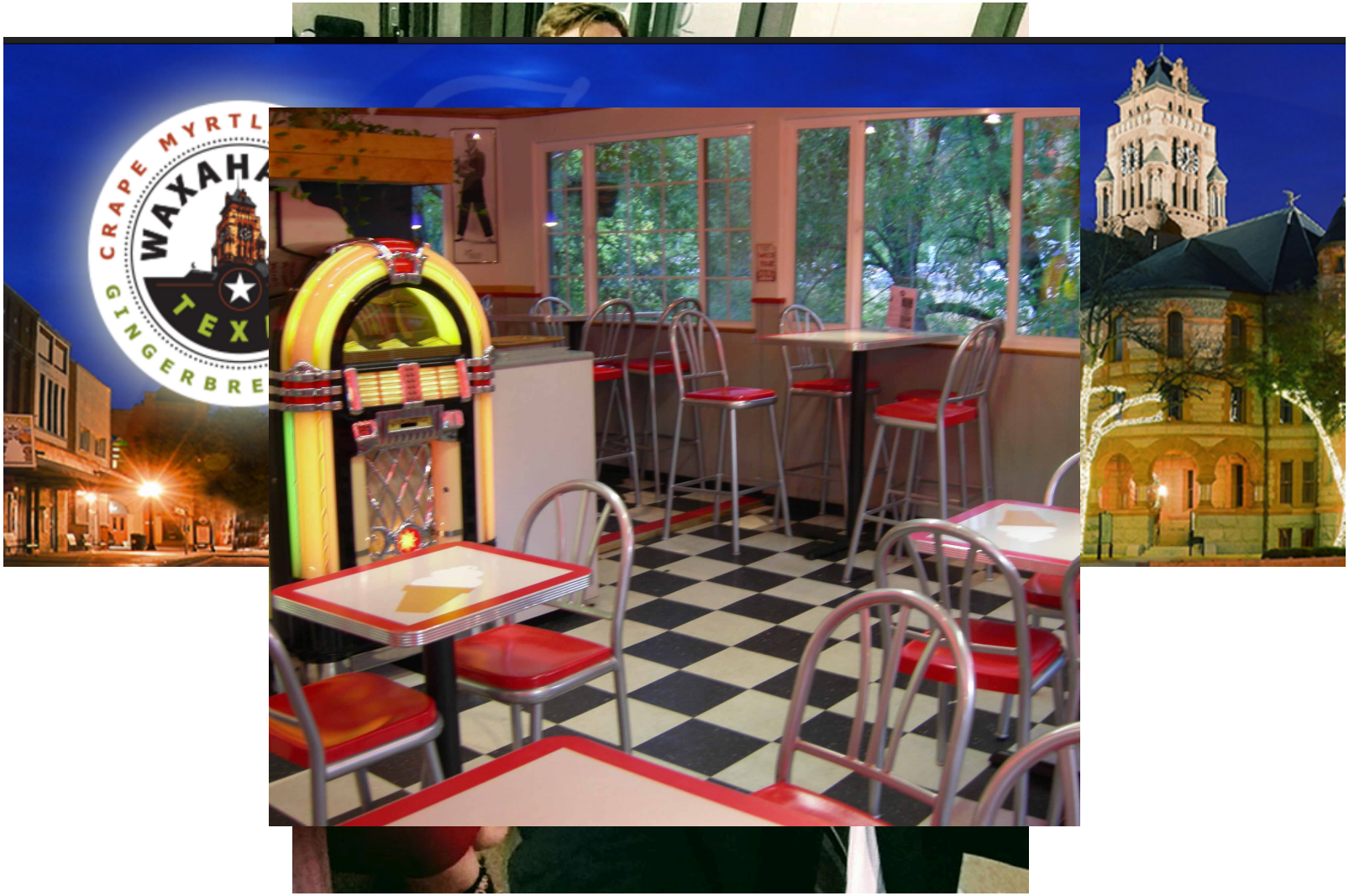
TEXAS A&M CYBERSECURITY CENTER

Privacy and Big Data: Can They Coexist?

2nd Workshop of Mission-Critical Big Data Analytics
May 16 - 17, 2017

Daniel J. Ragsdale, Ph.D.
Director, Texas A&M Cybersecurity Center
Professor of Practice, Computer Science and Engineering

TEXAS A&M UNIVERSITY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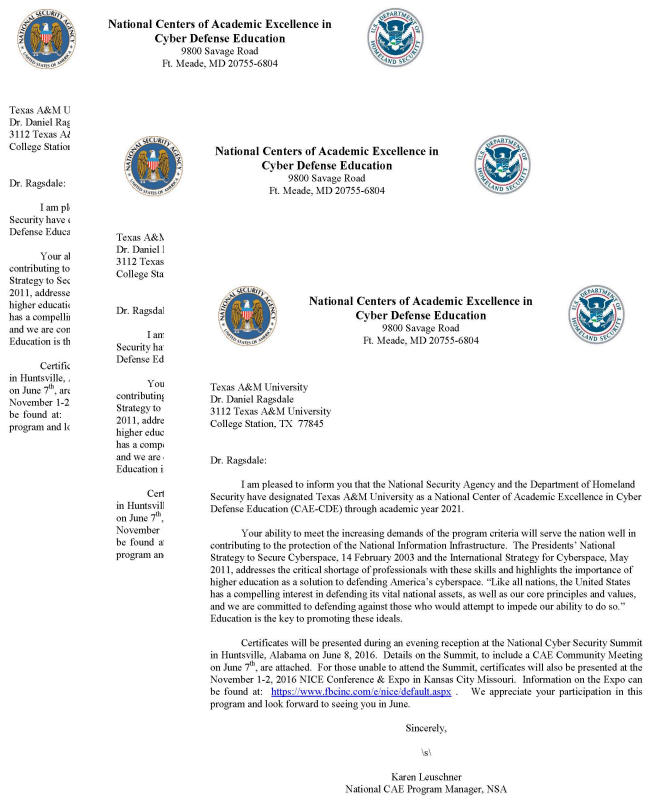
Texas A&M Cybersecurity Center (TAMC^2) Vision

- **TAMC^2 will make outsized contributions to social good by advancing the knowledge and the practice of cybersecurity, and by developing transformational cybersecurity capabilities.**

- **Texas A&M, in collaboration with strategic partners, will move to the international forefront of cybersecurity research and education.**

NSA/DHS National Center of Academic Excellence (CAE)



National Centers of Academic Excellence in Cyber Defense Education
9800 Savage Road
Ft. Meade, MD 20755-6804

Texas A&M University
Dr. Daniel Ragsdale
3112 Texas A&M University
College Station, TX 77845

Dr. Ragsdale:

I am pleased to inform you that the National Security Agency and the Department of Homeland Security have designated Texas A&M University as a National Center of Academic Excellence in Cyber Defense Education (CAE-CDE) through academic year 2021.

Your ability to meet the increasing demands of the program criteria will serve the nation well in contributing to the protection of the National Information Infrastructure. The Presidents' National Strategy to Secure Cyberspace, 14 February 2003 and the International Strategy for Cyberspace, May 2011, addresses the critical shortage of professionals with these skills and highlights the importance of higher education as a solution to defending America's cyberspace. "Like all nations, the United States has a compelling interest in defending its vital national assets, as well as our core principles and values, and we are committed to defending against those who would attempt to impede our ability to do so." Education is the key to promoting these ideals.

Certificates will be presented during an evening reception at the National Cyber Security Summit in Huntsville, Alabama on June 8, 2016. Details on the Summit, to include a CAE Community Meeting on June 7th, are attached. For those unable to attend the Summit, certificates will also be presented at the November 1-2, 2016 NICE Conference & Expo in Kansas City Missouri. Information on the Expo can be found at: https://www.fbcinc.com/e/nice/default.aspx . We appreciate your participation in this program and look forward to seeing you in June.

Sincerely,

\s\

Karen Leuschner
National CAE Program Manager, NSA

- **2016**
  - **National CAE in Cyber Defense Education**
  - **National CAE in Cyber Cyber Defense Research**
- **2017**
  - **National CAE in Cyber Operations**
- **One of five or so universities with all three designations**

What We're Reading…

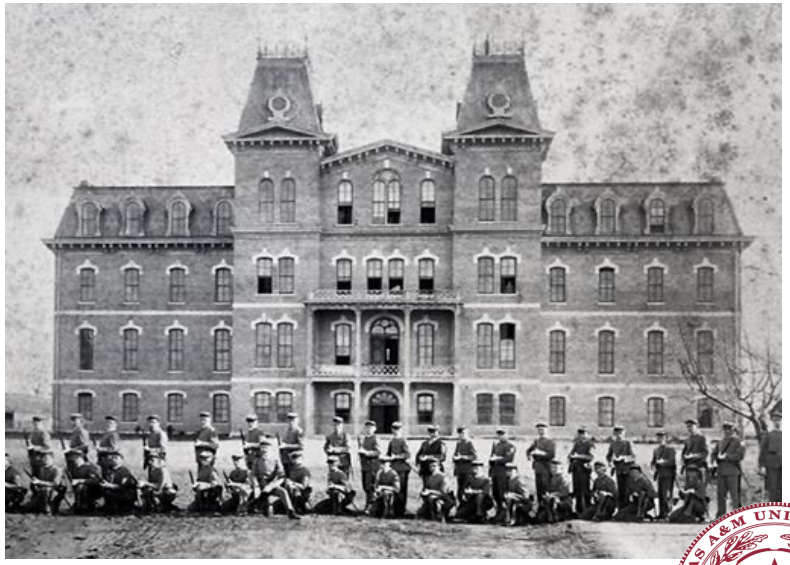
"

Malware Attack Could Just Be Getting Started: Experts" ~ NBS News May 15

- Wannacry: 200K infections in 150 Countries
- "spread like wildfire before a malware researcher …was able to halt it temporarily"
- "[But] at least two new variations of the malware have already been detected"

Texas A&M System Partners

The Agricultural and Mechanical College of Texas



Formally opened on
October 4, 1876

The Alta Vista Agricultural and Mechanical College of Texas for Colored Youth

Formally established on
August 14, 1876

TEXAS A&M CYBERSECURITY CENTER

TEXAS A&M ENGINEERING EXPERIMENT STATION

BLUF

- Big Data and Mission Critical Systems
  - Clear Promise
  - Potential Threats to Security, Safety, and Privacy
- Remedies
  - Technologies
  - Legislation and Regulations
  - Policies and Procedures
  - Codes of Ethics
  - 3rd Party Assessments
  - Transparency and Awareness
- We can't get this wrong!

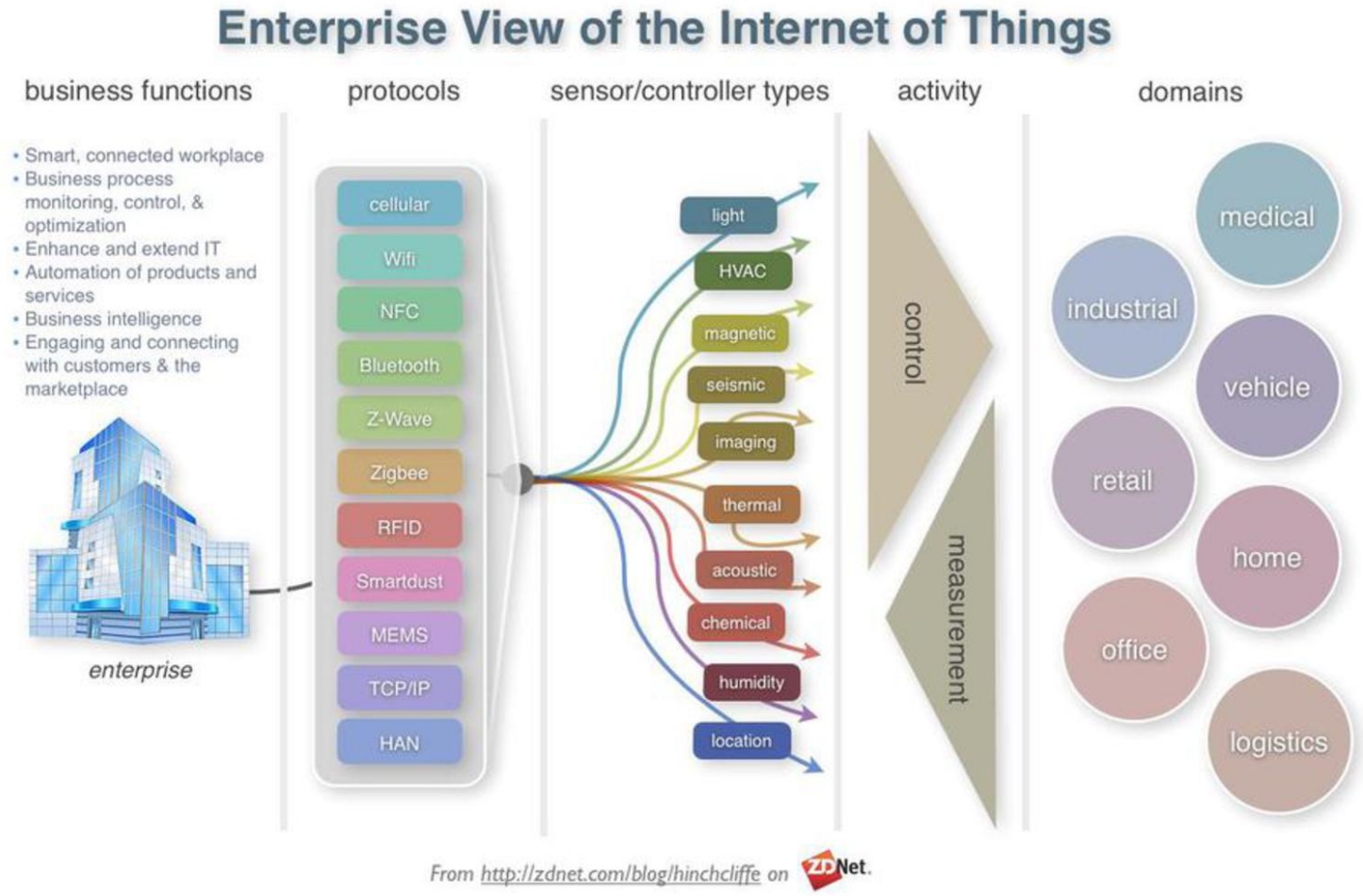
The Promise of Big Data

Interconnected Mission Critical Systems

Cyberspace?

Linkages!

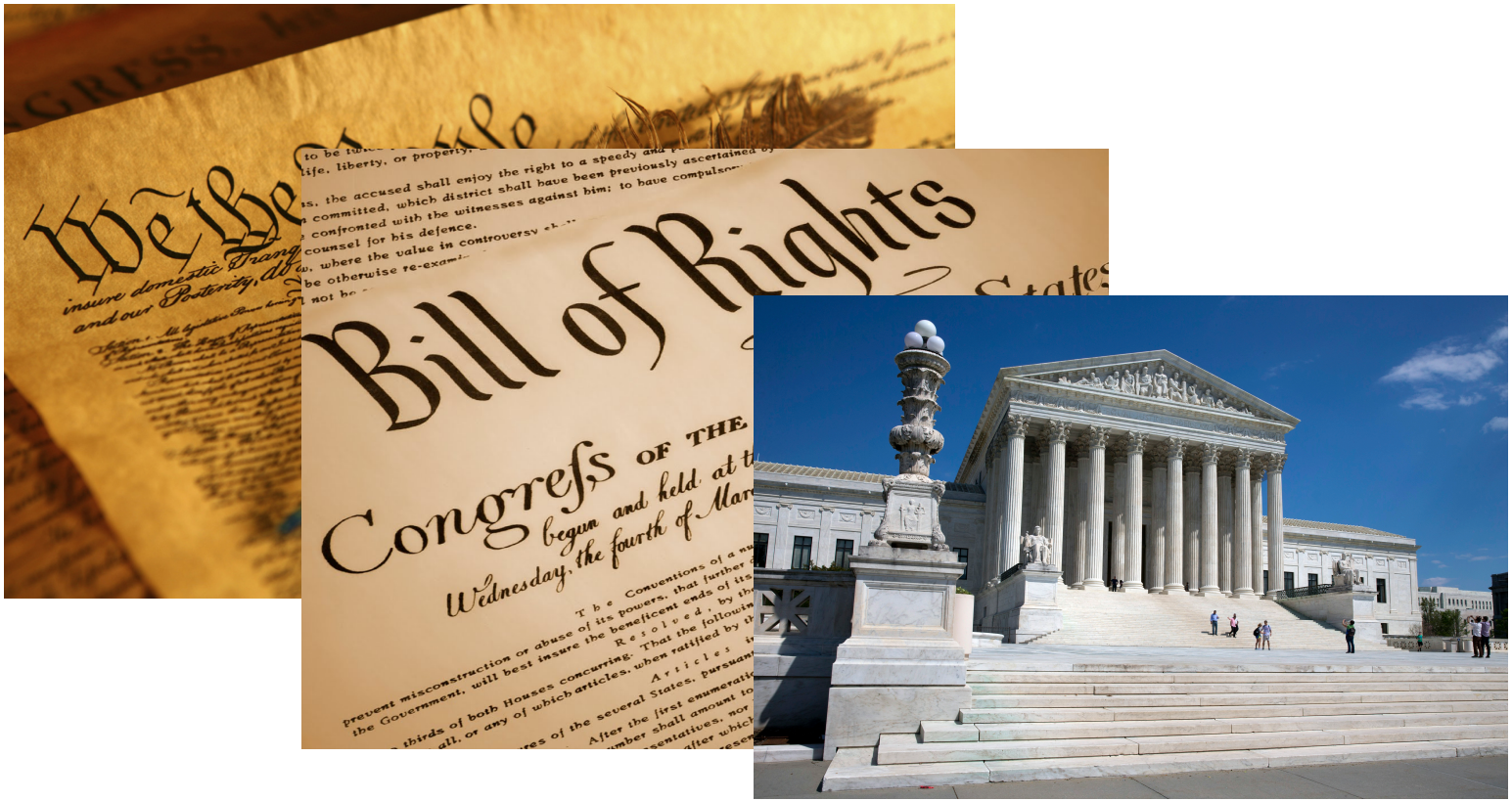
Big Data, IoT, Mission Critical Systems: Inextricable Linkage



Security, Safety, and Privacy: Inextricable Linkage

- The conditions of being free from:
  - danger or threat
  - undergoing or causing hurt, injury, or loss
  - being observed or disturbed by others

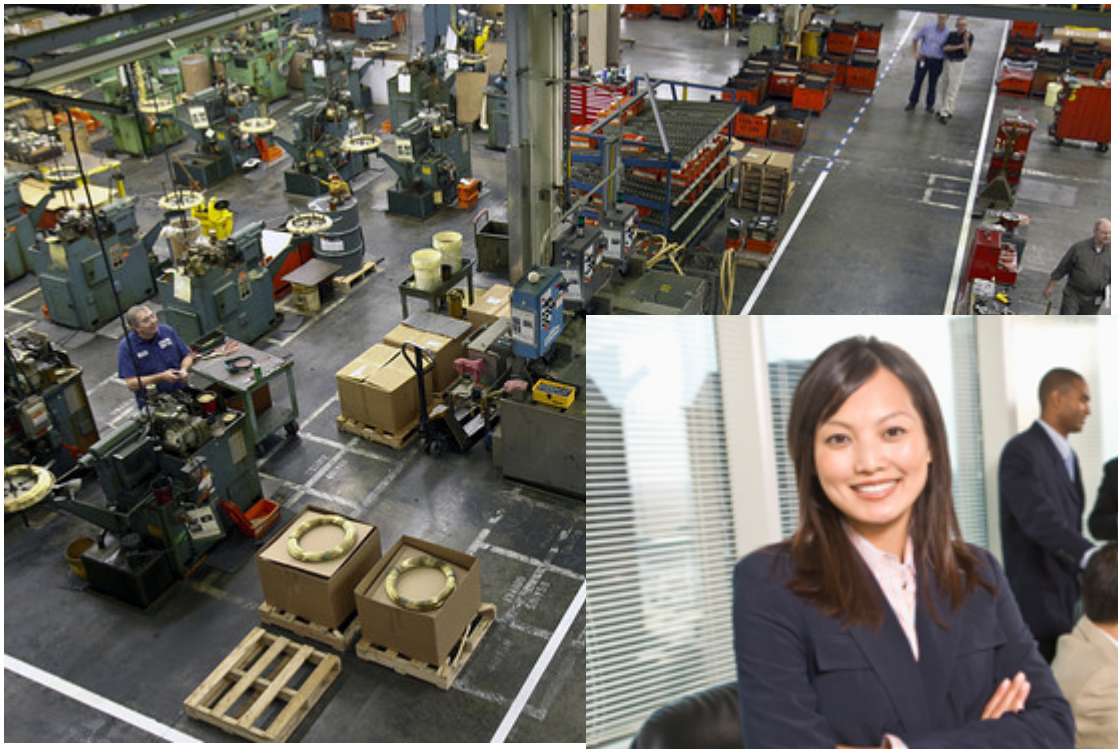
Is Privacy a Fundamental Right?



1965 Griswold v. Connecticut, "…the Constitution, through the Bill of Rights, implies a fundamental right to privacy" – The 1st, 3rd, 4th, 5th, and 9th and the 14th Amendments

The Final Bastion?

What about Here?



Remedies: Technologies

Privacy-preserving Systems

Remedies: Legislation and Regulation

Remedies: Policies And Procedures

Remedies: Codes of Ethics

Remedies: 3rd Party Assessments

Remedies: Transparency and Awareness

Bottom Line

- Big Data and Mission Critical Systems
  - Clear Promise
  - Potential Threats to Security, Safety, and Privacy
- Remedies
  - Technologies
  - Legislation and Regulations
  - Policies and Procedures
  - Codes of Ethics
  - 3rd Party Assessments
  - Transparency and Awareness
- We can't get this wrong!