국제표준화 추진방법 (JTC1/SC6)

고 석 주

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경북대학교

목 차

JTC1

- **ISO / IEC JTC1**
- **Joint Technical Committee 1 (정보기술)**
  - ISO/TC 97 (정보처리시스템)
  - IEC/TC 83 (정보기기)
- **“Information Technology” (IT)**
- **http://www.jtc1.org**

JTC1 조직도

- ISO/IEC JTC 1
- SC 02 "Coded character sets"
- SC 06 "Telecommunications and information exchange between systems"
- SC 07 "Software and system engineering"
- SC 17 "Cards and personal identification"
- SC 22 "Programming languages, their environments and system software interfaces"
- SC 23 "Digital Storage Media for information interchange"
- SC 24 "Computer graphics, image processing and environmental data representation"
- SC 25 "Interconnection of information technology equipment"
- SC 27 "IT Security techniques"
- SC 28 "Office equipment"
- SC 29 "Coding of audio, picture, multimedia and hypermedia information"
- SC 31 "Automatic identification and data capture techniques"
- SC 32 "Data management and interchange"
- SC 34 "Document description and processing languages"
- SC 35 "User interfaces"
- SC 36 "Information Technology for Learning, Education and Training"
- SC 37 "Biometrics"

- **JTC1 Directives**
  - 5th Edition
- **17개 분과위원회 (SC)**
- 정회원**(P) 26**개국
- 준회원**(O) 43**개국
- **SC** 의장단
  - SC Chair
  - Secretariat
  - WG Convener
- **Korea**
  - SC6: 의장, 간사
  - SC24: 의장

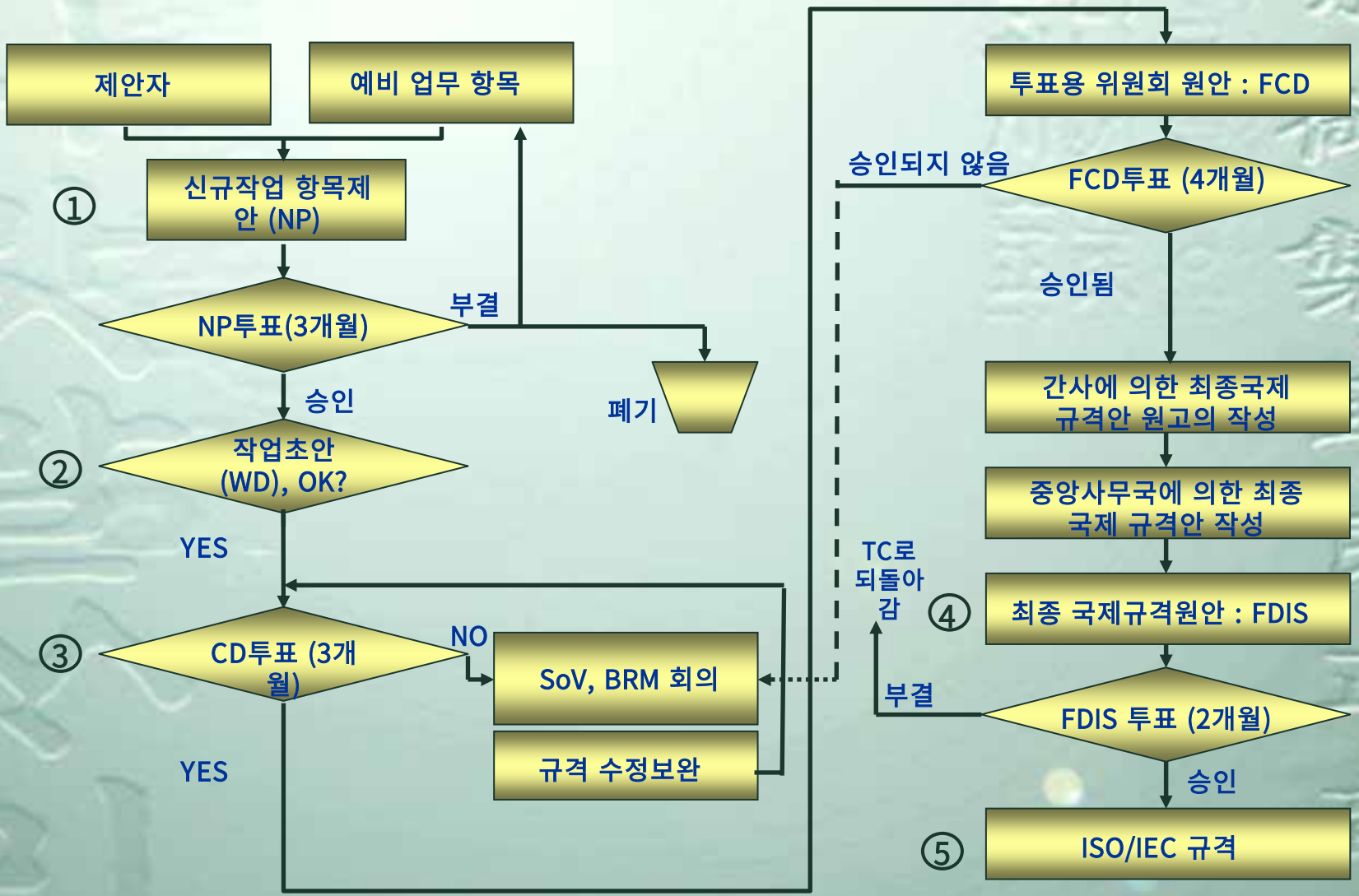
JTC1 표준화절차

Stage	Standard	Amendment	Fast Track	Technical Report	ISP	Technical Corrigendum
Stage 0						
Stage 1 (Proposal)	NP	NP		NP	NP	
Stage 2 (Preparatory)	WD	WD		WD	WD	Defect Report
Stage 3 (Committee)	CD FCD	PDAM FPDAM		PDTR	PDISP	DCOR
Stage 4 (Approval)	FDIS	FDAM	DIS	DTR	FPDISP	
Stage 5 (Publication)	IS	AMD	IS	TR	ISP	COR

JTC1 표준화 단계: Standard Track

프로젝트 단계 (stage)	관 련 문 서	
	명 칭	약 어
0 예비단계	예비 업무항목(Preliminary Work Item)	PWI
1 제안단계	신규 업무항목 제안(New Work Item Proposal)	NP
2 준비단계	작업 초안(Working Draft)	WD
3 위원회단계	위원회 초안(Committee Draft) 최종 위원회 초안(Final CD)	CD FCD
4 승인 단계	국제규격안(Draft International Standard) 최종 국제규격안(Final DIS)	DIS FDIS
5 발행 단계	국제규격(International Standard)	IS

JTC1 표준화 절차: Summary



문서 Sample: G3 (NWIP)

G3 New Work Item Proposal

PROPOSAL FOR A NEW WORK ITEM

Date of presentation of proposal: YYYY-MM-DD	Proposer: ISO/IEC JTC 1/SC XX
Secretariat: National Body	ISO/IEC JTC 1 N XXXX

A proposal for a new work item shall be submitted to the secretariat of the ISO/IEC joint technical committee concerned with a copy to the ISO Central Secretariat.

Presentation of the proposal - to be completed by the proposer Guidelines for proposing and justifying a new work item are given in ISO Guide 26.

Title (subject to be covered and type of standard, e.g. terminology, method of test, performance requirements, etc.) Specification of Data Value Domain
Scope (and field of application)
Purpose and justification - attach a separate page as annex, if necessary
Programme of work If the proposed new work item is approved , which of the following document(s) is (are) expected to be developed? ____ a single International Standard more than one International Standard (expected number: .....) ____ a multi-part International Standard consisting of ..... parts ____ an amendment or amendments to the following International Standard(s) ..... ____ a technical report , type .....
Relevant documents to be considered
Cooperation and liaison
Preparatory work offered with target date(s)
Signature:
Will the service of a maintenance agency or registration authority be required? ..... - If yes, have you identified a potential candidate? ..... - If yes, indicate name ..... Are there any known requirements for coding? ..... -If yes, please specify on a separate page Does the proposed standard concern known patented items? ..... - If yes, please provide full information in an annex

Comments and recommendations of the JTC 1 Secretariat - attach a separate page as an annex, if necessary

Comments with respect to the proposal in general, and recommendations thereon: It is proposed to assign this new item to JTC 1/SC XX

Voting on the proposal - Each P-member of the ISO/IEC joint technical committee has an obligation to vote within the time limits laid down (normally three months after the date of circulation).

Date of circulation: YYYY-MM-DD	**Closing date for voting:** YYYY-MM-DD	**Signature of JTC 1 Secretary:**

NEW WORK ITEM PROPOSAL - PROJECT ACCEPTANCE CRITERIA		
Criterion	**Validity**	**Explanation**
A Business Requirement		
A.1 Market Requirement	Essential ___ Desirable ___ Supportive ___	
A.2 Regulatory Context	Essential ___ Desirable ___ Supportive ___ Not Relevant ___	
B. Related Work		
B.1 Completion/Maintenance of current standards	Yes ___ No___	
B.2 Commitment to other organization	Yes ___ No___	
B.3 Other Source of standards	Yes ___ No___	
C. Technical Status		
C.1 Mature Technology	Yes ___ No___	
C.2 Prospective Technology	Yes ___ No___	
C.3 Models/Tools	Yes ___ No___	
D. Conformity Assessment and Interoperability		
D.1 Conformity Assessment	Yes ___ No___	
D.2 Interoperability	Yes ___ No___	
E. Other Justification		

문서 Sample: G3 (NWIP)

Notes to Proforma

A. Business Relevance. That which identifies market place relevance in terms of what problem is being solved and or need being addressed.

A.1. Market Requirement. When submitting a NP, the proposer shall identify the nature of the Market Requirement.

A.2 Technical Regulation. If a Regulatory requirement is deemed to exist - e.g. for an area of public concern e.g. Information Security, Data protection, potentially leading to regulatory/public interest action based on the use of this voluntary international standard - the proposer shall identify this here.

B. Related Work. Aspects of the relationship of this NP to other areas of standardization work shall be identified in this section.

B.1 Competition/Maintenance. If this NP is concerned with completing or maintaining existing standards, those concerned shall be identified here.

B.2 External Commitment. Groups, bodies, or fora external to JTC 1 to which a commitment has been made by JTC for cooperation and or collaboration on this NP shall be identified here.

B.3 External Std/Specification. If other activities creating standards or specifications in this topic area are known to exist or be planned, and which might be available to JTC 1 as PAS, they shall be identified here.

C. Technical Status. The proposer shall indicate here an assessment of the extent to which the proposed standard is supported by current technology.

C.1 Mature Technology. Indicate here the extent to which the technology is reasonably stable and ripe for standardization.

C.2 Prospective Technology. If the NP is anticipatory in nature based on expected or forecasted need, this shall be indicated here.

C.3 Models/Tools. If the NP relates to the creation of supportive reference models or tools, this shall be indicated here.

D. Any other aspects of background information justifying this NP shall be indicated here.

D. Conformity Assessment and Interoperability

D.1 Indicate here if Conformity Assessment is relevant to your project. If so, indicate how it is addressed in your project plan.

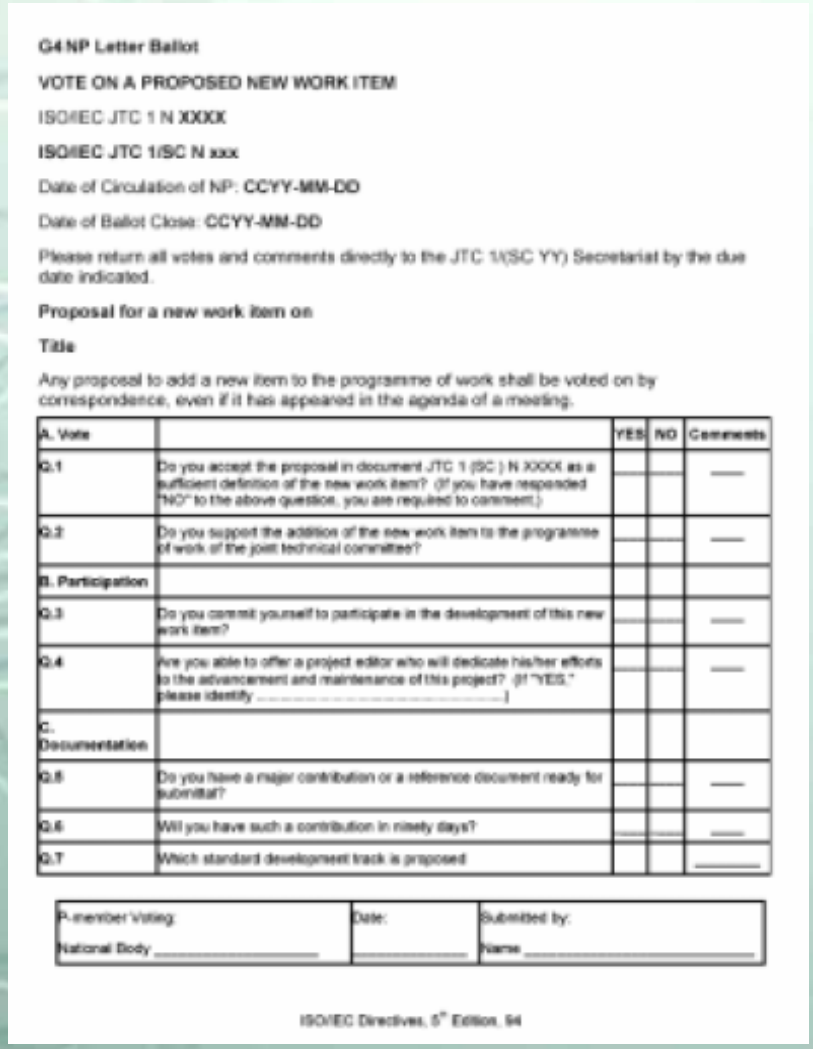
D.2 Indicate here if Interoperability is relevant to your project. If so, indicate how it is addressed in your project plan.

E. Cultural and Linguistic Adaptability Indicate here if cultural and linguistic adaptability is applicable to your project. If so, indicate how it is addressed in your project plan.

F. Other Justification Any other aspects of background information justifying this NP shall be indicated here

- **G3: NWIP**
  - Title
  - Scope
  - Purpose & Justification
    - 기술 현황, 실현가능성
    - 표준화 이점 등
  - Program of Work
    - 표준개발 목표일
  - Relevant Document
  - Co-operation & Liaison

문서 Sample: G4 (NP Ballot)



G4 NP Letter Ballot

VOTE ON A PROPOSED NEW WORK ITEM

ISO/IEC JTC 1 N XXXX

ISO/IEC JTC 1/SC N xxx

Date of Circulation of NP: **CCYY-MM-DD**

Date of Ballot Close: **CCYY-MM-DD**

Please return all votes and comments directly to the JTC 1/(SC YY) Secretariat by the due date indicated.

Proposal for a new work item on

Title

Any proposal to add a new item to the programme of work shall be voted on by correspondence, even if it has appeared in the agenda of a meeting.

A. Vote		YES	NO	Comments
Q.1	Do you accept the proposal in document JTC 1 (SC) N XXXX as a sufficient definition of the new work item? (If you have responded "NO" to the above question, you are required to comment.)			—
Q.2	Do you support the addition of the new work item to the programme of work of the joint technical committee?			—
B. Participation				
Q.3	Do you commit yourself to participate in the development of this new work item?			—
Q.4	Are you able to offer a project editor who will dedicate his/her efforts to the advancement and maintenance of this project? (If "YES," please identify .....)			—
C. Documentation				
Q.5	Do you have a major contribution or a reference document ready for submittal?			—
Q.6	Will you have such a contribution in ninety days?			—
Q.7	Which standard development track is proposed			_____

P-member Voting:	Date:	Submitted by:
National Body _____	_____	Name _____

ISO/IEC Directives, 5th Edition, 94

- **G4: NP Letter Ballot**
  - NP 투표 응답 양식
  - 투표기간: 3개월
- **NP** 승인 기준
  - SC 정회원 과반수 찬성
    - Q1, Q2: YES
  - 5개국 이상 적극적 참여
    - Q3: YES

문서 Sample: G6 (CD Cover Page)

G6 CD Cover Page

Committee Draft ISO/IEC CD	
Date CCYY-MM-DD	Reference number: ISO/IEC JTC 1/SC YY N XXXX
Supersedes document SC YY N XXXX	

THIS DOCUMENT IS STILL UNDER STUDY AND SUBJECT TO CHANGE. IT SHOULD NOT BE USED FOR REFERENCE PURPOSES.

ISO/IEC JTC 1/SC YY Committee Title Secretariat: National Body (Acronym)	Circulated to P- and O-members, and to technical committees and organisations in liaison for: - discussion at - comment by - voting by (P-members only) CCYY-MM-DD Please return all votes and comments in electronic form directly to the SC YY Secretariat by the due date indicated.

ISO/IEC

Title:

Project: 1.xx.xx.xx.xx

Introductory note:

Medium:

No. of pages:

Address Reply to: Secretariat, ISO/IEC JTC 1/SC YY, Address
Telephone: 1234567, Facsimile: 1234568, E-Mail: [illegible]

- **G6: CD Cover Page**
  - CD Text
- **CD 투표/코멘트 기간**
  - 3개월
- **3개국 이상이 반대할 경우**
  - BRM 회의 개최가 요구됨
  - SoV
  - DoC
  - Revised CD

문서 Sample: G7 (FCD Cover Page)

G7 FCD Cover Page

Final Committee Draft ISO/IEC FCD	
Date: CCYY-MM-DD	Reference number: ISO/IEC JTC 1/SC YY N XXXX
Supersedes document SC YY N XXXX	

THIS DOCUMENT IS STILL UNDER STUDY AND SUBJECT TO CHANGE. IT SHOULD NOT BE USED FOR REFERENCE PURPOSES.

ISO/IEC JTC 1/SC YY Committee Title Secretariat: National Body (Acronym)	Circulated to P- and O-members, and to technical committees and organisations in liaison for voting (P-members only) by: CCYY-MM-DD Please return all votes and comments in electronic form directly to the SC YY Secretariat by the due date indicated.

ISO/IEC

Title:

Project: 1.xx.xx.xx.xx

Introductory note:

Medium:

No. of pages:

Address Reply to: Secretariat, ISO/IEC JTC 1/SC YY, Address
Telephone: 1234567, Facsimile: 1234568, E-Mail: [redacted]

- **G7: FCD Cover Page**
  - FCD Text
- 투표기한: **4**개월
- **FCD**는 **ITTF (**중앙사무국**)**에 보고하고**, ITTF**의 **editorial comments**를 받을 수 있음

문서 Sample: G8 (CD/FCD Ballot)

G8 CD/FCD Letter Ballot

Vote on Committee Draft **ISO/IEC XXXXX**

Date of circulation: **CCYY-MM-DD** Closing date: **CCYY-MM-DD**	Reference number ISO/IEC JTC 1/SC YY N XXXX
ISO/IEC JTC 1/SC YY Committee Title Secretariat: National Body (Acronym)	Circulated to P-members of the committee for voting Please return all votes and comments in electronic form directly to the SC YY Secretariat by the due date indicated.

ISO/IEC

Title:

Project: 1.xx.xx.xx.xx

Vote:

___	APPROVAL OF THE DRAFT AS PRESENTED
___	APPROVAL OF THE DRAFT WITH COMMENTS AS GIVEN ON THE ATTACHED
___	general:
___	technical:
___	editorial:
___	DISAPPROVAL OF THE DRAFT FOR REASONS ON THE ATTACHED
___	Acceptance of these reasons and appropriate changes in the text will change our vote to approval
___	ABSTENTION (FOR REASONS BELOW):

P-member voting:

National Body (Acronym)

Date:

CCYY-MM-DD

Submitted by:

Name

Address Reply to: Secretariat, ISO/IEC JTC 1/SC YY, Address
Telephone: 1234567; Facsimile: 1234568; E-Mail: abcd@efghi.jkl

- **G8: CD / FCD Ballot**
- 투표
  - 승인 (with comments)
  - 기권 (abstain)
- **SC** 간사는 투표결과 정리, 취합
  - SoV
- **BRM (SC / WG** 회의)
  - DoC 작성

문서 Sample: G10 (FDIS Ballot)

G10 FDIS Letter Ballot

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ISO IEC

VOTE ON
FINAL
DRAFT

VOTE ON ISO/IEC FDIS	
Date	ISO/IEC JTC 1
National body	

Circulated to all national bodies for voting in accordance with 12.7.2 of the ISO/IEC JTC 1 Directives. All national bodies are invited to vote.

P-members of the joint technical committee concerned have an obligation to vote.

To cast a vote on a Final Draft International Standard, national bodies shall complete and sign this ballot paper, **and return it to the ISO Central Secretariat.**

If a national body votes affirmatively, it shall not submit comments. If a national body finds the FDIS unacceptable, it shall vote negatively and state the technical reasons.

ISO/IEC FDIS

Title

___ We approve the technical content of the draft as presented

___ We disapprove for the technical reasons stated

Remarks

___ We abstain

Signature

- **G10: FDIS Ballot**
  - 투표기한: 2개월
  - ITTF (중앙사무국) 주관
- 승인기준
  - 투표 회원의 2/3이상 찬성
  - ¼ 이하 반대
- 통과되면, **IS** 발간

JTC1/SC6 표준화 추진사례

- **JTC1 / SC6 / WG7**
  - SC6 의장 (한국/중앙대, 김준년 교수)
  - SC6 간사(한국표준협회, 이주란 선임)
  - 국내 JTC1/SC6 (정보통신) 위원회
    - 김대영 교수(충남대), 강신각 팀장 (ETRI), ...
- 표준규격
  - ECTP: 1997 ~
    - Enhanced Communications Transport Protocol
  - RMCP: 2001 ~
    - Relayed Multicast Control Protocol
  - MMC: 2005 ~
    - Mobile Multicast Communications

JTC1/SC6


Enterprise Workspace:
SC 06 "Telecommunications and information exchange between systems"
sjkoh@cs.knu.ac.kr
Thursday, 2006-03-09
ISOTC Portal
Search ISOTC for: (Advanced)
From Here
Go
Personal
Workspace
Favorites
Enterprise
Workspace
Users & Groups
Tools
Log-out
Settings
Help
Contents
For This Page
ISO Standards Development
ISOTC home
ISO/IEC JTC 001 "Informat...
SC 06 "Telecommunications...
ISO JTC 1 IEC
INFORMATION TECHNOLOGY STANDARDS
N number:
Title:
find
N Number search
New last 30 days
All N Number documents
SC06 TELECOMMUNICATIONS & INFORMATION EXCHANGE BETWEEN SYSTEMS
JTC 1/SC 6 Home | Ballots | Meetings | Resolutions | Standing documents
Featured Items
Committee work programme
Email to SC 6 Secretariat
N Numbered document list

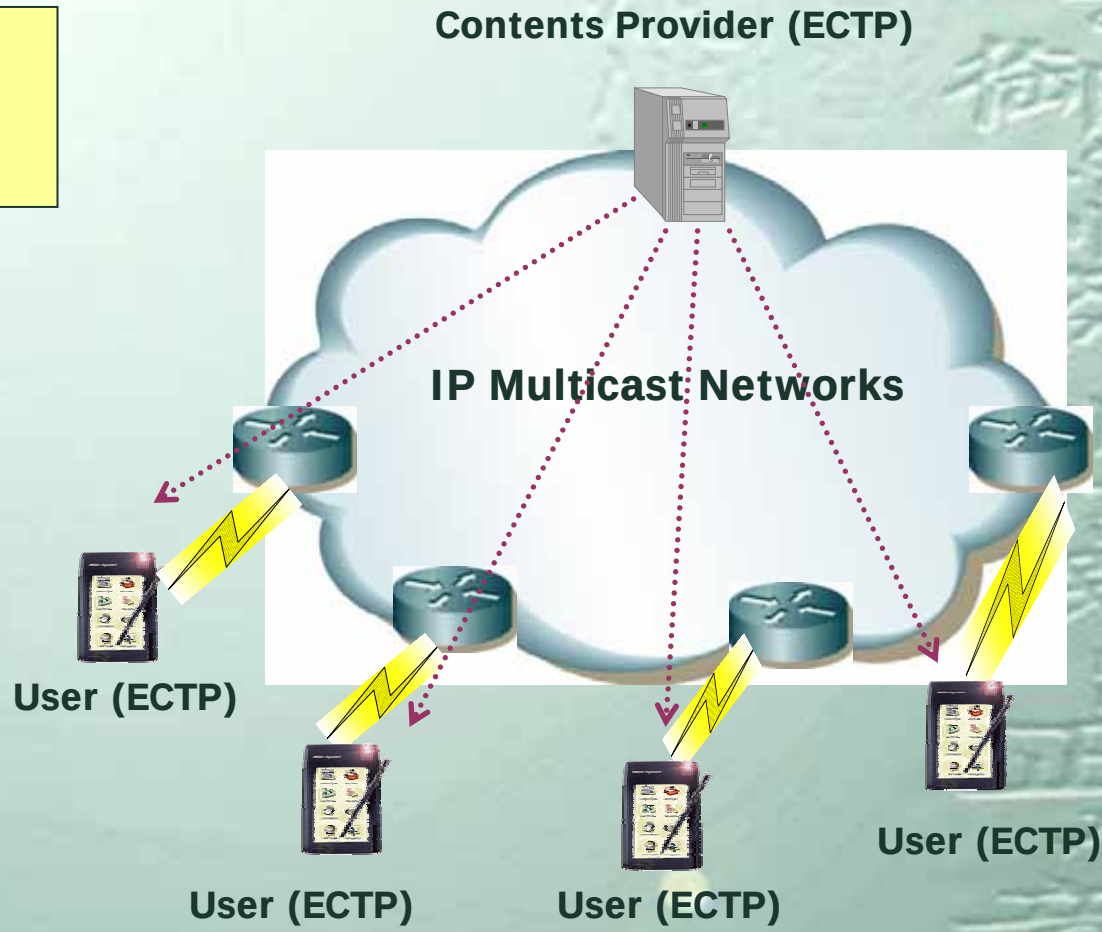
JTC1/SC6: WGs

WORKING GROUP 1		Allocation of project numbers: 01-19
	01	Basic Mode
	02	High-Level Data Link Control (HDLC) procedures
	03	OSI Data Link services and protocols
	05	Local and Metropolitan Area Networks
	06	Mechanical characteristics of the interchange circuits
	07	Electrical characteristics of V-series and X-series interchange circuits
	08	Functional characteristics of V-series and X-series interchange circuits
	09	DTE signal quality requirements
	10	DTE to DTE physical connection
	11	OSI Physical Layer services and protocols
	12	Near field communication
WORKING GROUP 7		Allocation of project numbers: 30-39
	30	OSI Network Layer services and protocols
	31	OSI Routeing protocols
	32	OSI Transport Layer services and protocols
	33	Enhanced communications services and protocols
	34	Network and Transport layer management
	35	Network security
	36	Quality of service
WORKING GROUP 8		Allocation of project numbers: 40-49
	47	OSI Directory services and protocols
	48	New generation network directory protocols
WORKING GROUP 9		Allocation of project numbers: 50-59
	50	OSI Registration procedures
	52	Abstract Syntax Notation One (ASN.1) Specification
	53	Abstract Syntax Notation One (ASN.1) Encoding Rules
	54	Generic applications of ASN.1

추진사례: ECTP

ECTP controls
- **Session Join (Membership)**
- **Error/Flow Control (like TCP)**
- **QoS Management (Monitoring)**

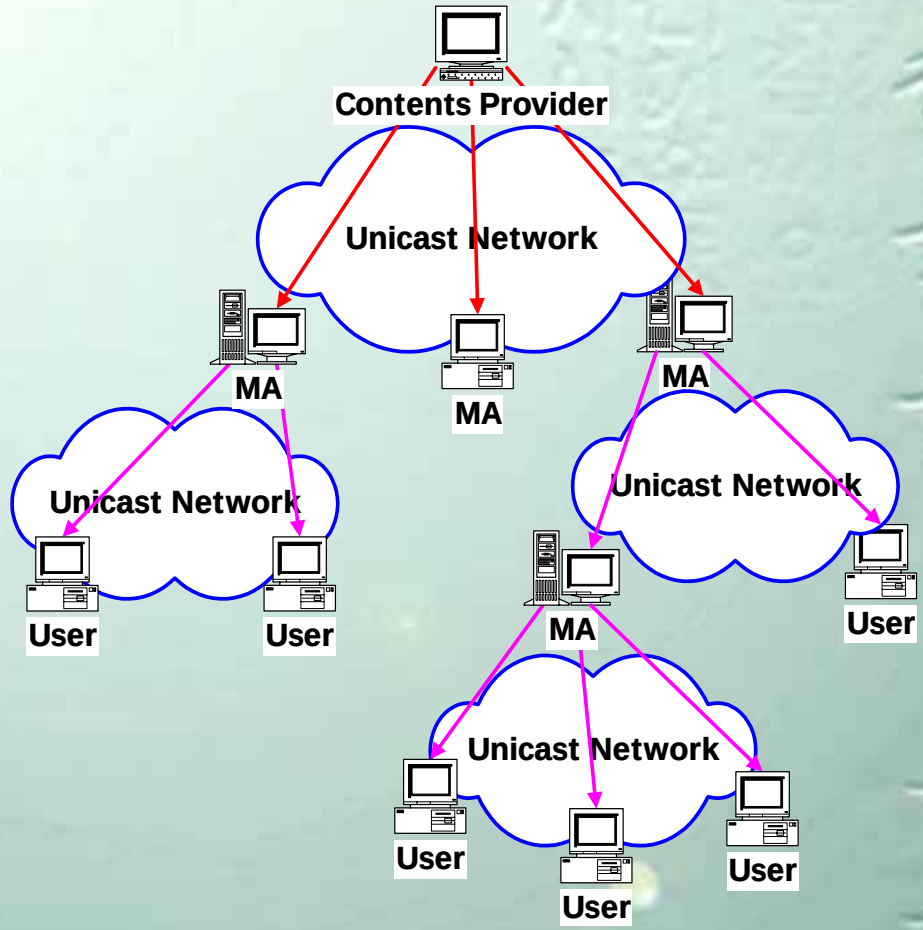
Multicast Applications (인터넷 방송, 원격교육, 화상회의)
ECTP
UDP
IPv4/IPv6 (Multicast)
Data Link
Physical Layer



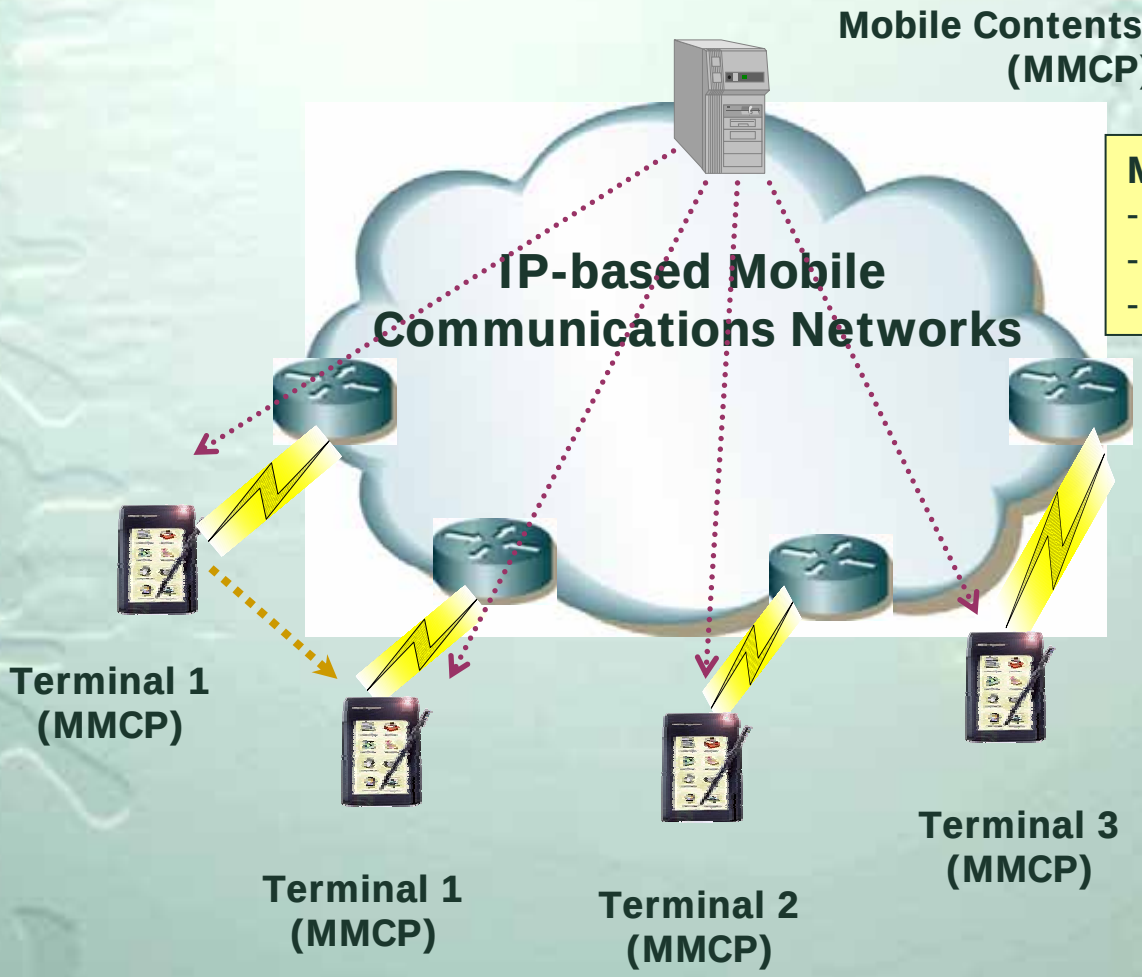
추진사례: RMCP

RMCP provides
- **Multicast over Unicast Networks**
- **Relayed (Overlay) Multicast**
- **MA (Multicast Agents)**

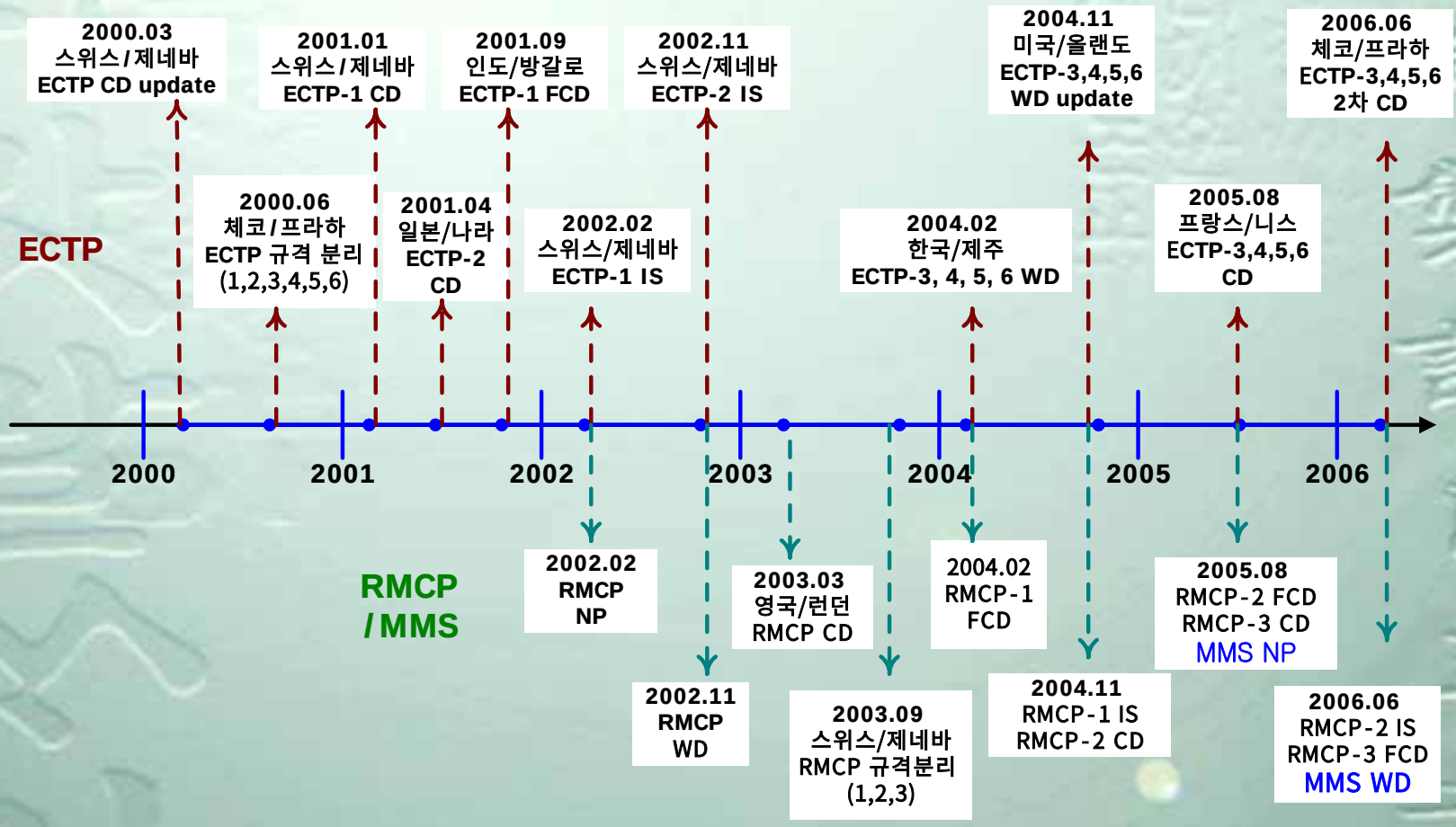
RMCP	Multicast Applications
TCP/UDP	
IPv4/IPv6 (Unicast)	
Data Link	
Physical Layer	



추진사례: MMC


Mobile Contents Provider
(MMCP)
IP-based Mobile
Communications Networks
MMCP controls
- Session & Membership
- QoS of Users
- Mobility Support
Terminal 1
(MMCP)
Terminal 1
(MMCP)
Terminal 2
(MMCP)
Terminal 3
(MMCP)

국제표준화 회의참가 (ECTP/RMCP/MMC)



표준화 추진현황: ECTP/RMCP/MMS

표준규격	표준화 현황 (as of 2006)	Editors
ECTP-1	IS 14476-1 (완료)	고석주 (ETRI)
ECTP-2	IS 14476-2 (완료)	고석주 (ETRI)
ECTP-3	CD 14476-3 (CD 통과)	고석주/김대영(충남대)
ECTP-4	CD 14476-4 (CD 통과)	강현국(고려대)
ECTP-5	CD 14476-5 (CD 통과)	고석주/김대영 (충남대)
ECTP-6	CD 14476-6 (CD 통과)	강현국
RMCP-1	IS 16512-1 (완료)	고석주/박주영
RMCP-2	FCD 16512-2 (FCD 통과)	박주영(ETRI)
RMCP-3	CD 16512-3 (CD 통과)	박주영(ETRI)
MMC	NP 통과 (2005.12)	고석주(경북대)

표준화 문서사례: NP (MMC)

G3 New Work Item Proposal

PROPOSAL FOR A NEW WORK ITEM

Date of presentation of proposal: 2005-08-30	Proposer: National Body of Korea(KATS)
Secretariat: National Body	ISO/IEC JTC 1 6N12954

A proposal for a new work item shall be submitted to the secretariat of the ISO/IEC joint technical committee concerned with a copy to the ISO Central Secretariat.

Presentation of the proposal - to be completed by the proposer Guidelines for proposing and justifying a new work item are given in ISO Guide 26.

Title (subject to be covered and type of standard, e.g. terminology, method of test, performance requirements, etc.):

Mobile Multicast Communications

Scope (and field of application)

This work item (project) is to develop a series of specifications for mobile multicast protocols and frameworks that can be used to support the multicasting services in the IP-based mobile and wireless communications networks. Depending on the circumstances of the mobile networks and the underlying multicast data transport schemes, the scope of this project includes one or more specific items (specifications) for mobile multicasting. For an example, a Mobile Multicast Control Protocol (MMCP) may be developed for an application-level control protocol, which can be used for a mobile multicast service provider to control the session join of the newly joining users, the session monitoring of the active membership and Quality-of-Services (QoS) of the session users. With this context, this project might develop one or more specifications (protocols and frameworks) for mobile multicast communications, which may depend on the market needs and the protocol requirements.

Purpose and justification – See attached sheet

Programme of work

If the proposed new work item is approved , which of the following document(s) is (are) expected to be developed?
____ a single International Standard more than one International Standard (expected number: .....)
_X___ a multi-part International Standard consisting of ....2 or 3..... parts
____ an amendment or amendments to the following International Standard(s) .....
____ a technical report , type .....

Relevant documents to be considered: ISO/IEC 14476 (ECTP) and 16512 (RMCP)

Cooperation and liaison: This work item has already been progressed in the ITU-T Q.1/17. It is expected that the work could be developed in conjunction with ITU-T SG17, as a common text

Preparatory work offered with target date(s): The Republic of Korea will provide a first draft of the new specification within twelve months of approval of the New Work Item.

Signature: Convenor SC6/WG7

Will the service of a maintenance agency or registration authority be required? .....No.....
- If yes, have you identified a potential candidate? ....No.....
- If yes, indicate name .....No.....

Are there any known requirements for coding? .....No.....
-If yes, please specify on a separate page

Does the proposed standard concern known patented items? .....No.....
- If yes, please provide full information in an annex

Comments and recommendations of the JTC 1 Secretariat

Comments with respect to the proposal in general, and recommendations thereon:
It is proposed to assign this new item to JTC 1/SC 06

Voting on the proposal - Each P-member of the ISO/IEC joint technical committee has an obligation to vote within the time limits laid down (normally three months after the date of circulation).

Date of circulation:	**Closing date for voting:**	**Signature of Secretary:**
2005-09-16	2005-12-16	Jooran Lee

NEW WORK ITEM PROPOSAL - PROJECT ACCEPTANCE CRITERIA		
Criterion	**Validity**	**Explanation**
A Business Requirement		
A.1 Market Requirement	Essential _X__ Desirable ___ Supportive ___	See attached sheet
A.2 Regulatory Context	Essential ___ Desirable ___ Supportive ___ Not Relevant _X_	
B. Related Work		
B.1 Completion/Maintenance of current standards	Yes ___ No_X__	The proposed project is a new work item
B.2 Commitment to other organization	Yes _X__ No___	ITU-T Q.1/17
B.3 Other Source of standards	Yes ___ No_X__	
C. Technical Status		
C.1 Mature Technology	Yes _X__ No___	The proposed project is based on the currently used technologies, and stable and ripen for standardization.

표준화 문서사례: NP (MMC)

C.2 Prospective Technology	Yes _X__ No___	
C.3 Models/Tools	Yes _X__ No___	The project will also provide a supportive reference model for the associated areas
D. Conformity Assessment and Interoperability		
D.1 Conformity Assessment	Yes ___ No__X_	
D.2 Interoperability	Yes ___ No__X_	
E. Other Justification		See attached for further background

Notes to Proforma

A. Business Relevance. That which identifies market place relevance in terms of what problem is being solved and or need being addressed.

A.1. Market Requirement. When submitting a NP, the proposer shall identify the nature of the Market Requirement, assessing the extent to which it is essential, desirable or merely supportive of some other project.

A.2 Technical Regulation. If a Regulatory requirement is deemed to exist - e.g. for an area of public concern e.g. Information Security, Data protection, potentially leading to regulatory/public interest action based on the use of this voluntary international standard - the proposer shall identify this here.

B. Related Work. Aspects of the relationship of this NP to other areas of standardization work shall be identified in this section.

B.1 Competition/Maintenance. If this NP is concerned with completing or maintaining existing standards, those concerned shall be identified here.

B.2 External Commitment. Groups, bodies, or fora external to JTC 1 to which a commitment has been made by JTC for cooperation and or collaboration on this NP shall be identified here.

B.3 External Std/Specification. If other activities creating standards or specifications in this topic area are known to exist or be planned, and which might be available to JTC 1 as PAS, they shall be identified here.

C. Technical Status. The proposer shall indicate here an assessment of the extent to which the proposed standard is supported by current technology.

C.1 Mature Technology. Indicate here the extent to which the technology is reasonably stable and ripe for standardization.

Annex.

Supporting Text for New Work Item Proposal:

Mobile Multicast Communications

This work item (project), "Mobile Multicast Communications" is to develop a series of mobile multicast specifications that can be used to support the multicasting services in the IP-based mobile and wireless communications networks. Depending on the circumstances of the mobile networks and the underlying multicast data transport schemes, this project will produce one or more specifications required for mobile multicast communications.

As an example of such protocols, a Mobile Multicast Control Protocol (MMCP) may be developed as application-level control protocol, which can be used for a mobile multicast service provider to control the session join of the newly joining users, the session monitoring of the active membership and Quality-of-Services (QoS) of the session users. In this context, this project might develop one or more protocol specifications for mobile multicasting, which may depend on the market needs and the requirements for the associated protocols.

This supporting text describes the Mobile Multicast Control Protocol as a specific example of Mobile Multicast Protocols. In addition, the work item might develop some more protocols for of Mobile Multicast Protocols, as the other parts of this project.

It is noted that this work item on Mobile Multicast Protocols would be done as a new ISO/IEC standardization item, also as a common text with the ITU-T Rec. X.600 series. It is expected that the new work, if approved, would be undertaken collaboratively by the expert group in the JTC 1/SC 6/WG 7 and ITU-T SG17 Question 1.

1. Motivations

The MMCP standardization work is now under development in the ITU-T Q.1/17. This work item also needs to be undertaken by ISO/IEC JTC 1/SC 6/WG 7 with the following motivations:

a) Increasing demand of IP-based mobile multicast multimedia applications/services

In the mobile telecommunications markets, there are crucial needs to provide the multimedia multicast applications and services commercially all over the world. Examples of these mobile multicast applications and services include mobile Internet TV, remote education on mobile devices, mobile broadcasting of special live events, PTT (Push To Talk) or PoC (PTT over CDMA), and so on.

It is envisioned that these mobile multicasting services could be provided over a variety of radio access networks such as cdma2000, W-CDMA, WLAN (IEEE 802.11), Broadband Wireless Access (IEEE 802.16) networks. Over such wireless networks, the service providers plan to launch the IP-based multimedia multicasting services.

b) Infrastructures of wireless networks for multicasting services

표준화 문서사례: NP (MMC)

2. Requirements for MMCP

To support the mobile multicasting applications and services, the MMCP shall be designed with the following requirements:

① **Functionality of controlling the mobile multicast sessions**

Basically, the MMCP is purposed to provide the control functions for the mobile multicast applications/sessions (multicast sessions over wireless mobile networks). The control functions to be provide by MMCP include 'session join' for a new joining user, 'membership monitoring' of active users, QoS monitoring for the data packets received by end users, etc. It is noted that these functions are essentially required for the mobile multicasting services to be deployed in the commercial mobile networks.

② **Easy integration of legacy multicast applications with MMCP**

The MMCP is a new protocol used to support the multicast applications over the mobile networks. Accordingly, all of the existing legacy multicast applications should be able to be used together with the MMCP, without any further modifications, in the mobile networks. That is, it should be guaranteed that the MMCP can be used along with any legacy multicast applications.

③ **Separation of MMCP control channel from the application data channel**

To support the requirement of the "easy integration of legacy multicast applications", the MMCP needs to operate as a control channel, separately from the application data channel. That is, the MMCP defines only the control functionality necessary for the mobile multicast transport rather than the data transport itself.

Accordingly, the MMCP may itself be implemented as a control module of library, which could be used by any application programs. This ensures that the multicast data applications could be implemented, when it needs some control functionality provided by the MMCP, by appropriately using the application programming interfaces (APIs) defined in the MMCP control.

④ **Generic IP-based control protocol of MMCP**

While the MBMS and BCMCS, which are under considerations by 3GPP and 3GPP2, are based on their own access technologies and systems, the MMCP should be able to be generically and commonly used on all of the IP-based mobile networks. More specifically, the MMCP should be able to operate over the IP-based mobile wireless networks based on the IEEE 802.11, 802.16, and 802.20, etc.

⑤ **Considerations of wireless link characteristics**

It is noted that the wireless links are generically in the lower quality than the wired links. Accordingly, the mobile users may be susceptible to the quality of services for the mobile application services. In this context, the MMCP needs to provide the monitoring of QoS perceived by end users.

This monitored QoS information might be used by the contents providers to adjust the data transmission rate. For example, the MPEG-based trans-coding or SVC (Scalable Video Coding) techniques could be used with the MMCP to reflect on the QoS status of the end users. The monitored QoS information might also be used by the content providers to charge for usage of the contents/services to the end users.

4. Generic Framework of MMCP

Based on the considerations and discussion described so far, this section provides a generic framework of the MMCP protocol.

4.1. Protocol Model

Figure 2 shows the MMCP control protocol together with the legacy multicast application.

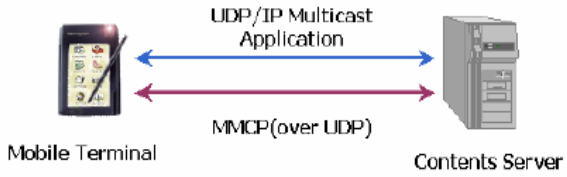


Figure 2. MMCP and Multicast Applications

In the figure, the legacy multicast application based on the UDP/IP is performed between mobile terminals and contents server (multicast sender). The MMCP will be used together with the multicast application between the mobile terminal and multicast sender.

In the figure, at the contents server side, the MMCP may be implemented with the multicast data transport module, or as a separate module with the interface to the data transport module, which may depend on implementation.

Figure 3 shows the protocol stack of MMCP.

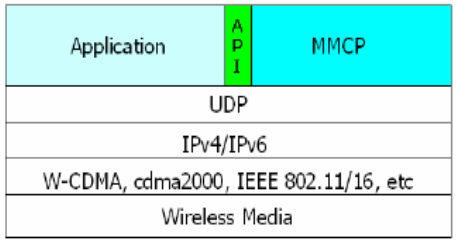


Figure 3. MMCP Protocol Stack

표준화 문서사례: 기고서 (SC6/WG7 회의)

6SP7-19

ISO/IEC JTC 1/SC 6

TELECOMMUNICATION AND INFORMATION EXCHANGE BETWEEN SYSTEMS

Title: Proposed Changes to Section 7 (Considerations) in ECTP-5

Source: KOREA (Dongman Lee, Seungik Lee)

Project: JTC 1.6.33.02.03 | ITU-T Q.1/17

Status:

This text provides modified considerations such as new participants and error control trees in ECTP-5

This text is submitted for discussion to the joint meeting of JTC 1/SC 6/WG 7 and ITU-T Q.1/17, which will be held on 29 August - 2 September 2005.

7. Considerations

7.1 Participants

The participants to an ECTP-5 connection can be classified into one of the following nodes:

a) TO (TC-Owner)

ECTP-5 connection has a single TO. The TO is responsible for connection management including connection creation and termination, late join, connection maintenance, and token management.

For example, in the teleconferencing applications, the TO may act as the 'conference server', which may be used for control of the conferencing without sending multicast data. In the example of 'multi-users on-line game' application, the TO may act as the 'game-control server'.

b) TU (TS-User)

An ECTP-5 connection has one or more TUs. Each of them receives multicast data from SUs or TO.

c) SU (Sending TS-User)

An SU is a TU who can send multicast data to the group. In ECTP-5 connection, a TU becomes an SU when it has a token and it can thus transmit multicast data to the group

d) GA (Group Agent)

In the ECTP-5 connection, for a given set of participants, GA becomes the root of logical tree spanning all of them and participates in the creation of error recovery tree. It is responsible for error recovery to the child nodes in the logical trees by retransmission of requested data. It receives multicast data like TUs and maintains buffers for recovery of lost multicast data packets for TU/TO or GA.

7.2 Data Channel and Addressing

In ECTP-5, SU or TO can send multicast data packets to the session members as shown in the figure below.

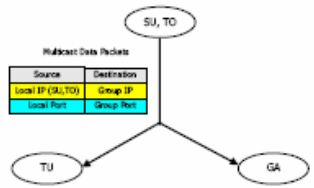


Figure 1 – Multicast Data Addressing in ECTP-5

표준화 문서사례: WD (SC6/WG7 회의)

Telecommunications and Information Exchange Between Systems

ISO/IEC JTC 1/SC 06 N12951

Date: 2005-09-15

Replaces:

Document Type: Working Draft Text

Document Title: The 3rd WD of ISO/IEC 14476-5 (ITU-T X.608)

Document Source: SC 6/WG 7 St Paul de Vence meeting

Project Number:

Document Status: For comments to the next WG 7 intermim meeting

Action ID: FYI

Due Date:

No. of Pages: 57

ISO/IEC JTC1/SC6 Secretariat
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ISO/IEC JTC 1/SC 6 N 12951

(6SP7-42)

ISO/IEC JTC 1/SC 6
TELECOMMUNICATION AND INFORMATION
EXCHANGE BETWEEN SYSTEMS

Title: The 3rd WD of ISO/IEC 14476-5 | ITU-T X.608

Source: Project Editors (Seok J. Koh and Dae Y. Kim)

Project: JTC 1.6.33.02.03 | ITU-T Q.1/17

Status:

This text is an output document of ECTP-5 WD (version 3), which has been produced based on the contributions and discussions made in the joint meeting of JTC 1/SC 6/WG 7 and ITU-T Q.1/17, which will be held on 29 August – 2 September 2005. After the meeting, it is proposed that this text should be circulated to the JTC 1/SC 6 members for further contributions.

표준화 문서사례: CD Ballot Text (ECTP-5)

Telecommunications and Information Exchange Between Systems

ISO/IEC JTC 1/SC 06 N13016

Date:	2005-11-28
Replaces:	
Document Type:	Text for CD Ballot
Document Title:	Text for 1st CD ballot, ISO/IEC CD 14476-5 (ITU-T X.608)
Document Source:	Project Editor
Project Number:	
Document Status:	As per the JTC 1/SC 6 St Paul de Vence resolution 6.7.2, P-members of JTC 1/SC 6 are requested to submit the vote to SC 6 Secretariat no later than 2006-02-28.
Action ID:	LB
Due Date:	2006-02-28
No. of Pages:	61

ISO/IEC JTC1/SC6 Secretariat
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JTC 1/SC 6 N13016

ISO/IEC JTC 1/SC 6

TELECOMMUNICATION AND INFORMATION

EXCHANGE BETWEEN SYSTEMS

Title:	CD Ballot Text of ISO/IEC 14476-5 | ITU-T X.608
Source:	Project Editors (Seok J. Koh and Dae Y. Kim)
Project:	JTC 1.6.33.02.03 | ITU-T Q.1/17
Status:	

This text is the ECTP-3 output document of the joint meeting of the JTC 1/SC 6/WG 7 and ITU-T Q.1/17.

This is submitted to the JTC 1/SC 6 for the first CD ballot processing, as per Resolution 6.7.2 of the JTC 1/SC 6 Plenary Meeting, September 2005.

표준화 문서사례: SoV (RMCP-2 CD Ballot)

Telecommunications and Information Exchange Between Systems

ISO/IEC JTC 1/SC 06 N12855

Date: 2005-03-24

Replaces:

Document Type: Summary of Voting/Table of Replies

Document Title: Summary of Voting on SC 6 N12762, Text for CD ballot, ISO/IEC CD 16512-2 | ITU-T X.603.1

Document Source: SC 6 Secretariat

Project Number:

Document Status: For your information

Action ID: FYI

Due Date:

No. of Pages: 2

ISO/IEC JTC1/SC6 Secretariat Ms. Jooran Lee, KSA (on behalf of KATS)
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Summary of Voting on SC 6 N 12762

National Body	Approve	Disapprove	Abstain	Comments
Austria				
Belgium				
China				
Czech Republic	X			
France			X	No resource.
Germany				
Greece				
Japan			X	No resources.
Kenya				
Republic of Korea	X			
Russian Federation				
Switzerland	X			
Ukraine				
United Kingdom	X			
USA			X	

표준화 문서사례: DoC (ECTP-1 CD Ballot)

Title: **Disposition of Comments for the fourth CD 14476-1 ballot**

Source: Project Editor (Seok Joo Koh, KOREA)

Project: JTC1 1.6.69 (ITU-T Q.8/7 X.ectp)

Status: This DoC document is prepared according to the fourth CD ballot comments (6N11810) and agreed at the joint meeting of ITU-T Q.8/7 and JTC 1/SC 6/WG 7 for the fourth CD 14476-1 ballot resolution, which was held in Geneva, January 2001. The Final CD text of ITU-T X.ectp | ISO/IEC 14476-1 is produced for the FCD ballot process, in accordance with this document.

The SoV document for the fourth CD ballot (6N11810) contains the comments from Czech Republic and U. K. Those are disposed in the new text for FCD ballot as follows.

1. Disposition of the comments from Czech Republic

The Czech Republic comments in SC6 N11810 read:

Comment Type: *Minor Editorial*

Concern/Rationale: *There is an incomplete abbreviation list in the standard's draft (see CD 14476.3). Abbreviations such as IETF and RFC should be used.*

Disposition:

Per the comment, the abbreviation list was extended to include the abbreviations and technical terms used in the text as well as the IETF and RFC pointed.

2. Dispositions of the comments from United Kingdom

U.K gave total 22 comments, which are all regarding minor editorial issues. Each of those comments also has the corresponding suggested English clarification.

Comments # 1 to #5 are pertaining to Introduction of the ECTP specification;

Comment # 6 is pertaining to Section 3.3 of the ECTP specification;

Comments # 7 to #22 are all pertaining to Section 6 (Overview) of the ECTP specification.;

All the comments and the suggested clarifications are disposed into the concerned paragraphs of the new ECTP specification.

표준화 문서사례: FCD (ECTP-1 FCD Ballot)

ISO/IEC JTC 1/SC 6

TELECOMMUNICATION AND INFORMATION EXCHANGE BETWEEN SYSTEMS

Title: Final CD Ballot Text for ITU-T X.ectp-1 | ISO/IEC 14476-1

Source: Project Editor (Seok Joo Koh, KOREA)

Project: ITU-T Q.8/7 X.ectp (JTC 1.6.69)

Status:

Per the JTC 1/SC 6 Praha Resolution 6.7.3 (6N11640), this document is circulated for the FCD ballot processing. This is an output document of the joint meeting of JTC 1/SC 6/WG 7 and ITU-T Q.8/7, which was held in Geneva, January 2001. This document is prepared in accordance with disposition of the fourth CD ballot comments, which is contained in the SoV document (6N11810).

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표준화 문서사례: FDIS (ECTP-1)

DIS/FDIS - Result of voting

Title: **Information technology -- Enhanced Communications Transport Protocol: Specification of simplex multicast transport -- Part 1:**

Document:	ISO/IEC FDIS 14476-1	Committee:	JTC 1/SC 6
Start date (CET):	2001-11-15	End date (CET):	2002-01-15
ISO/CS ballot closing date (CET):		Voting phase:	Approval
Status:	OPEN	Version:	1
Vienna Agreement:			

Country	Member	Participation	Voted	Comments file
Australia	SAI	P	Abstention	
Belgium	IBN	P	Approval	
Brazil	ABNT	P	Abstention	
Canada	SCC	P	Approval	
China	SACS	P	Approval	
Czech Republic	CSNI	P	Approval	
Denmark	DS	P	Abstention	
Egypt	EOS	O	Approval	
Finland	SFS	P	Approval	
France	AFNOR	P	Approval	
Germany	DIN	P	Approval	
Greece	ELOT	O	Approval	
Ireland	NSAI	P		
Italy	UNI	P	Approval	
Japan	JISC	P	Approval	
Korea, Dem. P. Rep. of	CSK	P		
Korea, Republic of	KATS	P	Approval	
Netherlands	NEN	P	Abstention	
New Zealand	SNZ	P	Approval	
Norway	NSF	P	Abstention	
Portugal	IPQ	P	Abstention	
Russian Federation	GOST R	O	Approval	
Slovenia	SIST	P		
South Africa	SABS	P	Abstention	
Sweden	SIS	P	Abstention	
Switzerland	SNV	P	Abstention	
Ukraine	DSTU	O	Approval	
United Kingdom	BSI	P	Approval	
USA	ANSI	S		

FINAL DRAFT

INTERNATIONAL STANDARD

ISO/IEC FDIS 14476-1

ISO/IEC JTC 1

Secretariat: ANSI

Voting begins on: 2001-11-15

Voting terminates on: 2002-01-15

Information technology — Enhanced Communications Transport Protocol: Specification of simplex multicast transport

Technologies de l'information — Protocole de transport de communication amélioré: Spécifications pour le Transport «Simplex Multicast»

Please see the administrative notes on page iii-1

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Reference number
ISO/IEC FDIS 14476-1:2001(E)

표준화 문서사례: IS (ECTP-1)

FINAL DRAFT

INTERNATIONAL STANDARD

ISO/IEC FDIS 14476-1

ISO/IEC JTC 1

Secretariat: **ANSI**

Voting begins on: **2001-11-15**

Voting terminates on: **2002-01-15**

Information technology — Enhanced Communications Transport Protocol: Specification of simplex multicast transport

Technologies de l'information — Protocole de transport de communication amélioré: Spécifications pour le Transport «Simplex Multicast»

Please see the administrative notes on page ii-1

Reference number
ISO/IEC FDIS 14476-1:2001(E)

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표준화 문서사례: IS (ECTP-1)

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO/IEC 14476 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 14476-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*, in collaboration with ITU-T. The identical text is published as ITU-T Rec. X.606.

ISO/IEC 14476 consists of the following parts, under the general title *Information technology — Enhanced Communications Transport Protocol*:

— *Part 1: Specification of simplex multicast transport*

— *Part 2: Specification of QoS management for simple multicast transport*

— *Part 3: Specification of duplex multicast transport*

— *Part 4: Specification of QoS management for duplex multicast transport*

— *Part 5: Specification of n-plex multicast transport*

— *Part 6: Specification of QoS management for n-plex multicast transport*

Annexes A and B of this part of ISO/IEC 14476 are for information only.

ISO/IEC FDIS 14476-1:2001(E)

Summary

This Recommendation | International Standard specifies the Enhanced Communications Transport Protocol (ECTP), which is a transport protocol designed to support Internet multicast applications running over multicast-capable networks. ECTP operates over IPv4/IPv6 networks that have the IP multicast forwarding capability with the help of IGMP and IP multicast routing protocols. ECTP could possibly be provisioned over UDP. ECTP is targeted to support tightly controlled multicast connections.

This first part of ECTP defines the protocol which provides reliability control in the simplex multicast case, adopting a tree-based approach. QoS management functions for the simplex case will be defined in part 2 of the ECTP specification. Further parts of ECTP will define reliability control and corresponding QoS management functions for the duplex case (parts 3 and 4) and the N-plex case (parts 5 and 6).

The sender is at the heart of multicast group communications. A single sender in the simplex multicast connection is assigned the role of the connection owner. The connection owner is responsible for overall connection management by governing connection creation and termination, connection pause and resumption, and join and leave operations.

For tree-based reliability control, a hierarchical tree is configured during connection creation. The sender is the root of the control tree. The control tree can define a parent-child relationship between any pair of tree nodes. This tree-based structure can result in local owners occurring at lower levels in the tree hierarchy as the control structure extends. Each local owner created becomes the root of its own local control tree. The connection owner will then be the root of the overall control tree. Error control is performed for each local group defined by a control tree. Each parent retransmits lost data, in response to retransmission requests from its children.

표준화 문서사례: IS (ECTP-1)

Introduction

This Recommendation | International Standard specifies the Enhanced Communications Transport Protocol (ECTP), which is a transport protocol designed to support Internet multicast applications running over multicast-capable networks. ECTP operates over IPv4/IPv6 networks that have the IP multicast forwarding capability with the help of IGMP and IP multicast routing protocols, as shown in Figure 1. ECTP could possibly be provisioned over UDP.

Figure 1 – ECTP Model

ECTP is designed to support tightly controlled multicast connections in simplex, duplex and N-plex applications. This part of ECTP (part 1) specifies the protocol mechanisms for reliability control in the simplex case. ECTP also provides QoS management functions for stable management of the QoS of the connection users. Such QoS management functionality can be achieved with QoS negotiation, monitoring, and maintenance operations. The protocol procedures for QoS management of the simplex case will be defined in the simplex QoS management specification (X.ectp-2 | ISO/IEC 14476-2), which forms an integral part of this Recommendation | International Standard. Further parts of the standard will define control procedures and associated QoS management functions for the duplex case (X.ectp-3 | ISO/IEC 14476-3 and X.ectp-4 | ISO/IEC 14476-4) and for the N-plex case (X.ectp-5 | ISO/IEC 14476-5 and X.ectp-6 | ISO/IEC 14476-6).

In ECTP, all prospective members are enrolled into a multicast group, before a connection or session is created. Those members define an enrolled group. Each receiver in the enrolled group is referred to as an enrolled receiver. In the enrolment process, each member will be authenticated. The group information, including group key and IP multicast addresses and port numbers, will be distributed to the enrolled members during the enrolment process. An ECTP connection is created for these enrolled group members.

ECTP is targeted for tightly controlled multicast services. The sender is at the heart of multicast group communications. A single sender in the simplex multicast connection is assigned the role of the connection owner, designated as top owner (TO) in this specification. The connection owner is responsible for overall connection management by governing connection creation and termination, connection pause and resumption, and join and leave operations.

The sender triggers the connection creation process. Some or all of the enrolled receivers will participate in the connection, becoming designated "active receivers". Any enrolled receiver that is not active may participate in the connection as a late-joiner. An active receiver can leave the connection. After the connection is created, the sender begins to transmit multicast data. If network problems (such as severe congestion) are indicated by the ECTP QoS management functions (defined in ECTP part 2), the sender suspends multicast data transmission temporarily, invoking the connection pause operation. After a pre-specified time, the sender resumes data transmission. If all of the multicast data have been transmitted, the sender terminates the connection.

ECTP provides the reliability control mechanisms for multicast data transport. ECTP mechanisms are designed to keep congruency with those being proposed in the IETF. To address reliability control with scalability, the IETF has proposed three approaches: Tree based ACK (TRACK), Forward Error Correction (FEC), and Negative ACK Oriented Reliable Multicast (NORM). Each approach has its own pros and cons, and each service provider may take a different approach toward implementing reliability control. ECTP adopts the TRACK approach, because it is more similar to the existing TCP mechanisms and more adaptive to the ECTP framework.

For tree-based reliability control, a hierarchical tree is configured during connection creation. The sender is the root of the control tree. The control tree can define a parent-child relationship between any pair of tree nodes. This tree-based structure can result in local owners (parents) occurring at lower levels in the tree hierarchy as the control structure extends. Each local owner created becomes the root of its own local control tree. The connection owner will then be the root of the overall control tree. Error control is performed for each local group defined by a control tree. Each parent retransmits lost data, in response to retransmission requests from its children.

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – ENHANCED COMMUNICATIONS TRANSPORT PROTOCOL: SPECIFICATION OF SIMPLEX MULTICAST TRANSPORT

1. Scope

This Recommendation | International Standard specifies the Enhanced Communications Transport Protocol (ECTP), which is a transport protocol designed to support Internet multicast applications over multicast-capable IP networks.

This Recommendation | International Standard specifies the ECTP for the simplex multicast transport connection that consists of one sender and many receivers. This Recommendation | International Standard specifies the protocol procedures for the following protocol operations:

a) connection creation with tree creation;

b) multicast data transmission;

c) tree-based reliability control with error detection, retransmission request, and retransmission;

d) late join and leave;

e) tree membership maintenance; and

f) connection termination.

2. Normative references

The following ITU-T Recommendations, International Standards, and IETF standard RFCs contain provisions that, through references in the text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations, Standards, and RFCs are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations | International Standards and RFCs listed below. IEC and ISO members maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU-T maintains a list of currently valid ITU-T documents. The IETF also maintains an index list of all published RFCs.

- ITU-T Recommendation X.601 (2000), Information technology – Multi-Peer Communications Framework
- ITU-T Recommendation X.605 (1998) | ISO/IEC 13252: 1999, Information technology – Enhanced Communications Transport Service Definition

국제표준화 추진 작업

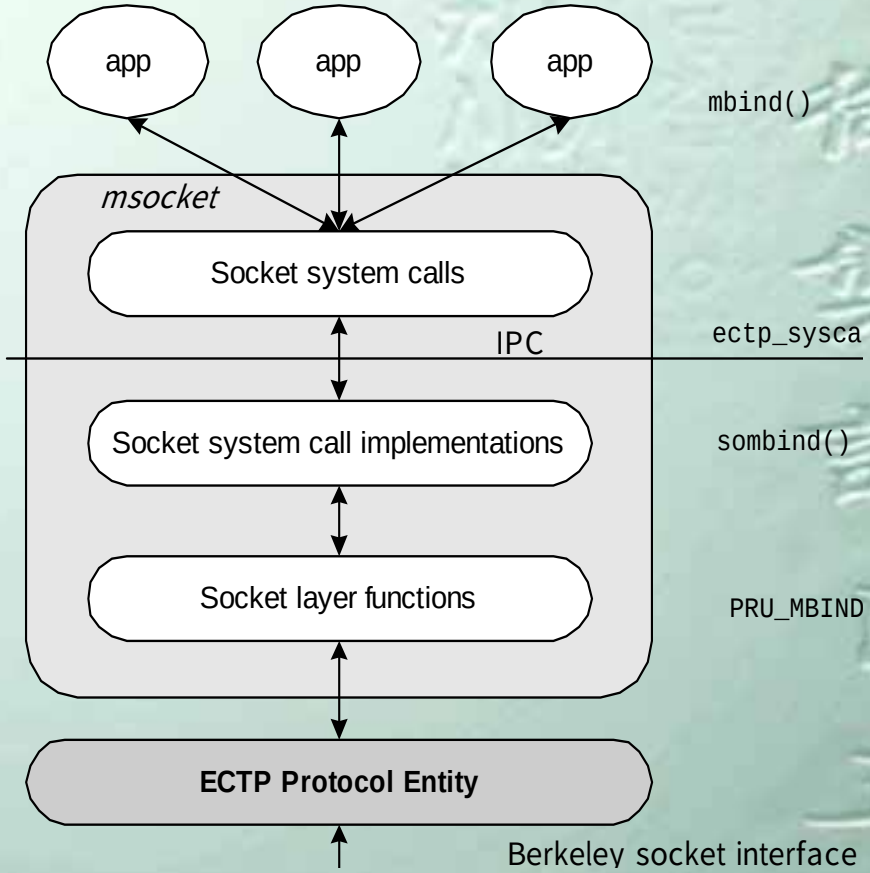
- 국제표준화와 관련된 작업들
  - 프로토콜 규격 설계 및 작성
    - Design Team (ETRI, 국내 관련 위원회)
    - 기고서 작성
  - 국제표준화 회의 참석 (JTC1/SC6, ITU-T SG17)
    - 연간 2~4회
    - 기고서 제출 및 발표
    - Editor 업무 수행
  - 프로토콜 구현 및 검증
    - 프로토콜 설계 및 구현
    - 프로토콜 실험(검증) 및 보급

ECTP 프로토콜 규격

- **Overview**
- **Protocol Components**
- **Protocol Procedures**
  - Connection Creation
  - Late Join
  - Data Transmission and Error Control
  - Membership Monitoring
  - Connection Termination
- **Packet Formats**
  - Fixed Header, Extension Elements
  - Packet Types

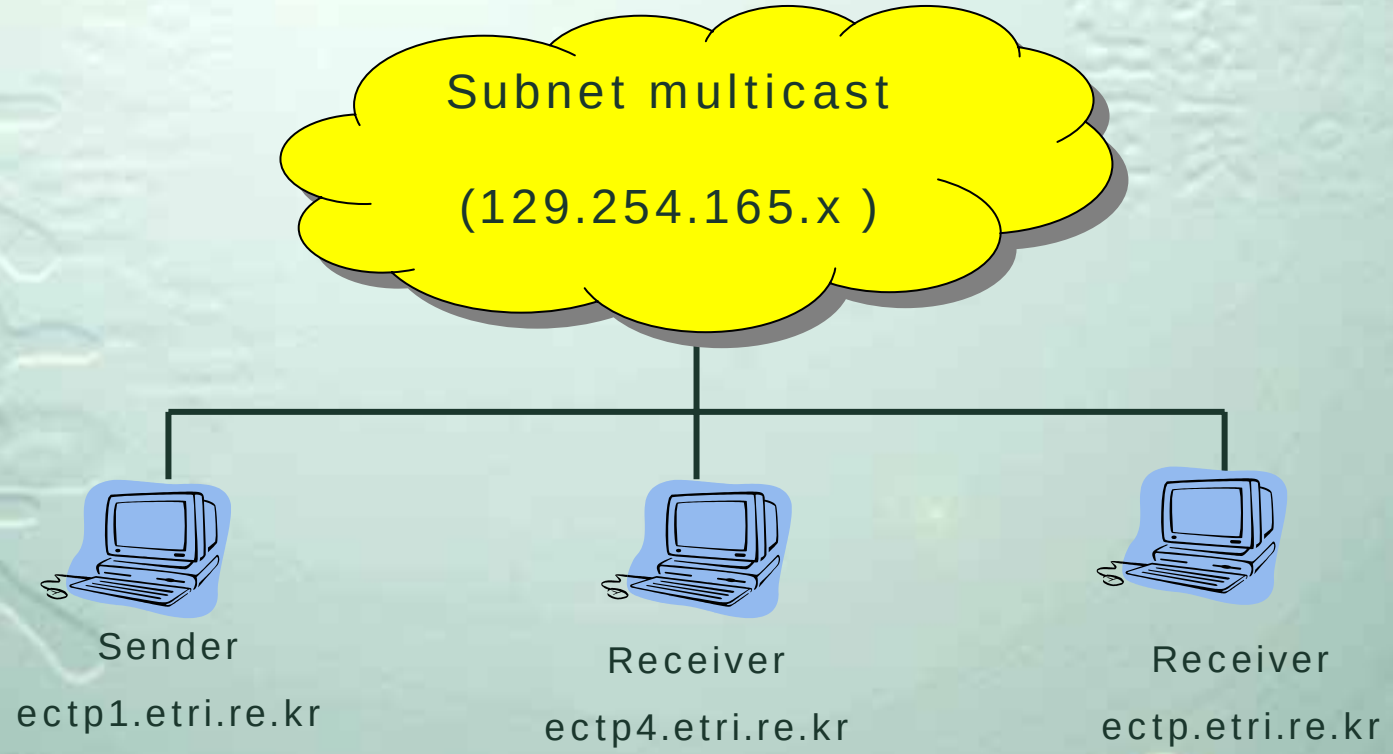
ECTP 구현

- **Implementation**
  - ECTP Core
  - ECTP API: msocket
- **Test Applications**
  - Multicast FTP
  - Whiteboard
  - Internet TV



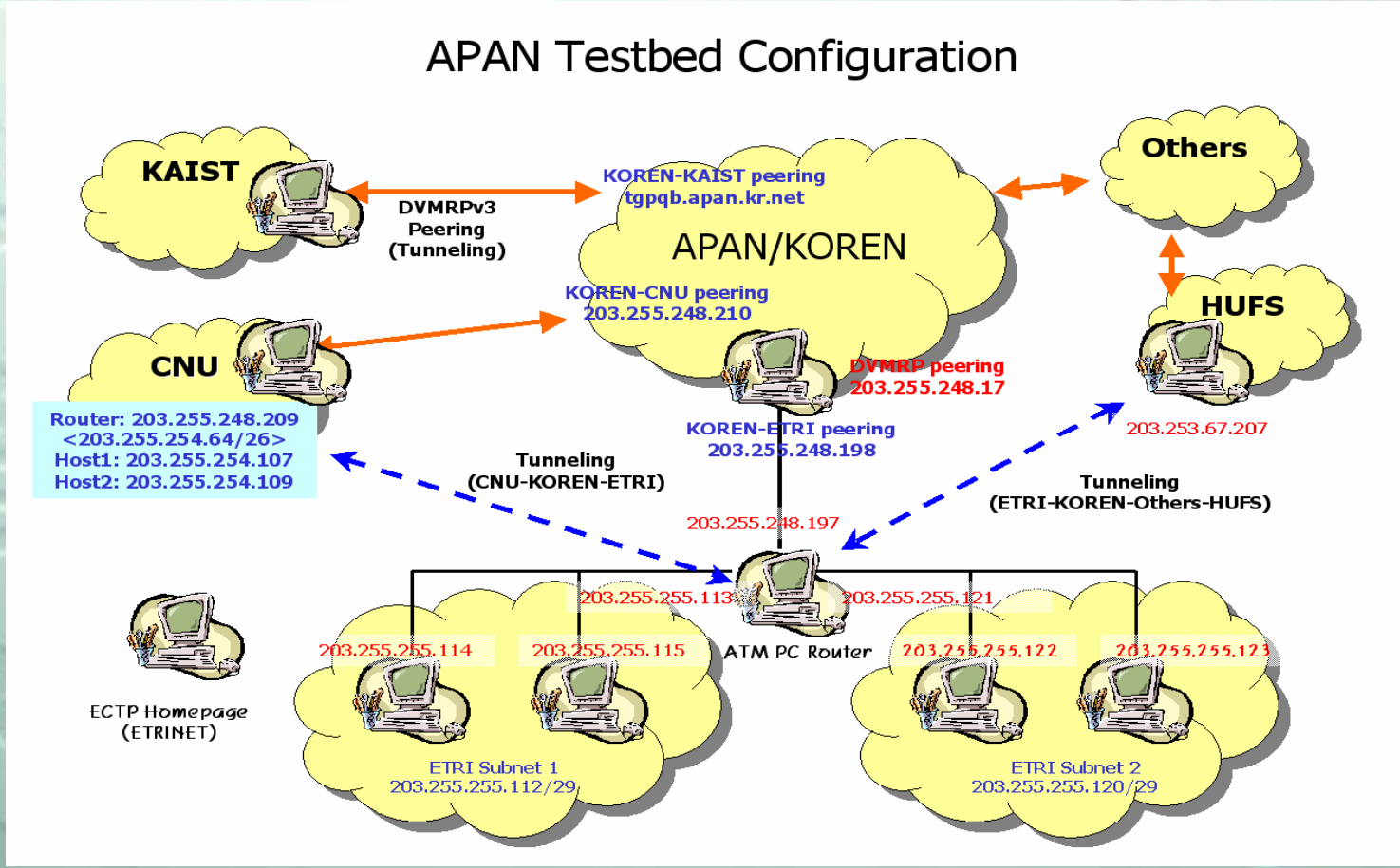
ECTP 테스트베드 (1)

- 실험실 환경에서의 테스트 환경



ECTP 테스트베드 (2)

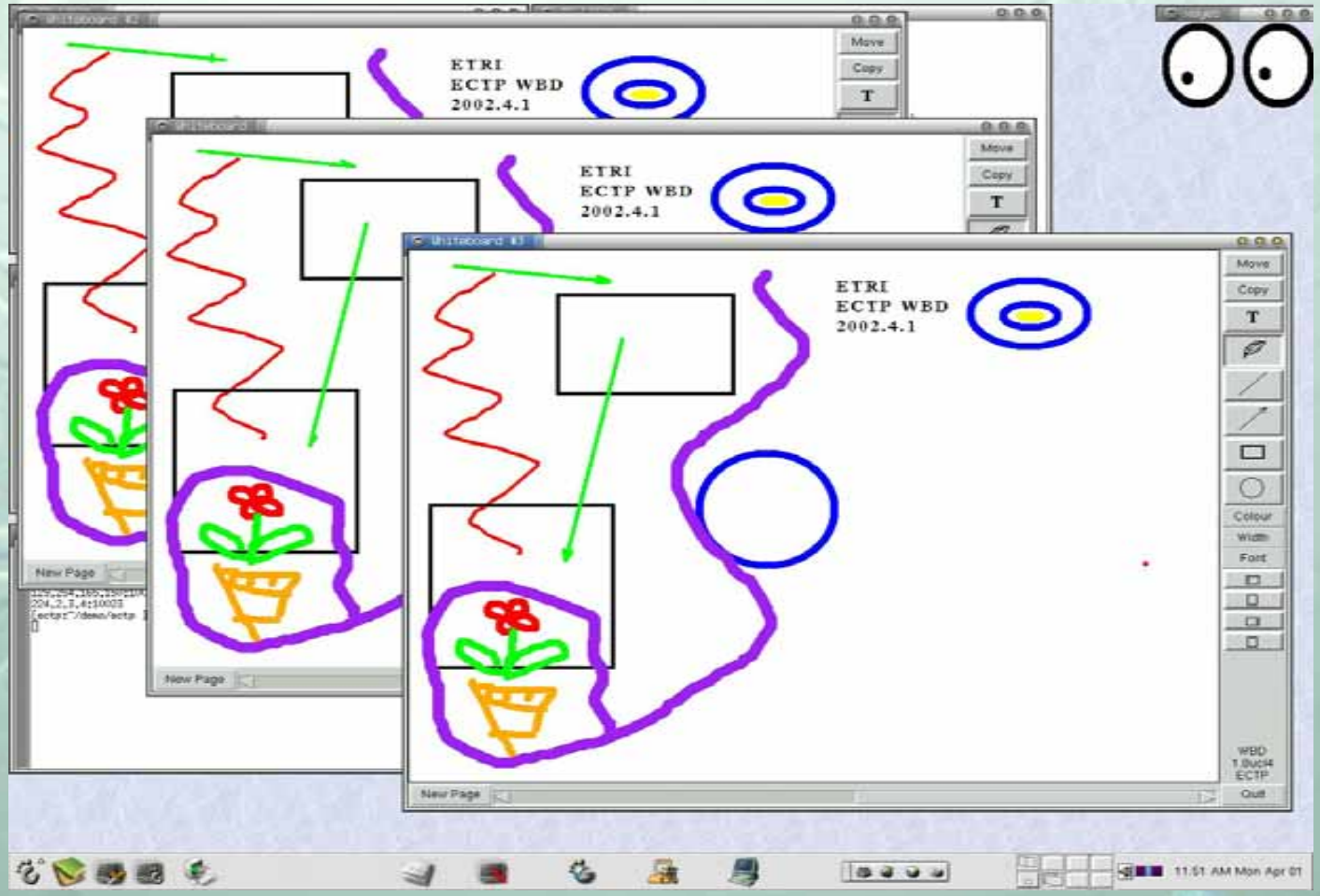
- **APAN/KOREN** 테스트베드



ECTP Homepage

- http://ectp.etri.re.kr/ectp.htm

ECTP 응용: whiteboard



표준기고서 작성 요령

- 기고서 작성 준비
  - 현재까지 “작업현황”을 충분히 파악
  - 진행중인 표준(작업) 문서에 포함될 새로운 기법 제안
  - 혹은, 기존 작업 문서에 대한 comment 등
- 기고서 작성
  - 간결/명확하게 작성
  - 제안 내용에 대한 논리적인 근거(자료)를 충분히 제시할 것
- 쟁점 이슈를 제안하는 경우
  - 사전에 해당 그룹 멤버들과 충분한 의견 수렴 !
  - “우호적인 멤버”를 많이 확보할 것 !

ECTP 국제표준화 완료

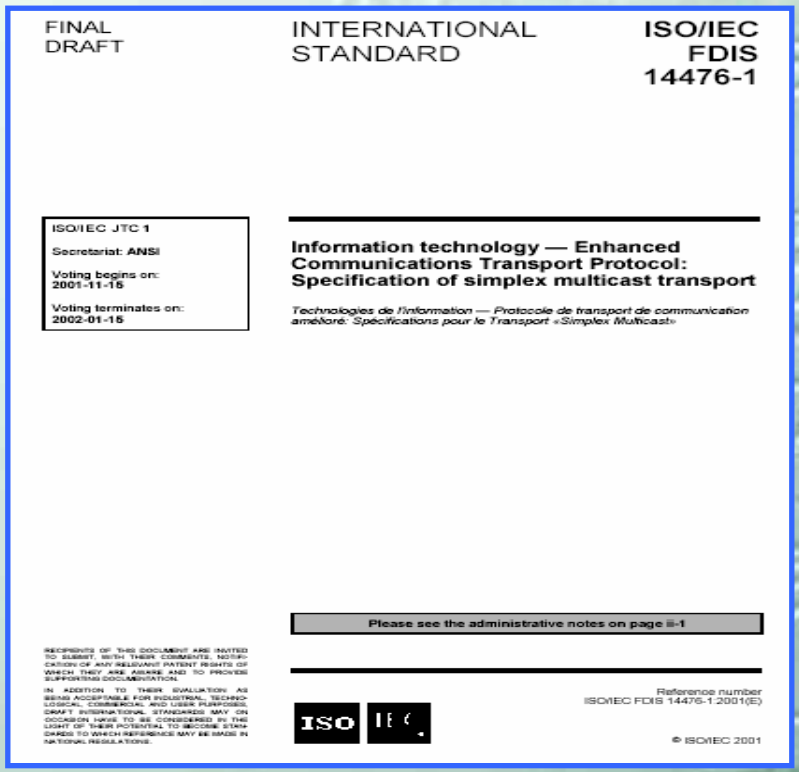
ECTP-1 & ECTP-2

국제표준화 완료 **(2002년)**

ECTP-3, 4, 5, 6

JTC1/SC6 CD 진행 중 **(2006년)**

2007년 표준화 작업 완료 예정



FINAL DRAFT

INTERNATIONAL STANDARD

ISO/IEC FDIS 14476-1

ISO/IEC JTC 1

Secretariat: ANSI

Voting begins on: 2001-11-15

Voting terminates on: 2002-01-15

Information technology — Enhanced Communications Transport Protocol: Specification of simplex multicast transport

Technologies de l'information — Protocole de transport de communication amélioré: Spécifications pour le Transport «Simplex Multicast»

Please see the administrative notes on page iii-1

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Reference number ISO/IEC FDIS 14476-1:2001(E)

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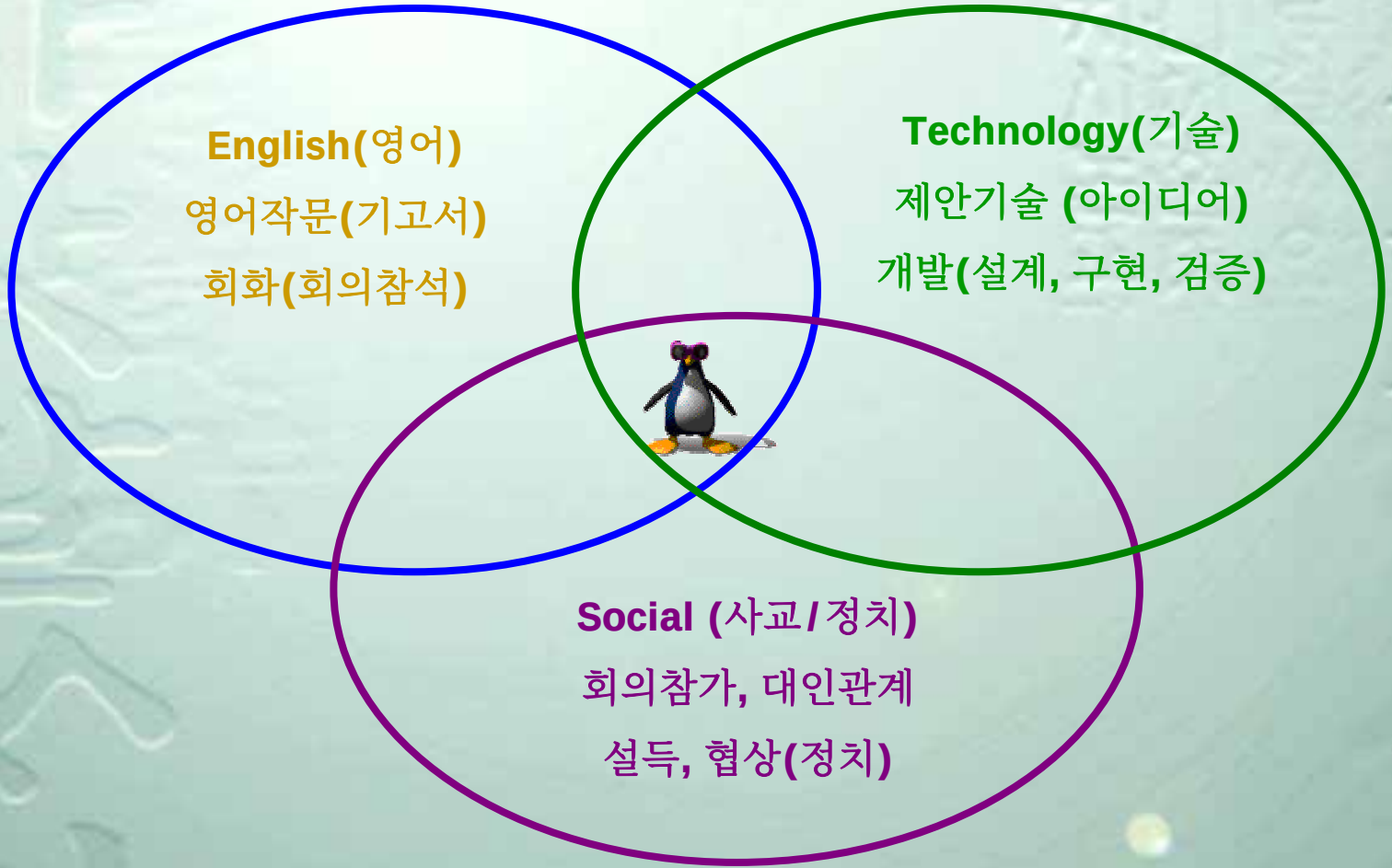
결론: 국제표준화 관련 메모

- 표준 **versus** 특허
  - 일부 특허권을 인정하는 표준도 있으나 (MPEG, 3GPP)
  - 대개의 “IT 표준”의 경우 특허권을 Open 해야 함
- 표준화 목적 **(??)**
  - 특허권 (지적재산권)
    - 표준 자체가 특허 혹은 지적재산권을 가지지 못함
    - 해당 표준을 구현하는 시스템기술에서 지적재산권 행사
  - 관련 (국제) 시장에서의 경쟁 우위 (경쟁력/마케팅 강화)
    - 표준화와 함께 제품개발 병행: 시장 선점
    - 표준화 Leader가 관련 시장주도 (Cisco, Ericsson 등)

결론: 국제표준화 추진 전략

- 국제표준화 활동 **TIP**
  - 해당 표준기구에 대한 규칙(Rules) 뿐만 아니라,
    - 문화(Culture)에 친숙해져야 성공함 (IETF, ITU, JTC1)
  - 기고활동(기고서 제출/발표)이 표준화 활동의 꽃 !!
    - 동향분석을 위한 표준화 회의 참석보다는...
  - 의장단 (Chair, Convener, Editor) 진출
    - 표준화 방향을 유리하게 전개할 수 있음
      - ✓ 특히, 치열한 경쟁기술의 경우..
    - 의장단 역할: 공평하게 중립적으로 표준화 진행 (?)
  - 현장(표준화 회의)에서 배운다 !
    - 많은 참가, 많은 기고, ..
    - 표준화 전문가 양성: 적극적인 회의참가 (출장) 지원

결론: 국제표준전문가 요구사항



Thank you for your attention !

Q & A

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