NEC

Carrier Cloud Opportunity

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NEC

Cloud as an Enabler of New ICT Solutions

Cloud service is a new business models created by the Internet innovators and may develop a new business opportunities on NGN.
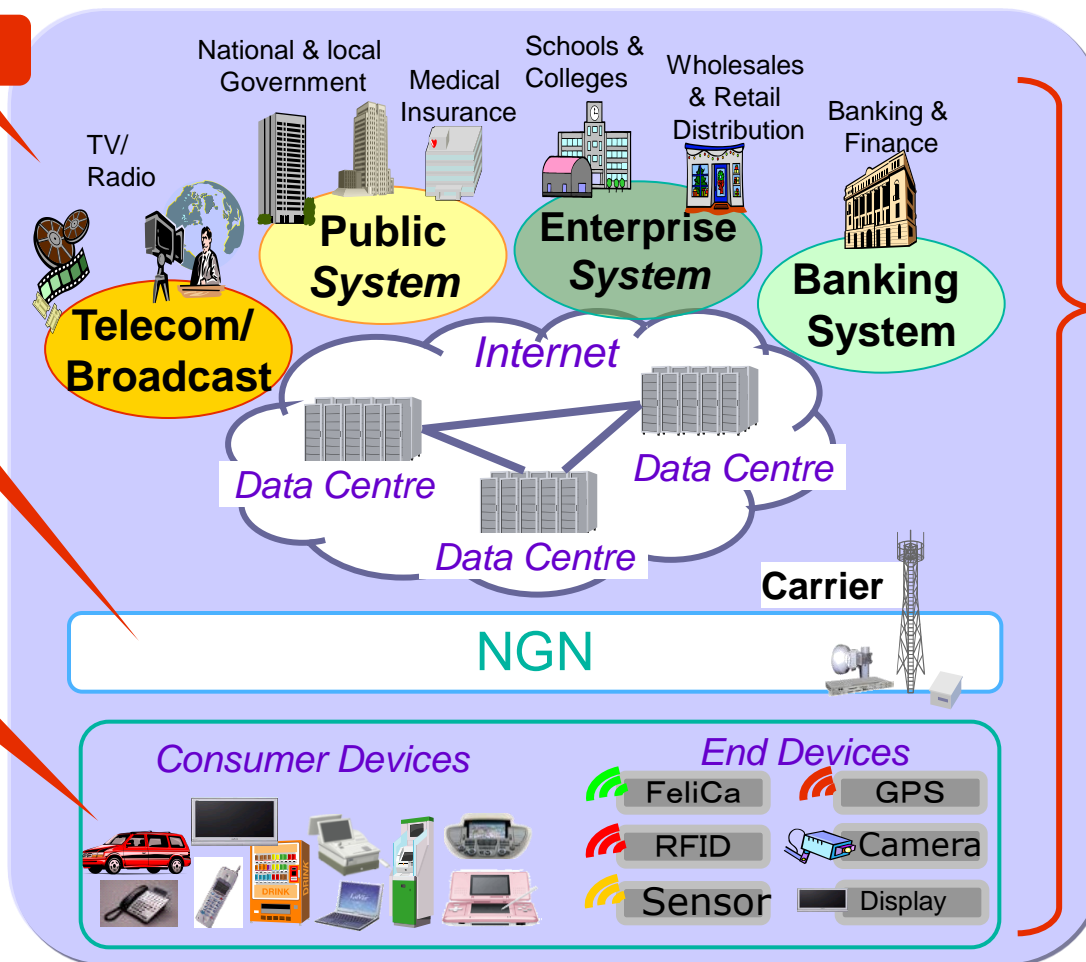
Service Providers

- Move to shared ownership/ use models
- Turn CAPEX into OPEX

Carriers

- Increasing flexibility and granularity of NW control

Users

- Explosion in number & variety of Devices
- Service continuity across devices

National & local Government

Medical Insurance

Schools & Colleges

Wholesales & Retail Distribution

Banking & Finance

TV/ Radio

Public System

Enterprise System

Banking System

Telecom/ Broadcast

Internet

Data Centre

Data Centre

Data Centre

Carrier

NGN

Consumer Devices

End Devices

FeliCa   GPS
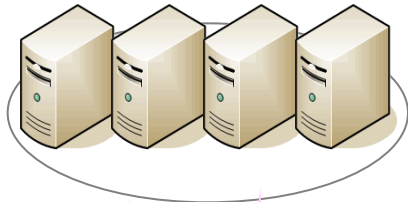RFID   Camera
Sensor   Display

ICT Industry

- Convergence of device, network and service domains

- Accelerated pace of new business / service creation

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Carrier cloud

Quick launch of XaaS applications on the NGN service platform

Cloud Service Provider

Carrier Cloud in NGN = Trust

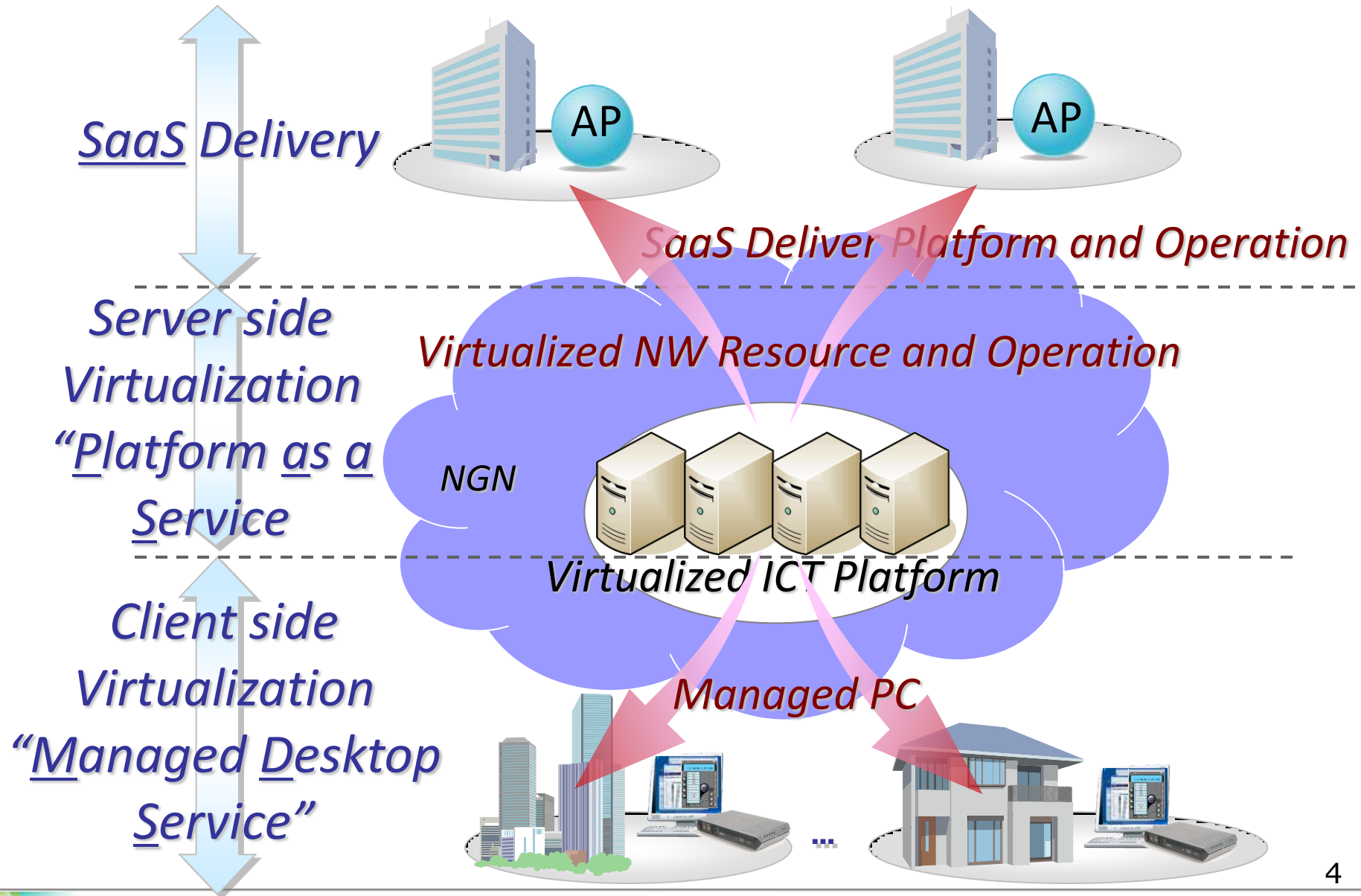**NGN = Trust**

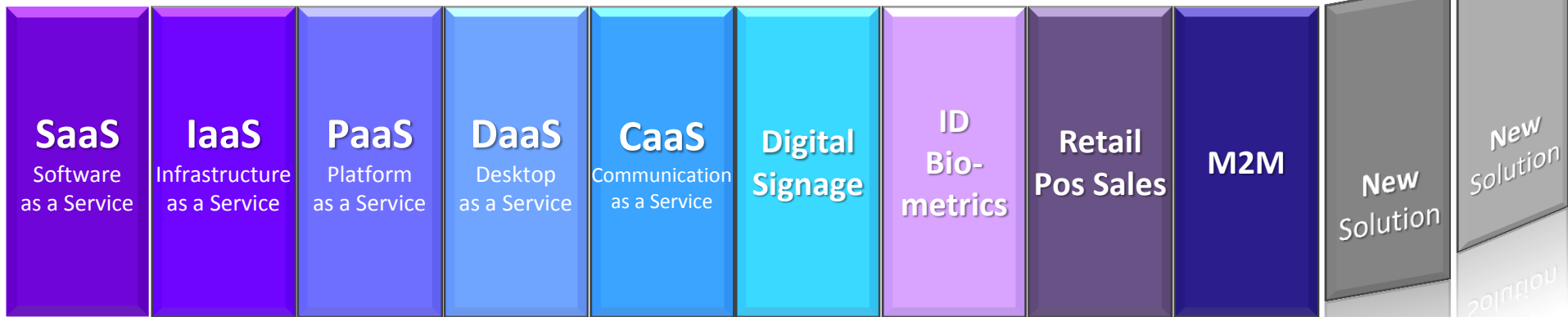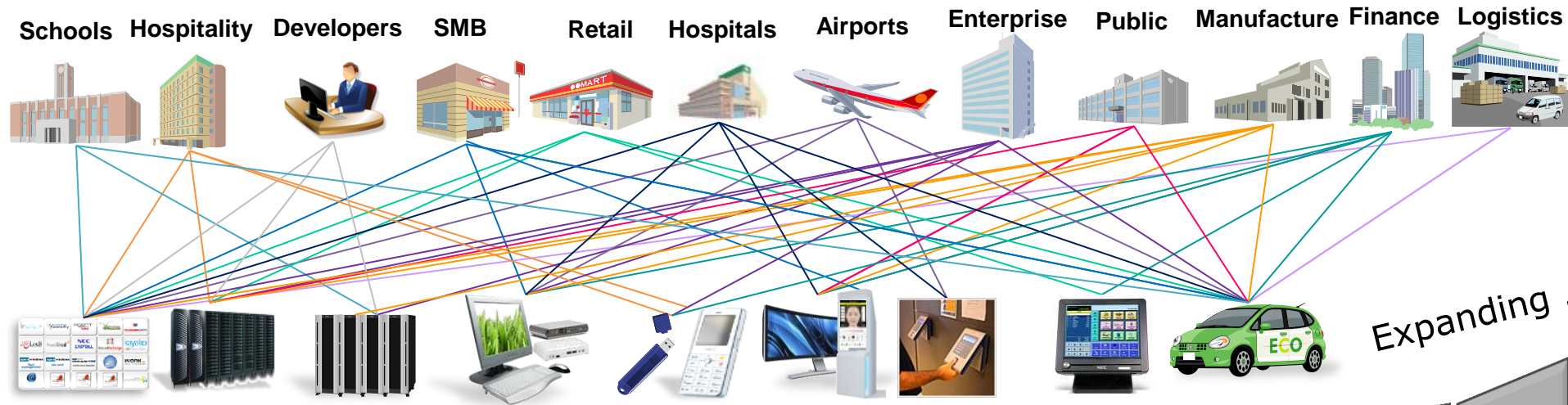**Carrier Datacenter**

Enterprise

Residential

Enterprise

Residential

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NEC's vision of Carrier's new ICT service

SaaS Delivery

Server side Virtualization "Platform as a Service

Client side Virtualization "Managed Desktop Service"

AP

AP

SaaS Deliver Platform and Operation

Virtualized NW Resource and Operation

NGN

Virtualized ICT Platform

Managed PC

...

The Wider Opportunity of Carrier Cloud

Schools Hospitality Developers SMB Retail Hospitals Airports Enterprise Public Manufacture Finance Logistics

Expanding

SaaS	IaaS	PaaS	DaaS	CaaS	Digital Signage	ID Bio-metrics	Retail Pos Sales	M2M	New Solution	New Solution
Software as a Service	Infrastructure as a Service	Platform as a Service	Desktop as a Service	Communication as a Service						

Carrier: better positioned to enhance cloud from IT-centric to ICT-centric

New business opportunities expanding for a wide range of revenue increases
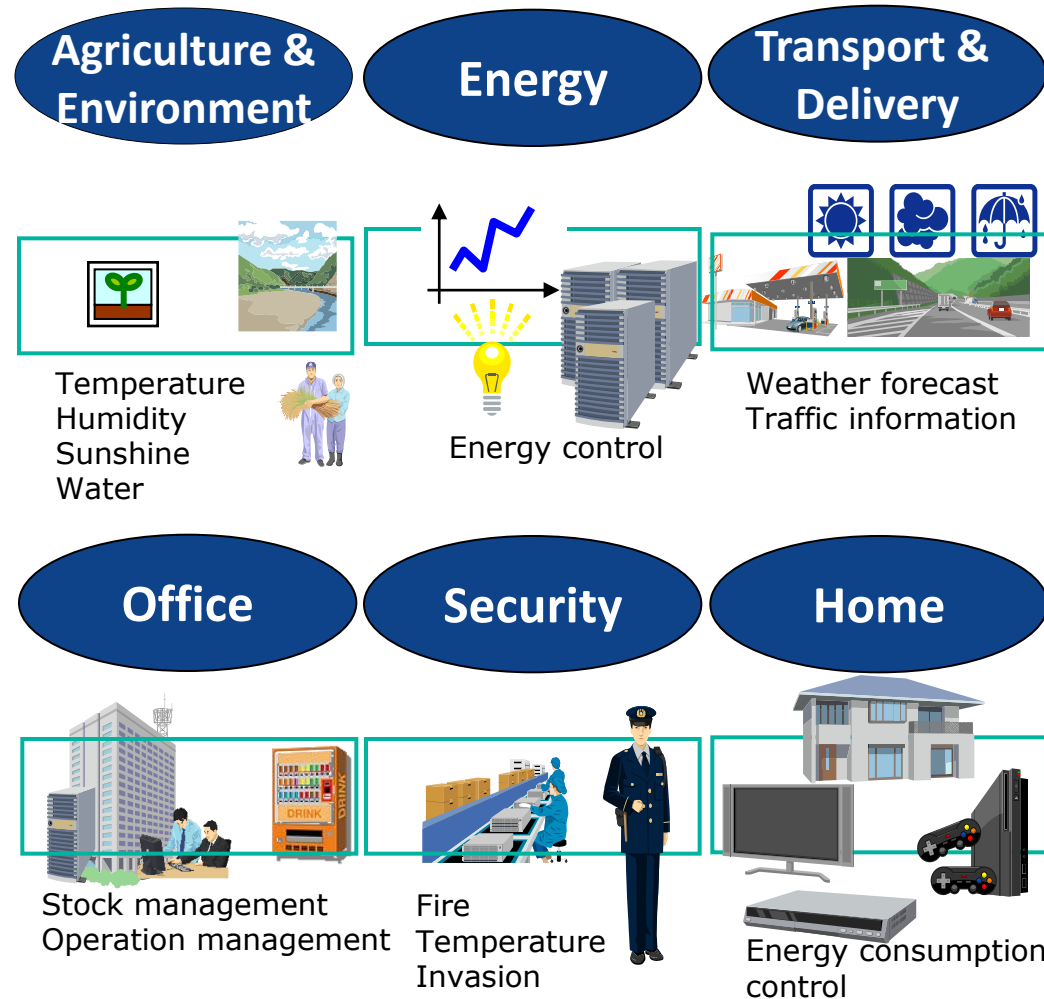
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SDP on the IMS

Home Office Community

Service Service Service Service Service Service

Service application

Services

WS MS CC PR MR PX

NC7000 Series

SDP (Service Delivery Platform)

SF SC PC IC HS

NC9000 Series

IMS Core

Service stratum

Transport stratum

PD RC NS

NC5000 Series

QoS/Authentication

Access Node Edge Node IP Backbone Interworking

Transport

RAN

IP Transport

xDSL

Access

WiMAX WLAN FTTH

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M2M Service Platform: NC7000-M2 NEW

Six business opportunities

Agriculture & Environment	● Cultivation support ● Environment monitoring
Energy	● Automatic telemetering ● electric power used optimization
Transport & Delivery	● Route guidance ● Traffic information delivering
Factory & Office	● Stock control service ● Remote device management
Security	● Remote monitoring service ● Device control
Home	● Home security ● Home control ● Observation service

Agriculture & Environment

Energy

Transport & Delivery

Temperature
Humidity
Sunshine
Water

Energy control

Weather forecast
Traffic information

Office

Security

Home

Stock management
Operation management

Fire
Temperature
Invasion

Energy consumption
control

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M2M Agriculture sensing service

- Support advanced agriculture with the field data sensing
- Collect the field data through the sensor network of field servers and visualize the data
- Provide navigation to farmers by analysis the data which stored in the agriculture knowledge database

Agriculture knowledge database

Field data

Data Visualize

Knowhow

Data Analysis

Advisor

M2M Service PF

Navigation Such as harvest

Field data

Farmer
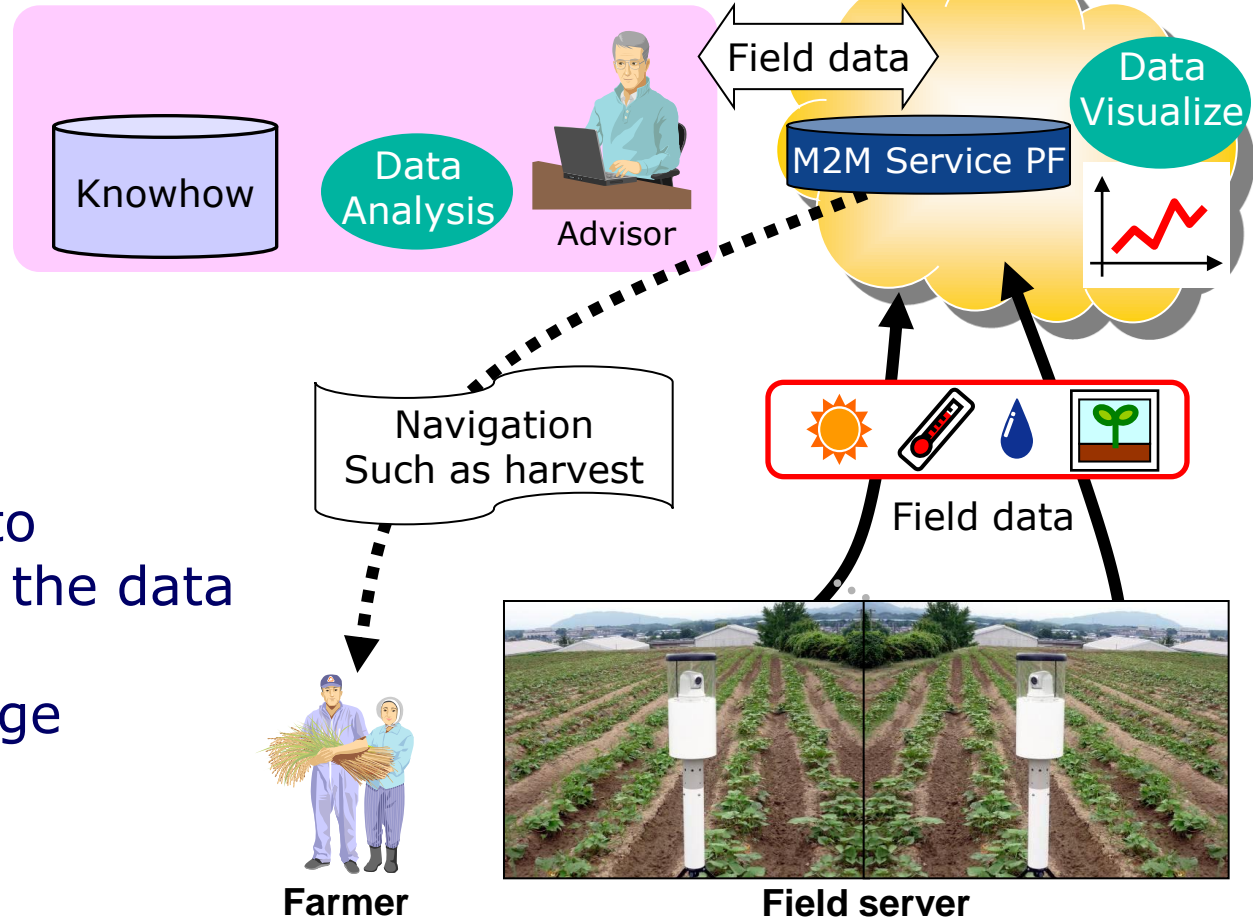
Field server

Field server is a field sensing system with camera and GPS provided by elab experience

M2M Home service

|	
In House Service	• Home security (Invasion alarm, fire alarm etc.) • Home control (Air conditioning, light, Door rock etc.) • Health care (Weight, Temperature, Blood pressure etc.)
Inter House Service	• Remote monitoring (Children, Pets, Solitary old people etc.) • Digital photo frame, Video mail • Digital signage, Message board
Network Service	• Online shopping, Advertisement • Cinema, Video, Music • E learning (Cooking, Language, Dancing etc.)
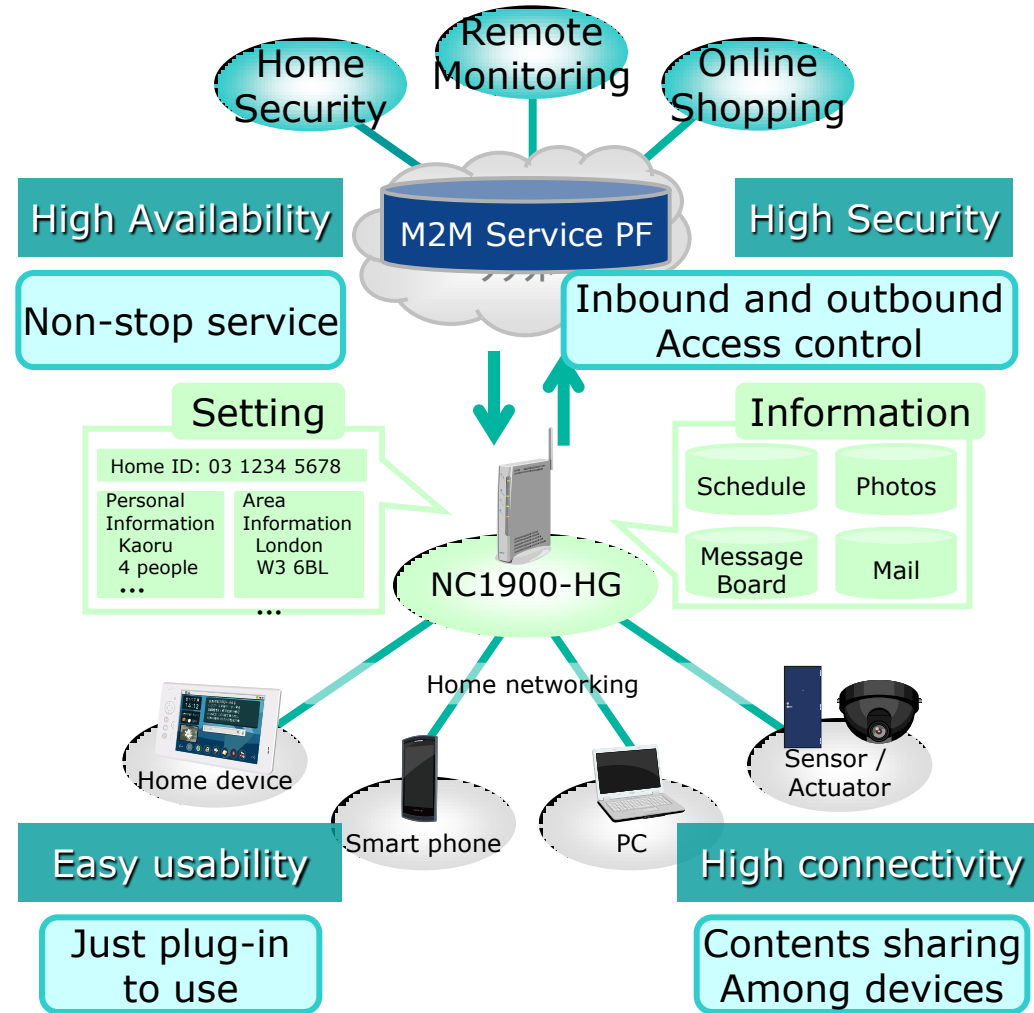
New Generation M2M Consortium in Japan

❑ Established in November 2010 (34 members currently)
❑ NEC is one of the founder of M2M consortium

Scope of work
- Information sharing
- Create new services
- IOT among devices
- Joint participation in National Projects

Realize M2M services in collaboration with many types of providers

Service provider

Collaboration

Hardware provider

Network operator
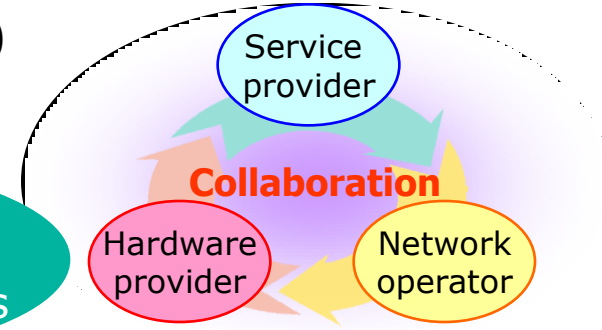
❑ **Business Development Working Group (with 4 Sub Working Groups (SWG))**
Discuss and information exchange about New Service Creation and Joint Business opportunities

1.   AFF-SWG : Agriculture, Forestry and Fishery

Covering 1st Industry involving small enterprise and family business

2.   EE-SWG : Environment and Energy

Including City (environment, place, building) , society and security issues

3.   TD-SWG : Transport and Distribution

Covering automobile, ITS, heavy industry machine and distribution system
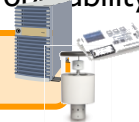
4.   SG-SWG : Smart Grid SWG

Considering its possibilities, it is founded as independent SWG aside from EE-SWG and TD-SWG.

❑ **Technical Working Group (with 1 Sub Working Group (SWG))**
Technical discussion and verification of system interoperability and standardization contribution
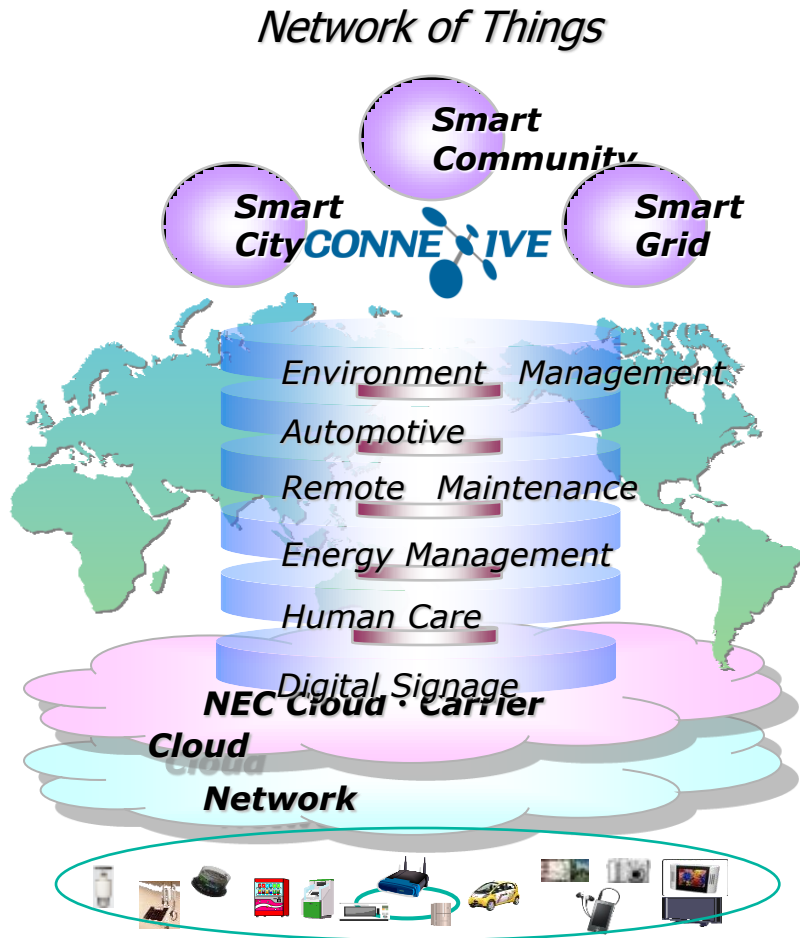
5.   IP-SWG : Infrastructure and Platform

Covering Telecommunication infrastructure and Platform architecture

New Generation
M2M Consortium

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NEC M2M Solution : CONNEXIVE

Connects all type of devices in a way that is safe and secure

Network of Things

Smart Community

Smart City CONNEXIVE Smart Grid

Environment Management
Automotive
Remote Maintenance
Energy Management
Human Care
Digital Signage

NEC Cloud・Carrier Cloud

Network

- CONNEXIVE is NEC M2M solutions and it enables to build the social infrastructure such as Smart City, Smart Grid and Smart Community.

- CONNEXIVE provides end to end M2M services composed of
  - M2M application and related services
  - M2M data management collected from various devices
  - Network connectivity and network equipment

- CONNEXIVE is provided to customers
  - As NEC cloud service
  - As license model

Conclusion

- ❑ **Carrie Cloud creates a new business opportunity to support vigorous Xaas by the operators. IMS and SDP with various service enablers is a flexible NGN service platform to enable the Carrie Cloud.**

- ❑ **Close collaboration of IT, Network and Device technologies derives C&C Cloud. Cooperation beyond industries becomes more important for further evolution of Cloud Service.**

- ❑ **Operators are seeking new business with cloud service and launched data center and Saas as the first step with their network resources. But current data center and Saas servers are out of the network functions from the architecture point of view (i.e. the network provides secure transport without awareness of the service)**

- ❑ **Standardization for service platform such as SDP and service enablers for carrier cloud service would be useful to promote open Xaas and reuse applications in the network. And study of service awareness and data awareness for each service use case and business model may be identified as the area for standardization.**

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Thank you!

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