ITU – T Views

International Telecommunications Union – Telecommunications

Sector.

It provides standards for telecommunications and Information

Communication Technology such as X.509 for cyber security, Y.3172
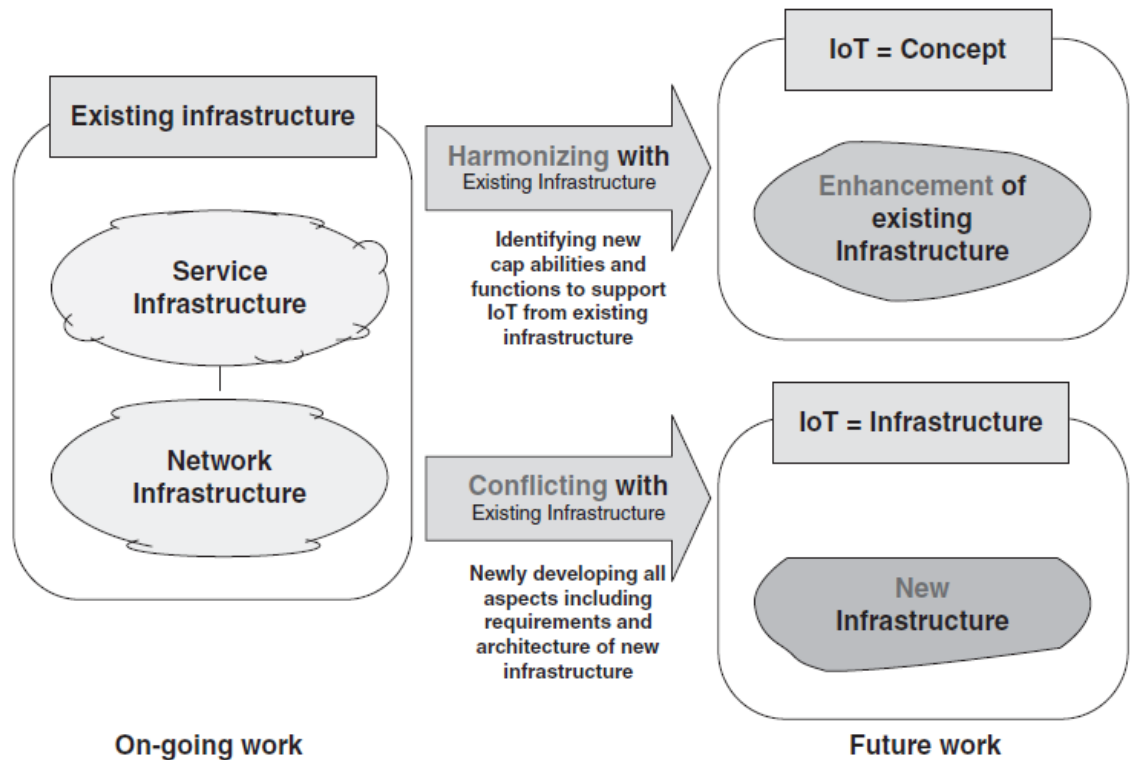
and Y.3173 for machine learning.

The ITU-T is in the process of identifying a common way to

define/describe the IoT.

Infrastructure View - Internet as an infrastructure provide a number

of technological capabilities.

Concept View - Internet as an concept provide an array of data

exchange and linkage services.

View A: IoT is just a concept (conceptual aspects of definition)

View B: IoT is an infrastructure: The IoT refers to an infrastructure.

Existing infrastructure

Service Infrastructure

Network Infrastructure

Harmonizing with Existing Infrastructure

Identifying new cap abilities and functions to support IoT from existing infrastructure

IoT = Concept

Enhancement of existing Infrastructure

Conflicting with Existing Infrastructure

Newly developing all aspects including requirements and architecture of new infrastructure

IoT = Infrastructure

New Infrastructure

On-going work

Future work

Direction for standardization according to IoT definition.

Working Definition

A broadly-deployed aggregate computing/communication application
and/or application-consumption system, that is deployed over a local
(L-IoT), metropolitan (M-IoT), regional (R-IoT), national (N-IoT), or
global (G-IoT) geography, consisting of (i) dispersed instrumented
objects ("things") with embedded one or two-way communications and
some (or, at times, no) computing capabilities, (ii) where objects are
reachable over a variety of wireless or wired local area and/or wide area
networks, and, (iii) whose inbound data and/or outbound commands are
pipelined to or issued by a(n application) system with a (high) degree of
(human or computer-based) intelligence.

19ITT302-Internet of Things

Working Definition of Sensors :

Sensors are active devices that measure some variable of the

natural or man-made environment (e.g., a building, an assembly

line, an industrial assemblage supporting a process).

Working Definition of Actuators :

An actuator is a mechanized device of various sizes (from ultra-small to very large) that accomplishes a specified physical action, for example, controlling a mechanism or system, opening or closing a valve, starting some kind or rotary or linear motion, or initiating physical locomotion. An actuator is the mechanism by which an entity acts upon an environment.

Object :

- An object is a model of an entity.
- An object is distinct from any other object and is characterized by its behavior.
- An object is informally said to perform functions and offer services

Objects have the following characteristics :

- have the ability to sense or actuate
- are generally small (but not always)
- have limited computing capabilities (but not always)
- are energy/power limited
- are connected to the physical world
- sometimes have intermittent connectivity
- are mobile (but not always)
- of interest to people
- managed by devices, not people (but not always)

Object Classification

Object

- IP (IPv6) Address
- Size — small, normal
- Mobility — mobile, fixed
- Power — without power supply, with power supply
- Connectivity — intermittently connected, continuously connected
- Automation — automated, non automated
- Physical/logical — physical objects, logical objects
- Network protocol — IP enabled objects, non IP objects