perimeters**
  - Partners, customers, government, competitors, public
- **Virtualization**
- **Cloud Computing**

Learning #3 (continued)

We may even like complexity as a profession…



Learning #3 (continued)
And we are not yet motivated to change

- Expensive to Protect, Trivial to Shake Confidence
- We spend an amazing amount protecting, and it is trivial to circumvent
- We energize around electronic protection, and don't include full spectrum
- Our adversaries use our practice against us, especially when it is fixed

My Theorems Derived From These Lessons

1. All the security controls in the world cannot stop ignorant, imaginative, and/or malicious users from hurting themselves or the organization.
2. Most people don’t have a clue about computer security, and don’t want to know… yet we must try.
3. No matter how much you think you know right now, “tomorrow” will surprise you.
4. You can’t secure what you can’t see, except luckily. Turns out, luck isn’t much of a strategy.
5. The business, and the users, control our destiny.
6. Links and attachments want to be clicked.

So now what?

The best way to predict the future is to invent it.

~ Alan Kay

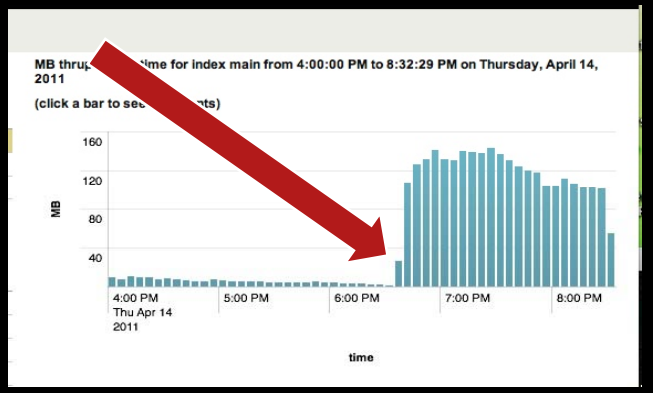
My Theorems Derived From These Lessons

1. All the security controls in the world cannot stop ignorant, imaginative, and/or malicious users from hurting themselves or the organization.
2. Most people don't have a clue about computer security, and don't want to know… yet we must try.
3. No matter how much you think you know right now, "tomorrow" will surprise you.
4. You can't secure what you can't see, except luckily. Turns out, luck isn't much of a strategy.
5. The business, and the users, control our destiny.
6. Help is available, if we know where to turn and what to ask.

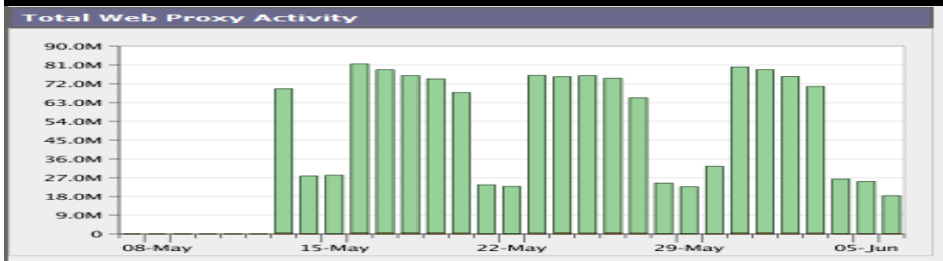
1. Users

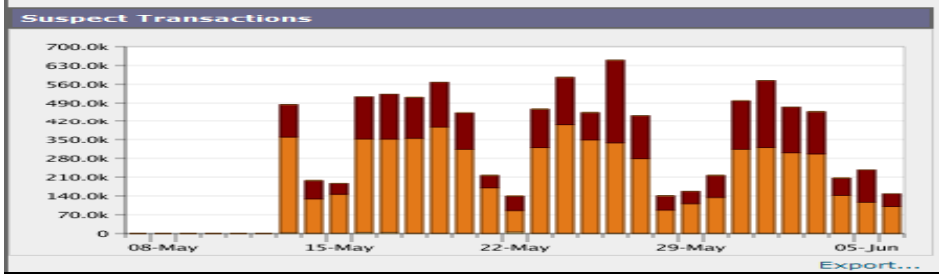
1. Users (continued)

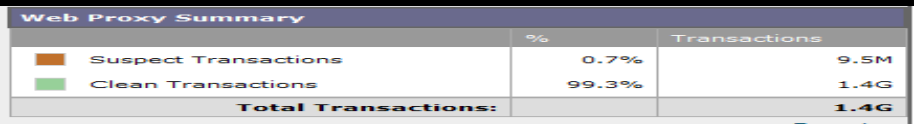
Attachments and links like to be clicked!

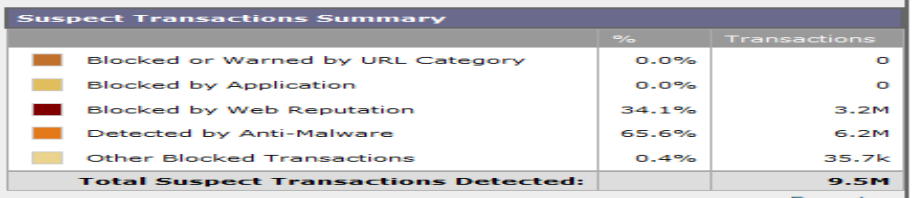


- From pilot (RTP campus) to global (phase 1)
- Total Blocked: 3.2 million+ including
  - Malware downloads
  - Browser hijacking software
  - Unwanted advertisement software
  - Botnet check-ins
  - Trojan (backdoor) connections
- Average daily log data: 30+ Gb (more than double from pilot)









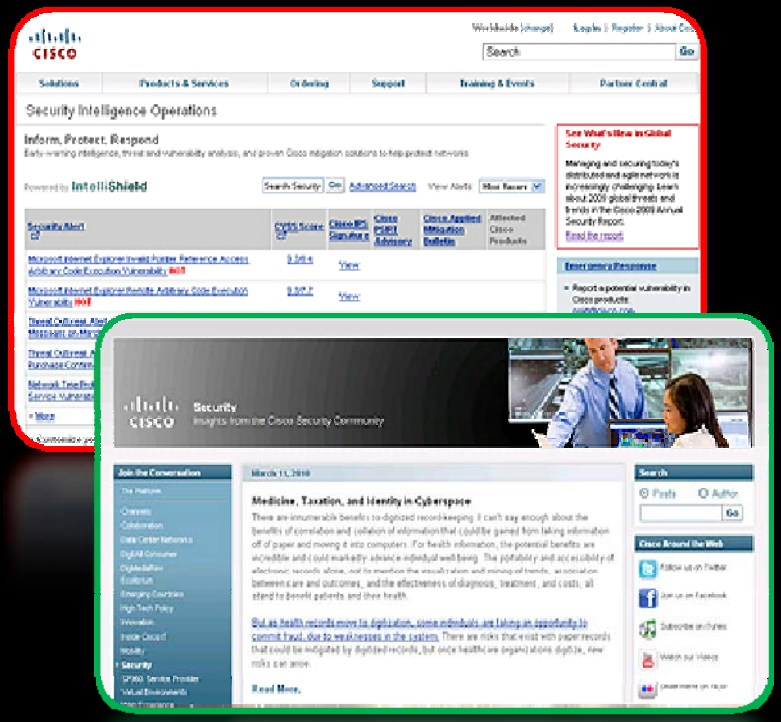
Suspect Transactions

My Theorems Derived from these Lessons

1. All the security controls in the world cannot stop ignorant, imaginative, and/or malicious users from hurting themselves or the organization.
2. Most people don't have a clue about computer security, and don't want to know… yet we must try.
3. No matter how much you think you know right now, "tomorrow" will surprise you.
4. You can't secure what you can't see, except luckily. Turns out, luck isn't much of a strategy.
5. The business, and the users, control our destiny.
6. Help is available, if we know where to turn and what to ask.

2. Go Bold with Security Education and Information Sharing

Security Intelligence Operations
www.cisco.com/security



Security Blog
blogs.cisco.com/security

Security Education
www.cisco.com/go/securityeducation

2010 Annual Security Report
www.cisco.com/go/securityreport

My Theorems Derived From These Lessons

1. All the security controls in the world cannot stop ignorant, imaginative, and/or malicious users from hurting themselves or the organization.
2. Most people don't have a clue about computer security, and don't want to know… yet we must try.
3. No matter how much you think you know right now, "tomorrow" will surprise you.
4. You can't secure what you can't see, except luckily. Turns out, luck isn't much of a strategy.
5. The business, and the users, control our destiny.
6. Help is available, if we know where to turn and what to ask.

3. Back to Basics:
Simple Goals, Simple Strategy

Keep Bad Stuff Out

Be Compliant

Protect the Good Stuff

Provide Visibility to Users, Devices, and their Activities

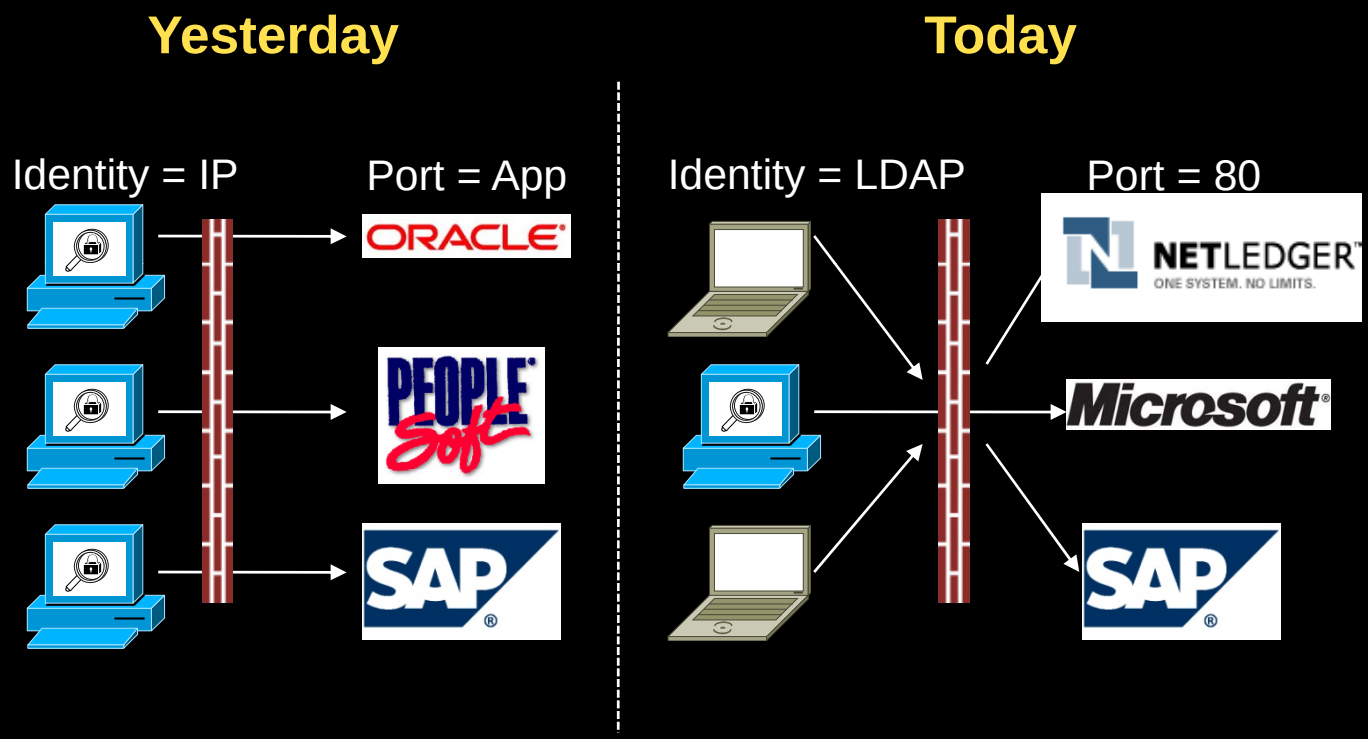
Keep Critical Services Running

Be Cost Efficient

Requires An Architectural Approach

3. Ignore Headlines, Look for Trend Lines

3. Solve Really Important Problems
Identity

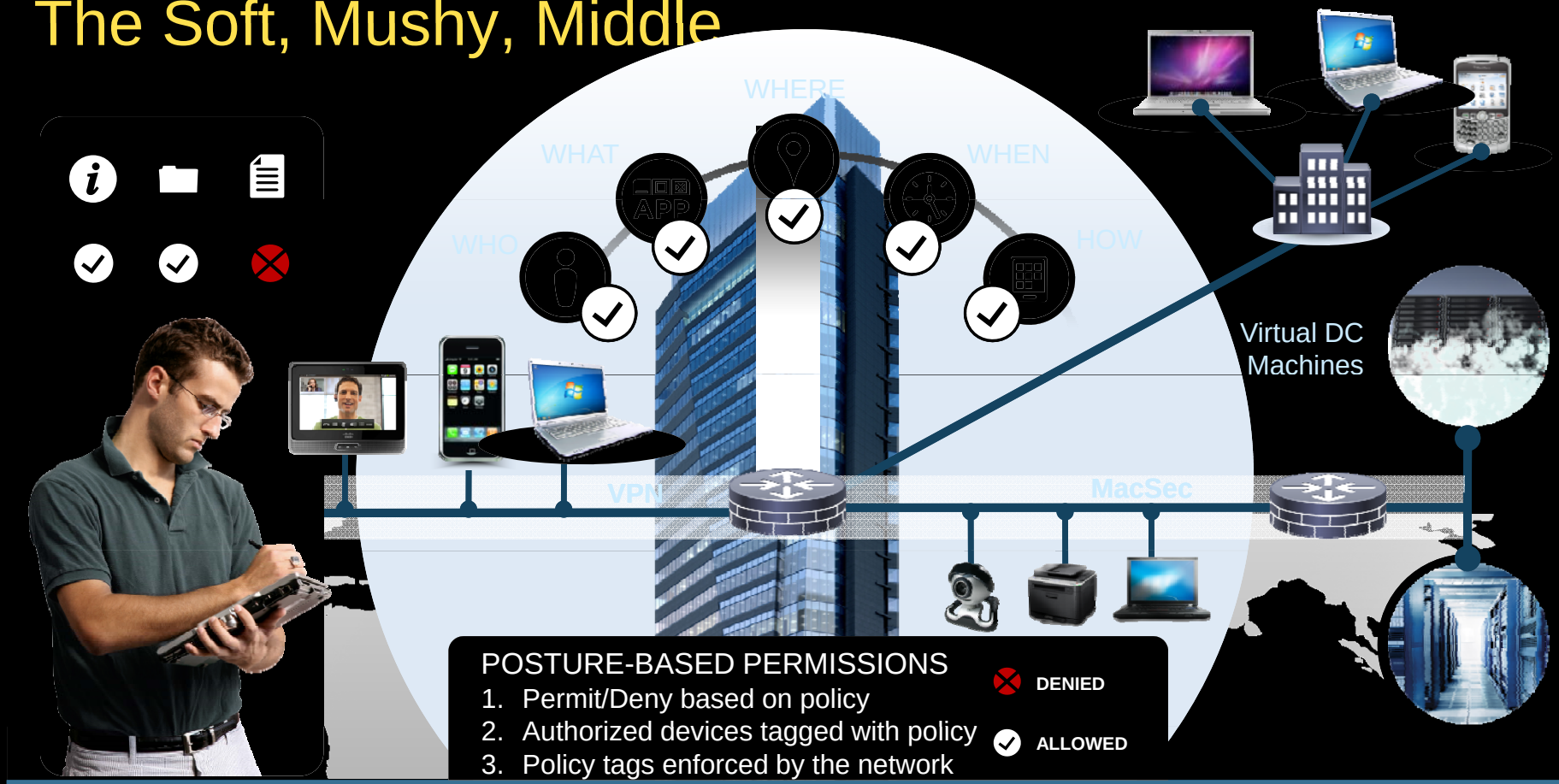


Port 80 has become a gaping hole in the firewall

Next-gen firewalls need application and identity awareness

3. Solve Really Important Problems

The Soft, Mushy, Middle



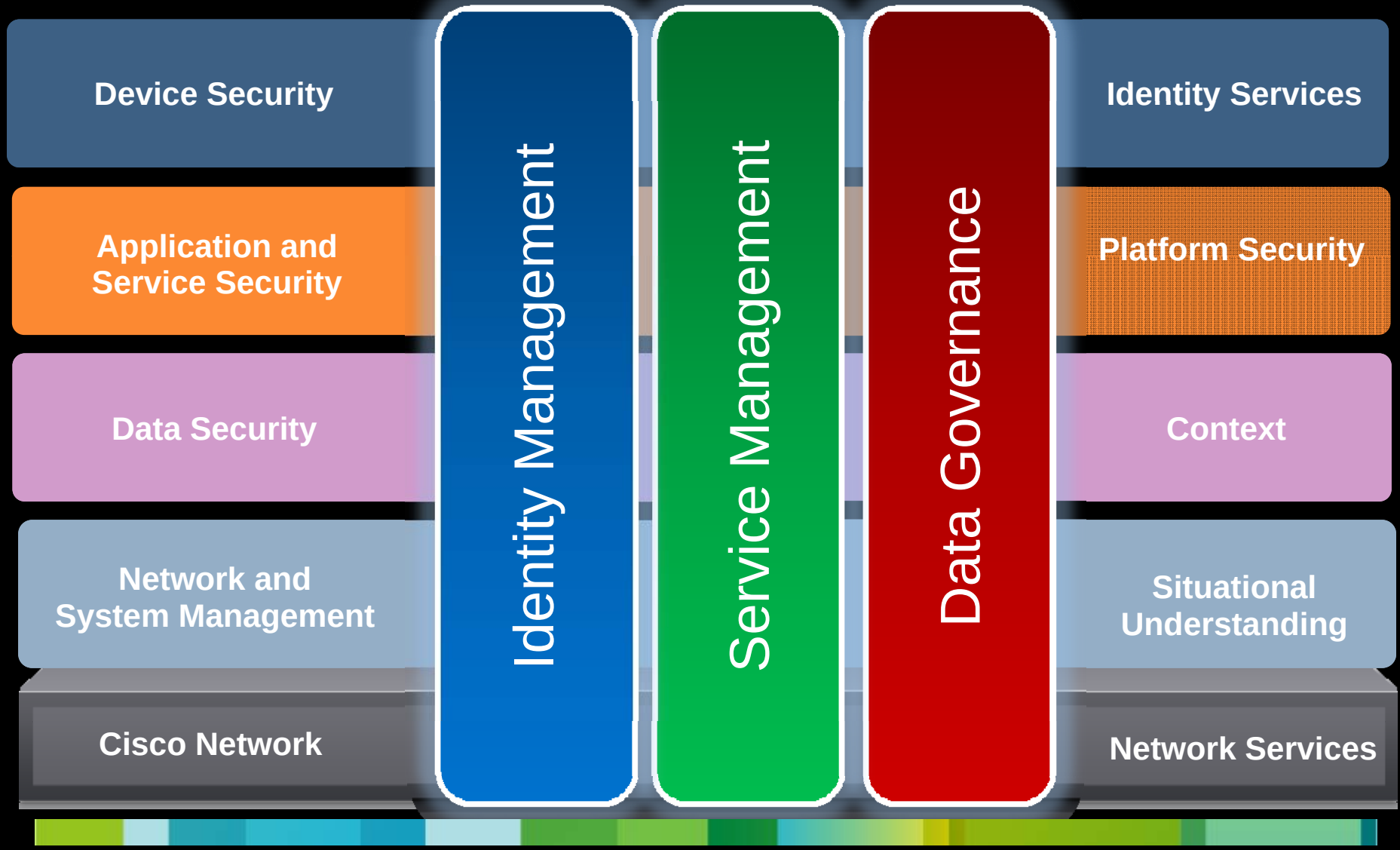
CISCO SOLUTION

Consistent identity-aware policy from any device to data center – based on business needs

Policy distribution and intelligence through the network

Security group tagging scales context-aware enforcement

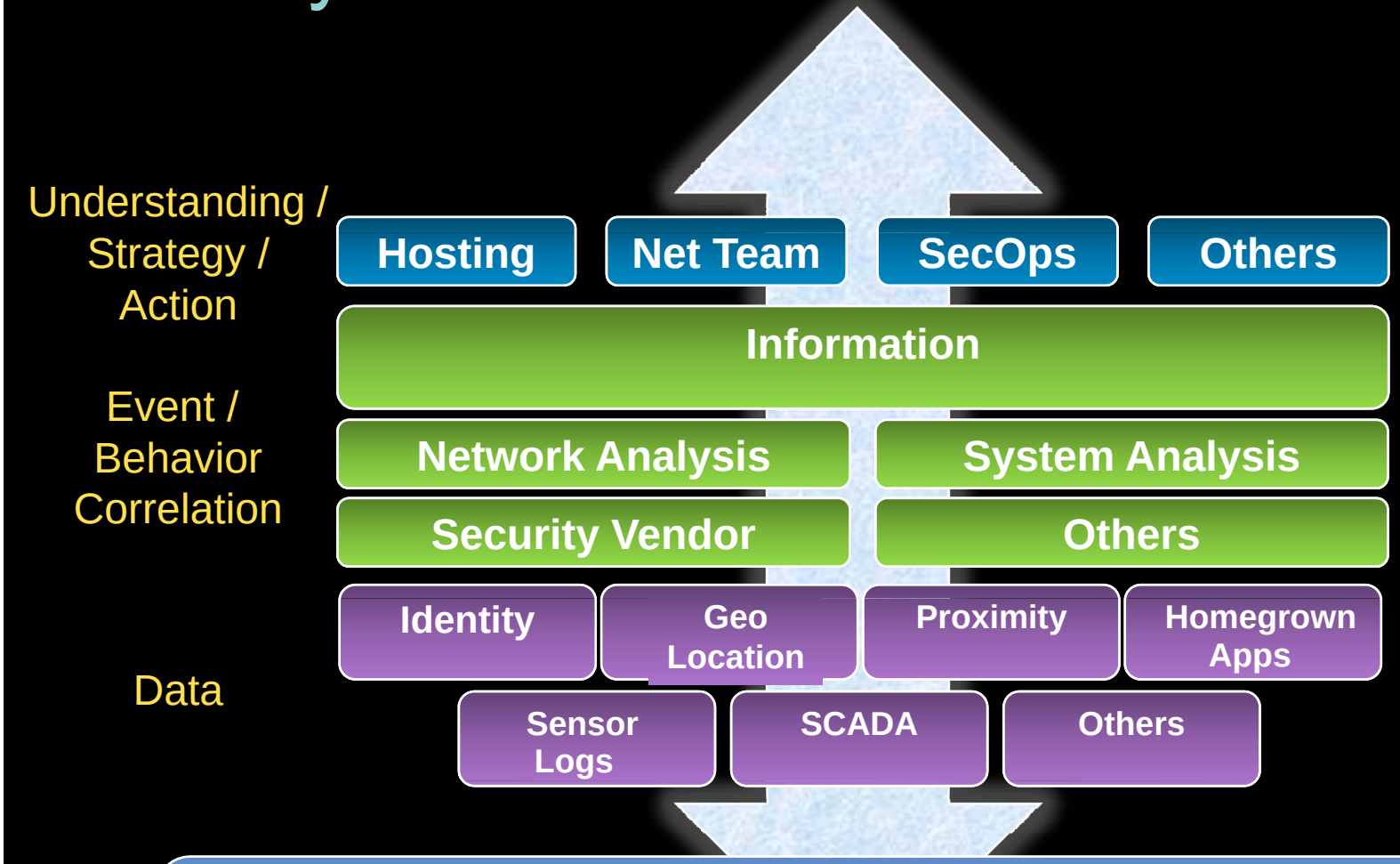
3. Solve Really Important Problems:
Architecture



My Theorems Derived From These Lessons

1. All the security controls in the world cannot stop ignorant, imaginative, and/or malicious users from hurting themselves or the organization.
2. Most people don't have a clue about computer security, and don't want to know… yet we must try.
3. No matter how much you think you know right now, "tomorrow" will surprise you.
4. You can't secure what you can't see, except luckily. Turns out, luck isn't much of a strategy.
5. The business, and the users, control our destiny.
6. Help is available, if we know where to turn and what to ask.

4. Analyze and Validate

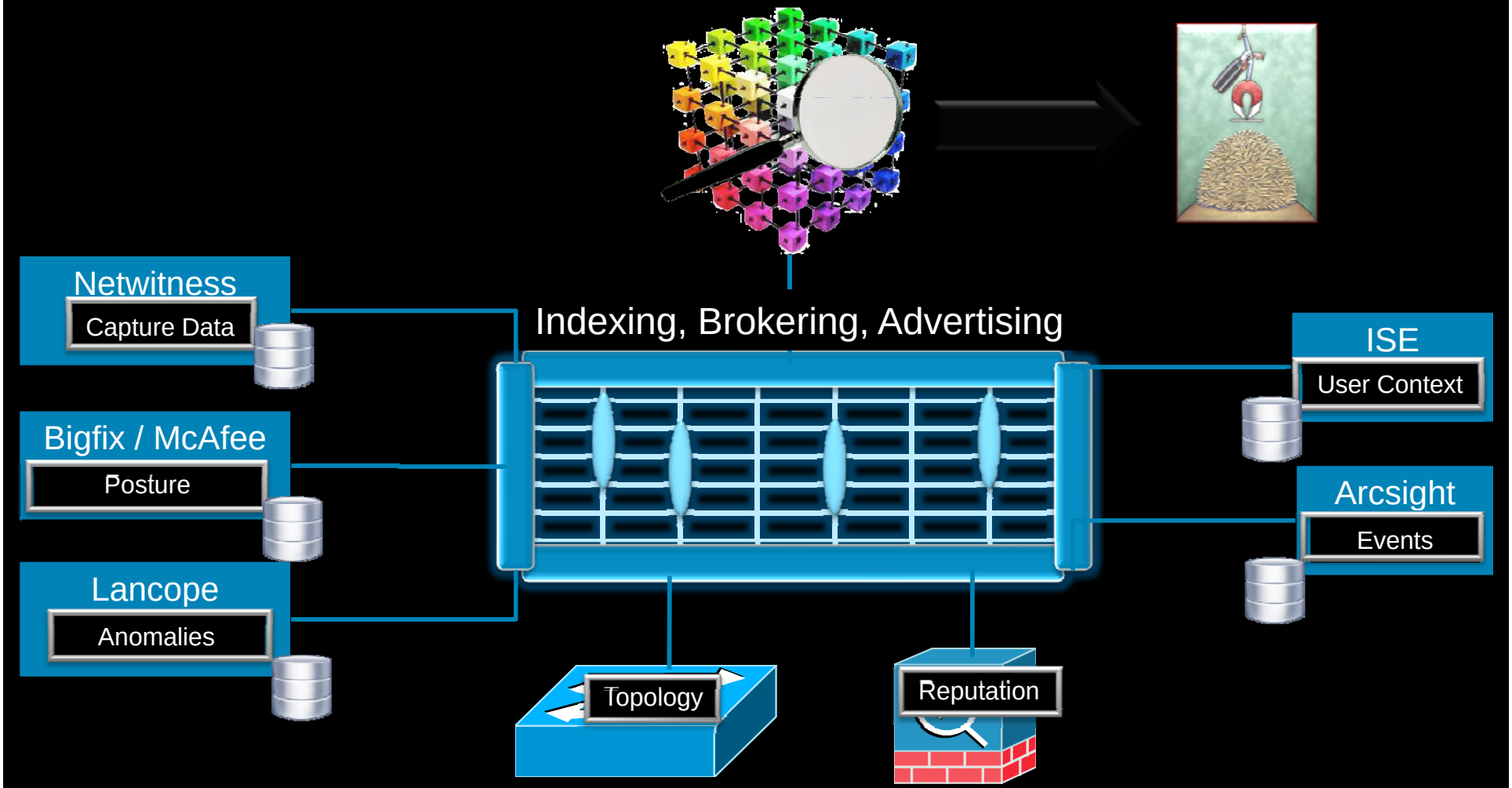


"I have a series of questions, and the data gives the answers"

~ or ~

"I don't know the questions yet; let's look at the data"

4. Know What You Are Protecting



4. Have an "Eye in the Sky"
Global Visibility

CISCO SOLUTION

Largest threat analysis system - blended threat protection

700K+ global sensors

20M+ Web requests per day

35% of global email traffic

endpoint threat telemetry

Reputation, spam, malware and Web category analysis, and applications classification

My Theorems Derived From These Lessons

1. All the security controls in the world cannot stop ignorant, imaginative, and/or malicious users from hurting themselves or the organization.
2. Most people don’t have a clue about computer security, and don’t want to know… yet we must try.
3. No matter how much you think you know right now, “tomorrow” will surprise you.
4. You can’t secure what you can’t see, except luckily. Turns out, luck isn’t much of a strategy.
5. The business, and the users, control our destiny.
6. Help is available, if we know where to turn and what to ask.

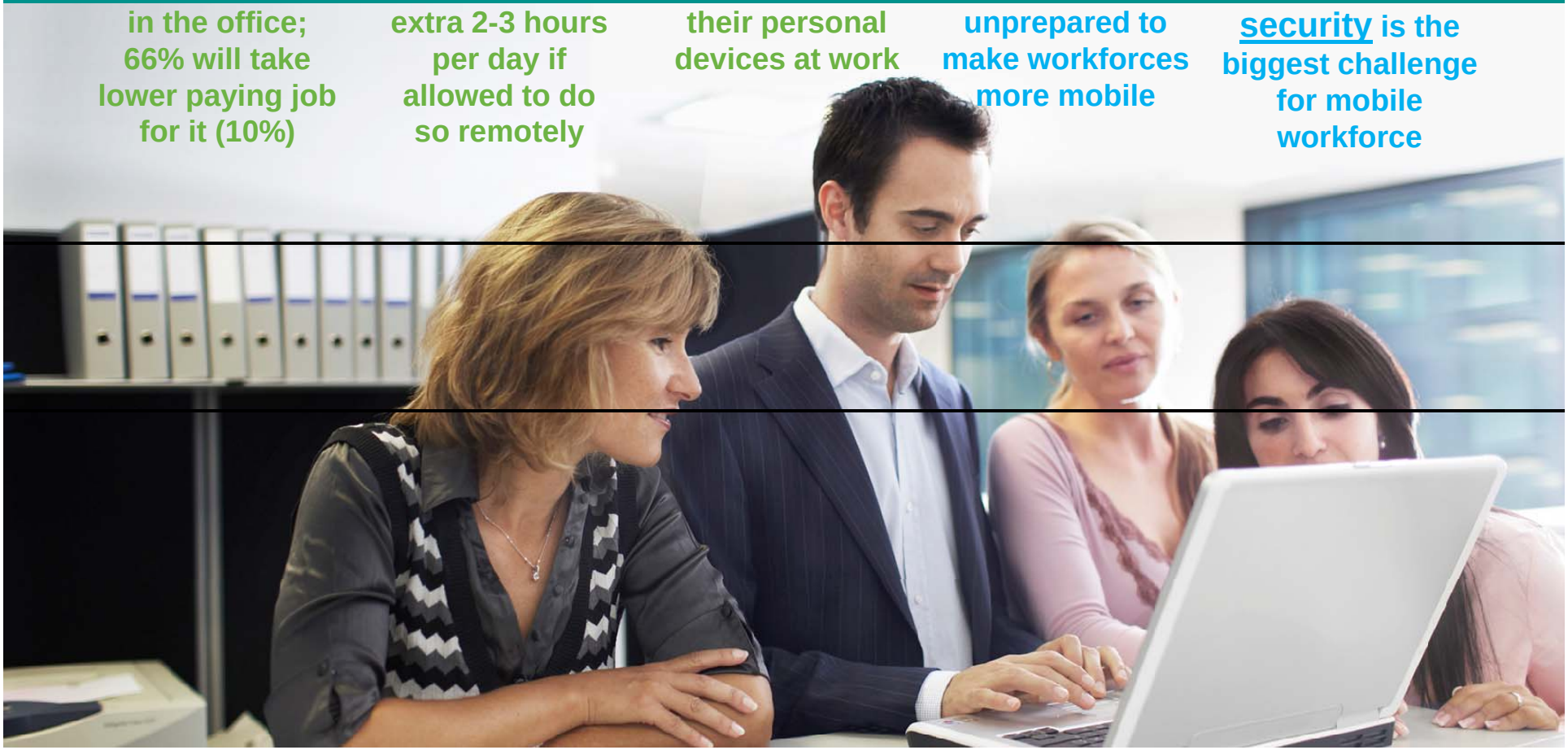
5. Acknowledge the Current State
Shifting business expectations

enhance customer relationships, improve productivity, accelerate globalization

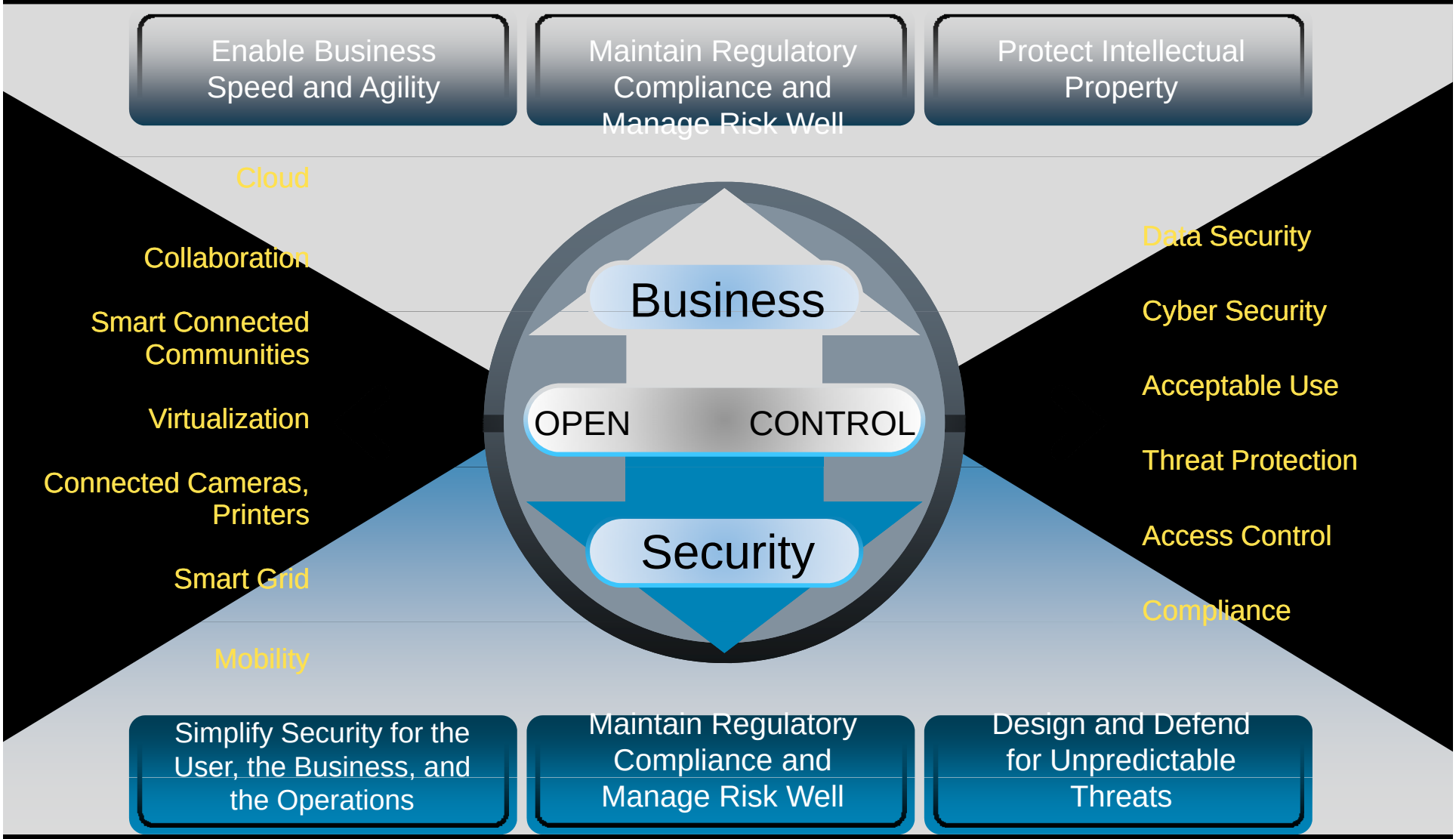
5. Acknowledge the Current State (continued)

Shifting employee expectations

60%	45%	59%	45%	57%
Don't need to be in the office; 66% will take lower paying job for it (10%)	Would work an extra 2-3 hours per day if allowed to do so remotely	Want to use their personal devices at work	Of IT staff are unprepared to make workforces more mobile	Of IT staff said security is the biggest challenge for mobile workforce



5. Harmonize Business and Security (continued)



My Theorems Derived From These Lessons

1. All the security controls in the world cannot stop ignorant, imaginative, and/or malicious users from hurting themselves or the organization.
2. Most people don't have a clue about computer security, and don't want to know… yet we must try.
3. No matter how much you think you know right now, "tomorrow" will surprise you.
4. You can't secure what you can't see, except luckily. Turns out, luck isn't much of a strategy.
5. The business, and the users, control our destiny.
6. Help is available, if we know where to turn and what to ask.

6. Bad News Does Not Get Better With Age

Swede Charged in Alleged Attacks on NASA, Cisco

abc NEWS

The Justice Department claims a Swedish man ran one of the largest Internet hacking attacks, which compromised a wide variety of universities, companies, government facilities and international organizations -- but the man could end up beyond the reach of U.S. law.

Security Industry

RSA SecurID authentication tokens hacked

Published: June 7, 2011 at 1:57 PM

Sony Pictures says LulzSec hacked 37,500 user accounts, not 1 million

June 9, 2011 | 3:02 pm

Cisco Live 2010 attendee list hacked

Cisco notifies customers their registration info was compromised in security breach

By Tim Greene, Network World
July 09, 2010 04:31 PM ET

Comment Print

Someone hacked the list of attendees for the recent Cisco Live 2010 users' conference, a security breach that led Cisco to notify the customers as well as a broader group who have dealings with the company.

I.M.F. Reports Cyberattack Led to 'Very Major Breach'

By DAVID E. SANGER and JOHN MARKOFF
Published: June 11, 2011

WASHINGTON — The International Monetary Fund, still struggling to find a new leader after the arrest of its managing director last month in New York, was hit recently by what computer experts describe as a large and sophisticated cyberattack whose dimensions are still unknown.

RECOMMEND
TWITTER
SIGN IN TO E-MAIL
PRINT

6. Get to know your friendly CERT and Law Enforcement teams – make new friends

Ask The Right Questions

You get what you measure, no matter what…

Always question what you are doing – some things have declining investment and results

Stop asking for best practices – start asking "what's effective and how effective is it?"

What can I see?
What don't I know?
How will I know it when I need to?

What can I shamelessly copy from someone else?

Experience is what you get, when you didn’t get what you wanted.

Thank you.