HDMI

High-Definition Multimedia Interface

(American) Historical Overview

Interlaced

Progressive Scan
(Non-interlaced)

- RCA (1956): 576i w/ audio (separate cable) [1][3]
- S-Video (1979): 576i w/ two signals [1][2][3]
- VGA (1987): 480p w/ 60 Hz refresh rate [4]
- DVI (1999): 1080p
- HDMI (2002) 1080p w/ audio

Why HDMI?

Quality

- 720p [4]
- 1080i
- Uncompressed

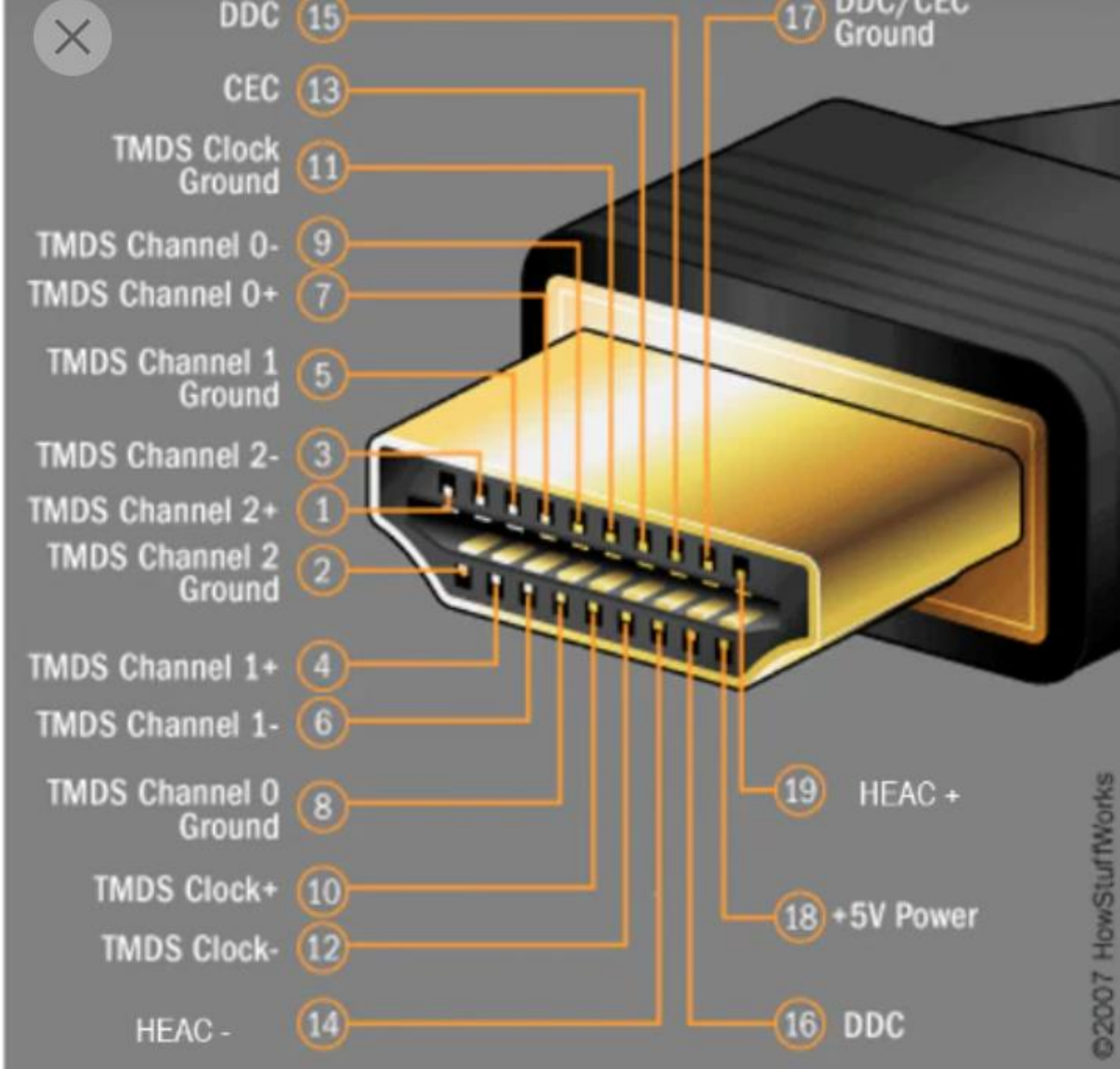
Simplicity

- Built-in audio
- Automatic aspect ratio detection
- Eliminates wires and infrared repeaters
- Remote controlled

“Better Picture, Easier to Use”

HDMI Overview

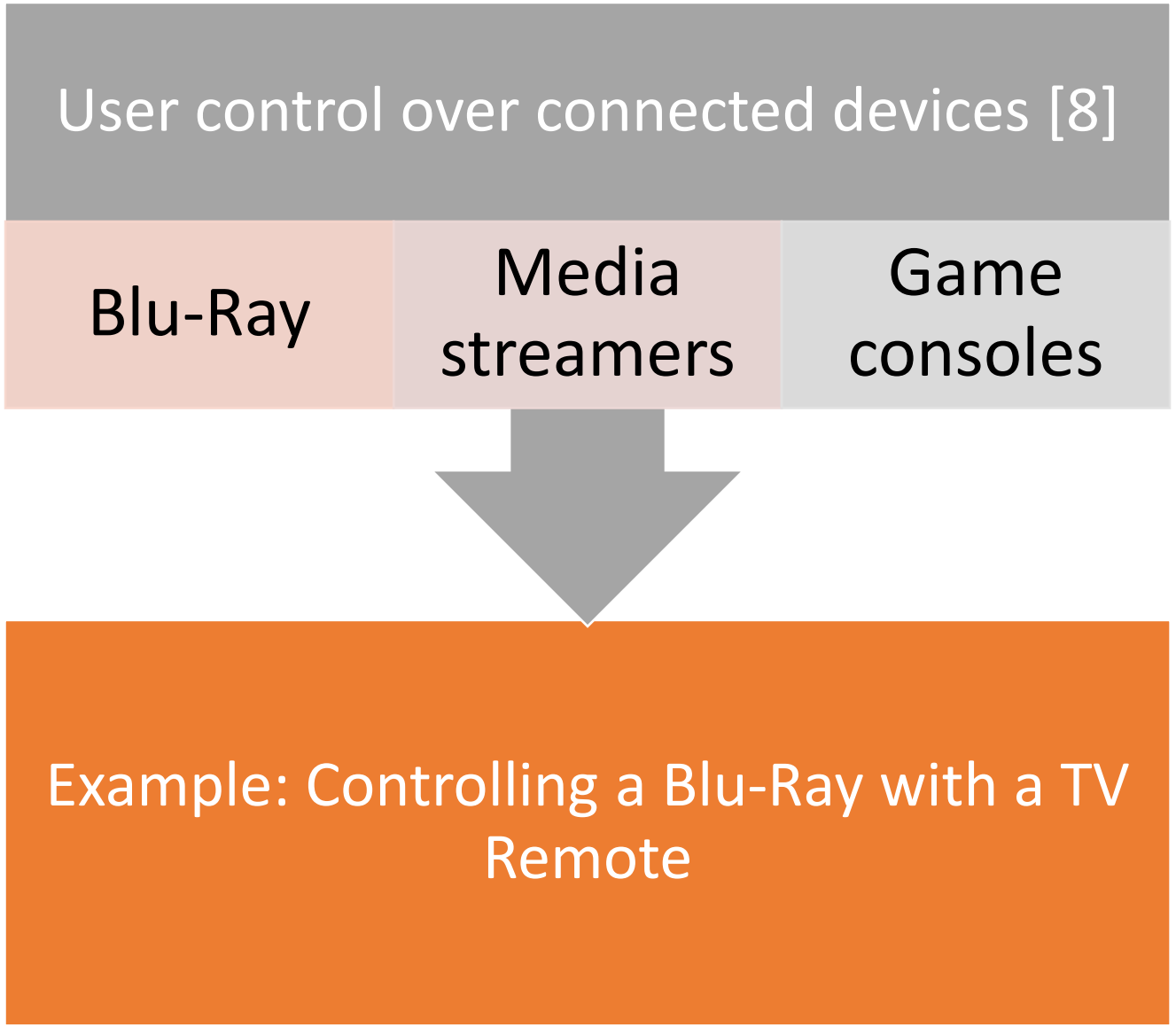
- Display Data Channel [5]
- Consumer Electronics Control
- HDMI Ethernet and Audio Return Channel
- Transition-Minimized Differential Signaling
- +5V Power Source



Display Data Channel (DDC)

- Protocol for extended display information data (EDID) [6]
  - Brand [7]
  - Product Code
  - Date of Manufacture
  - Video Input Type
  - Horizontal and Vertical Size
  - Supported features
  - Color characteristics
  - Timing information

Consumer Electronics Control (CEC)



HDMI Ethernet and Audio Return Channel (HEAC)

Ethernet [9]

- Connects HDMI to internet
- Allows access without separate ethernet cable

Audio Return Channel (ARC)

- Returns audio data in the same cable
- Removes need for second audio cable

Transition-Minimized Differential Signaling (TMDS)

Why?

- Interference [10]
- Noise
- Signal Loss

Why not parity checking?

- Faster transmissions
- More transmissions

TMDS Continued

Differential Signaling

Twisted Pairs

DC Balanced

Transition-Minimization

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