Strategic Level Assessment of Cyber Vulnerability – Organizational and Global

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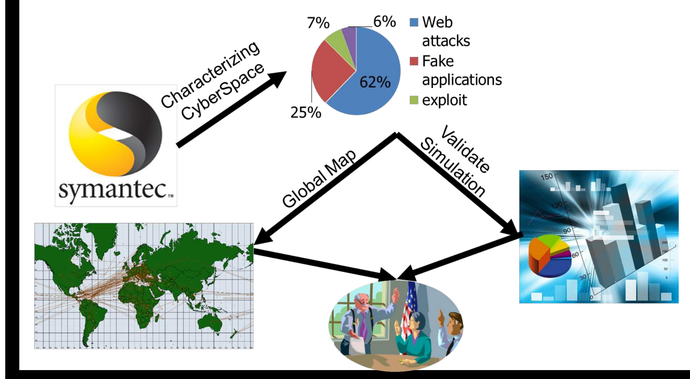
Problem

- Goal: Strategic Cyber Assessment
- Global - Identify nation-states likely to have or develop offensive Cyber capability
  - Assess motivation based on social influence
  - Assess capability based on research, trade and pharmaceutical industry
- Organizational Identify Resilient Designs



Summary of Results

- Global threat is universal
- Threatening Countries
  - Computers, Poor process, High Corruption
- Web exploits increasingly common
- Organizations at risk
  - Distributed/Networked
- General
  - Any attack increases leaks
  - Most attacks irrelevant

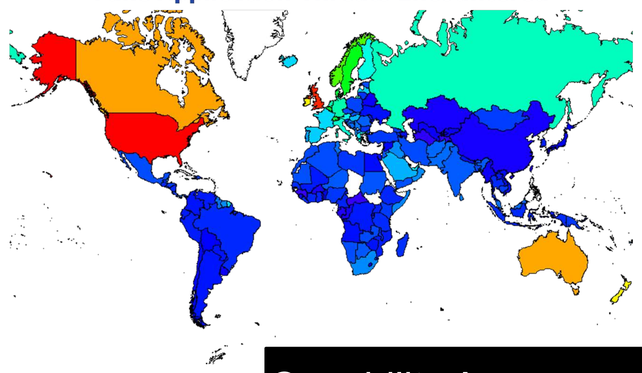
Global Context
Organizational Impact

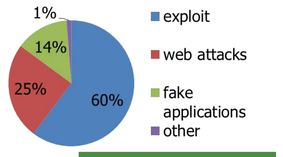
Cyber Attack Facilitator

- Analyze # attacks originating from countries
  - Based on Symantec's WINE data (from ~10 million machines worldwide)
- Findings:
  - Many Eastern European countries among top countries
  - Countries with middle IT usage are those that act as attack facilitators (good infrastructure, bad management

Vulnerability Assessment

Fake Application Threats Encountered

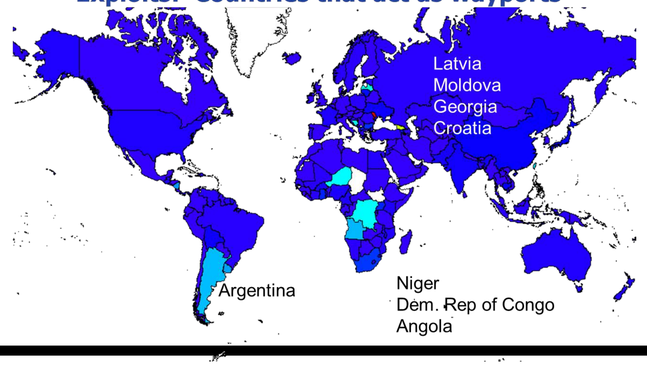




Attacks encountered.
Total ~ 35.9 M

Capability Assessment

Exploits: Countries that act as wayports



Resiliency

Ve: Value at initial equilibrium

Vmin-d: Minimum value reached during disruption

Vr-e: Value when equilibrium is restored

Ti: Time when the organization began tracking this measure of performance.

Te: Time when the organization first reaches stability of the measure of interest.

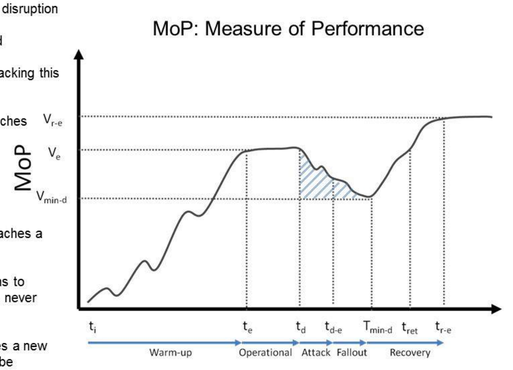
Td: Time when the disruption begins.

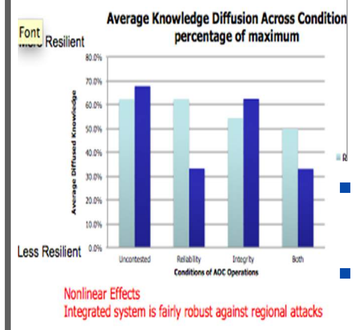
Td-e: Time when the disruption ends.

Tmin-d: The time when performance reaches a minima.

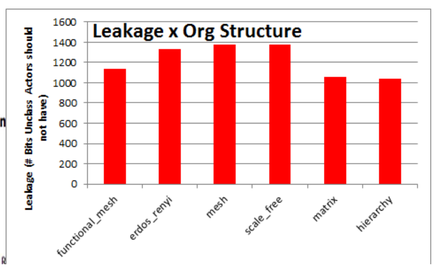
Tret: The time when performance returns to previous performance. The system may never reach this.

Tr-e: Time when the organization reaches a new equillbrium. This new stable value may be different than the previous stable value.





Nonlinear Effects
Integrated system is fairly robust against regional attacks



- Redundancy increases Resiliency
- Hierarchies minimally impacted by integrity attacks
- Leadership relatively insulated from attacks

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