



International Telecommunication Union

IPTV Technical Issues and Standardization Strategies in Korea

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Backgrounds of IPTV Services in Korea - 1

- **Deploy Broadband Convergence Network**
 - Finish 1st stage Test Trial of Broadband convergence Network
- **Saturation of Telecommunication Markets**
 - 0.6 % Increase of Fixed/Mobile Telephone and Internet Market at 2004
- **New Business Model of Broadcast Service**
 - 25.4 % Increase in CableTV Business at 2004
 - 70.4 % Increase of Satellite Business at 2004
- **Triple Play Service (TPS) Competition**
 - Cable-based TPS versus Internet-based TPS



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Backgrounds of IPTV Services in Korea - 2

- o Upgrade Premium IP Network as BcN
 - Ready to adopt NGN capabilities (e.g., QoS, mobility, security, and Billing, etc.)
- o Business model for converged services are outstanding issues
 - Content distribution: protected by broadcast domains
 - Customer: already enjoy DMB and VoD
 - Regulation: not ready
- o Home Network is ready to merge
 - IPTV STB system is a part of Home devices



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IPTV Services in Korea - 1

- o **“TOEST” service as download service**
 - Download TV dramas, movies, animation, and education materials,
 - though ADSL/VDSL, Wireless LAN
 - By using PDA, PMP, Nespot swing phone
 - Flat rate and usage-based charging option

- o **‘Megapass TV’ as IP Media Service**
 - Combined with broadcast services with trick mode, VoD, Download, and PPV, etc.
 - Non real-time bi-directional video distribution service
 - With Email, SMS, Banking and Stock Exchange, Home shopping, News, Weather, Road Traffic information, and Game, etc.
 - Combined with Home network service
 - though ADSL/VDSL, Wireless LAN



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IPTV Services in Korea - 2

- o **“Hana TV” as Enhanced VoD Service**
 - VoD services for TV Drama, Movie, Animation, and News, etc.
 - TV portal services as the TPS merging Telephony, VoD, broadband TV
 - Flat rate and usage-based charging option
 - By using STB with Internet access capability

- o **“Gom” TV as TV Portal service**
 - As Internet applications for movie, audio, news, sport, and game, etc. (not include TV services)
 - combined DMB services with recording and time shift functions
 - No STB is required
 - Will be enhanced with user created web menu



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IPTV Services in Korea - 3

- o “Pandora” TV as UCC web portal service
 - UCC/UGC-based Web TV Portal like personal mini-home page
 - By using ADSL/VDSL and Wireless LAN
 - No STB is required
 - Will be upgraded to provide 2G/3G, WiBro and DMB interfaces



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IPTV Strategies in Korea - 1

- **Develop Valuable Contents for IPTV**
 - Don't rely on retransmission of existing TV contents
 - Develop high quality and differentiated contents
 - Integrate with existing Web, DMB, and VoIP telephony
- **Common and Interoperable STB systems**
 - Cost-efficient and low cost IPTV STB with global interoperability
- **Develop value-added supplementary services**
 - new revenue from supplementary functions of PSTN and 2G/3G network by combining IPTV (e.g., SMS, 800 services, location, etc.)
- **Regulation for convergence services**
 - Construct BcN Infrastructure to integrate Fixed/Wireless and Broadcast network
 - Encourage convergence business of IPTV
 - Support deployments of IPTV STB and new convergence service



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IPTV Strategies in Korea - 2

o Telco Carrier's Strategies

- 1st Deployment Strategies
 - IP-VoD or Web TV by using high speed fixed/wireless IP network
- 2nd Deployment Strategies
 - Focus on IPTV Platform and provide TV Portal by UCC/UGC
 - Develop IPTV STB over BcN and combine with Home network

o Broadcast Carrier's Strategies

- 1st Deployment Strategies
 - Focus on digital TV distribution with interactive control
- 2nd Deployment Strategies
 - Upgrade High Definition digital TV with Web services

o Cable Provider Strategies

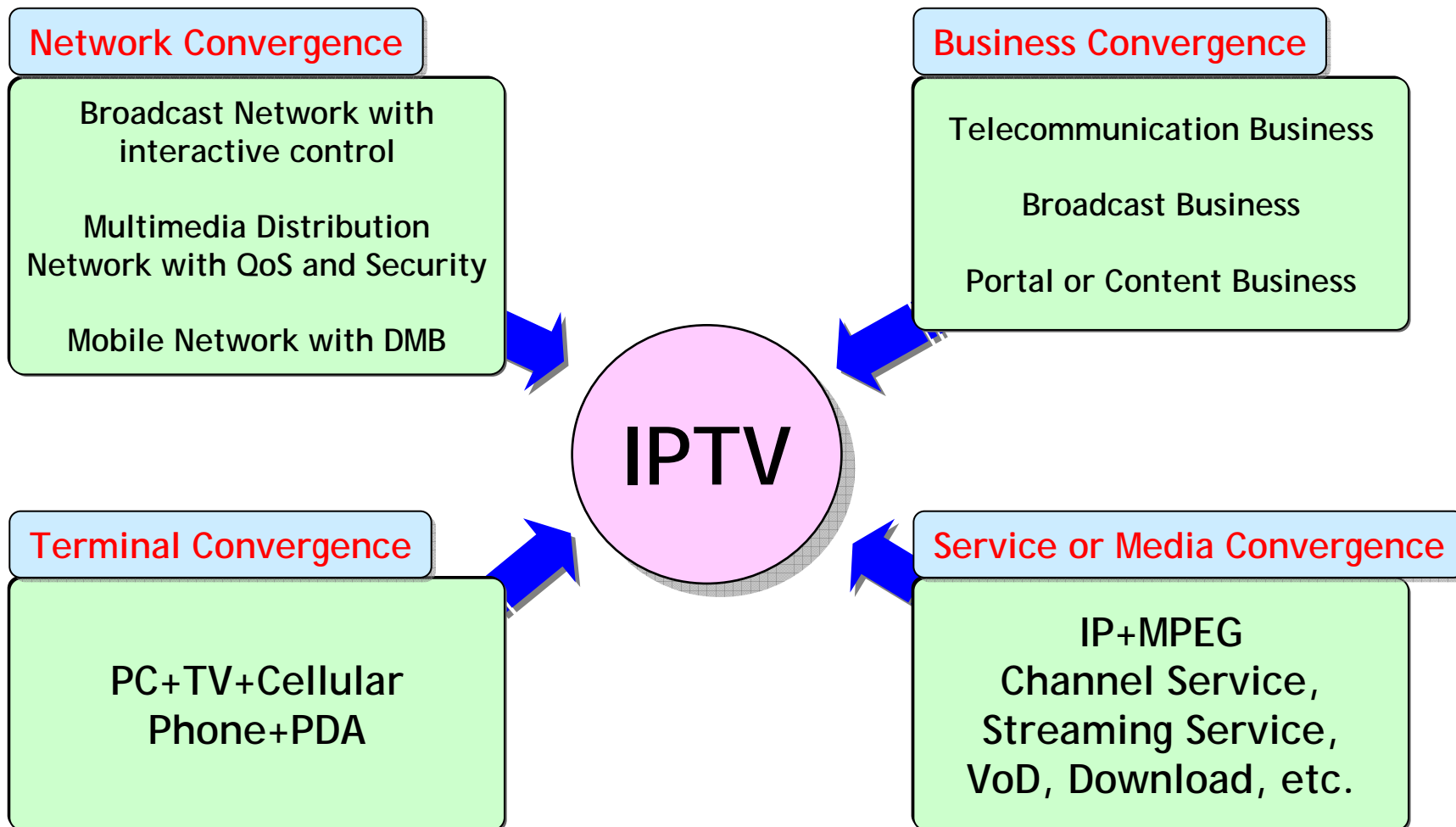
- 1st Deployment Strategies
 - Low cost CableTV services with IP access
- 2nd Deployment Strategies
 - IPTV services as TPS services with Digital Media Centers



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IPTV Convergence in Korea

o Convergence Viewpoints of IPTV





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Regulatory Issues on IPTV Convergence in Korea - 1

o Regulatory Implications

Communication	Broadcast
Universal Services	Public and common
Interactive Services and Acceptable Billing	Limited Frequency Resource, Social influence
Market Competitiveness	Heterogeneity, Multiplicity, Regionalism
Industrial Aspects	Cultural Aspects
De-regulation of Telecommunication	Political Impacts of Broadcast



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Regulatory Issues on IPTV Convergence in Korea - 2

o Position for IPTV Services in Korea

<u>Governments</u> Require new regulation for convergence services including IPTV	<u>Broadcast Committee</u> Extend the existing broadcasting rule
<u>Telco-Business Views</u> One of Triple Player Services	<u>Broadcast Business Views</u> A part of Digital TV services

→ Consider Horizontal Regulatory Structure

- Separate transport from contents
- Transport: maximize competition

→ Step-wise Deregulation depending on Market and Service Convergence

- Market, Service and Technology Convergence



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Initial Deployments of IPTV in Korea

o Network Configurations

- Core: Premium IP network (that is BcN)
- Access: VDSL, L2/L3 switch, PON, Cable, and WLAN/WiBro
- Security: CAS
- Network control: IP-QoS
- Server: Provisioning server, VoD Server, Monitoring server, Multicast server, etc.

o IPTV Systems

- STB: replace Cable/xDSL STB, remote configurable
- Video Encoding: MPEG2, MPEG4, and H.264, etc.
- Middleware: ACAP, DVB-MHP, and OCAP, etc.



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Technical Issues of IPTV FG - 1

- **Consider Various Business Models**
 - Who is the major Market Player/Driver ?
 - How to get the Revenue ?
- **Flexible Network Architecture**
 - How to co-exist and converge Telco-network, Broadcast network and Client/Server (computer) network ?
 - Manageable network control including servers
 - Ready to invite home network ?
- **Remote Configurable Middleware Platform**
 - Portability to remotely install ever changing middleware software
 - Easy to control IPTV service menu including media processing
 - Provide service and content security

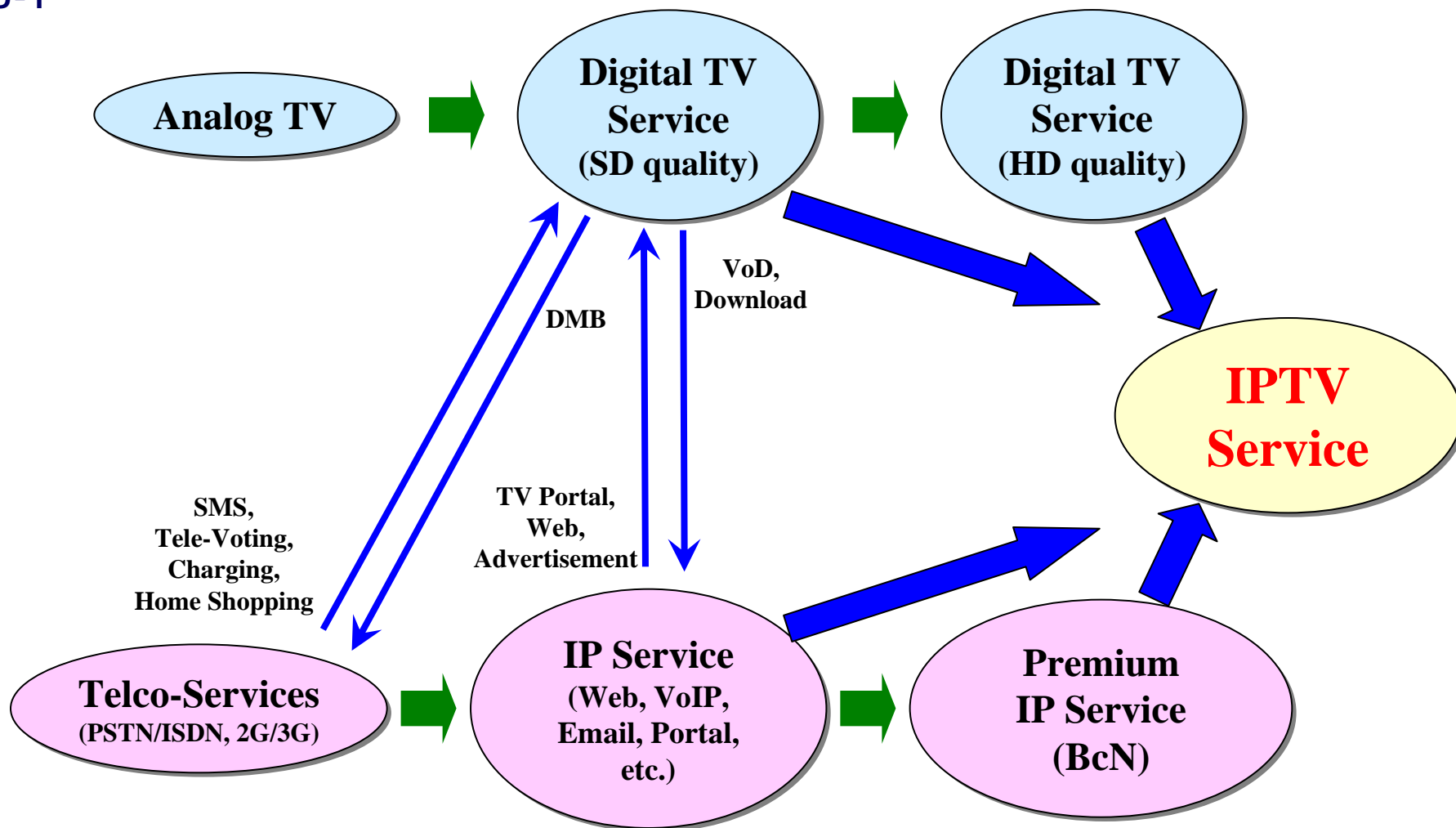


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Technical Issues of IPTV FG - 2

- o **Critical Requirements for IPTV Standardizations**
 - Network/Service Providers Aspects
 - Network Performance and Efficiency
 - On-Demand Provisioning of New Converged Services
 - Security on Service Provisioning and Billing
 - System and Technology Stability
 - Customer Aspects
 - High Quality in Performance, Availability, and Security
 - Low costs with various billing options
 - Easy to use STB including middleware
 - User Created Services and Contents
 - Content Provider Aspects
 - Content security
 - How to advertise new contents ?

Service Evolution for IPTV

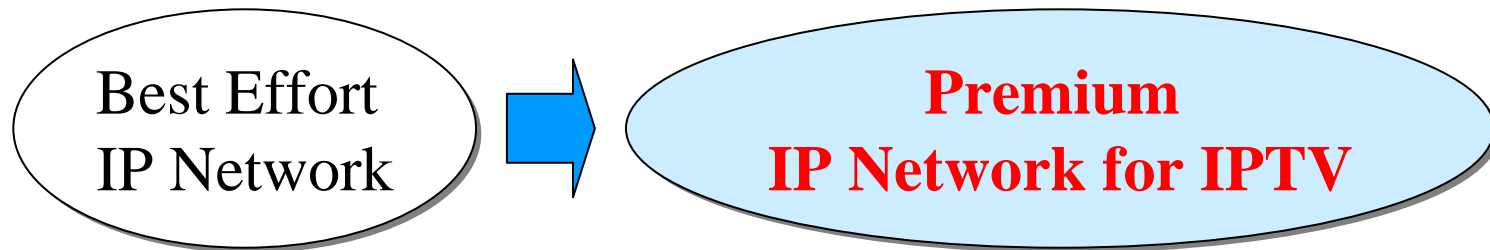




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Network Evolution for IPTV - 1

o IP Network Evolution



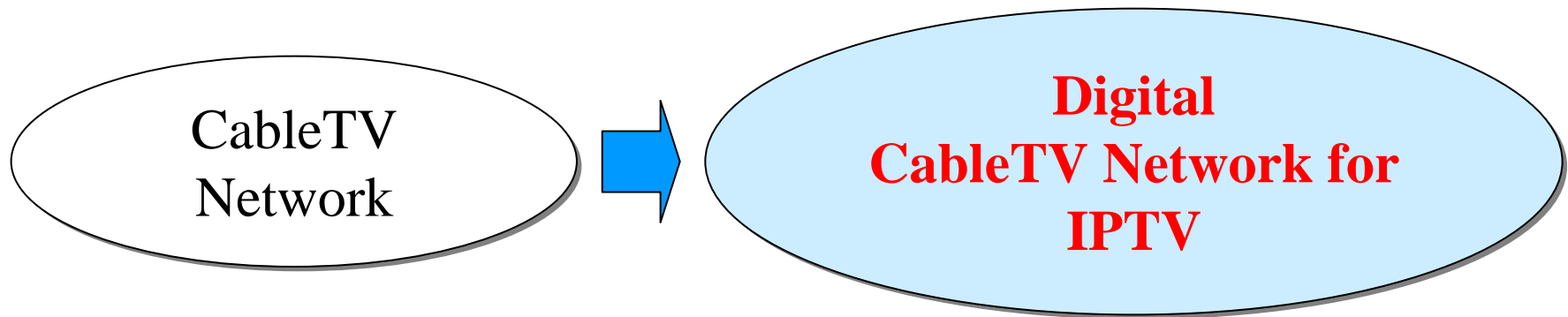
- New Added functions
 - Multicast/broadcast distribution functions with QoS
 - Broadband Wireless interface with mobility
 - Network, service, and content Security
 - Connection control and media processing
 - On-line Billing and charging



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Network Evolution for IPTV - 2

o CableTV Network Evolution



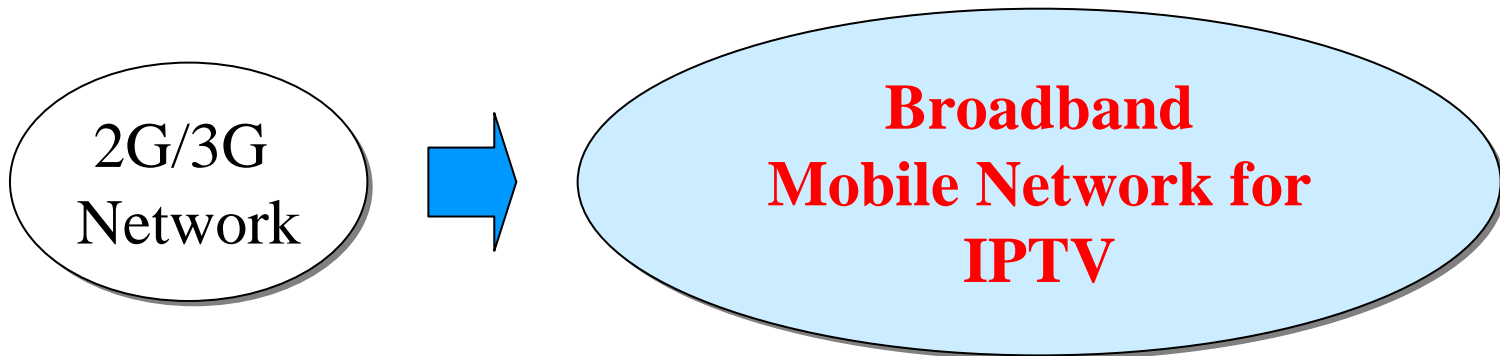
- New Added functions
 - Network, service and content security
 - Telco-based service platform (e.g., VoIP, SMS, Email, etc.)
 - Naming and addressing (e.g., E.164, IPv4/IPv6)
 - Manageable network resource including QoS
 - On-line monitoring and charging option
 - Media Processing (e.g., MPEG, API, etc.)



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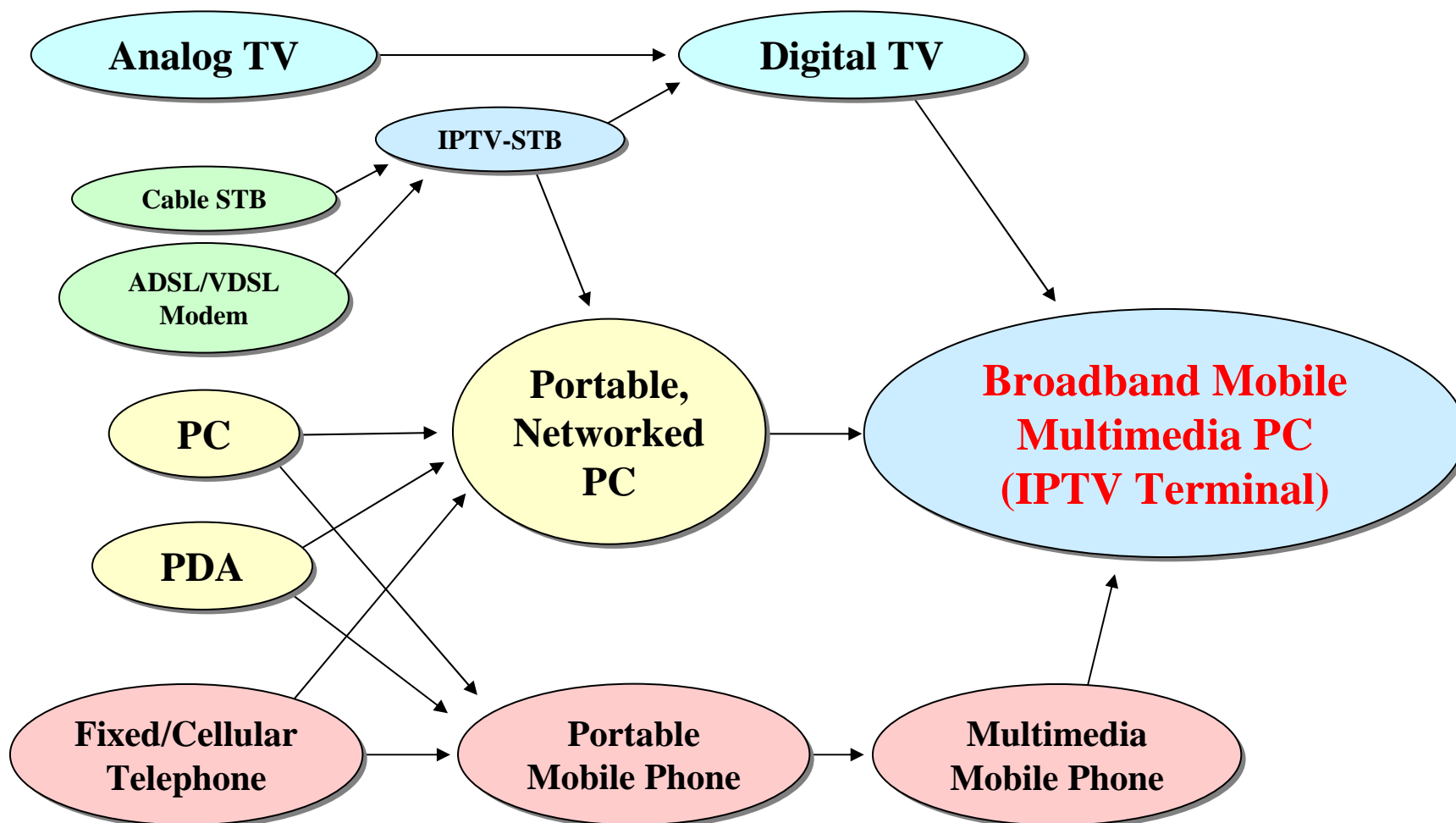
Network Evolution for IPTV - 3

o Mobile Network Evolution

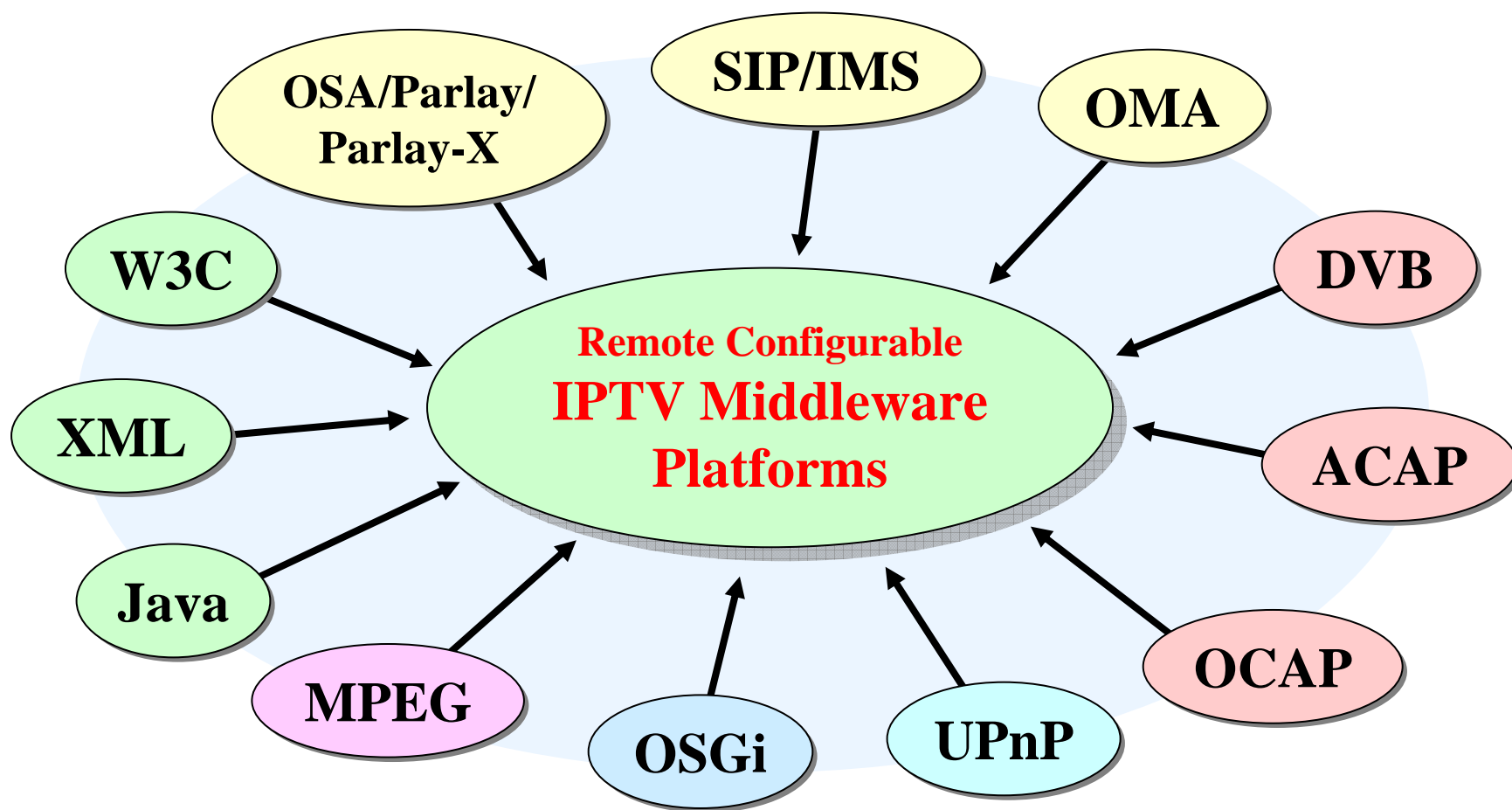


- New Added functions
 - Seamless Handover with security option
 - Mobile multicast/broadcast functions with QoS
 - Web-based Middleware platform including XML and Java
 - Wireless LAN/WiBro/WiMax interfaces
 - Connection control and media processing without STB

Terminal Evolution for IPTV



Middleware/Media Evolution for IPTV





Conclusions

Standardization Strategies of IPTV Focus Group

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- 1st stage: Identify Architectural Requirements and Service Scenarios
 - Focus IPTV Players and service scenarios in order to provide **fair competition** and **open service environments**
 - Specify **interfaces** of network and end users as **Demarcation Point** among IPTV players
 - Administrative and regulatory domains for fair and open service environments
 - e.g., customer-to-network interface, network-to-network interface, service provider-to-content provider interface, etc.
 - Check available **technologies** and their evolutions
 - web technology, consumer electronics, video/audio coding, etc.
 - Identify the **requirements** for IPTV services
 - Various views of service/network operator, system developer, content designer, and technology developer, etc.
- 2nd stage: Develop specifications within ITU-T role
 - Develop IPTV network architecture according to service scenario and commercial players
 - Review the existing De Facto standards and develop the relevant documents within ITU-T role
 - but, don't re-invent the existing implementation standards