Internet for 2050

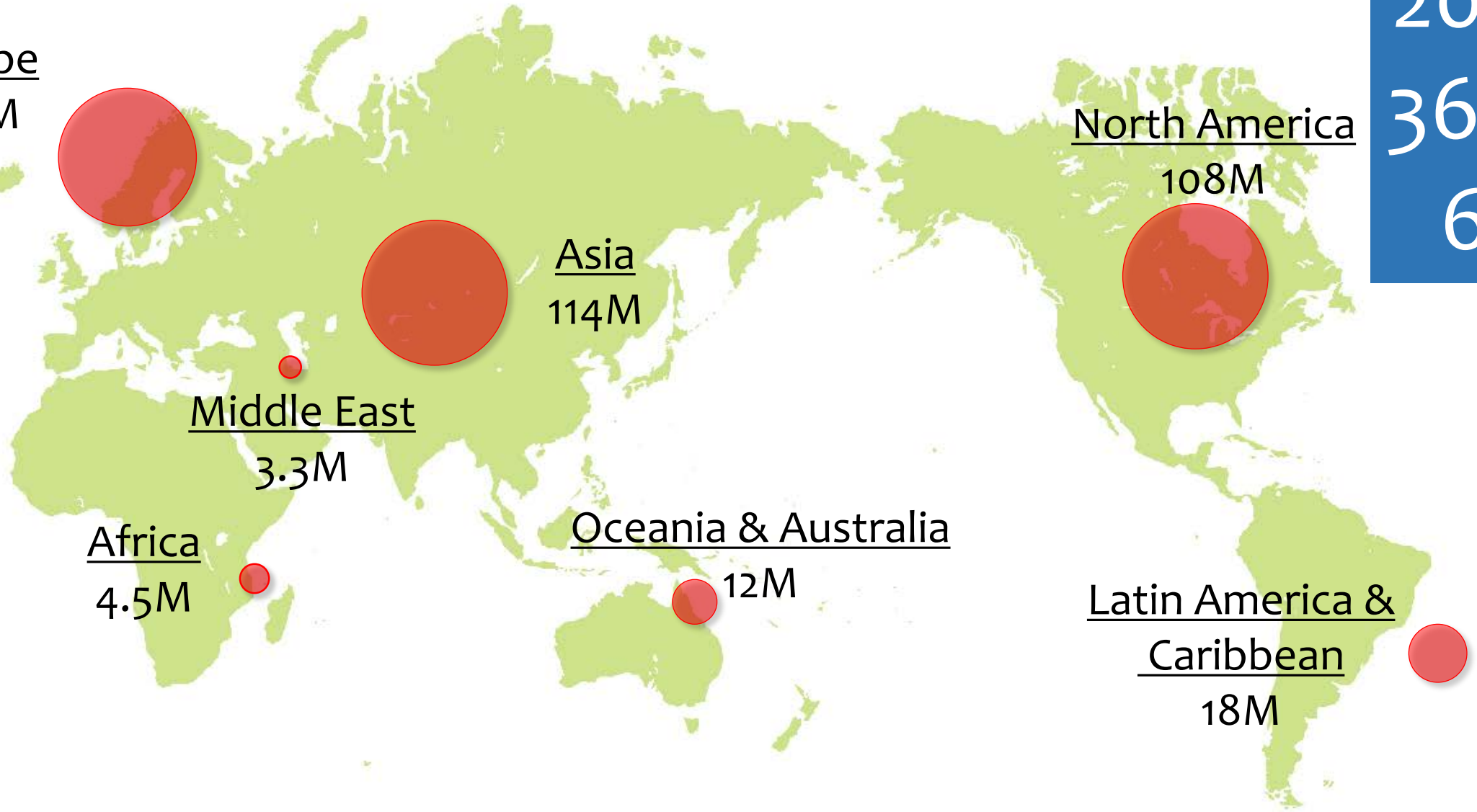
Jun Murai

30 years of past to design the Internet (This slide was created in 2017)

- 1969: 48years ago
  - UNIX, ARPANET
  - Woodstock
- 1977: 40 years ago
  - BSD, ARPANET, USENET
  - Mini-computer, Workstation
- 1987: 30 years ago
  - IBM-PC, laptop
  - WIDE Project
- 1997: 20 years ago
  - ICANN
  - Windows 95, Yahoo, Google, Rakuten, Amazon
- 2007: 10 years ago
  - iPhone
- 2017: This year
  - AI, IoT, Quantum

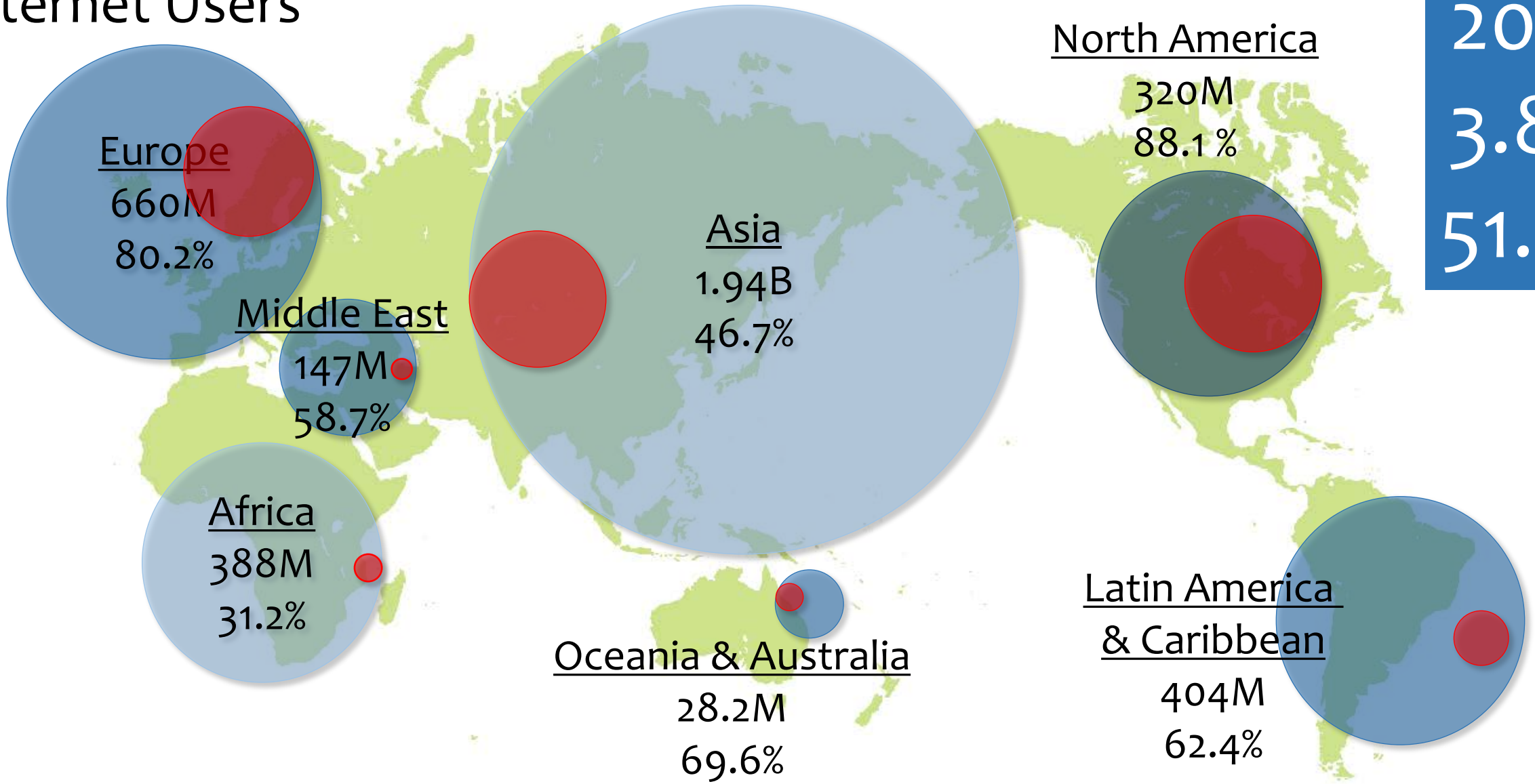
Internet Users

2000
361M
6%



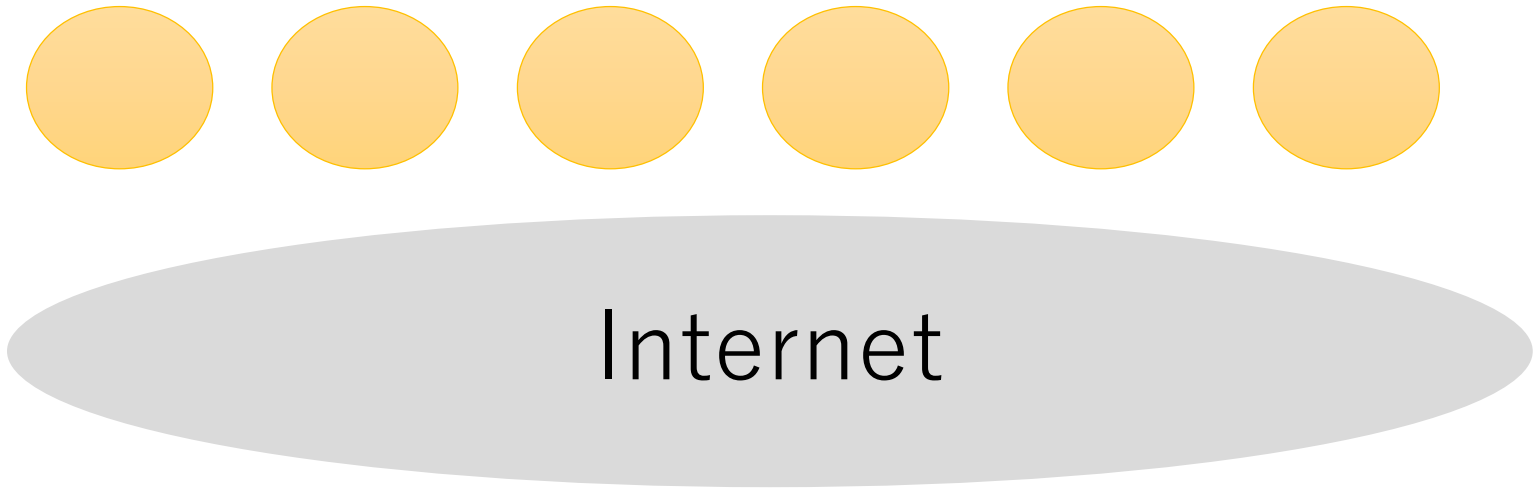
Internet World Stat: http://www.internetworldstats.com

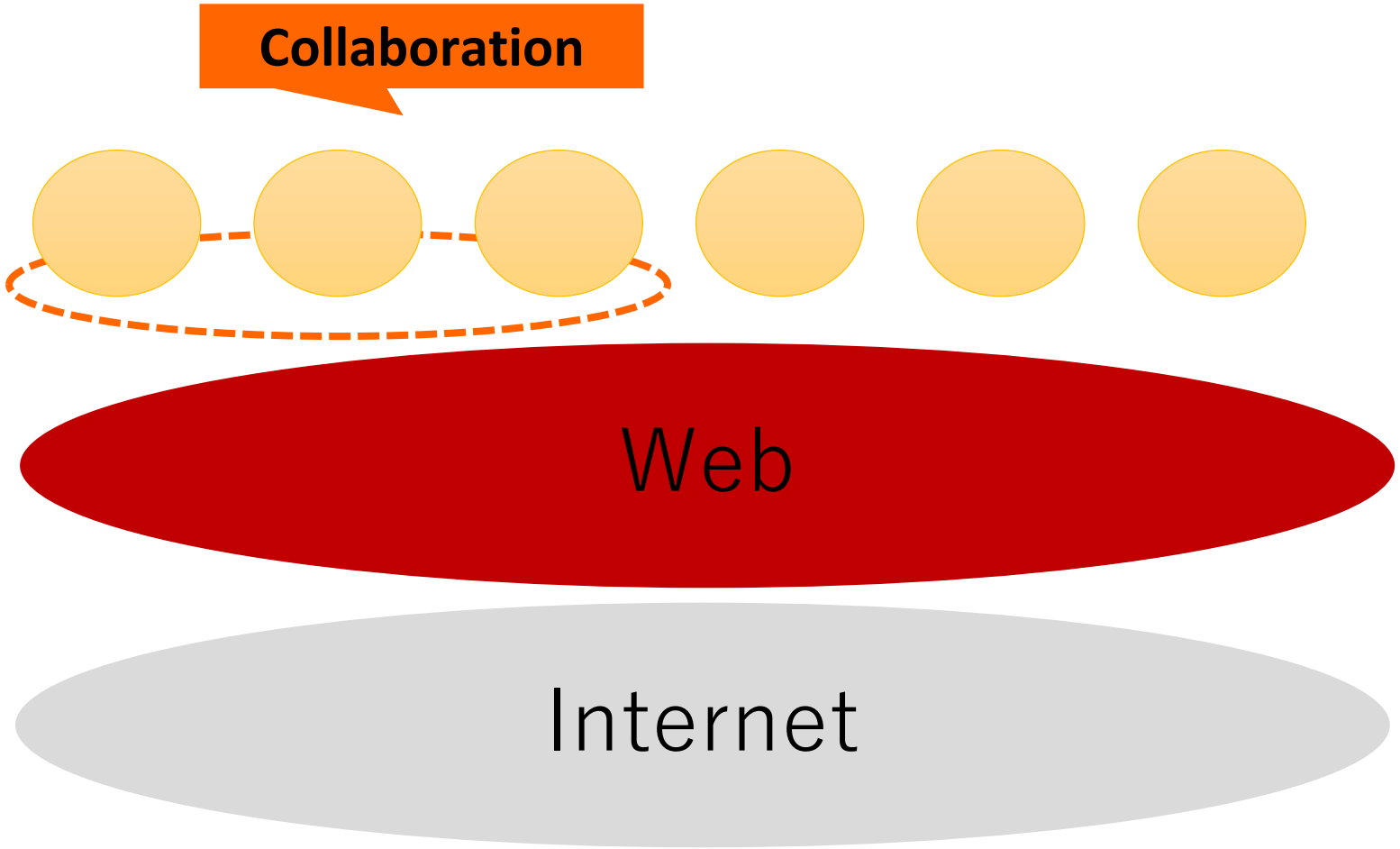
Internet Users

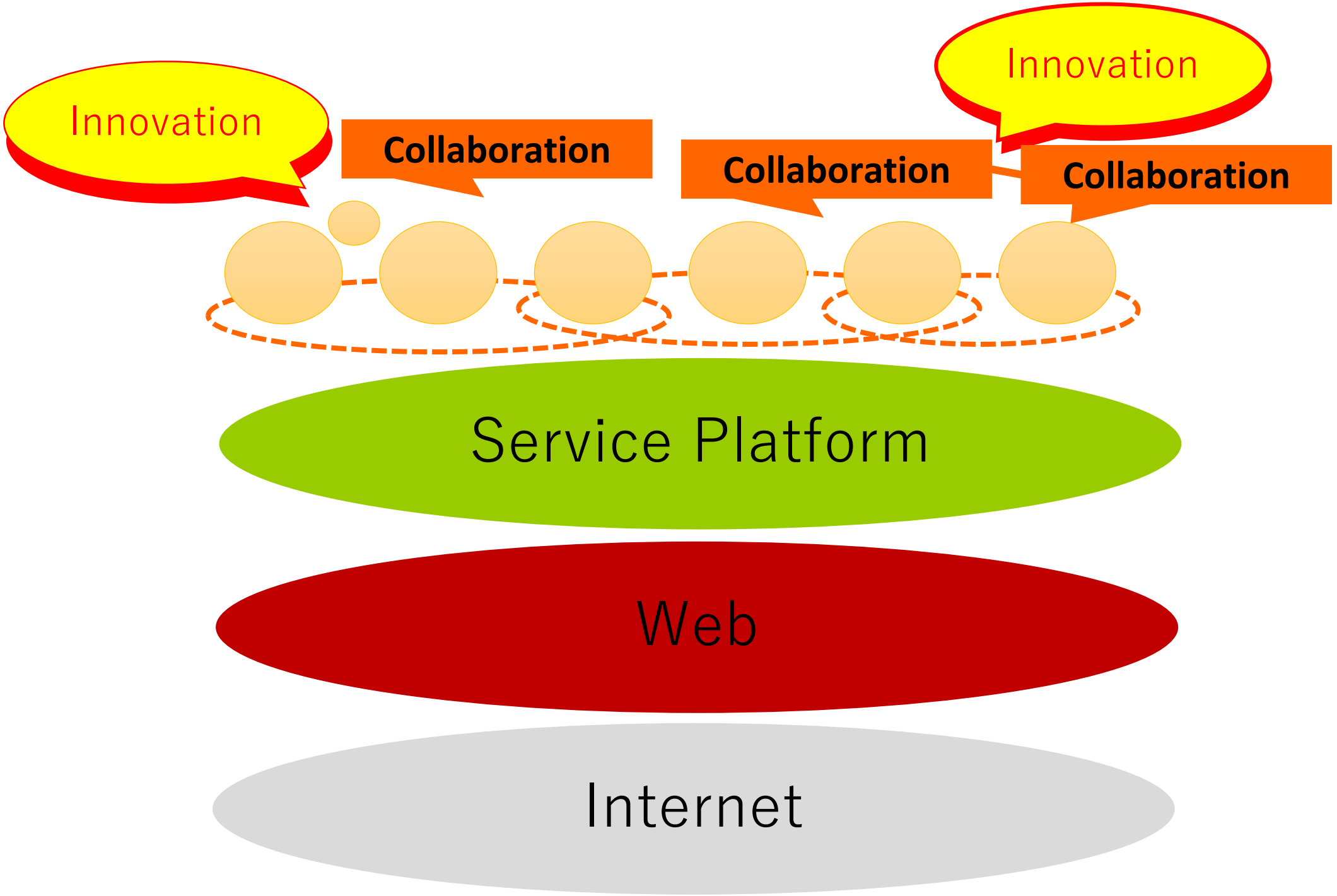


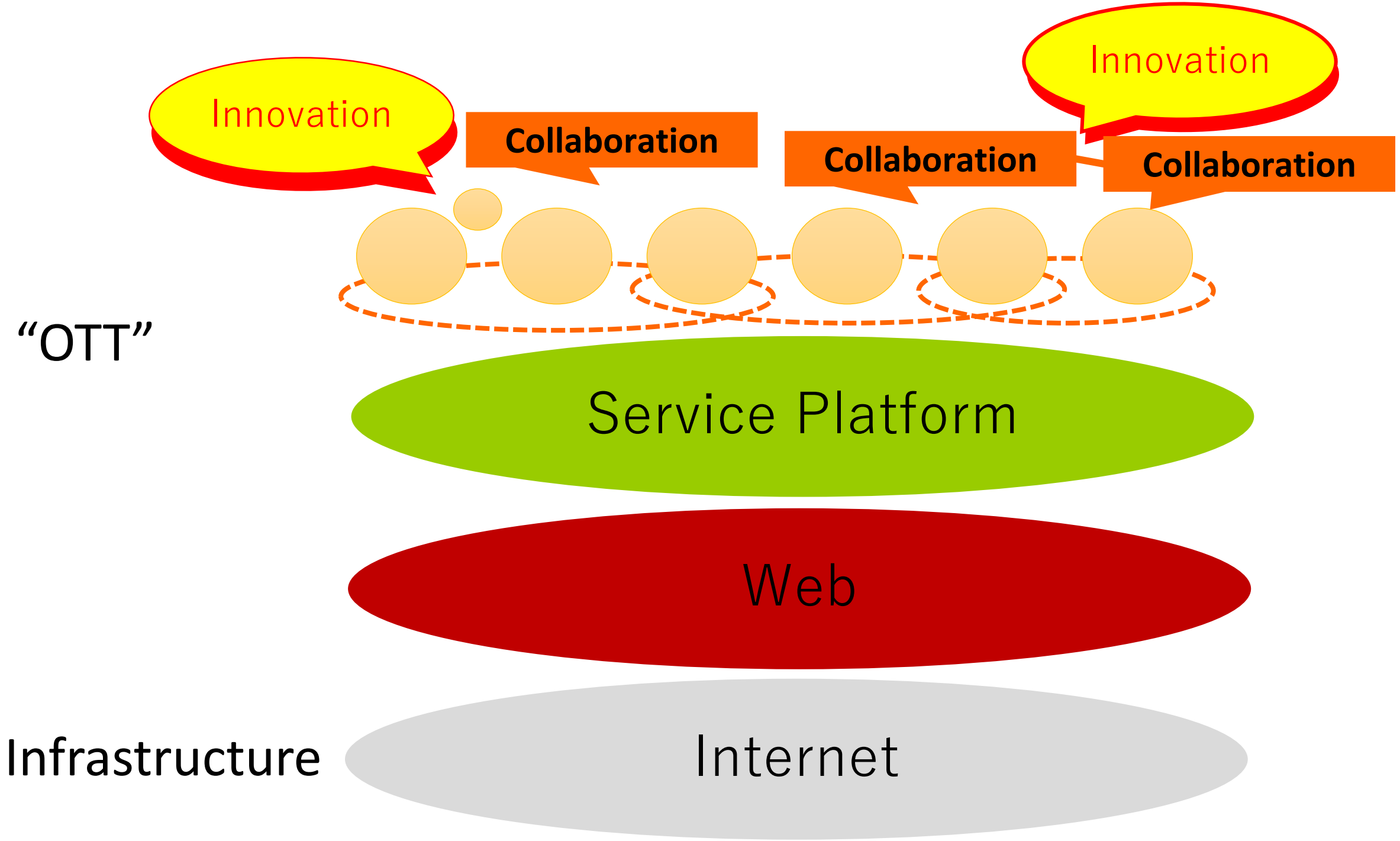
2017
3.8B
51.7%

Penetration (% population)

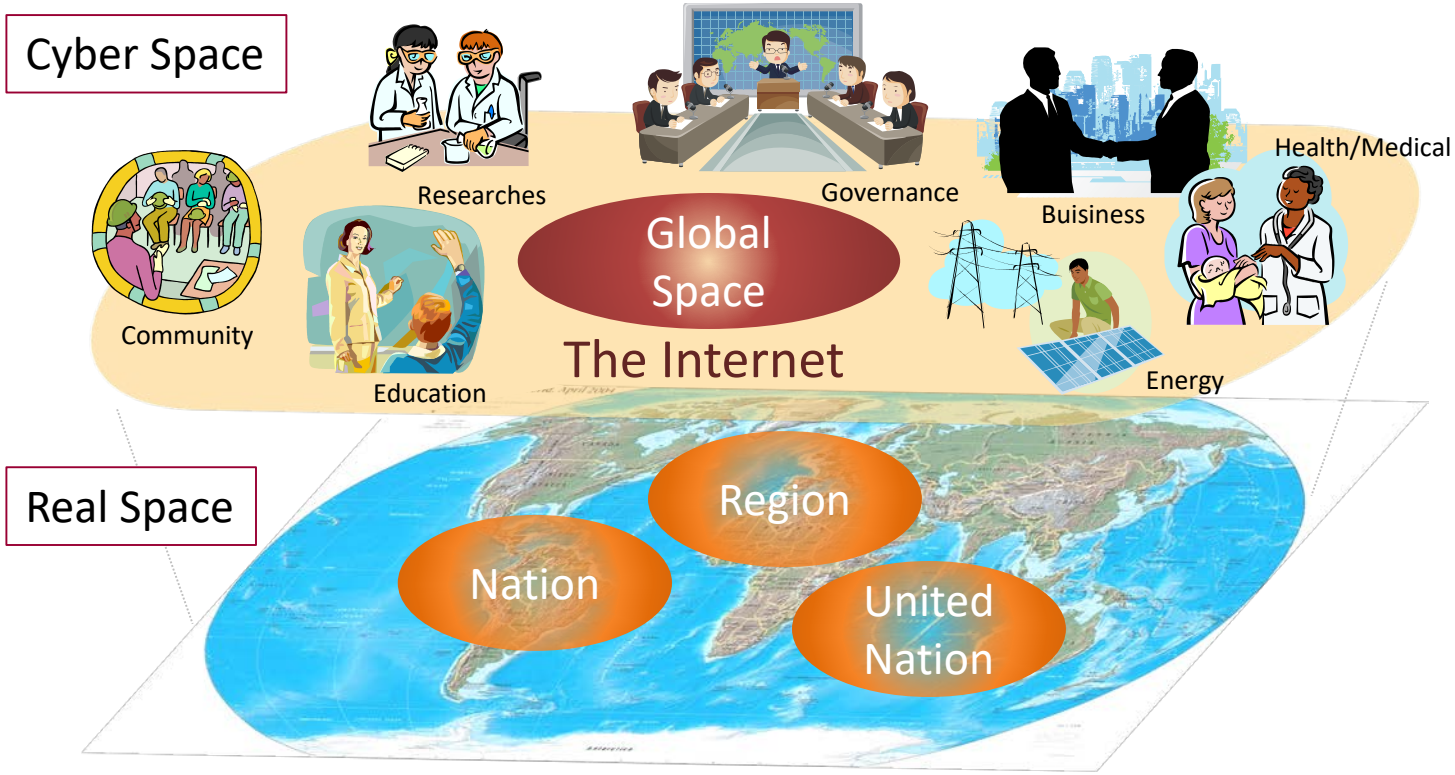

Internet


Collaboration
Web
Internet

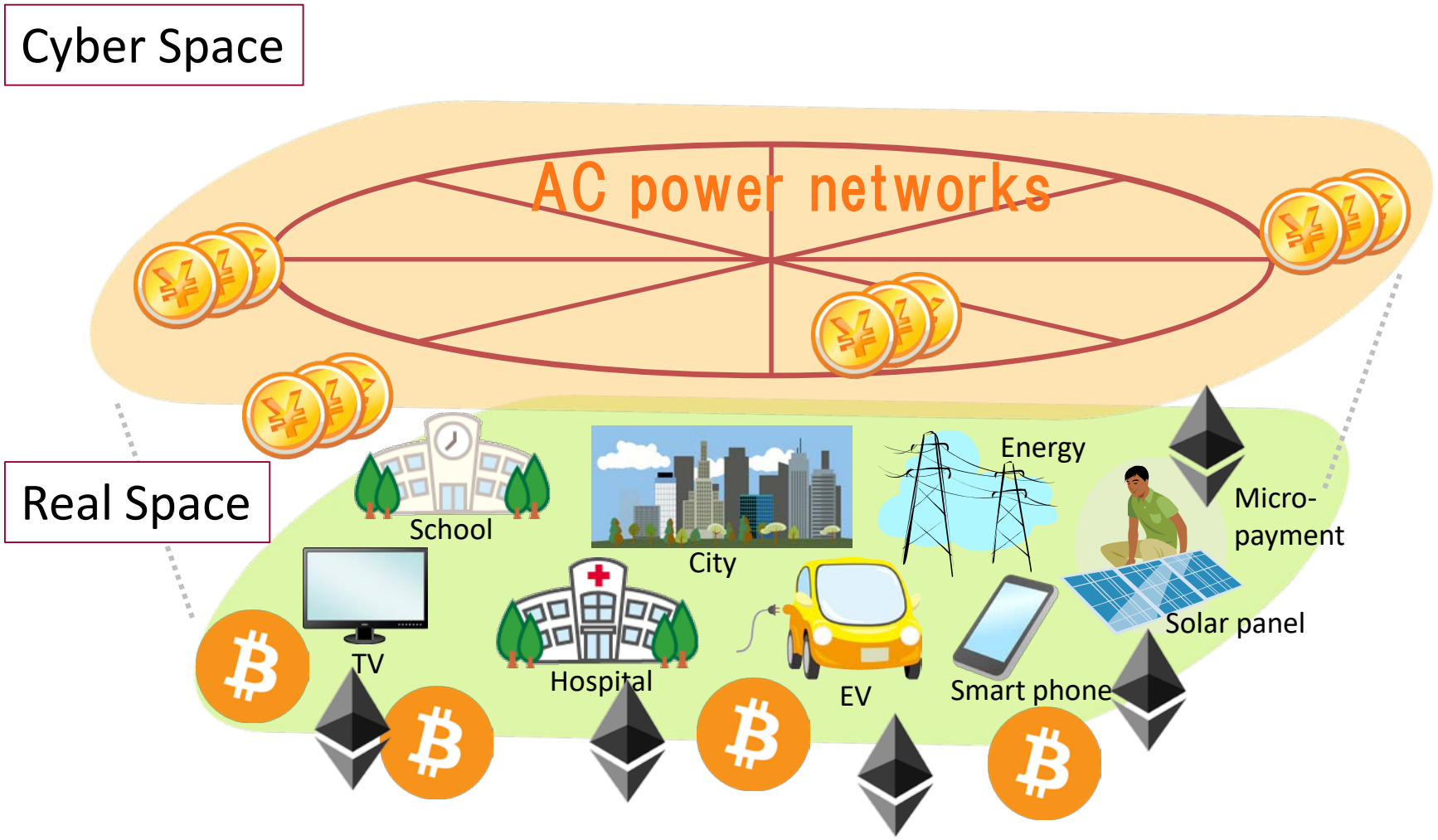

Innovation
Innovation
Collaboration
Collaboration
Collaboration
Service Platform
Web
Internet


Innovation
Collaboration
Collaboration
Innovation
Collaboration
"OTT"
Service Platform
Web
Infrastructure
Internet

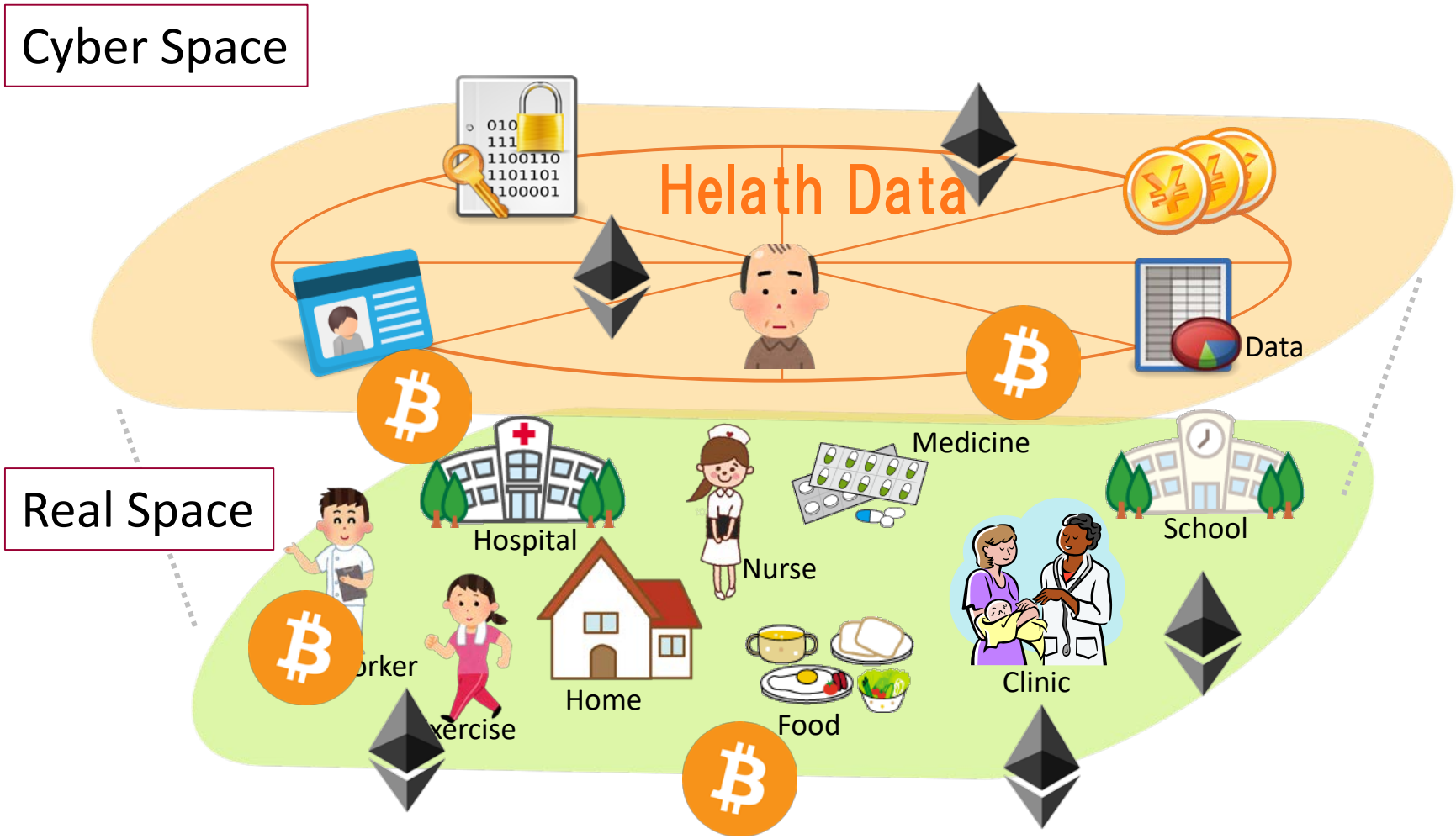
Cyber Space and Real Space



Internet Battery Society



Internet Health Society



Principles of the Internet to me

1. The Internet is the Internet, not internet.

   I believe this is critical. To keep the internet single and global.

1. Single platform for the global computing resources.

   The internet is a network connecting distributed computing resources, hopefully any of them in anywhere. Therefore, this construct a single distributed computing platform.

2. Ideal platform for sophisticated distributed systems.

   Processing need to be done with any of computer resources needed. The scale can be from micro like millimeter, to large like a global computation system.

3. Moor type requirements on computing and processing.

   Speed of processing elements will be growing. Architecture design has to be logicaly sophisticated and simple. Especially of parallel computing.

4. Infinity digital data traffic

   Digital data will grow. Data sometimes require limit of latency and accuracy.

5. Redundant path, backup, contingency system

   Infrastructure for IP traffic. IP over X. Y over IP.

6. Solid and flexible distributed system for operations

   Respect operators. Operators network. Life of operators.

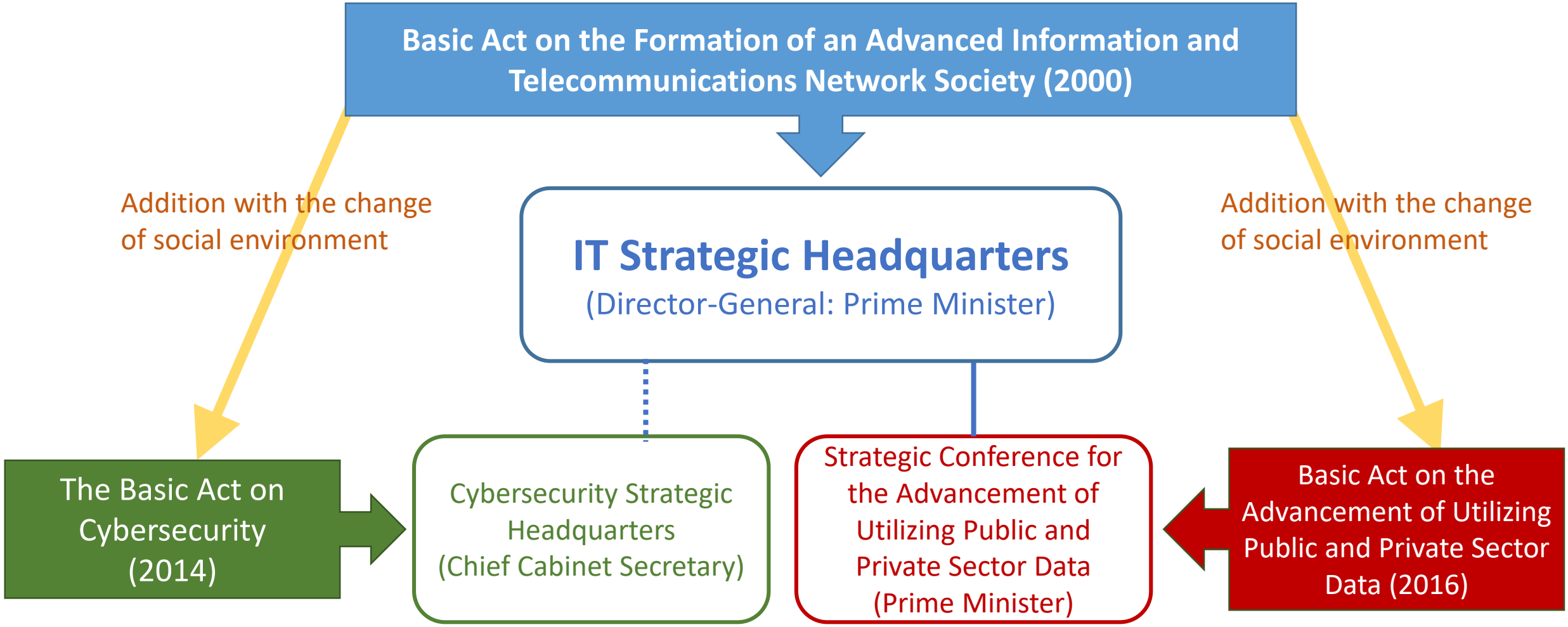
7. Secure the network system, not users

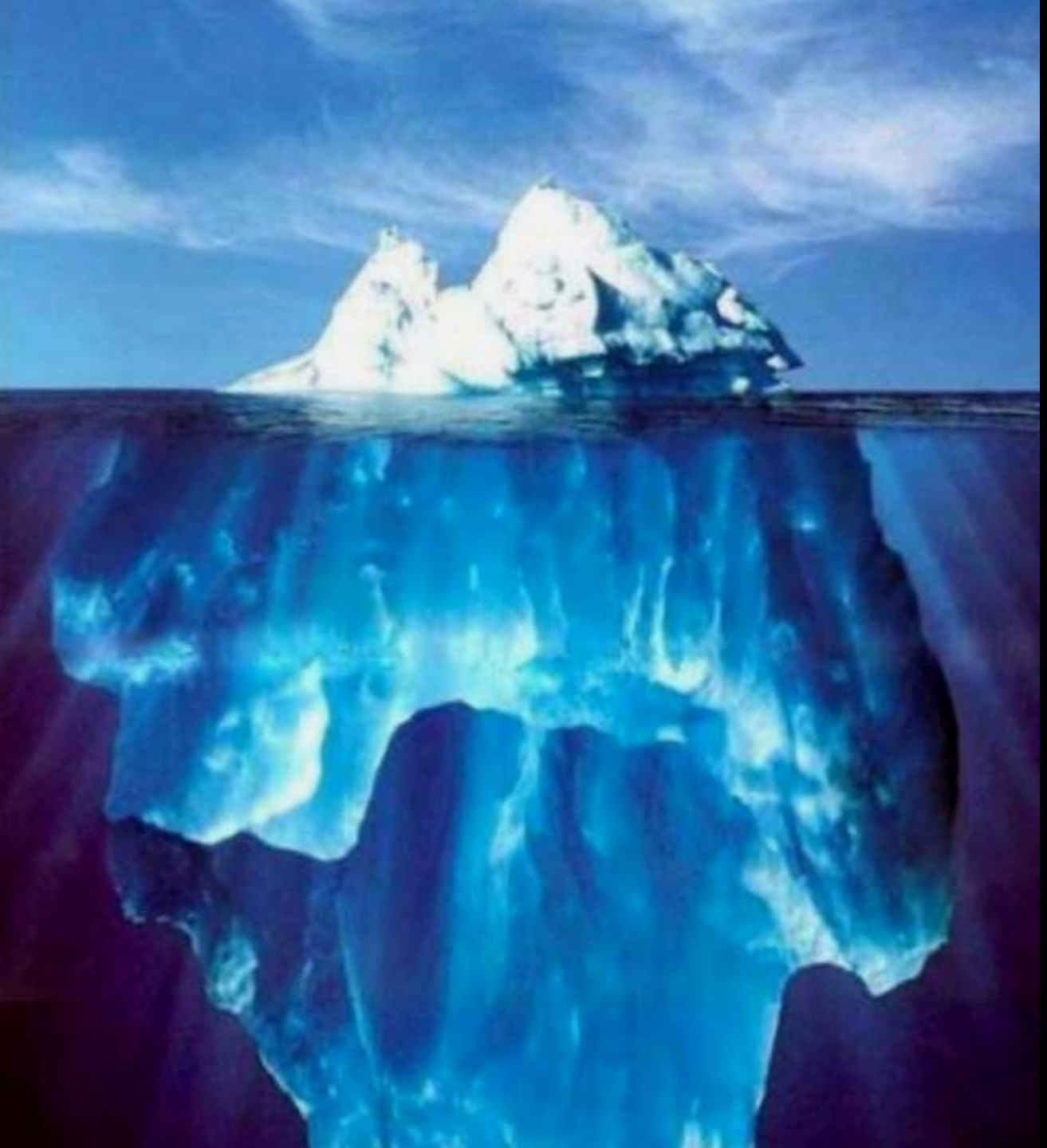
   Keep the Internet running for IP datagrams, not only for users.

From Japan

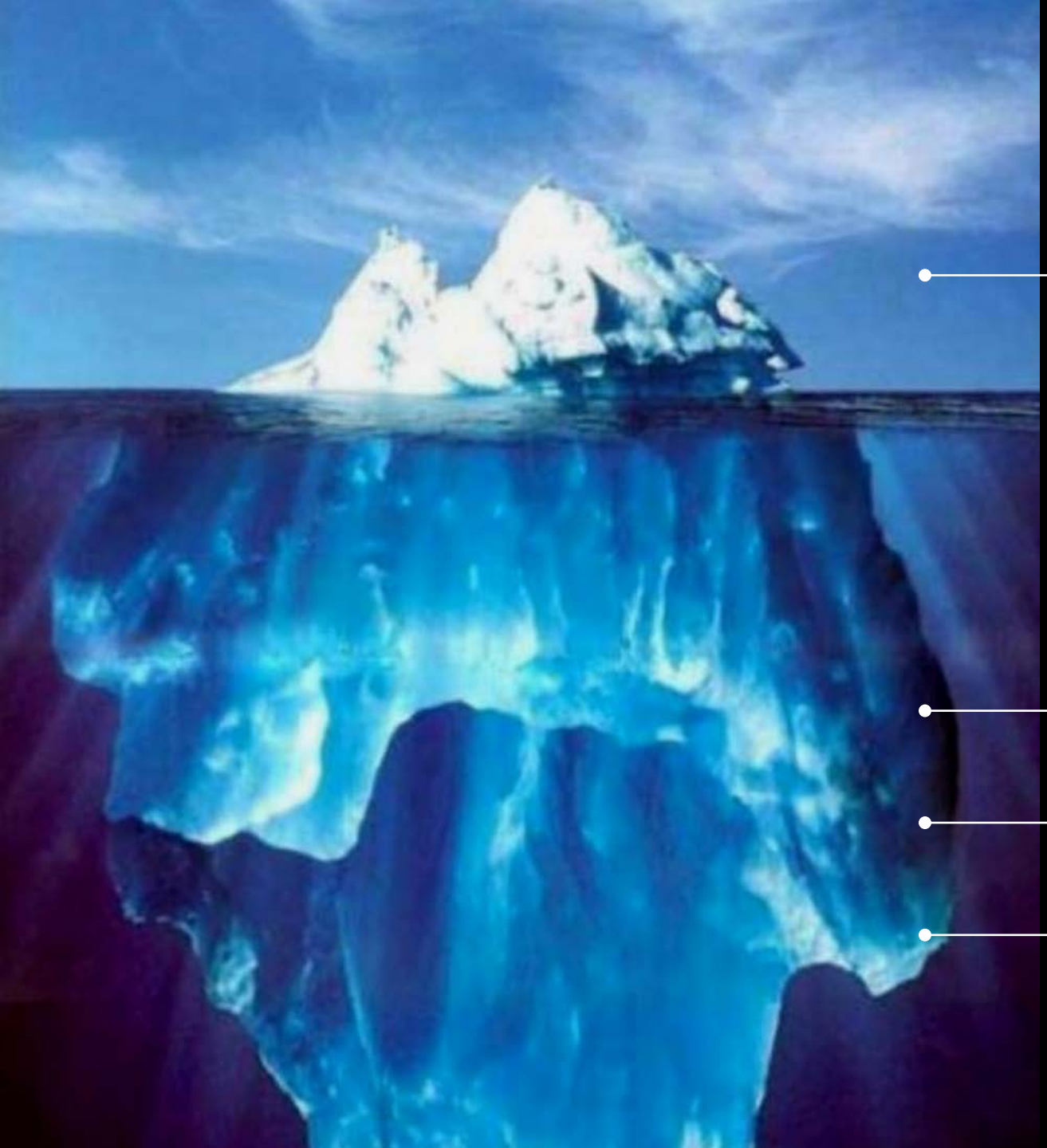
- By 2003, Japan had been second in number of the Internet users next to the US.
- Through the design and implementation of IPv6, we have been thinking ‘someday China and India will come, in addition to ‘things’.
- Character sets on emails have been a issue at IETF.
  - Respect on diversity on culture, from engineering point of views.
- Japan is targeting on wireless communication in many ways.
  - Islands.
- Japan cares about accuracy of data and reliability with trust on services.
  - Best efforts considered with misunderstandings.
- Japan market speaks.

New Law-based IoT in 2017, and W3C/IETF recognized





The Internet

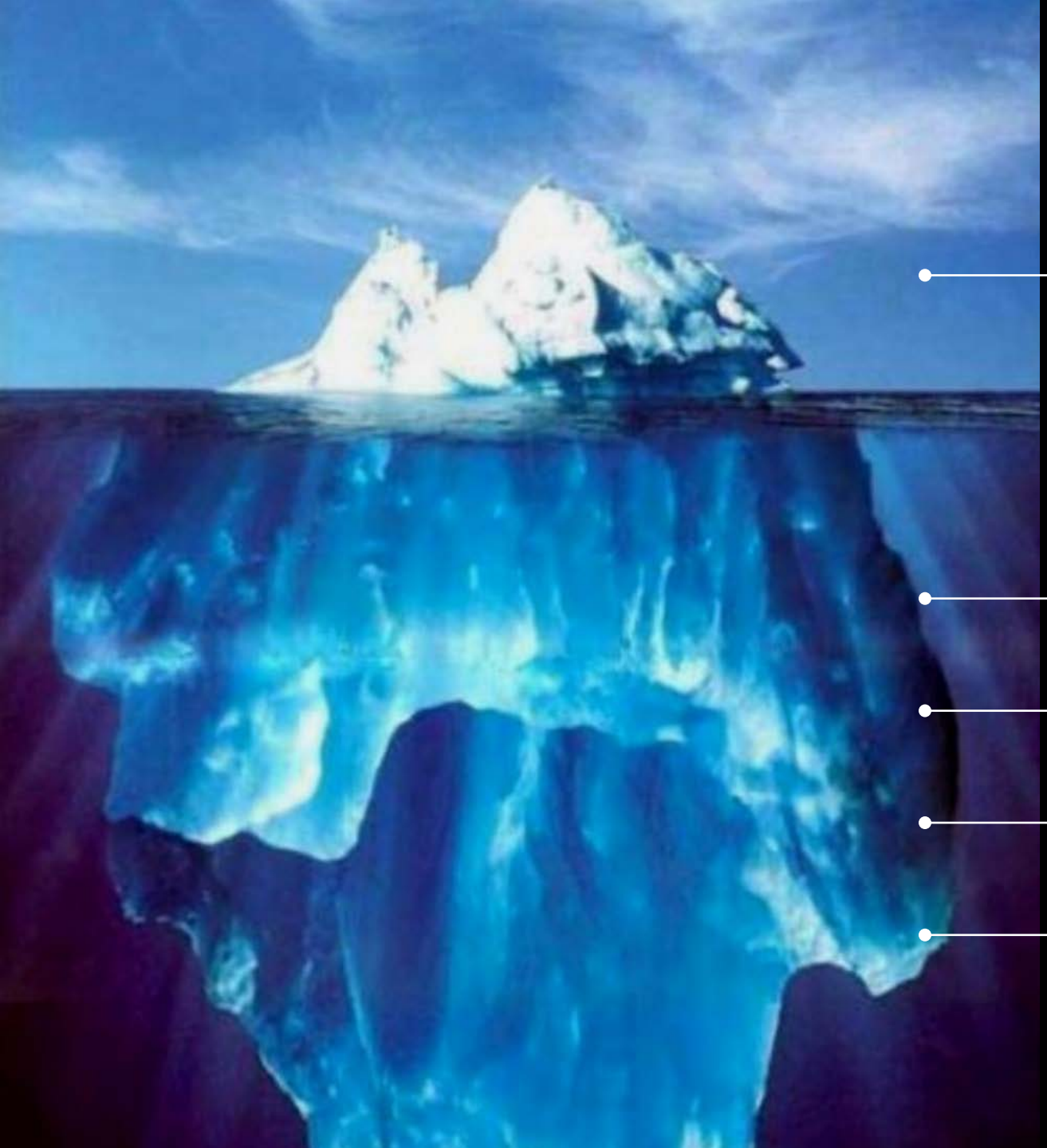


Applications

TCP/IP

Ether, WiFi, Bluetooth

Fiber, Mobile Wireless, Satellite



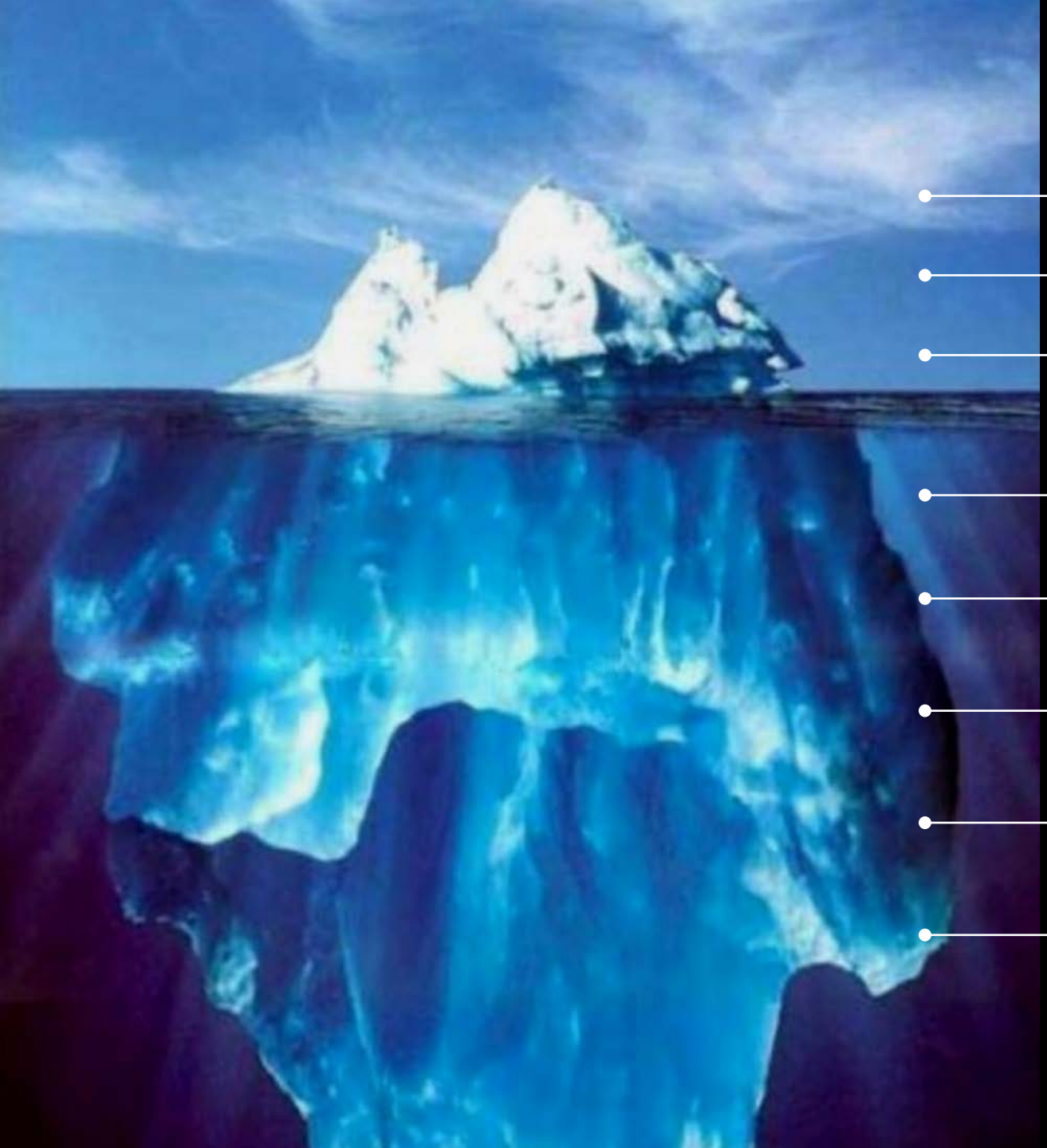
WWW

Browser

TCP/IP

Ether, WiFi, Bluetooth

Fiber, Mobile Wireless, Satellite



Service

IoT, Bigdata

AI

API (Application Interface)

WEB

TCP/IP

Ether, WiFi, Bluetooth

Fiber, Mobile Wireless, Satellite