

Challenges for making scalable security management for information and communication infrastructure

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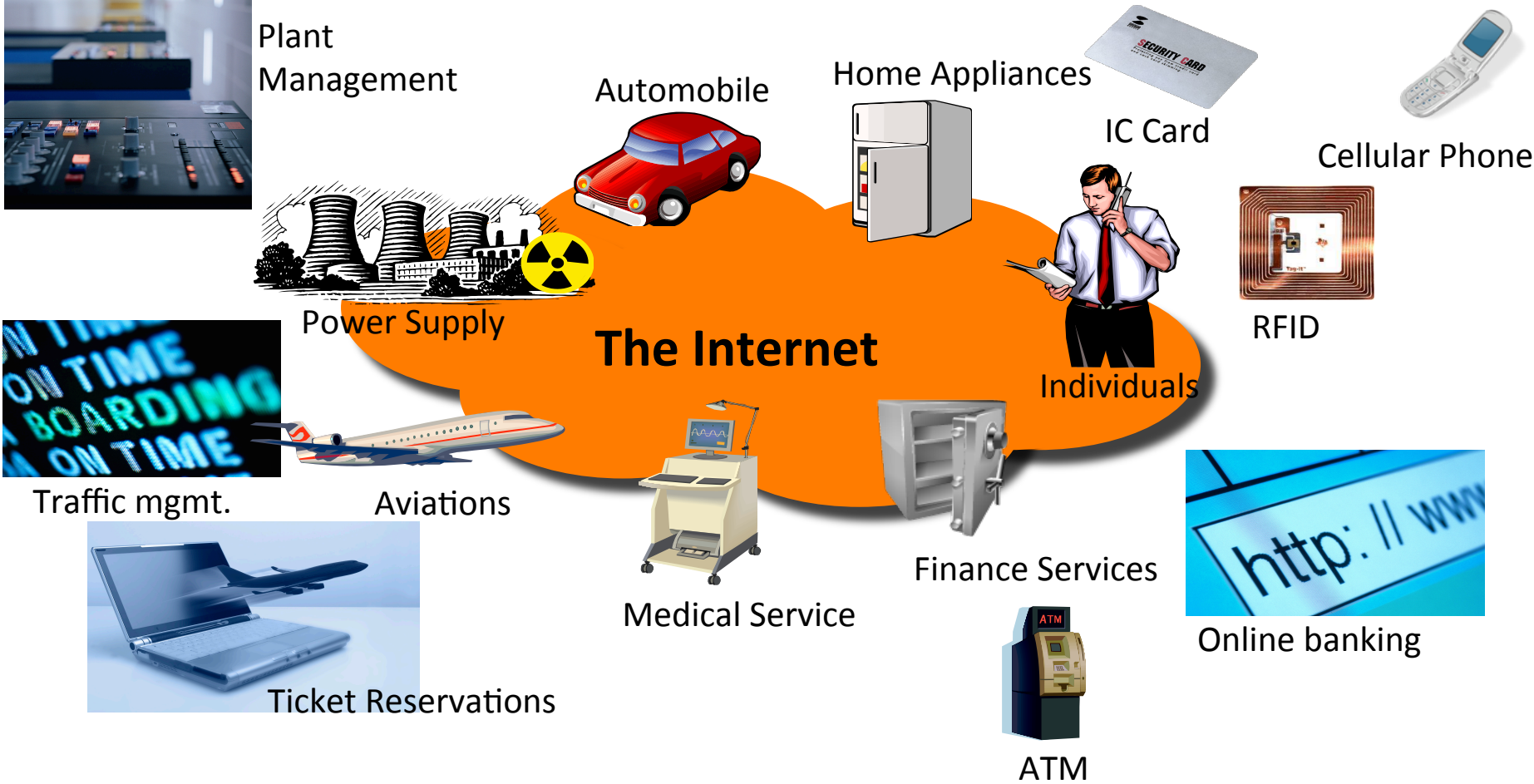
Overview

- Management of information security has No.1 priority in operation of information infrastructure for various organizations in both public and private sectors. Adding more components such as mobile devices and cloud computing clusters has made the more complicated reality for infrastructure management tasks. Introducing various technology and engineering for improving the scalability on information security management is highly required today, otherwise, management tasks overflows with various security management, especially for data security management in huge space of storages. In this invited talk, the speaker summarizes the current situation on rapidly changing aspect of information infrastructure, and overviews technical requirement on security management for today. The speaker also introduces his challenges on such scalability improvements for security management tasks.

Social Infrastructure and ICT



Connected World & Shared Responsibility



Where we are heading?

- Widely ICT deployment to social infrastructures.
- We are living in “Connected world” where more information are exchanged and processed among vast number of computers and ICT devices.
- True ICT society
 - Covers our whole globe.
 - Knowledge based economy.
 - Global optimization.
 - High mobility of users, information processing and assets.



Roles of Information Systems

- Information storage & repository
- Process reuse with economic efficiency
- Handling “money”
- Parallel process to manage many devices (e.g. sensor networks)
- “Business Enabler”
 - Implement their business model on information systems.
 - Agile development for quick more turnover.
 - Direct improvement on economic efficiency through integration and interconnection of the systems.
 - New style of “value creation”

Cloud Computing

- Massive computing resource shared through “virtualization” with many other customers.
 - Mobility of Computing
 - Data in Huge storage shared
 - On-demand assignment of resources and its optimization.



High Spec Mobile Device available TODAY

- Powerful Processing Power (CPU, memory)
- Huge Storage (HDD, SSD, etc.)
- Full-spec Networking (WiFi, IPv6/v4)
- No big changes with laptop PC
 - Needs system management and integration.



Global Distribution of functions (ex.)



Our storages



Our management



Our VMs



Our Customers



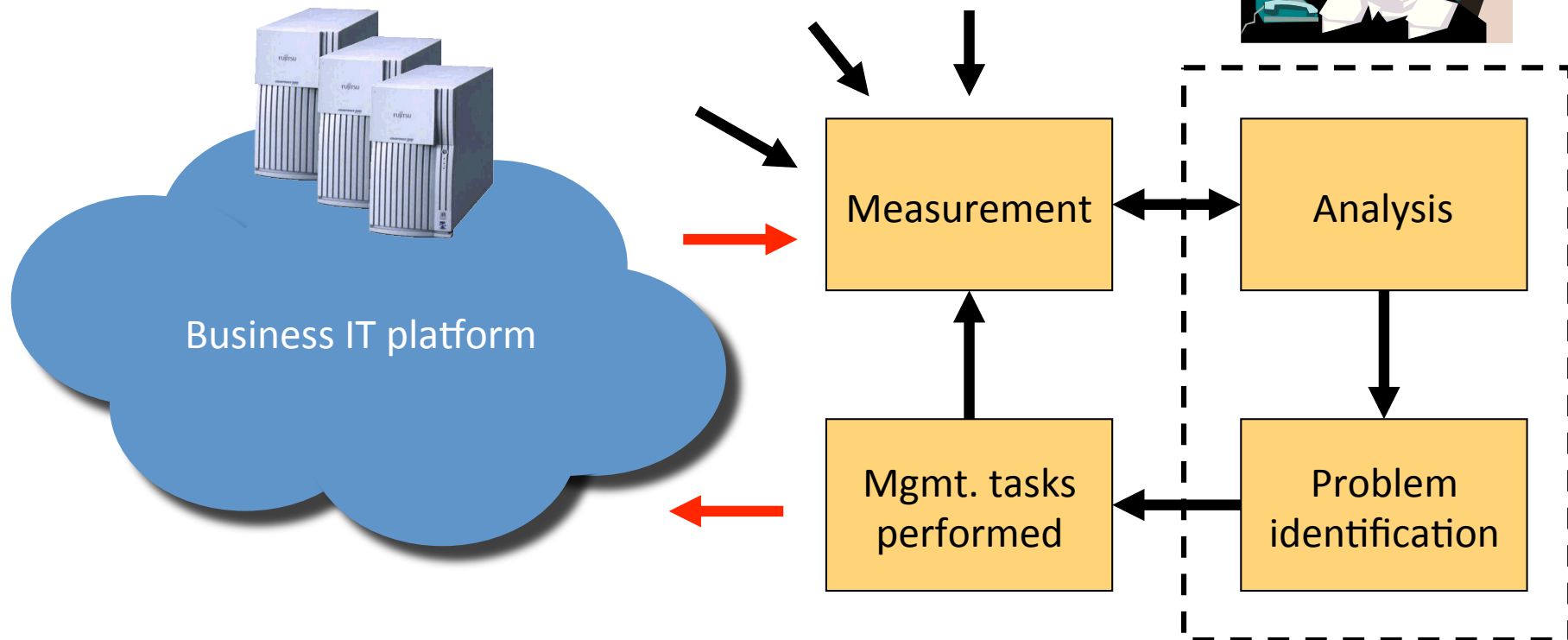
Expertise we know very well

“What is manageable should be **measurable.**”

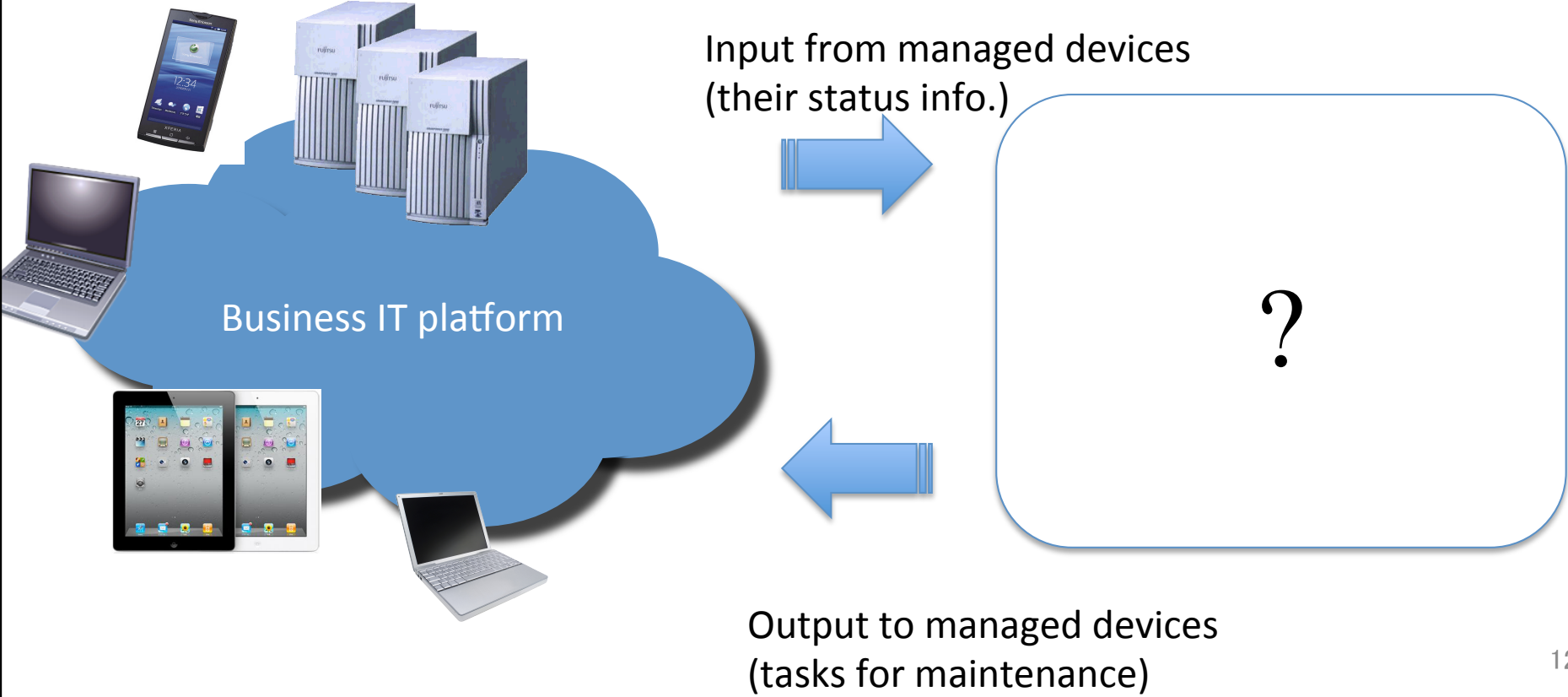
- Works based on “hypothesis testing.”
- Rationality in management tasks (and investment)
- Transition from Qualitative Analysis to Quantitative Evaluation

Scientific Approach in Security Management

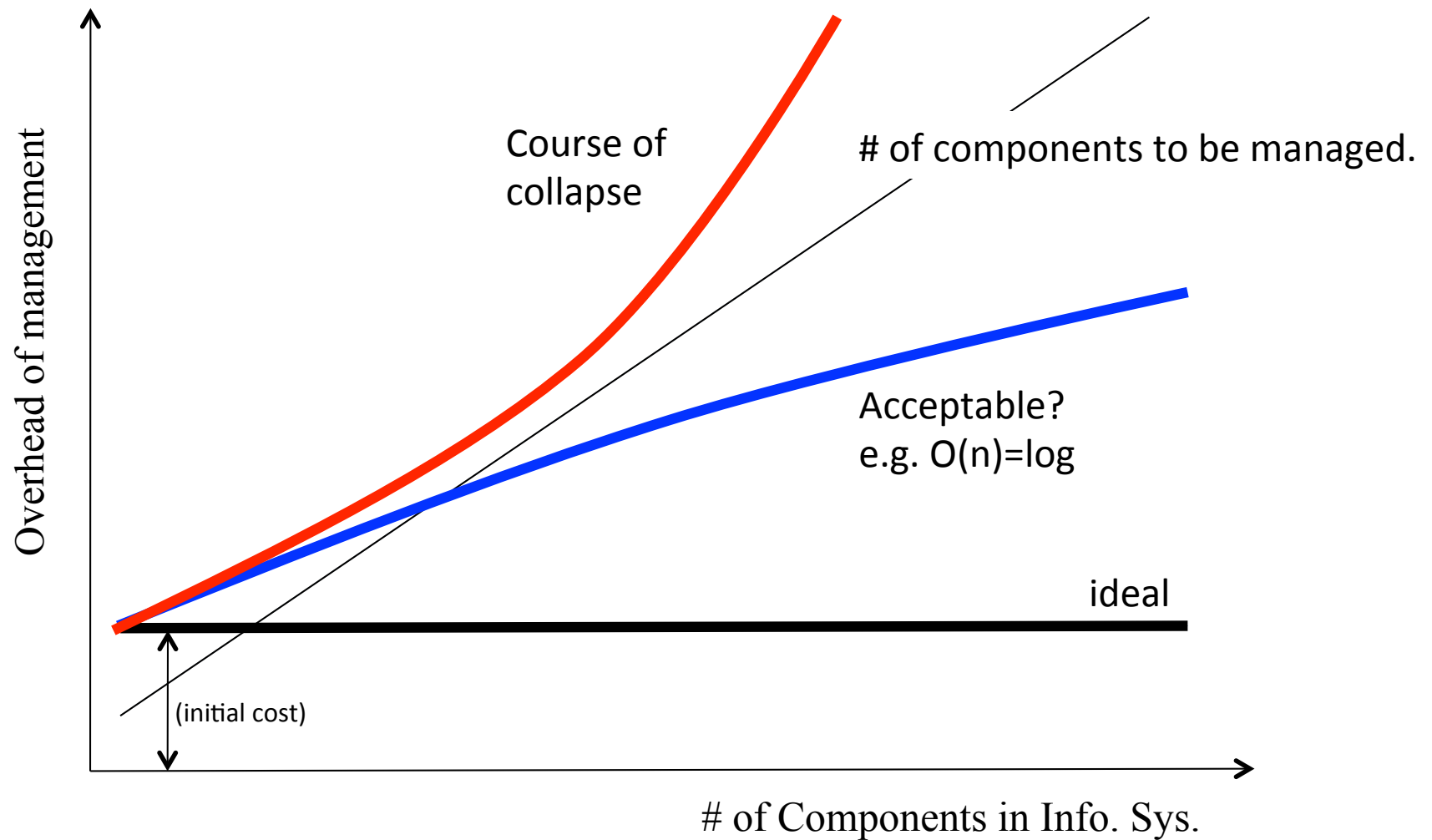
- Incremental & continuous improvement on information systems
- Measurement, identifying problems, verification
- Changes of “system” itself



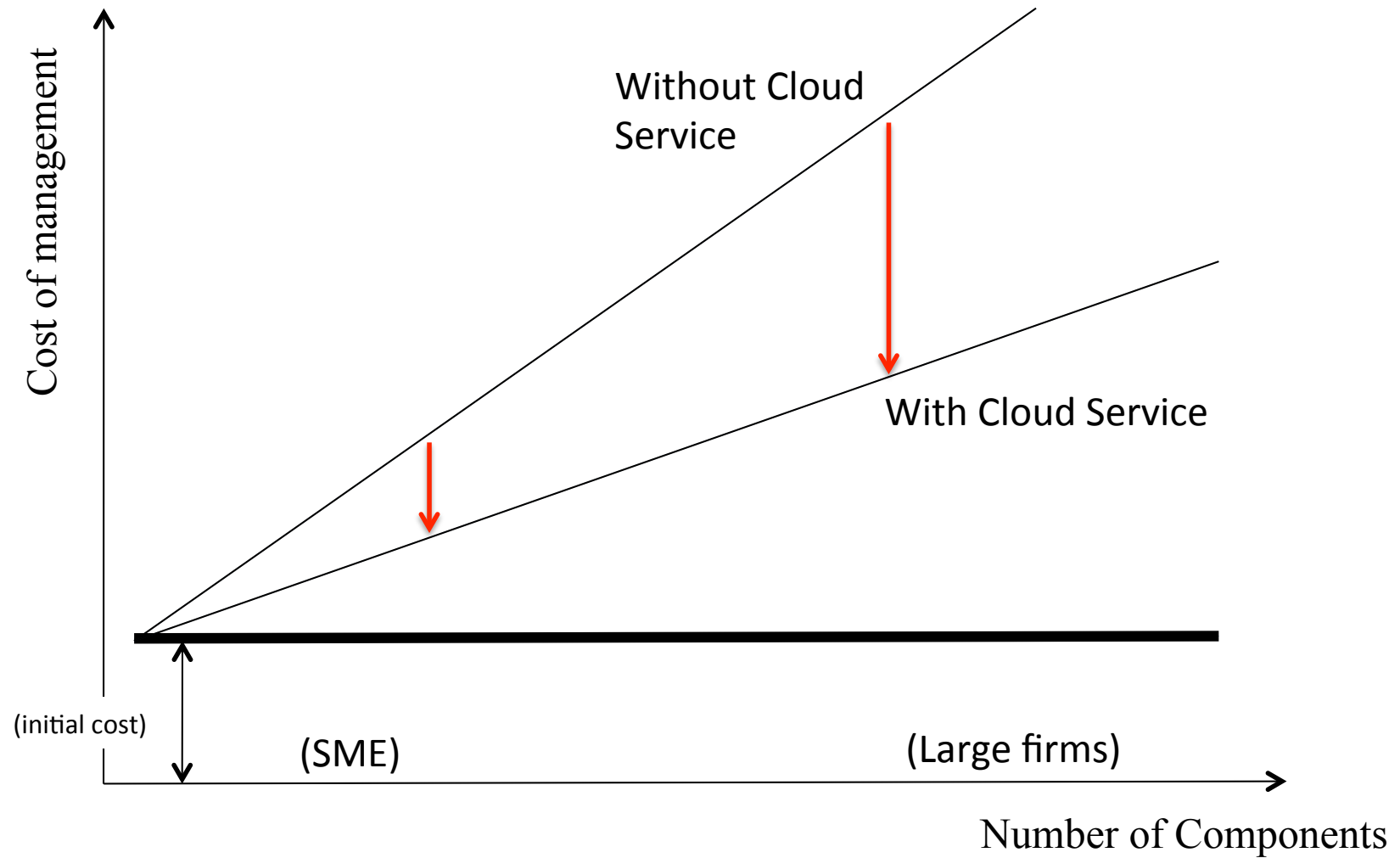
Good Scalability highly required



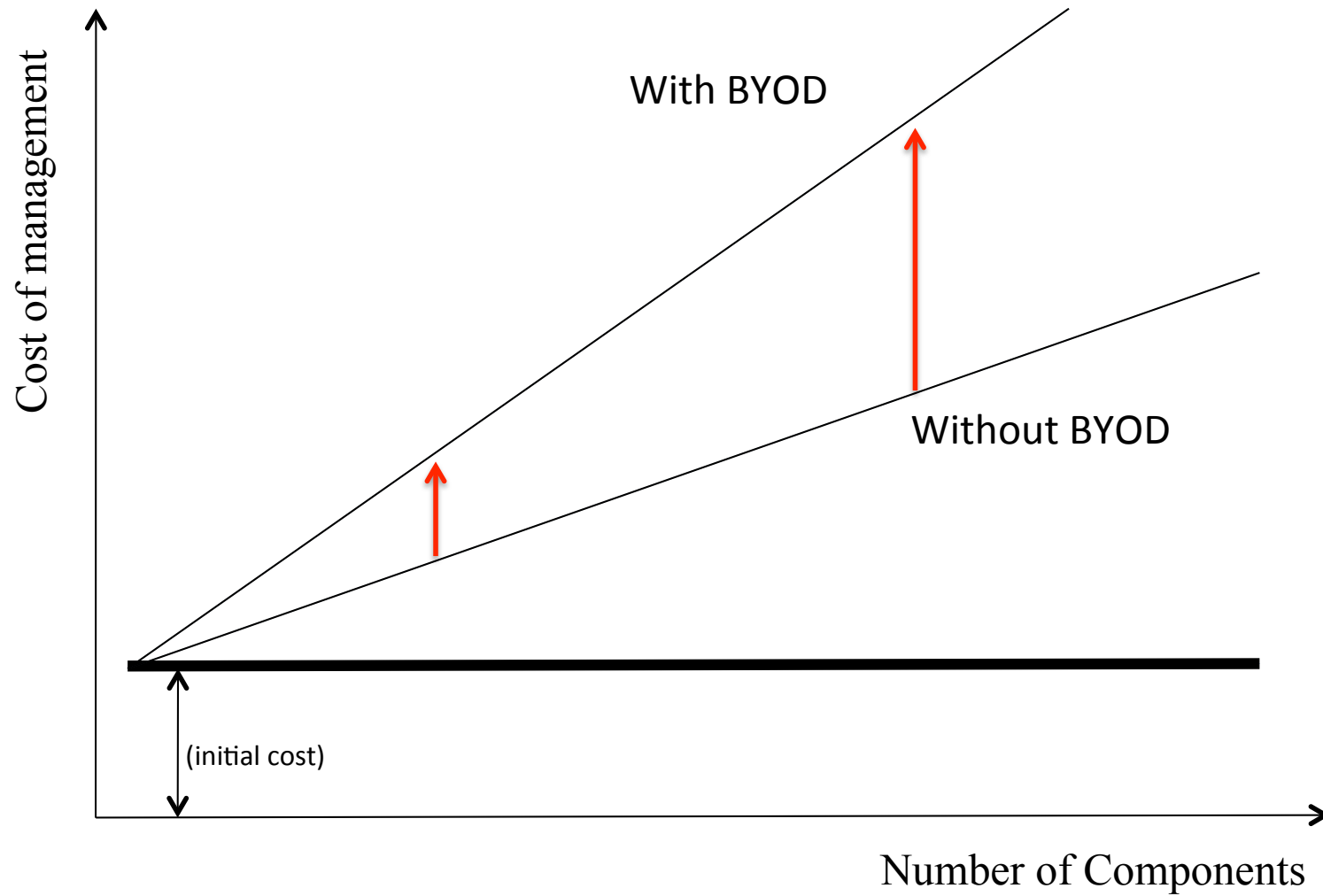
Scalable, Sustainable and Resilient Management



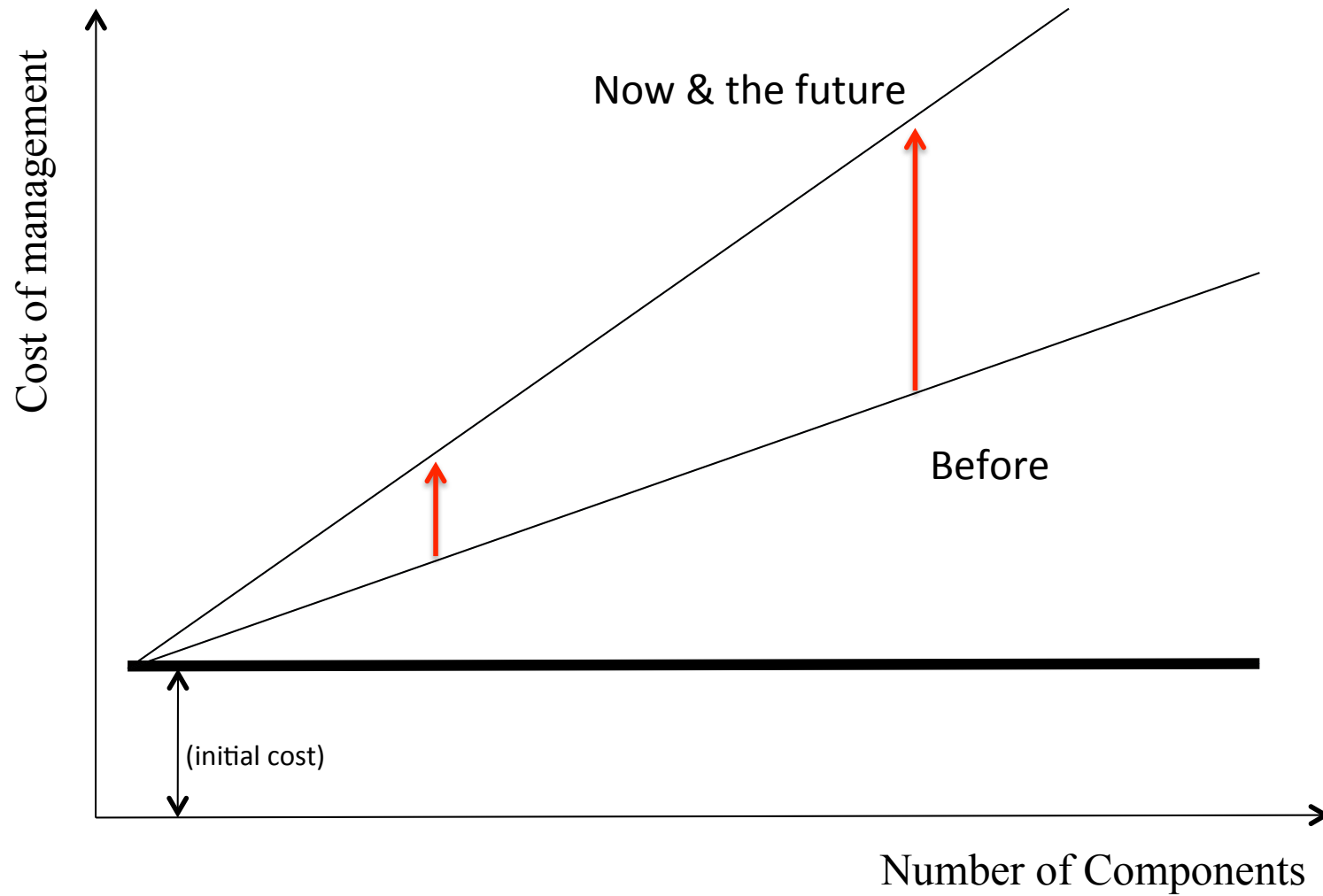
TCO & Cloud Computing



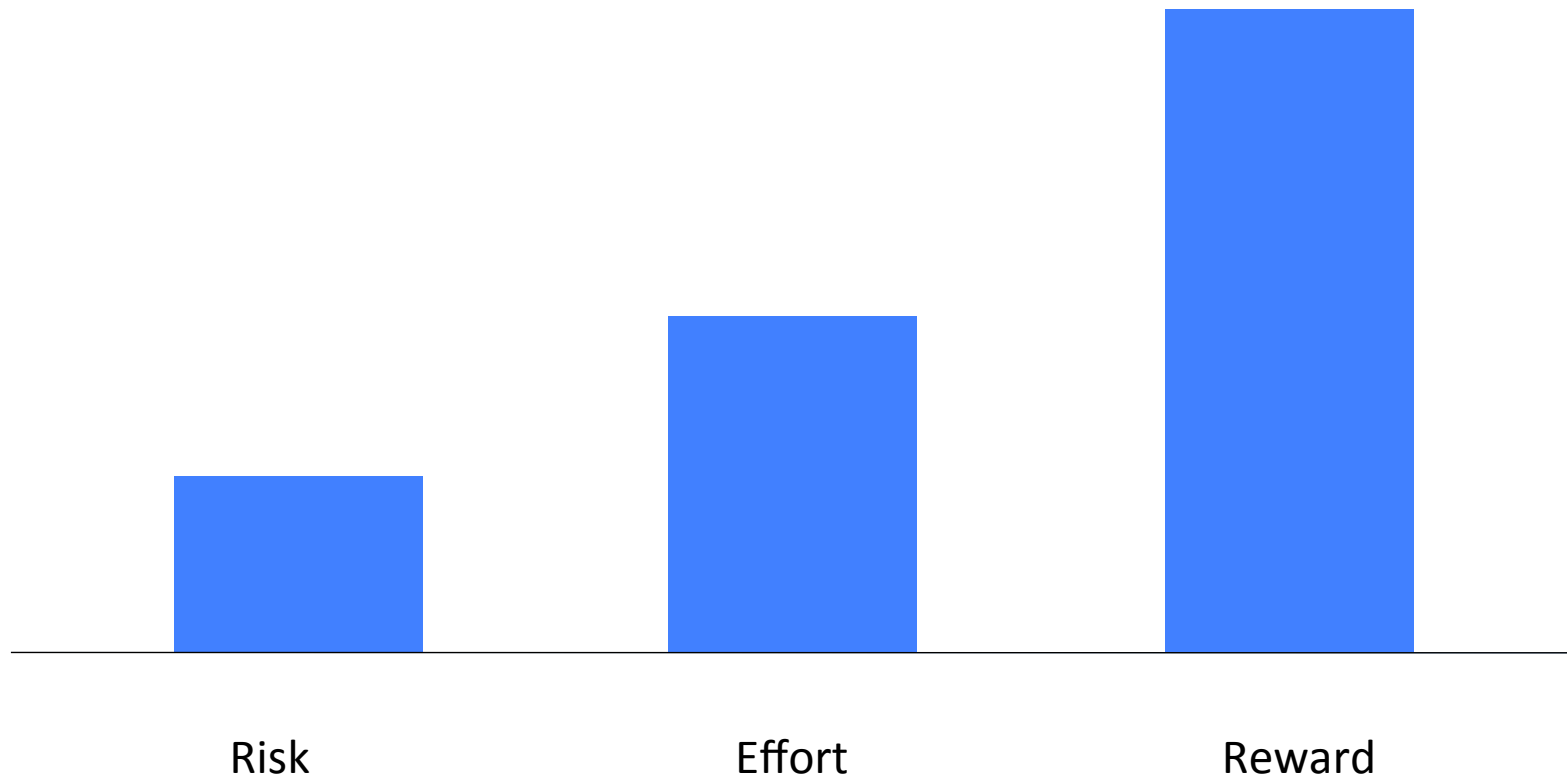
TCO & BYOD



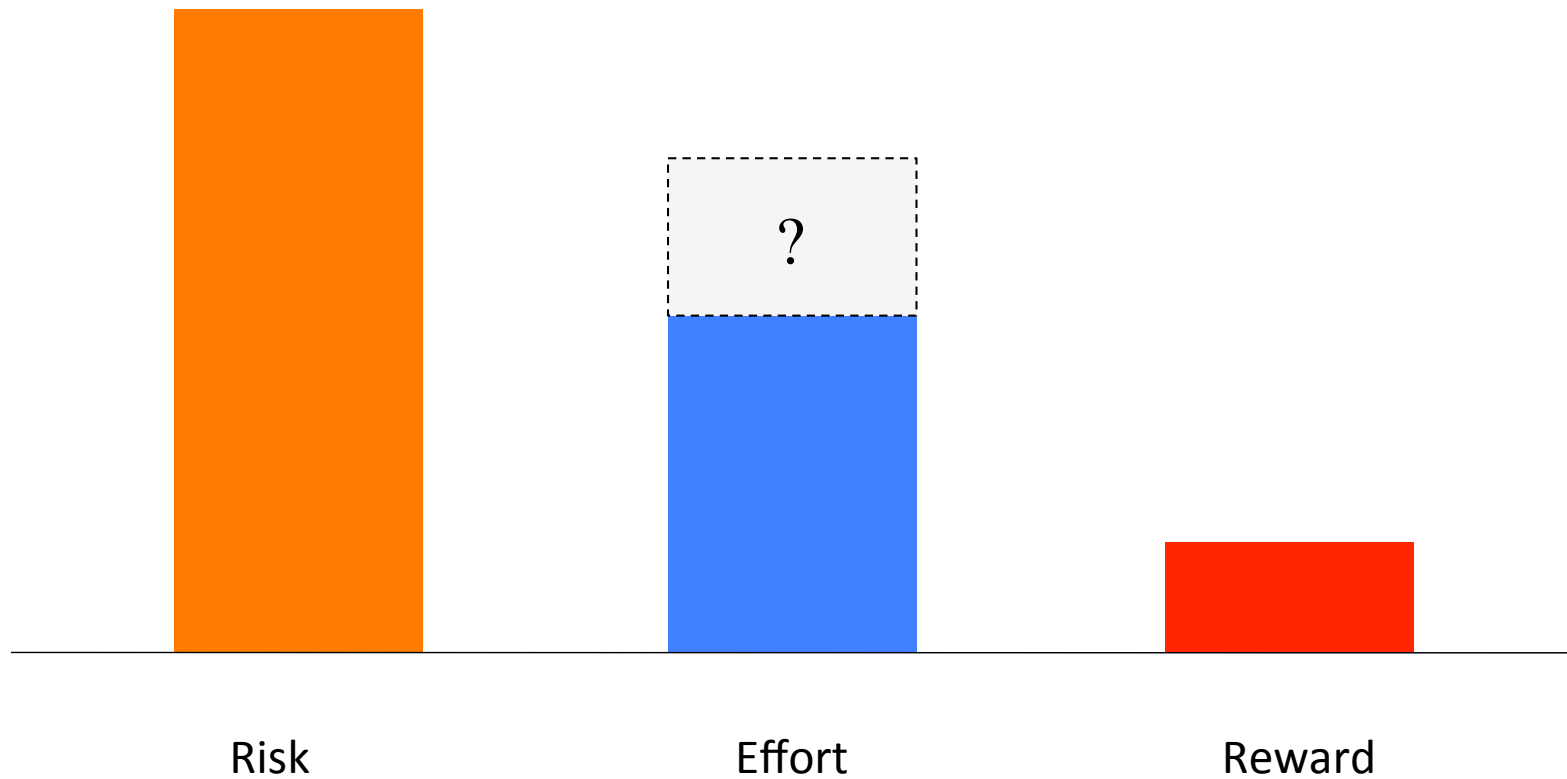
TCO & Risk Diversification



Economics of Cyber Crimes, Today



Economics of Cyber Crimes, Tomorrow

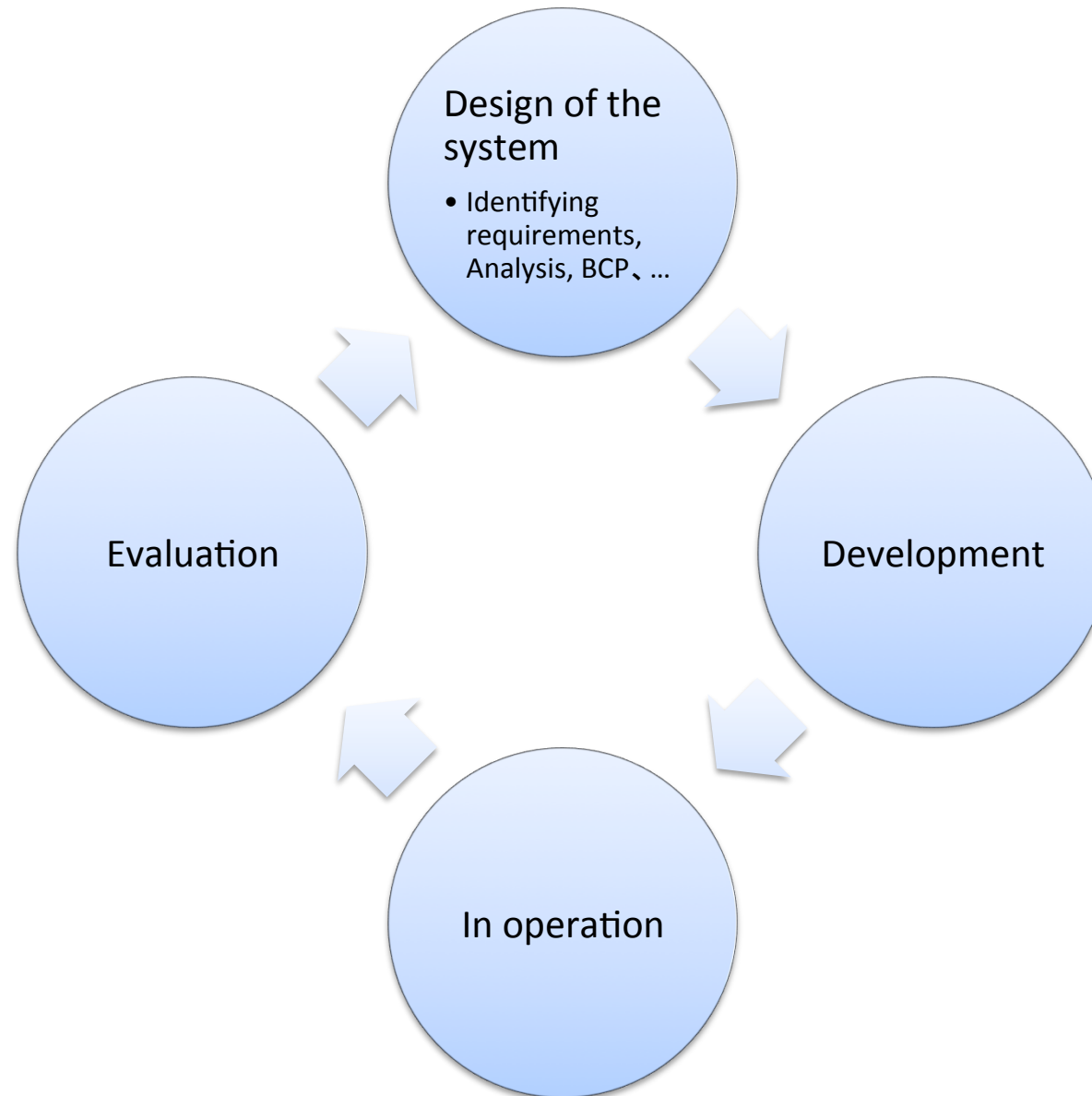


**No Silver Bullet.
No Free Lunch.**

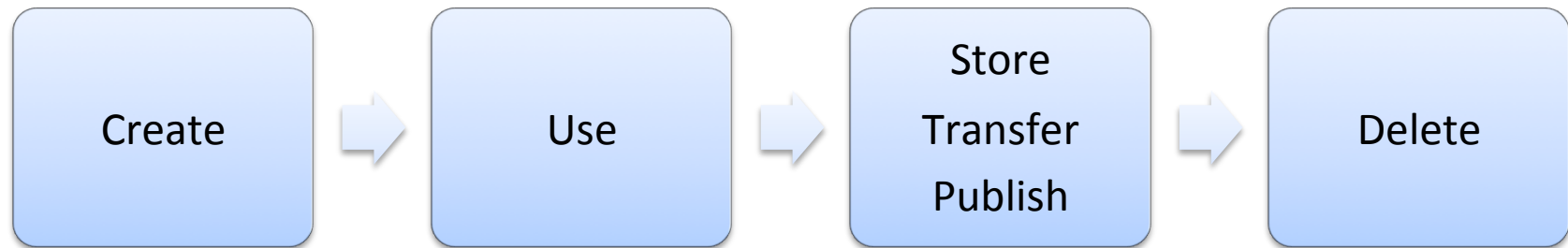
Solutions

- “Security by Design”
 - Better design of information systems that work fine with good security functions.
 - Additional security functions tends to be not enough for protecting systems.
- More on Information Lifecycle management
 - Giving more tools for every stage of “information lifecycle”
 - Especially protection measures using powerful encryption platforms.
 - For confidentiality, integrity and authentication purposes.
- Automation on Management tasks
 - Cost-effective use of human resource
 - “We should do what men only can do.”
- Education and awareness raising
 - Long term solution, though.

Information System Lifecycle



Information Lifecycle



Automation on Security Management

- “We should do what men only can do.”
- We can not make everything automated, but we are now using less automation on security management tasks.
 - Monitoring using IDS for anomaly detections.
 - System registration for management and resource assignment purposes.
- Using more engineering, sometime we need to apply technology for the other domain.
 - Signal processing, Robotics, etc.

Summary

- Information systems in our society now supports various roles as our critical infrastructure.
 - “Business enabler”
 - ICT system in critical infrastructures
- Security is No.1 priority, but we need to change our approach to implement to the information systems.
 - Good scalability
 - “Security by Design”
 - Automation.