

# Entertain 3D – 3D Entertainment

**Facts and Thoughts from an IPTV Service Provider on 3D and the Future of Television**

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# Where We Stand

3D on-demand content is offered within Deutsche Telekom's IPTV product today. Working on every set-top-box and with every 3D screen available. First regular live programming to come shortly.



**The whole world of 3D entertainment right in your home ...**

### Premium on-demand TV in 3D



- On-demand offering with 3D content started at IFA 2010
- More blockbuster movies, amazing documentaries and further content to come soon

### 3D live broadcasting

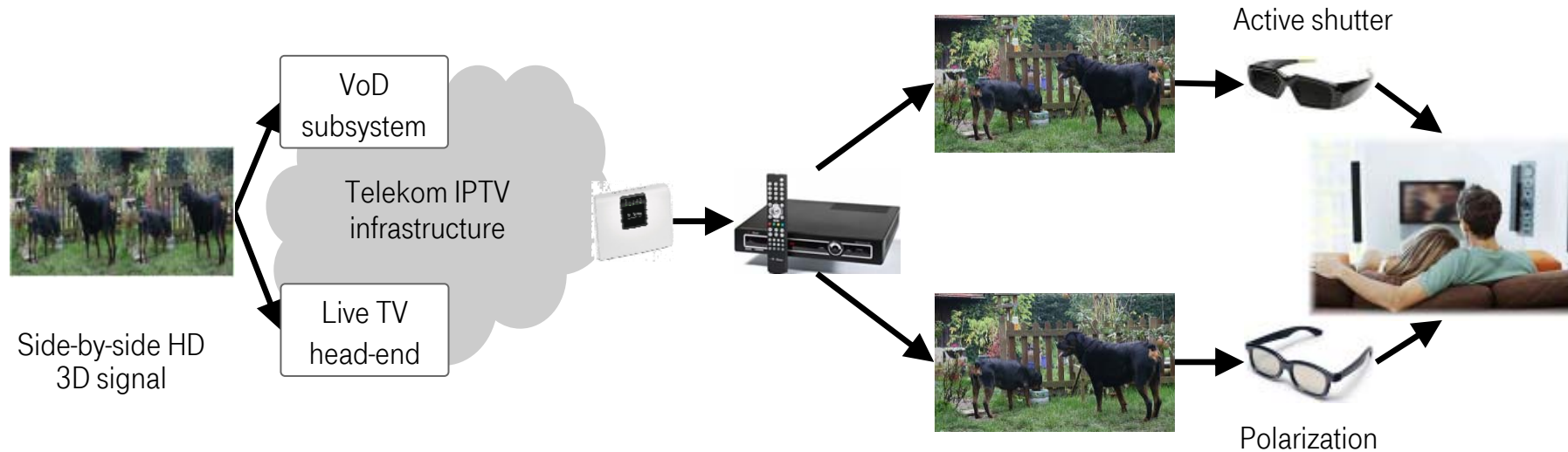


- First successful live broadcast of Ice Hockey World Cup opening match
- German Bundesliga in 3D planned for January 2011!



# How We Did It

First generation 3DTV based on the existing IPTV HD infrastructure.



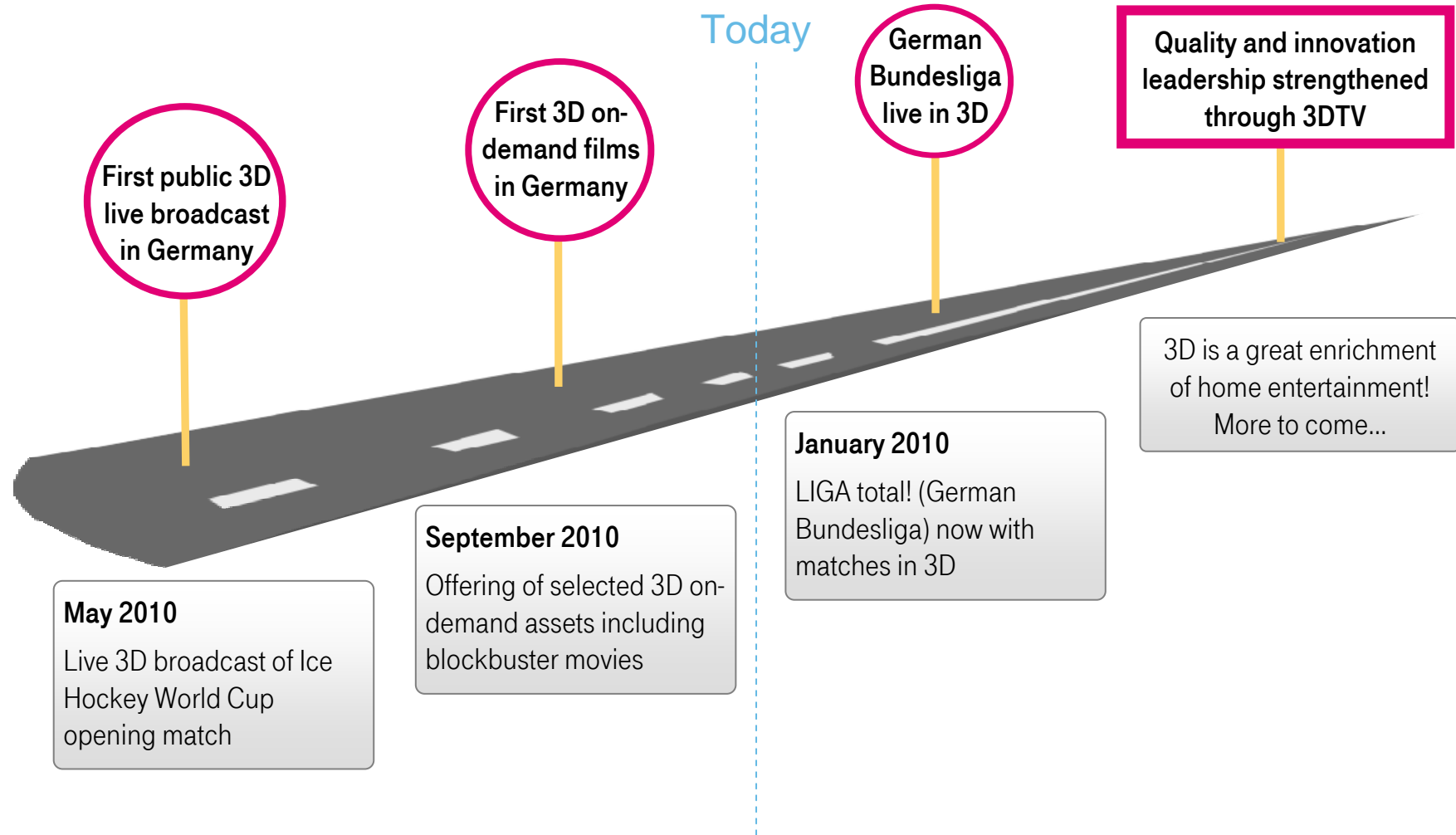
## Frame compatible stereo 3D transmission for delivery of linear and non-linear services

- Side-by-side 3D video is embedded within an HD frame that is transmitted transparently through the existing IPTV infrastructure
- 3D enabled TV set processes the video signal into separate video streams for left and right eye. Active shutter technology creates a separation in time, polarization technology creates a separation in space.



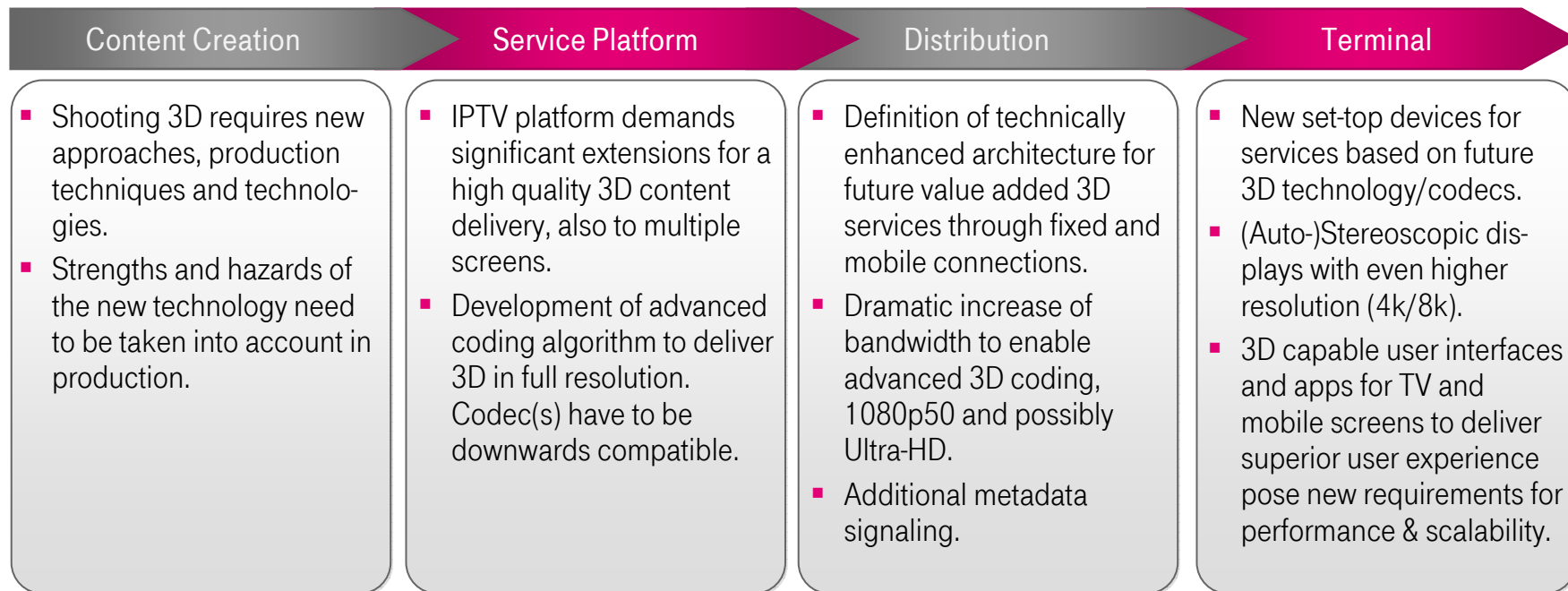
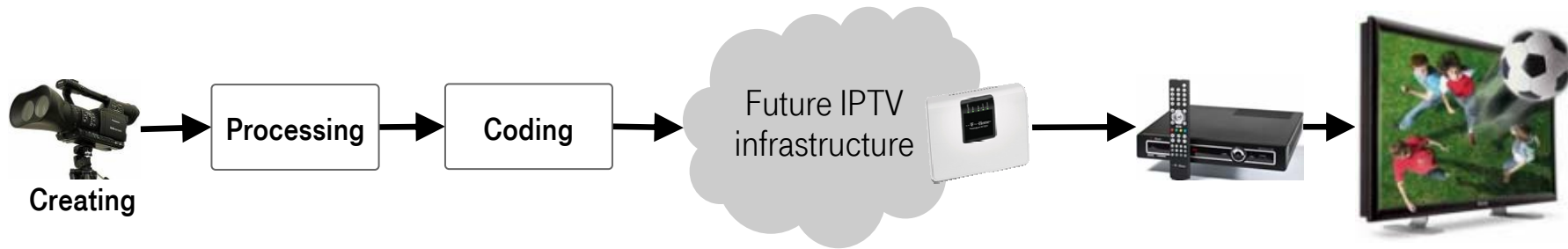
# What We've Done and What We Got Planned

Deutsche Telekom's *Entertain* was first mover with 3D entertainment on the German market. And we intend to stay at the top.



# 3D is Challenging Technology

The further evolution path of 3D will take impact on all technical building blocks along the value chain.



# E.g.: Accomplishing the 3D EPG/TV User Interface Challenge

Stereoscopic UIs and Apps are both a short/middle-term and a long-term issue.

## Short- to medium-term challenge: enhancing the current 2D TV user interface to 3D usage

- Provide basic reasonable and user friendly 3D VoD controls and EPG menu items
- Find workarounds for the current limitations given by dominant side-by-side transmission
- Buttons, pictures and panels to be properly formatted (anamorphic)
- Preferably dynamic mechanism for on-the-fly text-to-picture conversion



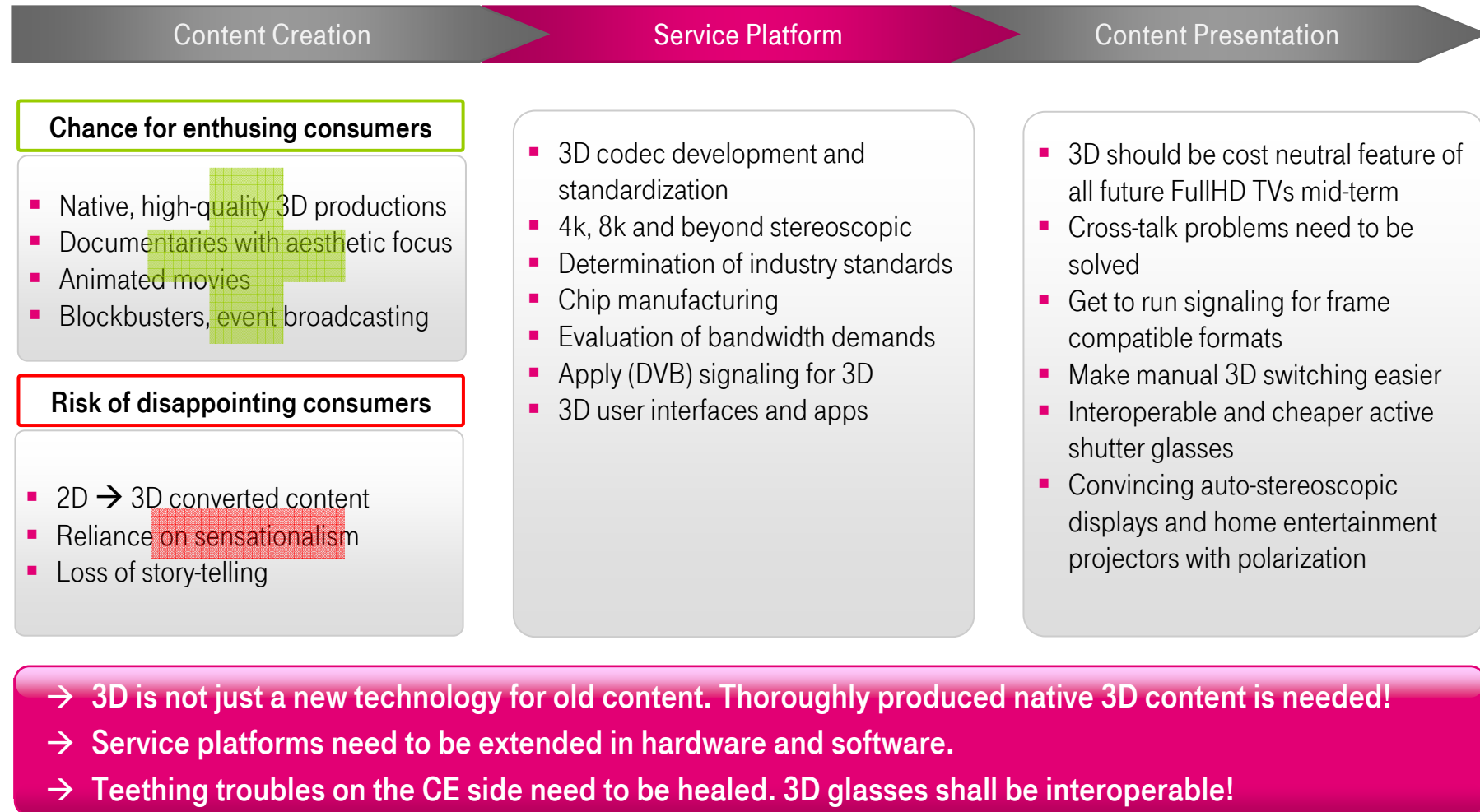
## Mid to long-term challenge: creating new attractive innovative 3D TV user interfaces

- Translate best 3DTV design practices into convincing 3D user interfaces
- Create innovative 3D capable content/service discovery and selection methods and interactive TV applications
- Adopt standards for adding subtitles, closed captions and images to 3DTV content
- Adaptable 3DTV user interfaces for different audiences



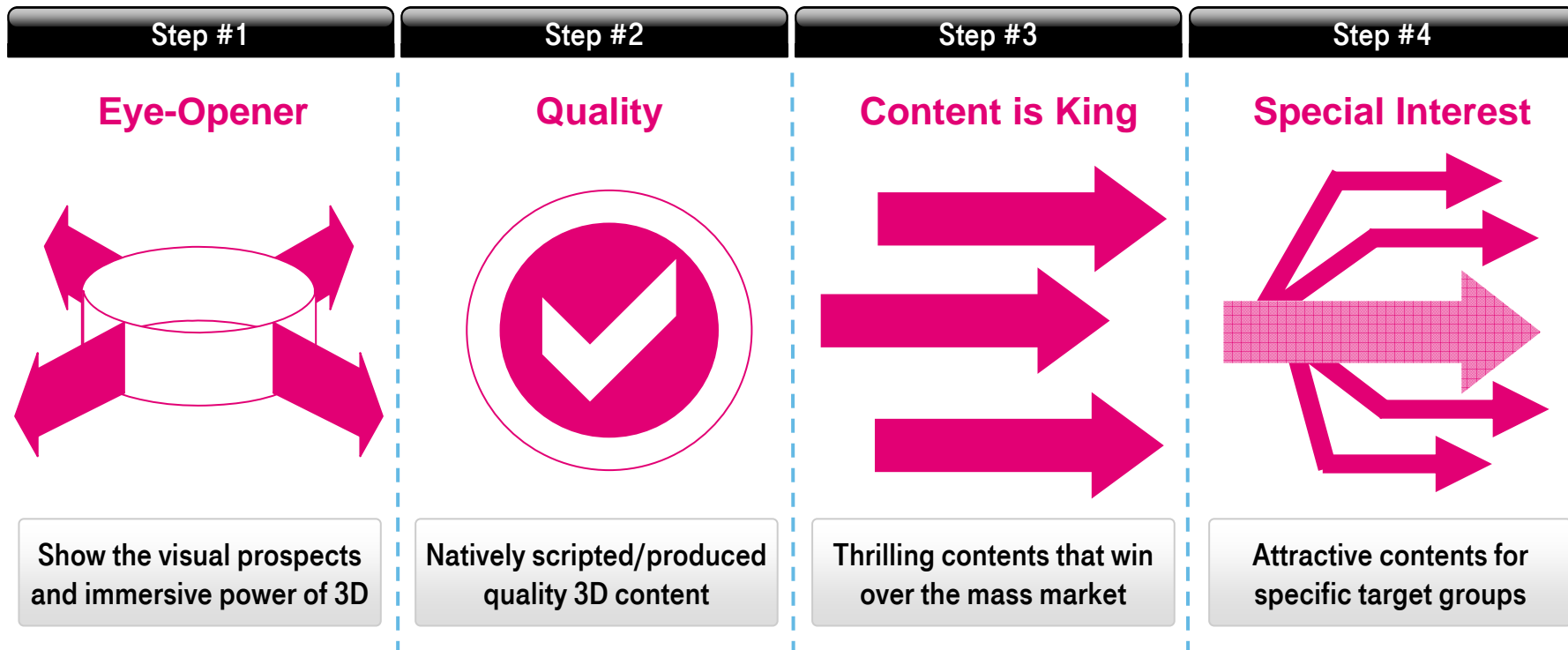
# What We've Learned So Far – What Needs to be Done

Even though we are still in the early days there are some learnings – and a bunch of requirements.



# How We See the Evolution of Content on Entertain

Like with HD in the past consumers again need adduction to the new technology and shall be won over with top contents. This need is addressed in our content strategy.



**Attractive content is where it starts, low quality 3D content risks ruining the market for all of us. Largest possible reach of households is crucial for everyone's commercial interests. As an IPTV service provider facing up to the challenge of 3DTV we do our share.**



# Thanks for Listening.



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