

MPEG-7 표준과 TV-Anytime 상용화

2003. 10. 14

강영욱

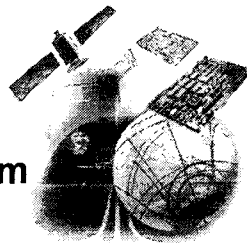
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3. TV-Anytime Forum
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Metadata

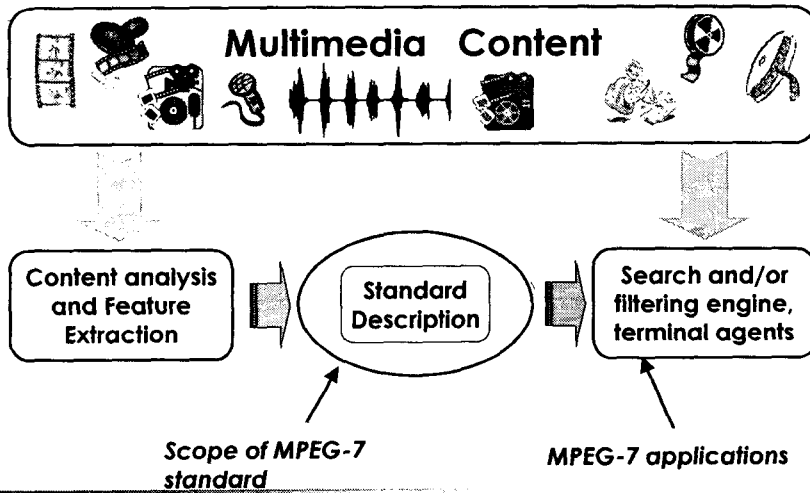
Metadata

▣ 방송 콘텐츠에 대한 메타데이터

- ◆ 콘텐츠를 기술(**Description**)하는 부가 데이터
- ◆ 콘텐츠 활용의 전 과정 기능 제공
 - 탐색 - 선택 - 획득 - 저장 - 활용
- ◆ 내용기반 탐색 및 획득 기능 제공
- ◆ 개인 취향(**user preference**)에 따른 자동 필터링
- ◆ 선택적 저장
- ◆ 시청자 취향에 특화된 광고/프로그램 제공
- ◆ **Personalized TV**
- ◆ **Advanced EPG** 기능
- ◆ **Content-Based Browsing/Non-linear Navigation**

MPEG-7

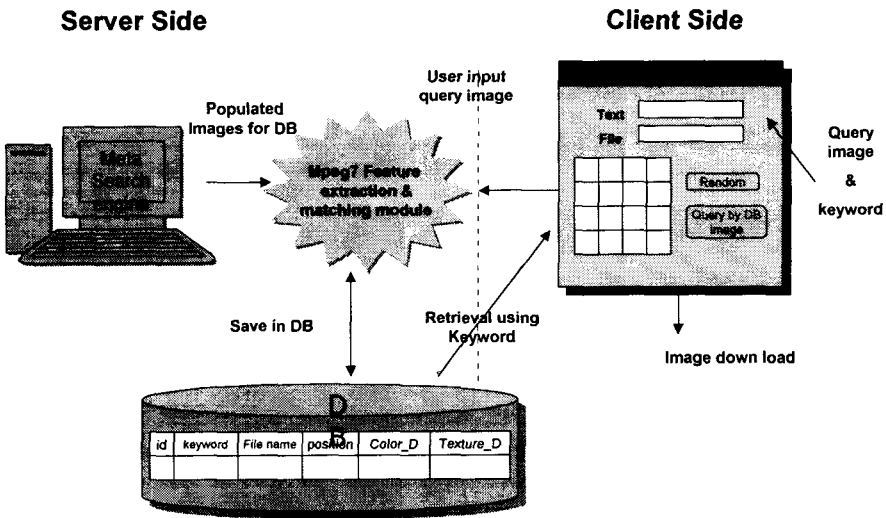
MPEG-7 표준화



MPEG-7 표준화 현황

- ▣ 멀티미디어 콘텐츠의 저장/전송/검색을 위한 기술(description) 방법에 대한 표준 제정
- ▣ DDL, Systems, MDS, Visual, Audio, etc.
- ▣ Version 1
 - ◆ 2002년 4월 국제표준(ISO) 제정
 - ◆ 다수의 국내 기술 표준 채택
- ▣ Version 2
 - ◆ FDAM: 2003년 12월 목표
 - ◆ 국내기관 활동 현황: 비주얼 기술자 파트 중심
 - ◆ 버전 2의 FCD (즉, FPDAM)에 아래 비주얼 기술자 채택(2003. 7.)
 - ETRI/동국대의 시공간 적용 에지 히스토그램 기술자
 - ETRI/삼성종합기술원/ICU의 시공간 적용 균일질감기술자
 - 성종합기술원의 색온도 기술자, 조명불변색 기술자, 얼굴인식 기술자
 - KT/한양대학교의 모양변화 기술자

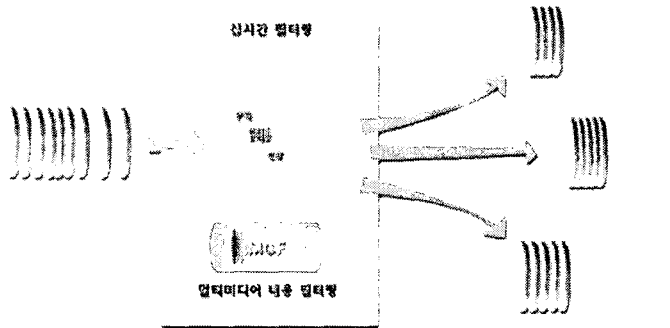
Content based Image Retrieval



Comjigi (인터넷 유해정보 차단제품)

시스템 특징

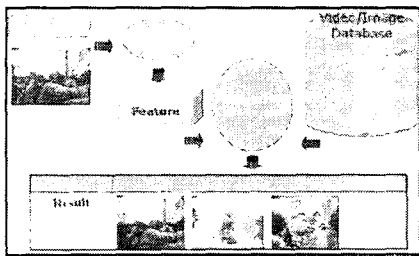
- 인터넷 유해정보 차단제품
- 멀티미디어 데이터의 내용을 인식하여 웹사이트의 음란성 여부를 판별



정보출처: 인터넷정보(www.movain.com)

MPEG-7 기반 동영상/정지영상 검색 시스템

시스템 구성

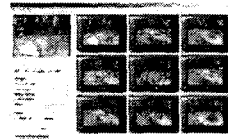


시스템 특징

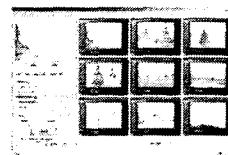
- 영상/비디오 파일들에서 자동적으로 비주얼 특징들을 추출
- MPEG-7 비주얼 서술자들을 이용한 효율적인 검색 기술
- Query by Example 방법
- NEC사 'MPEG-7 기반 제품' 1차 수출 계약

검색결과

• 정지영상



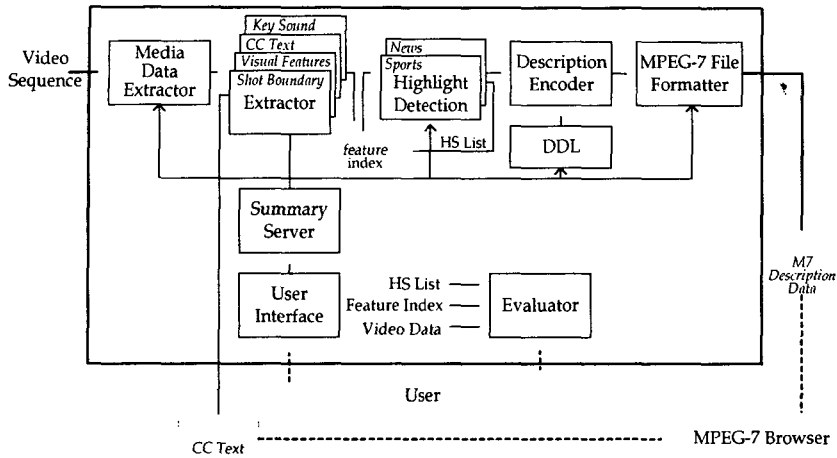
• 동영상



정보출처: 유라비전(www.yuravision.co.kr)

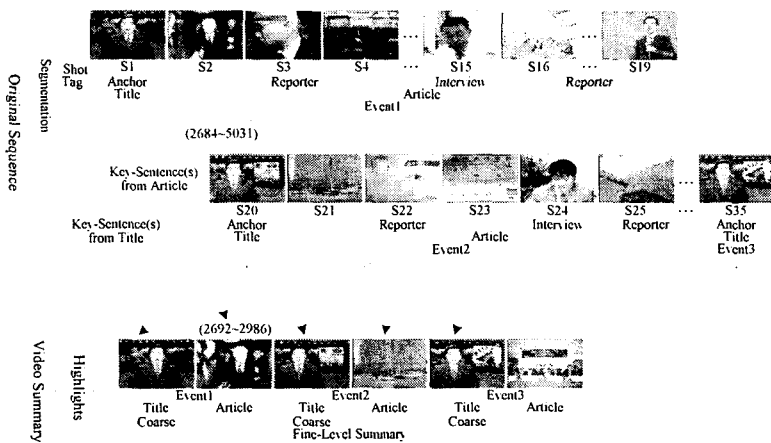
Summary Generator

General scheme



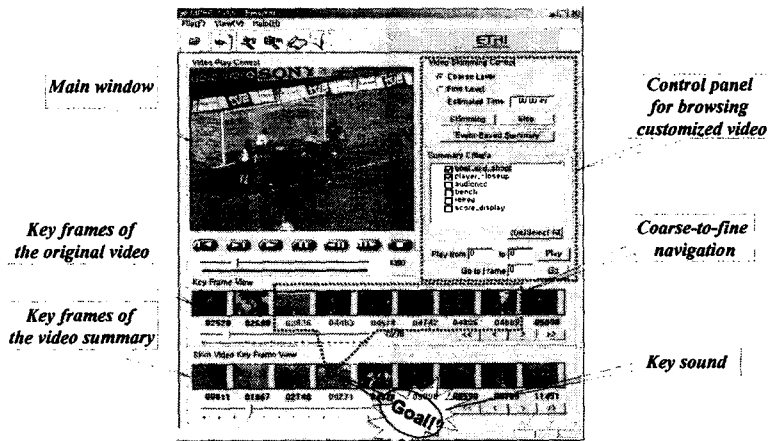
News Video Summarization

News Video Summarization



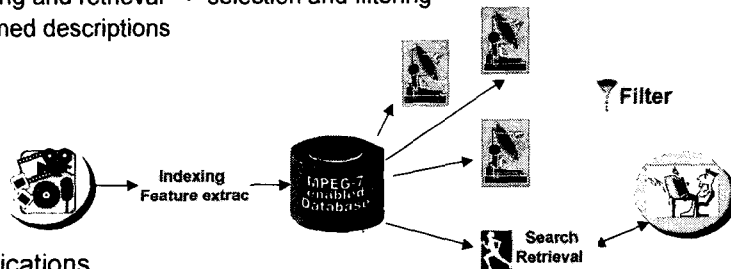
MPEG-7 Browser

- An example of stand-alone MPEG-7 Browser



MPEG-7 응용 분야

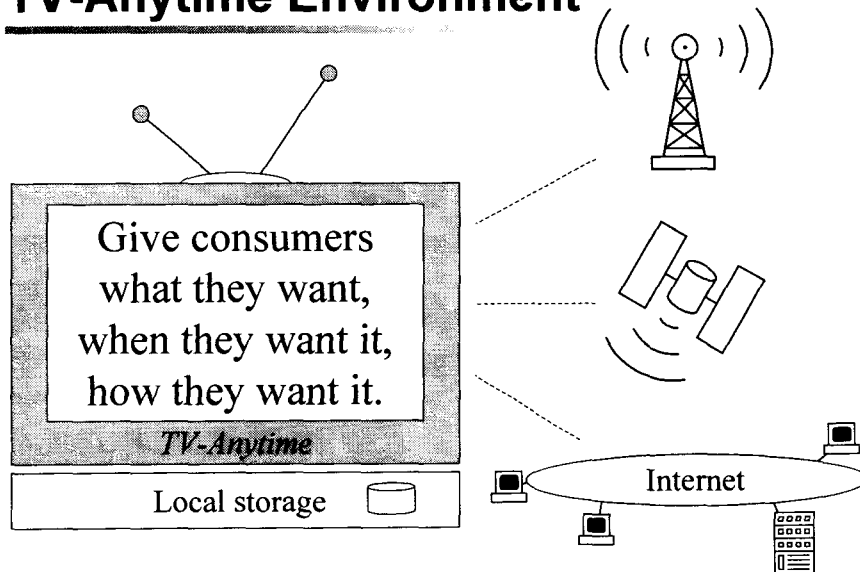
- Push applications
 - ◆ web-casting
 - ◆ indexing and retrieval --> selection and filtering
 - ◆ streamed descriptions



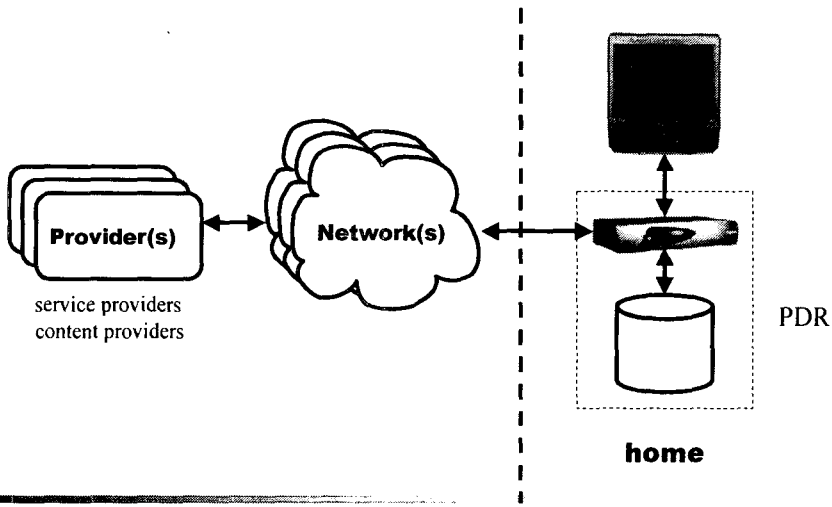
- Pull Applications
 - ◆ audio-visual archives, databases, web search
 - ◆ initial motive for MPEG-7
 - AV material "as searchable as text is today"

TV-Anytime

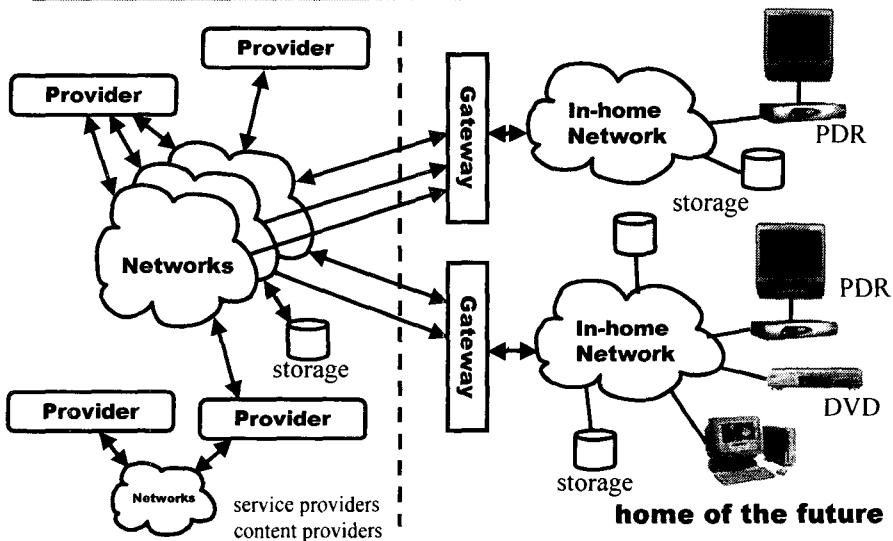
TV-Anytime Environment



Phase I: Simple System



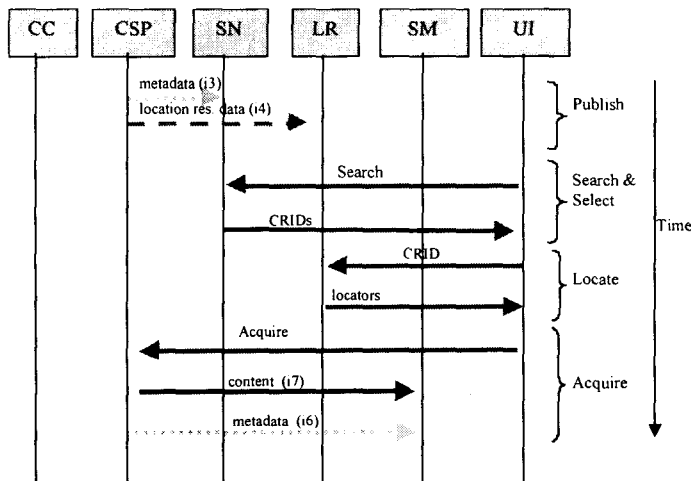
Phase II: Scaled System



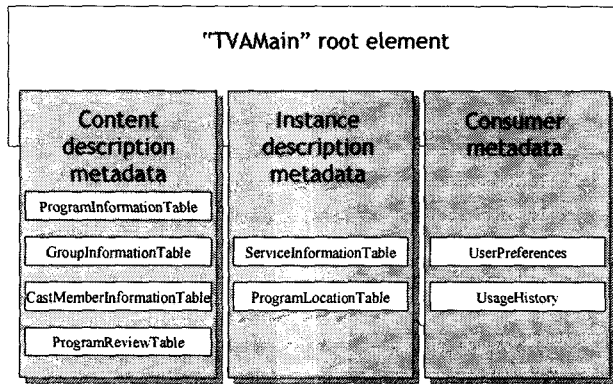
TV-Anytime 표준화 현황

- ▣ 대용량 저장매체(PVR)를 갖는 사용자 환경에서 디지털 방송 서비스 제공을 위한 표준 개발을 목표
- ▣ 작업반(WG): BM, STC, MD, RMP WGs
- ▣ 2002년 phase 1에 대한 표준 완료
 - ◆ 2003년 9월말 현재 ETSI 표준 제정 (TS 102 822)
 - ◆ Broadcast and On-line Services: Search, select and rightful use of content on personal storage systems ("TV-Anytime Phase 1")
 - TS 102 822-1 Part 1: Phase 1 Benchmark Features
 - TS 102 822-2 Part 2: System Description
 - TS 102 822-3-1 Part 3: Metadata Sub-part 1: Metadata Schemas
 - TS 102 822-3-2 Part 3: Metadata Sub-part 2: System Aspects in a Uni-directional Environment
 - TS 102 822-4 Part 4: Content Referencing
 - TS 102 822-6-1 Part 6: Delivery of Metadata over a Bi-directional Network Sub-part 1: Service and Transport
 - TS 102 822-6-2 Part 6: Delivery of Metadata over a Bi-directional Network Sub-part 2: Service Discovery
 - TS 102 822-7 Part 7: Bi-directional Metadata Delivery Protection
- ▣ 2005년 2월 phase 2에 대한 표준 제정 목표
- ▣ ATSC T3 산하의 S8(Transport) 그룹
 - ◆ Advanced EPG 기능을 위한 PSIP 개정 작업
 - 현재 작업 중지

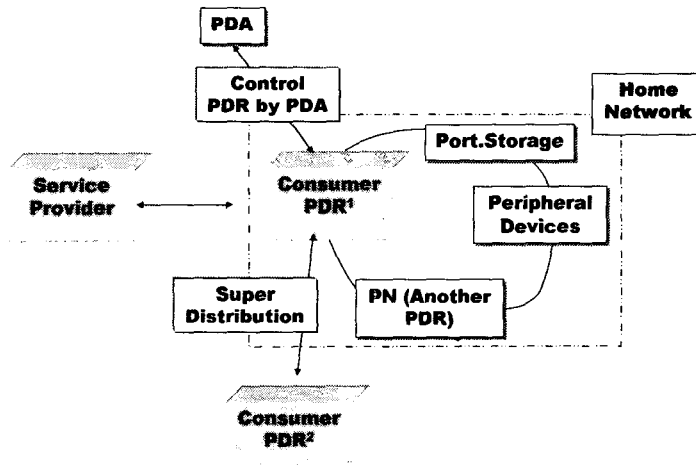
Dynamic Behavior of TVA System



TVA Document Structure



Phase 2 Environments



Phase 2 Scenario

Targeting

- ◆ 시청자 프로파일에 따라 선호 프로그램의 자동 추출, 전송해주는 기능
- ◆ User Environments에 대한 targeting

Redistribution (Sharing)

- ◆ Network 기능을 제공하는 PDR
- ◆ Multi-screen, 이동 저장 장치와 같은 networked 장치들이 common PDR(media distribution hub)에 연결
- ◆ Content Sharing, Home Networking

New Content Types

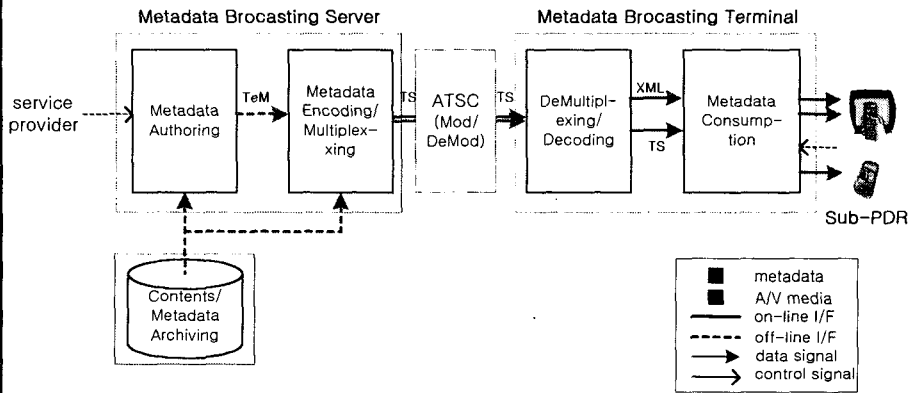
- ◆ 게임, enhanced TV, 웹 페이지, 음악 파일, 그래픽, 데이터 등의 다양한 콘텐츠를 통합 제공하는 서비스
- ◆ TV는 통합 오락/정보의 gateway
- ◆ 다양한 media format 제공

Customized Metadata Broadcast System

A prototype system for metadata-based intelligent broadcasting services

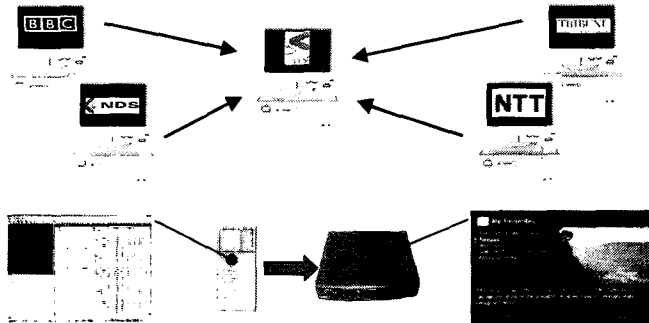
- ◆ To validate metadata broadcasting technologies
 - TV Anytime compliant metadata specification
 - Metadata authoring, coding, transmission, and consumption
 - Implementation of an end-to-end system
- ◆ To develop/show TV Anytime service scenarios
 - Intelligent access and consumption of stored and broadcast contents in a personalized way

Overall Architecture



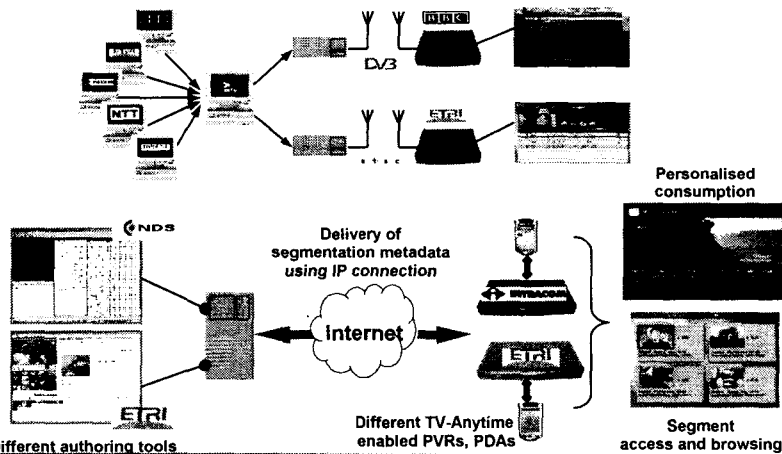
TVAF NAB 2003 Demonstrations

- Demonstrated interoperability among products/services as well as enhanced viewer experience using TVAF standards
- 2 demonstrations
 - ◆ Metadata – authoring, editing, aggregation, and publishing
 - ◆ Segmentation

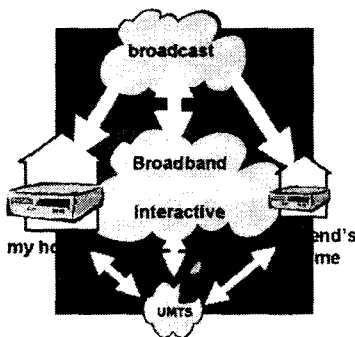


TVAF IBC 2003 Demonstrations

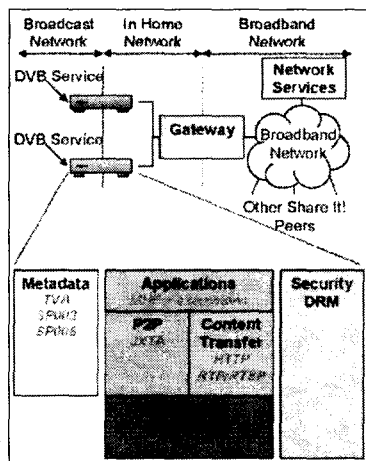
- Demonstrated interoperability among products/services as well as enhanced viewer experience using TVAF standards



Share-it Project



- 과제번호: IST 2000-28703
- 과제기간: 2002. 12. 1. ~ 2004. 2. 28. (27개월)
- 과제 목적: content sharing home-to-home network
- ✓ home-to-home content sharing
- ✓ built-in right management (P2P)
- ✓ easy access to content
- ✓ innovative services



DTV & PVR

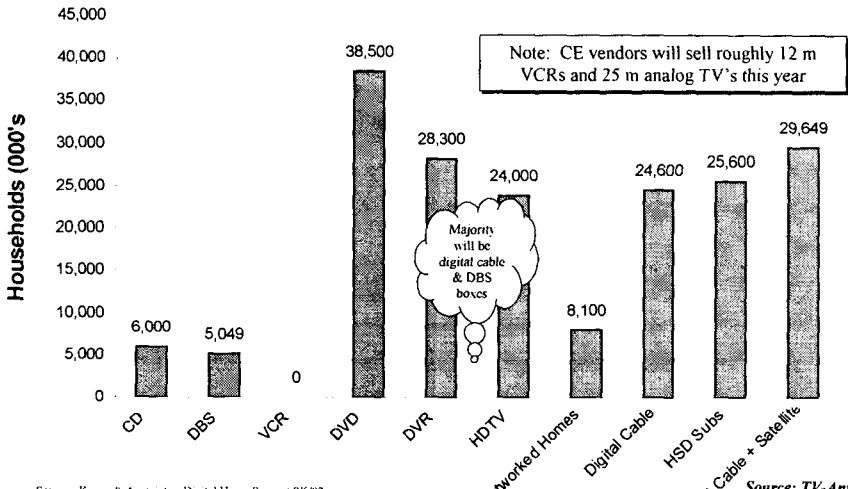
미국의 PVR 관련 현황 및 전망

- Cable DVR set-top service has become fastest growing US category one year since first commercial deployment
- EchoStar aggressively launched "free" DVR offer (with wide TV ad campaign)
- Rupert Murdoch predicted free DVR for all new DBS subscribers in one year

Source: TV-Anytime IDE at Mountain View, 2003. 9.

Forecast Consumer Adoption Profiles

Net Change in Households (2002-2006)

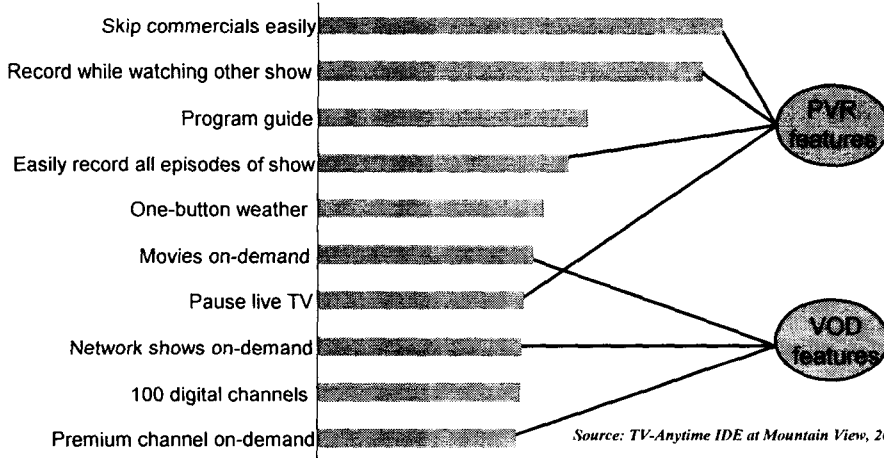


Source: Kagan & Associates, Digital Home Summit 8/6/02
 Note: Digital cable + DBS numbers overstate actual HHs due to HH's with both cable and DBS

Source: TV-Anytime IDE at Mountain View, 2003. 9.

Consumers want DVR features most

% who were very/extremely interested in these TV enhancements

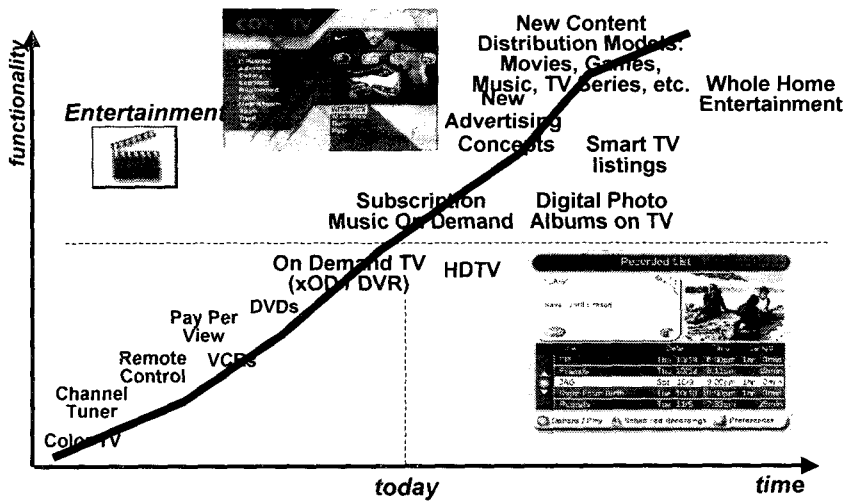


Source: TV-Anytime IDE at Mountain View, 2003. 9.

0% 10% 20% 30% 40% 50% 60% 70%

n = 7,539, September 2002, base US households

Entertainment Services



Source: TV-Anytime IDE at Mountain View, 2003. 9.

Opportunities created by DVR

- New levels of consumer control over what they watch
- New types of cable relationships with consumers
- New opportunities for programmers – personalized TV for individual or household
- New opportunities for advertisers
- New possibilities for consumer service offerings



What should we do?

Source: TV-Anytime IDE at Mountain View, 2003. 9.

감사합니다.