

IPTV ARCHITECTURES

IPTV Architectures

Gene Miller
DVI Engineering Ltd.

Columbia Institute for Tele-Information
and the
Marconi Society
in collaboration with the
Association of the Bar of the City of New York

IPTV.2: The Second Generation of TV Over The Broadband Internet

May 23, 2005
Columbia University, 142 Uris Hall

DVI-Engineering.com

IPTV ARCHITECTURES

IPTV Models

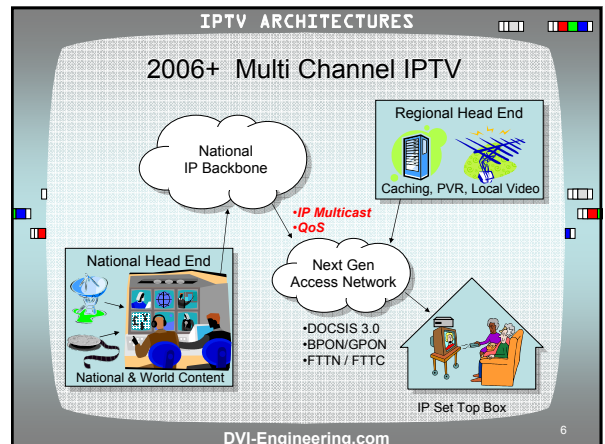
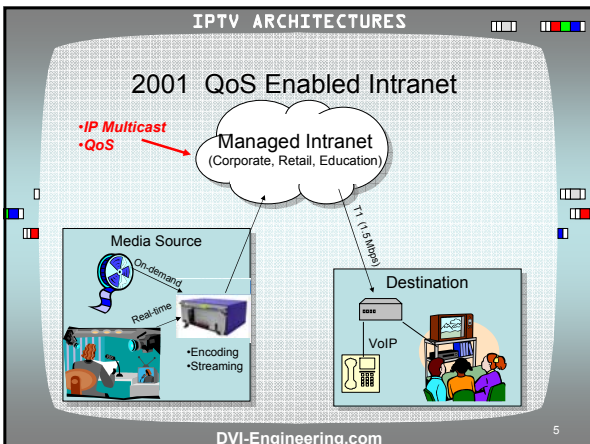
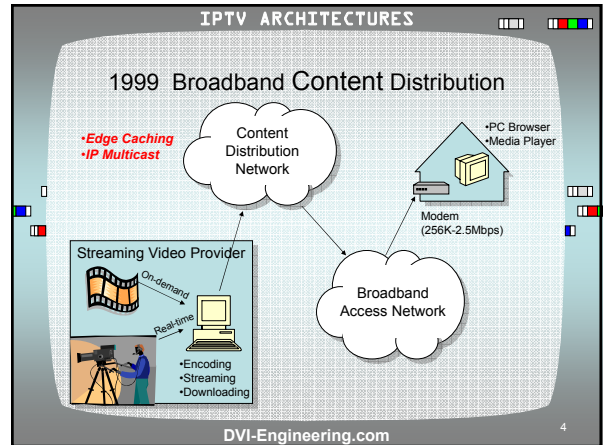
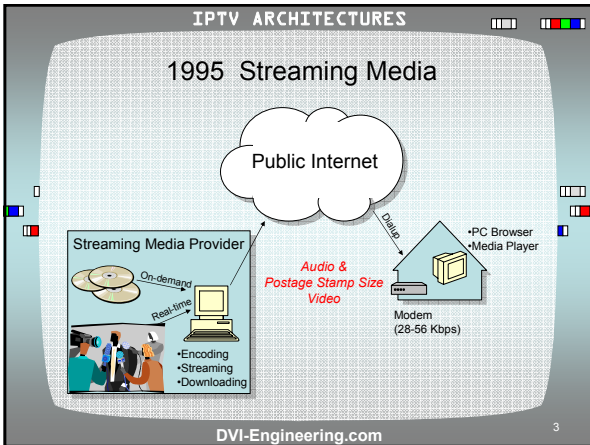
IPTV.1

- 1995 Streaming Media
- 1999 Broadband Content Distribution
- 2001 QoS Enabled Intranets

IPTV.2

- 2005 Video over DSL
- 2006+ Multichannel Television over IP
- 200? Video Dial Tone

DVI-Engineering.com



IPTV Architectural Components (page 1)

FUNCTION	DOMAIN		
	Head End	Network	CPE
Access Network		•Dialup, T1, Cable, DSL •FTTN, FTTC, PON •Power Line, Wireless	•Modem •Media Access
End-to-end Transport and Switching	•IP Protocol Stack •TCP (File and control) •RTP (Real-time AV)	•DNS •Network Routers	•IP Protocol Stack •TCP (File and control) •RTP (Real-time AV)
Audio Video Encoding	•Real-Time Encoder •Non-real Time Encoder		•Decoder Software •Decoder Hardware
Media Search, Selection	•Search Engine •Electronic Program Guide		•Set Top Box Middleware •Browser
Real Time Program Distribution	•Multicast Server	•IP Multicast	•Set Top Box Middleware •Media Player
On Demand Program Distribution	•VoD Server	•Edge Network Caching	•Media Caching •Set Top Box Middleware •Media Player
Video Quality Assurance	•Adaptive rate selection	•Over capacity •QoS Prioritization •Admission Control	•Adaptive rate selection •Error correction codes •Packet Loss Concealment
Ordering, Provisioning, and Metering	•Subscription server •PPV Server		•Set-top Box Middleware
Security	•Digital Rights Management	•Conditional Access •Network Policy Server	•Set-top Box Middleware •Media Player

IPTV Architectural Components (page 2)

FUNCTION	DOMAIN		
	Head End	Network	CPE
Time Shifting	Network Personal Video Recorder	•Edge Network Caching	•STB Middleware •STB PVR
Advertising Insertion	•Carrier Specific Advertising	•Local Advertising	•Highly targeted advertising •STB Middleware
Emergency Broadcast	•Regional Notifications	•Local Notifications	•STB Middleware