Empowered by Innovation NEC

Approach to Service and Management Business

12 October , 2011

NEC Corporation
Associate Senior Vice President and Executive General Manager
Carrier Services Operations Unit
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1. Overview of Service and Management Business
2. Carrier Service Business Environment and NEC's Growth Strategies
3. Growth Businesses
   - 3-1 M2M
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   - 3-4 Next Generation OSS/BSS
4. Global Development of Service and Management Business
5. Achieving Goals of V2012

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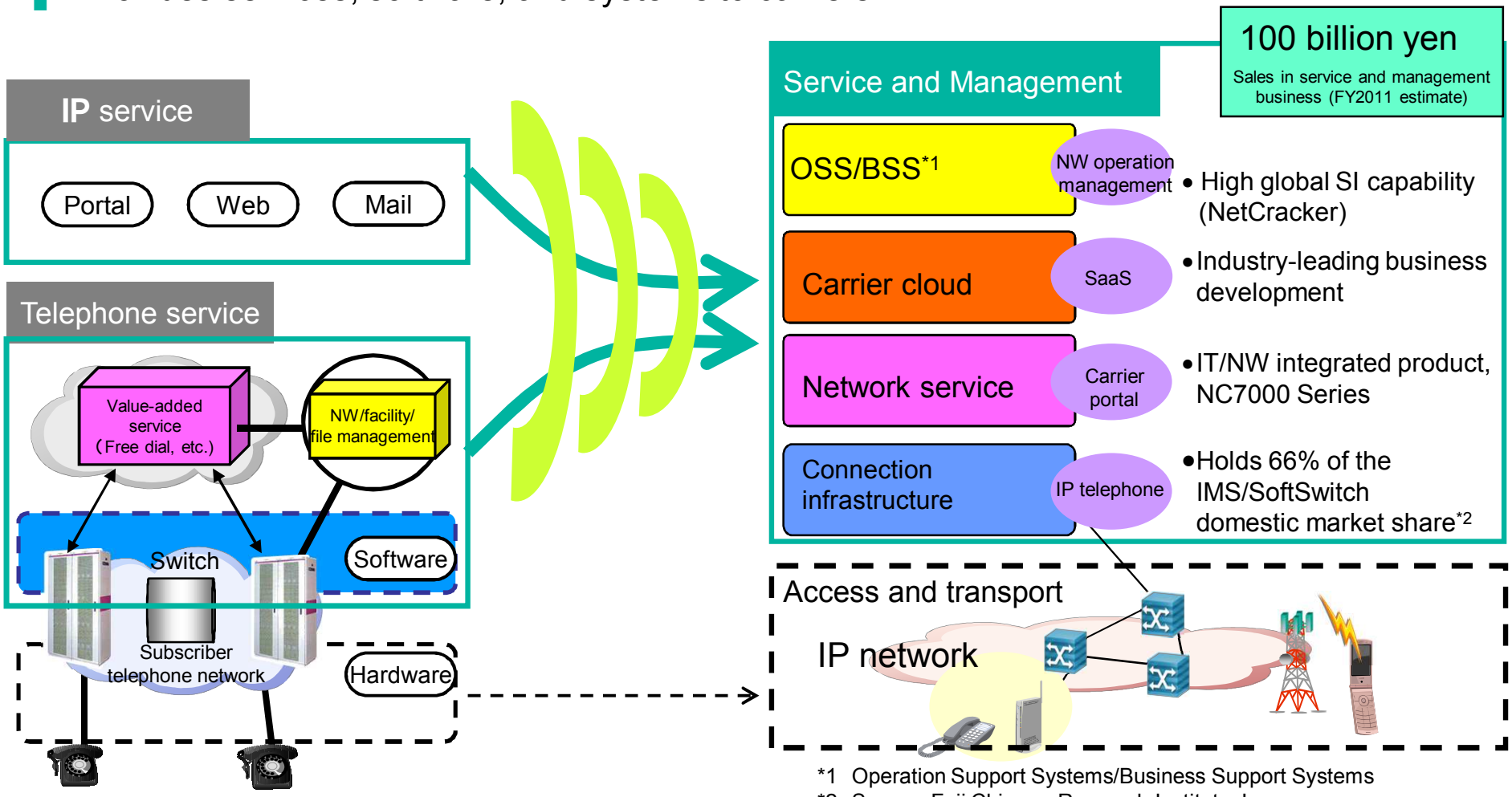
1-1 Overview of the Service and Management Business (1)

- Service and management domain belongs to the upper layer of carrier network
- Provides services, software, and systems to carriers



*1 Operation Support Systems/Business Support Systems
*2 Source: Fuji Chimera Research Institute, Inc.

* Estimated values are based on figures to be announced on October 12, 2011.

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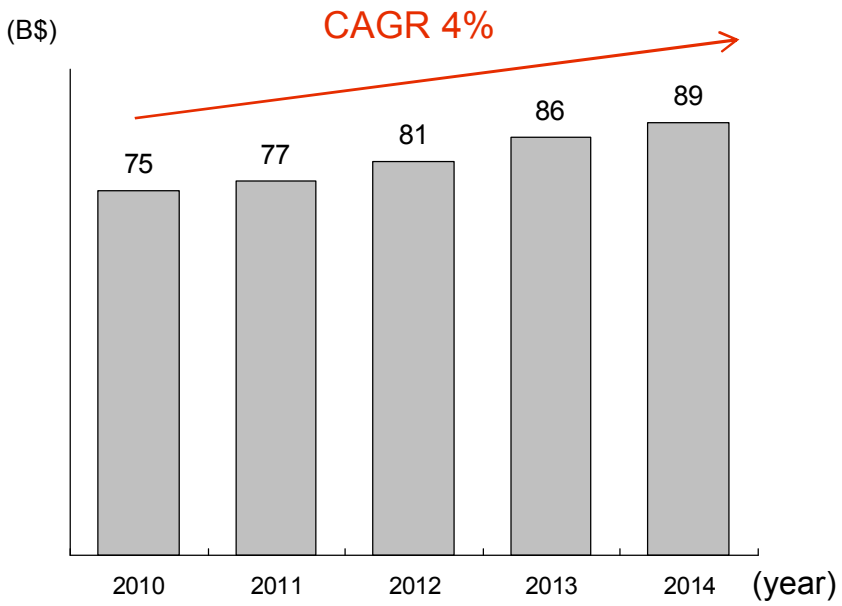
1-1 Overview of Service and Management Business (2)

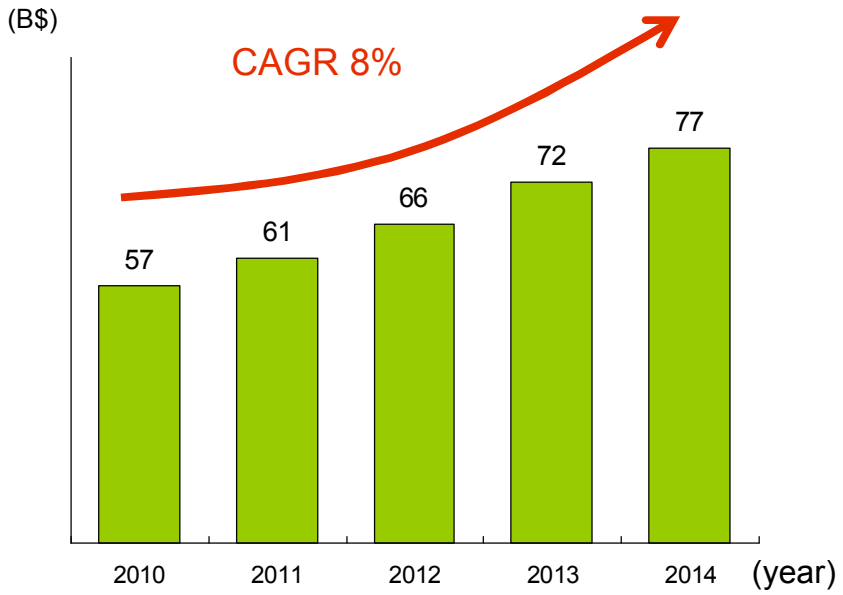
Service and management shows potential growth

Access and transport market (global)



(Based on NEC Estimates)

Service and management market (Worldwide)



(Based on NEC Estimates)

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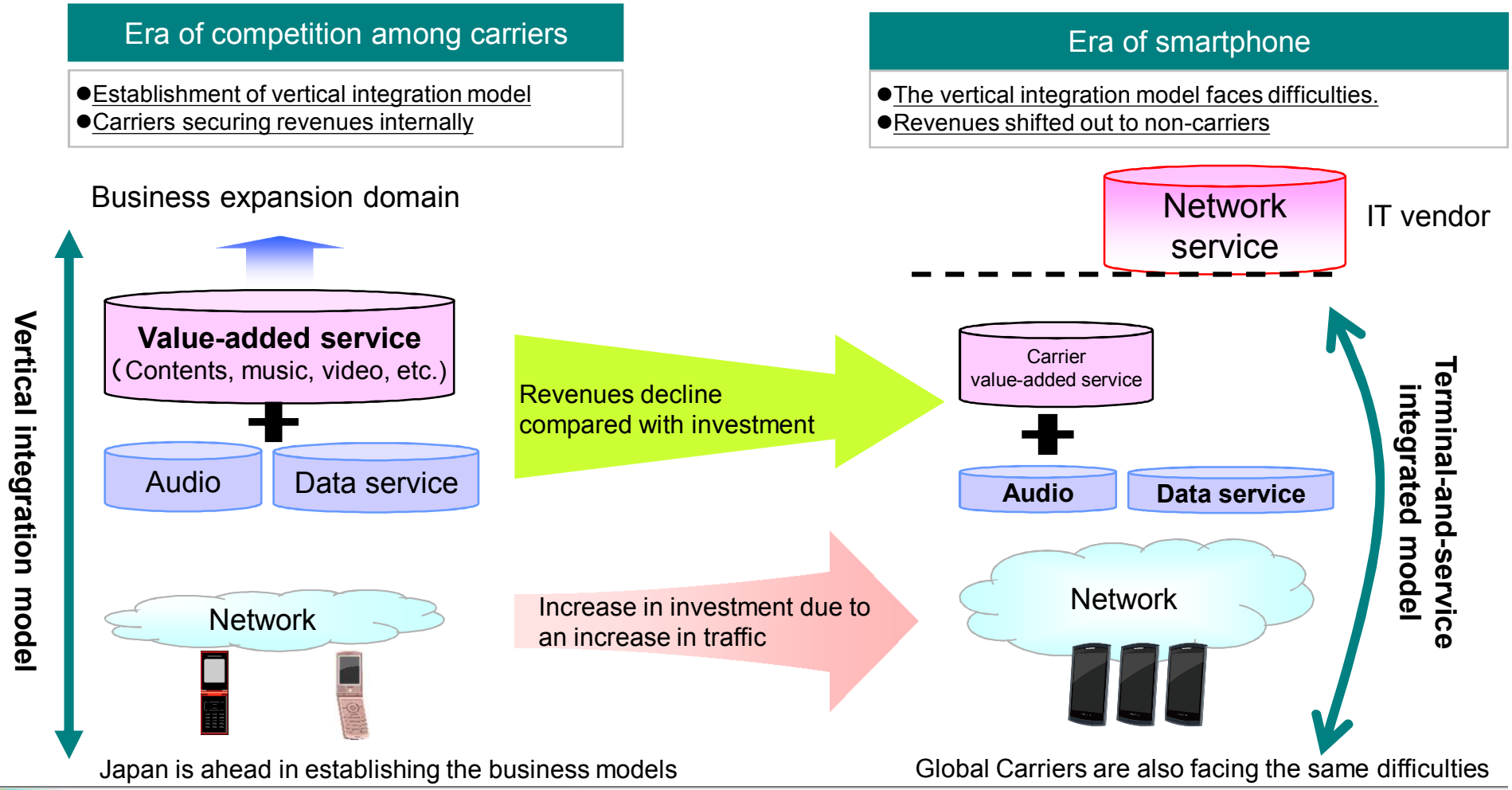
2-1 Changes in Carrier Service Business Environment (1)

Carrier business model faces difficulties as a result of the participation of IT vendors in the communication business domain



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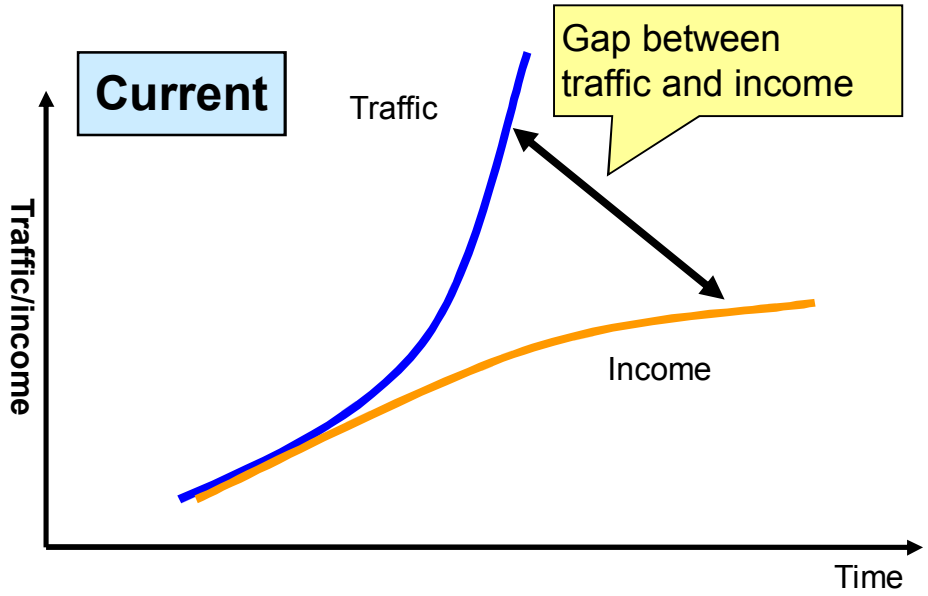
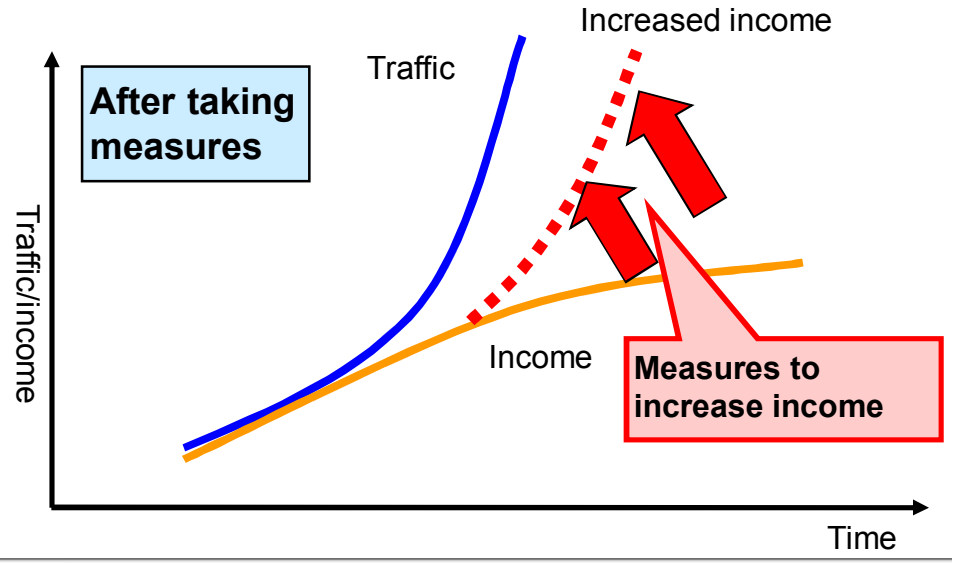
2-1 Change in Carrier Service Business Environment (2)

<Challenges which carriers face>

- Sluggish growth compared to traffic increase

- New measures are necessary to increase revenues





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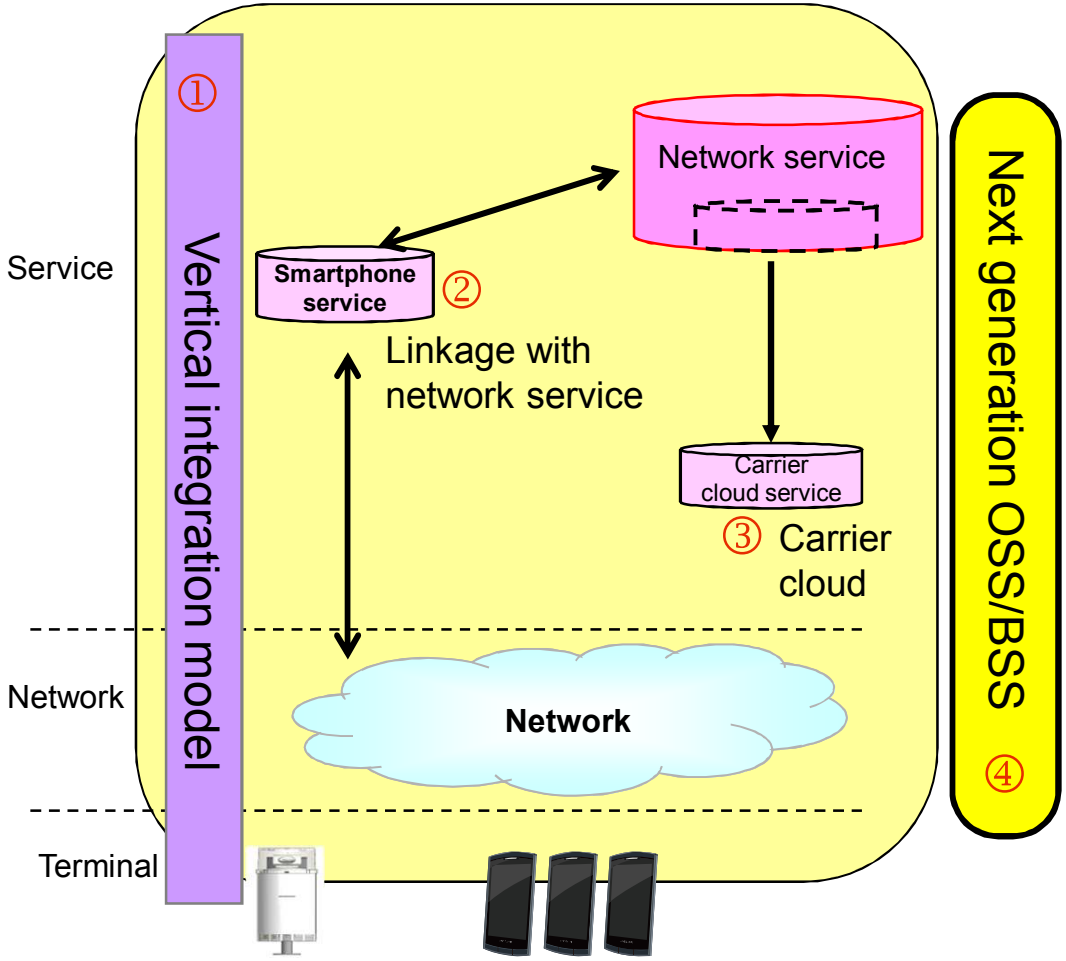
2-2 NEC's approach to Increase Carrier Revenues

NEC supports carriers to increase their revenues by providing the following four services



①M2M service

Establishing a new vertical integration model

②Smartphone service

Linking with the network service by using the carriers' assets

③Carrier cloud

Providing value added service that is only available through the carrier

④Next generation OSS/BSS

Realizing reduced OPEX and providing services quickly

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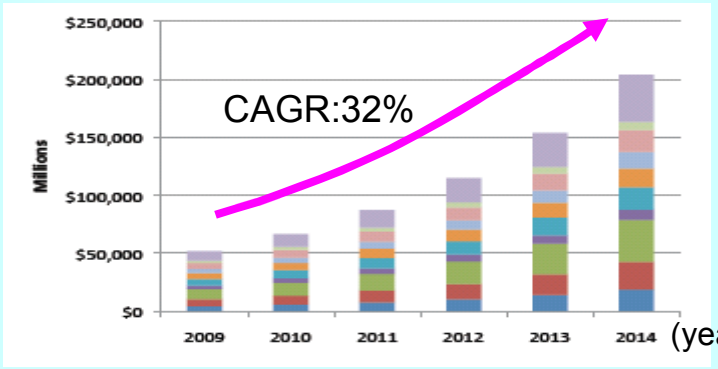
2-3 Four Business Areas that Are Expected to Grow

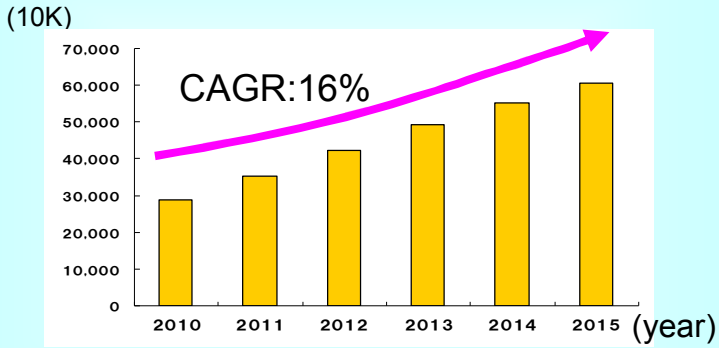
- Significant growth can be expected from M2M service, smart phone service, cloud service, and next generation OSS/BSS

Market trends of M2M service



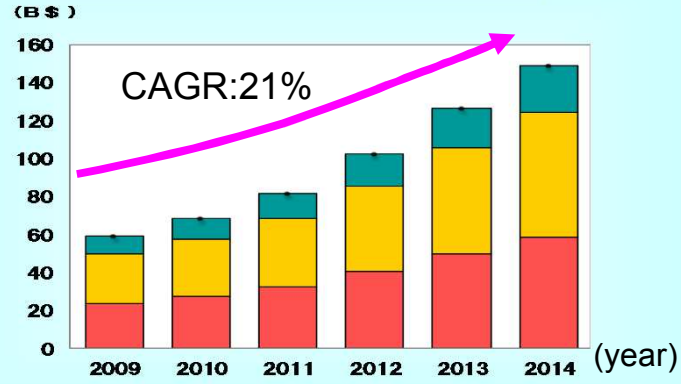
(Source: Harbor Research Inc.)

Increase in number of smartphones



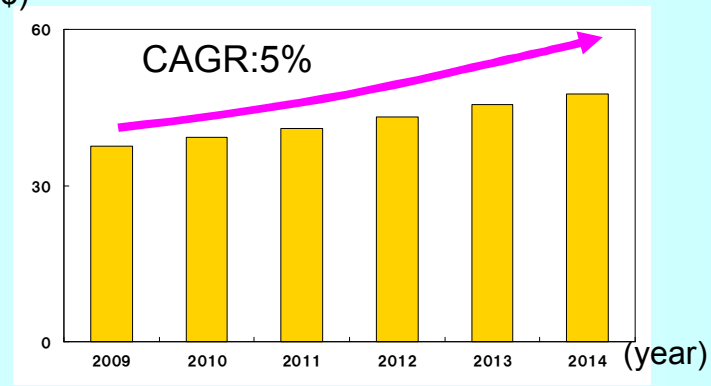
(Source: OVUM "Smartphone Forecast: 2011–16")

Global cloud market scale



(Assumed by NEC based on the estimates of each company)

OSS/BSS market scale



(Assumed by NEC based on the estimates of each company)

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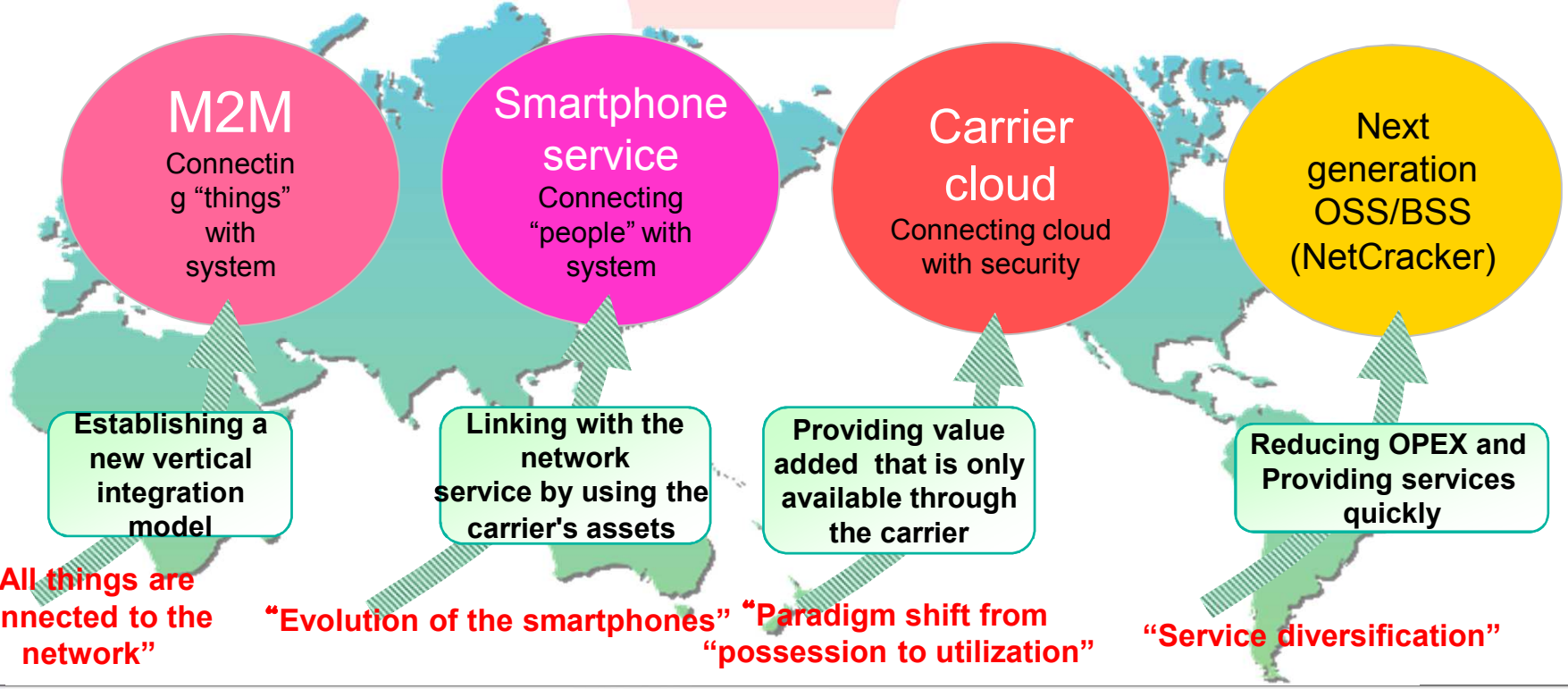
2-4 NEC's Strategies (1) Growth Strategies

Growth strategy focusing on four businesses

Achievement of V2012 goals

Global business expansion



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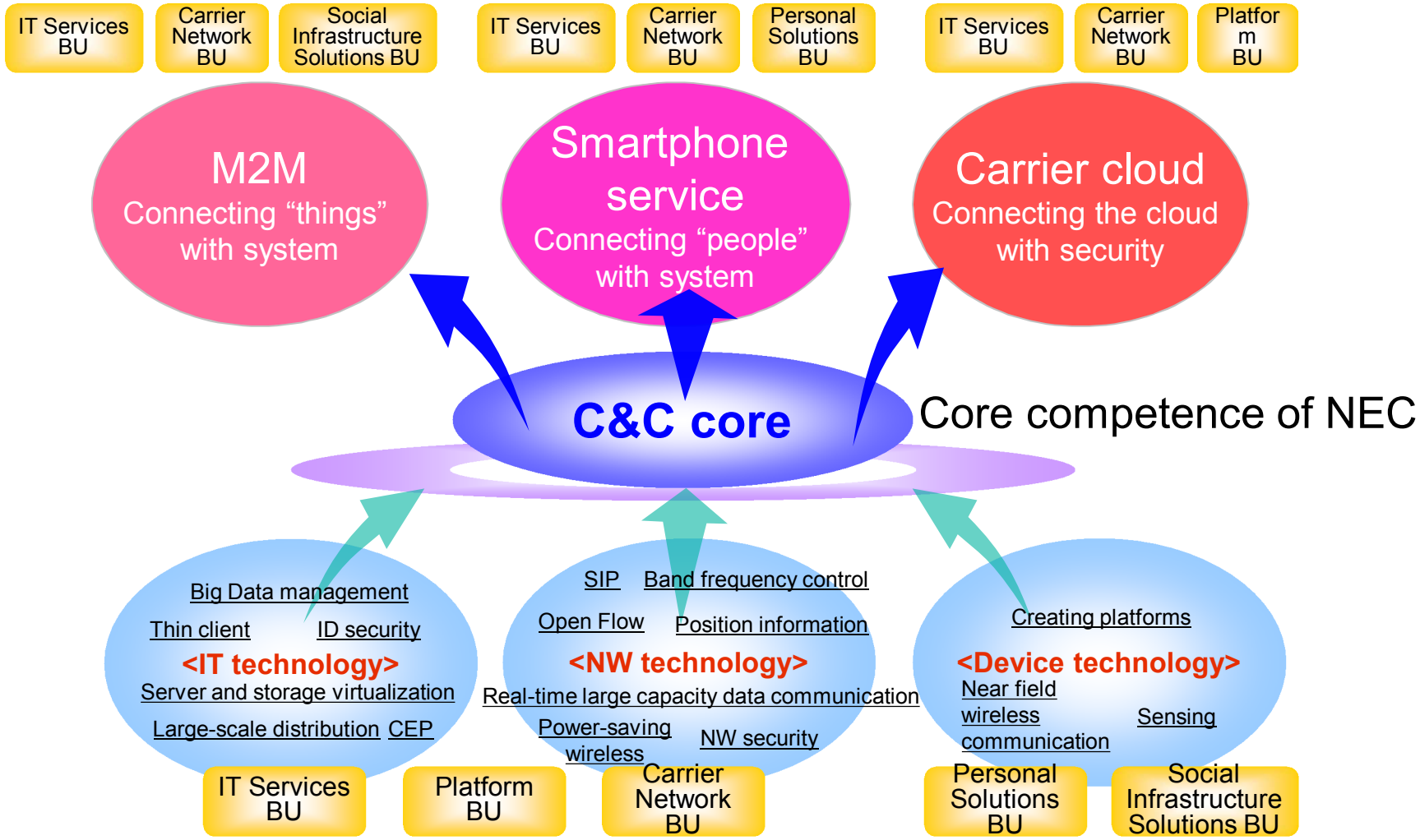
2-4 NEC's Strategies (2) Product Strategies

- Realize a system based on the “C&C core” technology developed by integrating three technologies



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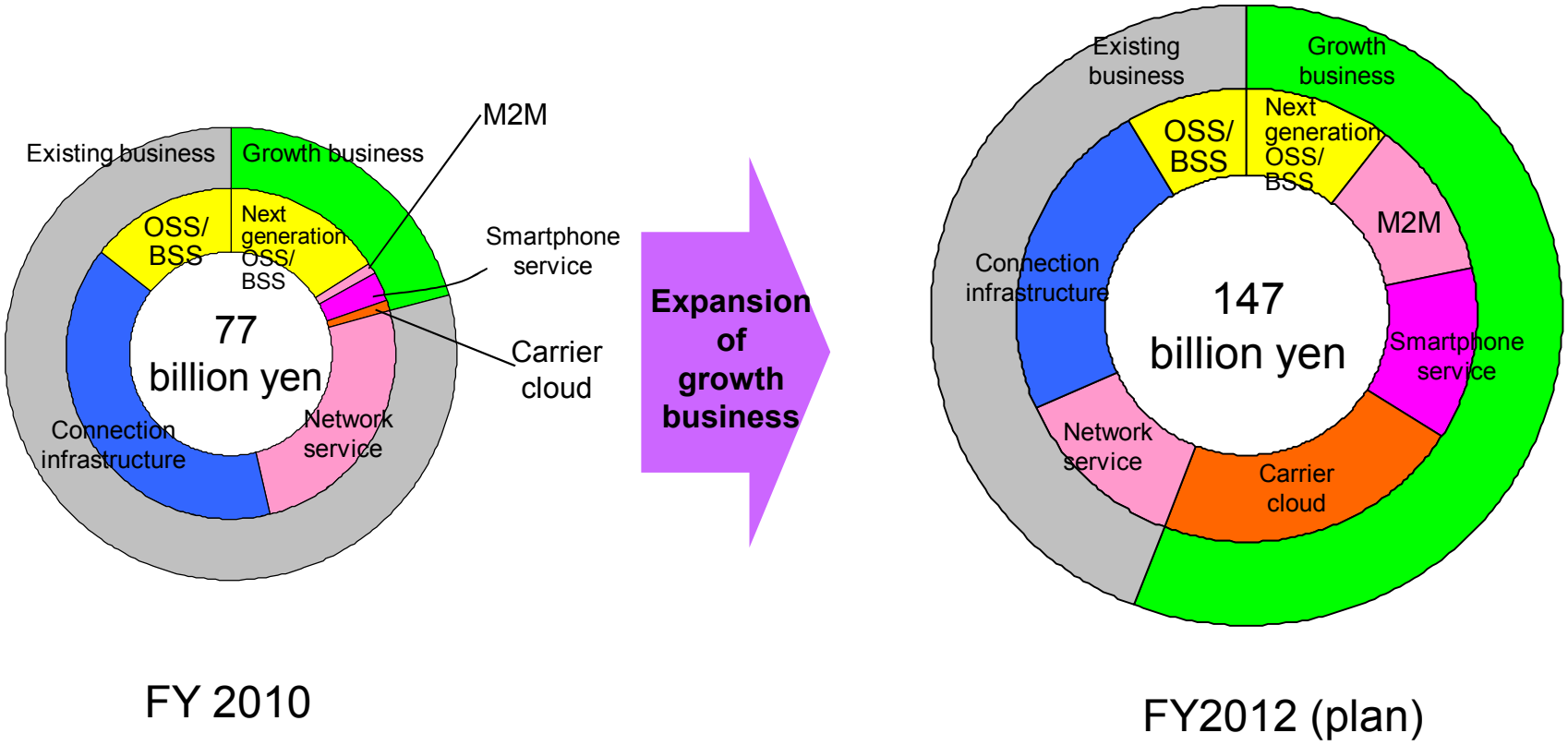
2-5 Expansion of Service and Management Business

- Double the sales of service and management business in two years based on four business areas

Sales breakdown by growth and existing businesses



FY 2010

FY2012 (plan)

* Estimated values as of October 12, 2011.

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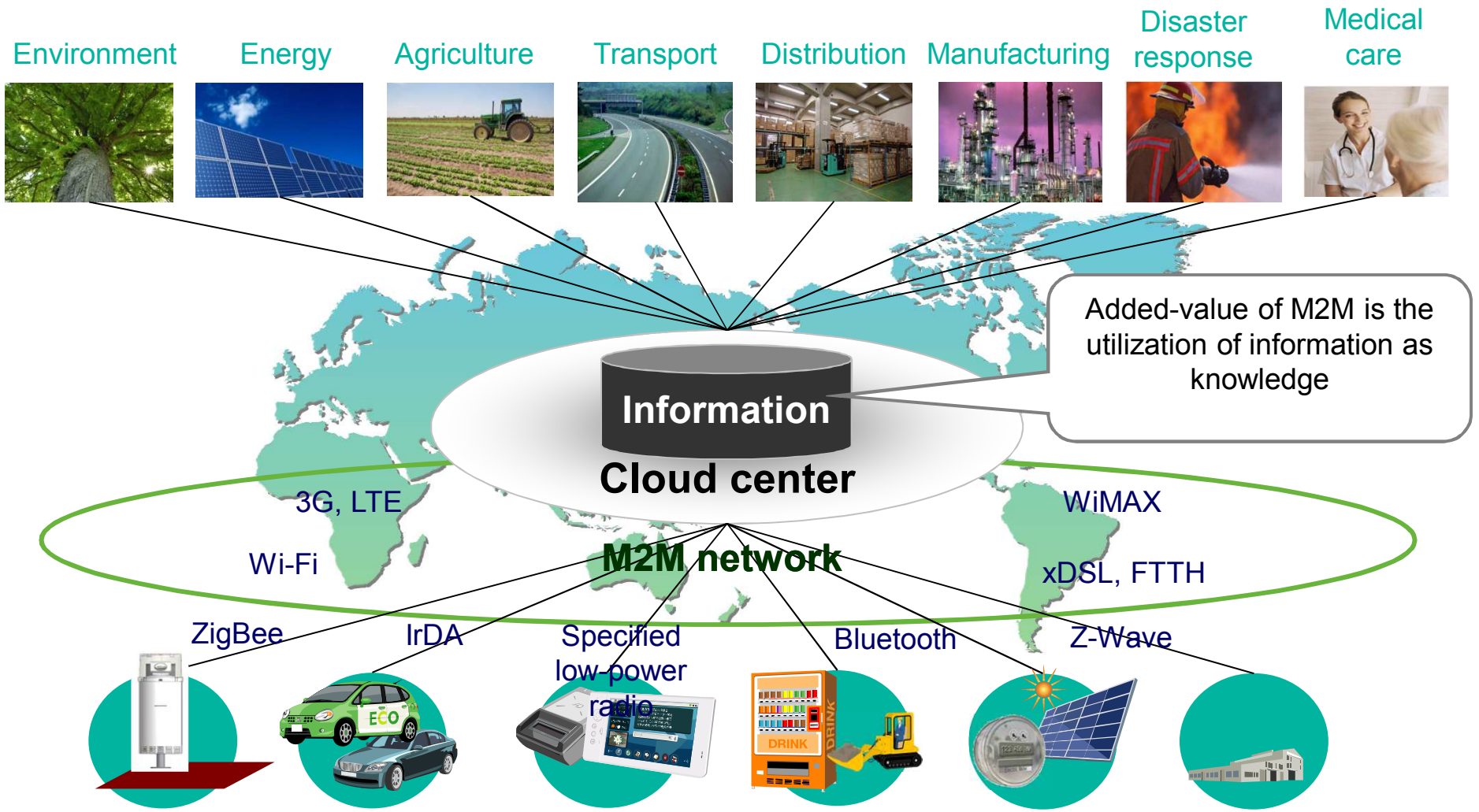
3-1-1 Globalization of M2M Pursued by NEC

By enabling connection with anything, anytime, anywhere, we can make people's lives more secure and convenient.



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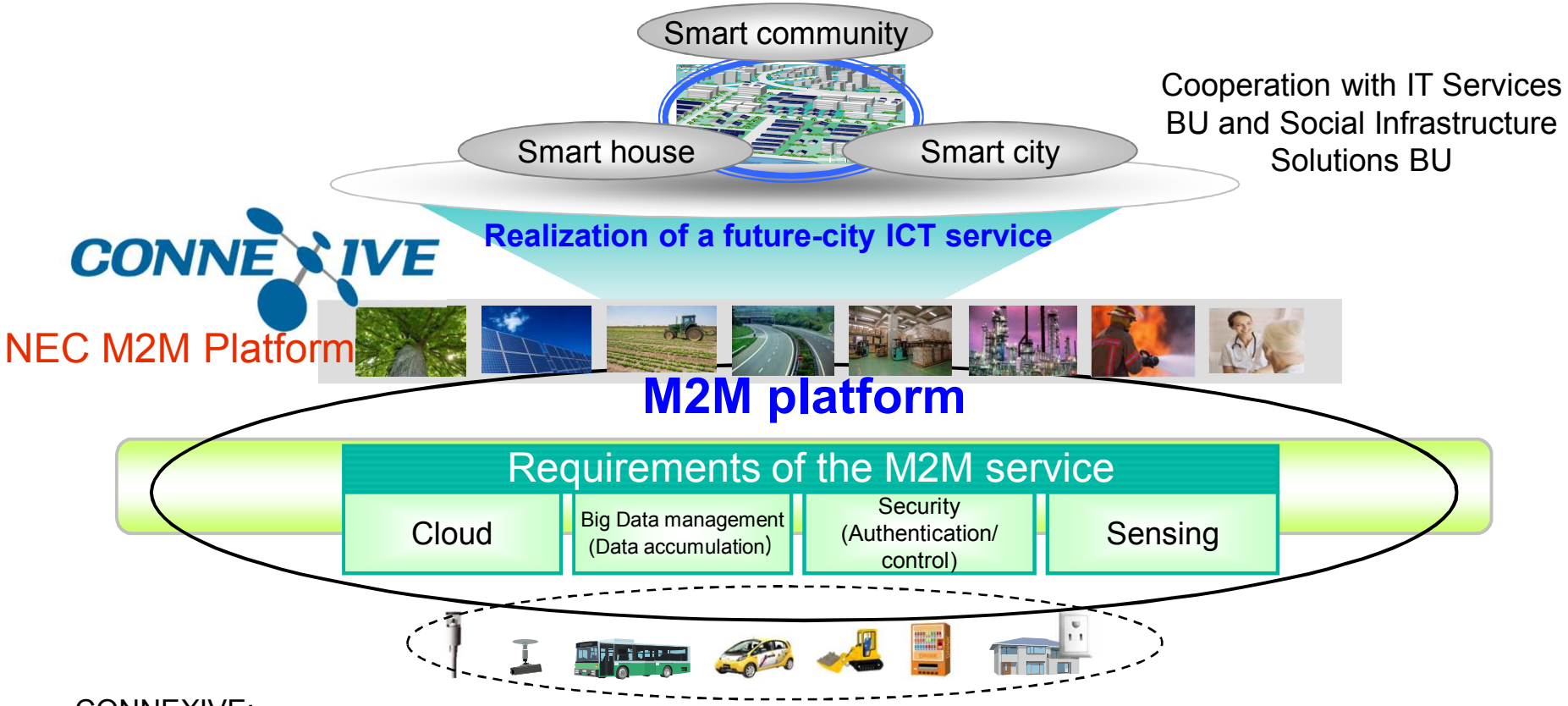
3-1-2 NEC's Strategies for the M2M Service (1)

- NEC provides M2M service through “CONNEXIVE”
- A platform for a future-city ICT service
- Expands to government and enterprise market in addition to carrier market



CONNEXIVE:

Fusion of the words, “CONNECT” and “IVE”

CONNEXIVE implies the creation of a world that connects “everything” and in which everything is “connected”

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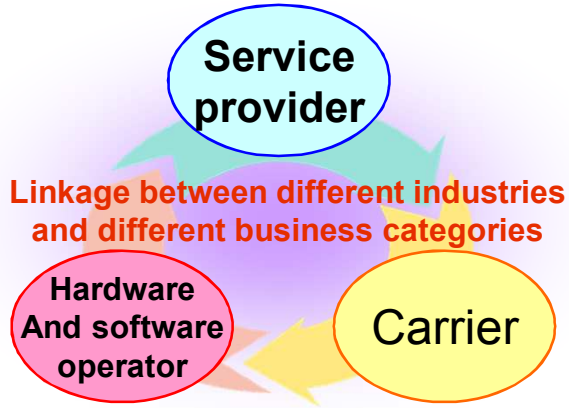
3-1-2 NEC's Strategies for the M2M Service (2)

Establishment of a new generation M2M consortium

<<Outline of the consortium>>

New Generation M2M Consortium

Established:	November 15, 2010
Chairman:	Professor Hiroyuki Morikawa (University of Tokyo Research Center for Advanced Science and Technology)
Organizers:	Five companies including NEC
Members:	71 companies (as of October 2011)
Activities:	New business development Examination of M2M architecture and interfaces



Objectives of the consortium

- Exchanging information among related operators
- Creating new services for M2M
- Verifying of equipment connectivity

Approach to M2M international standardization activities

- Actively participating in M2M international standardization activities
- Hosting the domestic M2M standardization conference (September 2011) in cooperation with the European Telecommunication Standards Institute (ETSI)

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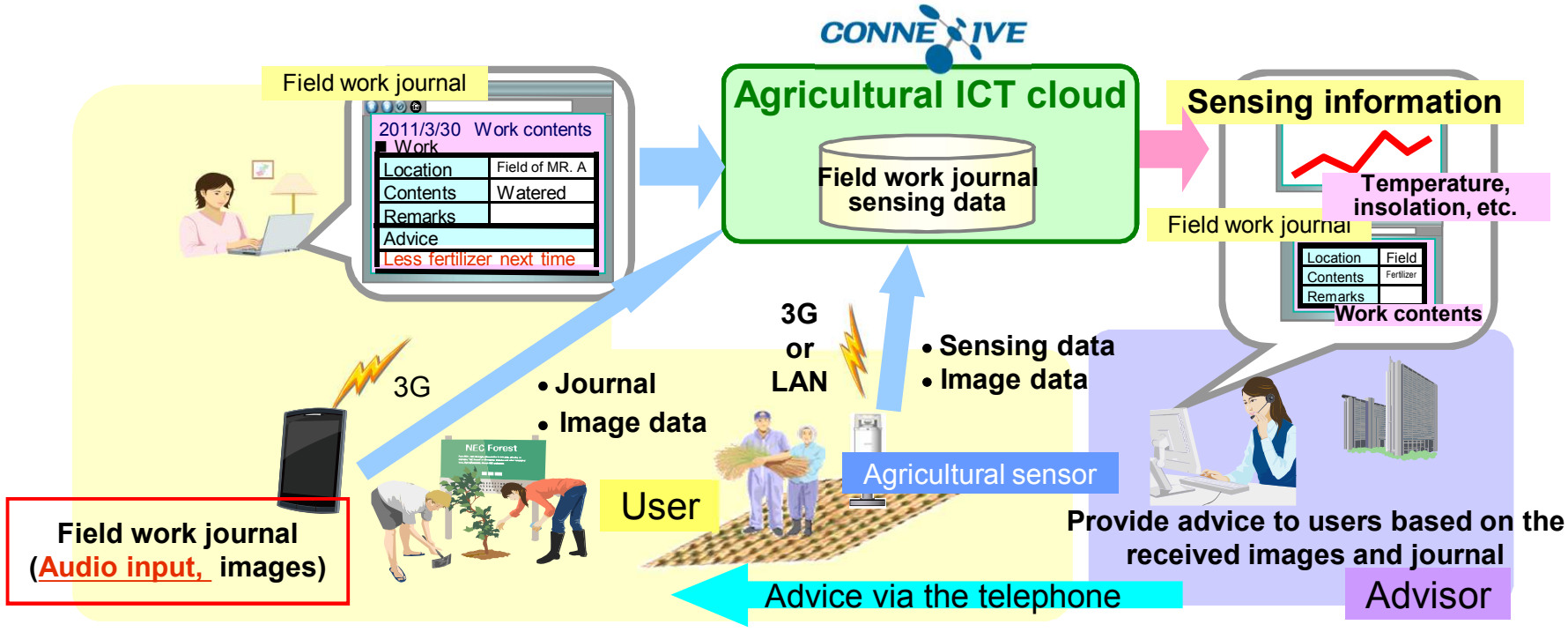
3-1-3 Examples of Services (1) CONNEXIVE Agricultural ICT Service

- Collaboration to restore salt-damaged agricultural land (announced on August 25)
  - Collaboration with NTT DoCoMo and Myfarm (agricultural venture)
  - By connecting agricultural land sensors with the CONNEXIVE cloud, data of air temperature, humidity, soil temperature, and soil salinity are provided to farmers
- Commencement of the agricultural ICT service through SaaS (announced on September 27 and launched on October 1, 2011)



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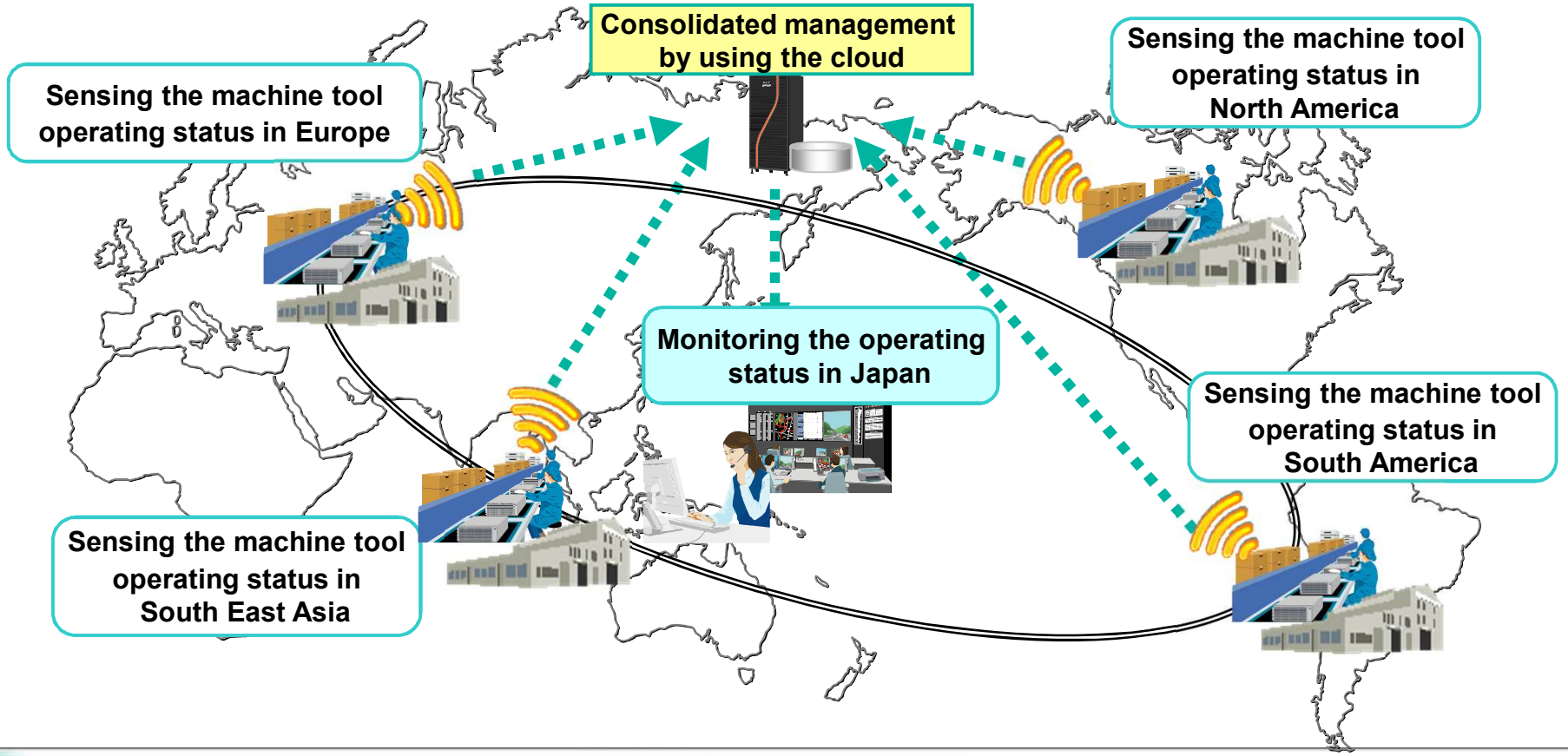
3-1-3 Examples of Services (2) CONNEXIVE Remote Monitoring Service

Efficient support to monitor locations of machine tools and construction machinery and parts where ever there may be globally

<Example of machine tools>



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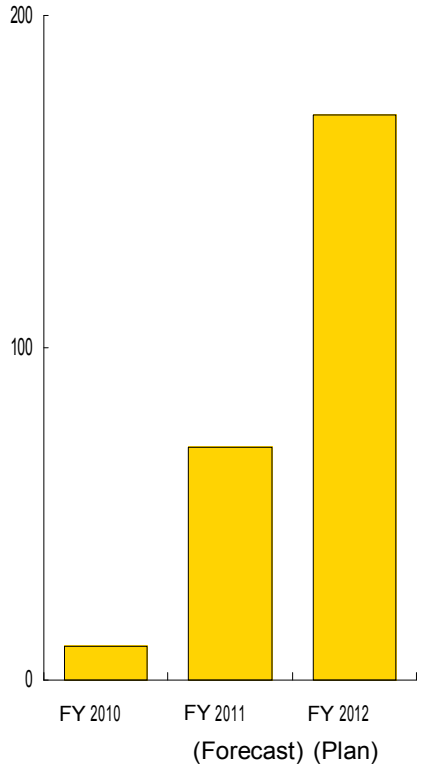
3-1-4 Business Strategies

Expanding M2M “connection” .. Integrating terminals and solutions

M2M sales plan

(100 million yen)



* Estimated values as of October 12, 2011.

Item	FY2011	FY2012
Cloud service development • **Realization of a one-stop service (Providing cloud-based service that includes network)**	Beta version Development of domestic cloud center Global carrier cloud development Provide a network that can be used globally 3G/WiMAX LTE	
Solution development • **Future focus domain** - **Energy management service** - **Telematics service** * **Providing system creation together with the cloud service**	Platform Develop-ment Large scale CEP support Agricultural ICT service development Remote equipment/machine monitoring service development Wellness service development Environment management service development Energy management service development Telematics service development	Future-city ICT service expansion

Differentiation strategies	• Provide a total one-step solution through E2E • Create a flexible system with a strong product (CONNEXIVE) • Increase the number of devices that can be connected by participating in effective standardization activities

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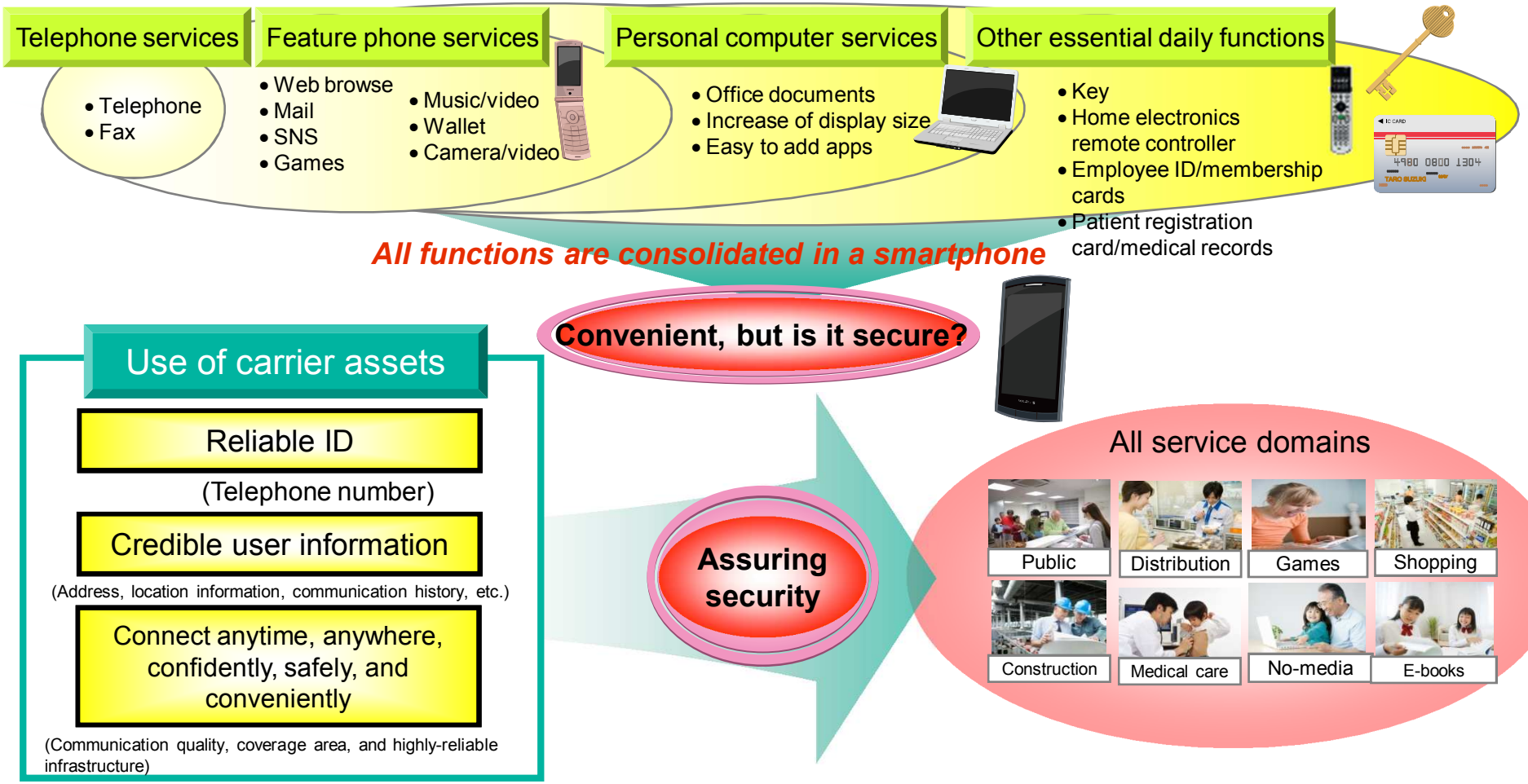
3-2-1 World Created by Smartphones

- All the functions necessary for human activities are consolidated in smartphone
- New, reassuring and safe and secure mechanism based on carriers' assets is essential



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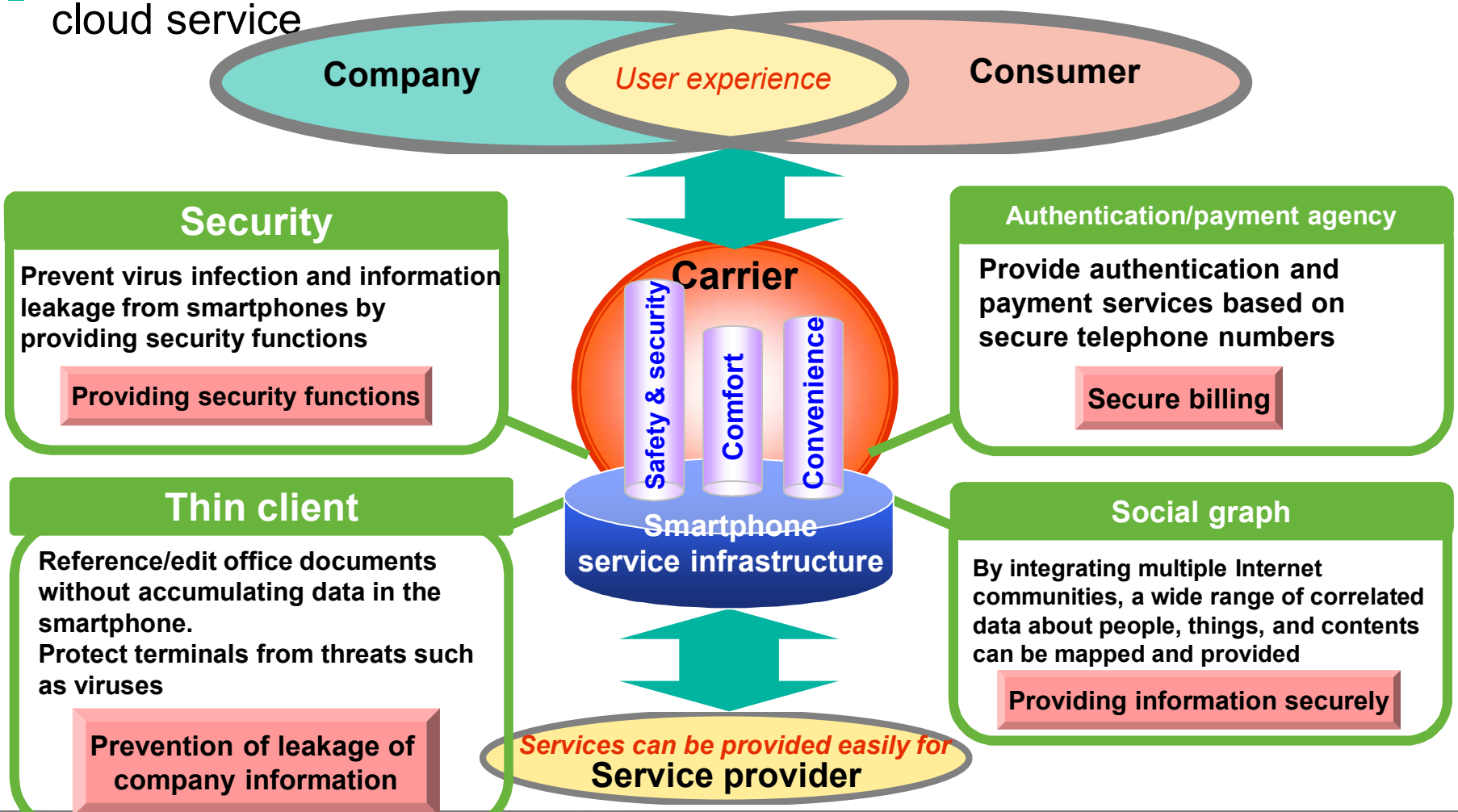
3-2-2 NEC's Strategies for Smartphone Services

- Develop smartphone service platform by integrating IT and NW technologies ahead of other companies
- Provide several types of smartphone services by using the platform via a cloud service



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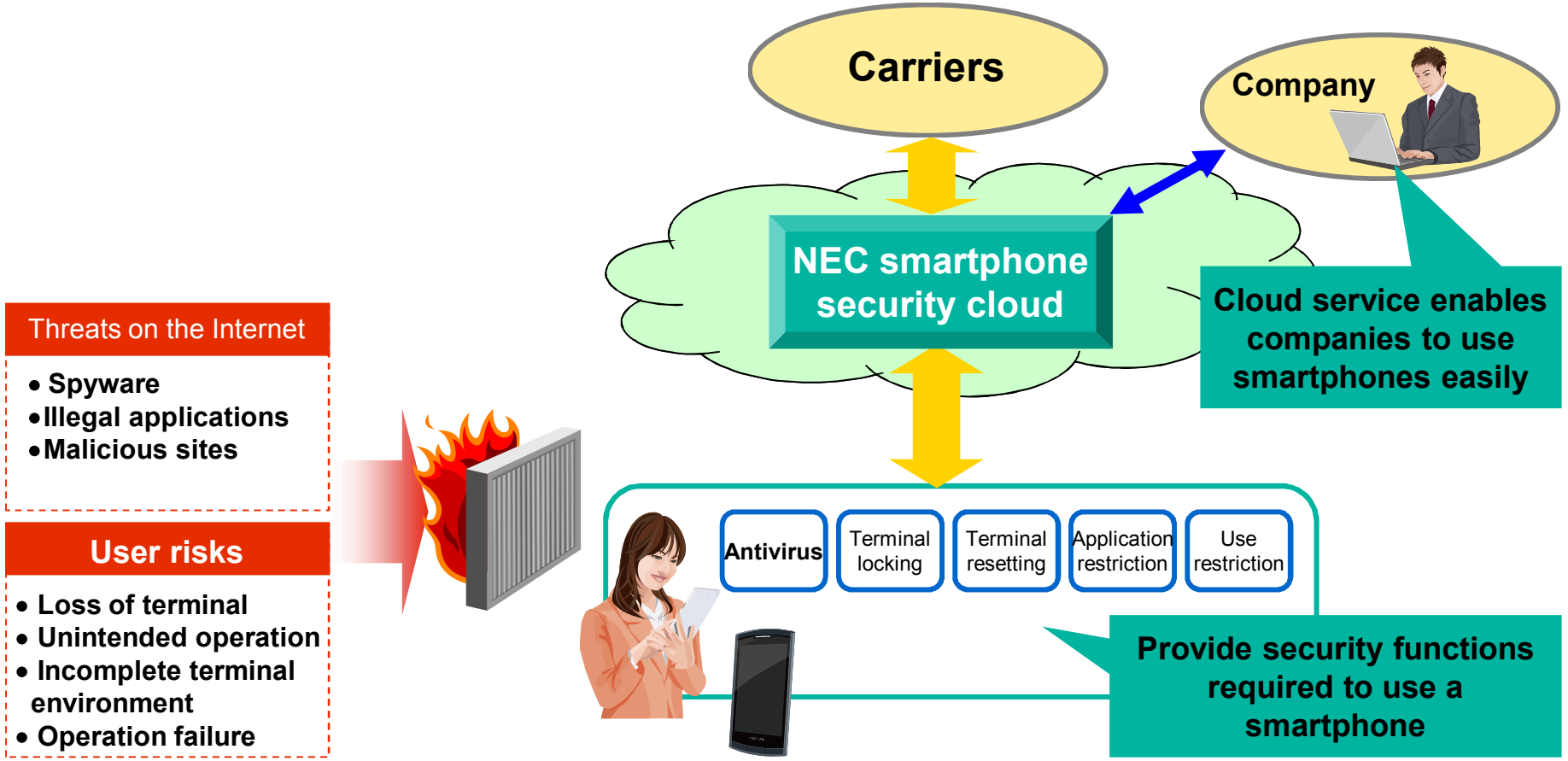
3-2-3 Example of Service for Companies: Terminal Security Service

- A service that provides a safe and secure mobile internet environment in smartphones
  (Announced on September 29, to be released at the end of October)
- Development of a service covering areas from the web security to terminal security as BPO business for carriers and corporations



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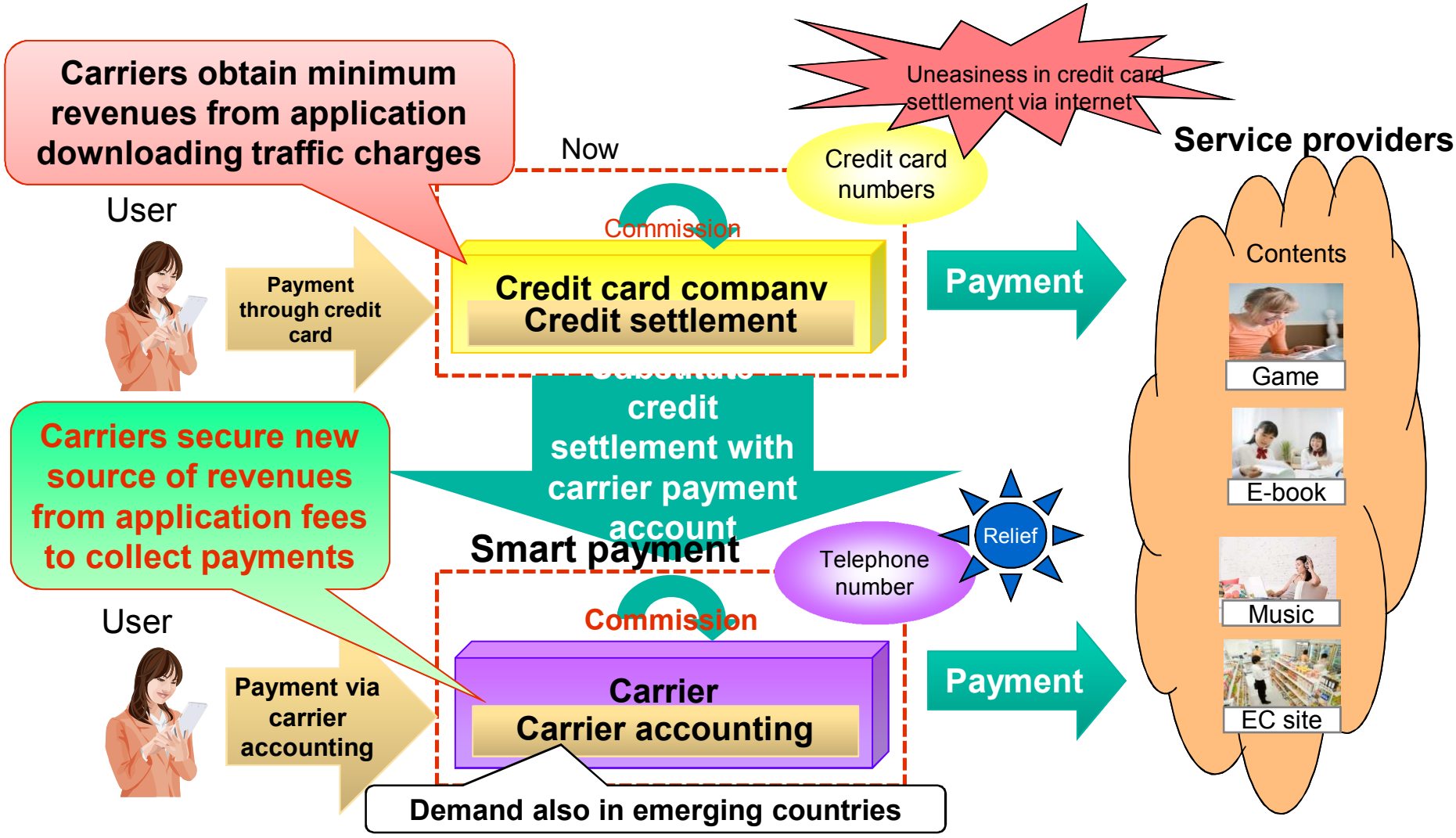
Billing agency service through telephone number



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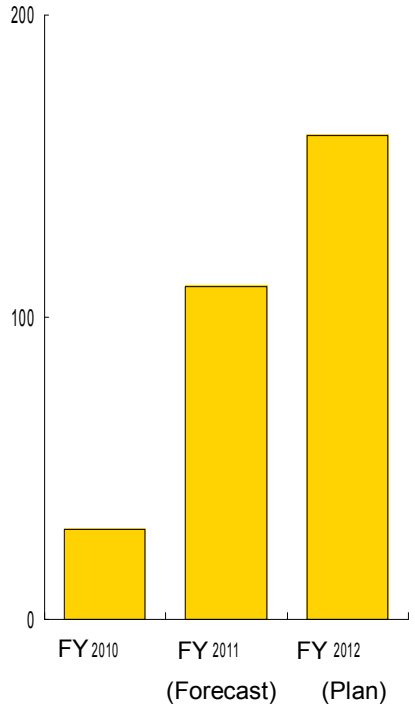
3-2-5 Business Strategies

- Provide smartphone services that are convenient, easy-to-use and secure
- Use of the cloud service to expand to global markets

Smartphone service sales plan

(100 million yen)



* Estimated values as of October 12, 2011.

Item	FY 2011	FY 2012
Business development • **Promote service platform development for Japanese carriers** • **Provide cloud services** • **Expand the cloud service to the global market**	**Service platform construction business (customer-contact type SI business)** — Domestic carrier Domestic cloud business — Domestic carrier; Public, various industries; MVNO/ISP Global carrier cloud business — Overseas carrier	
Development of smartphone services • **Start from four basic services**	Development of authentication and payment service Development of security service Development of smartphone thin client service (* See reference) Development of social graph service (* See reference)	

Differentiation strategies

- **Create a flexible system with a strong product (NC7000).**
- **Maintain close contact with customers by establishing a robust domestic platform.**
- **Expand to offshore markets by providing one-stop cloud service.**

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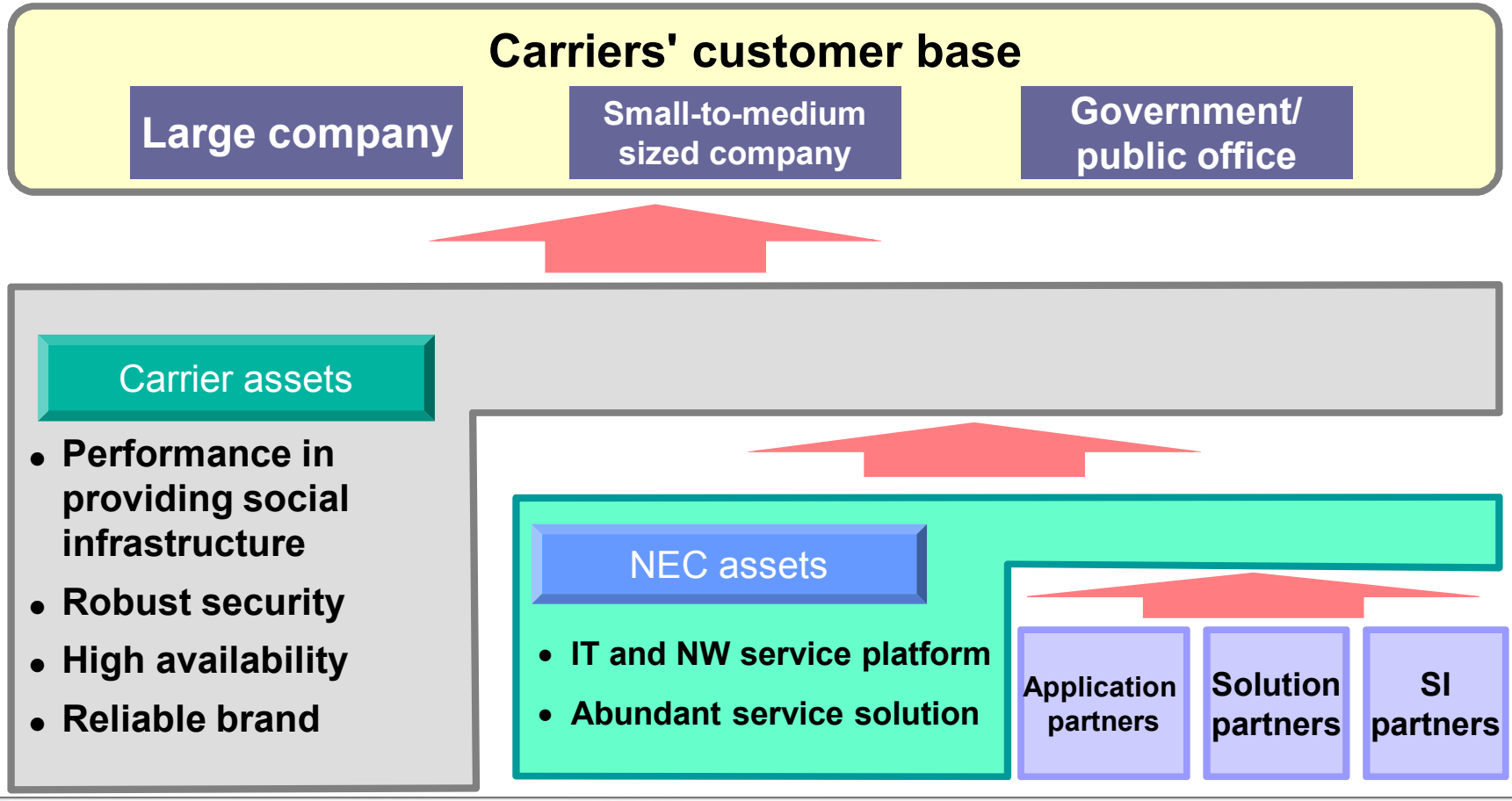
3-3-1 NEC Concept of a Carrier Cloud

- Provide unique services through one-stop cloud services that meet demand by different region
- Provide cloud services that utilize the brand power of carrier



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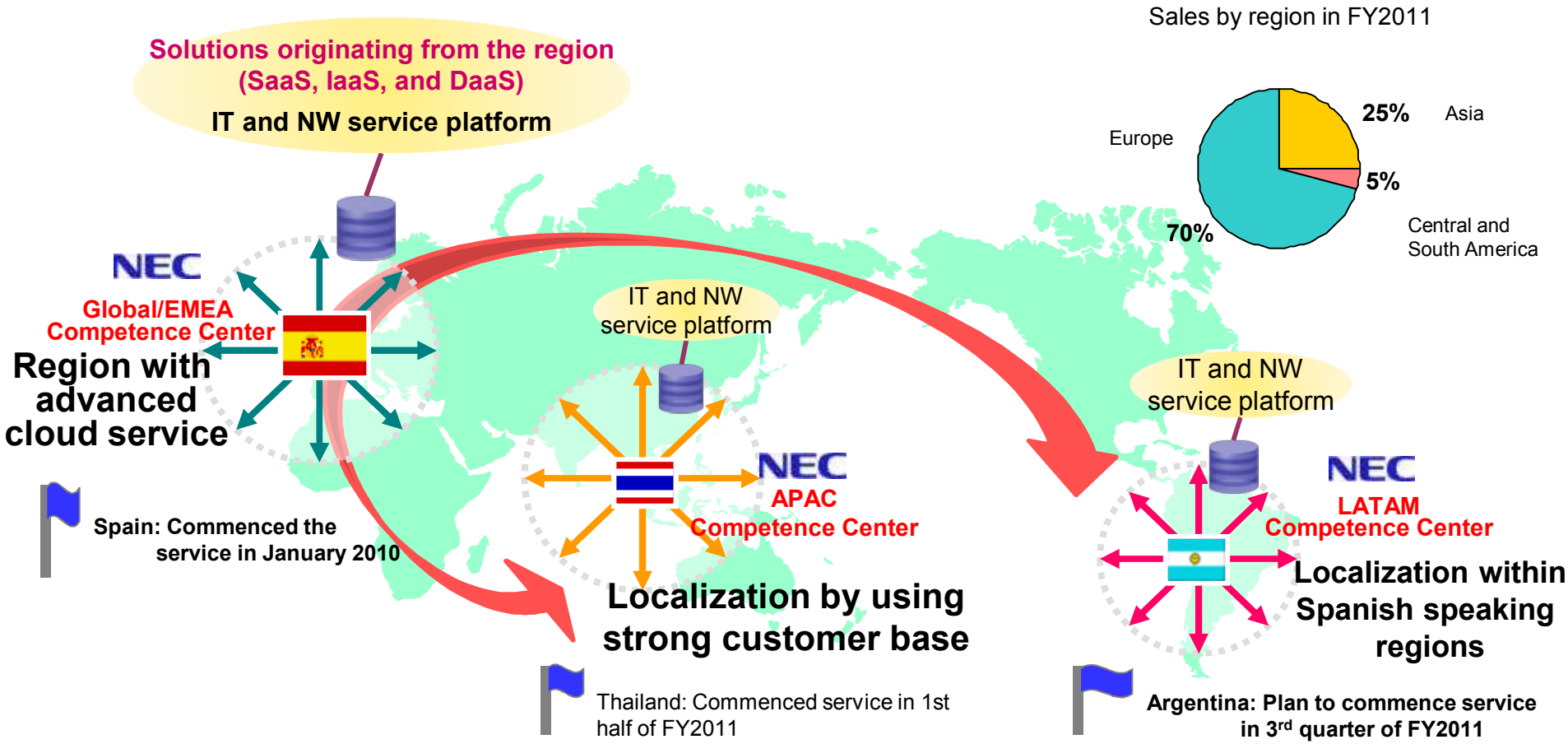
3-3-2 NEC Strategies for Carrier Cloud (1)

- Working together with Telefonica (3rd largest carrier in the number of subscribers worldwide) to develop global carrier cloud business
- Rolling out to three worldwide hubs (Spain, Thailand, and Argentina) to enable localization within each region



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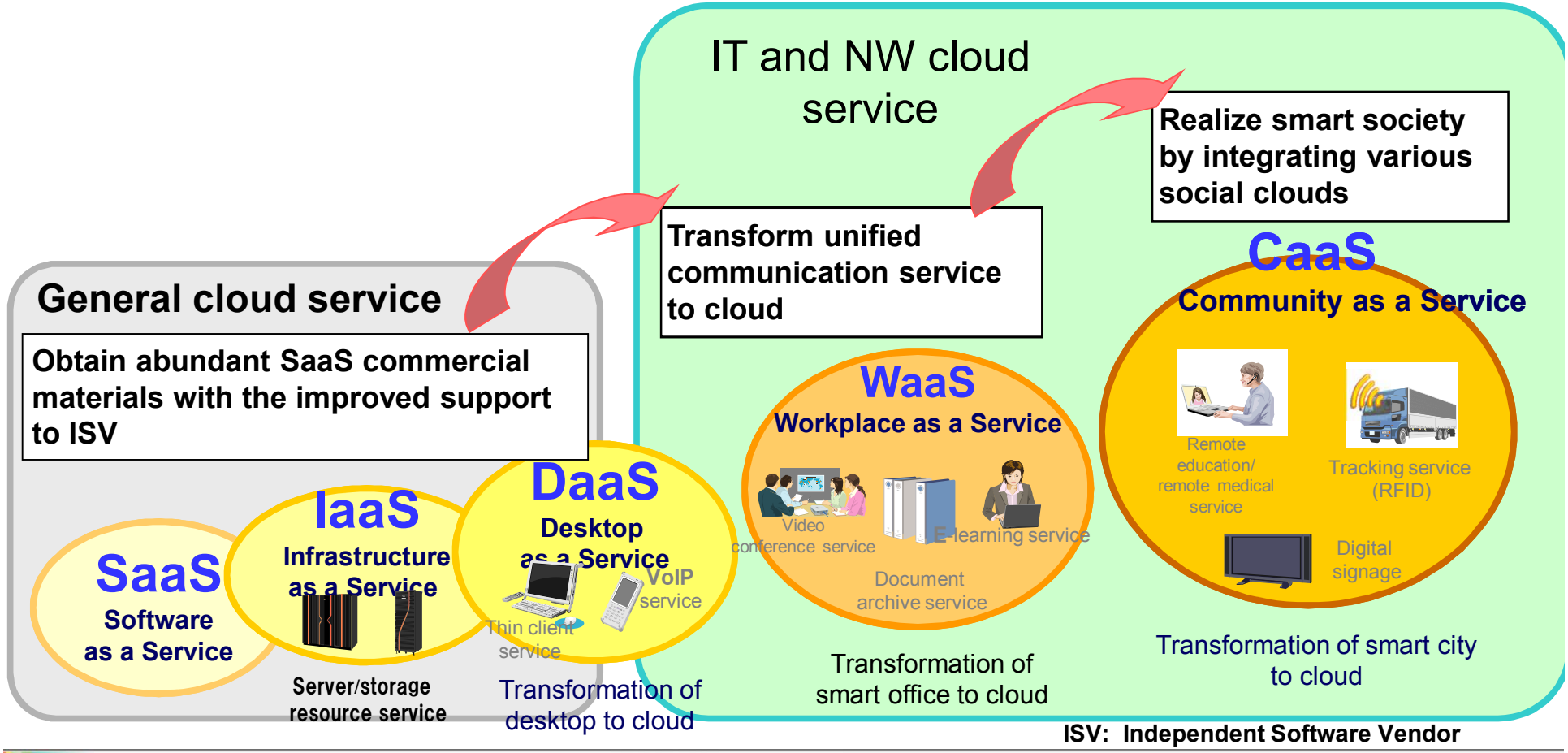
3-3-2 NEC Strategies for Carrier Cloud (2)

Provide WaaS and CaaS (IT and NW cloud) by integrating the IT NW solutions

- Final target is to social cloud as the infrastructure that can be specifically made available by carriers



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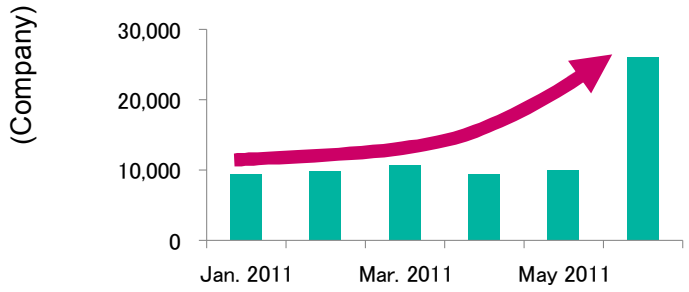
3-3-3 Example of Carrier Cloud Service

Leading the world for commercialization of carrier cloud services

Telefonica (Spain) SaaS service “Aplicateca”

- Total registered user companies: About 25000
- Market place registered ISV: About 40 companies

Transition of the number of companies subscribing to Telefonica (Spain)



<<Status of carrier cloud service>>

- **Commencement of Telefonica (Spain) SaaS service:**

  January 2010

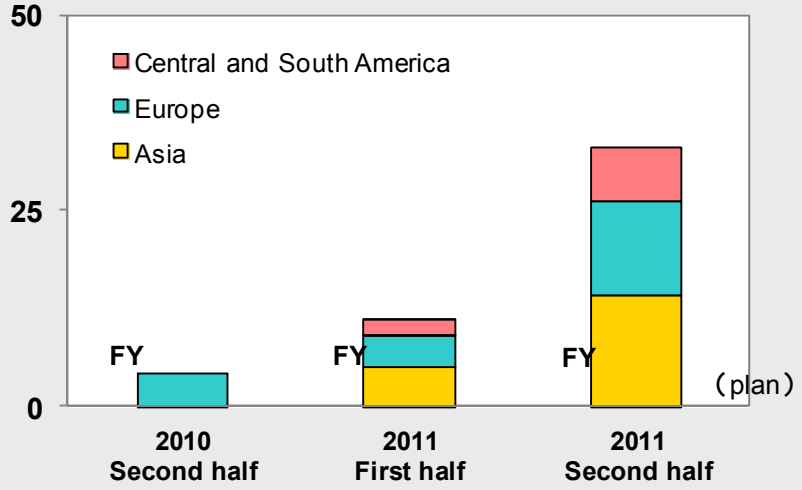
- **Commencement of TOT (Thailand) SaaS service:**

  September 2011

Contracts and orders from common carriers in China, South Korea, APAC, India, Europe, CIS, and Central and South America

(Number of companies)

<Carrier Cloud order receipt>



* Estimated values as of October 12, 2011

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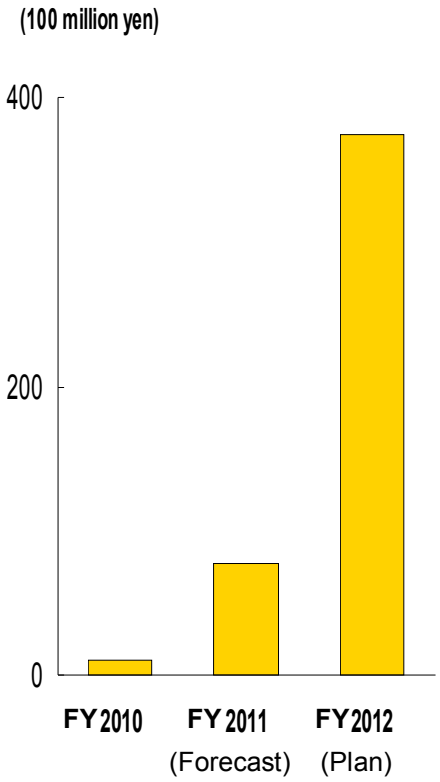
3-3-4 Business Strategy

Development of carrier cloud by 2 steps

Carrier cloud sales plan



* Estimated values as of October 12, 2011

Item	FY2011	FY2012
Step 1 • Expand carrier cloud Footprint • Provide IaaS/DaaS	Roll out of Telefonica Spain SaaS worldwide from three hubs Upgrading ISVs Full-scale development of IaaS/DaaS	
Step 2 • Expand worldwide (5 hubs) • Provide WaaS (office cloud), CaaS (education, medical)		Providing the IT and NW cloud service (WaaS/CaaS, etc)

Differentiation strategies	
	• Provide a superior business model of joint cloud business with a carrier • Move unified communication services into the cloud

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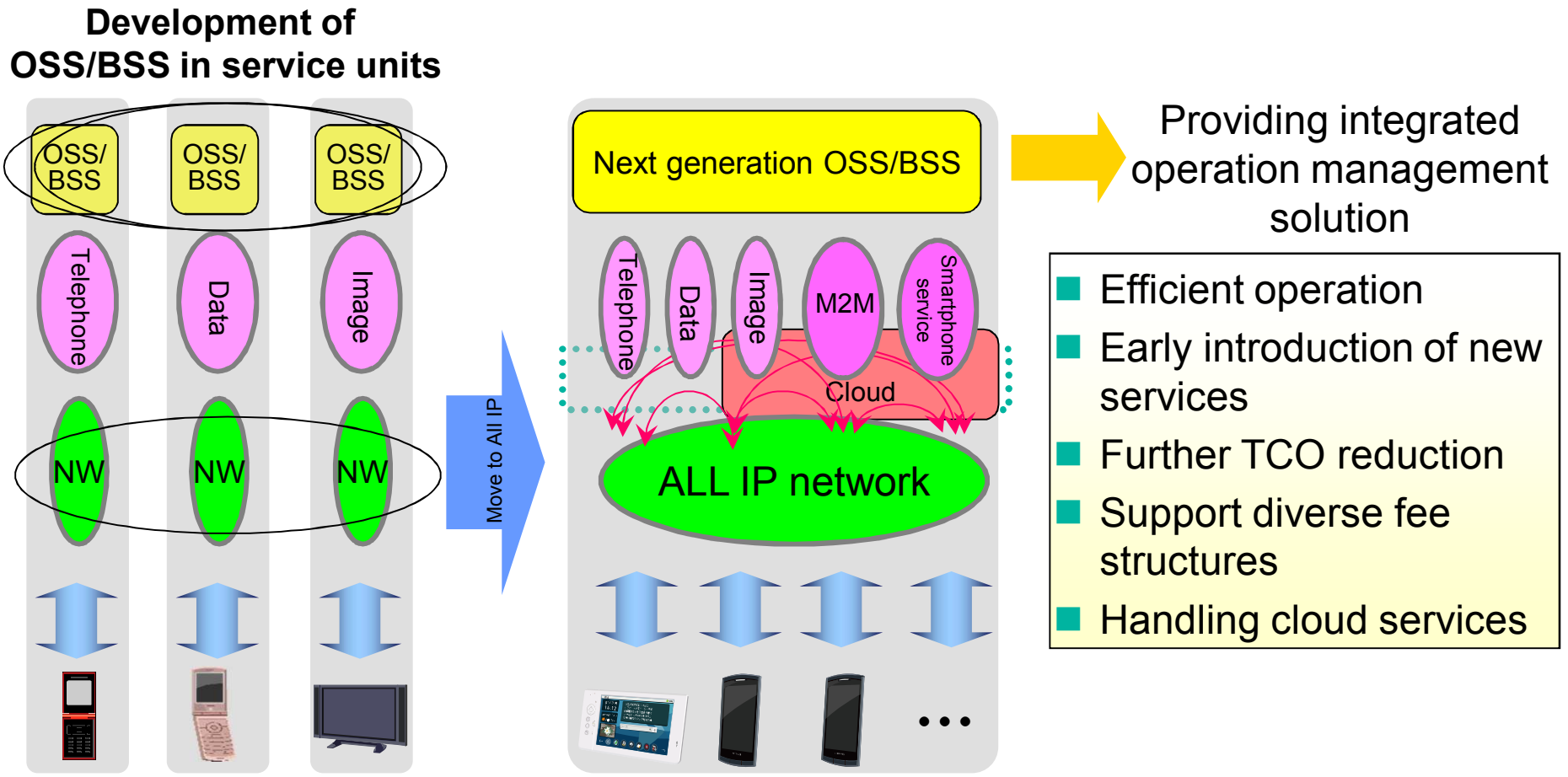
3-4-1 Roles of Next Generation OSS/BSS

- Diversification of services and pricing structures by network integration
- Increasingly importance of next generation OSS/BSS



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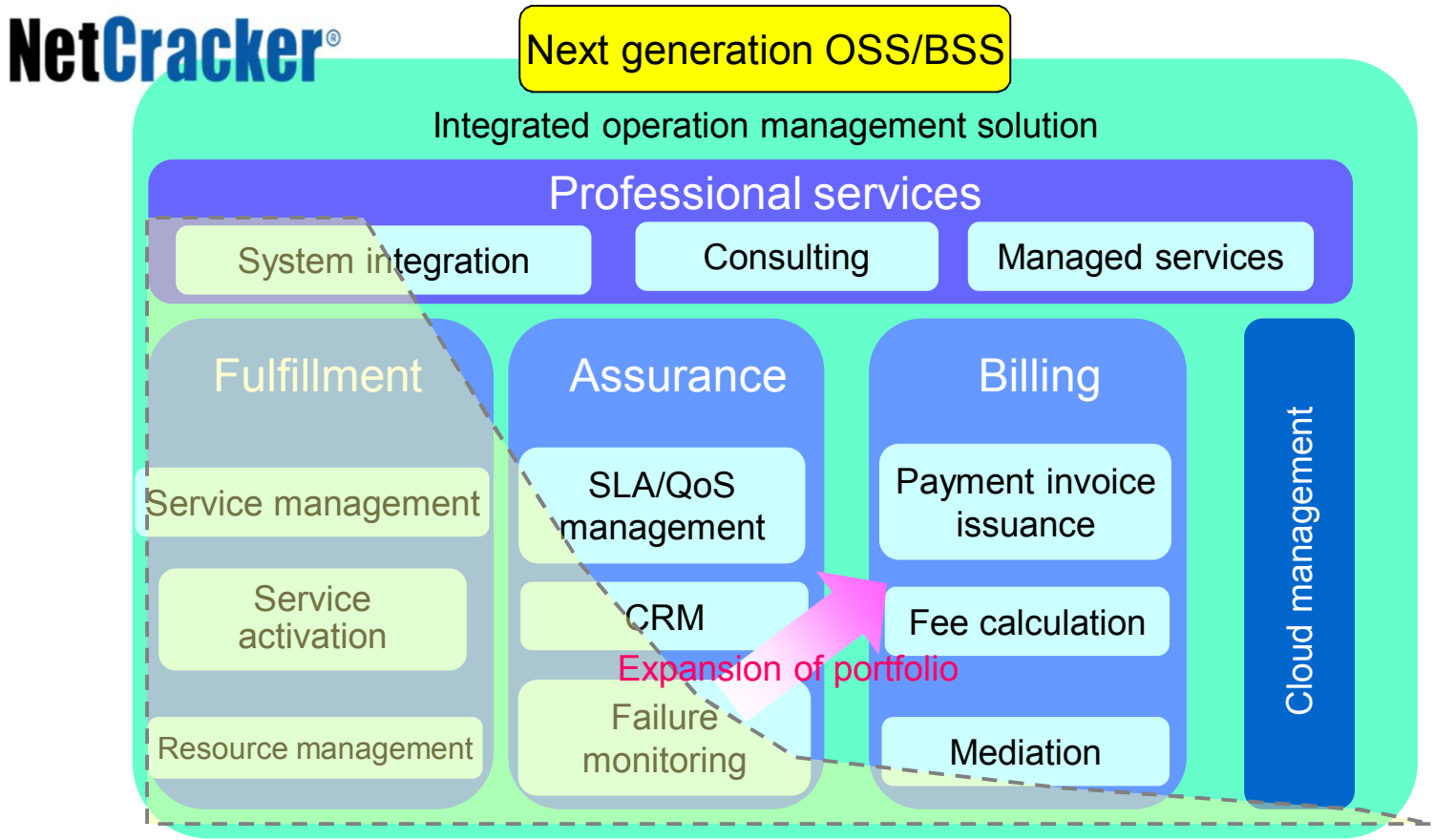
3-4-2 NEC Strategies for Next Generation OSS/BSS (1)

Expand NetCracker's solution portfolio

- Assurance, billing and cloud management



Fulfillment: Service introduction support system that provides management from specifying the service contents to operating the service

Assurance: Guaranteeing service during operation management

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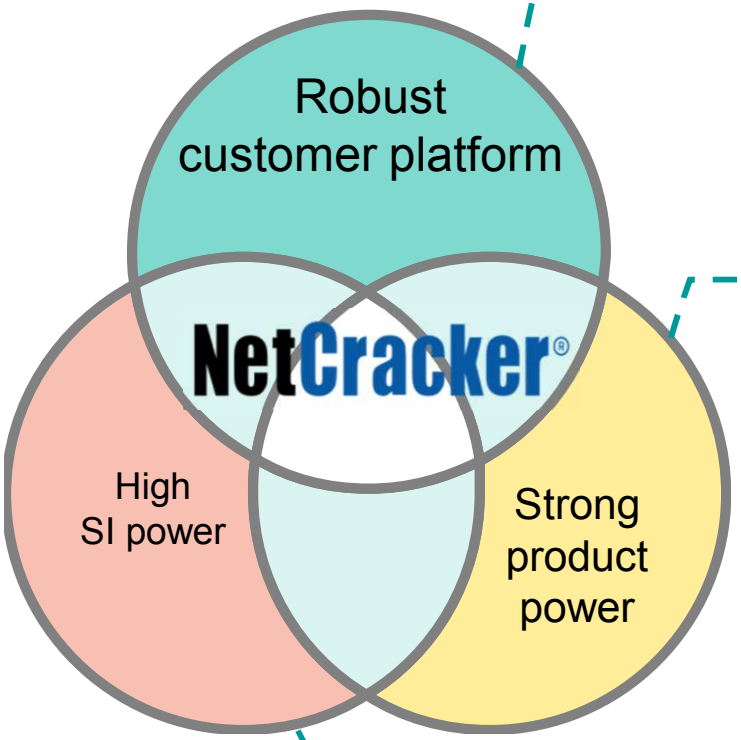
3-4-2 NEC Strategies for Next Generation OSS/BSS (2)

Increase customer base by using three strengths



- **Customer-contact type business with large communication carriers**
  Telus, Sprint, France Telecom, Deutsche Telekom, Swisscom, Telstra, Telecom New Zealand, etc.

- **Abundant standard components**
  Installation of configurable systems that do not require programming (short TAT and low cost)
- **Handle any network**
  Management of a wide range of systems from legacy to IP systems
- **Leading industry standards**
  Acquired level 7 (highest) in cost performance evaluation by TMForum

- **Meeting customer requirements by using integration capabilities**
  Satisfying all individual customer requirements

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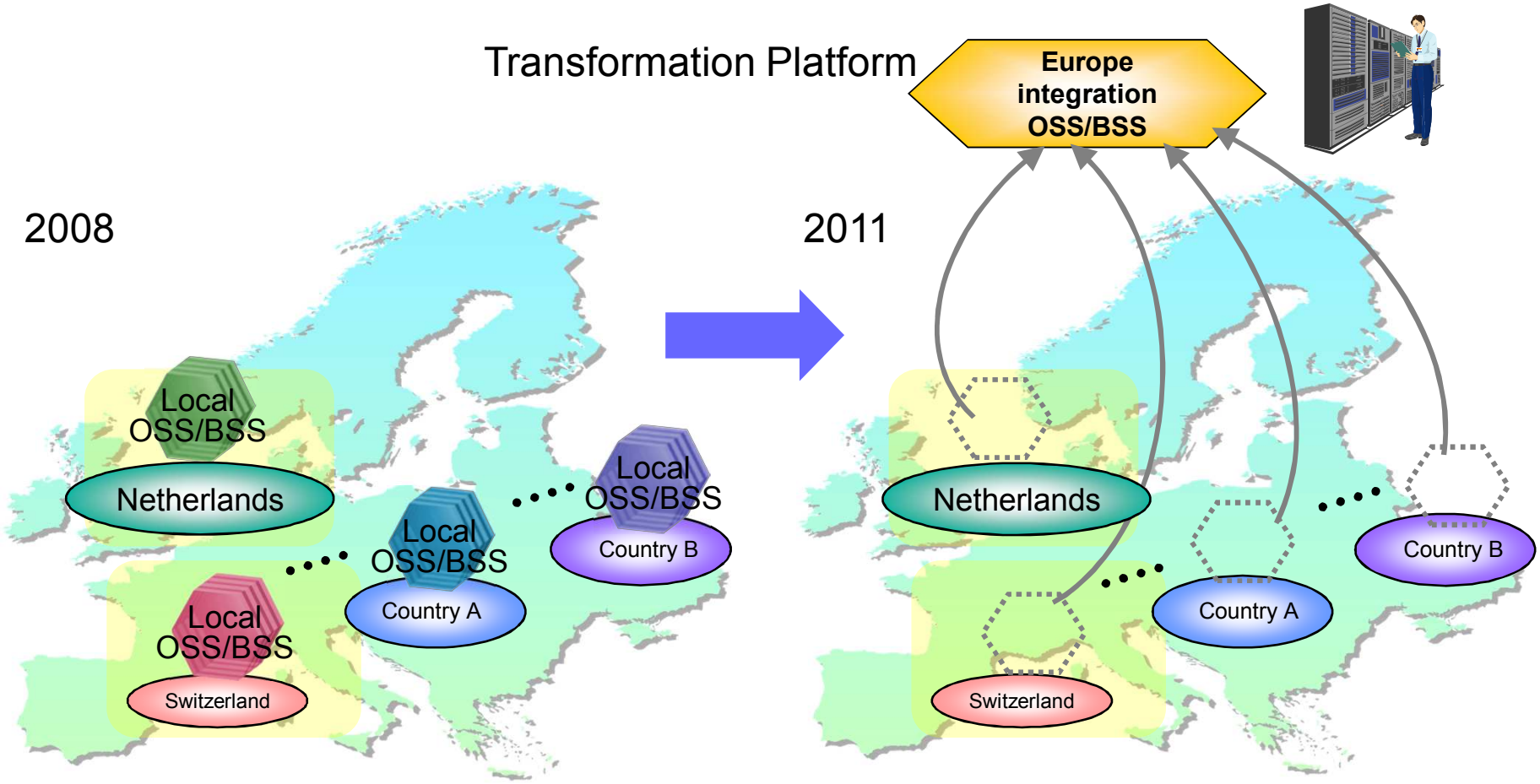
3-4-3 Installation Example: Integrated Operation Management of Distributed Network

- Consolidation/integration of OSS/BSS for global carriers
  - ⇒ Dramatic reduction of operation cost
- Plan to apply to integrated management of distributed data centers



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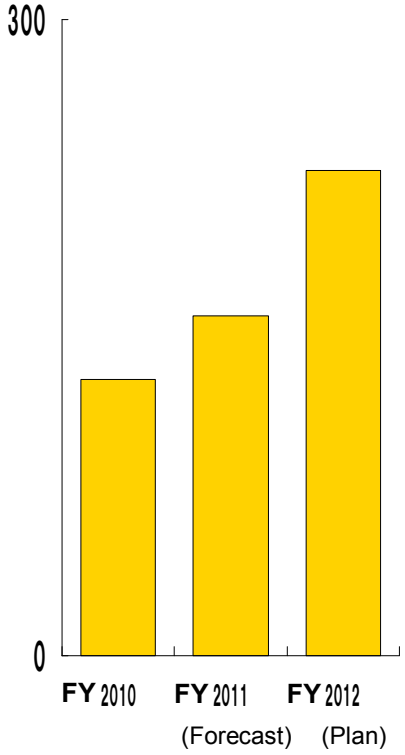
3-4-4 Business Strategies

- From existing fulfillment to integrated operation management
- Expansion of solutions to be provided

Next generation OSS／BSS sales plan

(100 million yen)



* Estimated values as of October 12, 2011

Item	FY2011	FY2012
Integrated operation management solution • Expansion of available solutions in a short period including Merger and Acquisition • Focusing on Central and South American and Asian markets • Participation in the carrier cloud OSS/BSS market	Fulfillment Business acquisition of Subex (September 2011) Assurance Billing Carrier cloud management	
Professional service • Providing a wide range of service menus	Providing consulting services Providing management services (operation outsourcing)	
Differentiation strategies	• Retain customers through the robust customer base and product power • Expand the customer base by providing E2E solutions	

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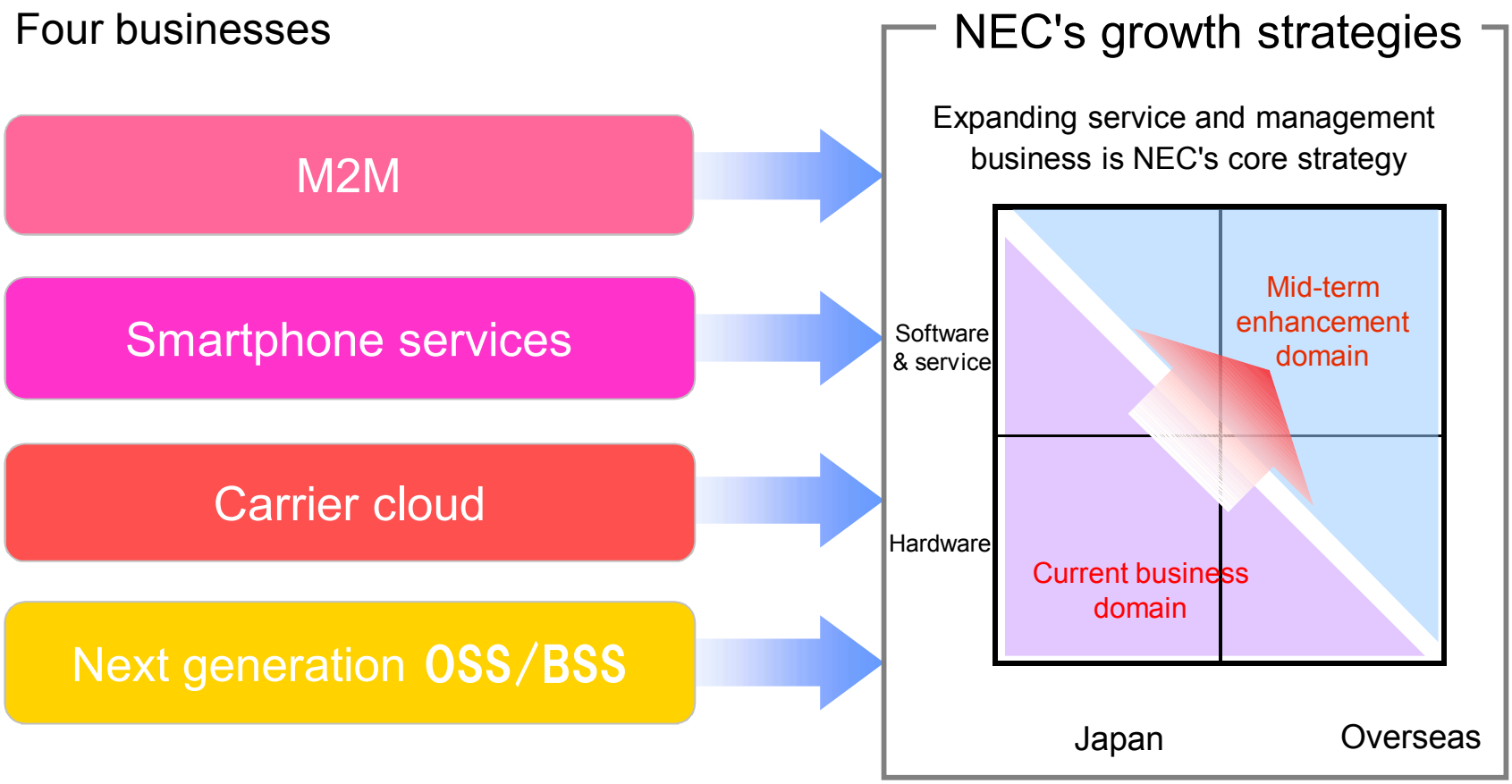
4-1 Basic Strategies for Global Development

Expand global operations with four businesses



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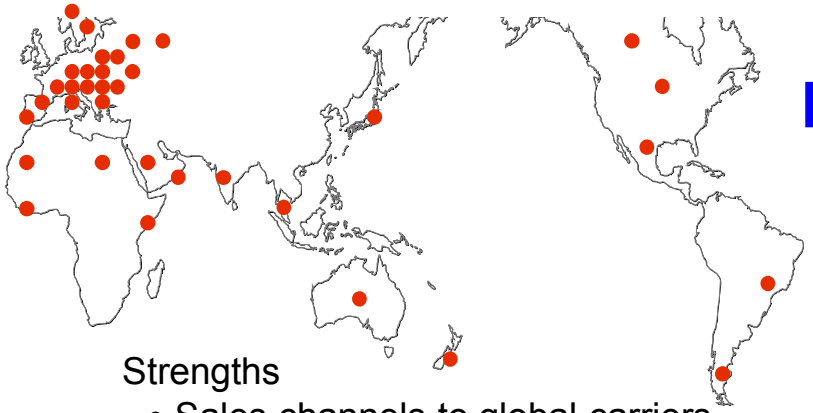
4-2 Expansion into the Global Market

Expand M2M and smartphone services business by using the track record of NetCracker (3rd in the world in the fulfillment market) and carrier cloud

NetCracker

2011: Expected to provide to 74 carriers over 33 countries



Strengths
- Sales channels to global carriers
- SI track record with global carriers

Carrier cloud

2011: Expected to provide to 44 carriers over 34 countries

Strength
- Global cloud service development
- Sales channels to global carriers

* The forecast value is that as of October 12, 2011

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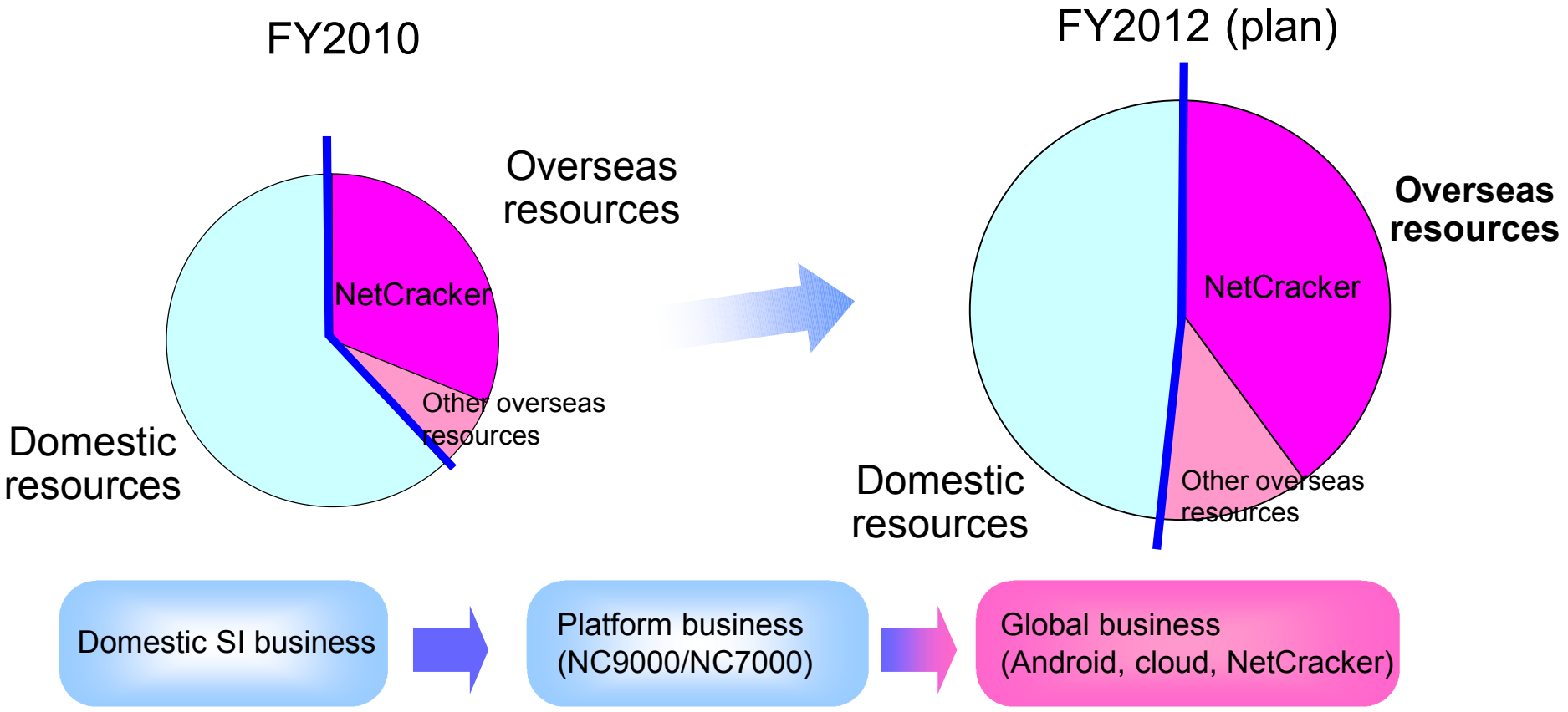
4-3 Utilization of Global Resources

- Utilize NetCracker resources in product development as well as system engineering

⇒ Acceleration of global expansion of M2M and smartphone service business



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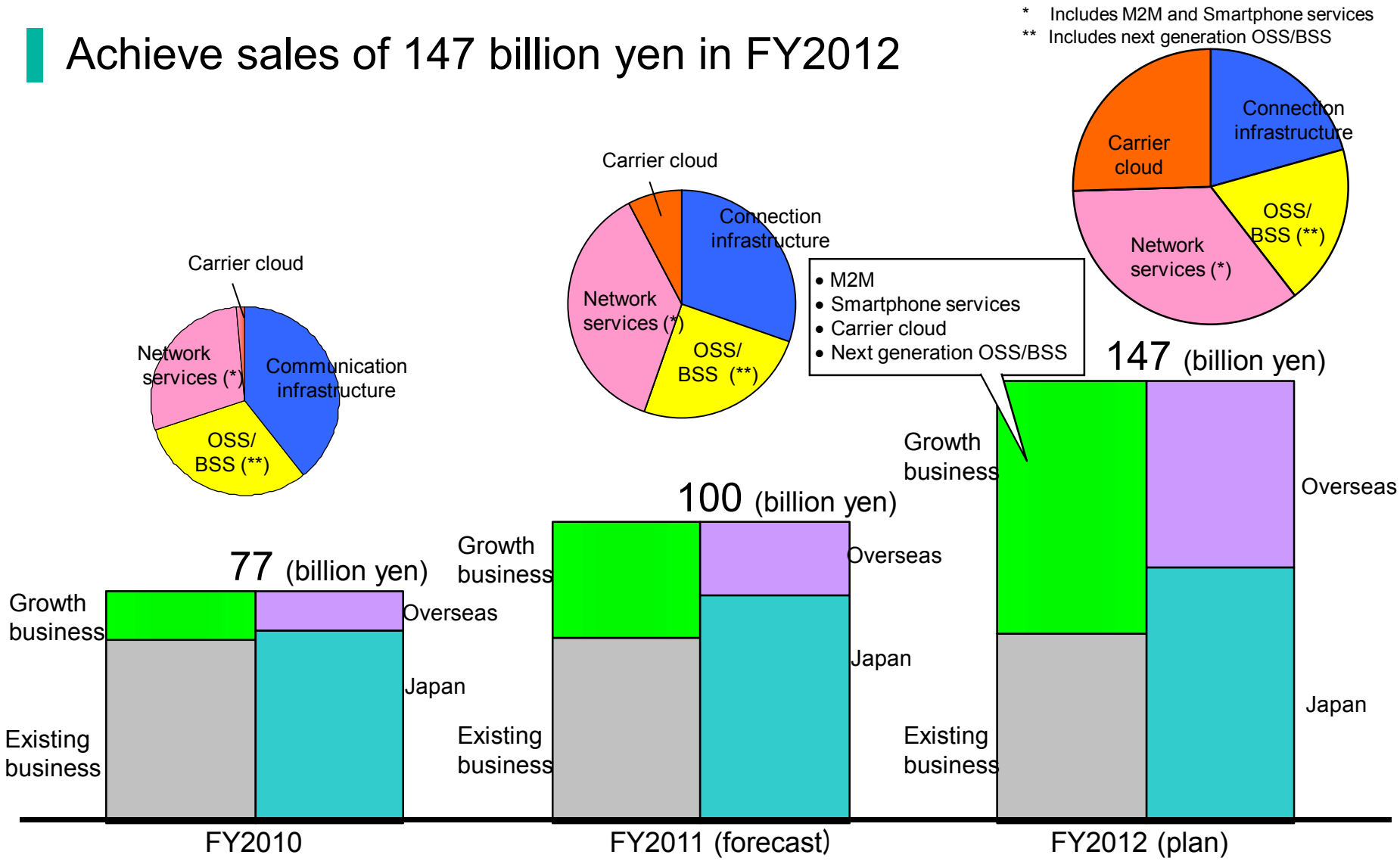
5. Achieving Goals of V2012

Achieve sales of 147 billion yen in FY2012



* Estimated values as of October 12, 2011

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Acronyms

AR: Augmented Reality
ASP: Application Service Provider
BPO: Business Process Outsourcing
BSS: Business Support Systems/Billing Support Systems
CaaS: Community as a Service
CAGR: Compound Average Growth Rate
CEP: Complex Event Processing
CRM: Customer Relationship Management
DaaS: Desktop as a Service
DC: Data Center
E2E: End-to-End
EC: Electronic Commerce
ERP: Enterprise Resource Planning
ETSI: European Telecommunications Standards Institute
FTTH: Fiber To The Home
IaaS: Infrastructure as a Service
ICT: Information and Communication Technology
IMS: IP Multimedia Subsystem
IrDA: Infrared Data Association
ISP: Internet Services Provider
ISV: Independent Software Vendor
JOC: Japan Oriented Company
LTE: Long Term Evolution
M2M: Machine-to-Machine
MVNO: Mobile Virtual Network Operator
OSS: Operation Support Systems
QoS: Quality of Service
RFID: Radio Frequency Identification
SaaS: Software as a Service
SIP: Session Initiation Protocol
SLA: Service Level Agreement
SNS: Social Networking Service
VoIP: Voice over Internet Protocol
WaaS: Workplace as a Service
WiFi: Wireless Fidelity
WiMax: Worldwide Interoperability for Microwave Access
xDSL: x Digital Subscriber Line

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Empowered by Innovation

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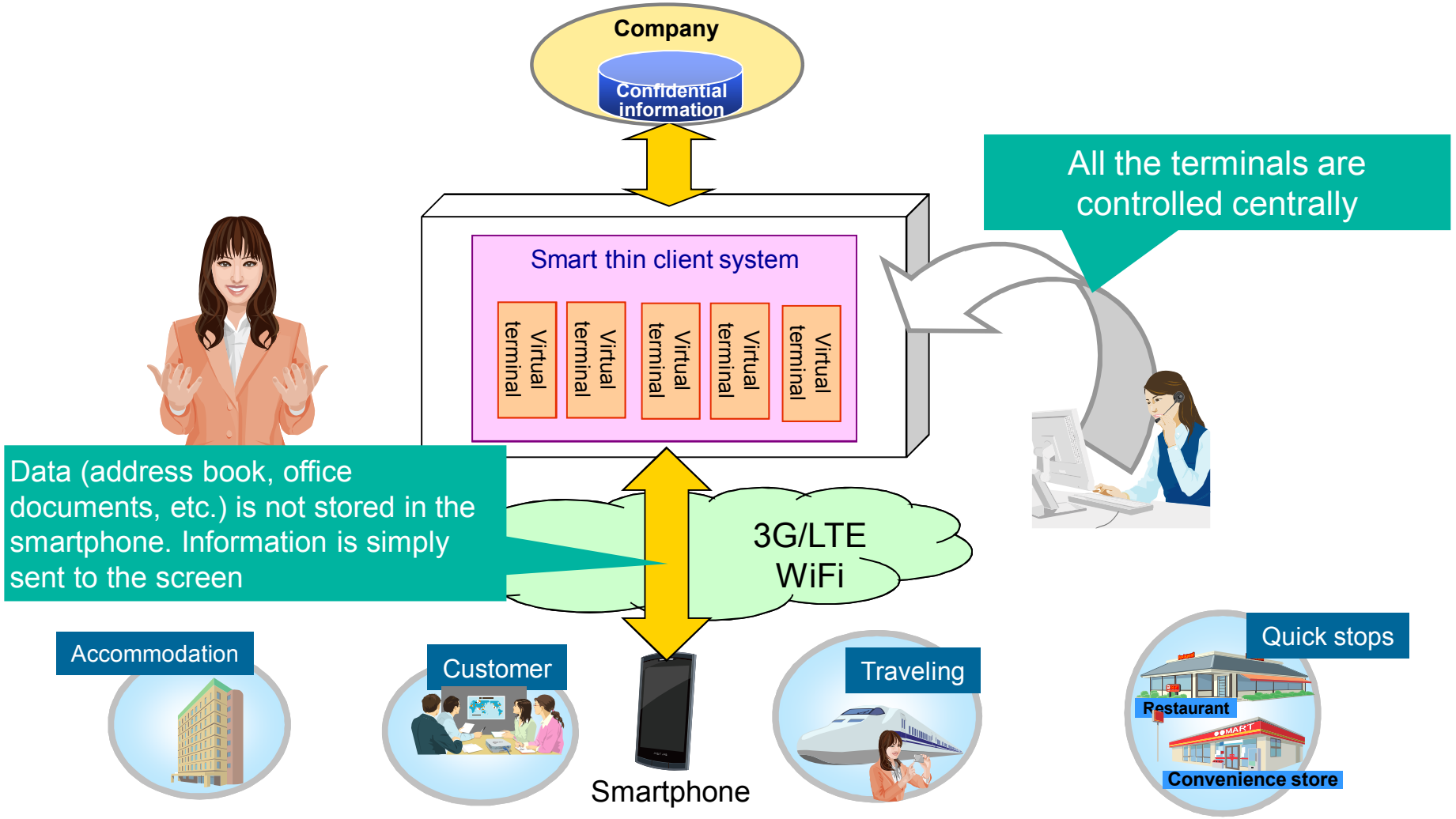
Reference: Example of Smartphone Service for Companies: Smartphone Thin Client Service

- Service for preventing leakage of company information and enhancing access to company information through smartphones



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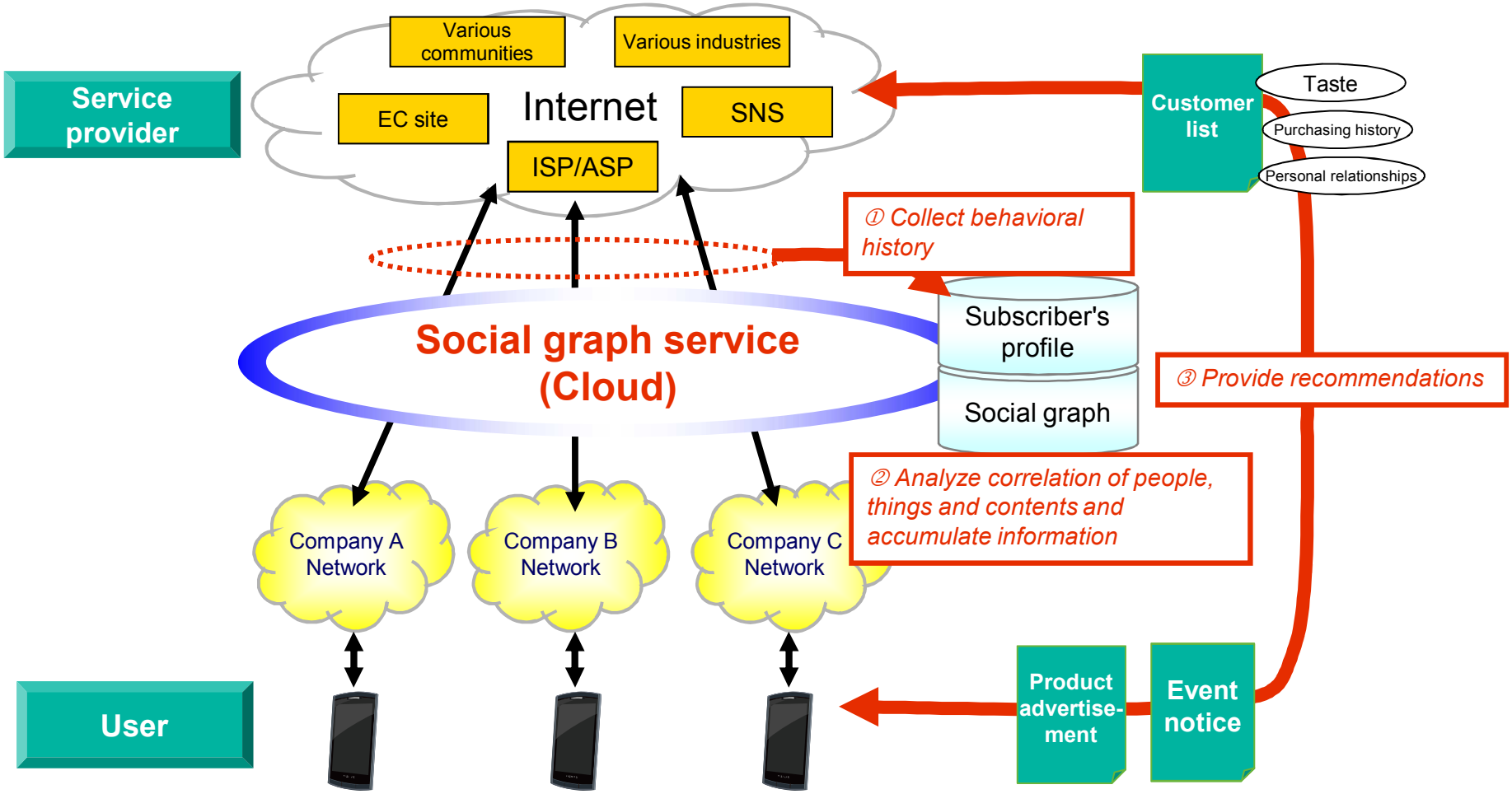
Reference: Example of Smartphone Service for Consumers: Social Graph Service

- Service for providing useful recommendations to users and service providers by using a large social graph database



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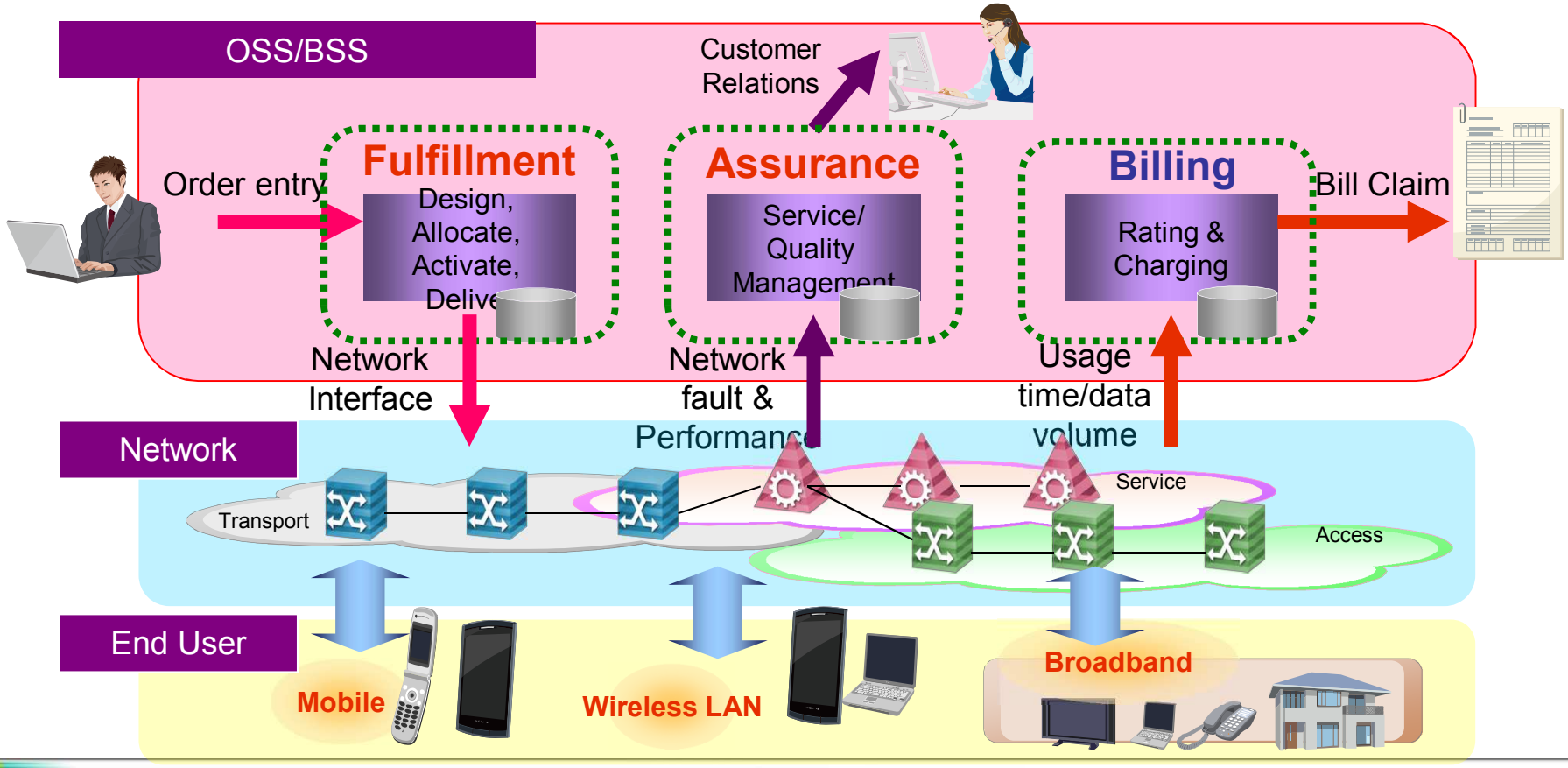
Reference: About OSS/BSS

- OSS (Operations Support System) is an essential system for carriers to streamline networks, service resources and provide communications services
- BSS (Business Support System) is the system which facilitates carriers' business management



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