COMPUTEX Taipei Forum
NGN 2008 Technology Session

Compression technology immerses NGN consumer in HD

Wednesday, June 4 1:00 PM -1:40 PM

Speaker:
Michael Thuresson
Product Planning Manager
NTT Electronics Corporation

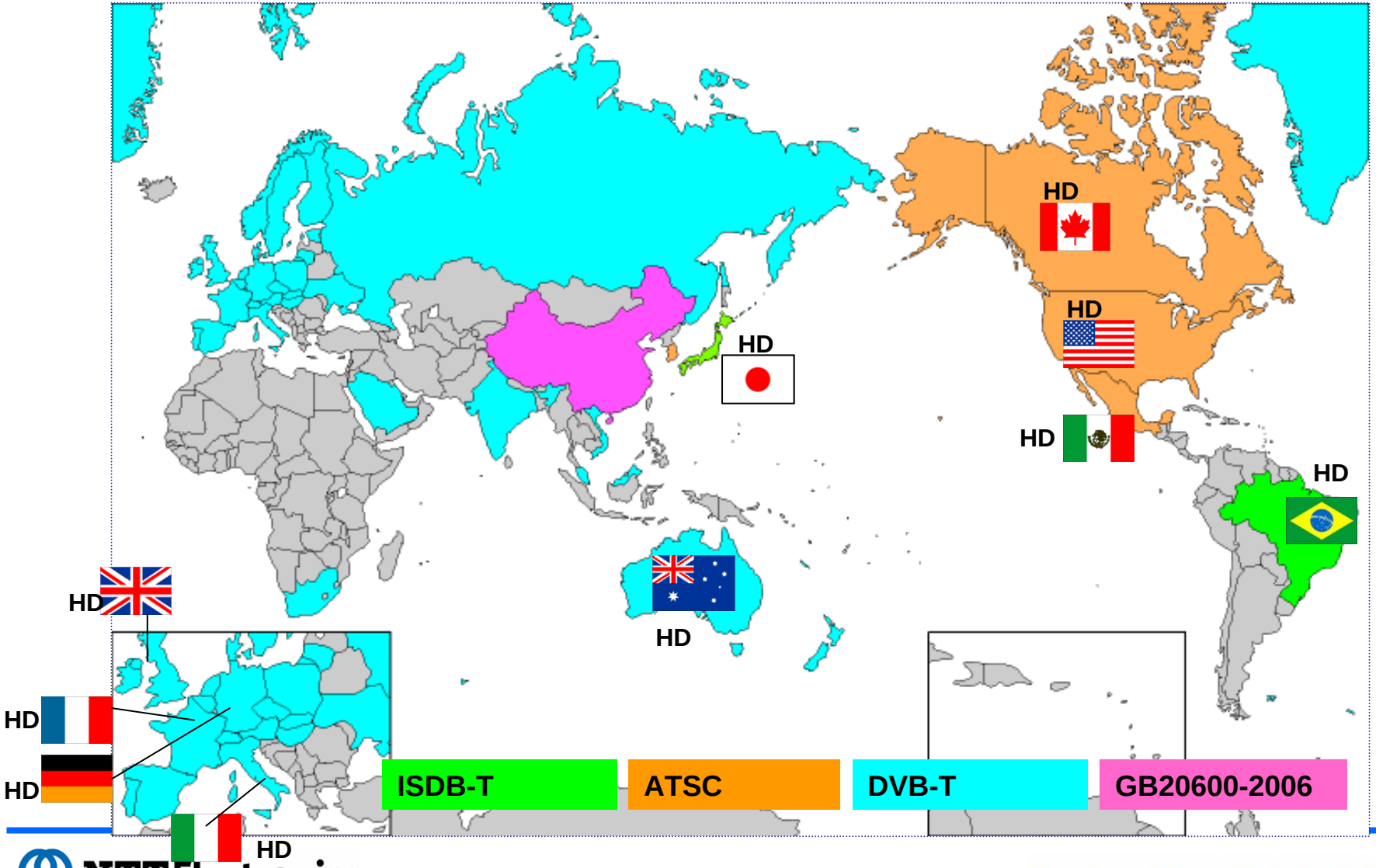
Increase Video Communications by Spreading NGN Service

High Speed Network

Spread of Broadband

Bandwidth Guarantee

World Transition from Analog to Digital, SDTV to HDTV Broadcasting

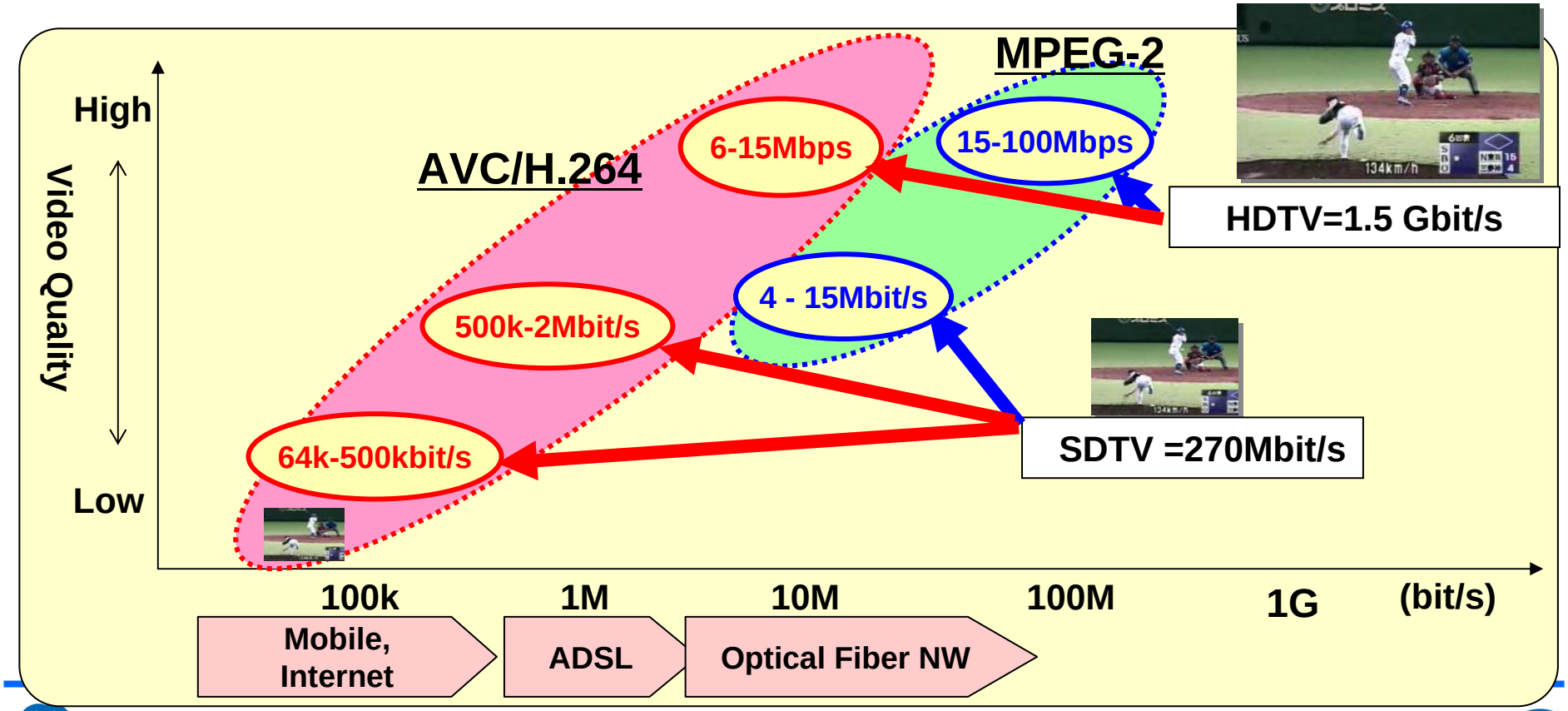


Compression needed for Video transmission or recording

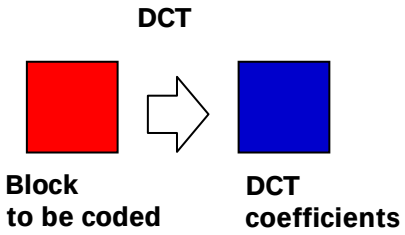
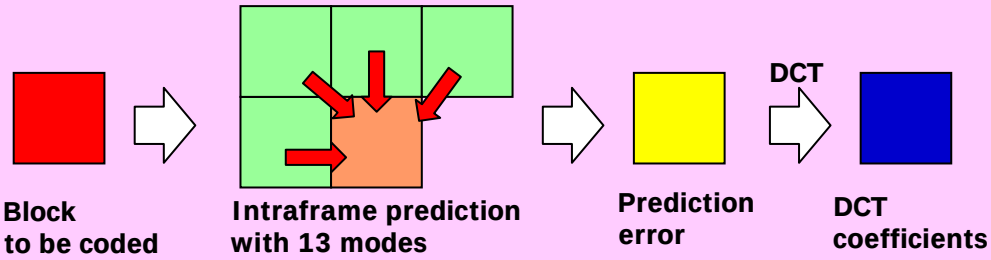
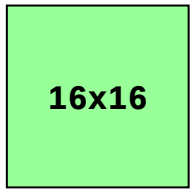
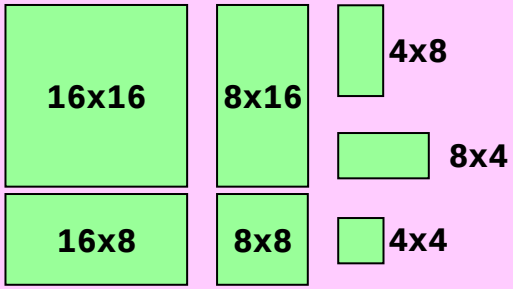
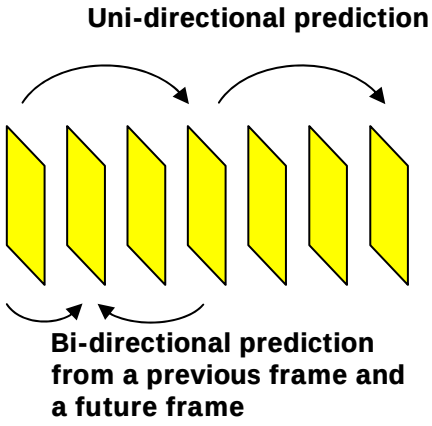
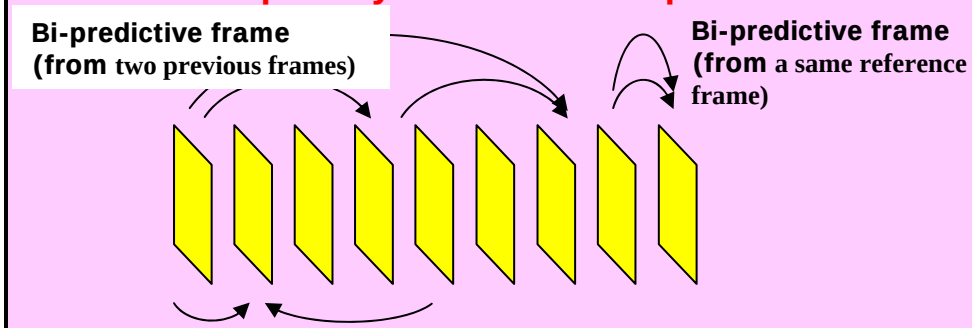
- Should be compressed at Video transmission or recording because;
  - Original video data is **1.5Gbit/s**.

Compression needed for Video transmission or recording

- MPEG-2 is the most common compression technology.
- AVC/H.264 compression efficiency is more than double that of MPEG-2.

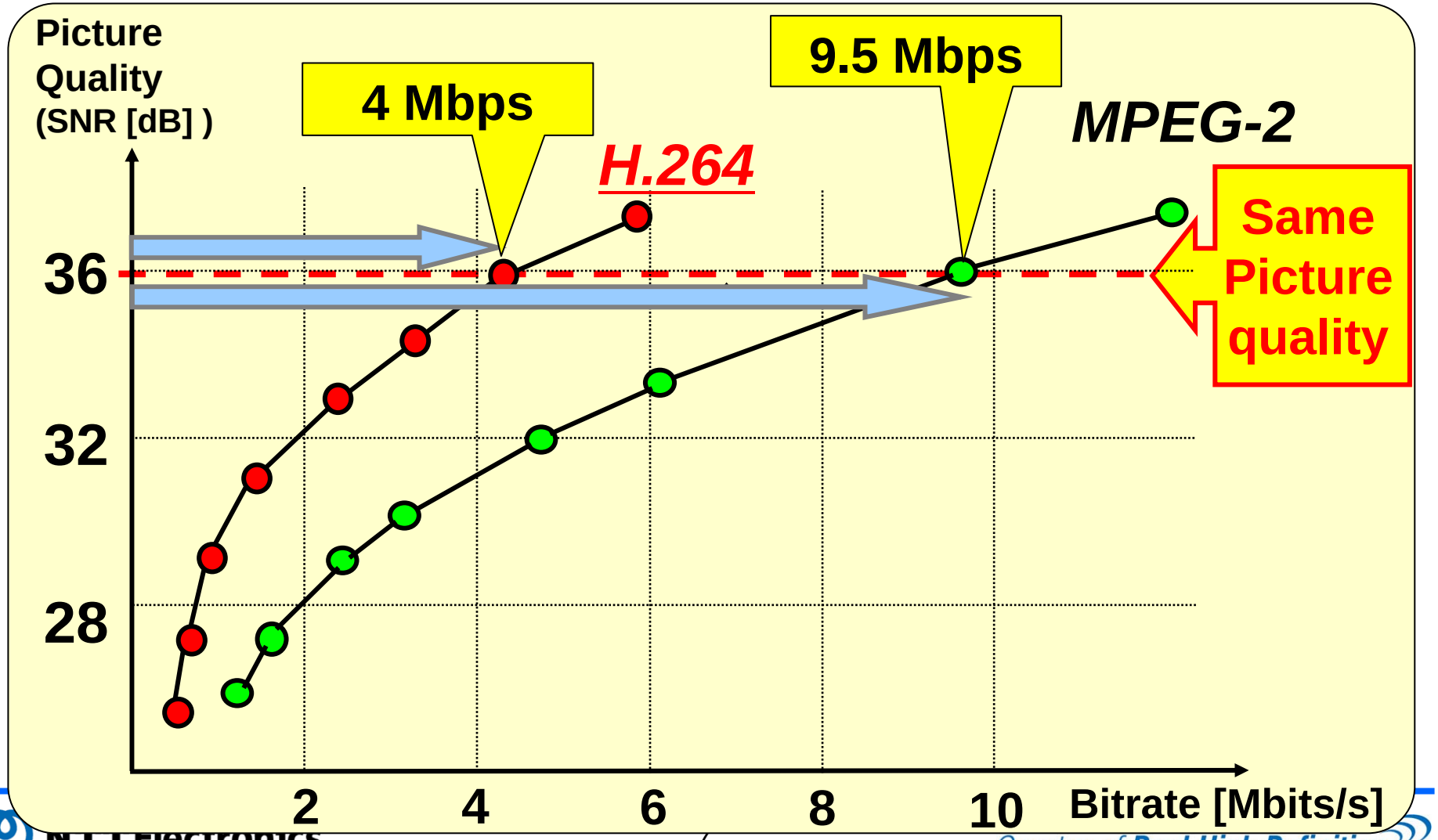


AVC/H.264 Advanced Technical Features

Features	MPEG-2	AVC/H.264
Intraframe prediction		•Reduce the quantity of code 
Variable block Size motion compensation		•Reduce the quantity of code for motion 
Extension of reference frame selection		•Reduce the quantity of code and improve the accuracy 

AVC/H.264 vs MPEG2

Coding Performance Comparison



AVC/H.264 vs MPEG2

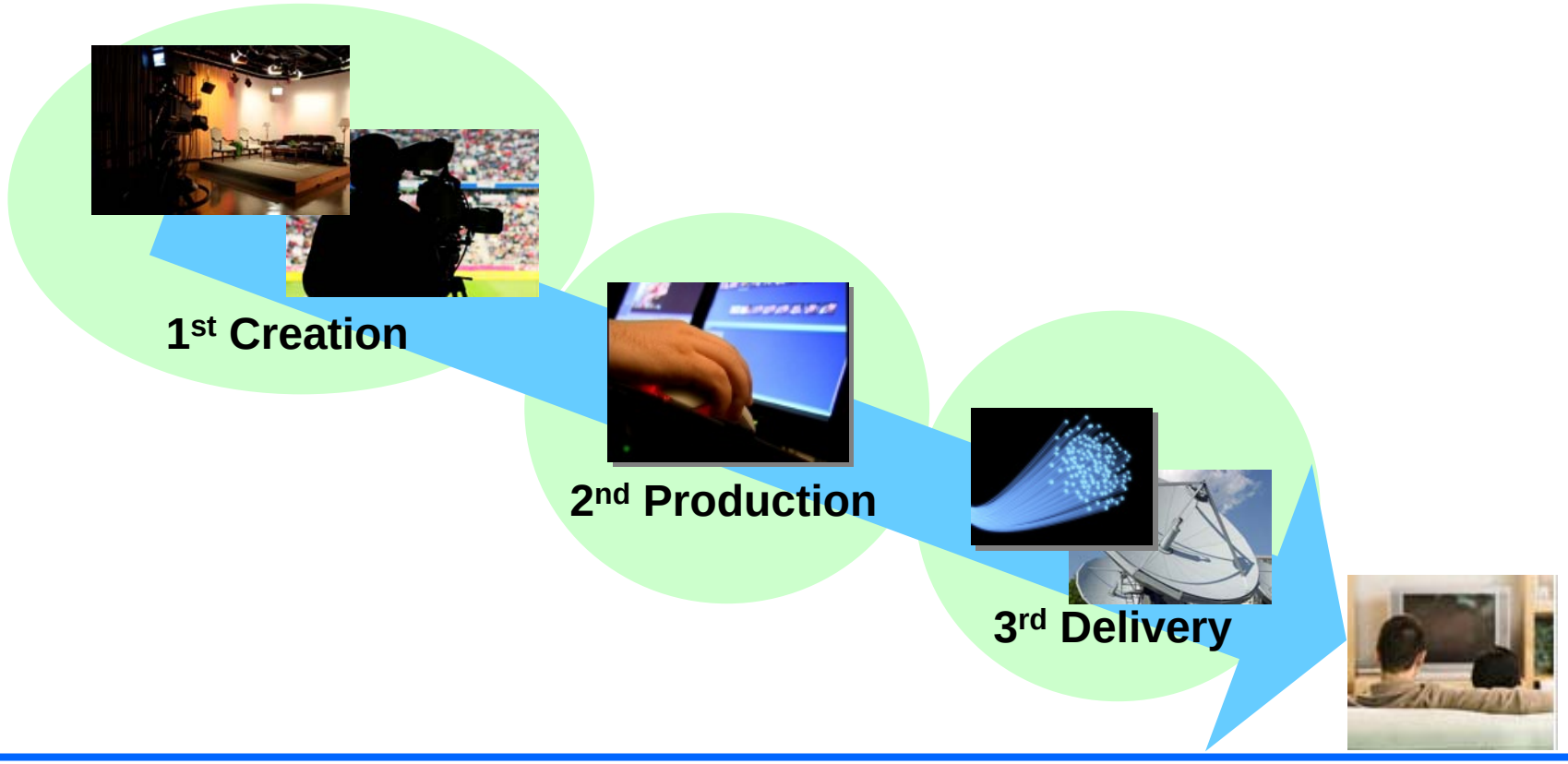
Coding Performance Comparison

- AVC/H.264 compression efficiency is more than double that of MPEG-2.
  - But required processing power is 10-100 times that of MPEG-2's.
  - Even with the latest Core 2 Duo processor, real-time AVC/H.264 encoding is difficult.

High performance Codec IC is required!

From Content Provider to the Home

- At each step, the content needs to be encoded to decrease its huge data volume



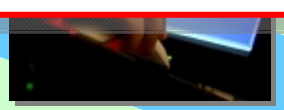
From Content Provider to the Home

1st Creation

Maintaining high-quality video; requirements:

- ✓ **Supporting 4:2:2 Chroma**
- ✓ **High Bitrate**
- ✓ **Low Latency**

1st Creation



2nd Production

3rd Delivery

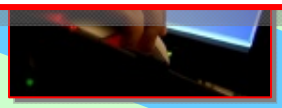
From Content Provider to the Home

2nd Production

Maintaining high-quality video; requirements:

- ✓ **Supporting 4:2:2 Chroma**
- ✓ **High Bitrate**
- ✓ **Supporting Multiple Video Formats**

1st Creation



2nd Production

3rd Delivery

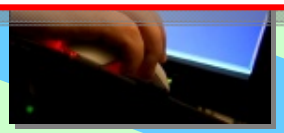
From Content Provider to the Home

3rd Delivery

To transmit high-quality video within limited bandwidth; requirements:

- ✓ **Low Bitrate**
- ✓ **Variable Bitrates for Statistical Multiplex**

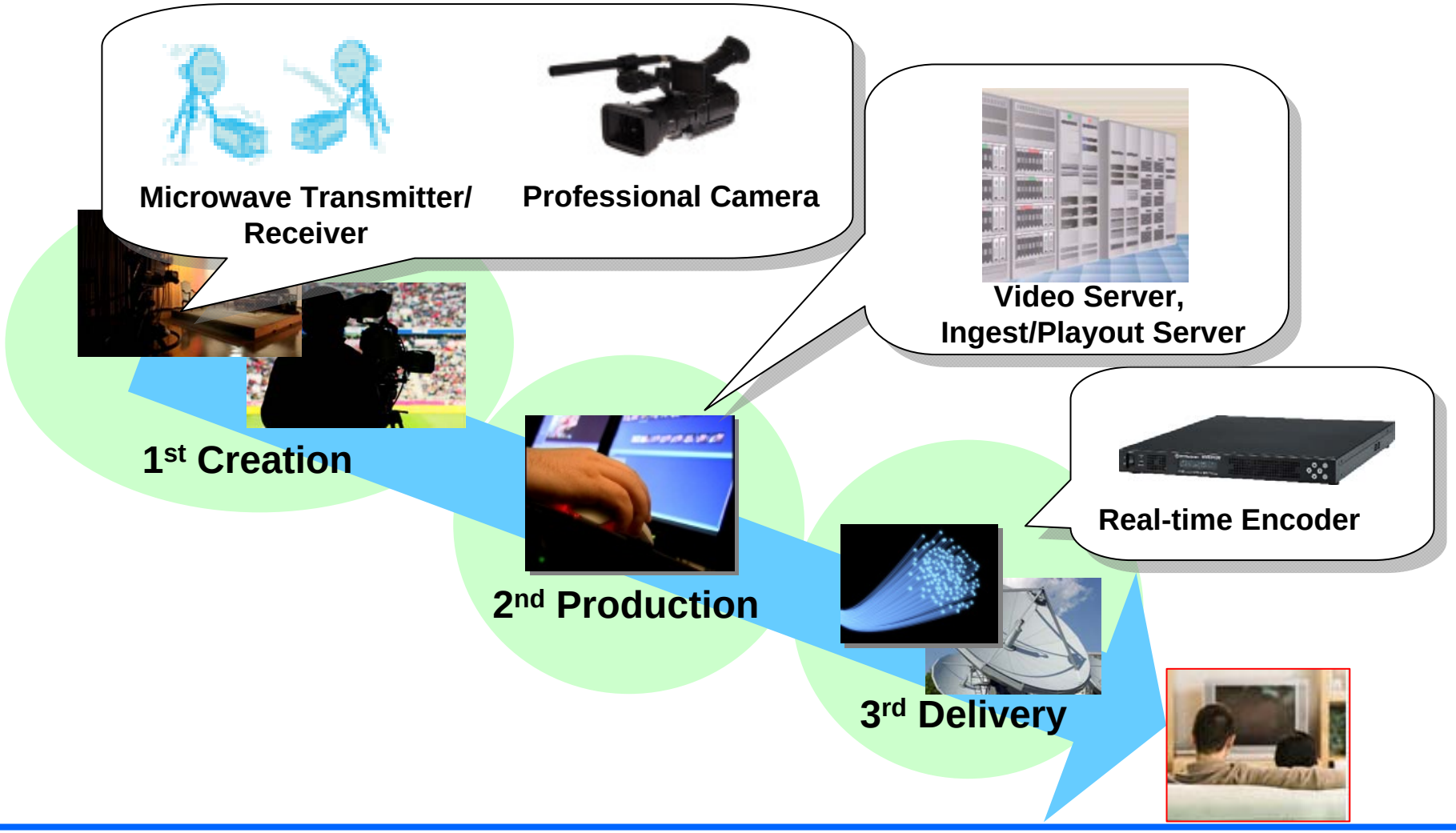
1st Creation



2nd Production

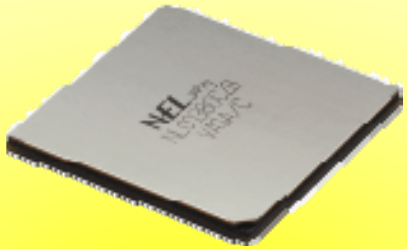
3rd Delivery

From Content Provider to the Home



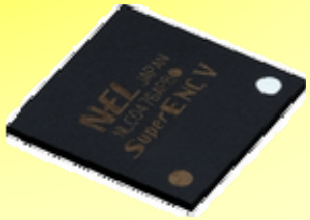
From Content Provider

High
Video Quality



Super
Low Latency

Our professional codec devices cover all professional products.

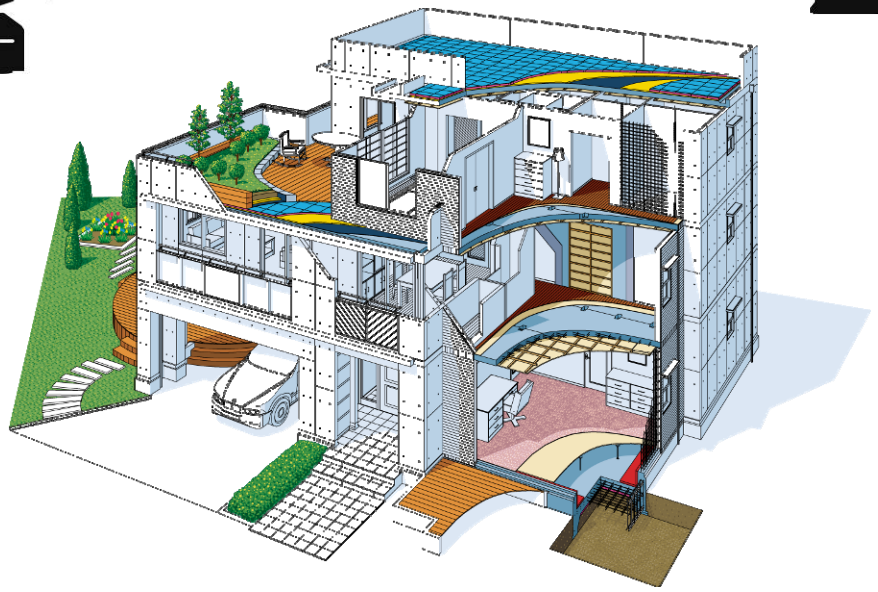


Home Network & Codec Technology

Audio-Video Computer

Digital Video Recording

Family room



Home Office

Wireless Video

Outside

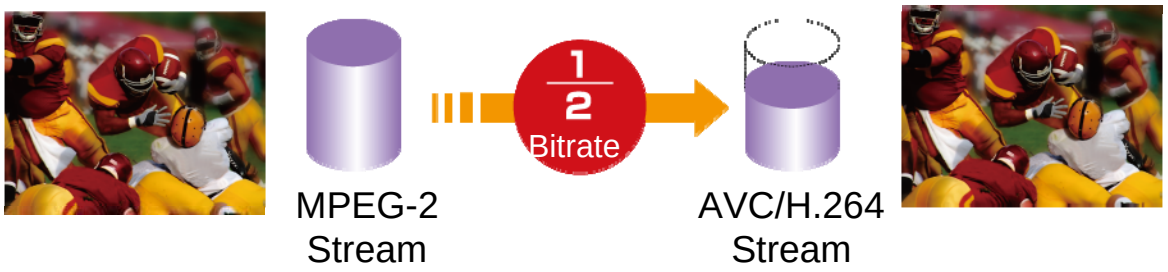
Removable Video

MediaServer

Equipment storage closet

Home Network & Codec Technology
MPEG-2 to AVC/H.264 Transcoding

- Optimize storage environment with MPEG-2 to AVC/H.264 Transcoding technology
  - Amount of HD content is exploding
  - PVR: Demand for viewing a missed program by a time shift play

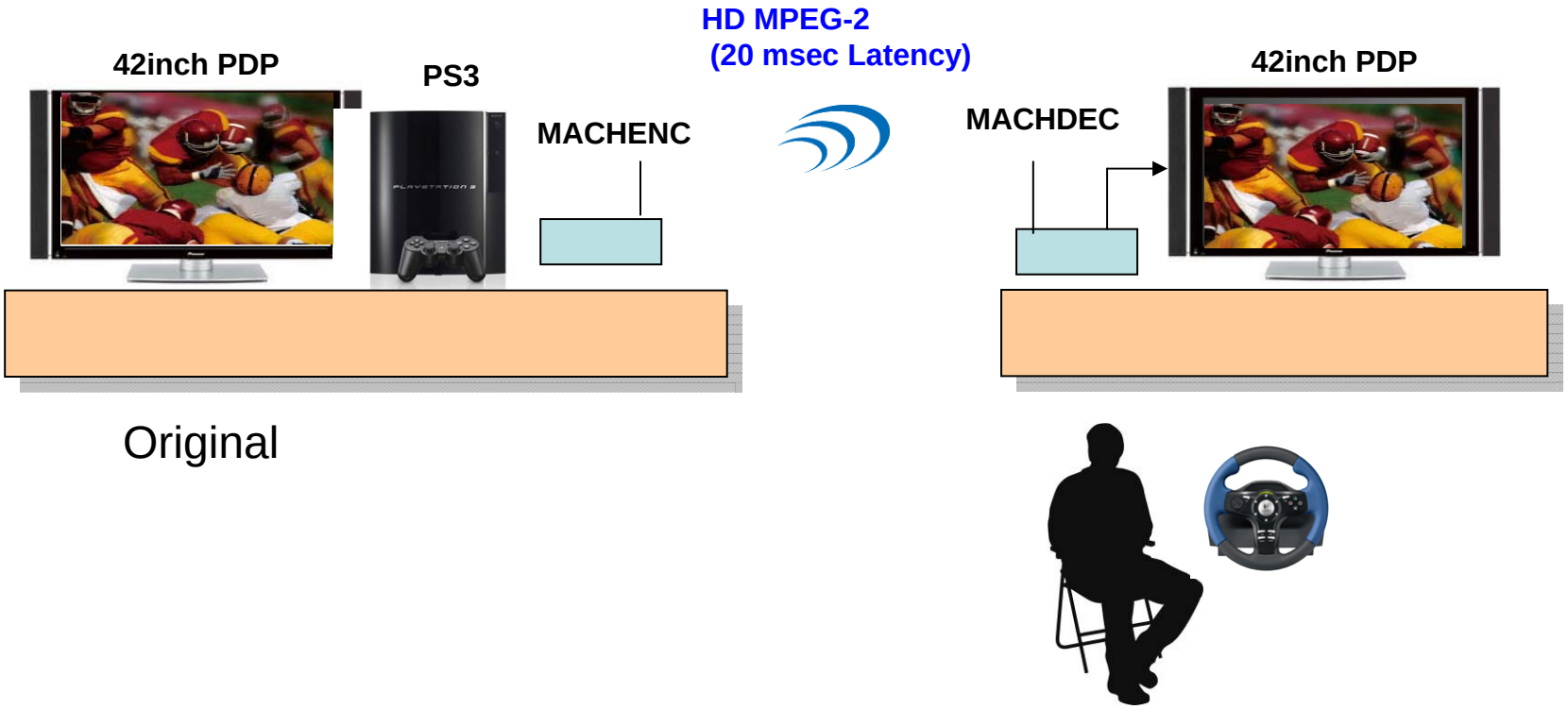


Half the bit rate and double the compression ratio

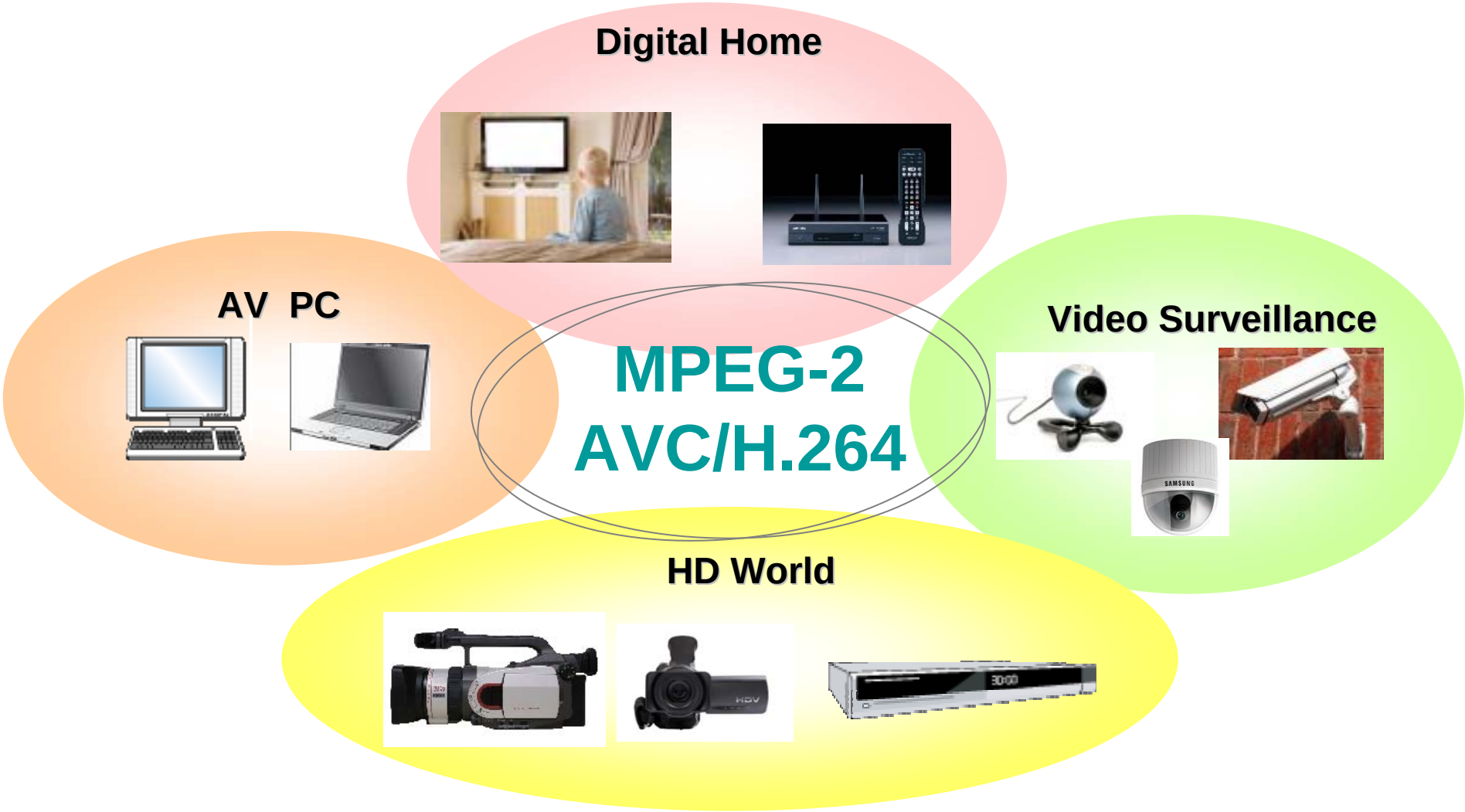
Home Network & Codec Technology

Wireless + Low Latency Codec

- See a live demo of enjoy gaming by our ***super low latency*** codec technology



Compression Technology Immerses More Video Products in HD



NTT Electronics Video Compression Development

Professional AVC/H.264 HDTV
Encoder/Decoder LSI
SARAENC
SARADEC

Broadcasters

H.264/AVC

Professional editing

MPEG-2

MPEG-2→H.264/AVC Transcoder

MPEG-2 to AVC/H.264
Transcoder
Matiz

Professional MPEG-2
HDTV CODEC LSI
VASA

Single Chip
Codec HDTV
SuperENC V

Single Chip
Encode HDTV
LibraENC

Personal Computer

Professional digital video camera

Audio-Visual Equipment

NTT Electronics Video Compression LSI Line-up for consumer

SuperENC V

HDTV MPEG-2 Codec LSI

MACH

Low Latency
HDTV MPEG-2 Encoder LSI

LibraENC

Low Latency
HDTV MPEG-2 Encoder LSI

Matiz

HDTV Transcoder LSI
(MPEG-2 to H.264/AVC)

PINEA

AVC/H.264 Standards LSI
(PCI-express Interface)

Applicatioin

Visit Our Booth at COMPUTEX TAIPEI

NTT Electronics is exhibiting new products and technologies at "COMPUTEX TAIPEI", Booth No. M128.

Come experience a large-screen demo showcasing extremely *low latency* and *Professional-level video quality*!!