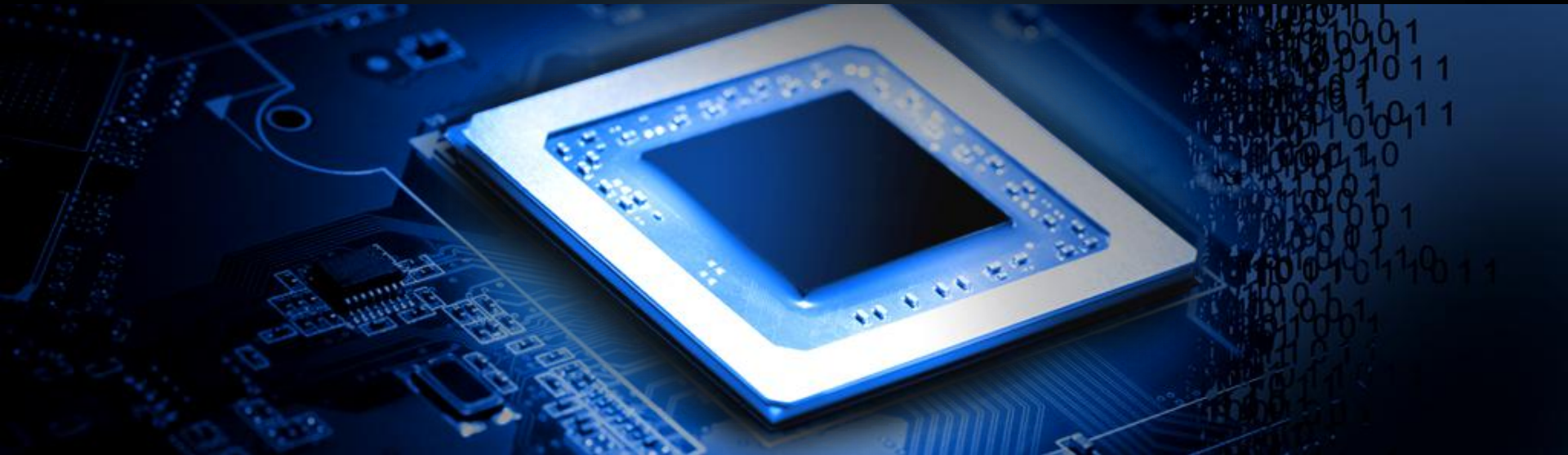


# Cyber Security: Past, Present & Future

**Vimal Solanki**

SVP, Corporate Strategy & Intel Office



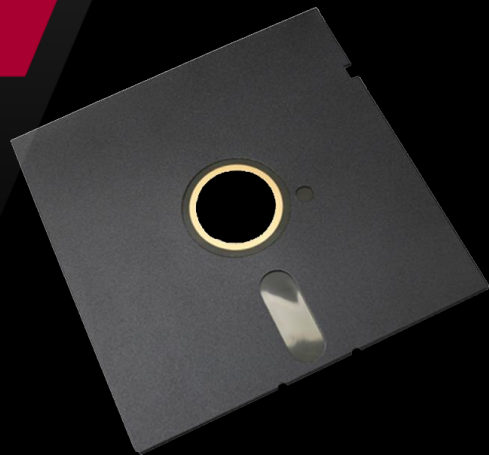


- **The Good Old Days...**

- **Perfect Storm**

- **What Can we Do About it?**

# The Good Old Days...



The floppy was the biggest problem we had



You were safe if you didn't trade illicit software and ASCII pictures



Remember when consumer devices looked like this?

# THE PERFECT STORM



# Four Key Trends



Explosion of IP  
Devices



Escalating Threat  
Landscape



Complexity of IT  
Model



Lack of Governance  
Model

# Explosion of IP Devices



**1 BILLION**  
DEVICES



**50 BILLION**  
CONNECTED  
DEVICES

AEROSPACE

DIGITAL  
SIGNAGE

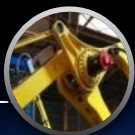
INDUSTRIAL  
PC

ENTERPRISE  
SECURITY

RESIDENTIAL  
GATEWAY

IP SERVICES

TEST &  
MEASUREMENT TRANSPORTATION



ATM

POINT  
OF SALE

MOBILE

KIOSK

MANUFACTURING

MEDICAL  
DEVICE

PRINTER

USB



MILITARY

MEDICAL  
IMAGING

NETWORK  
APPLICATIONS

WIRELESS  
INFRASTRUCTURE

CAMERAS

VEHICLE  
INFOTAINMENT

ROBOTICS

TELEPHONING

ROUTING  
SWITCHES

ENTERPRISE  
VOIP



ENERGY &  
UTILITIES CONTROL

HOME  
AUTOMATION



**95%** OF NON-PC DEVICES UNPROTECTED!

# During this Decade...

**50**

BILLION  
Devices

**4**

BILLION  
Connected  
People

**25**

MILLION  
Apps

**2**

TRILLION  
Transactions

**50**

TRILLION  
GB of Data

**Staggering Growth Creates Complexity**



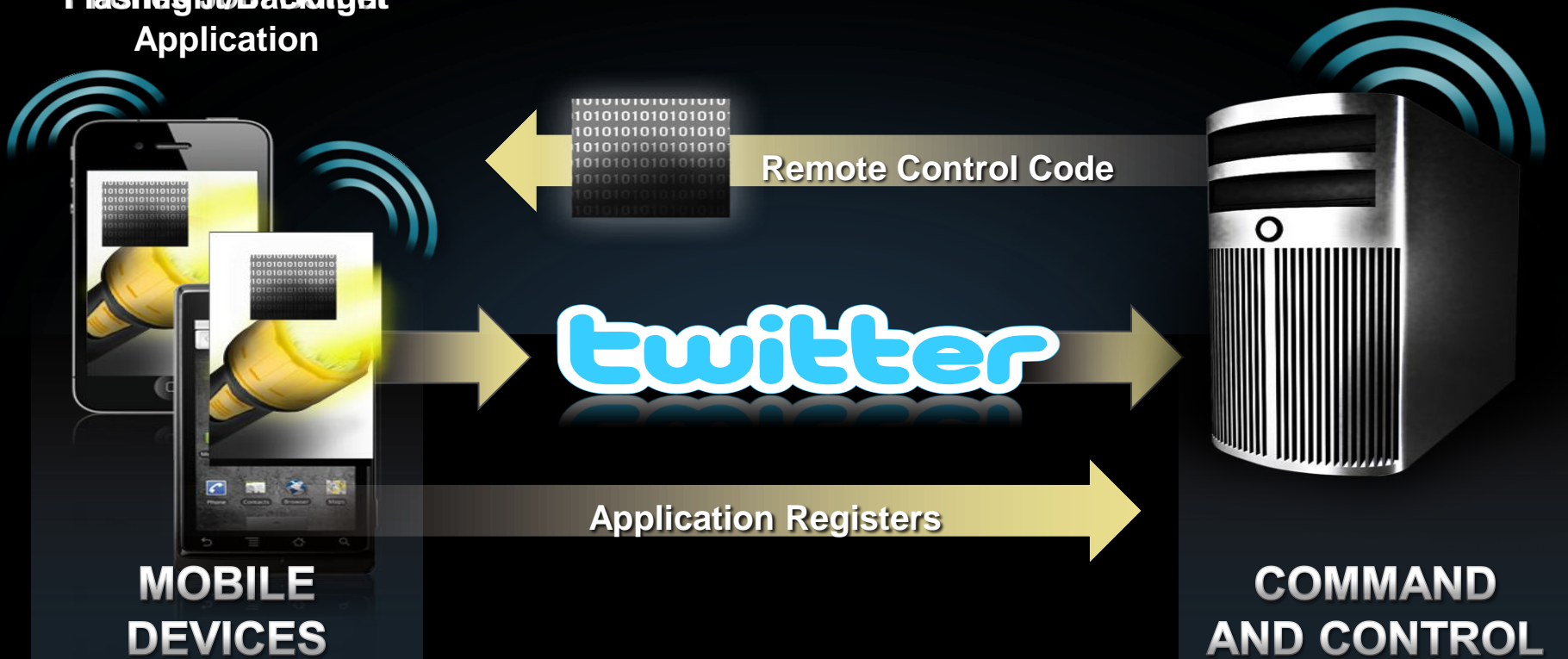
# Most Popular 99c App in App Store?

## Flash Light App



Provided hidden tethering via iPhone's 3G Connection

# Flashlight/Backlight Application



26846

Cabot Rd

Camino Capistrano

Diego Fwy

San Diego

Phone Number: 19495109516



[Control Link](#)

Additional Details:

- Phone IMEI: 1244124411115623
- Phone OS Version: 4.1
- Phone Carrier: ATT
- Phone Hardware: iPhone 3GS



Puerta Real

27300

Granada Park

Puerta Real

Los Altos

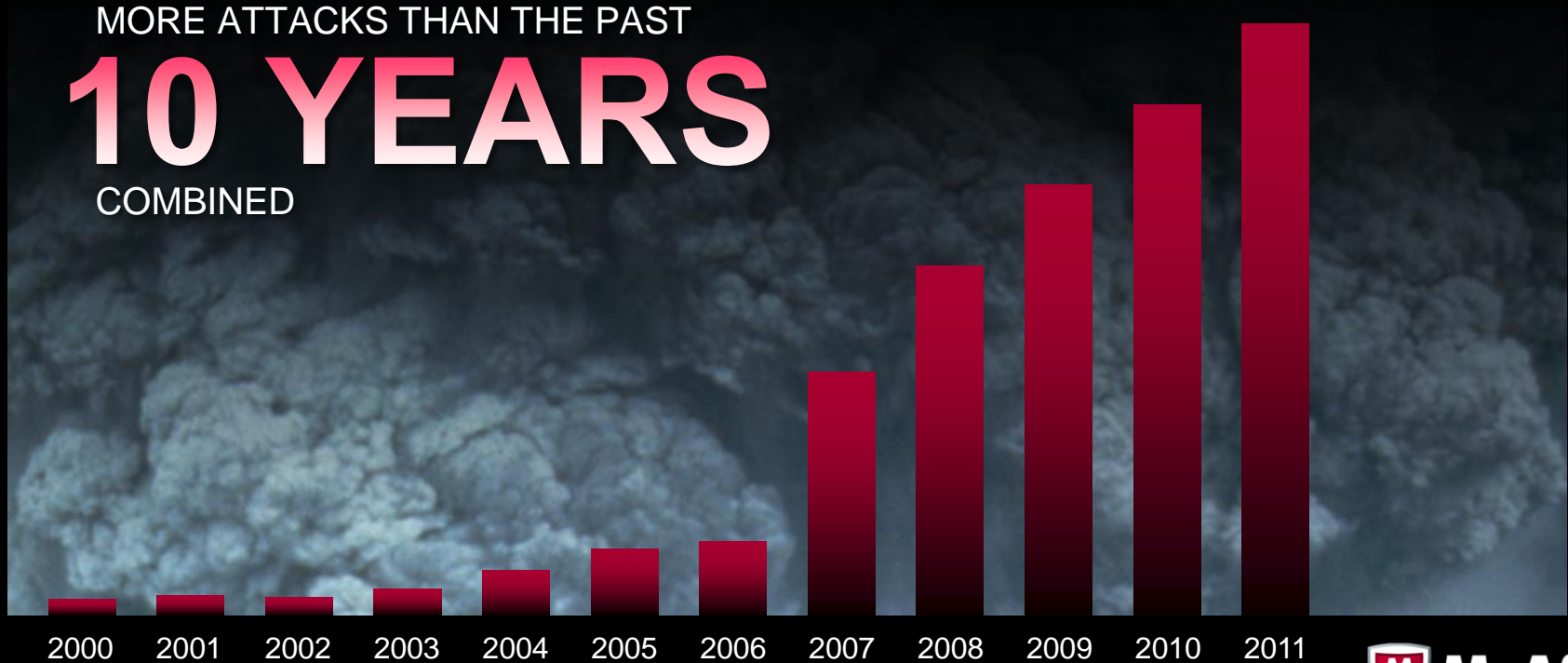
26400

# Malware Explosion

MORE ATTACKS THAN THE PAST

# 10 YEARS

COMBINED

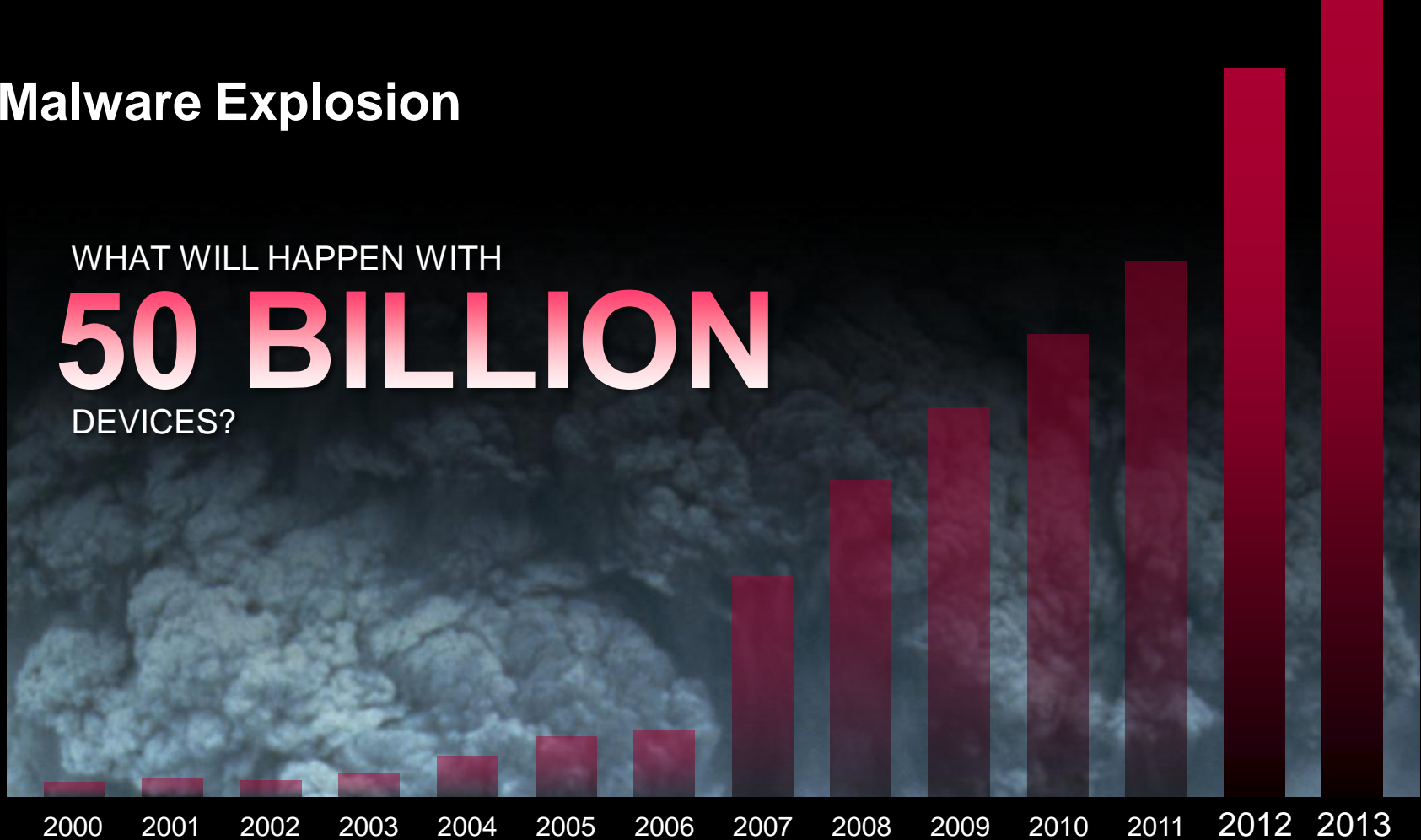


# Malware Explosion

WHAT WILL HAPPEN WITH

# 50 BILLION

DEVICES?



# Stakes are Rising Rapidly

**SLAMMER**



Hacking for Fun

**ZEUS**



Organized  
Crime

**AURORA**



State-Sponsored  
Cyber Espionage

**STUXNET**



Physical  
Harm

# OPERATION SHADY RAT



# Operation Shady RAT



22



U.S. Federal Gov.	6
U.S. State Gov.	5
U.S. County Gov.	3
Canadian Gov.	2
South Korean Gov.	1
Vietnam Gov.	1
Taiwan Gov.	1
U.S. Gov. Contractor	1
United Nations	1
Indian Gov.	1

6



Construction/ Heavy Industry	3
Steel Industry	1
Energy	1
Solar Power	1
	1

13



Electronics Industry	3
Computer Security	2
Information Technology	2
Satellite Communications	2
News Media	2
Information Services	1
Communications Technology	1

13



Defense Contractor	13
--------------------	----

4



Real Estate	2
Accounting Industry	2
Agriculture	1
Insurance	1

12



International Sports	5
Economics/Trade	2
Think Tanks	2
International Government/ Economics/Trade	1
Political non-profit	1
U.S. National Security Non-profit	1



# What Should be Our Strategy?



# The Old **SECURITY** Model Is **BROKEN**



Threats are Diving Deep... Being Quiet... Attacking with Surprise

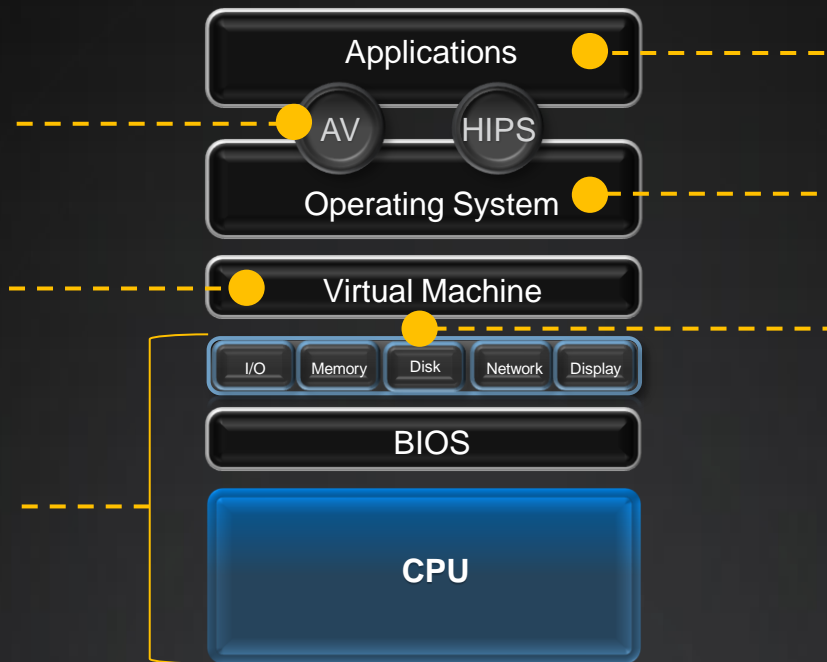


# Art of Cyberwar

Attack and disable security products and hence all protection

Compromise virtual machine and hence all guest OSes within

“Ultimate APT’s” compromise devices below OS, either before or after shipment



Traditional attacks – and defenses – focused primarily on the application layer

Infect OS with APT’s resulting in threats hidden from security products

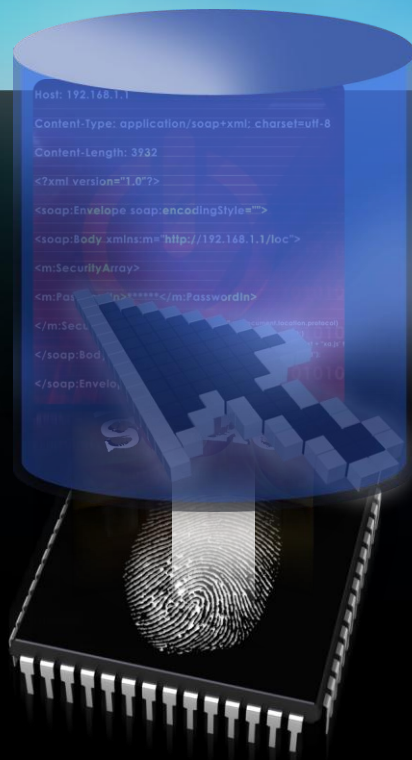
Rogue peripherals & firmware bypassing all other security measures

# Take the “Oxygen” Out of the Room for Malware

MALWARE



NON-EXECUTABLE



INSECURE



# BLACK

MAC



NetBook



Consumer PC



# GREY

REPUTATION-BASED

VDI



Smartphone



Mobile phone



# WHITE

Point of Sale



Kiosks



COE Desktop



ATMs



Servers



SCADA Systems



Smart Meter



Printer



Medical Devices



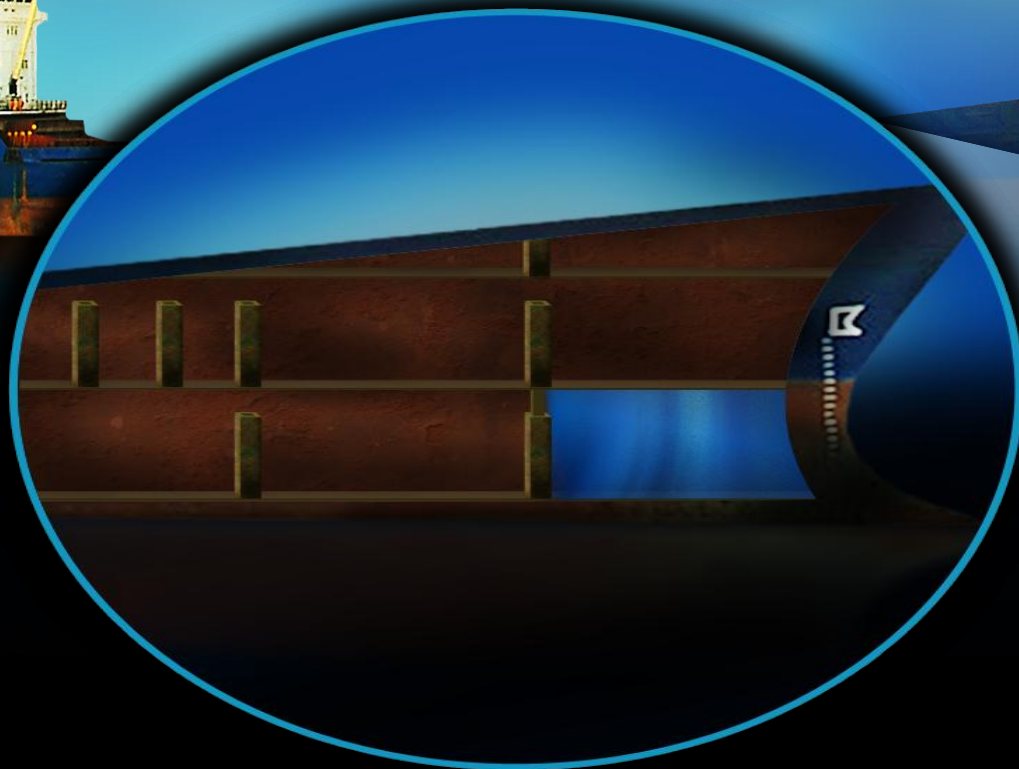
DYNAMIC

STATIC

# RETHINK SECURITY – A NEW PARADIGM



# Build Resilient Systems



# Learn from the **PAST**...Secure the **FUTURE**

