New Security Framework for Digital Native Facility Systems

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Contents

1. Deep impact of IT and Internet
2. R&D Direction (by ISOC in 2007)
3. Delivery of Innovative Infrastructure in the Internet Economy

Deep Impacts of IT and Internet
on Some legacy and old conventional wisdoms

1. User and end-station is poor and stupid (i.e., not smart)
2. Users' terminal turns on, only when it's needed
3. Fixed terminal is far major and superior than mobile and wireless node
4. "Service" must be provided either by provider or by enterprise.
5. Cost of transmission, store and copy, is not little or negligible.

Deep Impacts of IT and Internet
on Some legacy and old conventional wisdoms

1. User and end-station is ***rich and smart***
2. Users' terminal is ***always turning on***
3. ***Mobile and wireless*** node/device is major
4. "Service" could be with ***out-source***
5. Cost of transmission, store and copy, ***IS little and negligible***.

6. ***Connect multiple campuses, across corporate & country boarders, i.e., Global, International and Inter-corporate Networks***

How the IT system in the 21st century is ?

- 20th century
  - Internet:『IP for Everyone』("Person" to "Person")
  - 制御システム:『***Separated "Fixed & Wired" System***』
- 21st centry
  - Internet:『I. of Things』("Machine" to "Machine")
  - 制御システム:『***Networked "Fixed, Mobile, Wired & Wireless Convergence" System***』

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Latest Research Direction of ISOC, discussed in 2009

By BoT (Board of Trustee),
ISOC (Internet Society)

What is our goal ; toward the **"Eco-System"**

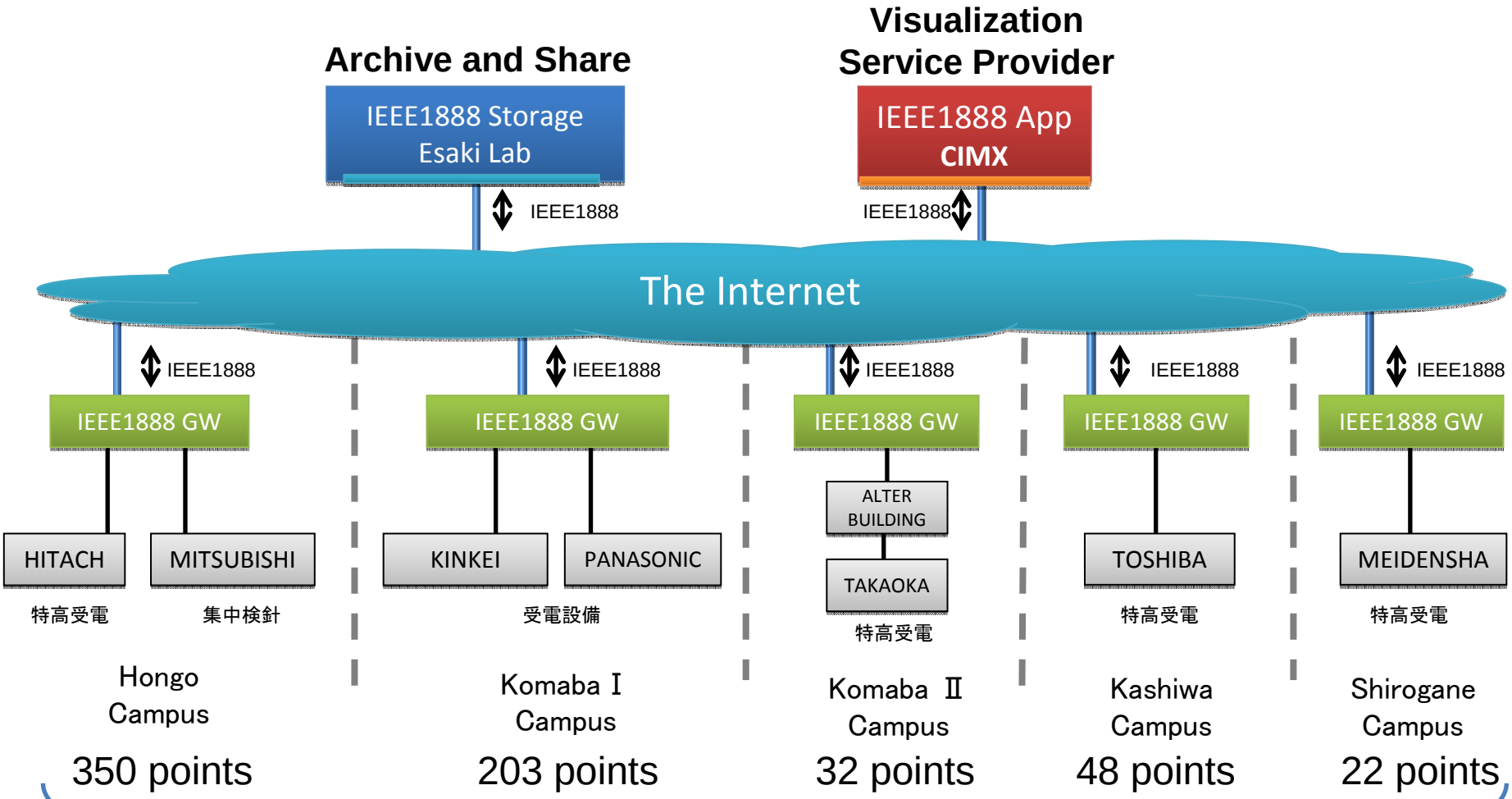
- Back-Ground (i.e., concerning and thread)
  - There are many systems/networks with IP
  - Still, there are many non-IP systems/networks
  - Networks and Systems tend to be **Fragmented**...
- Objective and Goal
  - **Avoid the fragmentation** of IP systems/networks
  - Encourage the **collaboration among sub-systems**
  - Explore the "Eco-System", that deliver **the cheapest system** deployment , while delivering **innovations**.

Frequent business theorem

1. Differentiate from other companies by proprietary technology
   – Function, cost/price, quality(e.g., robustness)
2. Lock on the client, via the proprietary technology
   – So as to change the system, large cost is needed.
3. Isolate the system, physically
   – Can you completely isolate the system, in these days, even with wireless and portable devices ?
   – Risk and possibility of reverse engineering……

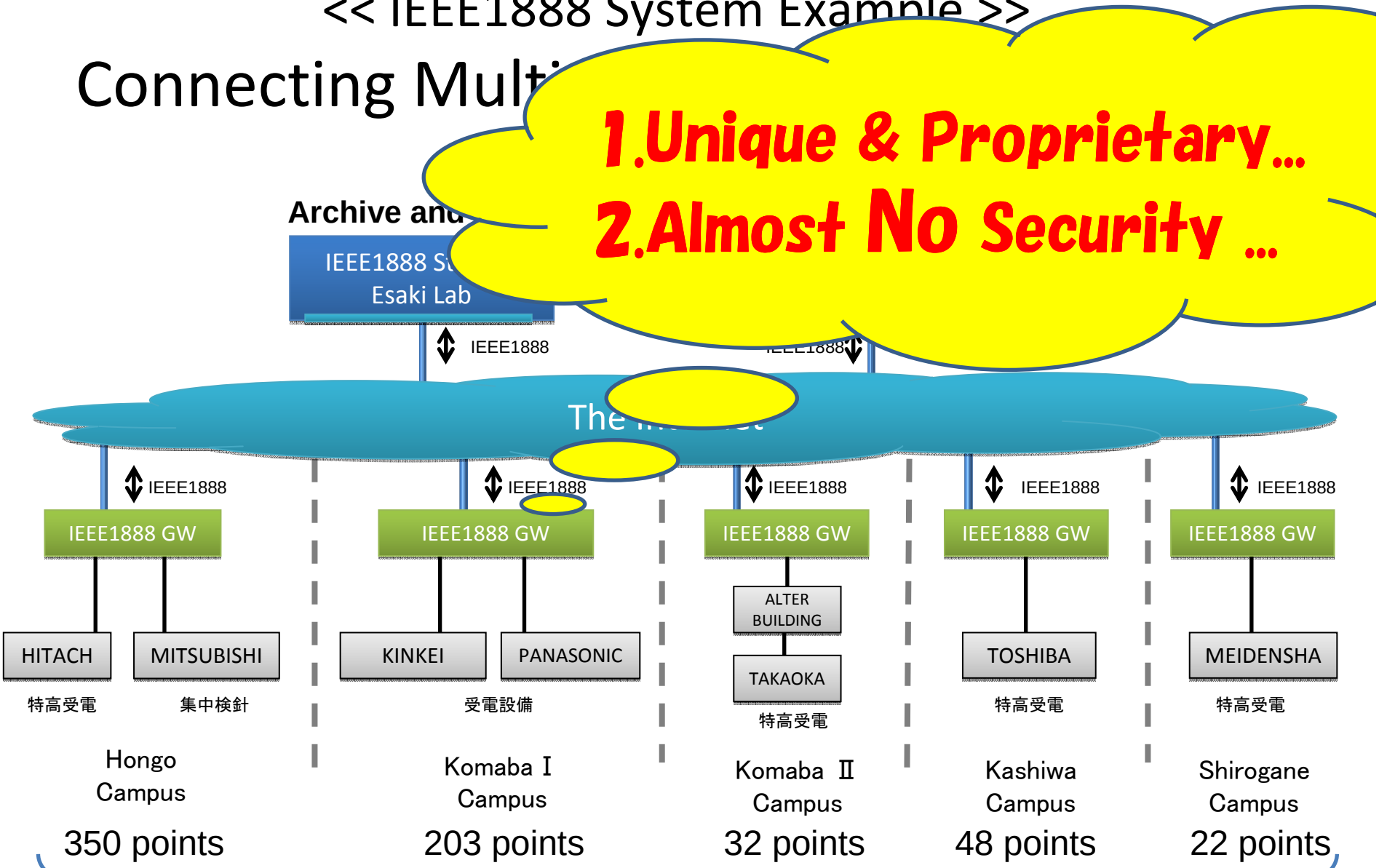
<< IEEE1888 System Example >>

Connecting Multiple Campuses with Cloud



<< IEEE1888 System Example >>

Connecting Multi



2. InterNetWorks Initiative

- This initiative focuses on the continued operation of the open global Internet.
  1. **Global Addressing Program**
     Identifies challenges to global addressing (e.g.,IPv4 address pool exhaustion, IPv6 depployment, and others).
  2. **Common and Open Internet Program**
     Focuses on identifying threats to the common Internet model and supporting works to mitigate those threats.
  3. **Security & Stability**
     Aims to support development and deployment of key technologies for a stable and secure Internet infrastructure.
  4. **AlterNetives**
     Identifies impacts of alternative networks (e.g., mobile data networks, sensor networks).

3. Trust & Identity Initiative

- This initiative focuses to provide channels for secure, reliable, private, communication between entities, which can be clearly authenticated in a mutually understood manner.
  1. **Architecture and Trust**
     Research on R&D standardization, development, and deployment.
  2. **Current Problems and Solutions and Trust**
     Research on social, policy, and economic factors
  3. **Identity and Trust**
     Identity to a core issue in network research and standards development.

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A Naïve Question……

Q.1 How different, “French wine” and “Californian wine” ?

Structure of Japanese GDP (2006)

- Agriculture forestry marine(農林水産) : 1.5%
- Mining (鉱業) : 0.1%
- ***Manufacturing(製造業)*** ***: 21.3%***
- Construction(建設業) : 6.3%
- Utility and Energy(電力・ガス・水道) : 2.2%
- Wholesale, retail trade (卸売・小売業) : 13.5%
- Finance, insurance(金融・保険業) : 6.9%
- Immovable(不動産業) : 11.9%
- Transport communication(運輸・通信) : 6.6%
- Service(サービス業) : 21.4%

Structure of Japanese GDP (2006)

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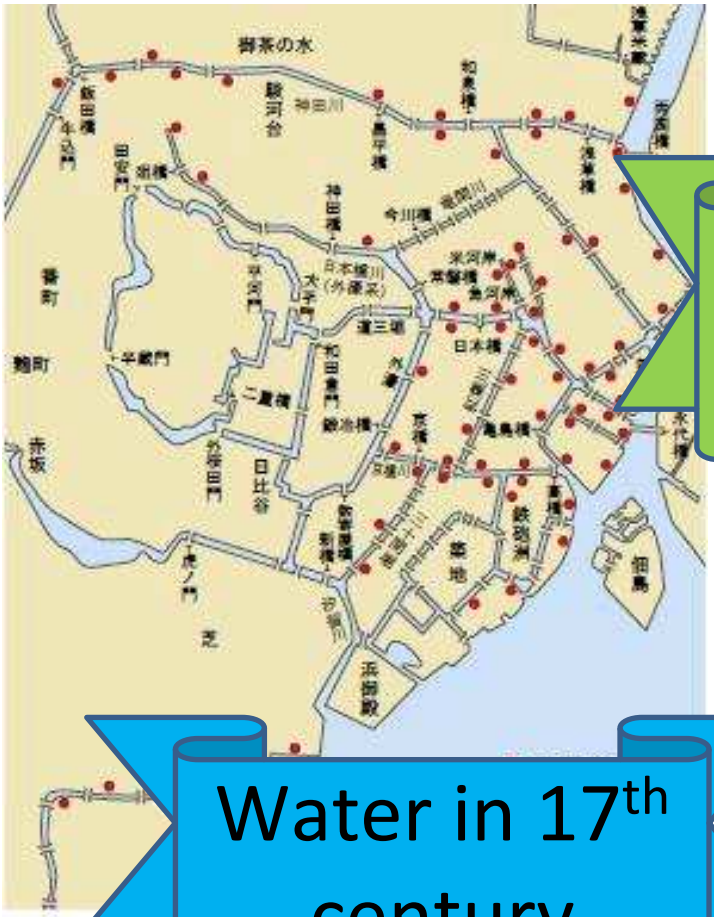
【Direction/Strategy】
Promoting
Efficiency & Networking
of/in all the industry
segments

Strategic Design of Metropolis/City



江戸の河岸

河川や江戸城を取り巻く堀端に数多くの河岸があった。

東京都港湾局『東京港史 第1巻 通史編』、1994、鈴木理生『江戸の川・東京の川』、日本放送出版協会、1978.3より作成。

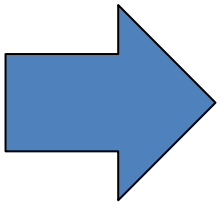
Water in 17th century

Informatics in 21st century

Logistics in 20th century

We/You should be back;

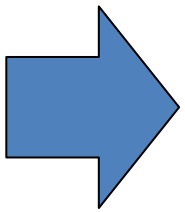
- What is security ?
  - –There is no 100% guarantee
  - –Maximize the activities, while minimizing the risk



We/you have to take some risk, to maximize our/your activities

Security acts

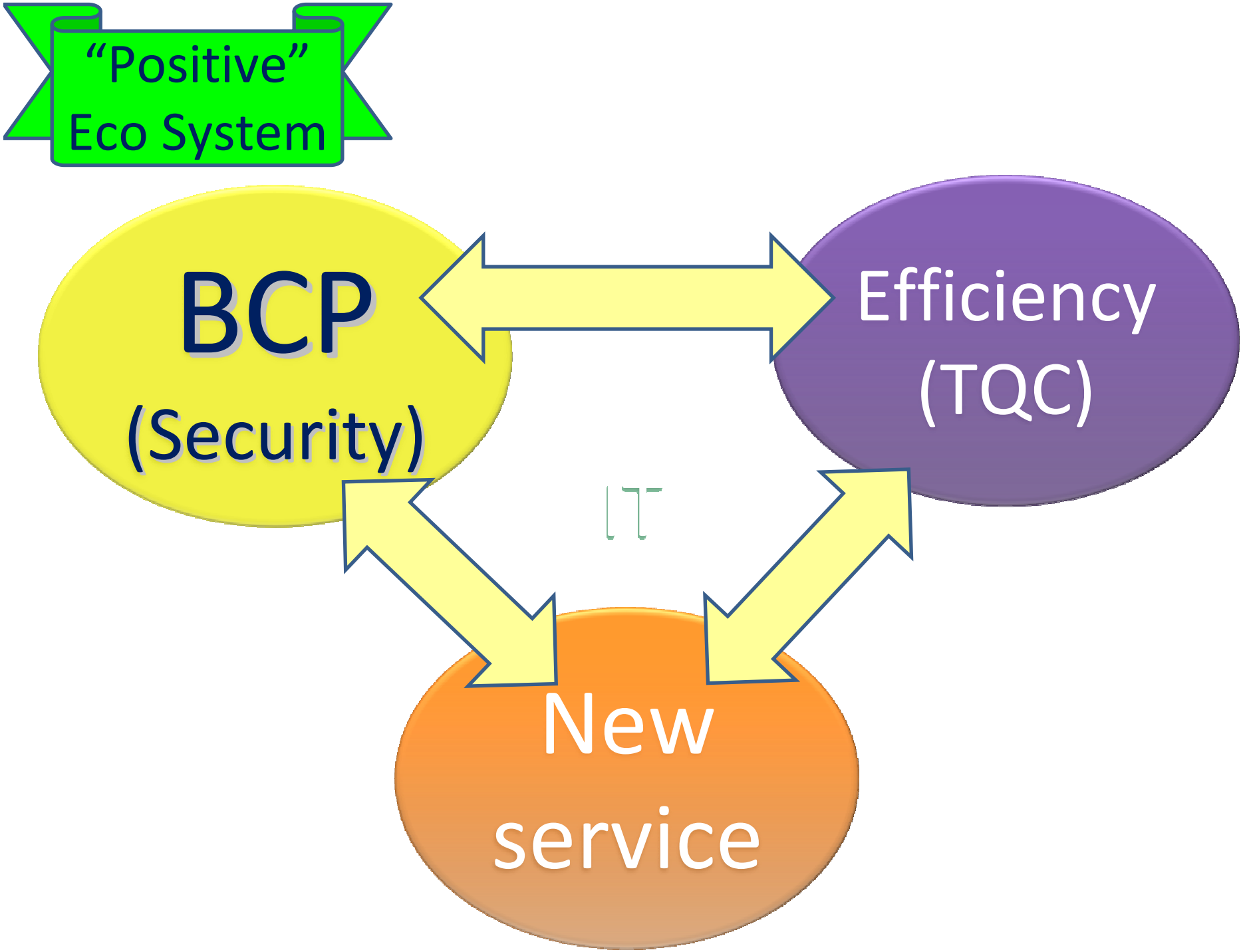
- Possible measures;
  1. Compensate after the incident by money to restore
  2. Pro-active measures to avoid incident
  3. Reactive measures, when an incident occurs
     a. Pro-active(事前策)
     b. Re-active(事後策)



Sharing the BCPs (Best Current Practices) among stakeholders

Delivery of Innovative Infrastructure in the Internet Economy

1. ***Experienced Design***
   - "Internet" has been always a kind of ***testbed***.
2. ***Invention is the mother of necessity***
   - "Commons" and ***"Openness"*** is the key
   - Someone finds out how to use the inventive technologies, leading to the innovations
3. Federated networking for the next stage of the "Internet".
   - Accommodate ***new players and species***
   - ***Interoperability***
4. ***"Emulated System by IT" to "IT Native System"***


"Positive"
Eco System
BCP
(Security)
Efficiency
(TQC)
IT
New
service