

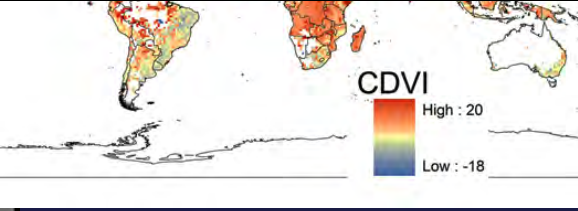
Cybersecurity Implications for the Worldwide Netted Environment

*DEEP FUTURES,
CONSULTING, LLC
CYBER LEADERSHIP*



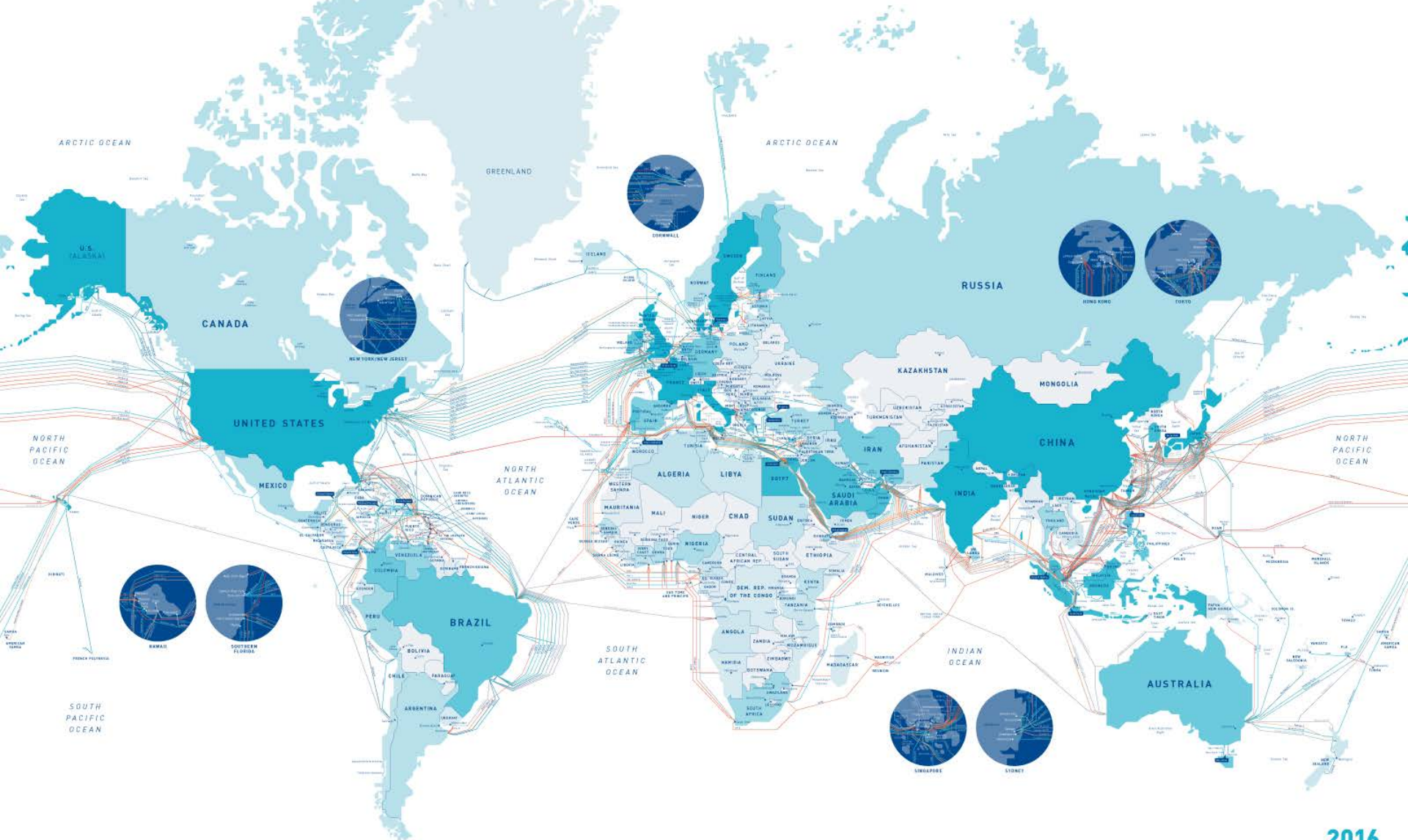
*NORMAN R. HAYES
REAR ADMIRAL, USN
(RETIRED)*

2018-2022: The Interconnected World Environment



“Technology is fantastic and it influences outcomes. However we seem to forget that people solve the problems and technology only facilitates”

*“We incorrectly distinguish a difference between the public and private cyber infrastructure.
In the virtual environment they are one and the same”*



**2016
SUBMARINE CABLE MAP**

WWW.TELEGEOGRAPHY.COM
WWW.SUBMARINECABLEMAP.COM

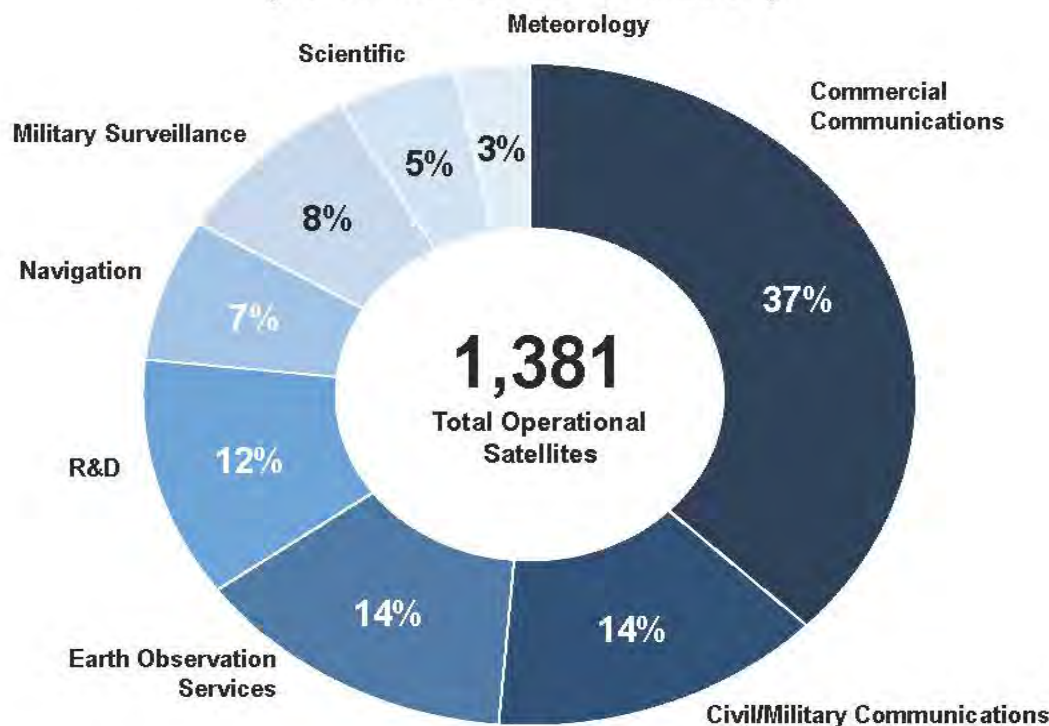
<https://www.submarinecablemap.com/>

Space – The Next Frontier

The Satellite Network in Context



Operational Satellites by Function (as of December 31, 2015)



- Number of satellites increased 39% over 5 years, compared to 986 reported in 2011
 - » Average number of satellites launched per year in 2011-2015 increased 36% over previous 5 years
 - » Small and very small satellites deployed in LEO contribute to this growth
 - » Average operational lives of certain satellite types (such as GEO communications satellites) are becoming longer
- 59 countries with operators of at least one satellite (some as part of regional consortia)

Critical Data Breaches – 2015/16

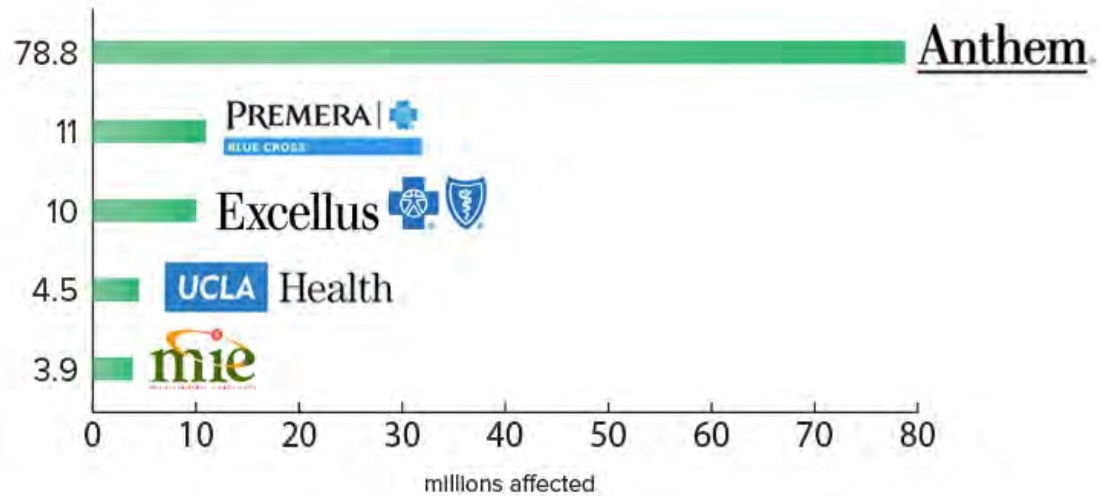
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PREMERA | BLUE CROSS

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MEDICAL INFORMATICS ENGINEERING



BANGLADESH BANK
Central Bank of Bangladesh

Wild Wild West

- **New Wave Crime**
 - Ransomware
 - Extortion
 - Intellectual Property
- **International Environment**
 - No Laws
 - No Universal Consensus
- **Information as currency**
 - Financial Gain

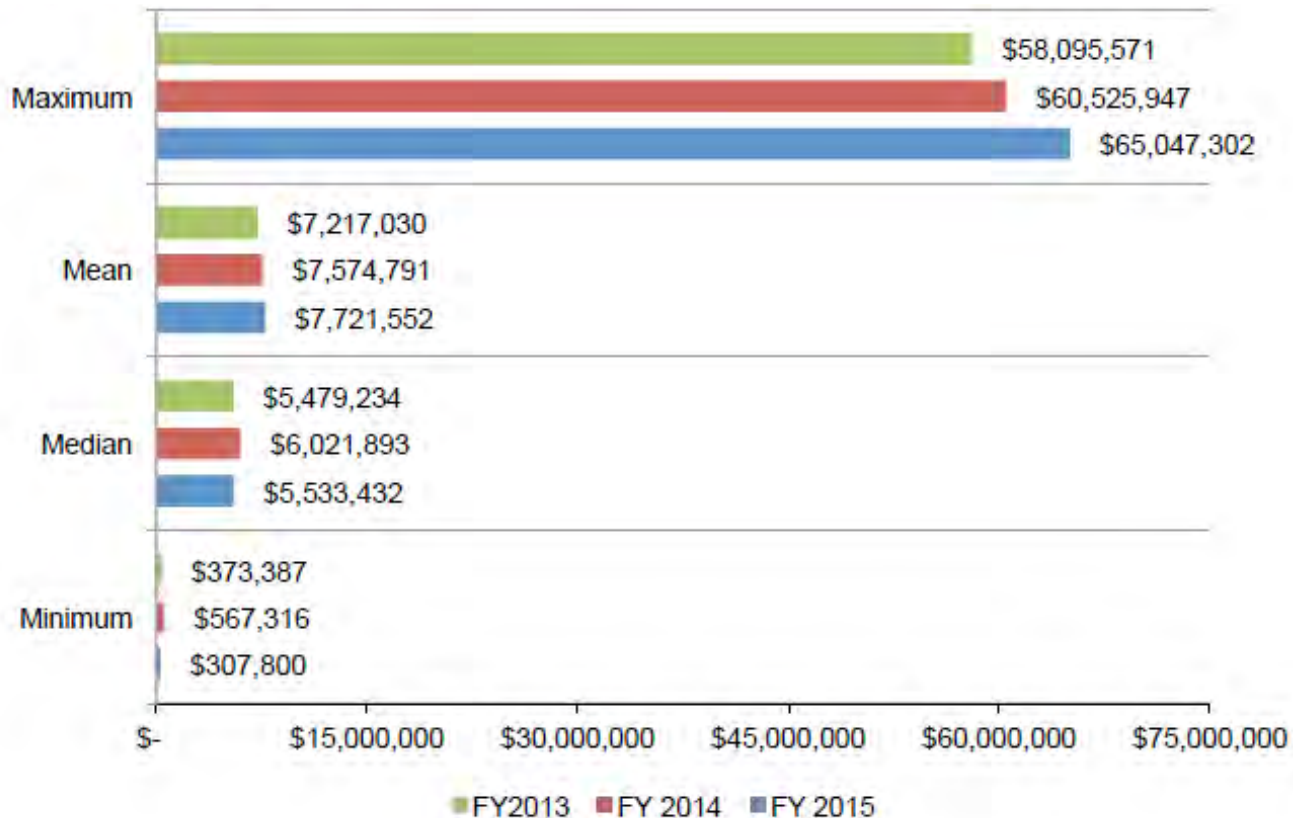


Cost to buy:
\$0.55 video streaming credentials
\$7.50 premium cable streaming
\$5-8.00 credit card info
\$20-100 bank account login

Digital inter-connectedness will make political, financial and social systems more vulnerable.

Staggering Costs

The Cost of Cyber Crime
252 Companies



**WORLDWIDE TOTAL SECURITY COSTS
APPROACHING \$200,000,000,000 ANNUALLY**

Key Tenets of Cybersecurity

- Tenet 1: Security is a risk management issue, not a technological one
- Tenet 2: Know the metrics – make cybersecurity real to the Leadership
- Tenet 3: Understand the legal aspects of cybersecurity regulations
- Tenet 4: Identify acceptable cyber risk levels in business operations
- Tenet 5: Adopt a well-defined cyber risk management framework
- Tenet 6: Security is about people – they are your biggest risk and you have to take that risk. Focus on the people and you can have a marked reduction in RISK!

Personal Security Options

Smartphone Security

- Encrypt all data
- Android – buy security prog
- Use password/pin/biometric to lock-unlock cellphone
- Do not share you data
- Set OS security at highest comfortable settings
- Protect all passwords
- When available use two factor authentication

Password Security

- Stop using word or spreadsheet to keep PWs
- Use free program to guard PWs
- Use financial website two factor authentication
- Longer is better – why?
- Be creative

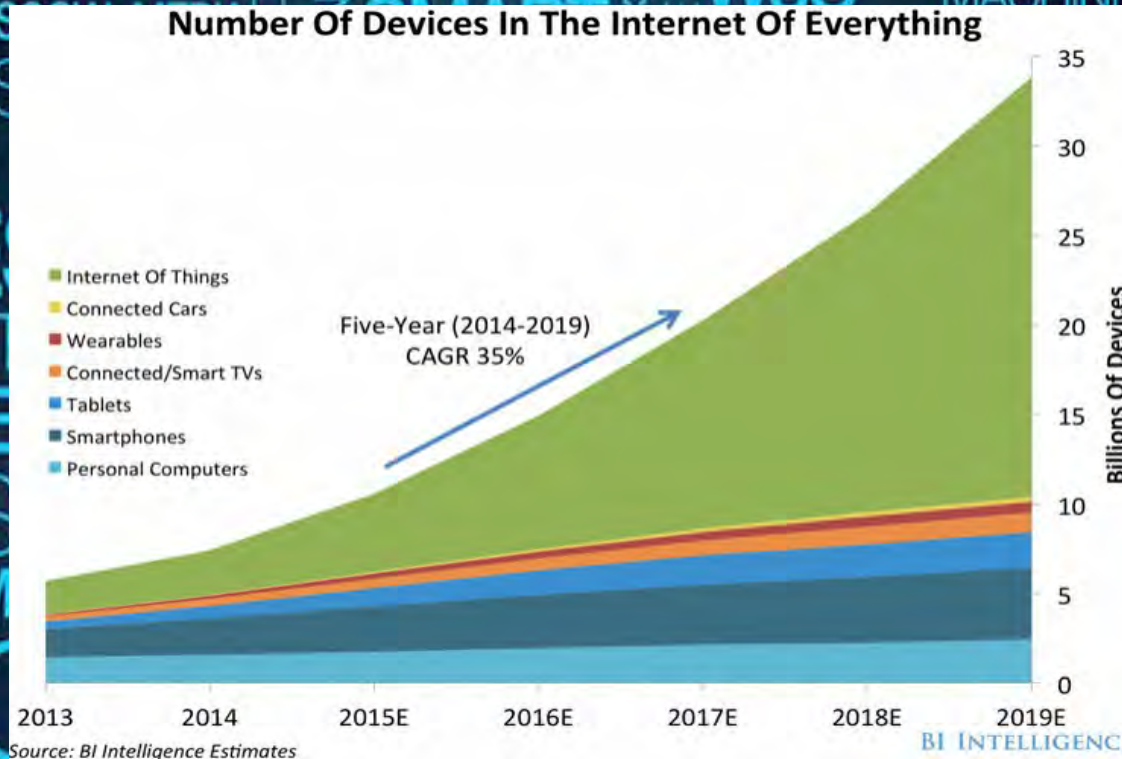
Social Media Attack

Norman Hayes

From: Tonya Gray <tonya.gray194@watermanexcavating.com>
Sent: Wednesday, September 14, 2016 12:06
To: Norman Hayes
Subject: Fwd: to Norman Hayes

hello! I thought you might appreciate this <http://www4.lgk.news1583f.ru/norman-hayes/>

Internet of Things



*The **Internet of Things** is the network of physical objects or "things" embedded with network connectivity, enabling these devices to collect and exchange data. By 2020, IoT will connect 30+ billion devices. Security becomes ever more critical.*

Ultimate IoT Device



RUSSIA – Cold War II



CHINA – Causes & Effects

- Sun Tzu – 600 B.C.E.
- Unrestricted theft – Ends Justifies the Means
- Intellectual property transfer at unprecedented scale
- Cost and Time barrier eliminated
- Economic Warfare by other means
- Changes the calculus





Additional Notes
Questions
Discussion

Locked and Loaded!

Shoot 'em at will:



The Response

- Federal annual cybersecurity spending - \$13B & growing
- Presidential Executive orders
- National Institute Standards & Technology protocols
- Coordination across federal landscape
- Public – Private partnership
- Playing cybersecurity catch-up



"Our task in the Intel community . . . is to distinguish a terrorist sending directions on how to build a bomb or defeat TSA procedures from someone sending their granddaughter a recipe for apple pie. We're not just looking for a needle in a haystack. We are looking for thousands of needles in acres and acres of haystacks." Director National Intelligence

The Cyber Threat Offensive Attacks

Modes & Methods

Stuxnet & Flame
 Buckshot Yankee
 Georgia
 Ukraine
 Baltic States
 Pakistan & India
 Critical Infrastructure

	Cyber warfare		CW training/ Trained Units	CW exercises/ simulations	Collaboration w/ IT Industry and/or Technical Universities
	Doctrine / Strategy				
Albania		X	X	X	
Argentina	X		X		
Australia		X	X		
Austria	X		X	X	
Belarus	X		X		
Brazil		X	X	X	
Bulgaria		X		X	
Canada				X	
China	X		X	X	X
Cyprus		X	X	X	X
Czech Republic		X	X	X	
Denmark		X		X	
Estonia		X	X	X	
Finland	X			X	
France	X		X	X	X
Germany	X		X	X	
Ghana		X			
Hungary		X	X	X	X
India	X		X	X	X
Iran			X		X
Israel	X		X	X	X
Italy			X	X	X
Japan			X		
Jordan		X	X		
Kenya			X		
Latvia		X	X	X	
Lithuania		X		X	
Malaysia		X	X		
Netherlands		X	X	X	
New Zealand		X	X		
North Korea			X		X
Norway		X		X	
Pakistan			X		
Philippines		X	X		X
Poland		X		X	
Russia	X		X		X
Slovak Republic		X		X	
South Korea		X			
Spain				X	
Sweden				X	
Switzerland		X		X	
Turkey		X	X	X	
United Kingdom		X	X	X	
USA		X	X	X	

SURVEY DEMOGRAPHICS

10 Countries represented around the world

20+ Industries represented

1,000 Qualified IT security decision makers & practitioners

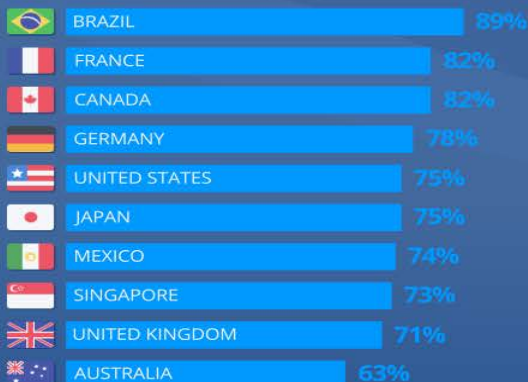
RISING CYBERATTACKS

The percentage of respondents affected by successful attacks is rising each year.



SUSCEPTIBLE NATIONS

The percentage of respondents affected by successful attacks in 2015 varied by nation.



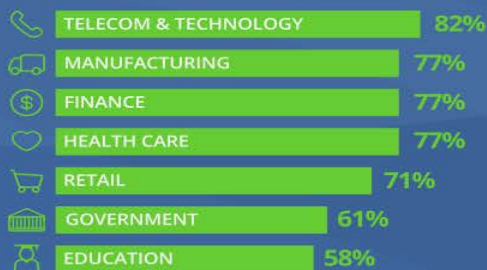
SINKING EXPECTATIONS

Respondents that believe a successful cyberattack is likely in the coming year is skyrocketing.



INCREASING SECURITY BUDGETS

Although three out of four IT security budgets are increasing in 2016, the percentage of growing IT security budgets varies by industry.



SECURITY'S WEAKEST LINKS

These areas are rated as most difficult to secure...



CYBERTHREAT HEADACHES

Cyberthreats causing the greatest concern include...



SECURITY'S BIGGEST OBSTACLES

These obstacles inhibit IT from defending cyberthreats...



NETWORK SECURITY ACQUISITIONS

The top four network security technologies targeted for acquisition in 2016 are...



ENDPOINT SECURITY ACQUISITIONS

The top four endpoint security technologies targeted for acquisition in 2016 include...



ENDPOINT PROTECTION REVOLUTION

The percentage of organizations evaluating new endpoint protection solutions to augment or replace their existing investments is skyrocketing.



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