



# Speculations on the Future of Cyber Security in 2025

Prof. Ravi Sandhu Executive Director

January 2010

ravi.sandhu@utsa.edu www.profsandhu.com www.ics.utsa.edu





Security can never hold back technology

Cyber and physical space are increasingly entangled





- > 99% of the attacks are thwarted by basic hygiene and some luck
- 1% of the attacks are difficult and expensive, even impossible, to defend or detect



# Crystal Ball: In the Year 2025



### PAST, PRESENT

- Cyber security is a young and immature field
- The attackers are more innovative than defenders
- Defenders mired in FUD (fear, uncertainty and doubt) & fairy tales
- Security is black-and-white
- Attack back is illegal or classified

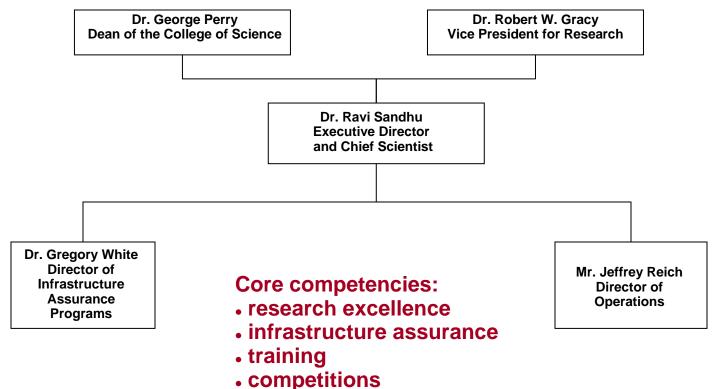
### **FUTURE**

- Cyber security will become a scientific discipline
- Cyber security will be application and technology centric
- Cyber security will never be "solved" but will be "managed"
- Security is shades of grey
- Attack back will be an integral part of cyber security



# Institute for Cyber Security





Research Faculty and Research Scholars (Tenure-track faculty, Nontenure track faculty, postdocs, graduate students, etc.) Research and
Professional Staff
(Associate/assistant
directors, architects, analysts,
project leads, technical leads,
instructors, intern, etc.)

Administrative and Support
Staff
(Administrative analyst,
administrative associate,
program coordinator, network
administrator, etc.)



## Research Excellence



### Research Areas

- Cloud Computing Security
- Infrastructure Assurance and Security
- Malware Mitigation
- Military Grade Security
- Secure Information Sharing
- Social Computing Security

### **Research Laboratories**

- FlexCloud: cloud platform
- FlexFarm: malware honeyfarm
- Community Exercises: the real real-world
- > Cyber Defense Competitions: real simulated data

### Academic Collaborators Include

Arizona State, Georgia Tech, Michigan, Penn State, Purdue, Illinois at Urbana-C, Maryland at Baltimore County, North Carolina at Charlotte, Texas A&M, Texas at Dallas, Wisconsin

# Sponsors Include

NSF, AFOSR, ONR, AFRL, DHS