Carrier Network Business Growth Strategy

12 October 2011
NEC Corporation
Senior Vice President
Carrier Network Business Unit
Shunichiro Tejima
1. Business Overview
2. Progress on Key Businesses
3. Toward achieving V2012
Business Area where NEC Carrier Network Business Unit operates

Provide network systems and services to worldwide customers mainly with telecom operators

Transport
- Submarine Cable system

Access
- Wireless base station
- Wireless (3G, LTE), Femtocell, WiMAX
- Mobile Backhaul

Services & Management
- Carrier Cloud
- OSS/BSS

Transport
- Core Network
- Metro Network
- Router/switch

Access
- FTTH, ADSL
- Home
- Enterprise

Network Service
- M2M, SDP

Connection Control
- Switching equipment
- SIP server
- IMS
Mid-term Business Policy

Expand C&C Cloud related business by focusing on four key business areas

- **IT System**: Server, XaaS...
- **Service & Management**: OSS/BSS, Carrier Cloud, Network Service, Connection Infrastructure, IT/Network Platform, Terminals/sensors, XaaS
- **Network Infrastructure**: Mobile backhaul, Submarine cable system, Wireless broadband access, Submarine cable system, PASOLINK, LTE/Femtocell/WiMAX
- **Terminals**: Thin client system, Mobile terminals (smart phones, data cards...)

**C&C Cloud**
Integration of IT and Network

- **Services**
- **IT/Network Platform**
- **Terminals/sensors**

Aim to gain prominent position in the global market and restore sales growth and higher profitability. Achieve sales of 900 Billion yen, operating profit ratio 9%, global sales ratio 40% in FY2012

*As of 12 October 2011*
Potential Growth in Key Businesses and NEC's Strengths

1. **Wireless Broadband Access (WBA)**
   - Increase in investment for WBA system
   - CAGR 100%
   - Field-proven installation of LTE in Japan
   - Femtocell footprint & technology

2. **Mobile Backhaul (MBH)**
   - Demand Expansion towards upgrading of MBH systems
   - CAGR 10%
   - PASOLINK Top global share (07-09)
   - Wireless, IP & optical technology with E2E management system

3. **Submarine Cable System**
   - Capacity growth in actual usage of submarine cable system
   - CAGR 25%
   - Top three global position.
   - Top share in APAC
   - Consistent supply system

4. **Service & Management**
   - Strong growth in Service & Management
   - CAGR 8%
   - Realize system with NEC’s C&C core technology (IT&NW&device technology)
   - NetCracker Global share No.3

Focusing on business areas where NEC can capitalize on its strengths and secure attractive global business.

*Based on NEC's estimation*
Changes and Progress (2010-2011)

Changes in Business Environment
- Faster-than-expected spread of smart phones
  ⇒ Enhancement of carrier network equipment, demand for wider spread of value added services
- Continuation of yen appreciation, concern of economic slowdown in Europe
- Reconstruction from the Great East Japan Earthquake, demand for disaster countermeasure projects

Business Progress (FY2010)
- Sales decline of MBH and Submarine Cable System led to sales decrease yoy
- Solid domestic operations offset sales decline of overseas operations, achieved increase in operating profit growth and the original profit plan

Aim to recover sales and improve profitability to achieve V2012 goals
- Pursue new business opportunities in domestic and overseas market
  (Service & Management, WBA, Enhancement & redundancy of network
- Recovery of MBH, Submarine cable system operations
- Develop a high-profit structure to correspond super strong yen appreciation
- Investment into new business such as OpenFlow, smartgrid
Sales and Operating Profit of Carrier Network Business

Aim to attain 25% increase of revenue growth and 40% increase of operating profit growth (FY2011)

(Billions of yen)

 Operating profit
 31.3

 Sales
 627.4

 FY2009
 Japan
 Overseas
 Key Businesses
 Existing Business

 FY2010
 605.4

 FY2011 (Forecast)
 760.0

*Forecast as of 12 October 2011
1. Business Overview
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1. Wireless Broadband Access Business (LTE & Femtocell)

Achievement in the Wireless Broadband Access

**LTE System**
- Executing projects for Japanese carriers. Continuing to cultivate overseas customers.

**Femtocell Business**
- Steadily increasing number of customers which is twice the number yoy.

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### Femtocell Systems (No. of Commercial/Trial customers)

- **Asia**: Jan 2011 = 26, Sep 2011 = 51
- **Europe**: Jan 2011 = 39, Sep 2011 = 51
- **Middle East/Africa**: Jan 2011 = 26, Sep 2011 = 51
- **The Americas**: Jan 2011 = 26, Sep 2011 = 51

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**Europe**
- NTT DOCOMO
  - World’s First IMS based Femtocell
  - Commercial Service

**The Americas**
- KDDI
  - Commercial order

**Middle East/Africa**
- Kuwait
  - Commercial order
  - Commercial Service

**Asia**
- SingTel
  - Successful field trial

**South America**
- Telefónica
  - Successful field trial

**LTE base stations, Core networks, Switches for MBH**

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*Only openly public information displayed (as of Sept. 2011)*
Key Measures in the Wireless Broadband Access Business

- Steady achievements and increasing shipments of domestic LTE commercial products
  - NTT DOCOMO
    Contributions to stable operations and expanding commercial LTE system
  - KDDI
    Steady achievements in shipments of commercial LTE base stations

- Promotion of Global LTE Deployment
  - Promotion of small cell LTE solution
  - Joint Development of TD-LTE with WRI of China and market entry
    - Expansion to other markets through trials with MIIT in China
  - Cooperation with Cisco for LTE System integration in overseas market and enhancing market adoption
    - Supporting the migration needs from 2G/3G to LTE

- Increasing Overseas Femtocell customers
  - Accelerating market development by establishing an installation track record and “Try & Buy” promotions
  - Active promote to operators who plans to increase access points

*Forecast as of 12 October 2011

WRI: Wuhan Research Institute of Post and Telecommunications
MIIT: Ministry of Industry and Information Technology
2. Mobile Backhaul Business (MBH)

Shipping Status for the iPASOLINK Series

- **iPASOLINK Series Orders (Commercial shipment started: Sep. 2010)**
  - Accumulative shipment of over 100K units to 100 customers in 55 countries
  - iPASOLINK makes up more than 50% in 2Q PASOLINK shipments, and steadily penetrating into the market

**Cumulative Shipment of the iPASOLINK series by region**

- **Africa**
- **Latin America**
- **Europe**
- **Russia/Central Asia**
- **Middle East**
- **Asia**

**Shipments Ratio of iPASOLINK Series by product**

- **Increase in aggregation and metro region products 20%**

**Access**
- **iPASOLINK 200** (Sep. 2011 ~)

**Aggregations**
- **iPASOLINK 400** (Jan. 2011 ~)

**Metro**
- **iPASOLINK 1000** (Feb. 2011 ~)
Key Measures in the Mobile Backhaul Business

I Strengthen to meet MBH’s sophisticated requirements
- Completing the full iPASOLINK series line-up, covering all MBH areas, continue to increase product competitiveness, securing advantages
- Differentiation in total MBH solutions including high IP/integrated NW management
  - Enhanced solution interaction by cooperating with routers
  - Started installation of MS5000, network integrated management system

II Development of Non-hardware business
- Software license business (upgrade services for function upgrade)
- Deploying managed services using MBH operation outsourcing as a base

III Strengthen cost competitiveness against yen appreciation and global competition
- Increase ratio of overseas material procurement
- Optimization of production structure
  - Begin production in India
    (NEC Network Products as a main factory)

*Forecast as of 12 October 2011
3. Submarine Cable System

Market Trend and Projects Achievement

- Upsurge in data traffic via submarine cables worldwide, with stable growth in market volume
- Increase in demand for ocean bottom seismograph due to multiple large-scale earthquakes worldwide

### W/w Submarine Cable Market

<table>
<thead>
<tr>
<th>Year</th>
<th>Millions of dollars</th>
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<tbody>
<tr>
<td>2008</td>
<td>1,703</td>
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<tr>
<td>2009</td>
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<td>2012</td>
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<td>2013</td>
<td>2,702</td>
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<tr>
<td>2014</td>
<td>2,700</td>
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**NEC’s Submarine Cable System Projects**

#### FY2012/3 Main Projects

- **Submarine Cable Systems**
- **Upgrade of wave length**

**Submarine Cable Systems (to be est.)**

- **ASE (Asia submarine-cable-express)**
  - (Japan-Singapore-Hong Kong-Philippines-Malaysia)
  - 7200Km/15Tbps
- **SJC (Southeast Asia-Japan Cable)**
  - (Japan-Singapore-China-Hong Kong-Philippines-Brunei)
  - 8900Km/15Tbps

**DDSCN: Dhiraagu Domestic Submarine Cable Network**

**AAG: Asia America Gateway**

**DDSCN: I-Me-We**

**APCN2: Unity EAC**

**TIS: TPE**

**HSCS: Auff**

**JACABARE: JAC**

**JASUKA: AJC**

**TPE: DSCN: DMCS**

**RJCN: SE**

**ASE: JAC**

**SJC: AAG**

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Empowered by Innovation
Key Measures in the Submarine Cable System Business

Stabilize business progress with project mix to maximize sales expansion
- Capture new orders of large-scale
- Expanding to Atlantic in addition to Asia/Pacific
- Promote order receipt of wave length upgrade
- Market and promote ocean bottom seismograph systems worldwide
  - Approach to quake-prone areas and capture demand for earthquake

Reinforce global competitiveness
- Expand to differentiate the technology
  - Apply on-land 40G/100G optical technologies to submarine cable systems
- Strengthen cost competitiveness
  - Utilize new thin-submarine cables to slash material and construction costs

Maintain performance level of ordinary cables up to 8000m depths
Apply from submarine cable system project in Maldives in 2011

Submarine Cable System Sales Forecast

<table>
<thead>
<tr>
<th></th>
<th>FY2010</th>
<th>FY2011 (Forecast)</th>
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<tbody>
<tr>
<td>Bills of Yen</td>
<td></td>
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</tr>
<tr>
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<td></td>
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<tr>
<td>40</td>
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<tr>
<td>80</td>
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</table>

External Diameter: 20.4φ    External Diameter: 17.0φ
SC300    SC500

*Forecast as of October 12, 2011
4. Services & Management

Achievements in the Services and Management Business

Strengthen business structure to launch products/solutions which are competitive globally

Press releases (2010.8-)

- Established New Generation M2M Consortium (2010.11)
- Developed M2M Service Platform, displayed at Wireless Japan 2011 (2011.6)
- Support revival of farms damaged by salt utilizing censor network (2011.8)
- Launched M2M Solutions “CONNEXIVE”
  - Provide System Platform for M2M Services as cloud <PaaS> (2011.8)
  - Provide Applications for M2M Cloud Services <SaaS: Agriculture ICT Solutions> (2011.9)
- NEC Hosted Asia's First ETSI M2M Standardization Meeting (2011.9)
- Provide Smartphone service platform (2011.9)

- Provide SaaS Cloud Services for TOT in Thailand (2011.9)
  *SaaS Cloud Services: Web conference, groupware, HRM

- NetCracker agreed to acquire activation business of Subex in India to strengthen OSS solution for telecom carriers (2011.9)
Key Measures in the Services and Management Business

Focus on four key businesses worldwide to contribute to carriers’ sales increase and management cost saving

① M2M
- Provide M2M Solution “CONNEXIVE” PaaS/SaaS Solutions
  - Agriculture ICT/Remote control and monitor machineries/
    Energy Management etc

② Smartphone Services
- Develop and provide new services for smartphones
  - Payment/Thin client/Social (Education, Healthcare) etc

③ Carrier Cloud
- Expand Cloud Solution menus based on competitive IT/NW technologies
- Developed global market close to customers utilizing competence centers

④ Next Generation OSS/BSS
- Expand Netcracker’s service portfolio

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Toward achieving V2012

Achieve 900 billion yen in sales (operating profit margin 9%) in FY2012

<table>
<thead>
<tr>
<th></th>
<th>FY2010</th>
<th>FY2012 (Plan)</th>
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</thead>
<tbody>
<tr>
<td>Overseas Sales ratio</td>
<td>23%</td>
<td>40%</td>
</tr>
<tr>
<td>Key Business ratio</td>
<td>33%</td>
<td>50%</td>
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<tr>
<td>Operating profit ratio</td>
<td>7%</td>
<td>9%</td>
</tr>
</tbody>
</table>

(Billions of Yen)

Sales

- FY2010: 605.4
- FY2011 (Forecast): 760.0
- FY2012 (Plan): 900.0

CAGR +22% (FY2010 to FY2012)

*Forecast as of 12 October 2011*
**Abbreviations**

**ADSL**: Asymmetric Digital Subscriber Line  
**BSS**: Business Support Systems/Billing Support Systems  
**ETSI**: European Telecommunications Standards Institute  
**FTTH**: Fiber To The Home  
**ICT**: Information and Communication Technology  
**IMS**: IP Multimedia Subsystem  
**ISP**: Internet Services Provider  
**LTE**: Long Term Evolution  
**M2M**: Machine-to-Machine  
**MBH**: Mobile Backhaul  
**OSS**: Operations Support Systems  
**PaaS**: Platform as a Service  
**SaaS**: Software as a Service  
**SDP**: Service Delivery Platform  
**SIP**: Session Initiation Protocol  
**TD-LTE**: Long Term Evolution Time Division Duplex
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