ITU IPTV Interop Events

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ITU Telecommunication Standardization Bureau (TSB)

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ITU held three Interop Events on IPTV

- 1st Event: Geneva, ITU headquarters, 20-23 July 2010
- 2nd Event: Singapore, 23-24 and 27 September 2010
- 3rd Event: Pune, India, 14-17 December 2010

ITU's Interop Events on IPTV comprise two parts

- **1st part: Testing – closed event**
  - Two types of testing carried out
    - Conformance testing: each company tests against a checklist
    - Interoperability testing: one-on-one testing

- **2nd part: Showcasing – open event**
  - Prospective customers invited
  - Film crew, photographer and media team on site

Test results are fed into the standards development process

ITU-T H.701 (error-recovery), ITU-T H.721 (IPTV terminal), ITU-T H.750 (metadata), ITU-T H.762 (LIME: interactive multimedia) and ITU-T H.770 (service discovery) have already been put to the test

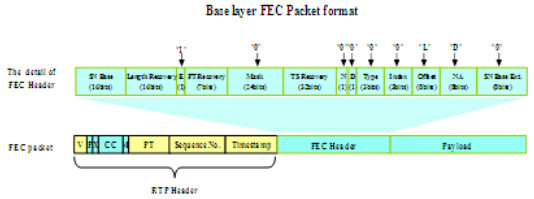
Ex. ITU-T H.701 Conformity Check List

Linear TV or VoD

IPTV service type	

No.	Category	Check item	Specification	M/O/C	Result	Verdict	Remark
1	*Basic feature*	Enabling FEC	To be possible to enable FEC protection	M			
2		Disabling FEC	To be possible to disable FEC protection	M			
3		Parameters	*L*D <= 400 & L <=40*	M	*L =* *D =* *L*D =*		
4	*Packet format*	Media packet format	To be RTP/UDP/IP	M			
5		FEC packet format	To be RTP/UDP/IP	M			
6		Media packet length	Not to be fragmented	M	Packet Length =		
7		FEC packet length	Not to be fragmented	M	Packet Length =		
8	*FEC header conformance*	SNBase low bits	To be minimum sequence number of the media packets associated to the FEC packet.	M			
9		Header extension bit (E)	1	M			
10		Mask	0	M			
11		N	0	M			
12		D	0	M			
13		type	0	M			
14		Index	0	M			
15		Offset	*L* (The number of columns)	M			
16		NA	*D* (The number of rows)	M			
17		SNBase ext bits	0	M			

The procedure of FEC function block conformance test
(1) Start streaming with disabling FEC and capture the output packets. If no FEC stream is detected, test item 2 is OK.
(2) Start streaming with enabling FEC and capture the output packets.
(3) If FEC stream is detected, test item is OK.
(4) Check 14th byte data and 15th one of RTP payload of FEC packet
14th byte is L and 15th byte is D. If L<=40 & L*D <= 400, test item 3 is OK.
(5) Check the packet format and length of media/FEC packets.
If they are RTP format and not fragmented, test item from 4 to 7 are OK.
(6) Check FEC header field.
- If a media packet exists which has same sequence number with "SNBase low bits" field, test item 8 is OK.
- If the first bit of 5th byte of RTP payload of FEC packet is 1, test item 9 is OK.
- If the date form 6th to 8th bytes of RTP payload field of FEC packet is 0, test item 10 is OK.
- If 13th byte of RTP payload of FEC packet is 0, test items 11 to 14 is OK.
- If 14th byte of RTP payload of FEC packet is equal to L, test item 15 is OK
- If 15th byte of RTP payload of FEC packet is equal to D, test item 16 is OK
- If 16th byte of RTP payload of FEC packet is 0, test item 17 is OK



Definitions of the fields of FEC header (Ref. [SMPTE2022-1] & [ETSI 102 034])
- SNBase (16bits) : the minimum RTP sequence number of those media packets protected by a FEC packet
- E (1bit) : Header extension bit. It should be 1.
- Mask (24bits) : This field should be set to zero.
- N (1bit) : This is reserved for future. It shall be set to zero.
- D (1bit) : This bit shall be set to zero for base layer FEC packets.
- Type (3bits) : This field shall be set to zero
- Index (3bits) : This field shall be set to zero
- Offset (8bits) : This 1-byte filed is the period used to select the media packets associated with this FEC packet. This field shall be L (L is the number of columns of FEC encoding matrix).
- NA (8bits) : This 1-byte filed indicates the number of media packets associated with this FEC packet, and shall be the D (D is the number of rows of FEC encoding matrix).
- SNBase ext bits (8bits) : For use with protocols which require extended sequence numbers longer than 16 bits. In the case of H.701 base layer FEC, this field should be zero.

Experience of three IPTV events (1/2)

- NTT, NEC, Mitsubishi Electric, Sumitomo Electric, OKI Electric, Cisco, TVSTORM, PUC-Rio, VOneMultimedia, Panasonic, ServTouch-Wywy (Singapore) participated

- Participation Fee: CHF 3’000 for first-time participants
  CHF 2’400 for second/third-time participants

- The workshop on “Conformance and Interoperability of IPTV” was held as part of the showcasing in India

Experience of three IPTV events (2/2)

- Many visitors from Africa, Asia, Europe and Americas, including regulators, broadcasters, telecom companies, system integrators, test laboratories, etc.
- Collaboration with international organizations, e.g. EBU, WIPO, etc.



TV crew on site

- **Highlight Videos**
  - 1st event: http://www.youtube.com/watch?v=0dg8maOi9sY
  - 2nd event: http://www.youtube.com/watch?v=oRRve8sJKTY
- **TV show (30 min, ×2) in India (Bloomberg Television)**
  - Part 1: www.youtube.com/watch?v=sla8P8VqllY
  - Part 2: www.youtube.com/watch?v=h9FQSNKXFZAhttp://
  - Part 3: www.youtube.com/watch?v=PduwNlR9oQUhttp://

Services

- **Event Management**:

  Local arrangements (arranging sites with hosts, shipment, hotels, networking opportunities, visa support, etc.)

  Logistical arrangements (registration/payment, legal aspects (NDAs), etc.)

- **Technical Management:**

  IT support, test bed, test session scheduling, etc.

- **Communication Management:**

  Promotion, media involvement, press releases, event website, inviting prospective customers, etc.

Future ITU Interop Events

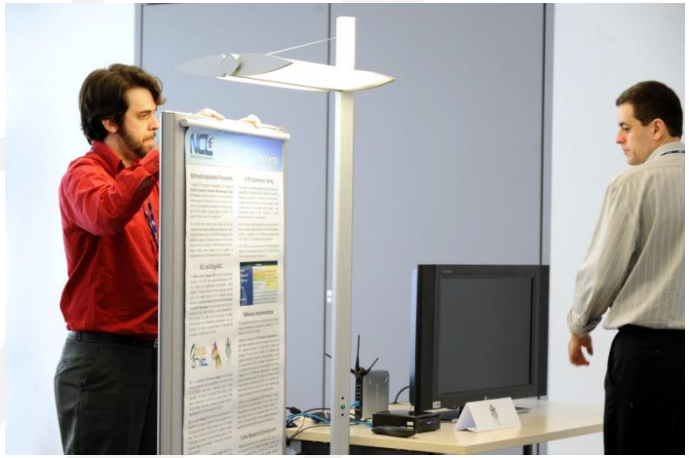
- **Events in 2011**
  - Interop Showcasing in ITU TELECOM World 2011 (October)
  - Possible Interop events in Latin America and in Middle East (TBC)

- **Future events will be enhanced with**
  - IPTV Interop to continue
  - More possible topics, e.g. Home Networking, GPON, etc.

Links

- ITU Interop events webpage: www.itu.int/interop
- The workshop on "Conformance and Interoperability of IPTV" Pune, India, 17 December 2010 (http://www.itu.int/ITU-T/worksem/iptv/201012/index.html)
- Photos on Flickr:
  - 1st Event : http://www.flickr.com/photos/itupictures/sets/72157624558743282/
  - 2nd Event: http://www.flickr.com/photos/malcolm_johnson/sets/72157625339461904/with/5158278770/
  - 3rd Event: http://www.flickr.com/photos/malcolm_johnson/sets/72157625959693676/
- ITU IPTV News log: http://www.itu.int/ITU-T/newslog/CategoryView,category,IPTV.aspx

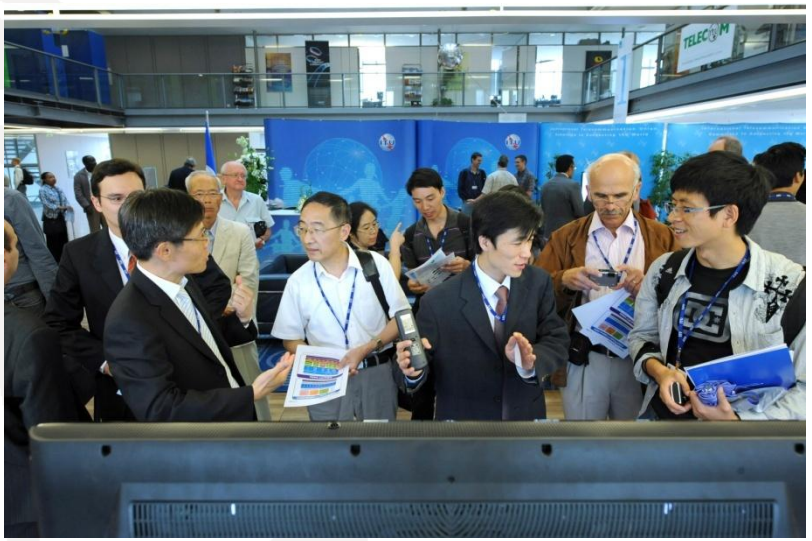
Photos taken during the 1st event
Setting up



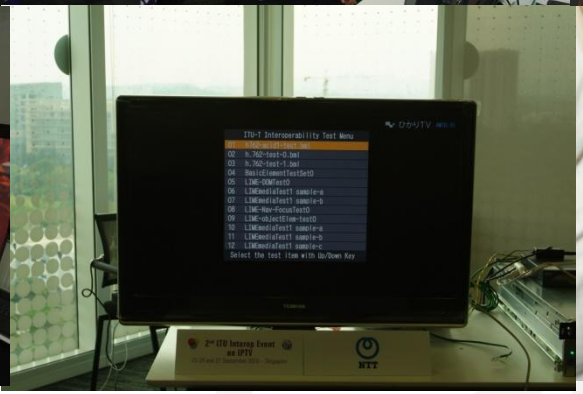
Photos taken during the 1st event
Kick-off meeting

Photos taken during the 1st Event Testing

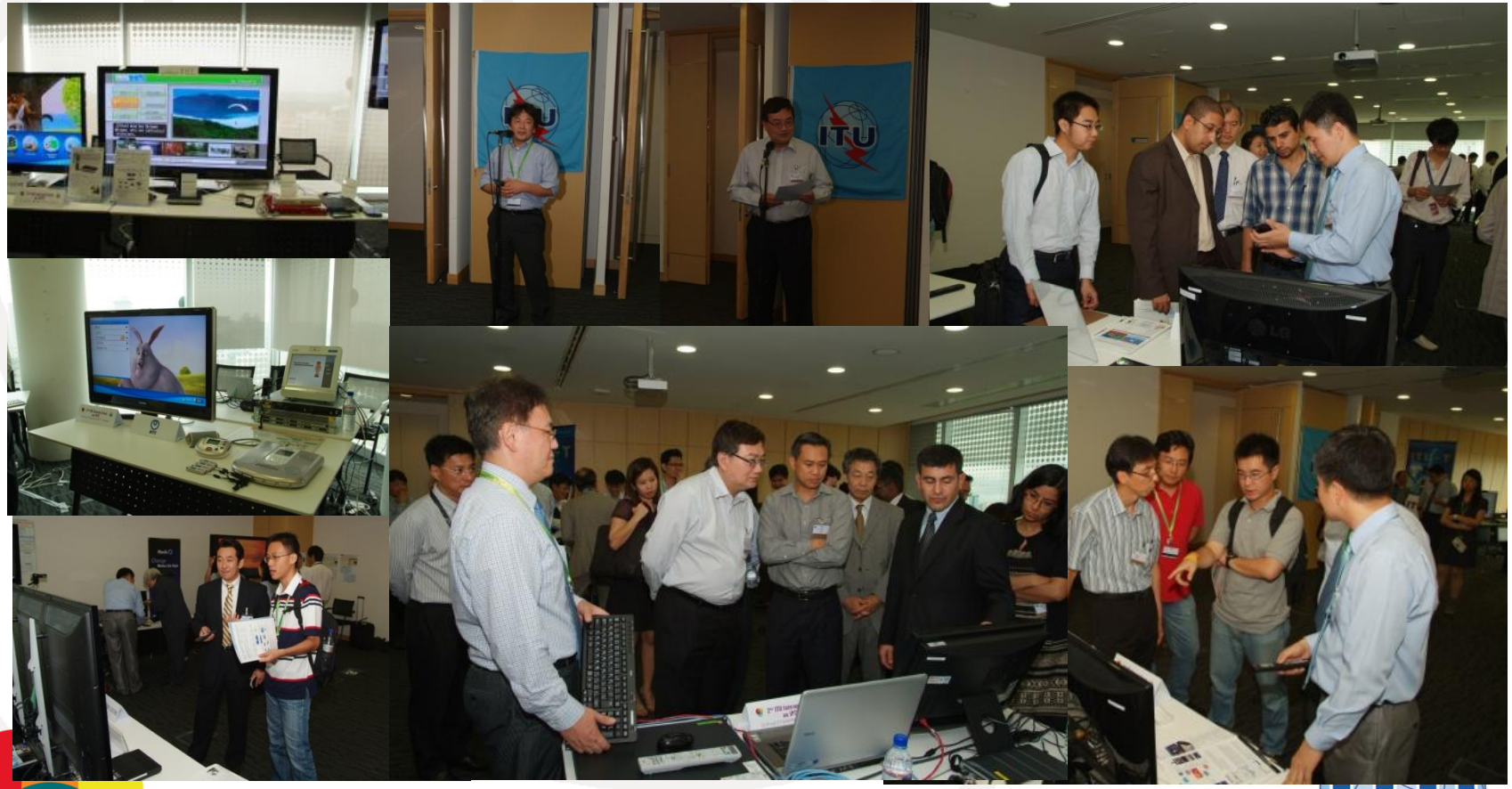
Photos taken during the 1st event Showcasing



Photos taken during the Singapore event
Testing



Photos taken during the Singapore event Showcasing



Photos taken during the India event

www.itu.int/interop