

Committee on Critical Infrastructure

NARUC  Summer
Policy Summit



**Committee on
Critical Infrastructure and
Task Force on Innovation
Innovation and Cybersecurity
– Exploring the Relationship
Between New Technology and
New Risks**

Cyber Security in a Connected Grid

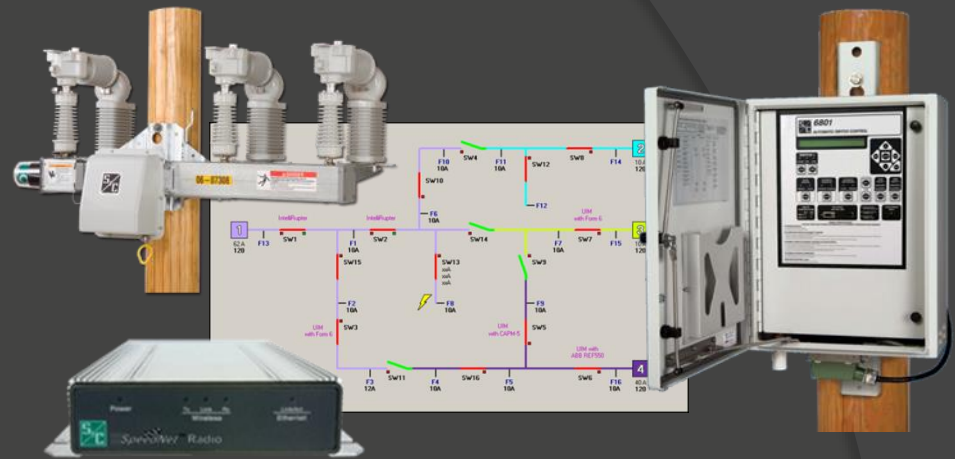
S&C Electric Company



S&C Products and Applications



Overhead Distribution



Automation and Grid Control



Underground Distribution



Microgrid Controls



Global Services

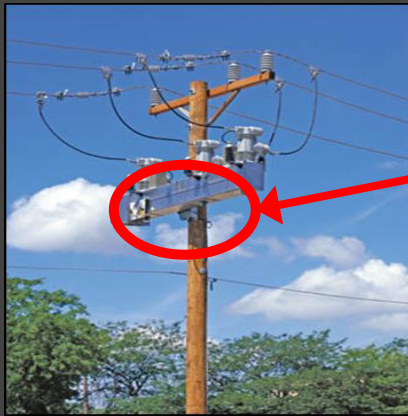


Energy Storage Systems



Substations

Computers and Communications



Overhead Distribution



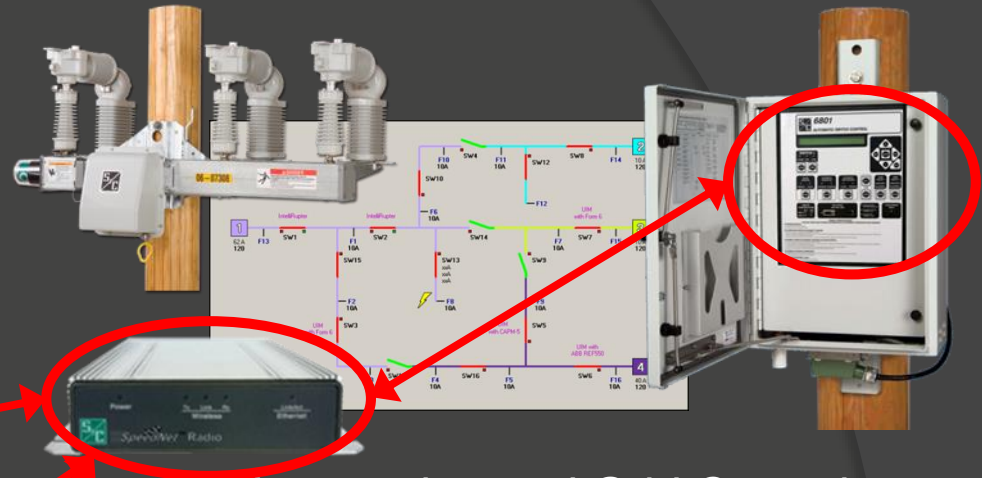
Underground Distribution



Energy Storage Systems



Global Services



Automation and Grid Control



Microgrid Controls

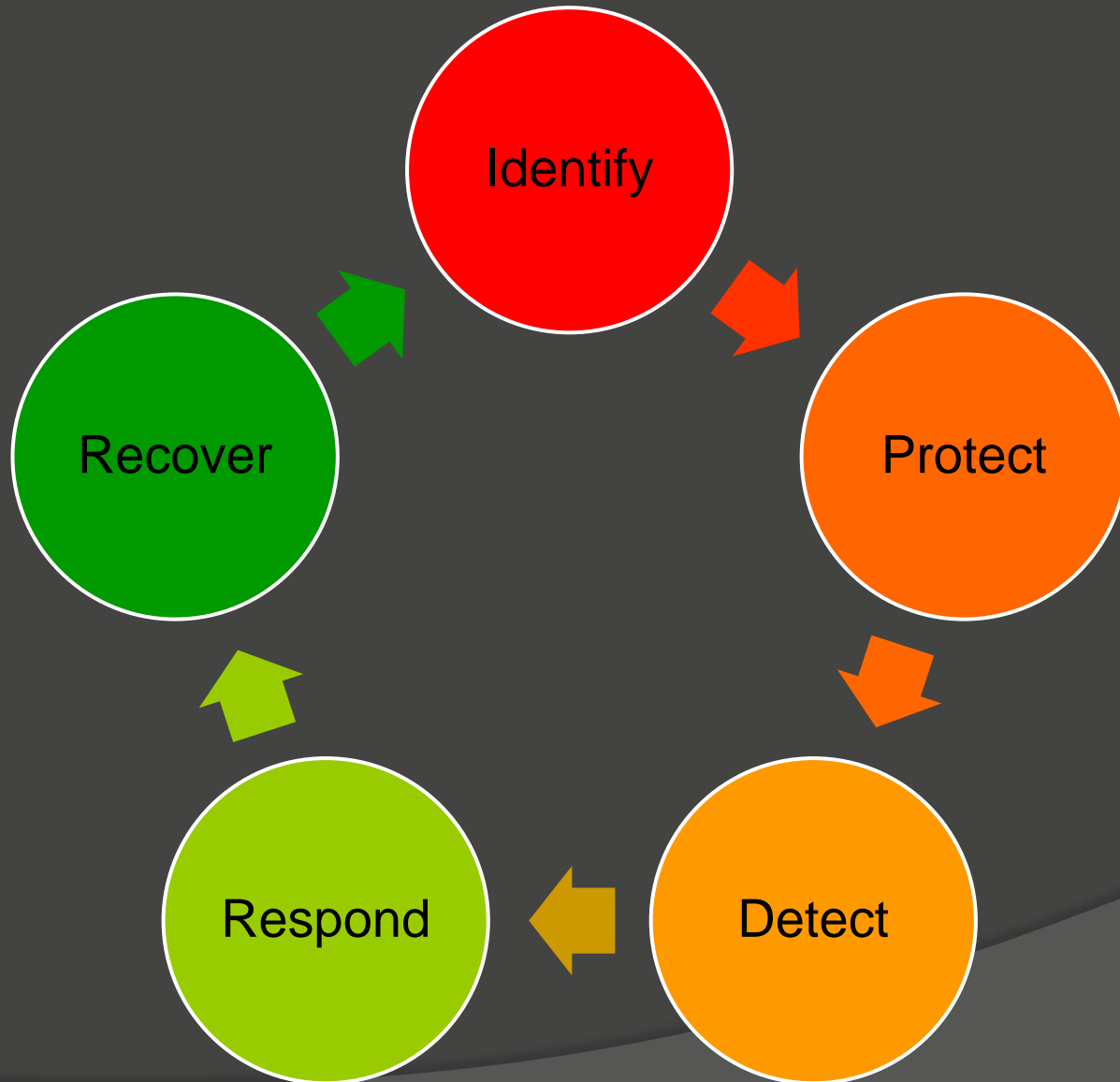


A satellite image of a large hurricane or tropical storm over the Caribbean Sea. The storm features a prominent, dense white eye and swirling cloud bands extending across the ocean. The surrounding landmasses, including parts of Central America and the Caribbean islands, are visible in shades of green and brown. The text "FPL Grid Recovers in 4 days!" is overlaid in yellow.

**FPL Grid Recovers
in 4 days!**



NIST Cyber Security Framework



SMART Devices are just like Computers on a Network



PROTECT

Secure Platform
Secure Communications

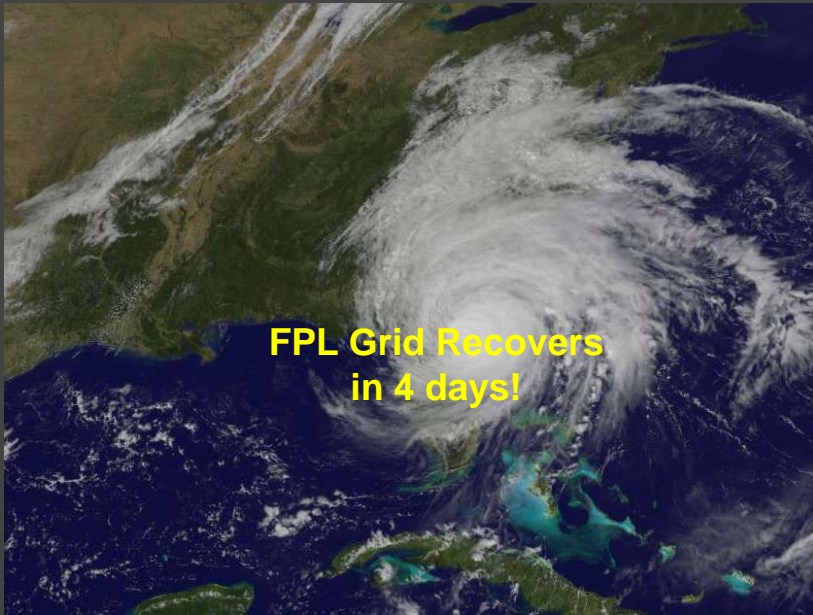
DETECT

Secure User Access
Monitoring and Logging

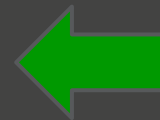
RECOVER

Patch Management
Secure Backup



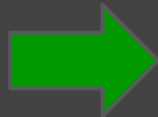


FPL Grid Recovers
in 4 days!



If we can beat
this....

We can beat
this....





Innovation and Cybersecurity

Steven Martin – VP, CDO
@martin_stevenb

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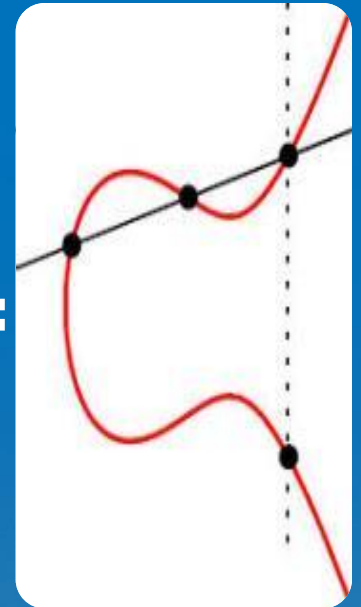
How did I end up here?



+



=



$$y^2 = x^3 + ax + b$$

86%

Renewables
Additions

18%

Intermittent
Power

8_{GW}

Coal Plant
Closures

€104_n

Asset Write
Downs



2.5_{BN}

Urbanizing

40_M

Electric Cars

50%

Less CO₂

32_{GW}

Prosumer
DERs

Peer2Peer

Vehicle2Grid

Energy Efficiency

MicroGrid

Beyond the Electron

Cloud computing - lessons learned

1

The internet
will always
win

2

The myth of
non-
connected
security

3

Beware the
keyboard
and the
seat

4

Hack
yourself



The Next Generation of Grid Software

- 1 Seamlessly manage Transmission <-> Distribution
- 2 Hierarchical by design
- 3 Consume additional inputs
- 4 Micro-optimization
- 5 Energy generation + storage in single layer
- 6 Multiple deployment options



Real time optimized controls

- Open development & execution
- Edge & cloud deployment
- Secure, isolated, fault tolerant



Scaled Data collection & storage

- ML Driven
- Software platform for scale



DIGITAL TWIN

Continuous improvement

- Analytics + learning in the cloud and at the edge across assets & fleets

Solutions for the next 25 years



NARUC CRITICAL INFRASTRUCTURE/PRESIDENTIAL TASK FORCE ON INNOVATION, JULY 16, 2017

Grid Automation

Cyber security, situational awareness and resilience

Joe Doetzel, Cyber Security Practice Leader, ABB Grid Automation

Important notices

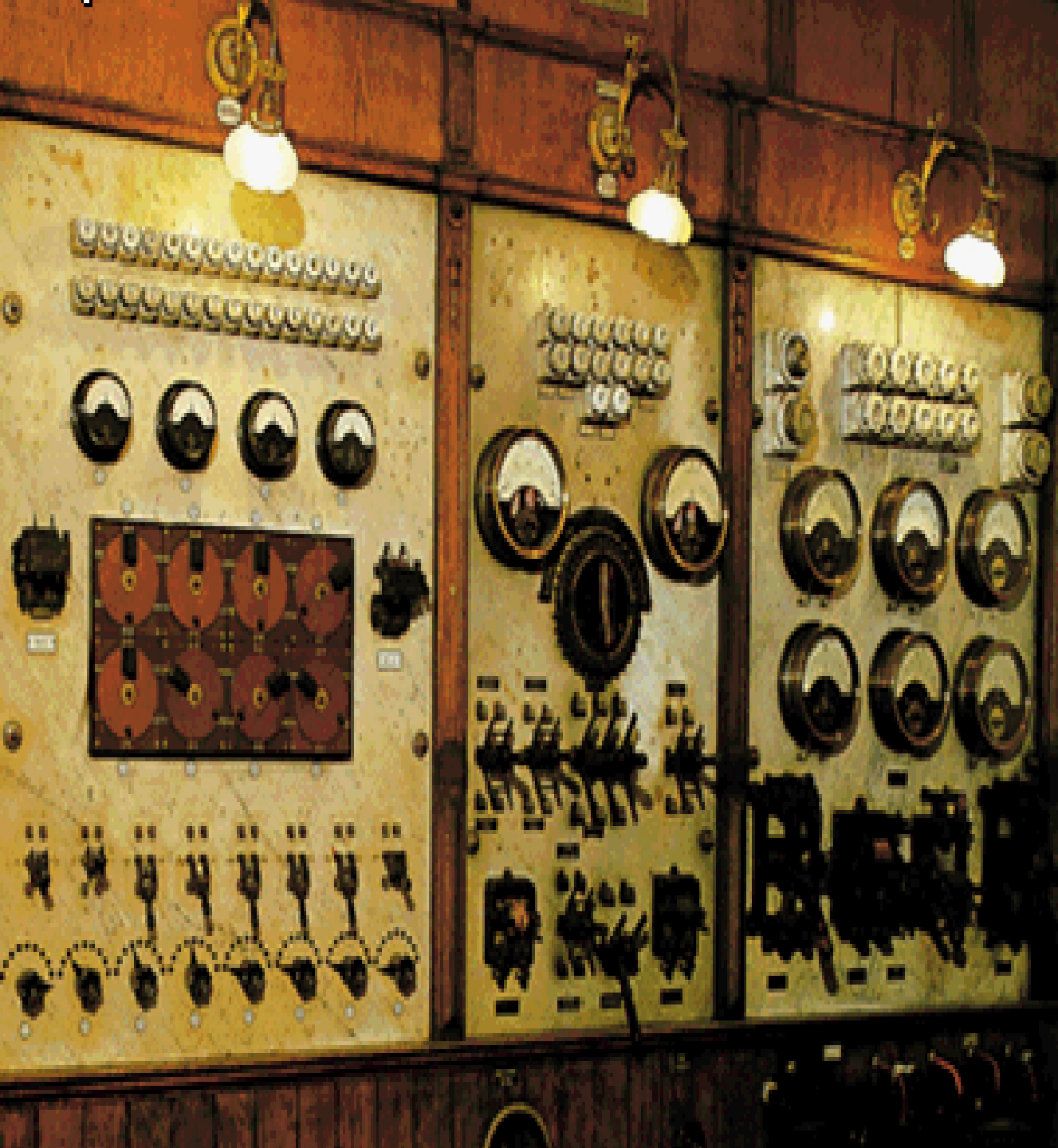
This presentation includes forward-looking information and statements including statements concerning the outlook for our businesses. These statements are based on current expectations, estimates and projections about the factors that may affect our future performance, including global economic conditions, and the economic conditions of the regions and industries that are major markets for ABB Ltd. These expectations, estimates and projections are generally identifiable by statements containing words such as “expects,” “believes,” “estimates,” “targets,” “plans,” “outlook” or similar expressions.

There are numerous risks and uncertainties, many of which are beyond our control, that could cause our actual results to differ materially from the forward-looking information and statements made in this presentation and which could affect our ability to achieve any or all of our stated targets. The important factors that could cause such differences include, among others:

- business risks associated with the volatile global economic environment and political conditions
- costs associated with compliance activities
- market acceptance of new products and services
- changes in governmental regulations and currency exchange rates, and
- such other factors as may be discussed from time to time in ABB Ltd’s filings with the U.S. Securities and Exchange Commission, including its Annual Reports on Form 20-F.

Although ABB Ltd believes that its expectations reflected in any such forward-looking statement are based upon reasonable assumptions, it can give no assurance that those expectations will be achieved.

This presentation contains non-GAAP measures of performance. Definitions of these measures and reconciliations between these measures and their US GAAP counterparts can be found in the ‘Supplemental reconciliations and definitions’ section of “Financial Information” under “Quarterly results and annual reports” on our website at www.abb.com/investorrelations











ABB

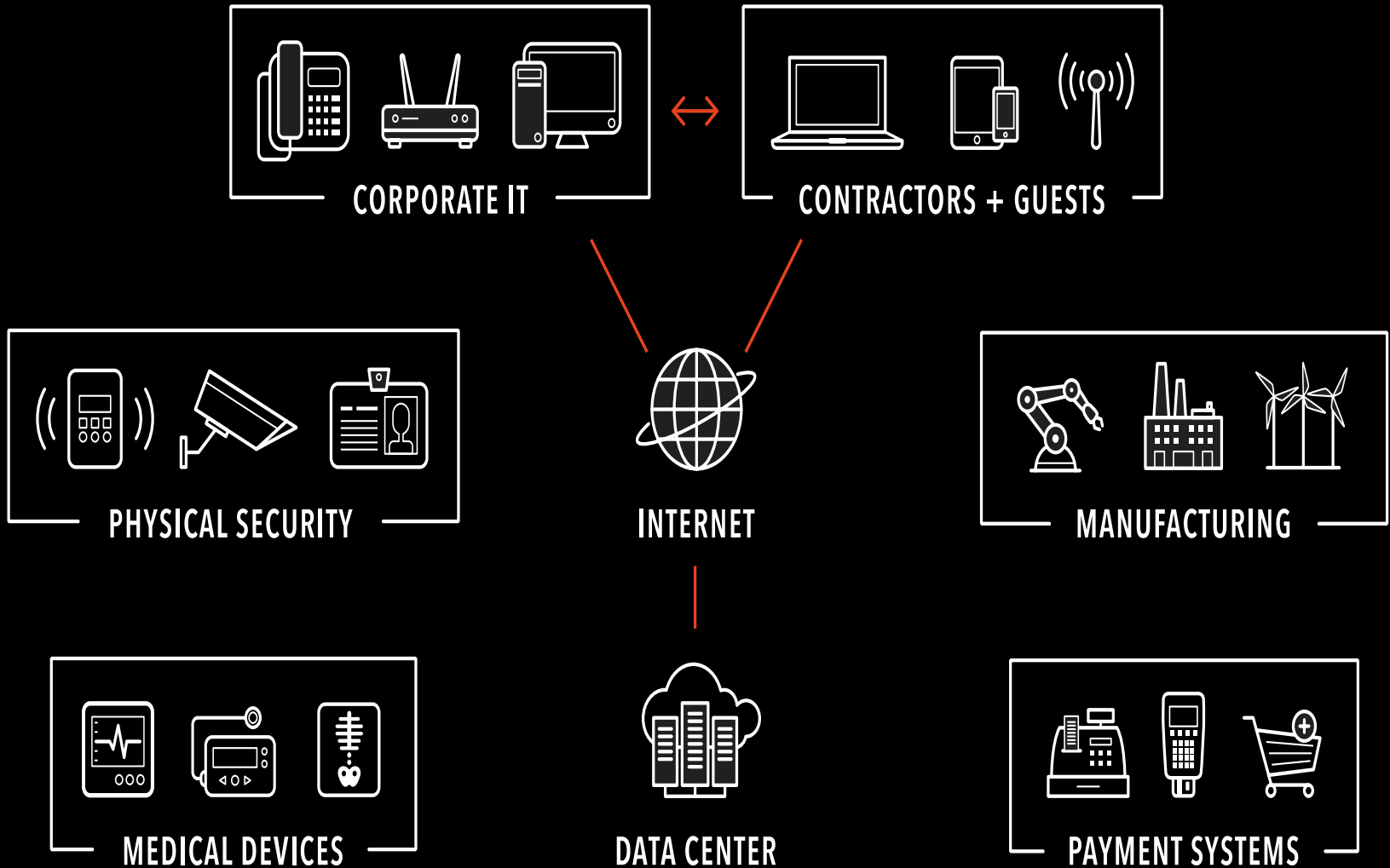


PWNIE EXPRESS

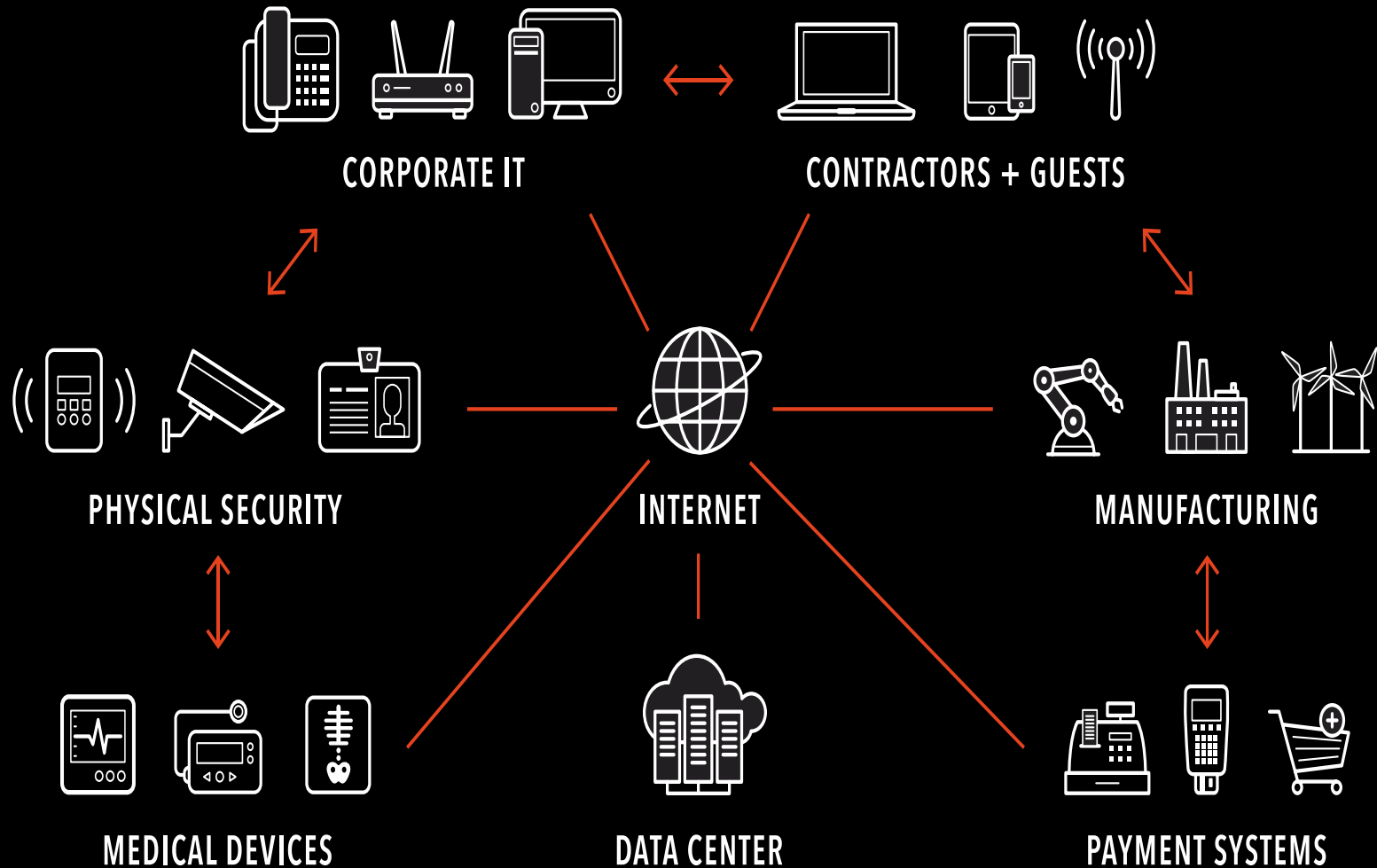


Addressing the IoT Security Gap

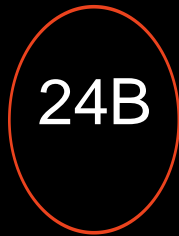
THE ISOLATED ENTERPRISE



THE CONNECTED ENTERPRISE



RISK FROM THE IoT SECURITY GAP IS EXPLODING



“

24 BILLION
INTERNET
CONNECTED
DEVICES BY
2020.

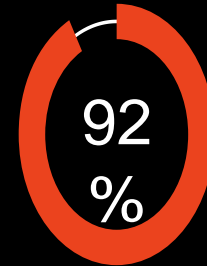
”



“

BY 2020, MORE
THAN 25% OF
ENTERPRISE ATTACKS
WILL INVOLVE
IoT DEVICES.

”



“

CONNECTED
DEVICE THREATS
WILL BE A MAJOR
SECURITY ISSUE
IN 2017

”



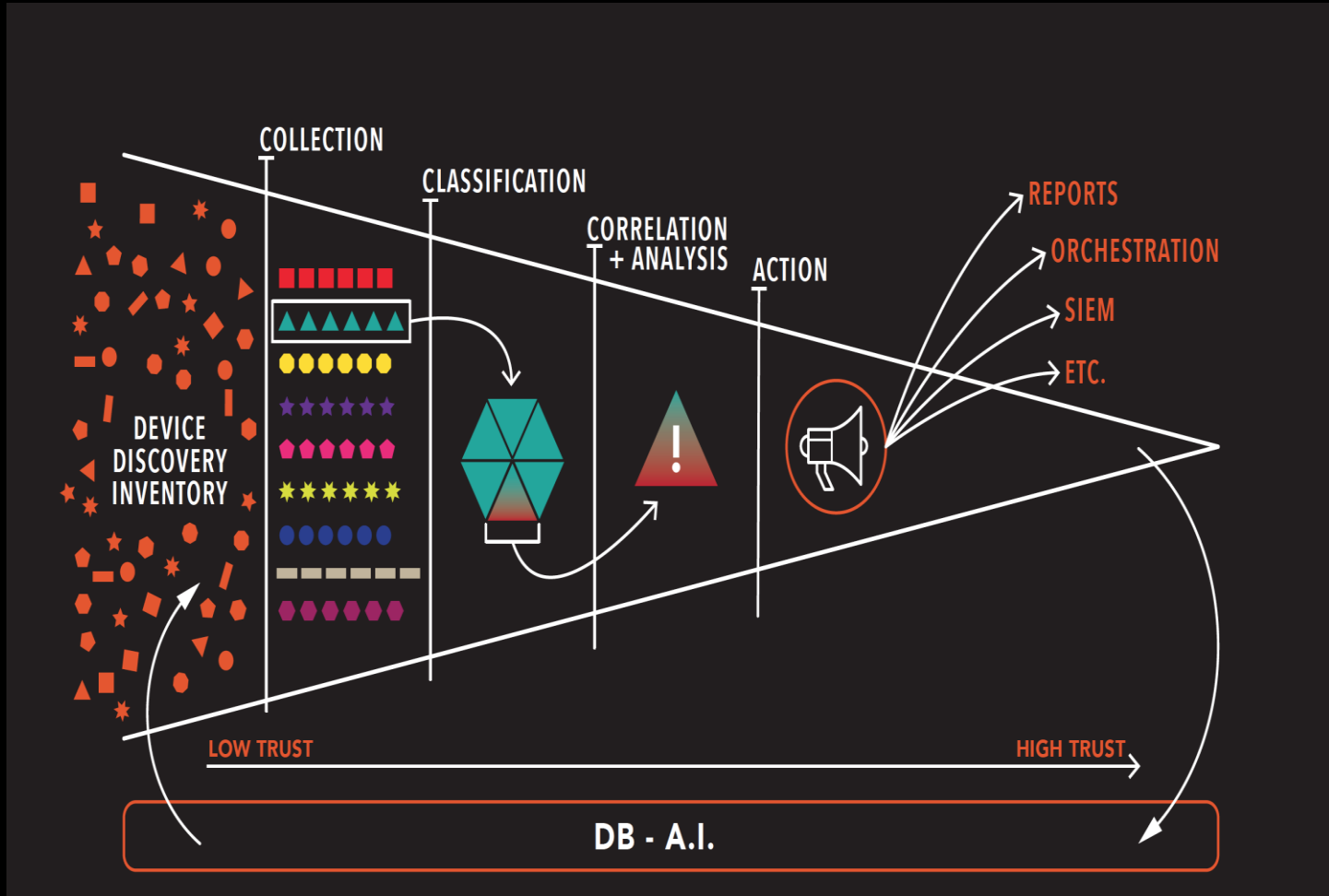


$$Security = \frac{1}{Convenience}$$

Market forces dominate sound security principles



Mission: To Find and Distribute what is Valuable and Trusted



THANK YOU



Committee on Critical Infrastructure