



# *Accessibility Center ,IBM Japan*

Accessibility Center-Asia Pacific  
IBM Japan, Ltd.  
23 October 2006





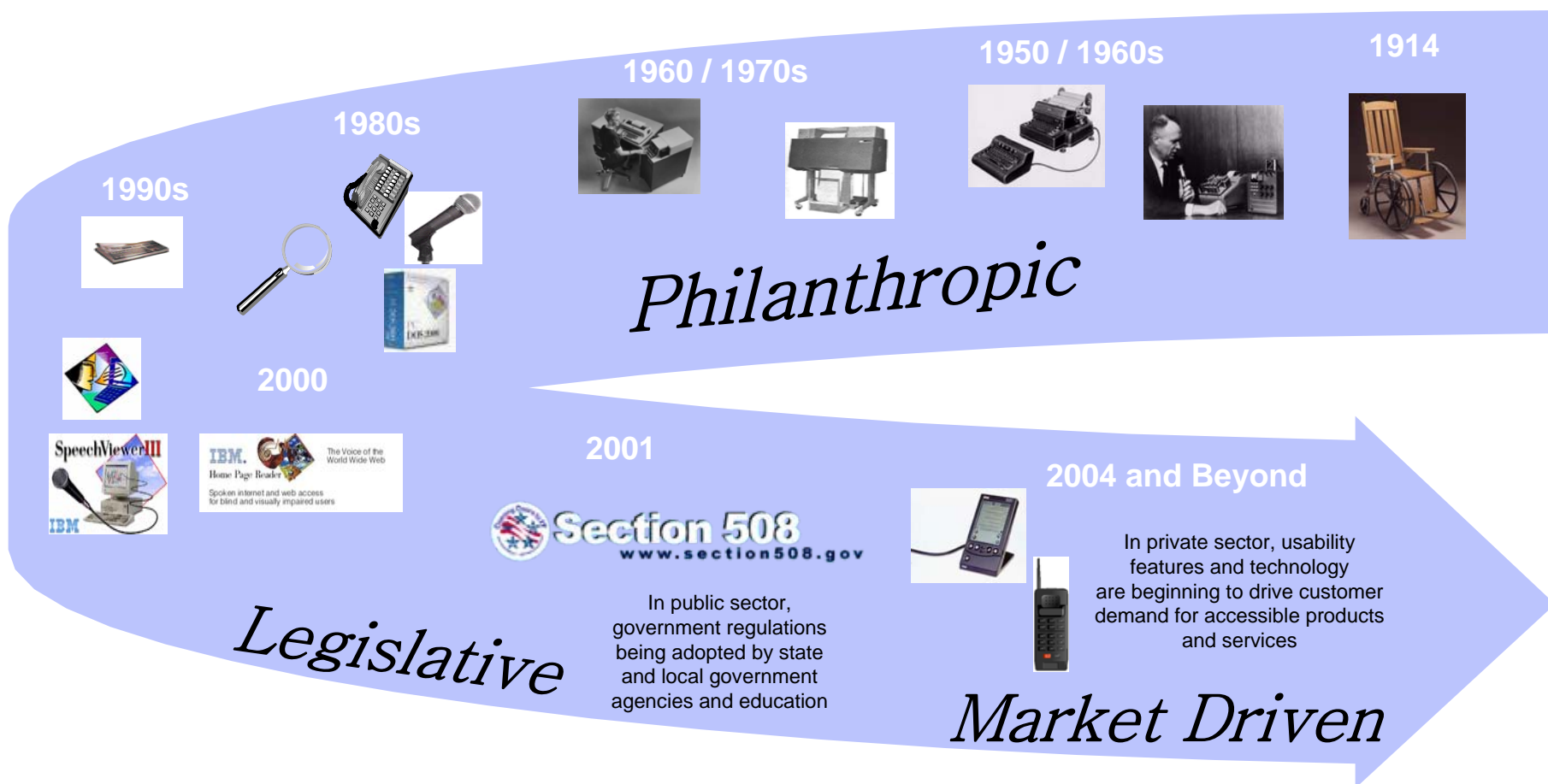
## *Agenda*

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- Introduction of IBM Accessibility Center activities
- Introduction of Caption Editing System



## Accessibility is being driven by two forces, legislation and the market





## *IBM Accessibility Center-Asia Pacific*

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### **History**

- **Accessibility Center(AC), 1999/4 (Yamato Lab, IBM Japan)**
- **World Wide AC, 2000/1 (Austin, Texas, US)**
- **Europe AC, 2001/1 (Paris, France)**
- **Asia Pacific, 2001/4 (Yamato Lab, IBM Japan)**

### **Mission**

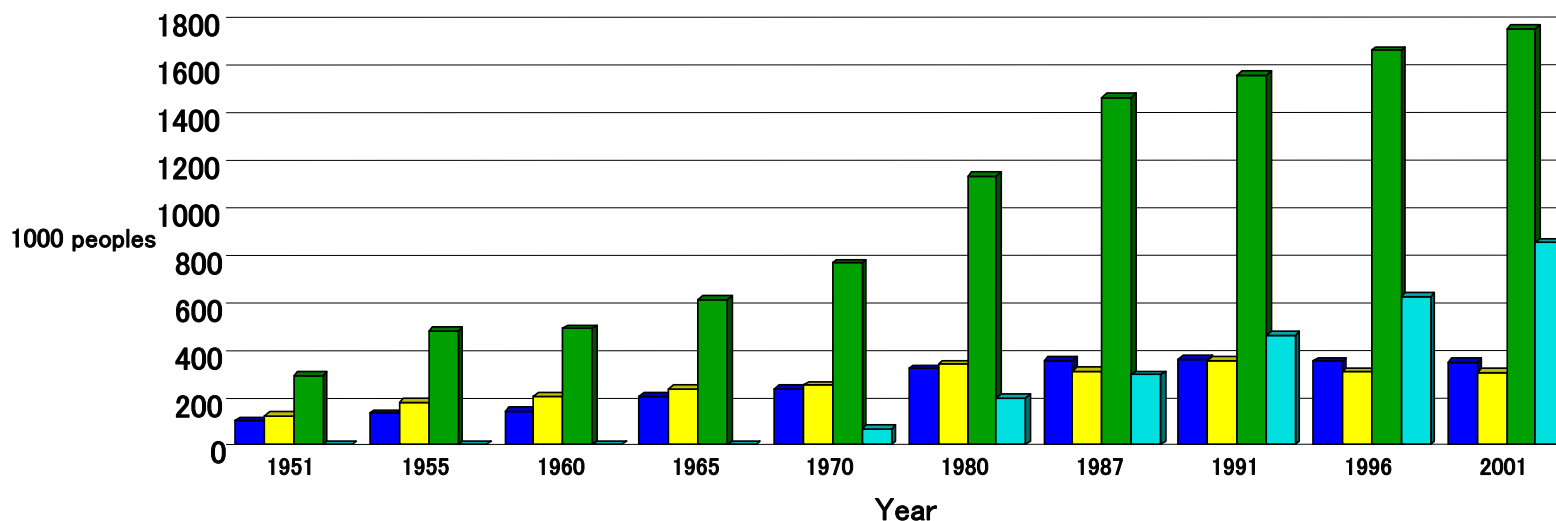
**Improve working environment, provide service, enhance accessibility for persons with disabilities by IBM technology and solution.**

- **Enhance technology for persons with disabilities**
- **Promote IBM products and Services**
- **Provide Accessibility Solution**
- **Improve IBM Internal workforce for persons with disabilities**
- **Standard Committee and Marketing**



## Number of Persons with Disabilities by the Type of Disability

(Persons with Physical Disabilities Living in Home)



	1951	1955	1960	1965	1970	1980	1987	1991	1996	2001
Hearing	100	130	141	204	235	317	354	358	350	346
Visual	121	179	202	234	250	336	307	353	305	301
Mobility	291	476	486	610	763	1127	1460	1553	1657	1749
Other	0	0	0	0	66	197	292	458	621	849
Total	512	785	829	1048	1314	1977	2413	2722	2933	3245

(Source :Ministry of Health, Labor and Welfare:2001)

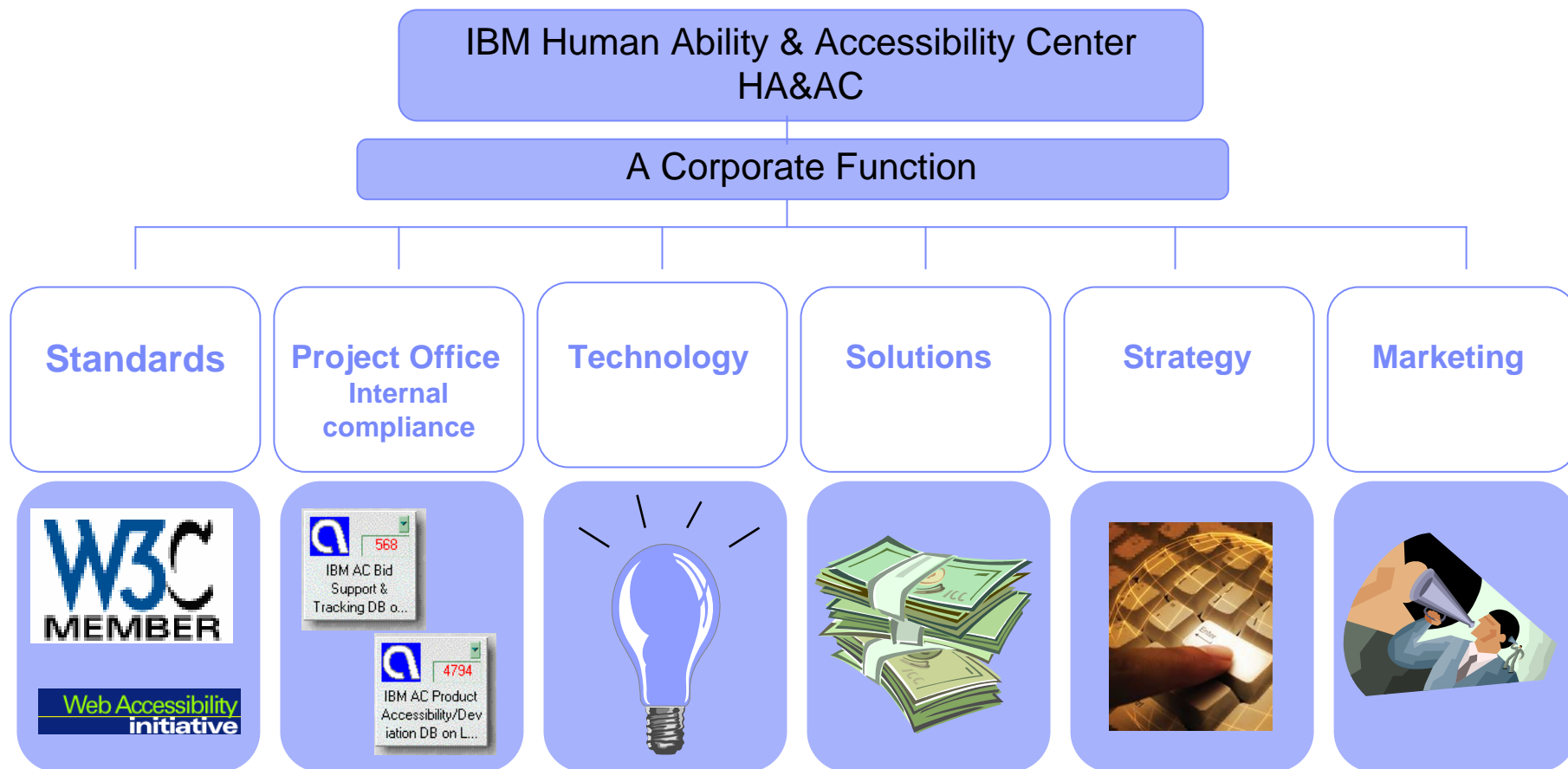


## Legislation of Accessibility in Japan

1995/4	Description of Accessibility Guidelines for use of computers by the Persons with Disabilities and elderly Ministry of Economy, Trade and Industry (Revised 2000/6)
2000/10	Accessibility Guidelines for Use of Telecommunication Equipment by Persons with Disabilities Ministry of Posts and Telecommunications
2004/5-6	Accessibility JIS (Japan Industry Standard) Issued - JIS X8341-1~3
2004/ 6	The basic Law for Persons with Disabilities (Last Amended) Local Governments are required to obey JIS

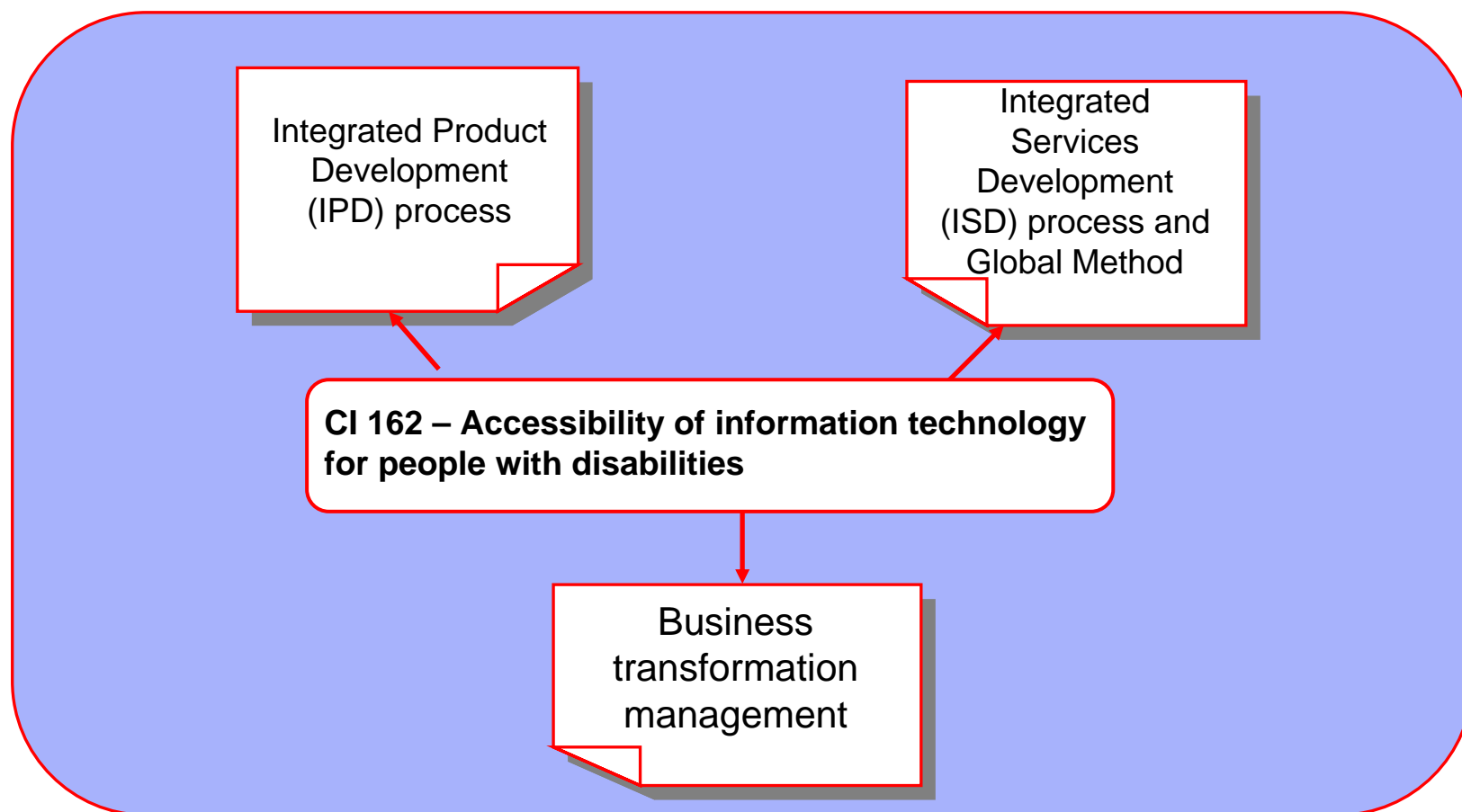


## IBM Human Ability & Accessibility Centers





## Penetrating Accessibility into IBM Culture







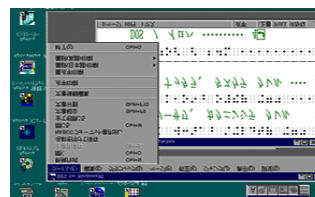
# Accessibility Products and Solution



## Home Page Reader(HPR)

Talking Web browser for users who are blind or have low vision

[http://www.ibm.com/able/solution\\_offerings/hpr.html](http://www.ibm.com/able/solution_offerings/hpr.html)



## Braille Editing System(BES)

Helps many Braille transcribe volunteers

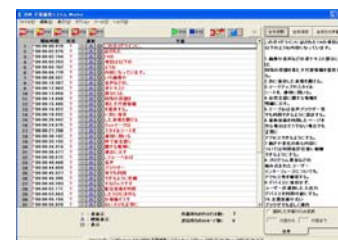
Supports Braille Printers, TTS, Braille Displays



## Easy Web Browsing (EWB)

Helps novice users, seniors and people with limited vision or eye fatigue access Web site information more easily

[http://www.ibm.com/able/solution\\_offerings/EasyWebBrowsing.html](http://www.ibm.com/able/solution_offerings/EasyWebBrowsing.html)



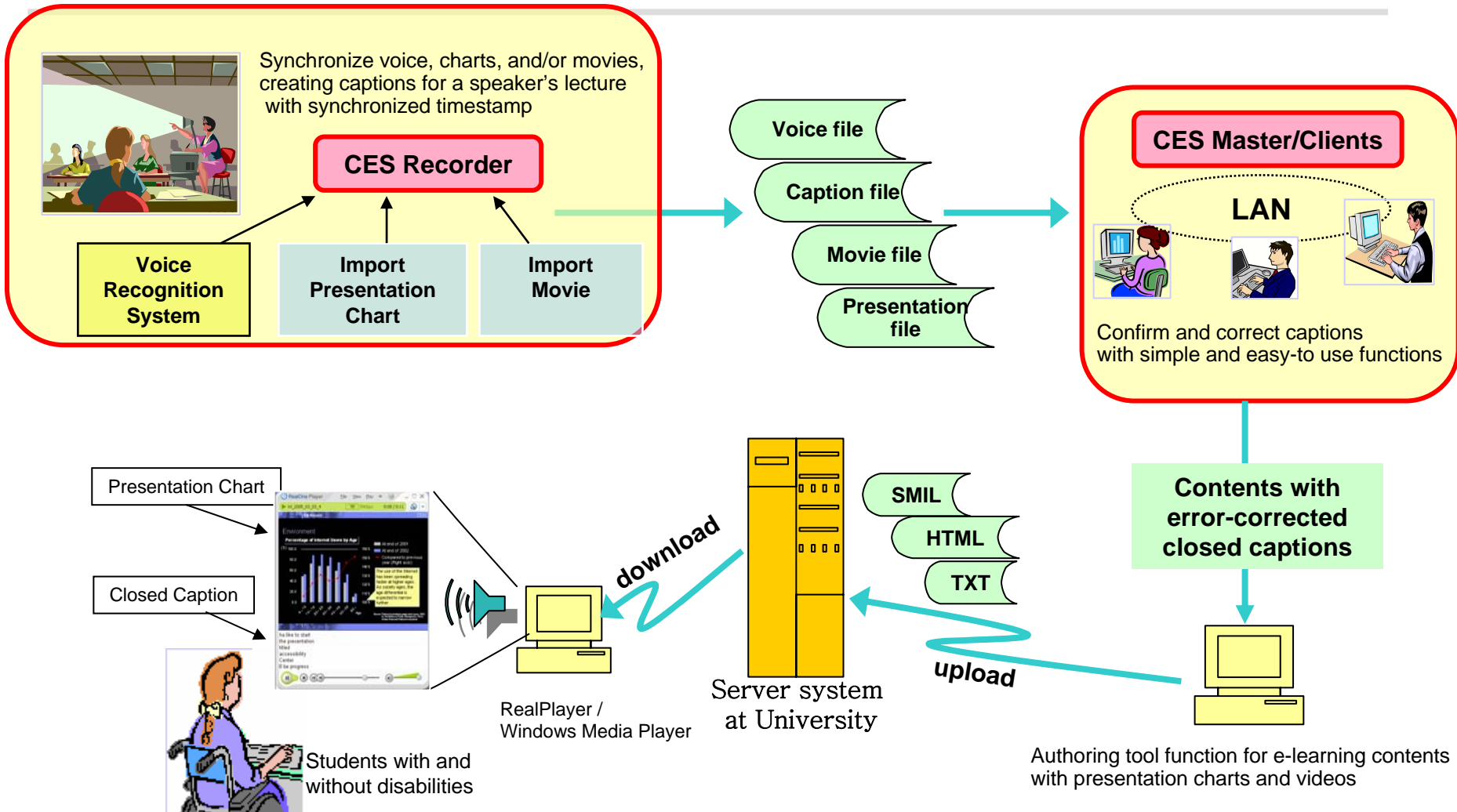
## Caption Editing System (CES)

An easy method of improving the accuracy of captions by correcting the errors of voice recognition.

<http://www.alphaworks.ibm.com/tech/ces>



## Introduction to the Caption Editing System





# Caption Editing System

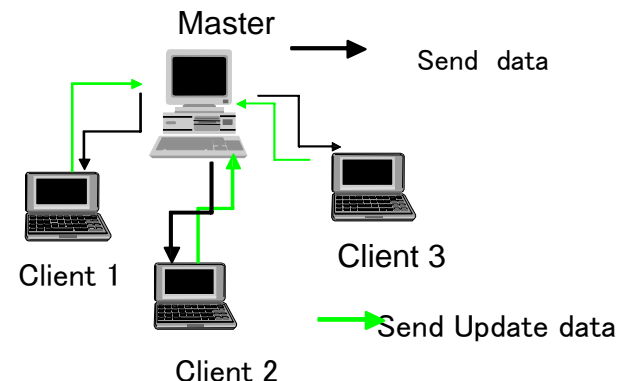
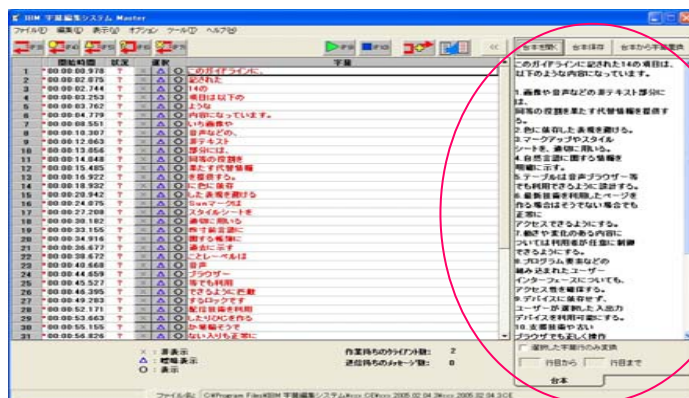
## 1. Participation in caption editing for novice users

## 2. Effectiveness in Editing

- Easy start and stop operation of audio output
- Complete Audio Synchronization
- Network Collaboration

## 3. Effective use of Supplemental Information

- PowerPoint Integration
- Script Matching





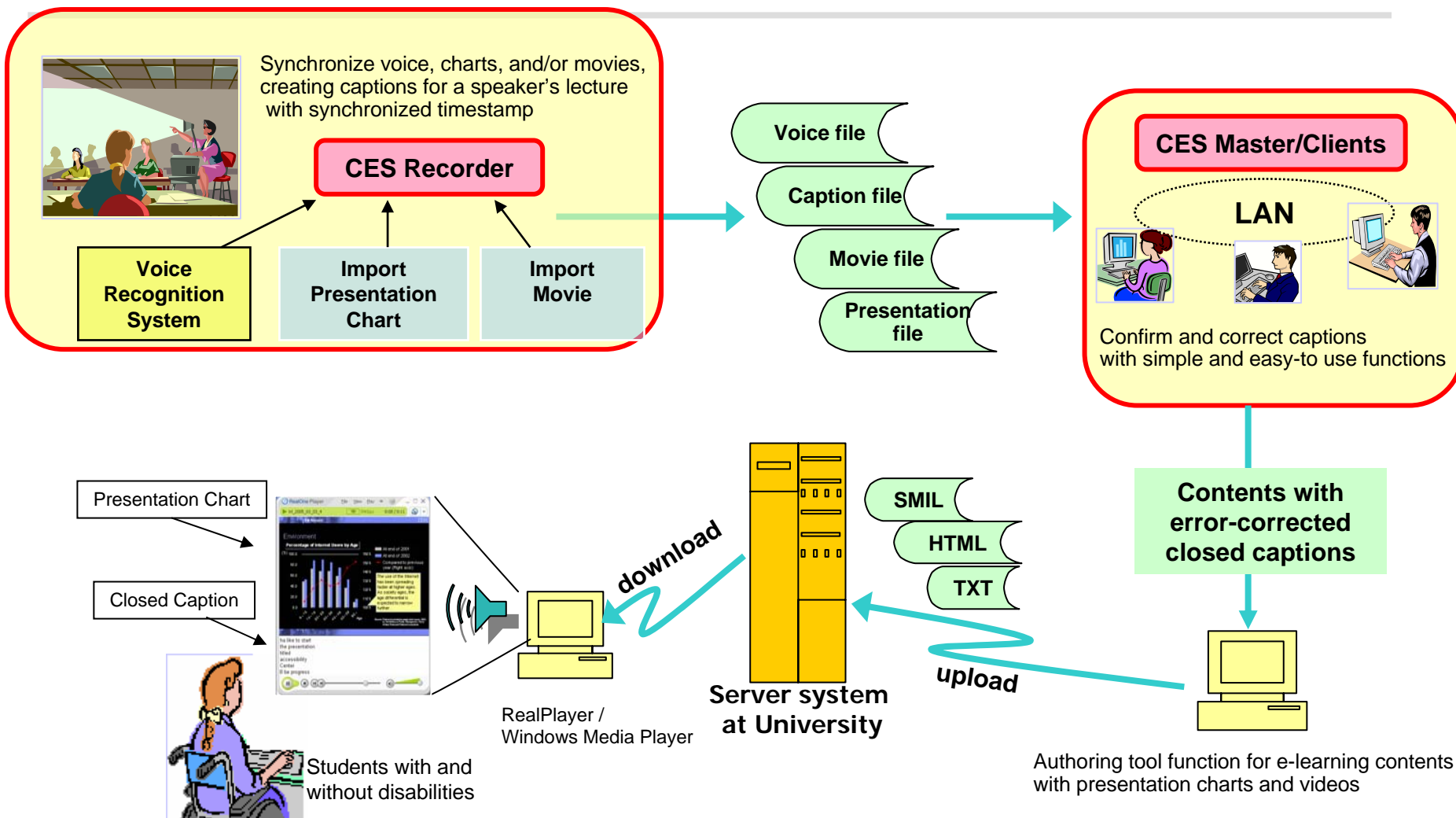
## *Caption Editing System Function*

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- Developed by IBM Accessibility Center-Asia pacific
- Main Functions
  - Attach timestamps to the recorded data and generates captions automatically.
  - Support an editor in checking the recognized text and in fixing the errors easily while listening to the recorded voice data.
  - Combine presentation charts used in the classes, the presentation images, and also any videos or photographs, and create simple e-learning content.



## Introduction to the Caption Editing System







## Photo of Classroom





# Caption Editing System Recorder

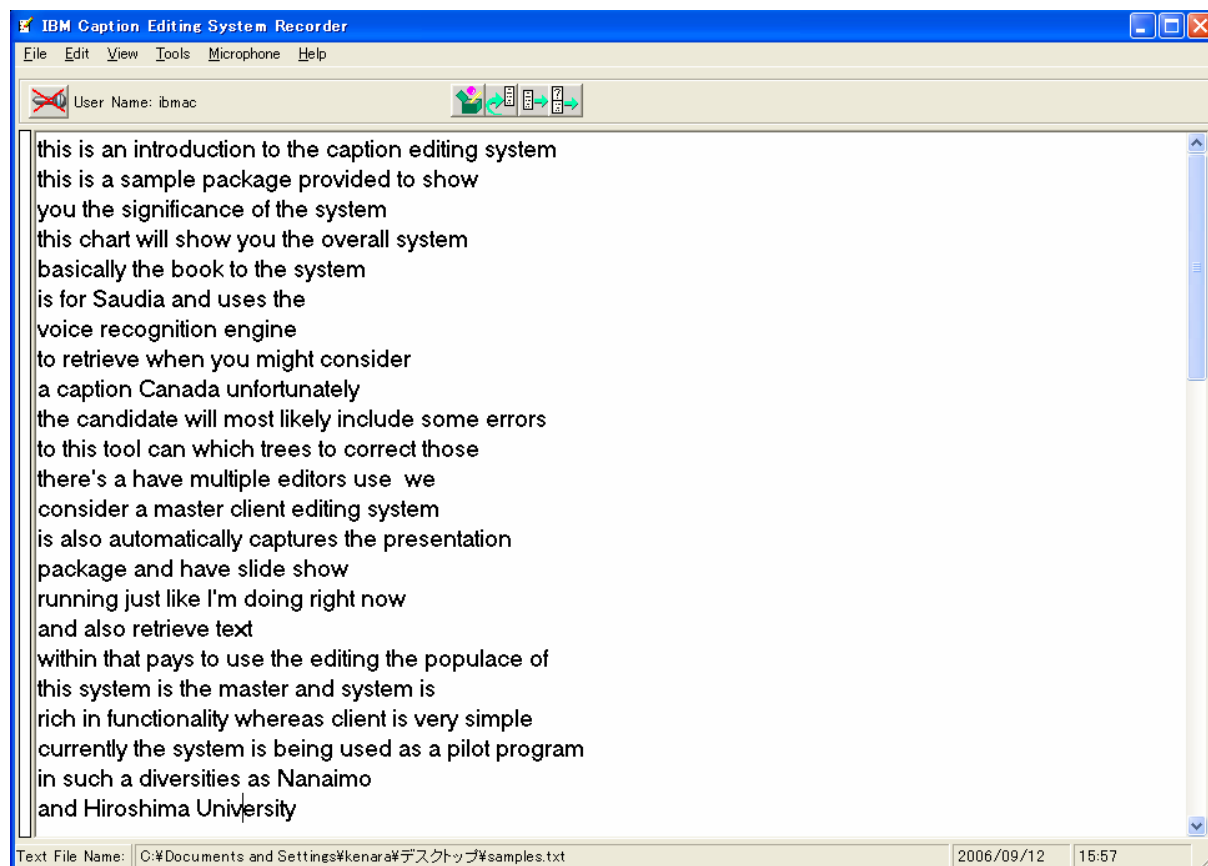
### ➤ With Voice recognition

- Create

- Audio
- Text

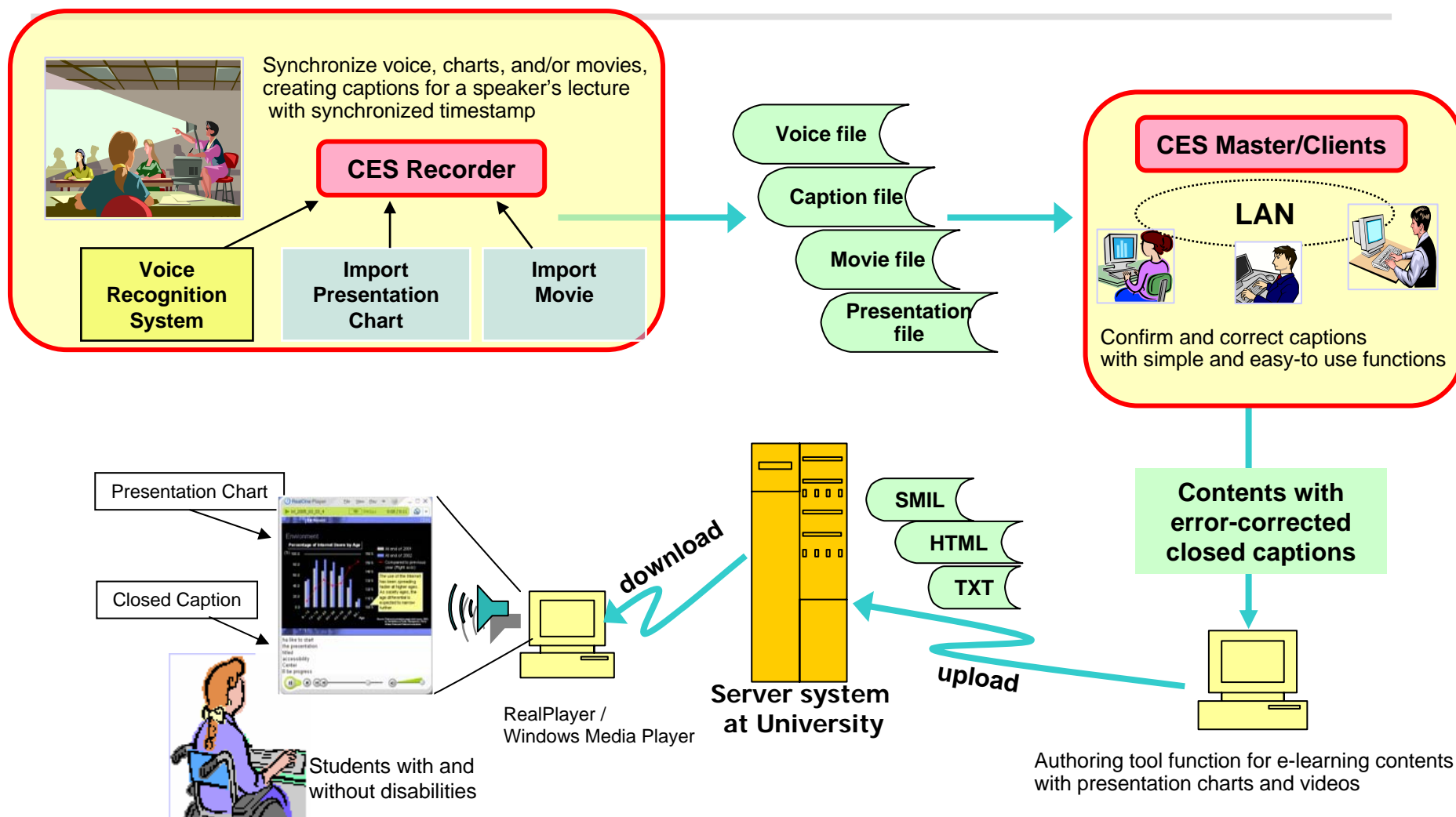
### Point:

- Real-time caption
- Automatic timestamps
- Supports SMIL/SAMI
- Records PPT Slides





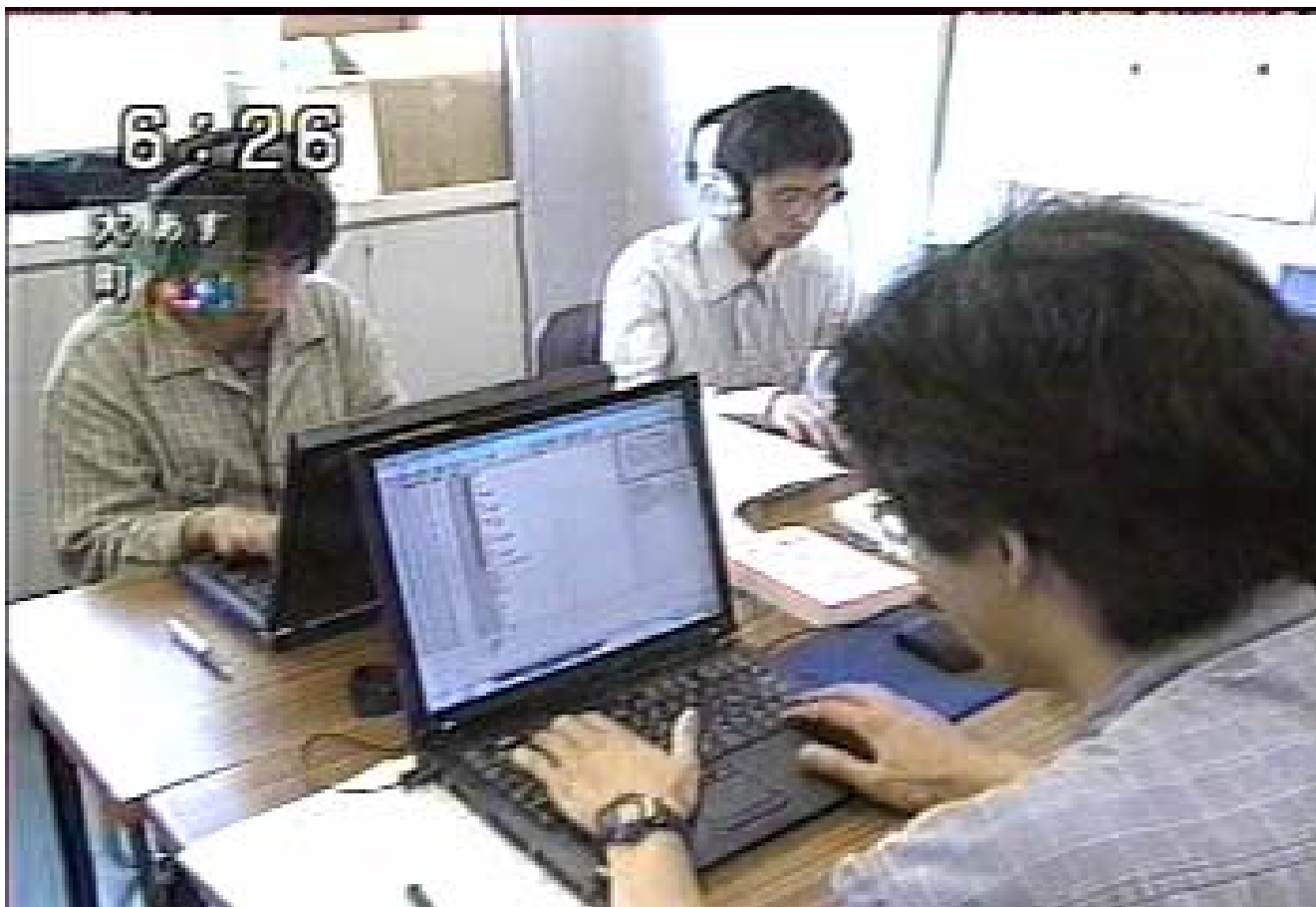
## Introduction to the Caption Editing System







## *Editing*





## Caption Editing System Editor (Master)

- Collaboration with Client machines on the network
- Novice users without training

Point:

- Easy start and stop operation of audio output
- Marks: ○ (Accurate) or △ (nearly accurate) or × (No display)
- Content layout
- RTF editors
- Append lines
- Split lines
- Add/Insert lines
- Set Insert time/Skip time

	Start Time	State	Choice	Caption		
1	00:00:01.936	?	×	△	○	this is an introduction
2	00:00:03.273	?	×	△	○	to
3	00:00:03.472	?	×	△	○	the
4	00:00:03.552	?	×	△	○	caption editing system
5	00:00:06.116	?	×	△	○	this is a sample
6	00:00:06.885	?	×	△	○	package
7	00:00:07.443	?	×	△	○	provided
8	00:00:07.992	?	×	△	○	to
9	00:00:08.132	?	×	△	○	show
10	00:00:08.411	?	×	△	○	you
11	00:00:08.641	?	×	△	○	the
12	00:00:08.770	?	×	△	○	significance of
13	00:00:09.678	?	×	△	○	the system
14	00:00:11.754	?	×	△	○	this chart will show you the
15	00:00:13.450	?	×	△	○	overall
16	00:00:13.859	?	×	△	○	system
17	00:00:16.423	?	×	△	○	basically
18	00:00:16.952	?	×	△	○	the book to
19	00:00:17.670	?	×	△	○	the
20	00:00:17.770	?	×	△	○	system
21	00:00:18.289	?	×	△	○	is
22	00:00:18.518	?	×	△	○	for Saudia
23	00:00:19.995	?	×	△	○	and uses the
24	00:00:20.823	?	×	△	○	voice recognition
25	00:00:21.701	?	×	△	○	engine
26	00:00:22.140	?	×	△	○	to retrieve
27	00:00:22.898	?	×	△	○	when you
28	00:00:23.517	?	×	△	○	might consider
29	00:00:24.225	?	×	△	○	a caption Canada
30	00:00:26.899	?	×	△	○	unfortunately
31	00:00:27.777	?	×	△	○	the candidate will most likely

Entire time: 00:02:19.613  
Actually play time: 00:02:19.613

× : Nondisplay  
△ : Nearly Accurate  
○ : Accurate

File Name: J:\alphaworks\sample\CES\_Sample\sample\_contents\CES\_Demo.ce

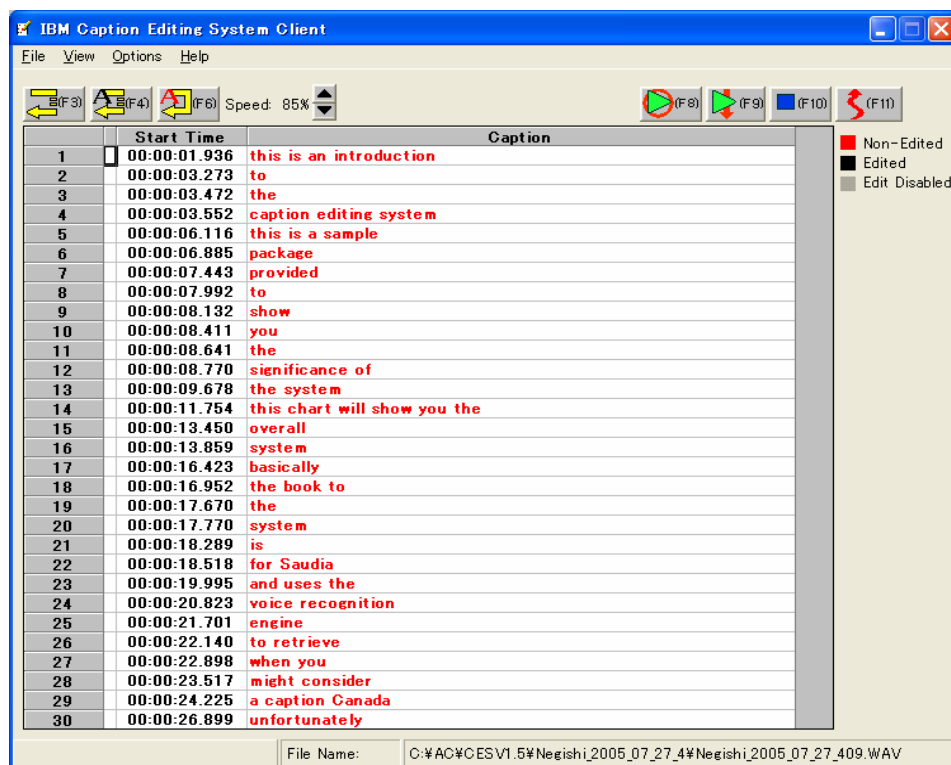


## Caption Editing System Editor (Client)

- Work via a network
- Novice users without training

Point:

- Easy start and stop operation of audio output





## References to presentation text

Point:

- Exports to speaker notes
- PowerPoint Slide text

**IBM Caption Editing System Master**

File Edit View Options Tools Help

Speed: 90%

	Start Time	State	Choice	Caption		
4	00:00:03.552	?	×	△	○	caption editing system
5	00:00:06.116	?	×	△	○	this is a sample
6	00:00:06.885	?	×	△	○	package
7	00:00:07.443	?	×	△	○	provided
8	00:00:07.992	?	×	△	○	to
9	00:00:08.132	?	×	△	○	show
10	00:00:08.411	?	×	△	○	you
11	00:00:08.641	?	×	△	○	the
12	00:00:08.770	?	×	△	○	significance of
13	00:00:09.678	?	×	△	○	the system
14	00:00:11.754	?	×	△	○	this chart will show you the
15	00:00:13.450	?	×	△	○	overall
16	00:00:13.859	?	×	△	○	system
17	00:00:16.423	?	×	△	○	basically
18	00:00:16.952	?	×	△	○	the book to
19	00:00:17.670	?	×	△	○	the
20	00:00:17.770	?	×	△	○	system
21	00:00:18.289	?	×	△	○	is
22	00:00:18.518	?	×	△	○	for Saudia
23	00:00:19.995	?	×	△	○	and uses the
24	00:00:20.823	?	×	△	○	voice recognition
25	00:00:21.701	?	×	△	○	engine
26	00:00:22.140	?	×	△	○	to retrieve
27	00:00:22.898	?	×	△	○	when you
28	00:00:23.517	?	×	△	○	might consider
29	00:00:24.225	?	×	△	○	a caption Canada
30	00:00:26.899	?	×	△	○	unfortunately
31	00:00:27.777	?	×	△	○	the candidate will most likely
32	00:00:29.374	?	×	△	○	include some errors
33	00:00:31.000	?	×	△	○	to this
34	00:00:31.369	?	×	△	○	tool

Entire time:00:02:19.613  
Actually play time:00:02:19.613

× : Nondisplay  
△ : Nearly Accurate  
○ : Accurate

File Name: J:\alphaworks\sample\CES\_Sample\sample\_contents\CES\_Demo.ce

Page 2

Delete Slide Edit StartTime

Caption Editing System :Overall  
Master Editing System  
Client Editing System 1  
Client Editing System 2  
Recognition (ViaVoice Engine)  
Editing  
(Text) Caption  
Joint Program with Nagano University  
(OCR Project)  
Hiroshima University (ViaScribe Project)  
Captioning for key IBM Internal  
speeches  
Voice  
(c)2005 IBM Corporation

Transcript Presentation Text



## Transcript Matching

➤ Caption file and transcript matching

Point:

- If there is a script can be matched instantaneously

**IBM Caption Editing System Master**

File Edit View Options Tools Help

Speed: 90%

	Start Time	State	Choice	Caption
24	00:00:20.823	?	× Δ ○	voice recognition
25	00:00:21.701	?	× Δ ○	engine
26	00:00:22.140	?	× Δ ○	to retrieve
27	00:00:22.898	?	× Δ ○	when you
28	00:00:23.517	?	× Δ ○	might consider
29	00:00:24.225	?	× Δ ○	a caption Canada
30	00:00:26.899	?	× Δ ○	unfortunately
31	00:00:27.777	?	× Δ ○	the candidate will most likely
32	00:00:29.374	?	× Δ ○	include some errors
33	00:00:31.000	?	× Δ ○	to this
34	00:00:31.369	?	× Δ ○	tool
35	00:00:31.808	?	× Δ ○	can which
36	00:00:32.297	?	× Δ ○	trees to correct those
37	00:00:33.414	?	× Δ ○	there's
38	00:00:35.360	?	× Δ ○	a have multiple
39	00:00:36.308	?	× Δ ○	editors
40	00:00:37.056	?	× Δ ○	use " we
41	00:00:38.024	?	× Δ ○	consider
42	00:00:38.563	?	× Δ ○	a master client
43	00:00:39.600	?	× Δ ○	editing system
44	00:00:41.965	?	× Δ ○	is also automatically
45	00:00:43.452	?	× Δ ○	captures the presentation
46	00:00:45.078	?	× Δ ○	package
47	00:00:47.004	?	× Δ ○	and have slide show
48	00:00:48.021	?	× Δ ○	running
49	00:00:48.440	?	× Δ ○	just like
50	00:00:48.909	?	× Δ ○	I'm doing right now
51	00:00:52.152	?	× Δ ○	and also
52	00:00:52.561	?	× Δ ○	retrieve text
53	00:00:53.599	?	× Δ ○	within
54	00:00:53.928	?	× Δ ○	that

Entire time: 00:02:19.613  
Actually play time: 00:02:19.613

× : Nondisplay  
Δ : Nearly Accurate  
○ : Accurate

File Name: J:\alphaworks\sample\CES\_Sample\sample\_contents\CES\_Demo.ce

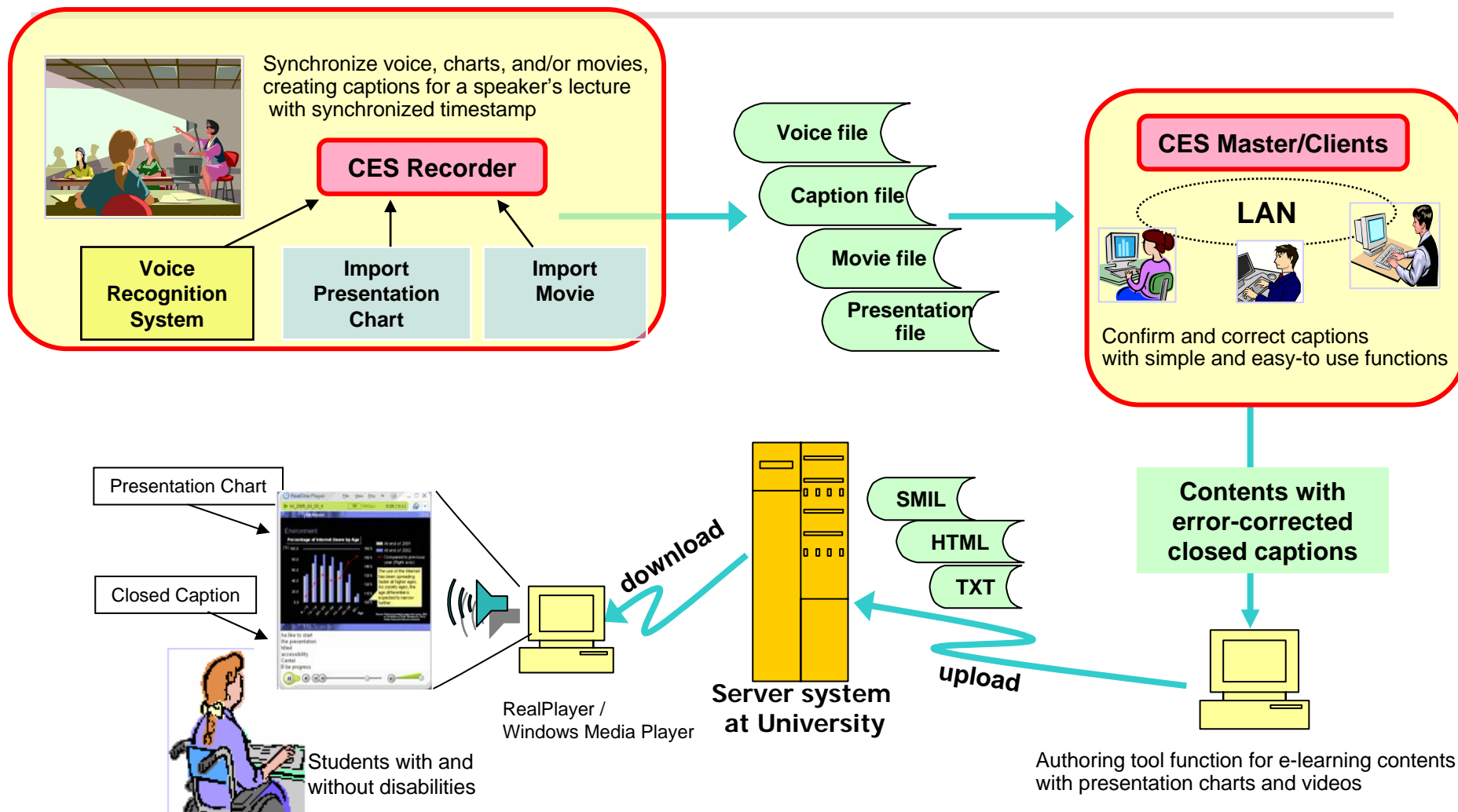
Transcript: this is an introduction to the caption editing system this is a sample package provided to show you the significance of the system this chart will show you the overall system basically the book to the system is for Saudia and uses the voice recognition engine to retrieve when you might consider a caption Canada unfortunately

Correct Caption with Transcript

Transcript Presentation Text



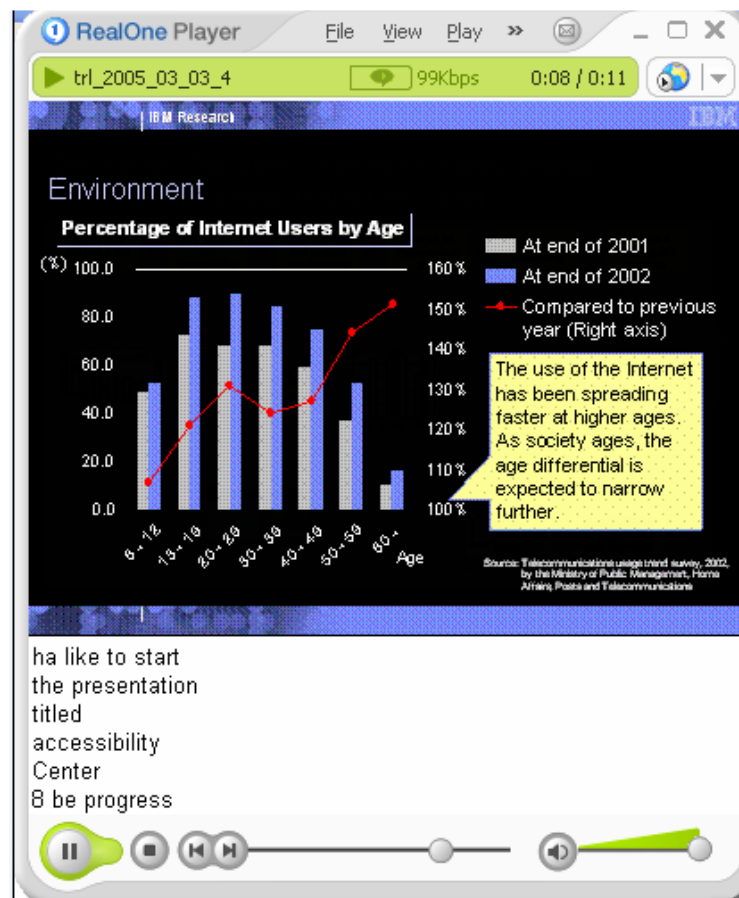
## Introduction to the Caption Editing System





## Contents

- Supports RealPlayer and Windows Media Player
- Synchronize captions, PowerPoint, audio, and video





## *Pilot Program University*

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### ➤ Nagano University

- April, 2005 – March, 2006
- 1 Class

### ➤ Hiroshima University

- September, 2005 –
- 5 Classes





## *Challenges and future developments*

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- More attractive e-Learning content
- Enhance editing productively
  - Easy to correct voice recognition errors
  - Script matching
  - Network collaboration
- Continuous the pilot program



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# Thank you



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# Backup



## *Our Solution (captioning)*

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- Voice Recognition Technology
  - Great improvements in recognition rates
  - Higher PC processor speeds
  
- Digital Archive
  - Broadband accessible
  - Servers in universities
  - Multimedia players
  
- Supplemental Information
  - Slides and text in Microsoft PowerPoint
  - Scripts



## Captioning of TV Programs

### Target is 2007

TV	Captioned Ratio (only technically possible)			Captioned Ration (Total)		
	2004 (%)	2005	2007 Target	2004	2005	2007 Target
NHK(Japan Broadcasting Corporation)	89.5	98.2	100	35.5 (3,105 hr.)	40.8 (3,575 hr. )	41.9%
NTV(Nippon Television Network Corporation)	66.3	80.0	84.2	25.5 (2,151 hr. )	28.9 (2,502 hr. )	28.0%
TBS(Tokyo Broadcasting System, Inc.)	56.5	59.8	85.3	21.4 (1,852 hr. )	25.6 (2,215 hr. )	35.3%
Fuji Television Network, Inc.	56.5	59.8	88.3	24.2 (2,108 hr. )	28.2 (2,450 hr. )	32.0%
TV Asahi	63.1	73.1	90.0	24.3 (2,108 hr. )	30.8 (2,657 hr. )	32.3%
TV Tokyo	31.2	48.5	80.4	16.4 (1,402 hr. )	24.0 (2,046 hr. )	37.1%

(Japanese Government)