



The Federal Reserve Bank of Boston's

# 2016 Cybersecurity Conference

# The Future of Cybersecurity

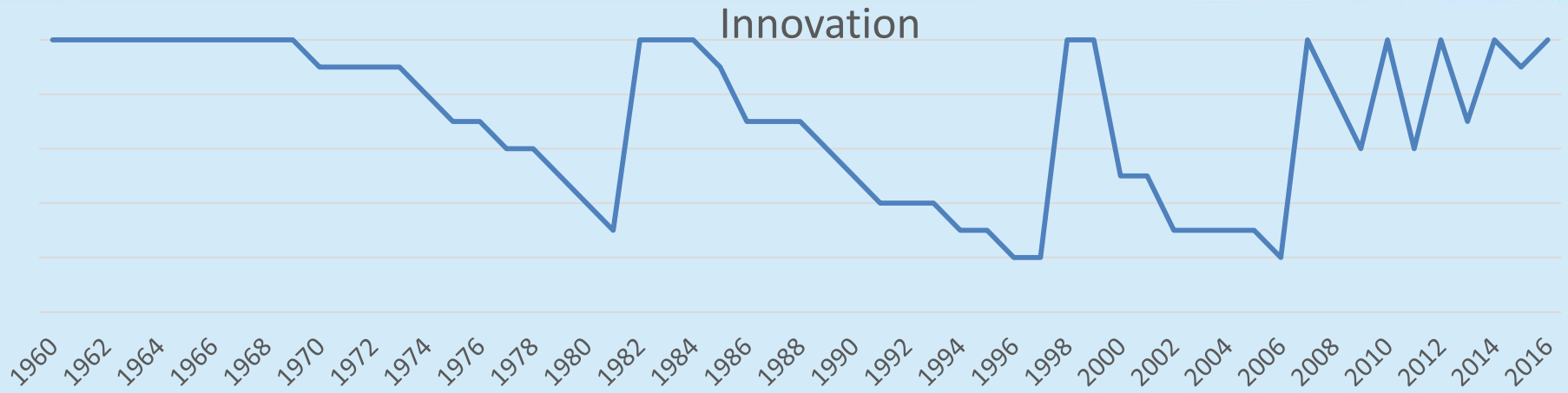
Don Anderson  
SVP & CIO  
Federal Reserve Bank of Boston



The Federal Reserve Bank of Boston's  
2016 Cybersecurity Conference



# The Age of Computing Disruption



## 1980s

- Open Standards
- Available to the consumer

## Mid 1990s

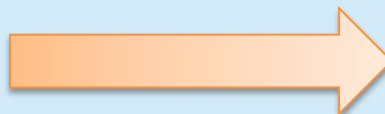
- Build to Order
- Fast delivery
- Commodity

## Late 2000s +

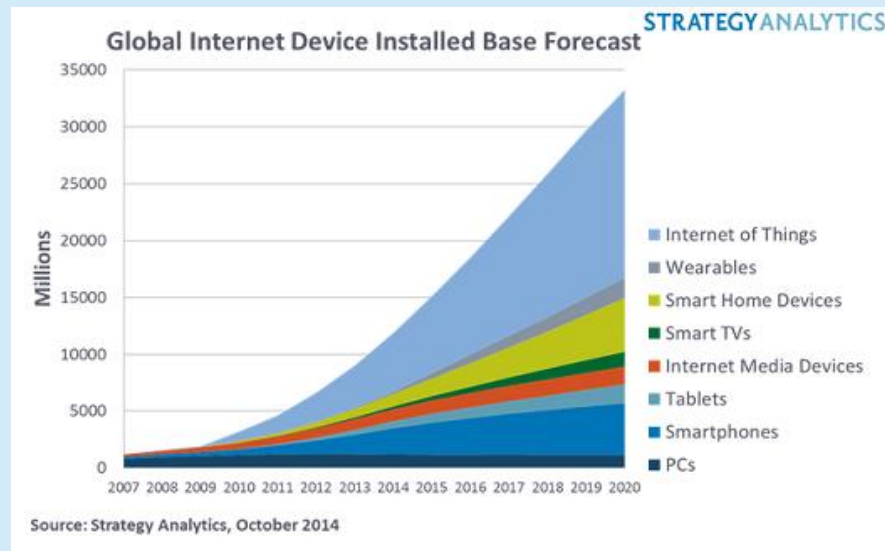
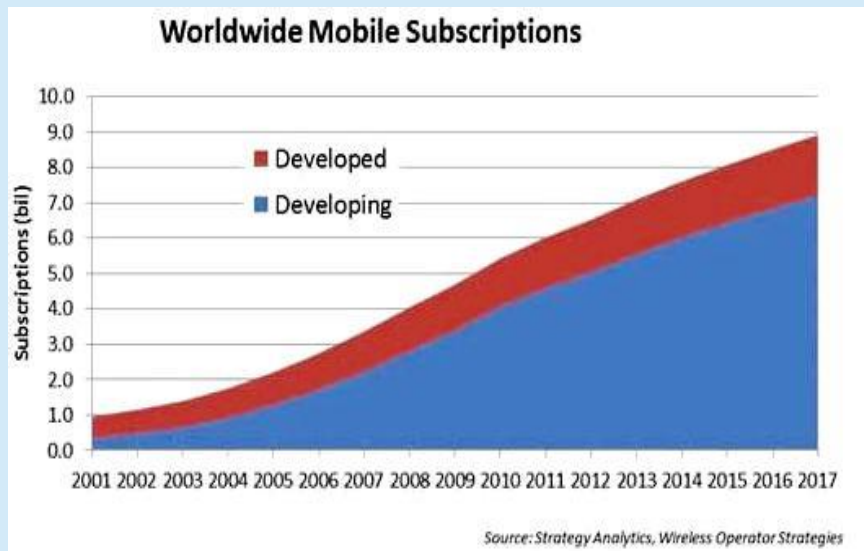
- Cloud / Build to Scale
- Superior User Experience
- Integrated ecosystem

# (A) Device(s) for Every Person

End of 2014  
1.3 Devices Per Person



2020  
4.3 Devices Per Person

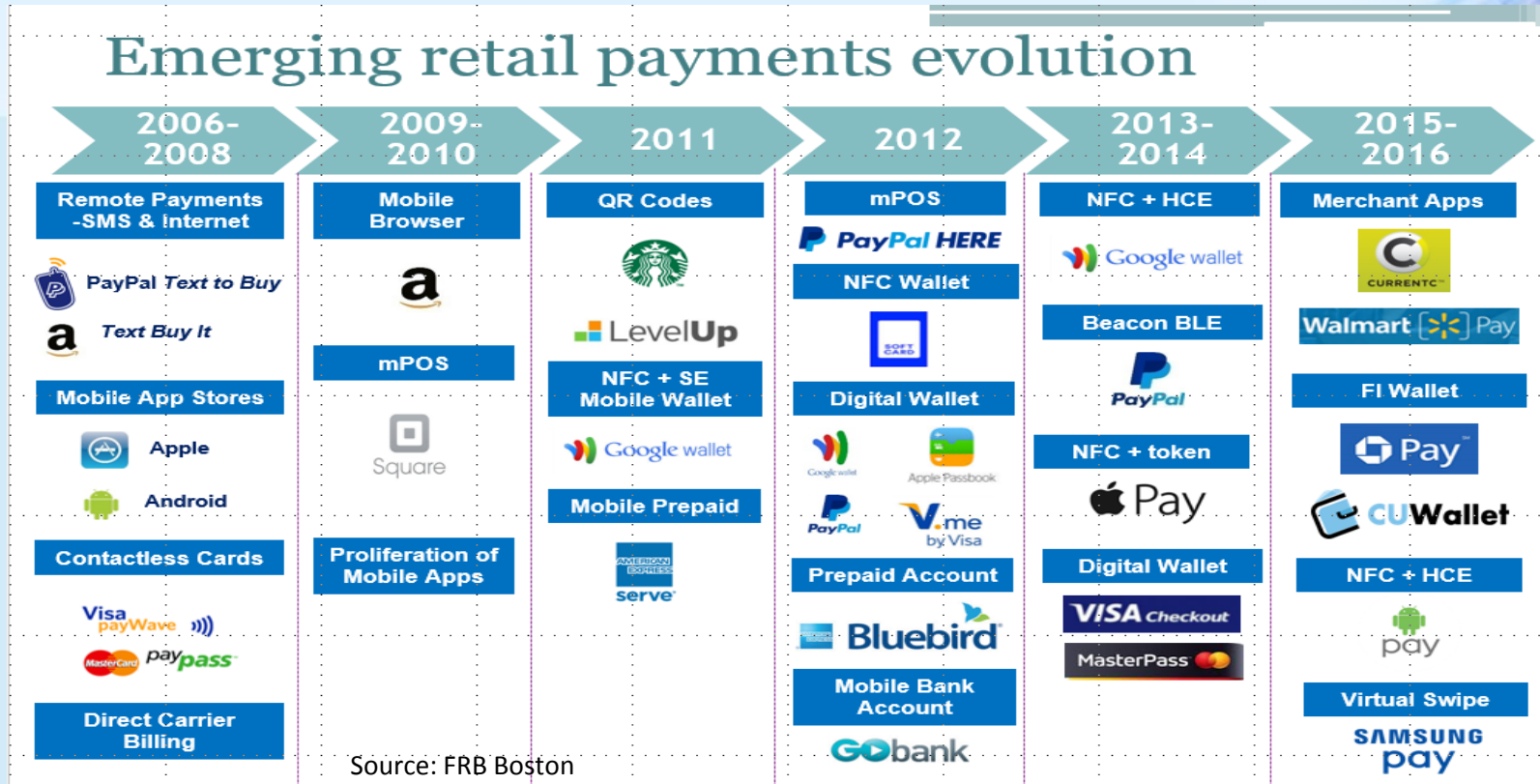


- Mobile Internet penetration worldwide doubled in 4 years, and is accelerating
- By 2017, mobile internet access will exceed fixed line access
- 60% of the world's population is covered by 3G access, 85% by year end

Source: Boston Consulting Group, The Growth of the Global Mobile Internet Economy, February 2015



# Societies Impacts



## Improved Access for the Underbanked

- 57% have access to a smartphone vs 44% for general population
- 29% have used mobile banking vs 21% for the general population
- 17% mobile payments vs 12% for the general population

# What is IOT?

*Anything that has embedded electronics, network connected that enable the object to collect and exchange data.*

## Examples

- Fitness tracker
- Connected Appliance and Home Theater
- Personal Assistant (Siri, Amazon Echo, etc..)
- Light bulb
- Shipping container
- Your car

## Where Are They?

- Critical Infrastructure (Power plants and grid, water supply, telecom, etc.)
- Airplanes
- Hospitals
- Elevator
- Everywhere...

4.9 Billion “Things” today, 21 Billion by 2020. (Gartner)

# Now, the bad side...



Source: iStockPhoto

# Ransomware

“Wreak havoc on America’s critical infrastructure”

(Institute for Critical Infrastructure Technology, 2016)

Hollywood Presbyterian Medical Center pays  
\$17,000 for medical records

Tewksbury and Melrose MA Police Departments –  
Criminal Records

Medstar Health System (DC) shutdown

Financial Services - Could be the target, or could be used as a  
means to spread to others.



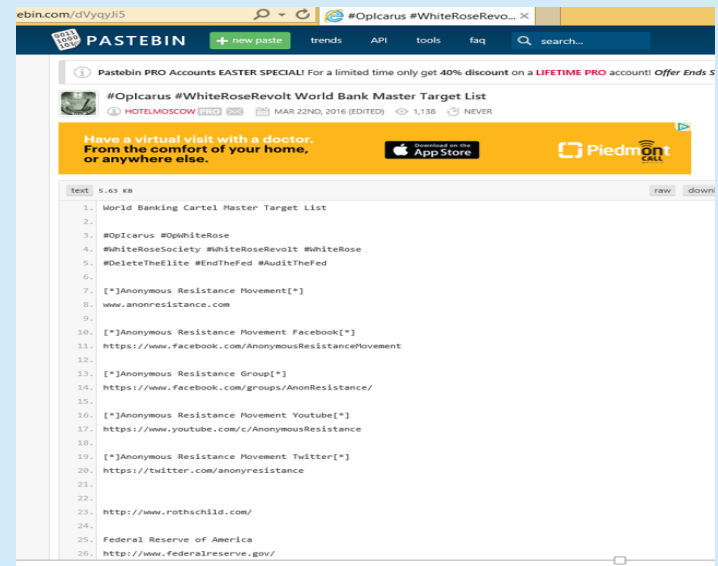
# Recruiting and Coordinating

ISIS – A global strategy for stumbling upon sympathizers, recruiting and coordinating.

Anonymous – Loose command structure that operates on ideas rather than directives.



Source: iStockPhoto



# Uses of IT has changed, but how we protect it, hasn't...

We allow...

- Customers and Partners In
- Employees to be Mobile
- Employees to Access Critical Resources and Source Code
- Employees to Click on Links

# The Shift Of Focus

## A successful cyber attack could be...

### → Strategic

- Prevent the organization from achieving it's mission
- Displace the organization in the industry

### → Operational

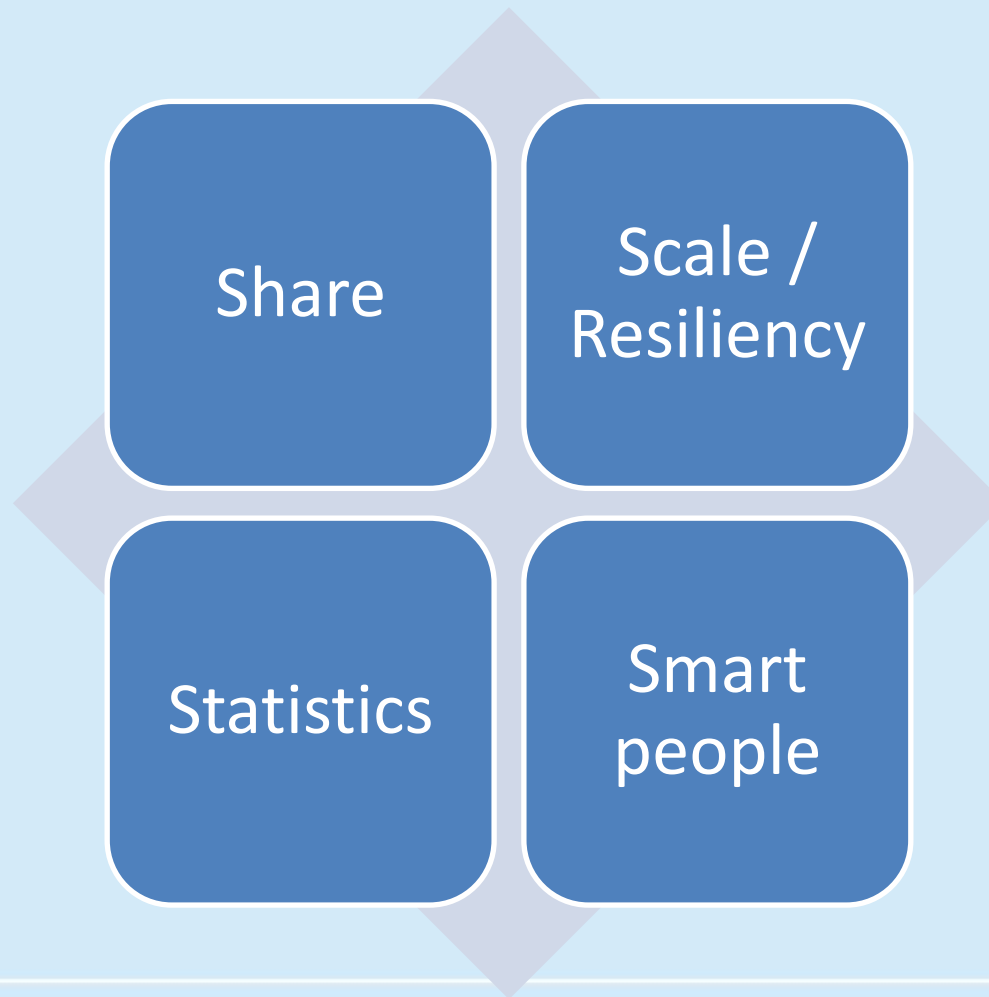
- Unable to conduct business processes
- Manipulate a business process to the attacker's advantage

### → Reputational

- Lose faith in the brand



# Recommendation – The 4 S's



# 1 – Share



Share best practices and threats amongst industry and cross industry.

Today: Relationships and discussions

Future: Relationships and real time sharing which automatically applies to defenses



# 2 – Scale / Resiliency

## The Cloud

- Huge Scale, Geographically Distributed
- Defense features only available at that scale
- Caveat – Not all vendors are created equal

## Resiliency

- Integrate and exercise physical, operational, human and cyber plans
- Identify dependencies
- Governance – Who can pull the plug?

# 3 – Statistics

Source: iStockPhoto



Source: iStockPhoto

Analyze huge amounts of forensic data for signs of attack

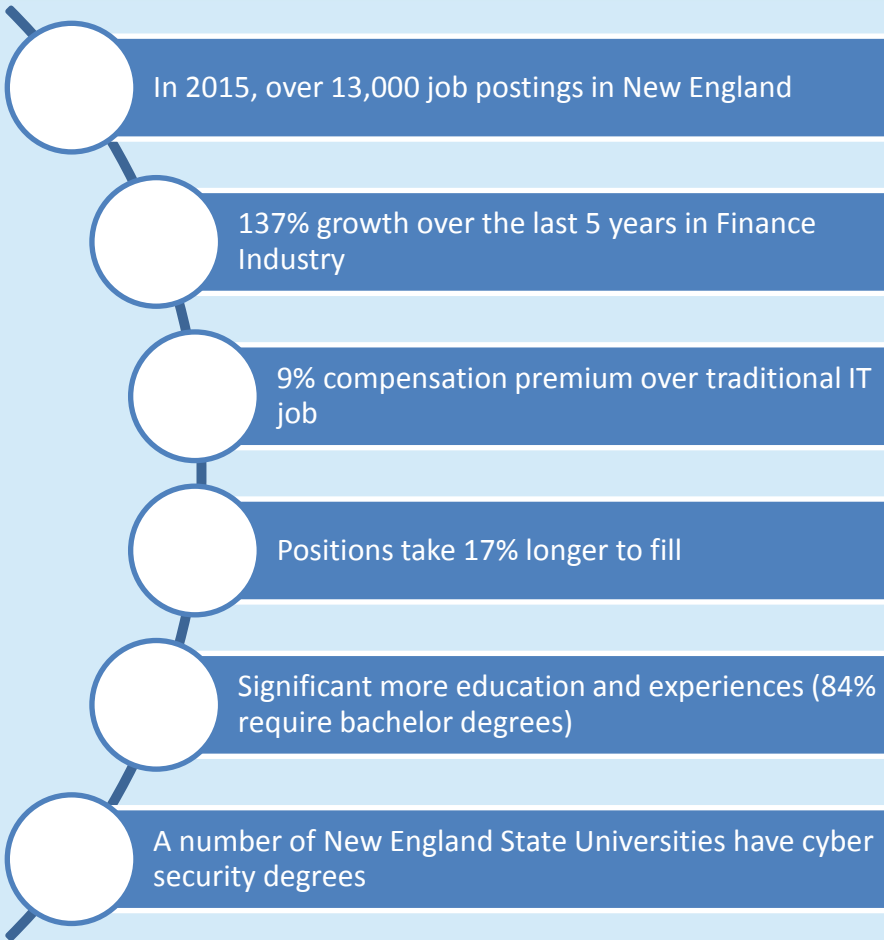


Real time protections



Leverage the cloud for horse power and diversity

# 4 – Smart People



**Top States by Total Postings\***

	State	Total Postings	Location Quotient**	% Growth (2010-2014)
1	California	28,744	1.02	75%
2	Virginia	20,276	3.09	38%
3	Texas	18,525	0.92	113%
4	New York	14,089	0.97	104%
5	Illinois	11,428	1.16	163%
6	Maryland	11,406	2.40	39%
7	Florida	9,847	0.67	135%
8	Georgia	8,757	1.22	121%
9	New Jersey	8,268	1.21	80%
10	Massachusetts	7,911	1.45	92%
11	Colorado	7,688	1.77	111%
12	North Carolina	7,503	1.06	127%
13	Ohio	6,281	0.72	141%
14	Pennsylvania	5,745	0.59	69%
15	Arizona	5,502	1.18	87%

2015 Burning Glass Report

# Summary

- Technology will continue to disrupt traditional business models
- Technology will disrupt how we protect ourselves
  - But the bad guys have technology too
- Now is the time to disrupt ourselves



Thank you

[Don.Anderson@bos.frb.org](mailto:Don.Anderson@bos.frb.org)