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

- **ICT Industry**
  - Convergence of device, network and service domains
  - Accelerated pace of new business / service creation
Carrier cloud

Quick launch of XaaS applications on the NGN service platform

Carrier Cloud in NGN = Trust

NGN = Trust

Cloud Service Provider

Carrier Datacenter

Enterprises

Residents
NEC’s vision of Carrier's new ICT service

SaaS Delivery

Server side
Virtualization
“Platform as a Service”

Client side
Virtualization
“Managed Desktop Service”

Virtualized ICT Platform

Virtualized NW Resource and Operation

SaaS Deliver Platform and Operation

Managed PC

NGN
The Wider Opportunity of Carrier Cloud

SaaS
Software as a Service

IaaS
Infrastructure as a Service

PaaS
Platform as a Service

DaaS
Desktop as a Service

CaaS
Communication as a Service

Digital Signage

ID Biometrics

Retail Pos Sales

M2M

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

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

Service application

NC7000 Series

WS MS CC PR MR PX

NC9000 Series

SF SC PC IC HS

NC5000 Series

PD RC NS

Service stratum

Transport stratum

Access Node
Edge Node
IP Backbone
Interworking

IP Transport

RAN
WiMAX
WLAN
FTTH

Services
IMS Core
QoS/Authentication

SDP (Service Delivery Platform)

Services

WiMAX
WLAN
FTTH

xDSL
Access

Empowered by Innovation

NEC
## M2M Service Platform: NC7000-M2

### Six business opportunities

<table>
<thead>
<tr>
<th>Agriculture &amp; Environment</th>
<th>Energy</th>
<th>Transport &amp; Delivery</th>
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<tbody>
<tr>
<td>- Cultivation support</td>
<td>- Automatic telemetering</td>
<td>- Route guidance</td>
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<td>- Environment monitoring</td>
<td>- Electric power used optimization</td>
<td>- Traffic information delivering</td>
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<td>- Automatic telemetering</td>
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<td>- Electric power used</td>
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<td>- Route guidance</td>
<td>Operation management</td>
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<td>delivering</td>
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<tr>
<td>Factory &amp; Office</td>
<td>Invasion</td>
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<tr>
<td>- Stock control service</td>
<td>Energy consumption control</td>
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<tr>
<td>- Remote device management</td>
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<tr>
<td>Security</td>
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<tr>
<td>- Remote monitoring service</td>
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<tr>
<td>- Device control</td>
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<tr>
<td>Home</td>
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<tr>
<td>- Home security</td>
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<tr>
<td>- Home control</td>
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<tr>
<td>- Observation service</td>
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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

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.)

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**M2M Service PF**
- **Home Security**
- **Remote Monitoring**
- **Online Shopping**

**High Availability**
- Non-stop service

**High Security**
- Inbound and outbound Access control

**Setting**
- Home ID: 03 1234 5678
- Personal Information: Kaoru
- Area Information: London W3 6BL

**Information**
- Schedule
- Photos
- Message Board
- Mail

**Home networking**
- Smart phone
- PC

**Easy usability**
- Just plug-in to use

**High connectivity**
- Contents sharing Among devices
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

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
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.
Thank you!