Cybersecurity for the Americas

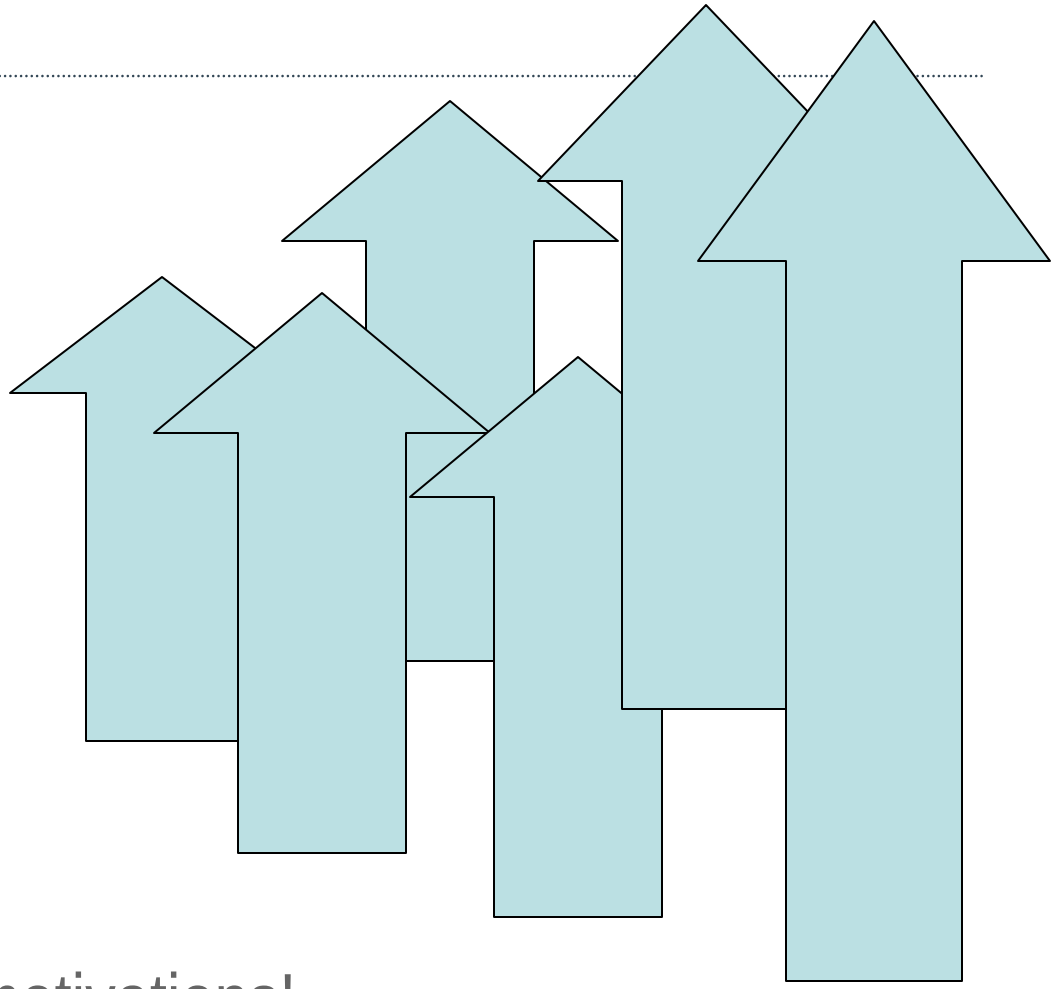
ITU Regional Event

“Connecting the World Responsibly”

Michael Lewis, Consultant to the ITU

General Trends

- Users on Internet
- Computers
- Devices
- Core Applications
  - eGov, CII
- Vulnerabilities
- Exploits
- Financial Incentives
- Criminal Activity
- & consider political motivations!



The Dynamics of CyberCrime

- Barriers to entry are minimal
  - resources are essentially free (!)
  - technical requirements are modest
- Low risk, high reward!
  - Opportunities grow with continued E-volution of services
  - Returns are tantalizingly large
  - Physical distance of criminal from the “scene” of the crime renders apprehension unlikely
- Prosecution is rare
  - Investigation is costly in time & resources
  - Challenging to trace and attribute
  - Coordination of investigations across borders is difficult
- Innovation seems to be more prevalent on the “dark” side – consider botnets!

Cybercrime is a growth industry!

Considerations for the Workshop

- We are all doing something (because we have to!) but how well is it working?
- Is there a national strategy for cyber security, with policies, and operational capabilities? If so, is it coherent and compliant (?) ?
- So many actors – How do we establish authority, roles, responsibilities, and coordination?
- So much data, and so many organizations - How and where to link and assimilate?
- When something goes wrong, who do you call?

Coordinating a National Approach to Cybersecurity

- Develop a national cybersecurity strategy and policies
  - It starts with a self-assessment of the current state of affairs
- For each actor, identify constituents and services
  - What do you do, and for whom? Are there gaps? Redundancies?
- Build trusted relations & secure mechanisms for collaboration with counterparts (national, regional, international)
  - In advance, not in times of crisis
- Establish relevant operational capabilities – such as Incident Management & Coordination
- Conduct regular, targeted events to build skills, test systems and escalation procedures, & share experience
- The work should be subject to ongoing self-assessment and course correction.

Computer Security Incident Response Team (CSIRT)

- As many have noted, a “CSIRT” is one component of a national cyber security strategy
  - aka, a Computer Emergency Response Team”
  - aka, a Computer Incident Response Team
  - aka, a Computer Incident Readiness Team
  - Or, any number of variations!
- Can exist within an organization, or at a national, regional, or global level
  - Actually, at all levels, mutually reinforcing
- Should be proactive more than reactive
  - Note the reactive implications of most of the acronyms!

Why Build a CERT / CSIRT / CIRT?

- Cyber Security is important enough to receive dedicated personnel and resources
  - Rather than “oh, and you guys should do security, too”
- It can exemplify and propagate high-level policies and best practices
- It can formalize incident response and capture “lessons-learned” to improve policies and procedures
- It establishes responsibility, accountability, “accredited” points-of-contact, and reliable communication channels

Sort of a “Ghostbusters” for cyber incidents

Range of Services
as per the SEI of CMU

Reactive Services

- Alerts and Warnings
- Incident Handling
  - –Incident analysis
  - –Incident response on site
  - –Incident response support
  - –Incident response coordination
- Vulnerability Handling
  - –Vulnerability analysis
  - –Vulnerability response
  - –Vulnerability response coordination
- Artifact Handling
  - –Artifact analysis
  - –Artifact response
  - –Artifact response coordination

Proactive Services

- Announcements
- Technology Watch
- Security Audit or Assessments
- Configuration & Maintenance of Security Tools, Applications, & Infrastructures
- Development of Security Tools
- Intrusion Detection Services
- Security-Related Information Dissemination

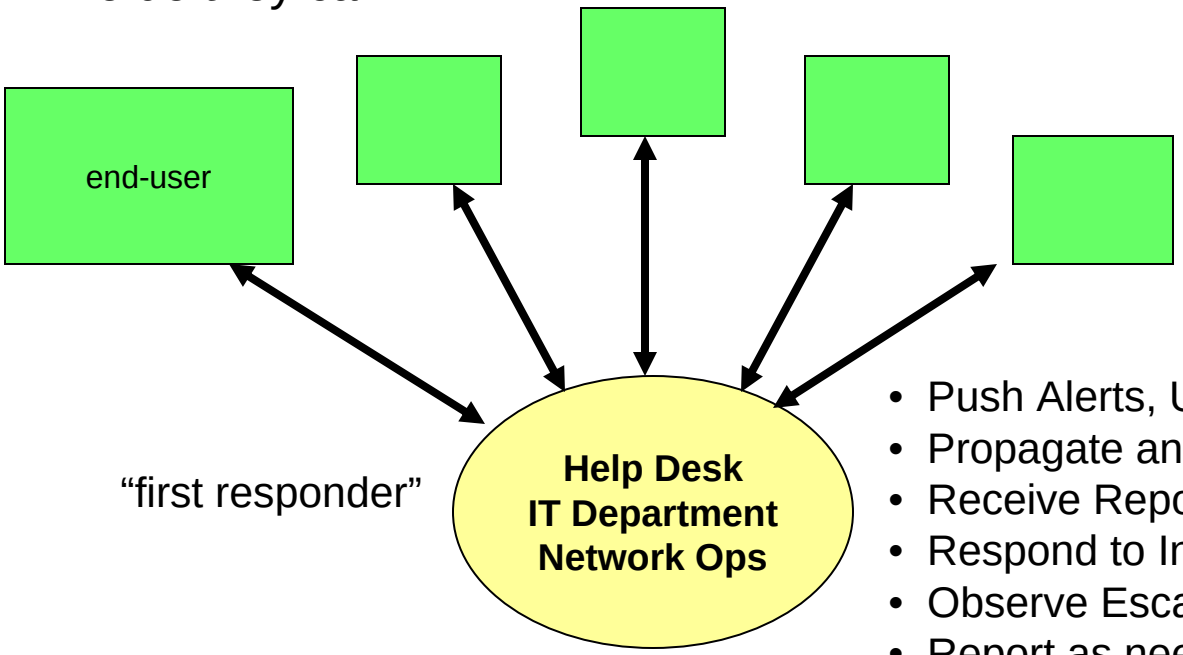
Security Quality Management Services

- ✓Risk Analysis
- ✓Business Continuity & Disaster Recovery Planning
- ✓Security Consulting
- ✓Awareness Building
- ✓Education/Training
- ✓Product Evaluation or Certification

Any given CSIRT is likely to implement only a subset of such services

An Organizational CSIRT

Who do they call?



"first responder"

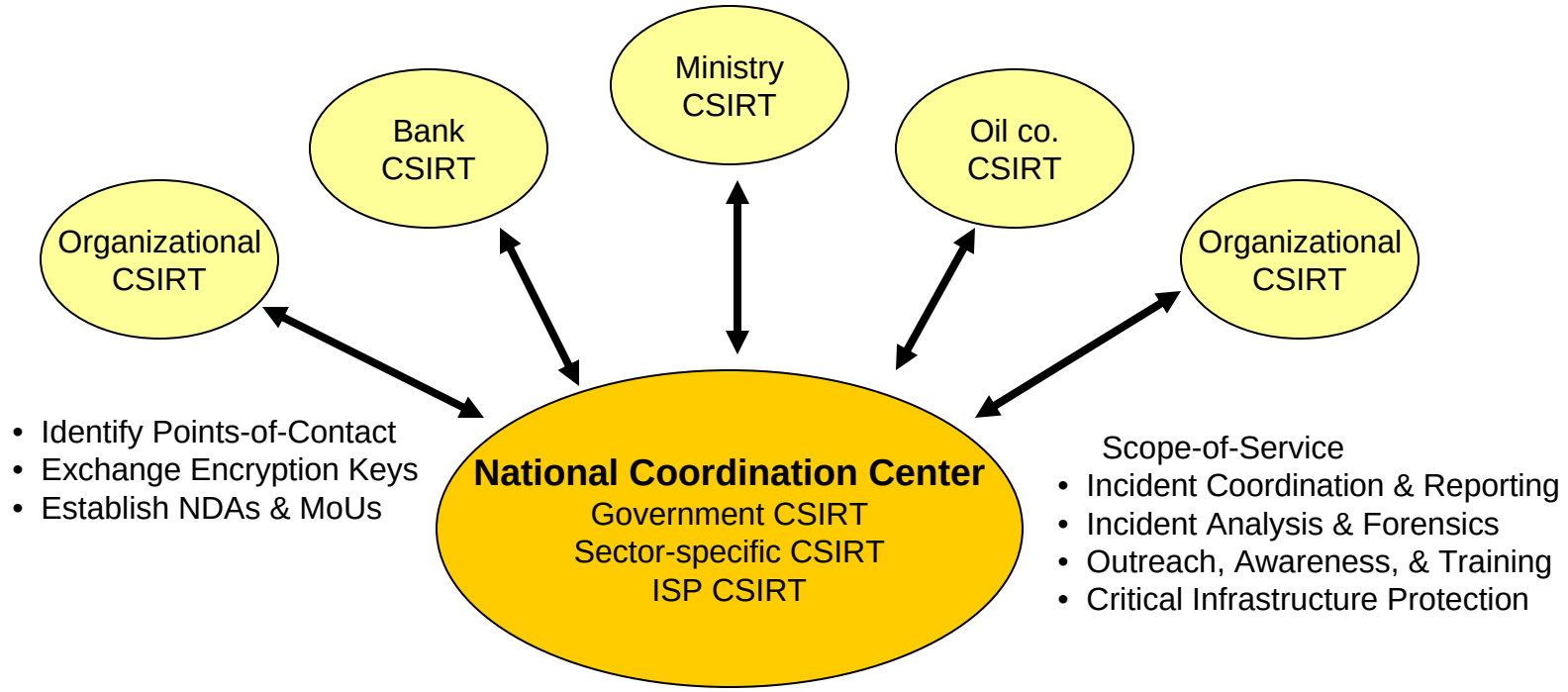
- Push Alerts, Updates, Patches
- Propagate and Enforce Policies
- Receive Reports
- Respond to Incidents!
- Observe Escalation Procedures
- Report as needed to national center

"Front-Line" Response

to formalize "internal" incident response

Note the "Forum of Incident Response and Security Teams"

National CSIRT



A necessary but not sufficient component of a national cyber security strategy

Note the “CSIRTs with National Responsibility” working group

National CSIRT Activities
representative examples from recent work

- Launched an Outreach, Awareness, and Training group
  - Conducted dozens of specialized trainings and workshops
  - Worked with schools and universities to provide security material, lectures, and even shape course curricula
  - Established a cyber-security forum series
  - Hosted quarterly regional and international security events, such as an ITU regional workshop, a FIRST Technical Colloquium, and the inaugural Regional-CERT meetings

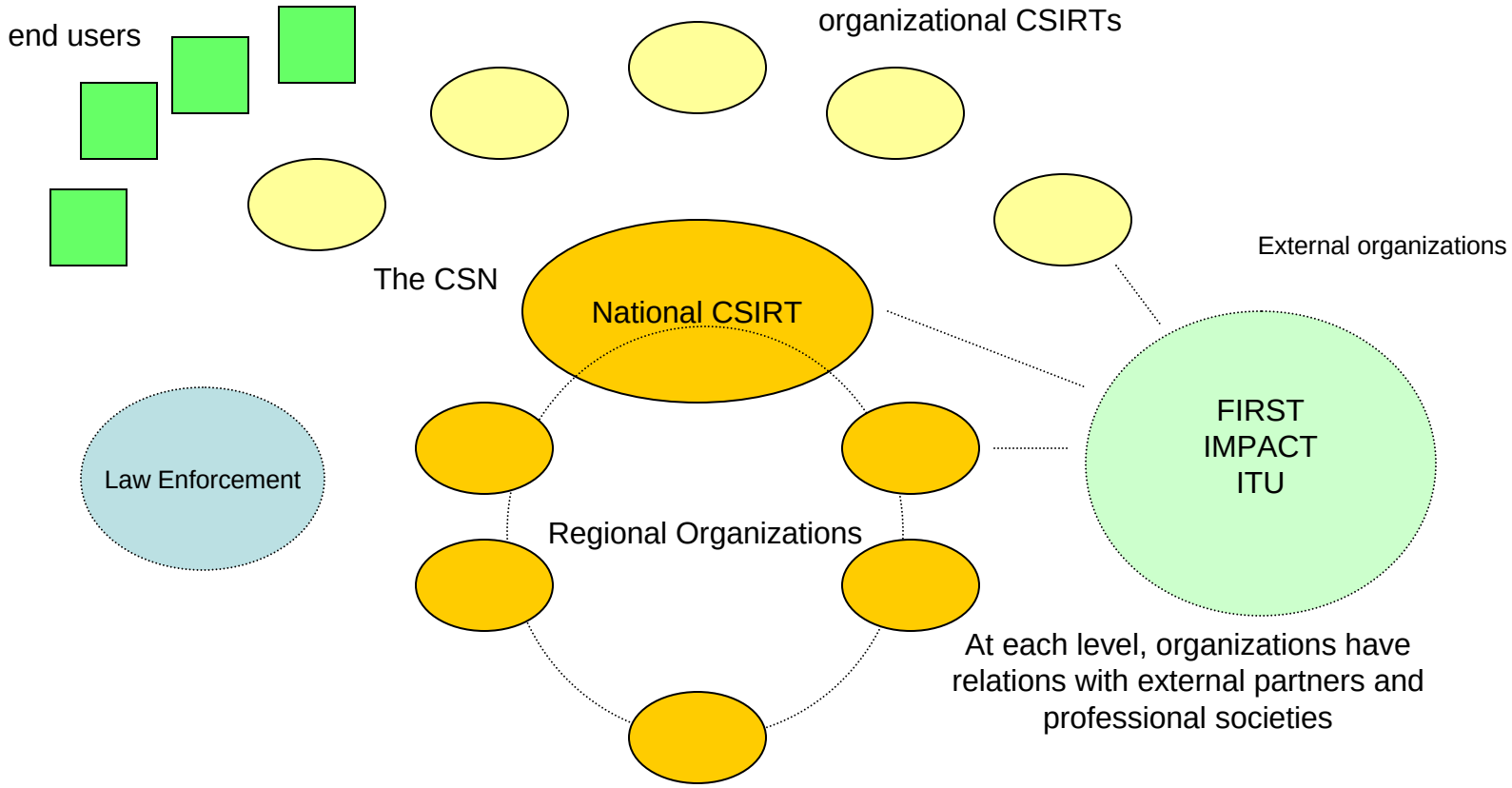
National CSIRT Activities
representative examples from recent work (2)

- Launched the national incident reporting and response center
  - Inaugurated national incident reporting and response
  - Encouraged the creation and ongoing support of organizational CSIRTs, with mutual p-o-c's, key exchange, workshops
  - Built a state-of-the-art cyber-forensics lab
  - Provided training in policy and practice for national law enforcement
  - Conducted "incident response and engagement with law enforcement" program for constituents
  - Provided 24/7 technical back-stopping for high-profile national events

National CSIRT Activities
representative examples from recent work (3)

- Established a Critical Infrastructure Protection group
  - and “sector working groups”
  - and helped draft the national CIIP policy
  - to identify and propagate high-level practices, procedures, and compliance methods

The Cyber Security Network



A community with complementary and reinforcing roles and responsibilities, from end-user up to the national level

Align & Partner
many good initiatives exist

International Telecommunication Union

Anti-Phishing Working Group
APWG

FIRST™
Improving Security Together

IMPACT
INTERNATIONAL MULTILATERAL PARTNERSHIP AGAINST CYBER THREATS

Further Discussion Points

- Scaling of points-of-contact relations
- Confidence and discretion of national CERTs
- Incident Response vs. Cyber Forensics
- Incident Response & issues of authority, responsibility, liability, coordination
  - Ex. - “Takedown”
  - Ex. - Denial of Service
  - Ex. - Financial Fraud & balancing interests of law enforcement vs. that of various victims