

Ch7 Multimedia Networks

8 Mpixel image

$$3984 \times 2240 = 8,924,160$$

> 24 MB

stored: 2.2 MB (compressed)

Compression:

- remove redundancy
- lossy - jpg - gif
- lossless - png

Video

HD 1920 x 1080 (2.1 Mpixel)

> 6 MB per frame (image)

$\approx 144 \text{ MB/s}$

1.152 Gb/s

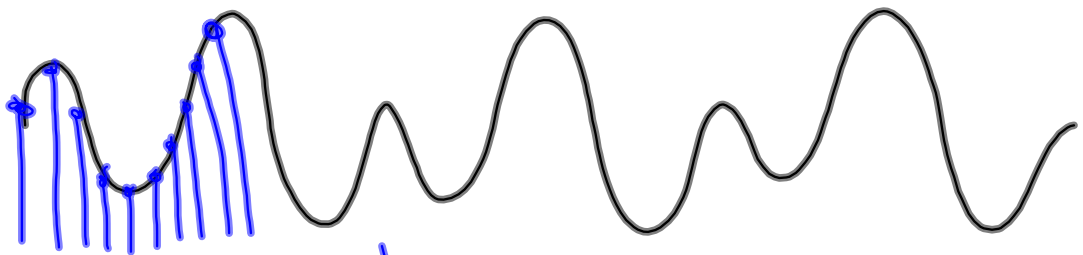
Compression

intra-frame

inter-frame

(image comp.)

Audio



- sample signal
- quantize - turn into binary

phone	8,000 samples/sec	8 bits/sample
CD	44,100 "	16 bits/sample

MPEG 1 audio layer 3
(MP3)

MPEG video

MPEG 1 1.5 Mbps

MPEG 2 (DVD) 3-6 Mbps

MPEG 4 < 1 Mbps

constant bit rate

variable bit rate

Streaming apps:

- start playing before download is complete
- stored on server
- transmitting faster than being displayed.
- no timing/bandwidth service on the net.
- interactive (pause, next scene)

Voice / Telephone / Conversation - Video

- timing

- loss

- full duplex

Live Streaming

- single source

- many users

- delay (small)

- compression

- transmission

← hopefully