Beyond HD

Outline

• 1. The 3 Stages of TV
• 2. What would one do with 4K?
• 3. Implications on content and standards
The 3 Stages of TV

- Pre-TV TV
- 1G TV
- 2G TV
- 3G TV
  - But also, Low-def TV
0G: Pre-TV TV

The First Picture
Sept. 7, 1927

http://www.farnovision.com/media/first_picture.html
New Off-Broadway Play

Baird 30-line, 8 fps 1926

Source: digitalcentury.com/encyclo/up
date/jlbphoto.html

http://www.xtvworld.com/tv/bbc/images/tv1926.jpg
RCA/ Zworykin: 2 x 30 Lines, 1929

http://members.tripod.com/~FrameMaster/felix2.jpg

1G TV
2G TV

- Cable TV
- HDTV
- HD DVD

Narrowcasting: Long Tail Content
New Channels, Just the A’s and B’s

http://biglerproductions.com/gif_files/HD_resolution_fish.gif
And Now, 3G TV
A. Low-Def TV

- Right now, half of US HH have access to, and half have individual connections of over 1 Mbps and with cable fiber
- US HH will have median Capacity of 1 Gbps
- Now not quite there yet but it leads to still narrower cable individual casting
- Quality depends
Streamed Video

http://cafe.naver.com/yoniwoongi.cafe?iframe_url=/ArticleRead.nhn%3Farticleid=6969
User-Generated TV -YouTube has room to improve

http://cafe.naver.com/yoniwoongi.cafe?iframe_url=/ArticleRead.nhn?articleid=6969

2 Korean Standards
• Qualcomm MediaFLO
• DVB-M

9FDB9CF1939847EC77F5F8D1CE326120C381348B40A40A659CEC4C8CB6
Early Portable TV

http://cache.viewimages.com/xc/3330804.jpg?v=1&c=ViewImages&k=2
&d=4DAA13B573E1BD2F23D6197B4F8F7070A55A1E4F32AD3138

Comparison

- DVD
- HDTV
- 70mm film stock

http://people.freenet.de/FoLLgoTT/gladiator_vergleich.png
• And one can make a good case for 8K being quality equivalent for 70mm
• And that should go beyond 30fpm
• And other elements are likely to follow

3D-3G TV
Summary-Compressed Video

- 1G: 3.4 Mbps
- 2G: HD: 19.6 Mbps
- 3G:
  - 4K HD: 220 Mbps (50 STV channels)
  - LD-3G .25 Mbps

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• Film theatrical production and distribution?
• Professional applications?
• Games?
• Home Entertainment?

• Even so, even with distribution process the processing bottlenecks will likely keep the need on
• Theaters need to provide a better viewing experience than home theater

How many K is Ok?
• Screens get bigger & cheaper
• As they get bigger, 2K (1G) imperfections become more visible
1949

http://www.tvhistory.tv/1949_Admiral_TV_Ad.jpg

1951

http://www.tvhistory.tv/1951%20Advertising.htm

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Outline

• 1. The 3 Stages of TV
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• When cable TV arrived programs were tailored to it
• When TVs became cheap and entered into many rooms like the kitchen and offices, it became used as a multitasking medium with a lot of “Table TV”

Impact on Style
• The stronger the visual aspects, the more it dominates
• Weaker visual capability favor story line, character, dialogue.
• Higher resolution enables closer to screen viewing
• Closer to screen increases angle
• Increased viewing angle increases emotional response
• So stronger emotional response

• Similarly, higher quality 70 mm film, in comparison to lower video quality, favors
  – fast moving scenes----action
  – Details-----period films
  – Close-ups
  – Visual effects
  – Special effects
The Storage challenge

Conclusions
• And with it also economically, in terms of business models
• And also in content terms
• TV has more legs to stand on

Let a hundred televisions bloom
• Thanks for your attention
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