



NGN : The Convergence Platform

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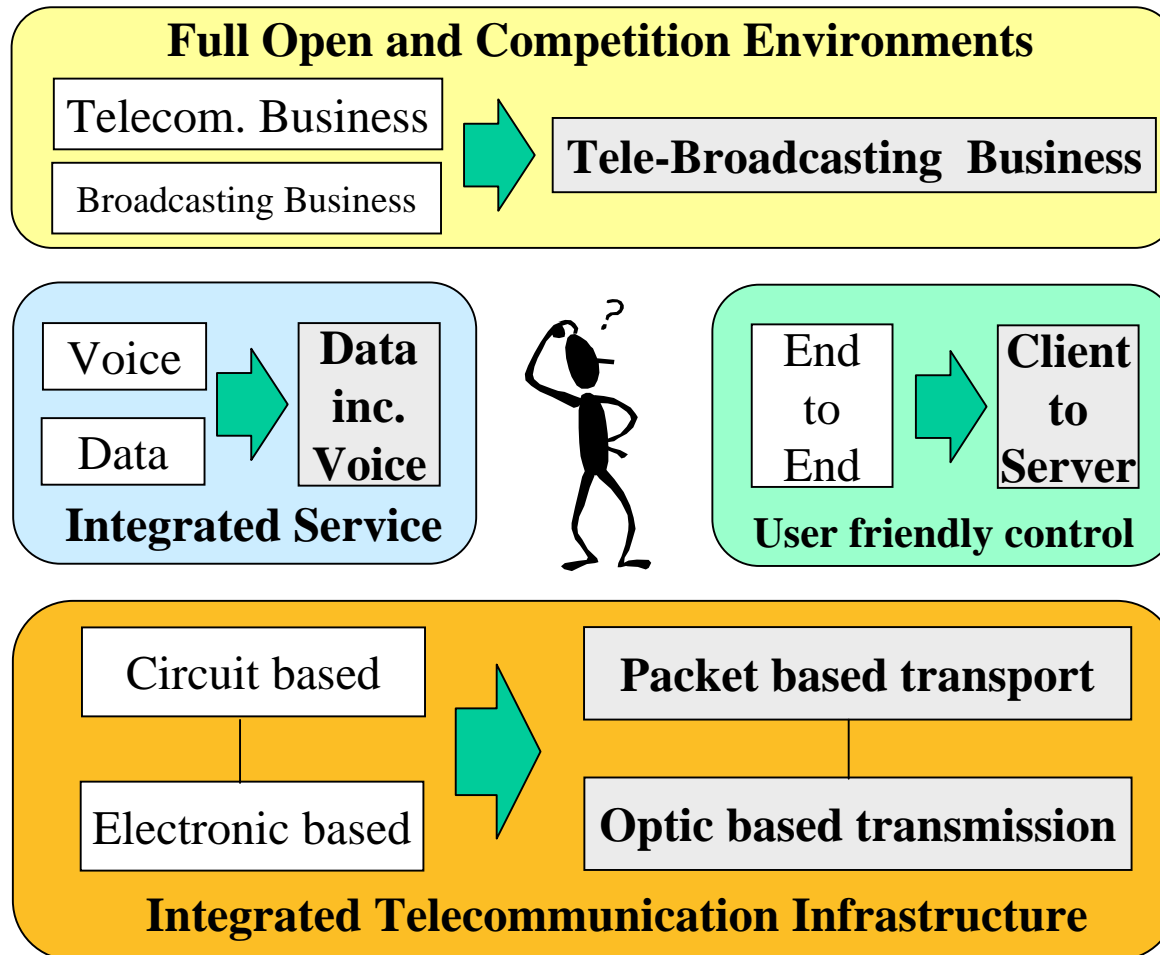
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2. State-of-Art CGN
3. NG Requirements
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1. Environment Analysis

General View

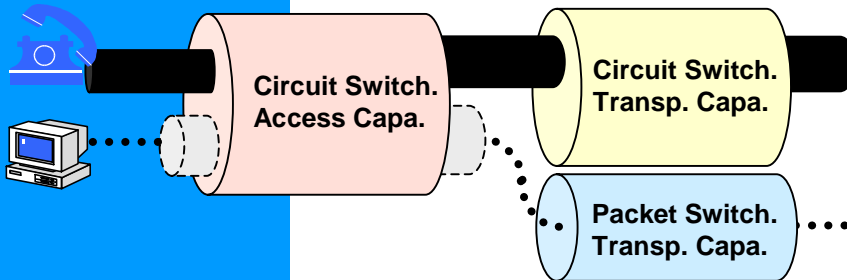




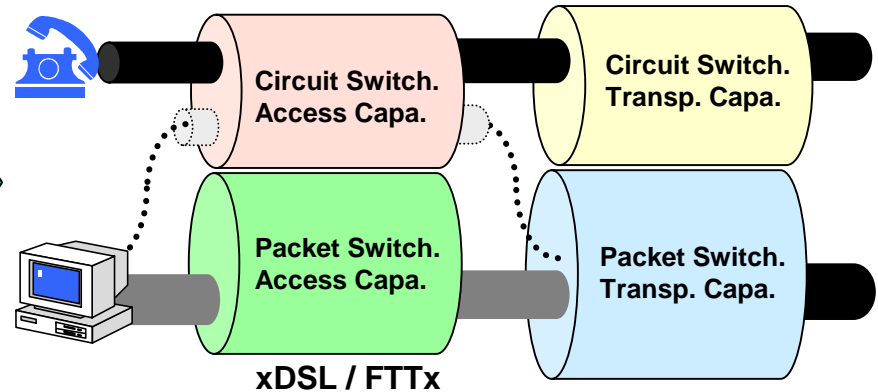
1. Environment Analysis

Expected Future Transition Trend : All Digital Packets

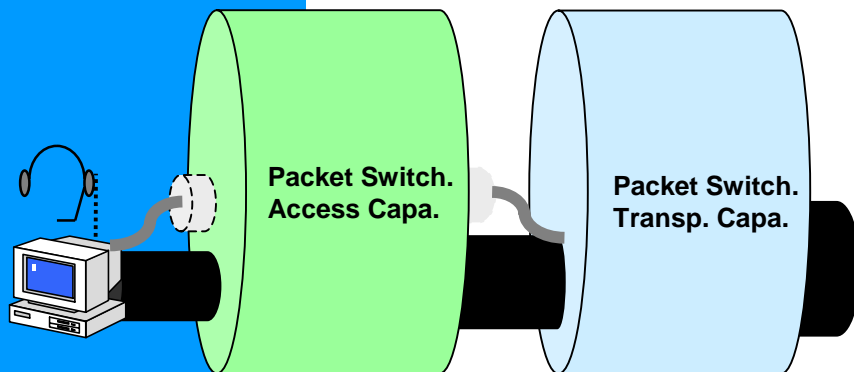
Past : Seper. of Voice & Data Transp.



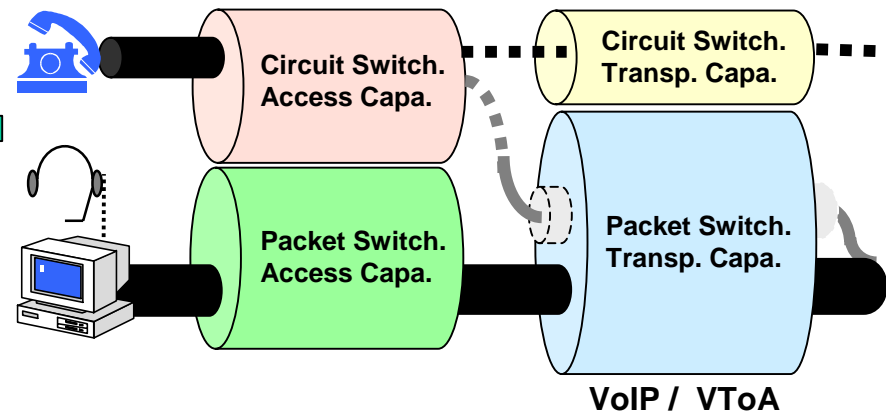
Present : Sep. of V & D Access



Future : Integration of V & D Access and Transp.



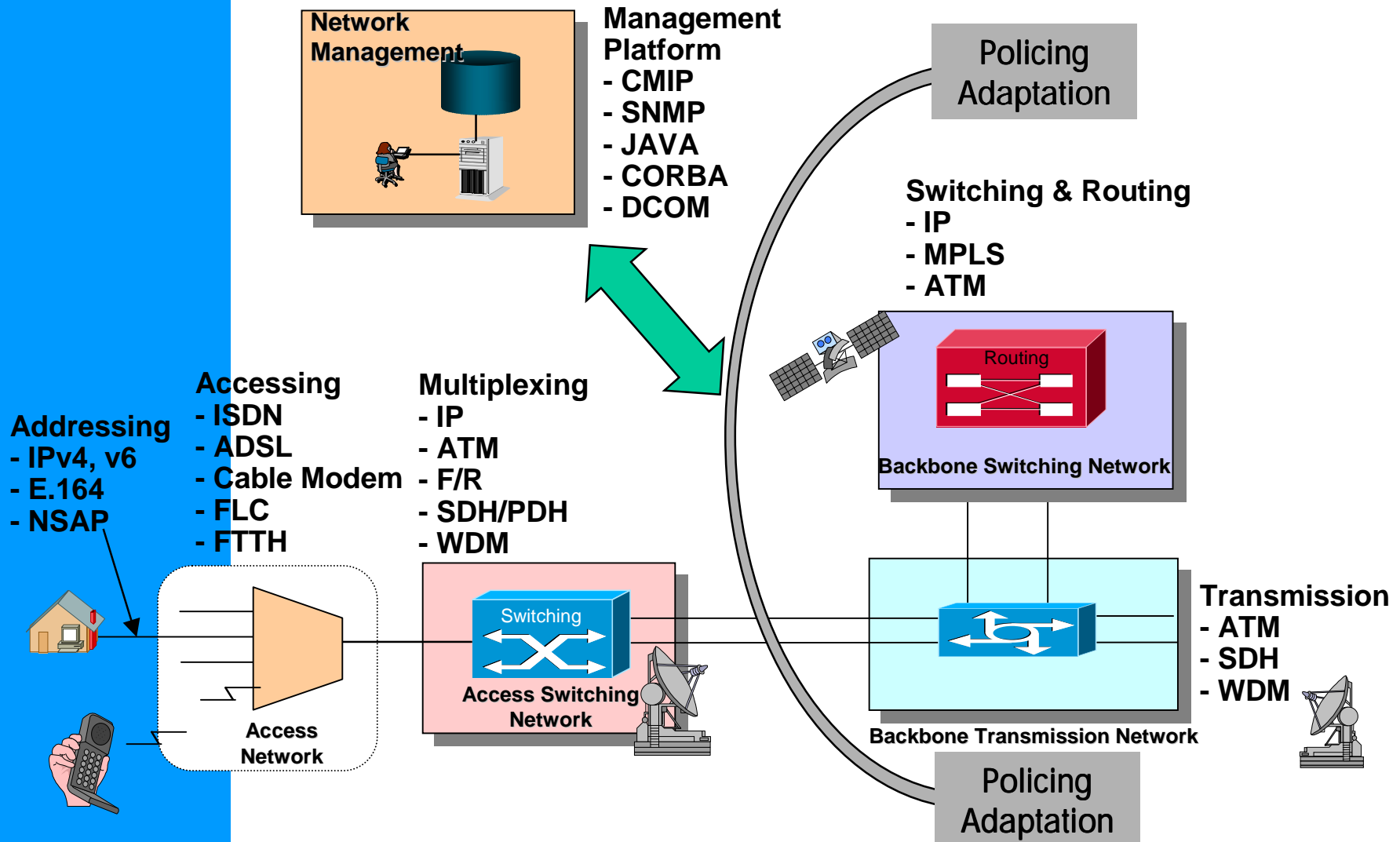
Near Future : Integration of V & D Transport





1. Environment Analysis

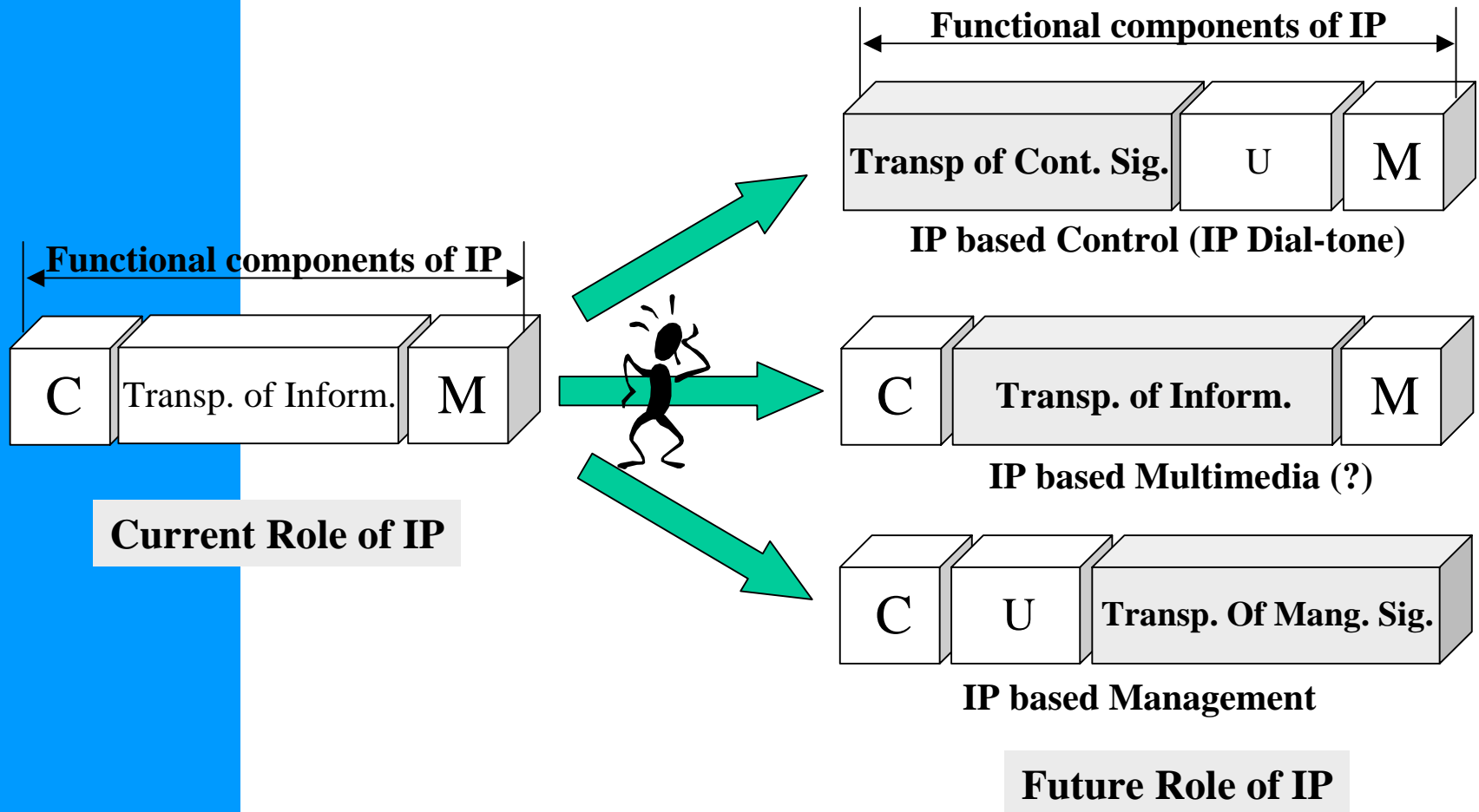
Diversity of Access Technologies





1. Environment Analysis

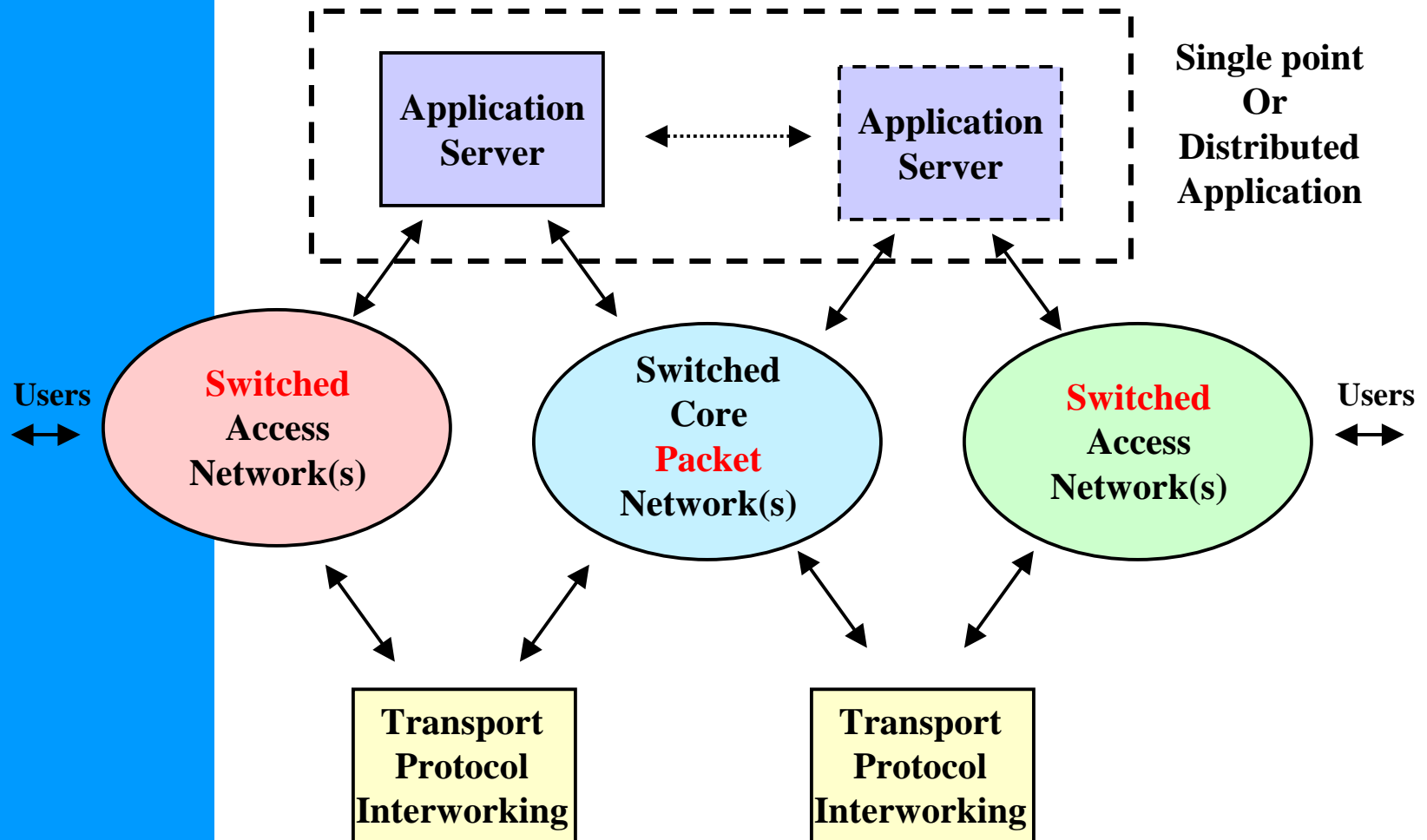
Changing Role of IP





1. Environment Analysis

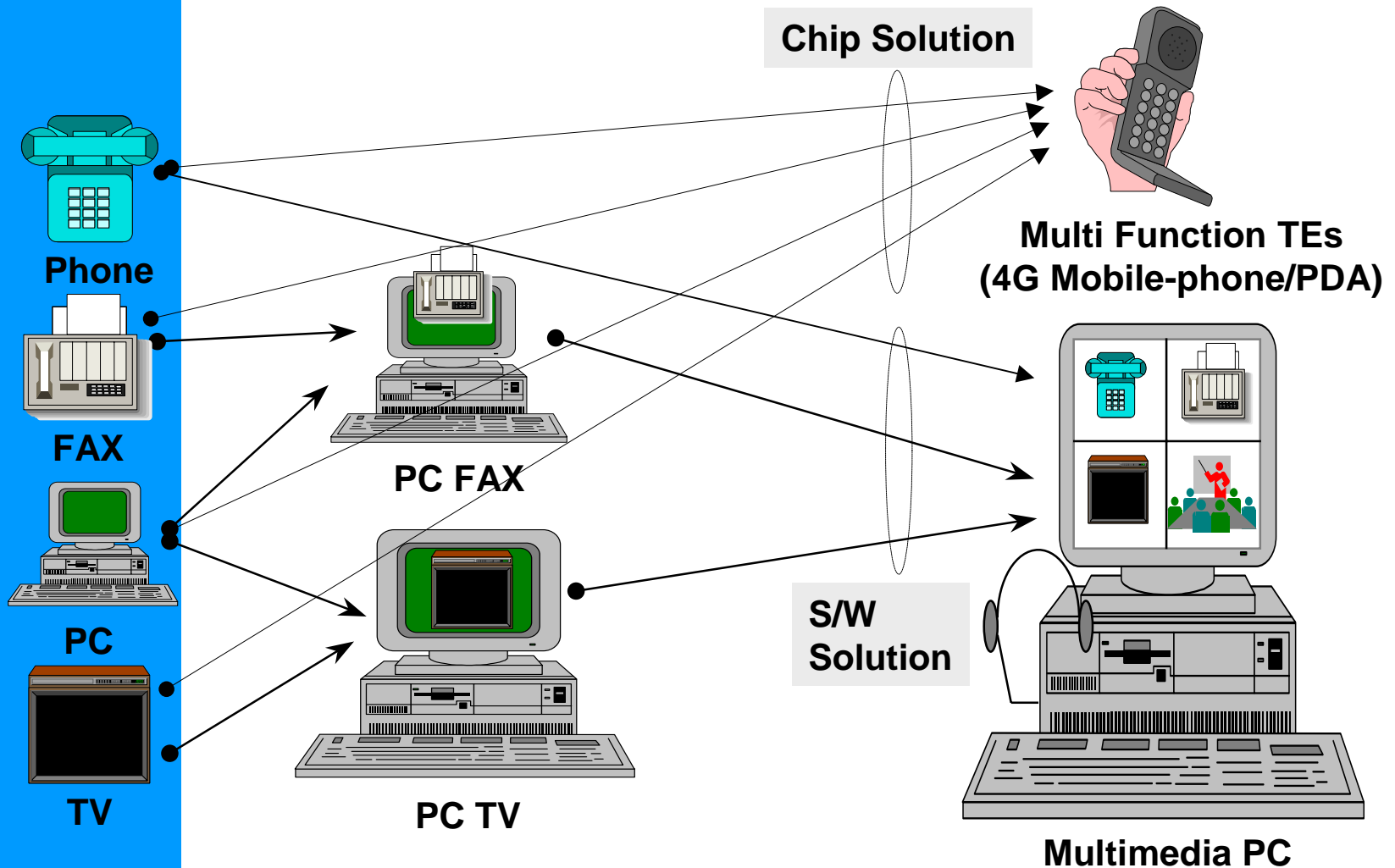
Separation of Services from Network





1. Environment Analysis

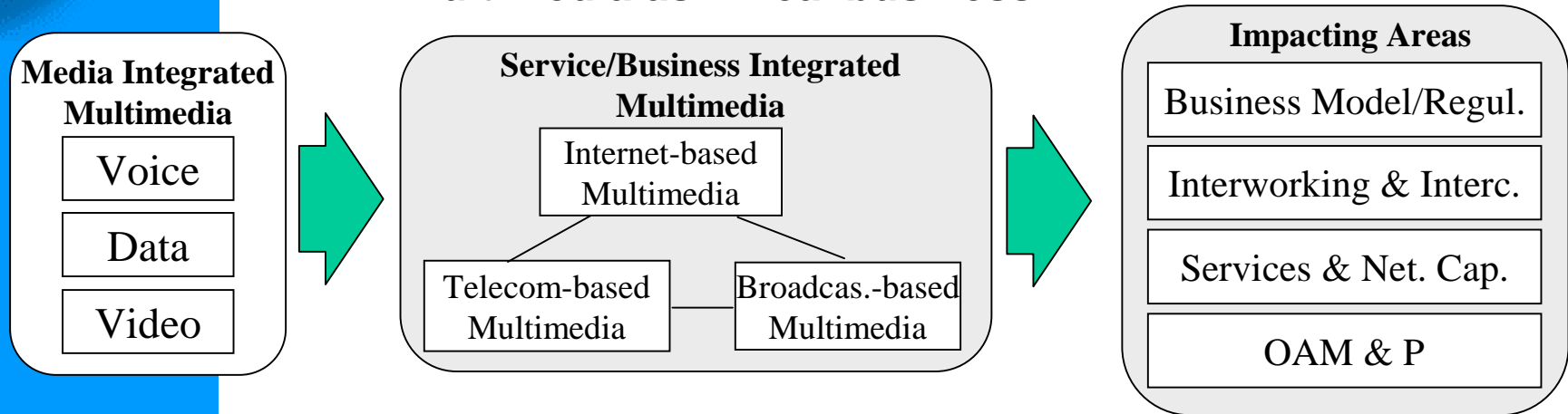
Development of User Equipments



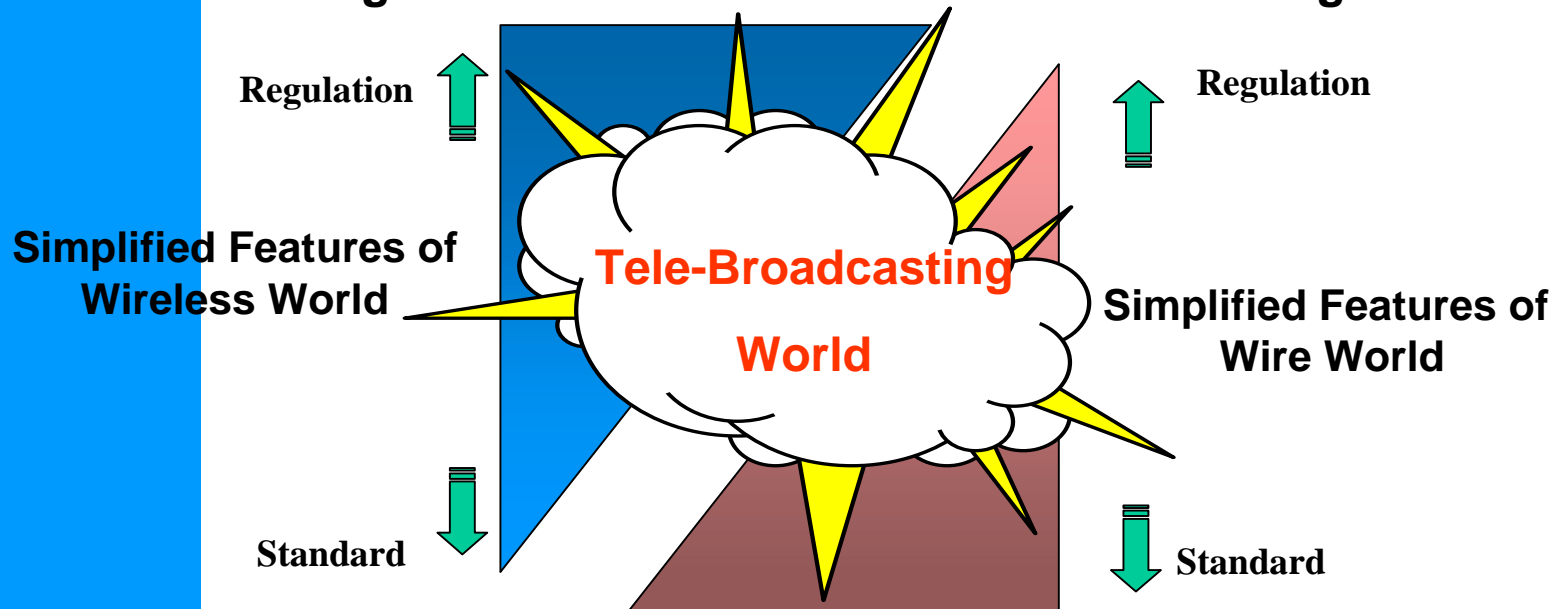


1. Environment Analysis

Multimedia as in real business



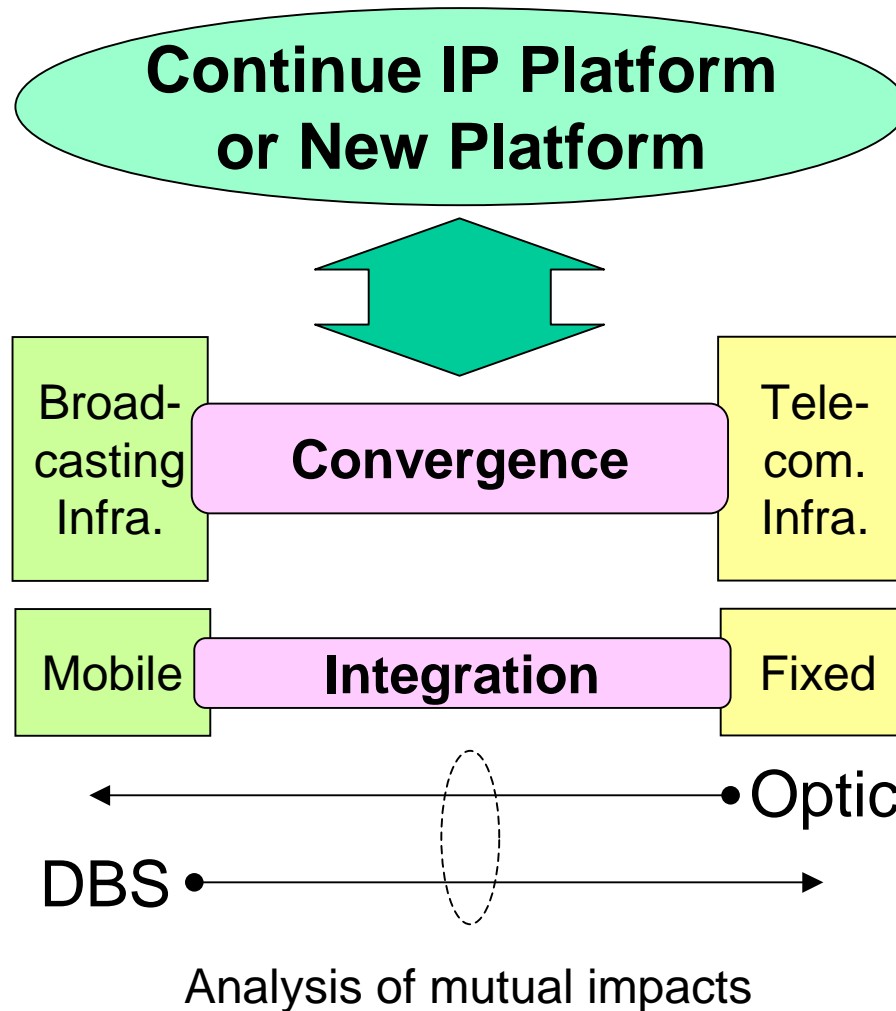
Convergence between Telecom and Broadcasting





1. Environment Analysis

NGN : The Convergence and Integration Platform





Possible Convergence Model of Tele-Broadcasting

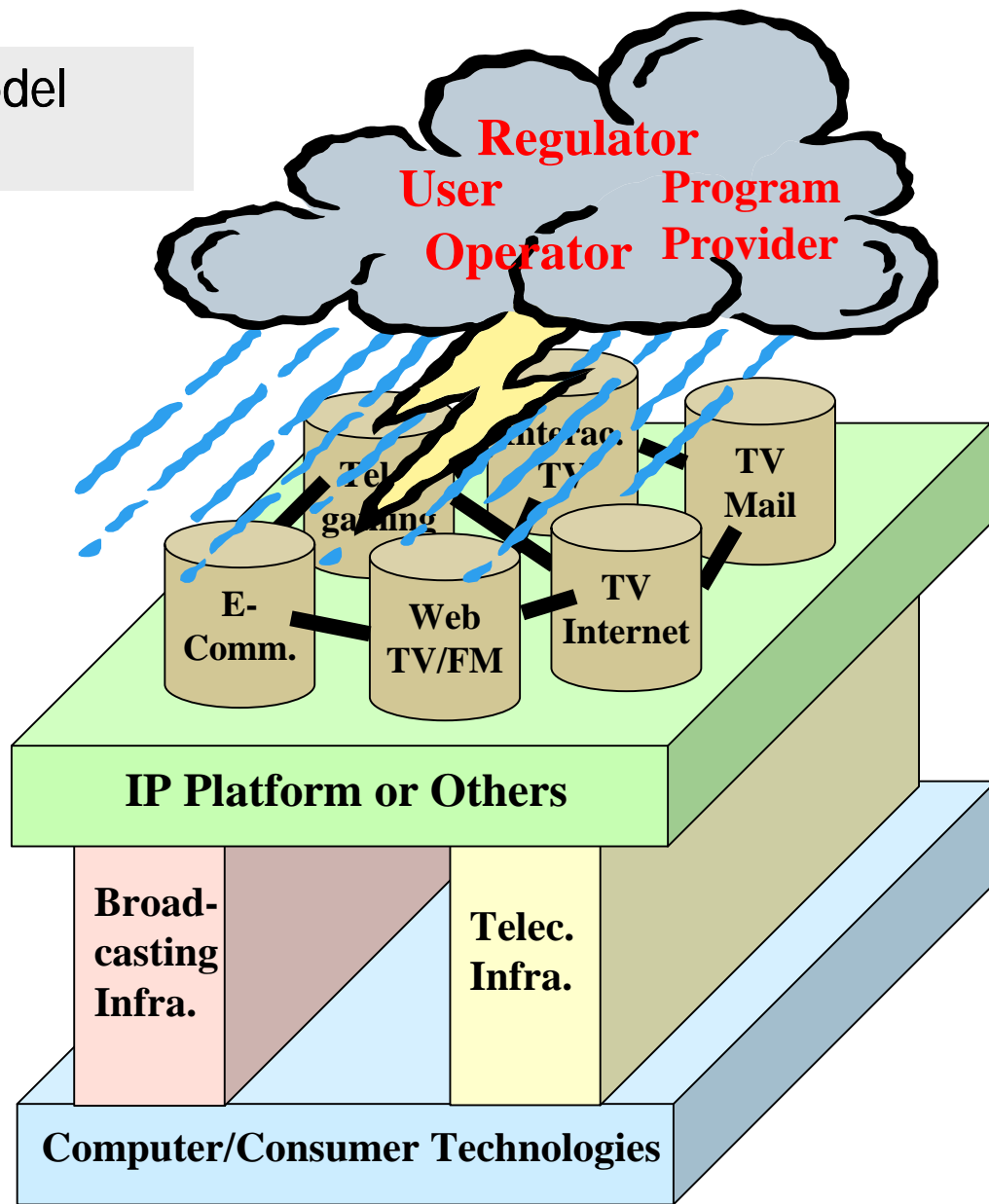
Relations
Enterprise Model ↔ Regulation

New Applications and their
Service Interworking

Networking Technologies
and their Adaptations

Interworking between two
Infrastructures and
their convergence

New Technologies
and their Products



Structural Model of Convergence



2. State-of-Art CGN

Fixed Network : Status and Problem

■ Status

- **No. 1 in the World in Broadband service deployment (FCC Report, 2002)**
- **Mature of New Access Network Technology**
 - Already deployed : ADSL(8Mbps), VDSL(52Mbps) etc.
 - Planned and initial stage of deployment : Metro Ethernet, PON etc.
- **Extension of WLAN, Broadband Mobile Internet etc.**

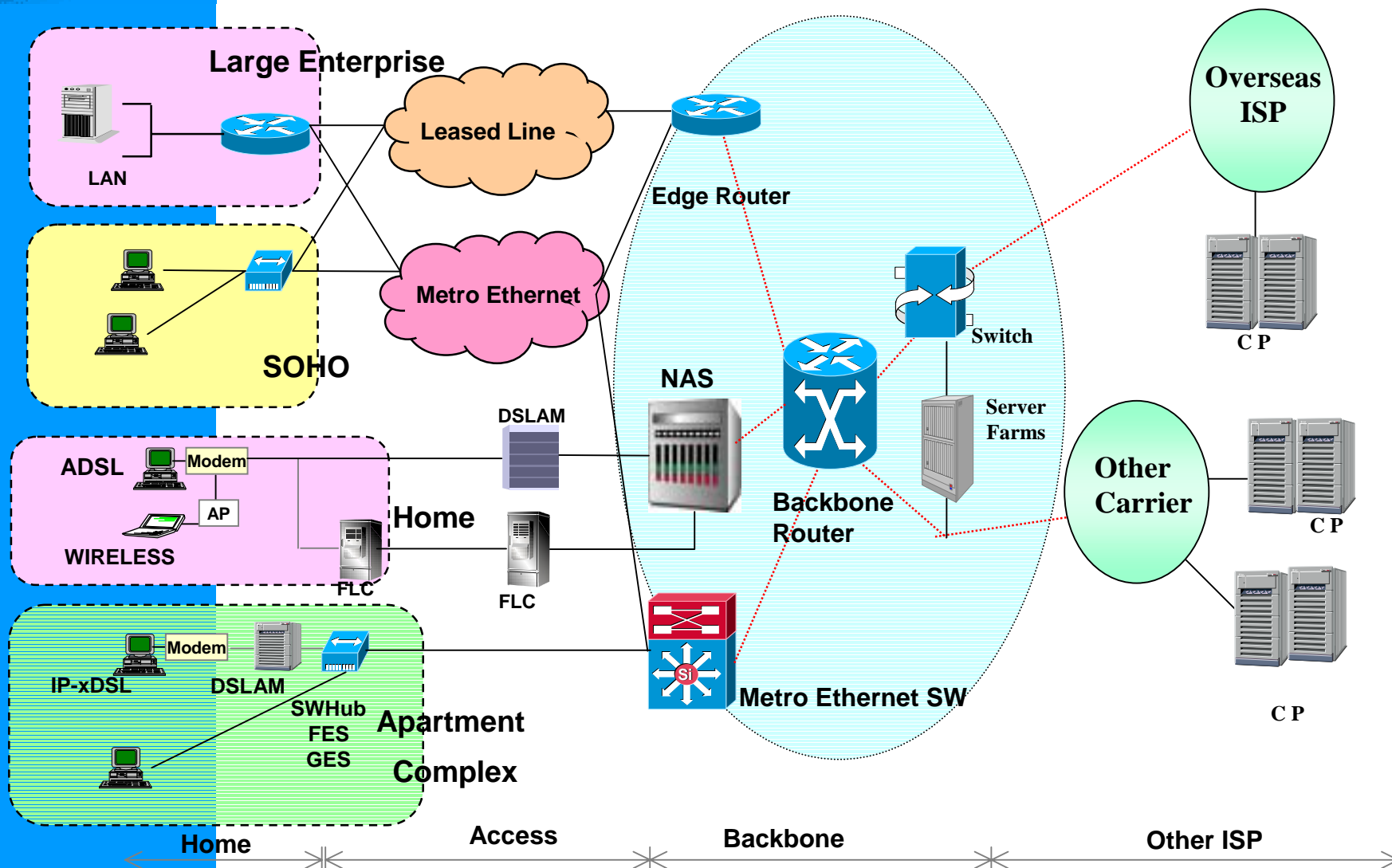
■ Problem

- **Paradigm shift : Structural Limit for Fixed Network Business**
 - Fixed · Mobile Transition, VoIP, Early saturation of ADSL, Substitut. of Leased line Service with new services (e.g. : IP-VPN, Metro Ethernet, etc.)
- **Development of new technology and Preparation for future convergence**
 - More Bandwidth and Quality : for High quality HD Video (20Mbps), etc.
 - Laws and regulations for Tele-Broadcasting and others
- **Lack of Interworking capa. in heterogeneous network for dynamic services**



2. State-of-Art CGN

Overall Configuration of Fixed Network





2. State-of-Art CGN

Mobile Network : Status and Problem

● Service Status and Problem

- **No. of Subscribers : Almost Saturate (32.4 Million, Feb. 2003)**
- **Services : Few new services (no more contribution to ARPU)**
- **Mobile Internet Services :**
 - **Major services : Melody / Graphic down load**
 - **Lack of Interworking with Fixed Network Internet services**

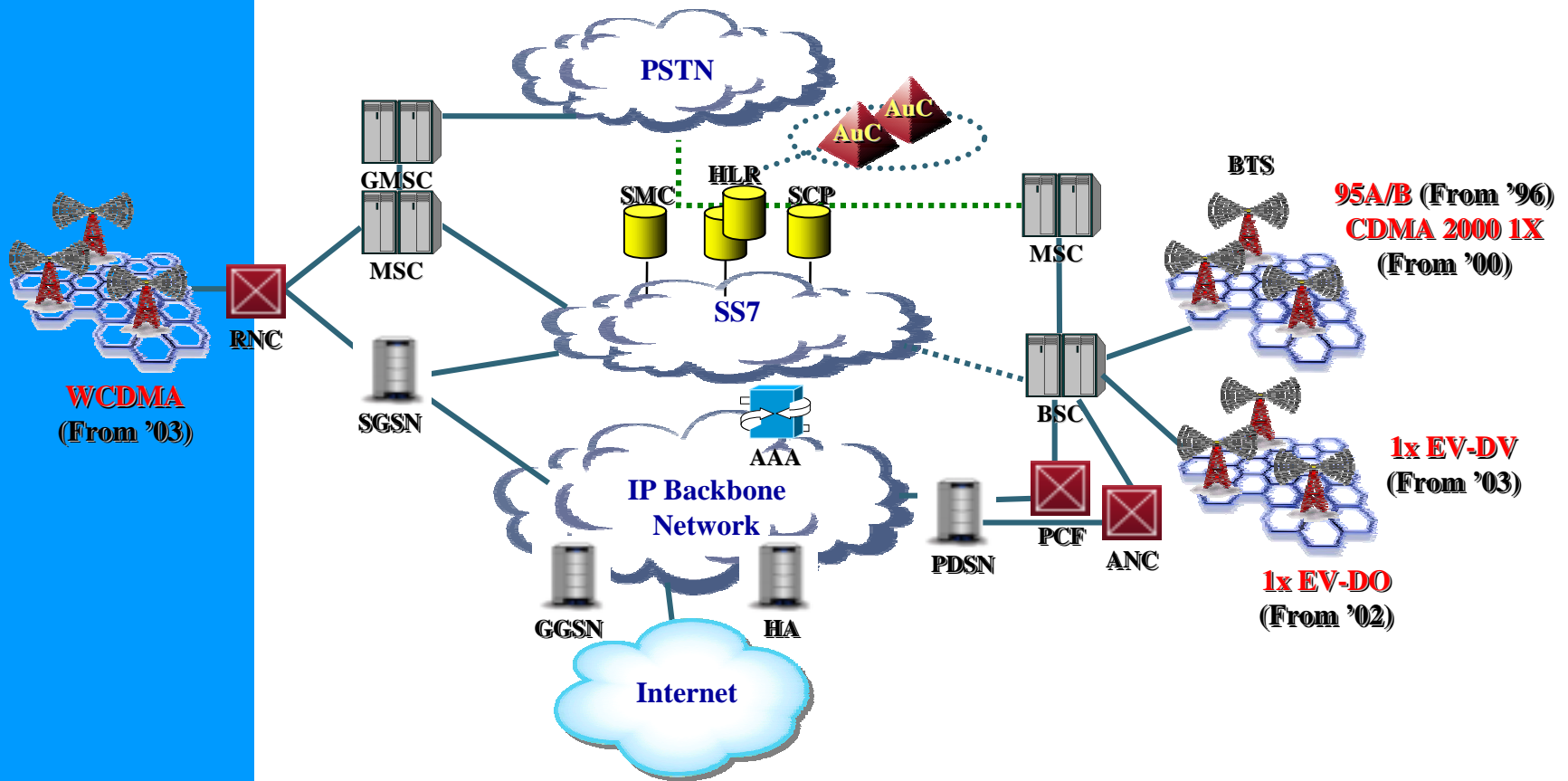
● Network Status and Problem

- **Used Technology : IS-95, cdma20001x, EVDO**
- **Lack of standard model for development of Application**
- **Difficulty for incorporation of new multimedia services**
(Voice based network, Lack of Open Interface)
- **Service QoS : Insufficient of QoS in wireless access area**



2. State-of-Art CGN

Overall Configuration of Mobile Network





2. State-of-Art CGN

Broadcasting Network : Status and Problem

■ Status

■ Digitalization of CATV based on DMC(Digital Media Center)

- Digitalization of Broadcasting Infra : Land (End 2001), Sat (2002.3), CATV(2003.7)
- Provide Bi-Directional Supplementary Services
 - Communication type Services : Email, Web-Browsing
 - New Services : EPG, PPV, VoD, Walled-Garden, T-Commerce etc.

■ Added Business Value with Bundled Services

- Broadcasting + Broadband Internet + VoIP \Rightarrow Triple Play

■ Extention of Business sector with DMB(Digital Multimedia Broadcasting

■ Problem

■ Limitation on Return Channel : Land / Satellite Broadcasting

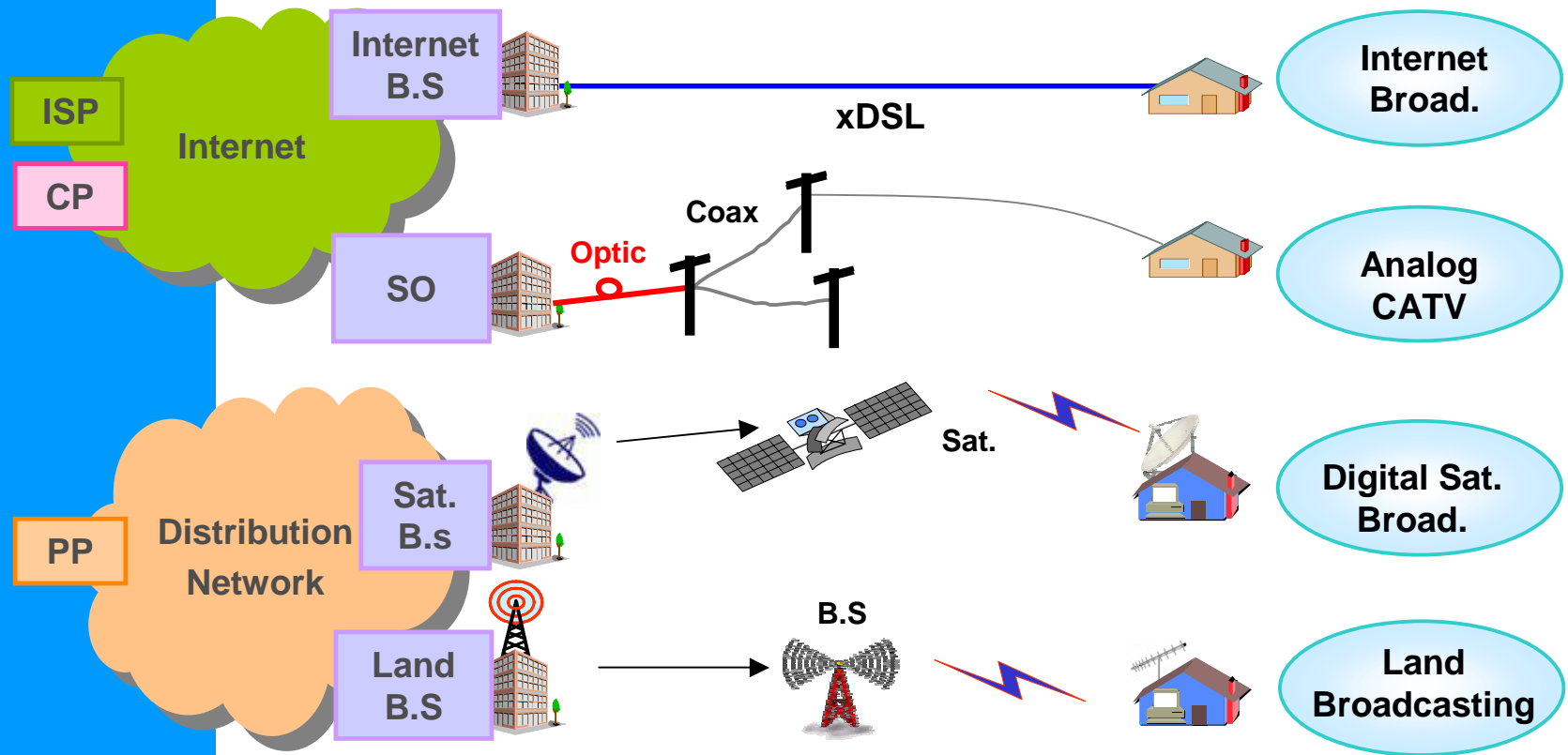
- For Bi-Directional services (need interworking with Telecom Network)

■ Bandwidth Limitation



2. State-of-Art CGN

Overall Configuration of Broadcasting Network





3. NG Requirements

Driving Forces towards NGcN

● Need of New Value Added Services

- Saturation of both Fixed and Mobile telephone services
- Need of Integrated (Fixed+Wireless) and Convergence (Telecom+Broad.)

● Need of New Service Paradigm

- Increase of Service requirements (Flex. of Access, Diversity of Service etc.)
- Increase of High Quality services (Beyond QoS over the Internet)

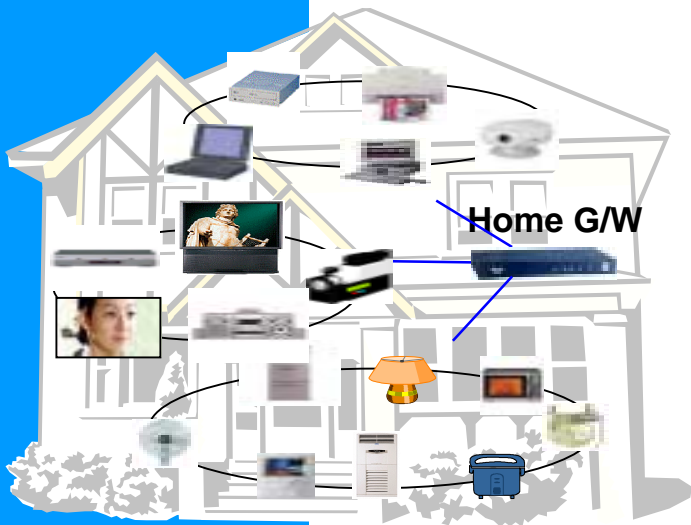
● Need growing energy for IT Business

- Preparation of New Revenue Stream based on IT Business
- Development of new high-tech and market



3. NG Requirements

Home Requirements : Digital Home

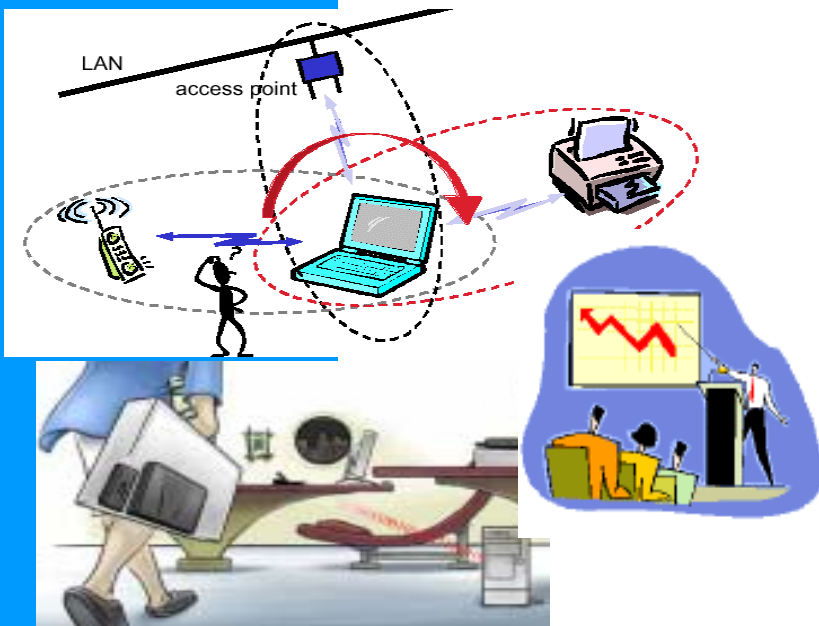


- QoS secure Critical Data
- Binding Mobile Phone \leftrightarrow Fixed Internet
- Intelligent Home Network
- Interworking Mobile Phone \leftrightarrow Home Net.
- IP addresses control each Home Appliances
- High level Security
- Telecom and Broadcasting convergence
- Mobility for Vertical Hand Over
- Convergence Terminal and appliance
- Broad-Bandwidth : Simultaneous use of
- 2 HDTV+1 Video Phone + 3D Internet Game



3. NG Requirements

Office Requirements : Digital Office

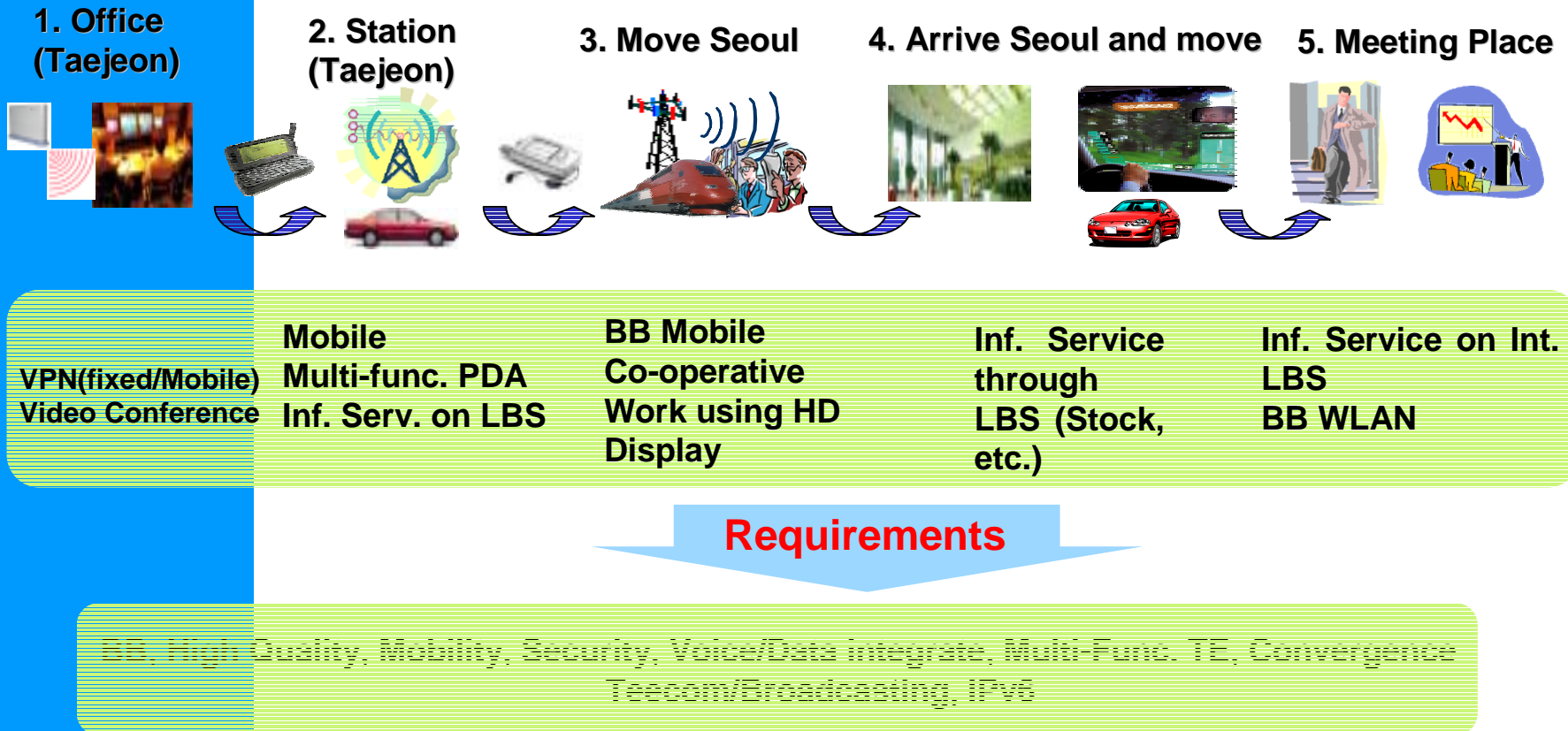


Broadband communication infra.
High Quality, Security and Authentication
Seamless Mobility
Integration of Voice and Data
IP address for all O.A. machines
Open API for cooperative work
Integrate of wire and wireless
Convergence btw. Telecom & Broadcasting
Multi function terminals Post-PC, Post PDA



3. NG Requirements

Mobile Requirements





3. NG Requirements

Overall Requirements

Home	Office	Mobile
BB (100Mbps) Interworking Fixed/Mobile Convg. TE/Appliance Advanced Home Net.	BB (~Tbps) Multi-Function TE	BB (~10Mbps) Multi-Function TE
QoS Security Open API IPv6 Mobility Converg. Telecom/Broadcas. Integra. Voice/Data		

Requirements

1. Broadband
2. Mobility
3. Home Networking
4. QoS
5. Security
6. Open API
7. IPv6
8. Integration Voice/Data
9. Integration Fixed/Mobile
10. Converg. Telecom/Broadcas.
11. Converg. Terminal/Appliance



4. NGcN vision for 2010

Definition of NGcN

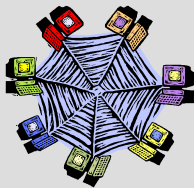
IP based integrated network for high quality convergence services through dynamic accesses



Convergence Services

Dynamic Access

High Quality Service



**Integrated
Network**

Broadband

Mobility

Advanced Home Network

QoS

Security

Open API

IPv6

Integration of Voice/Data

Integration Fixed/Mobile

Converg. Telecom/Broadcas.

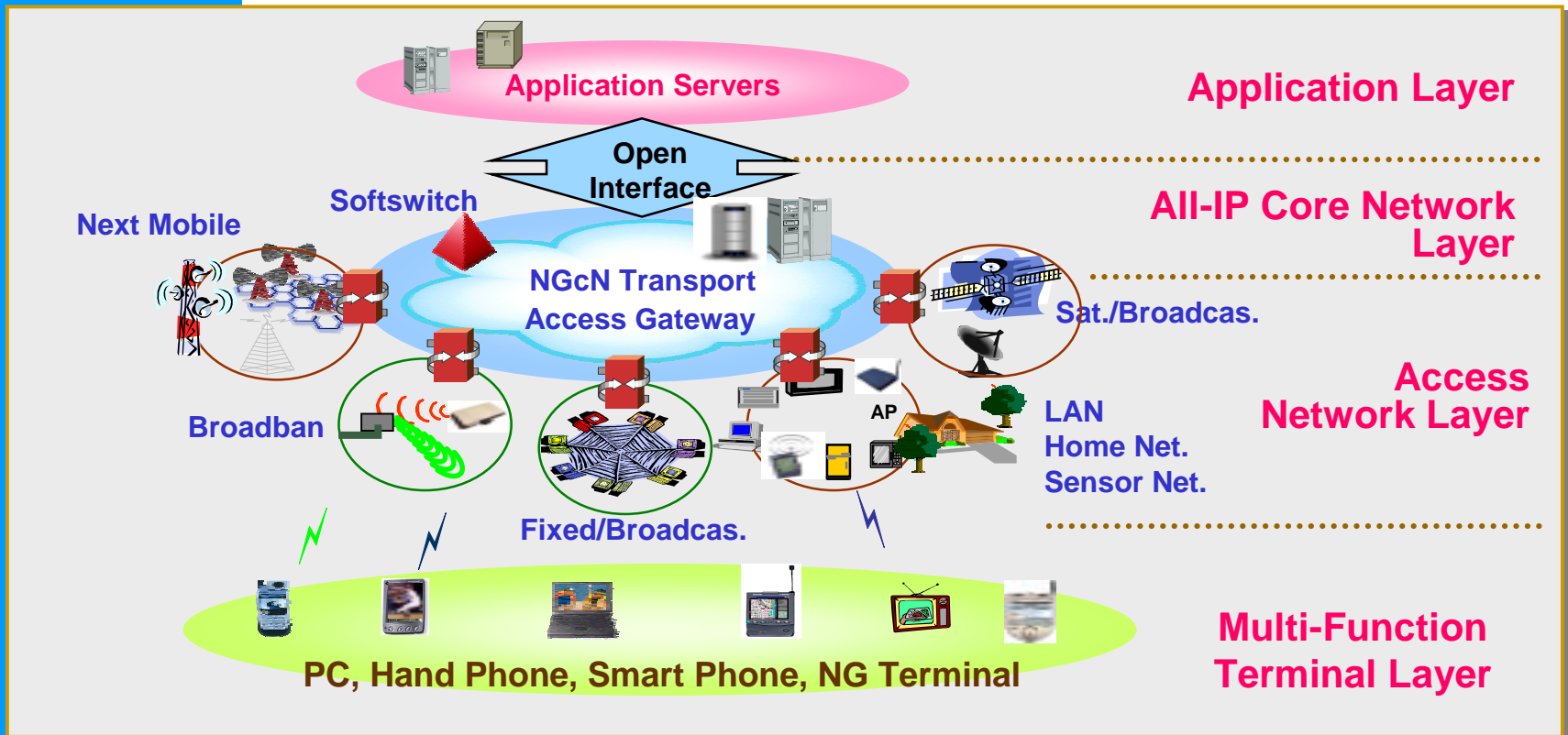
Converg. TE/Appliance



4. NGcN vision for 2010

General Architecture of NGcN

- ❑ ONA for easy of new service
- ❑ All IP based integrated transport net.
- ❑ Integrated Customer/Service/Billing Mng.
- ❑ Dynamic Access Network
- ❑ Multi-Function TE





4. NGcN vision for 2010

User vision of NGcN

☐ Differentiation

End-to-End QoS

Choose differentiated CoS (Class of Services)

☐ Transparent Access

Access services through Fixed/Mobile by single Id.

Connect to Any Network through Multi-Function TE

☐ Seamless Mobility & User awareness

Seamless services in Heterogeneous networks

Location Based Service

☐ Customized Services

Personalized Services with integrated Fixed/Mobile service profiles

Unified Subscription and Integrated Billing

☐ Diversity and dynamic way to communication

Man-to-man, Man-to-machine

One-to-one, One-to-many, Many-to-many

☐ Broadband Multi-media

Voice, Data, Video

Very High Quality Multi-media Contents



5. Conclusion

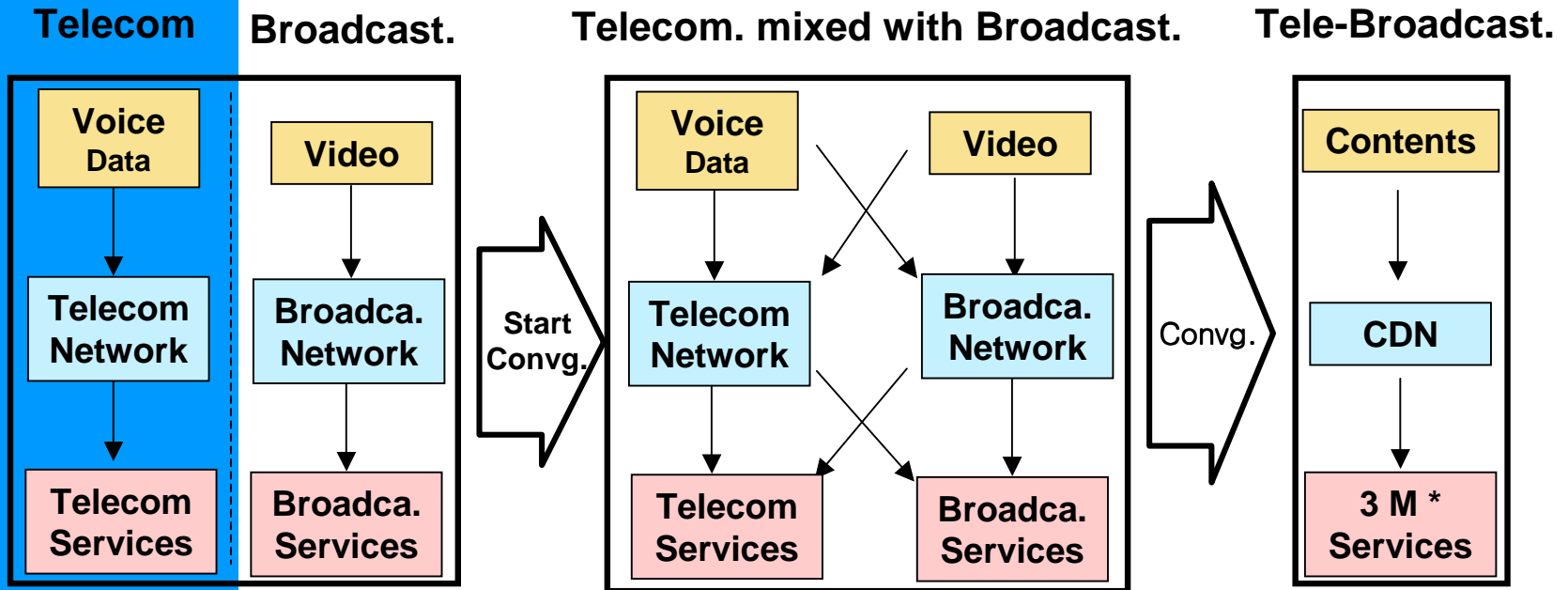
Study Scope of Next Generation

- **Focus on Convergence**
 - **Fixed-Mobile, Telecom-Broadcas., Private-Public etc.**
 - **Business Model & Service scenarios (inc. Reg. imp.)**
- **Focus on Un-bundle and Bundle**
 - **Un-bundle of Services with Transport**
 - **Bundling between Services and Applications**
 - **Blurring between Control and Management**
- **Attention on interworking aspects**
 - **NGN could be migrated evolutionary**
 - **NGN will provide backward compatibility**

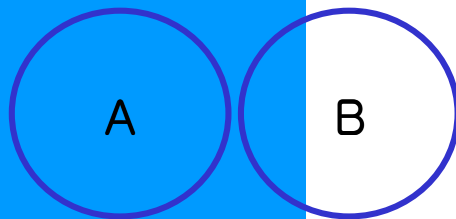


5. Conclusion

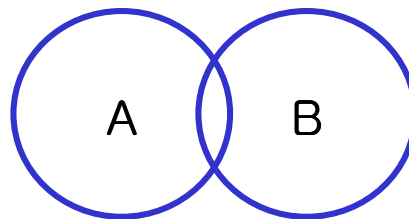
Process of Convergence



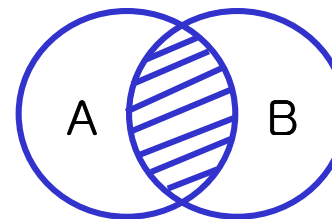
* 3M : Multimedia, Multiparty, Multicasting



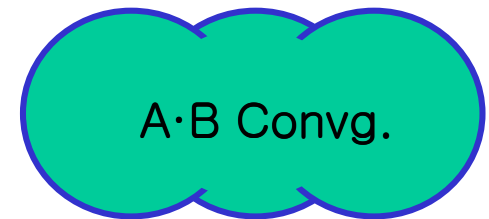
- Sep. Reg. Authority
- Stable Bus. Structure
- Stable Tech. Infrs.



- Sep. defini. (each side)
- Exten. each Bus. area
- Exten. of Tech. capa.



- Comp. btw. Reg. Aut.
- Comp. btw. Bus. Play.
- Comp. btw. Tech. Inf.

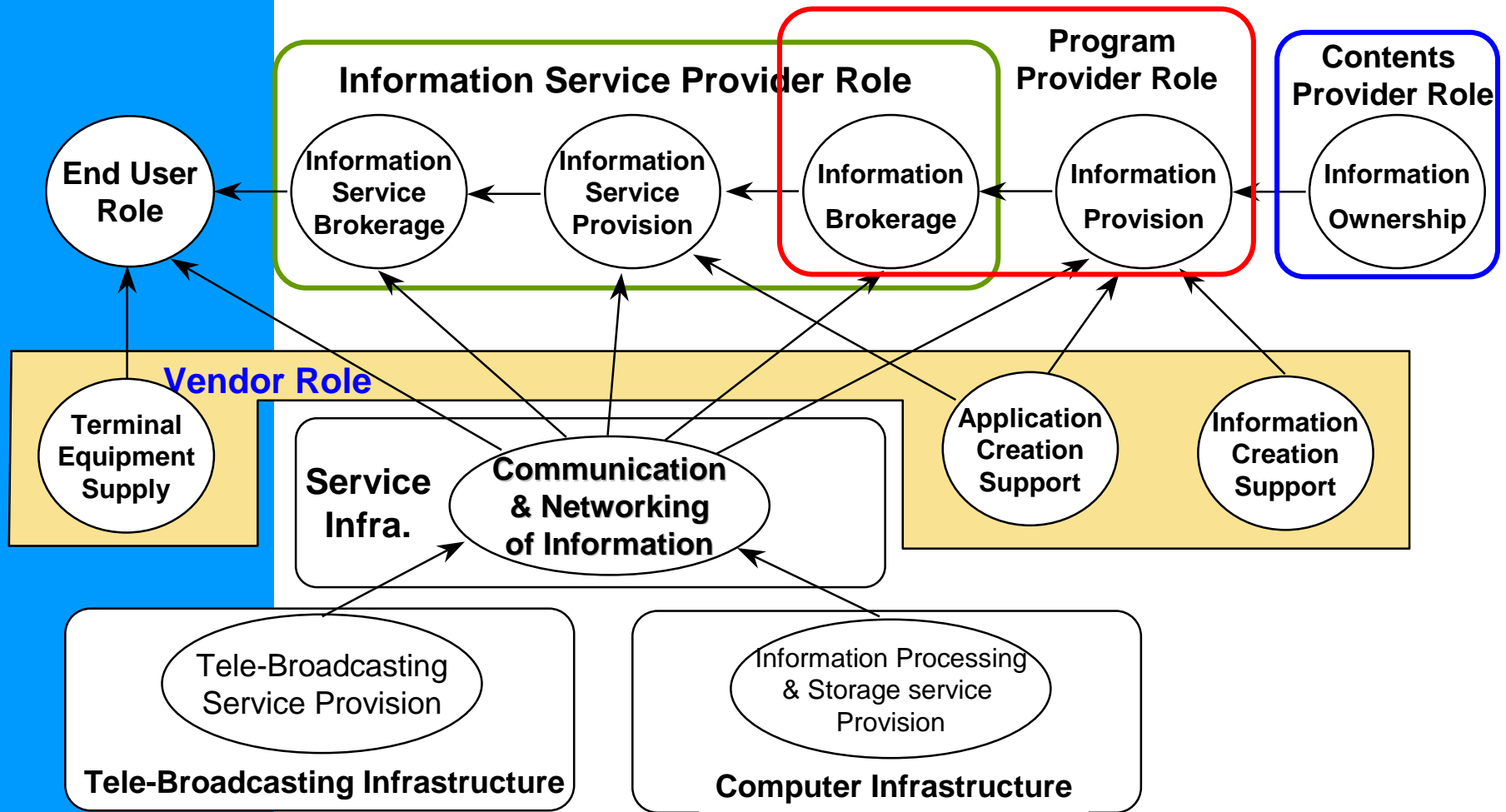


- Integ. Reg. Auth.
- Confirmed Bus. Area
- Stable Tech. Infrs.



5. Conclusion

Impacts on Enterprise Model

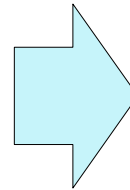




5. Conclusion

Simplified Realization Model of NGN

- Content Delivery Network Infrastructure
- Service Broker Infrastructure
- Information Broker Infrastructure



**Convergence
Integration
Mobility (Uniq. ID)**

