Tech Technicalities I

Mills SOC128 Fall 2013

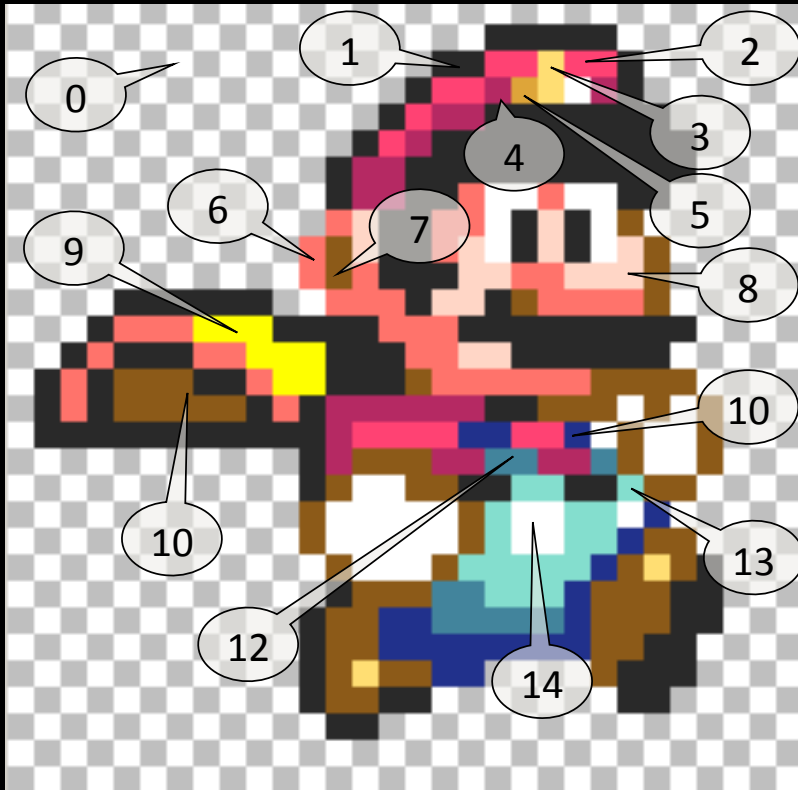## Dan Ryan

Contents

- Types of Image Files

- Clients, Servers, Browsers, Applications

- Vector/Raster

- Bar codes, QR Codes

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"Know the Difference"

IMAGE FILE TYPES

Consider this 30x30 pixel image


0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 0 0 0 0 0 0 0

18, 0, 5, 1, 7, 0

- PNG (1996)
  - 24 bit RGB color space or grey scale. Not for graphics so does not do CYMK (cyan, yellow, magenta, black)
- GIF – "graphics interchange format" (1987)
  - Up to 8 bits per pixel (only 256 colors), animation, LZW loss-less compression
  - Patent controversies gave way to PNG
- JPG, JPEG (1992) "joint photographic experts group"
  - ~10:1 compression format lossy – each time it's compressed some information is lost.
- TIFF (1980s) tagged image file format 3rd byte 42
  - Largest files, used in high def graphic design environments
- PDF (1991) – "portable document format"
  - Adobe. Cross-platform/application document not image per se. Vector and raster
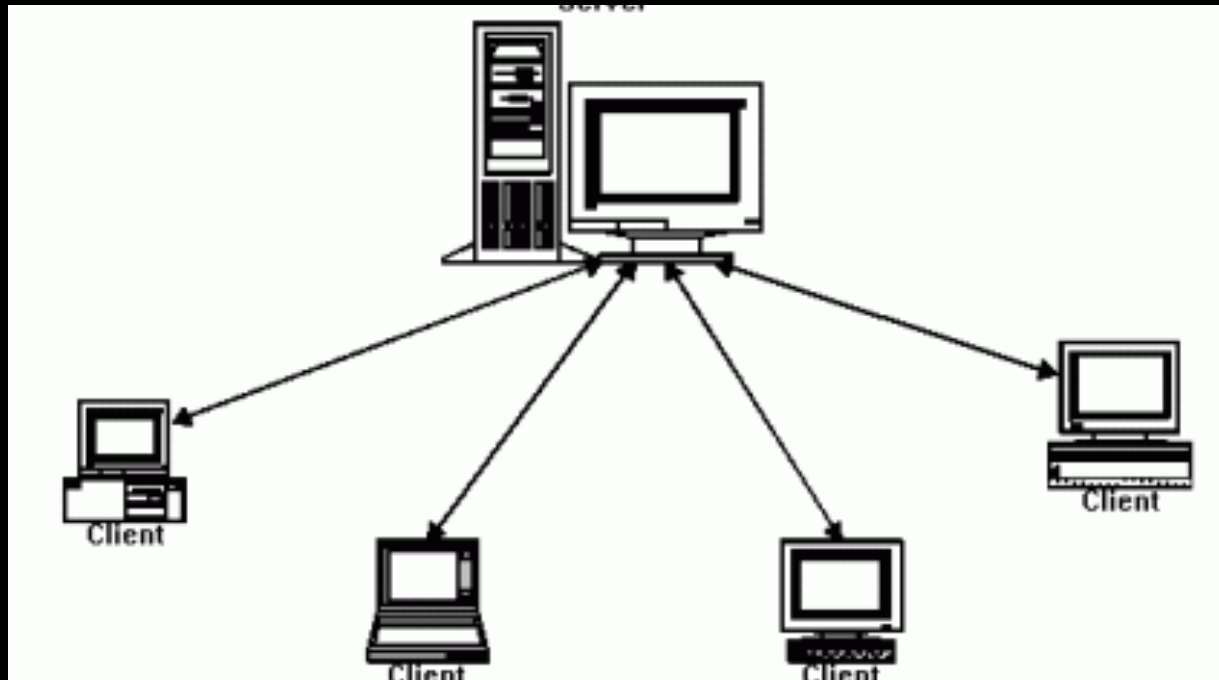
Comparing Formats

GIF format

JPG format
(20% compression)

PNG format

http://andreas.com/faq-gif-png.html
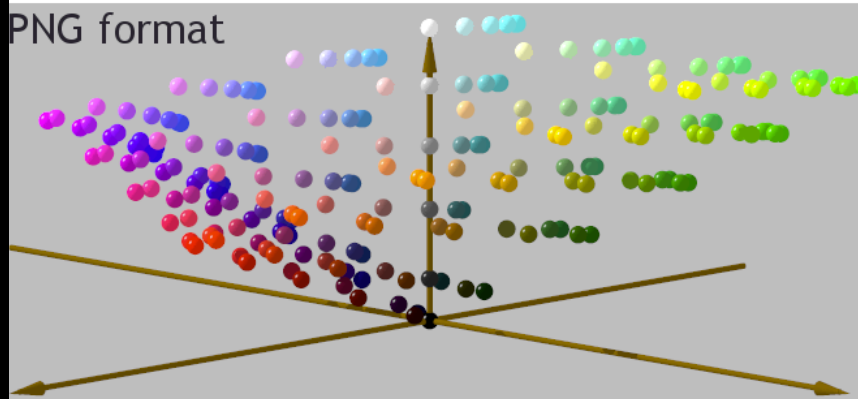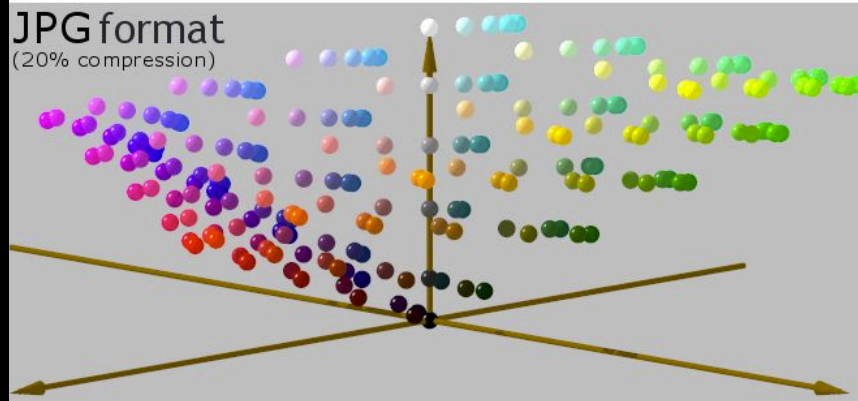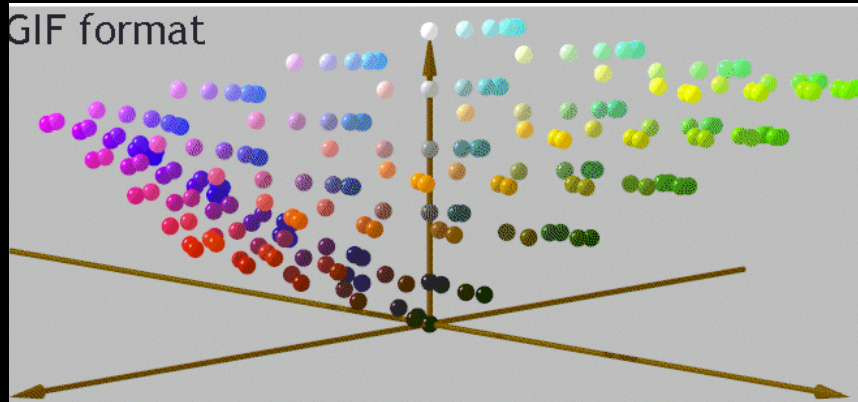
"Know the Difference"

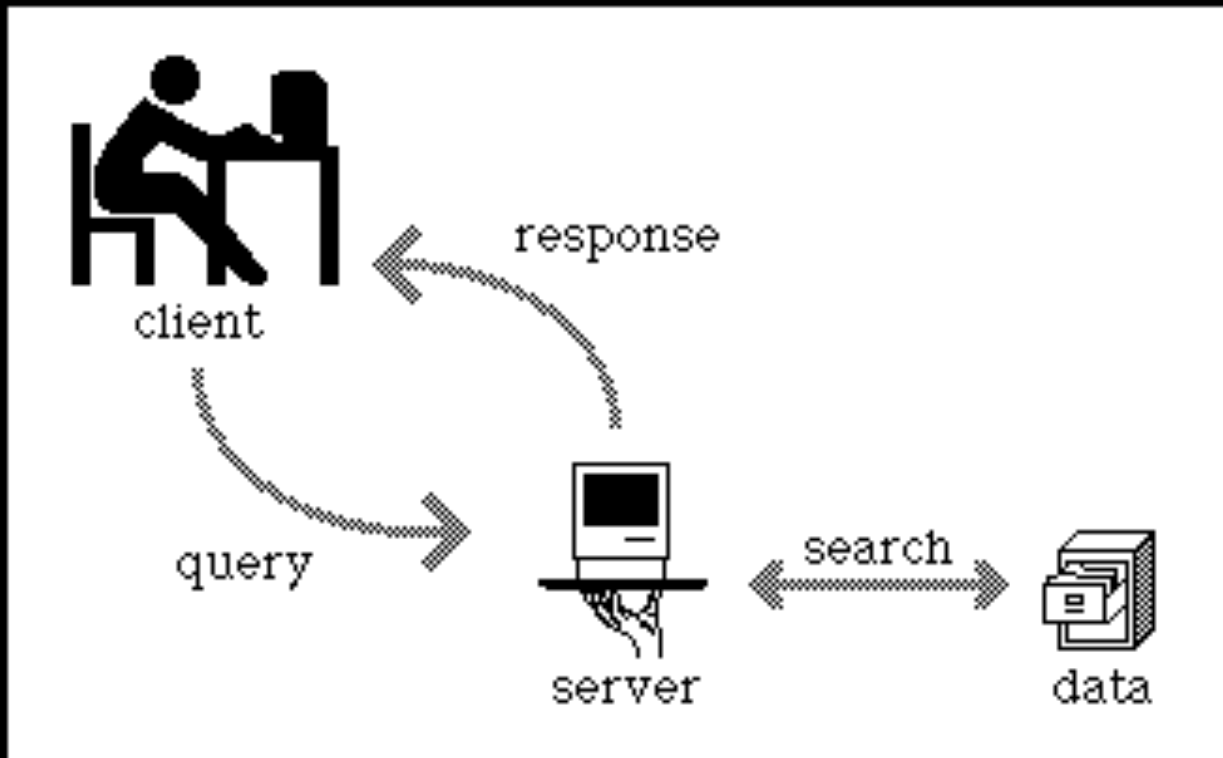# CLIENTS, SERVERS, AND APPS

Servers and Clients

- Multiple meanings, but

- ...boils down to...

- A division of labor in which...

- ...a single server entity provides some service for multiple distributed client entities

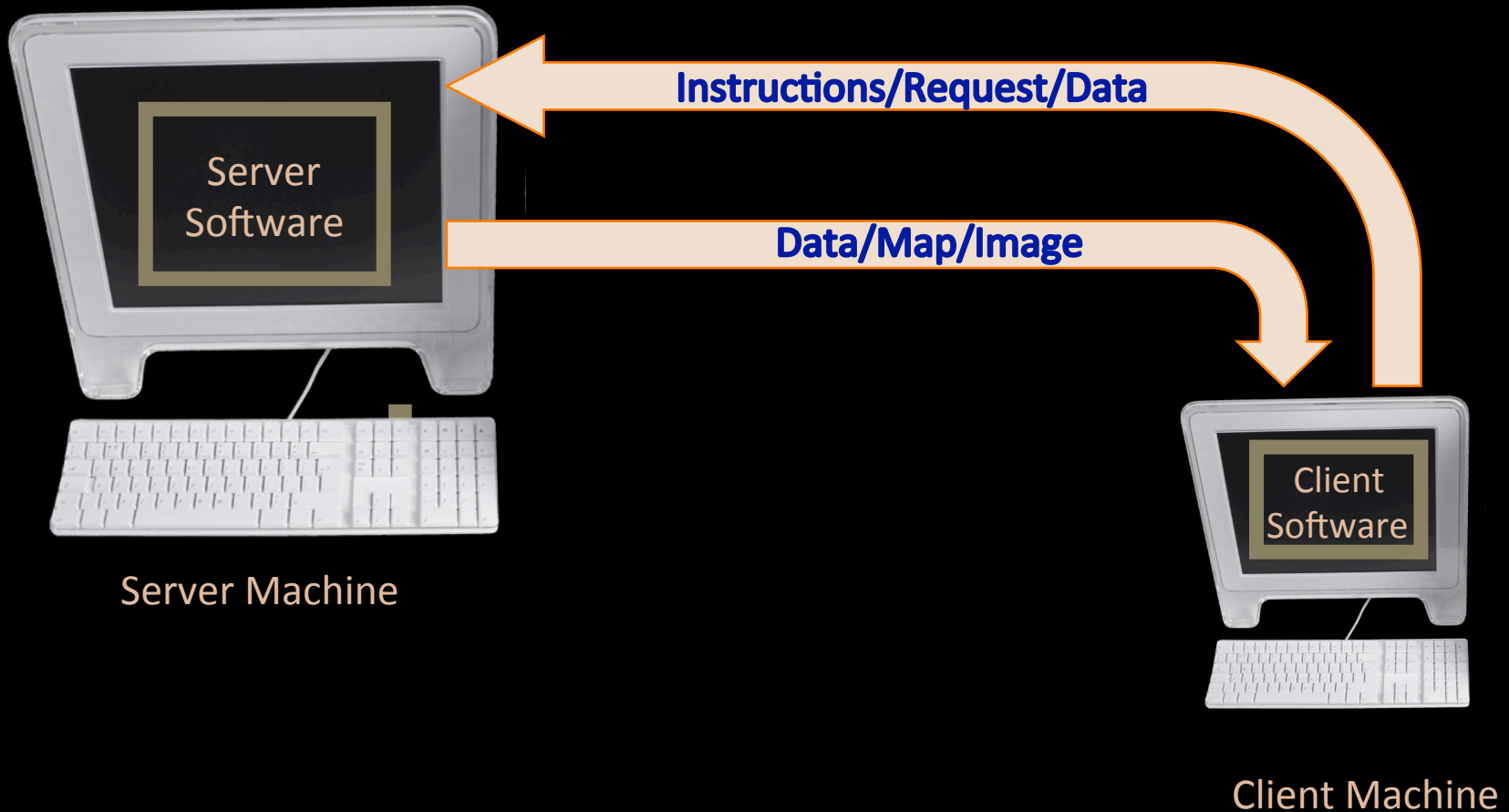- May refer to hardware or software

Clients and Servers

http://www.wildbunny.co.uk/blog/wp-content/uploads/2012/10/clientServer.gif

Clients and Servers in Conservation
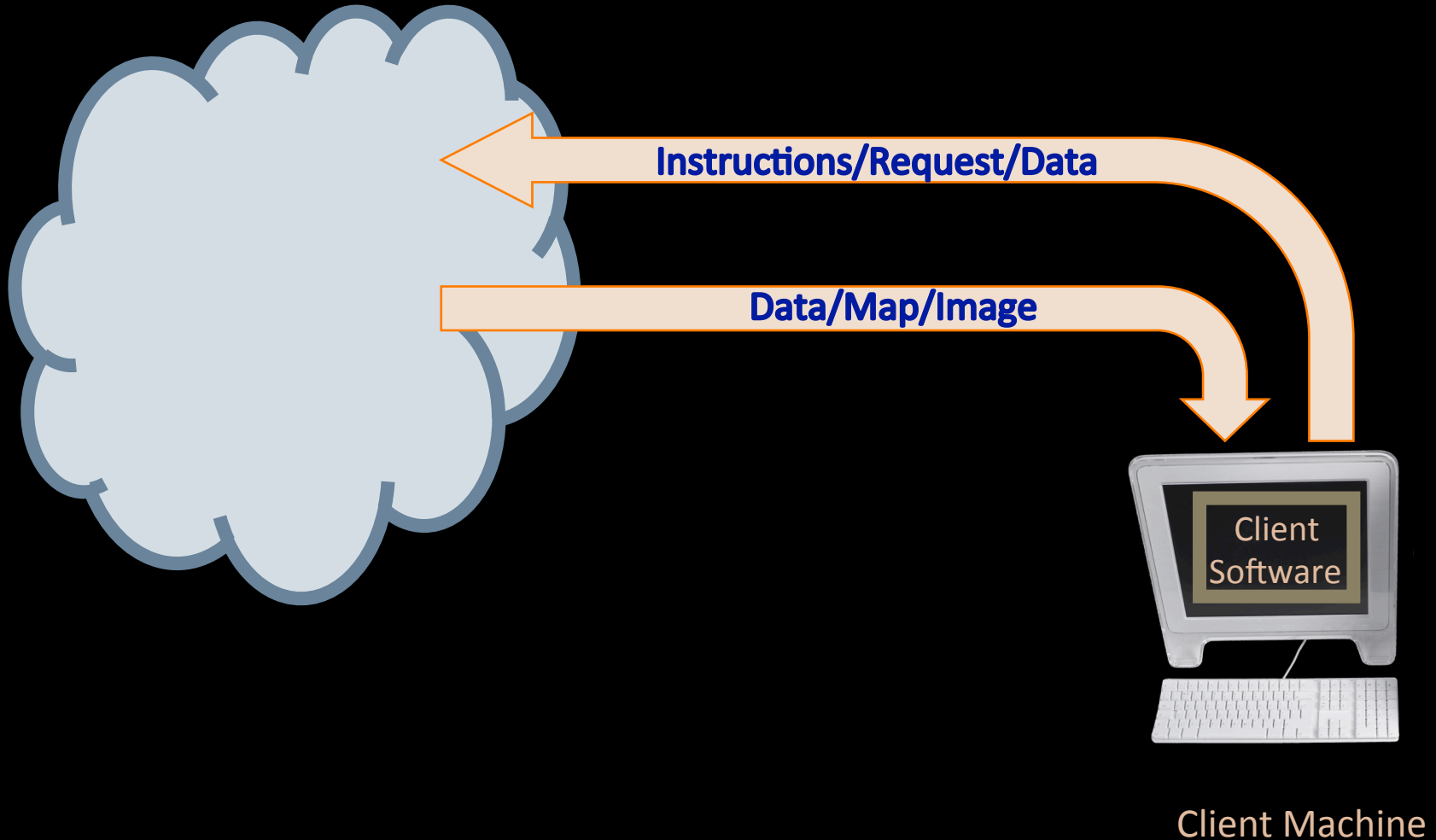

http://www.differencebetween.info/sites/default/files/images/2/client-server-illustration.gif
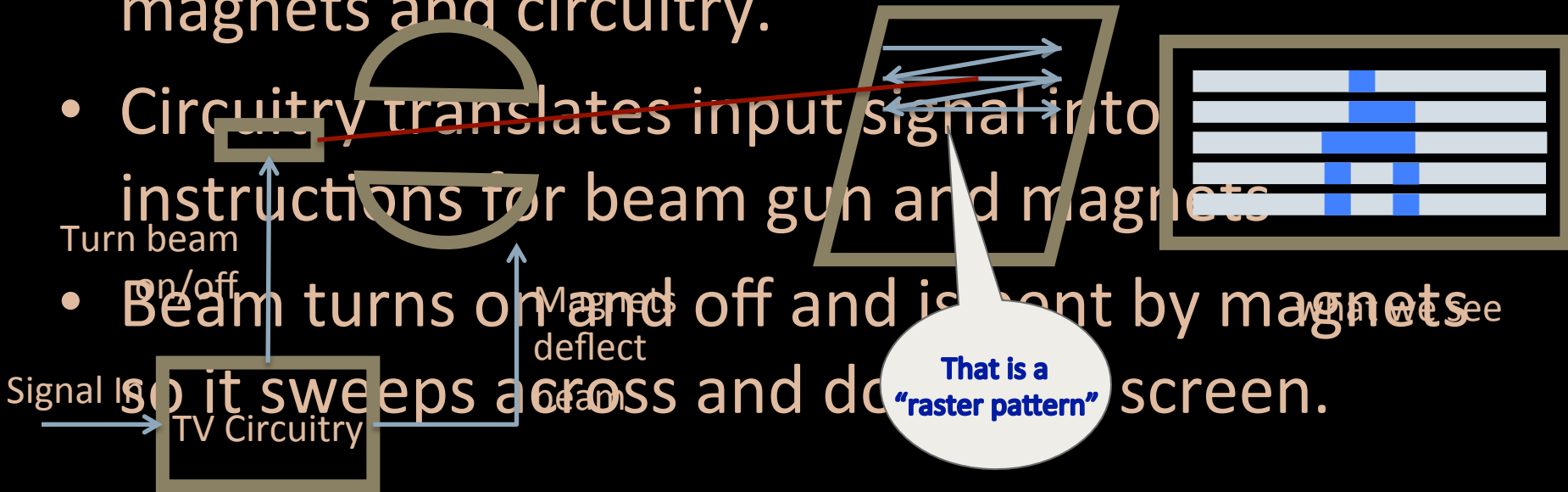
Clients and Servers

Clients and The Cloud

Instructions/Request/Data

Data/Map/Image

Client Software

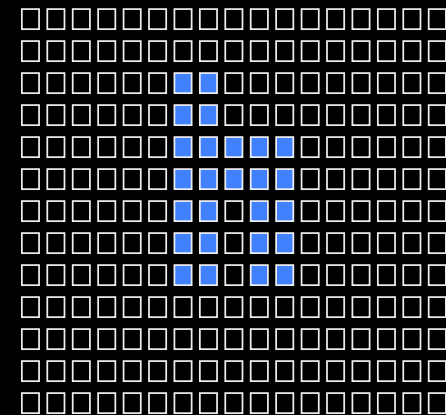Client Machine

"Know the Difference"

RASTER AND VECTOR

What does "raster" mean?

- How (analog) TVs used to work

- Device consists of electron beam gun, screen, magnets and circuitry.

- Circuitry translates input signal into instructions for beam gun and magnets

- Beam turns on and off and is sent by magnets so it sweeps across and down screen.

Turn beam on/off
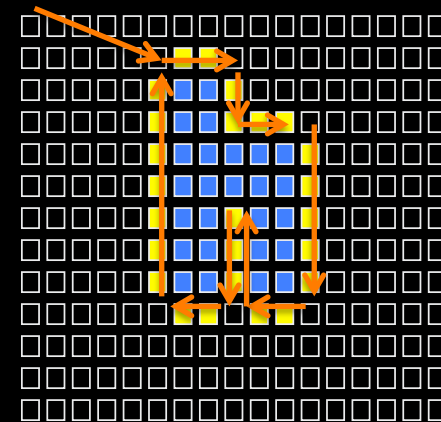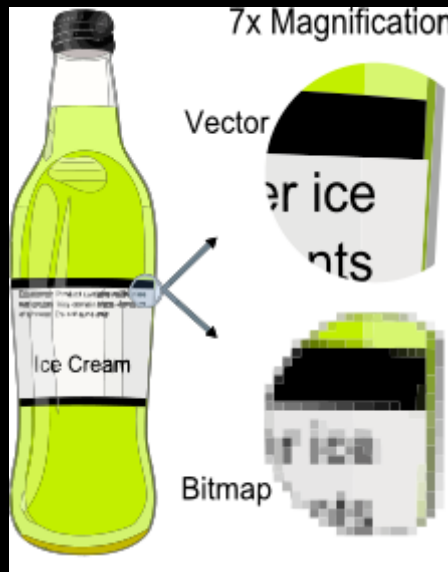
Magnets deflect beam

What we see

Signal In

TV Circuitry

That is a "raster pattern"

Digital Raster Image

- Same, except screen defined in terms of a grid of "pixels"

Digital Vector Image

- Specify coordinates of vertices
- How to draw object
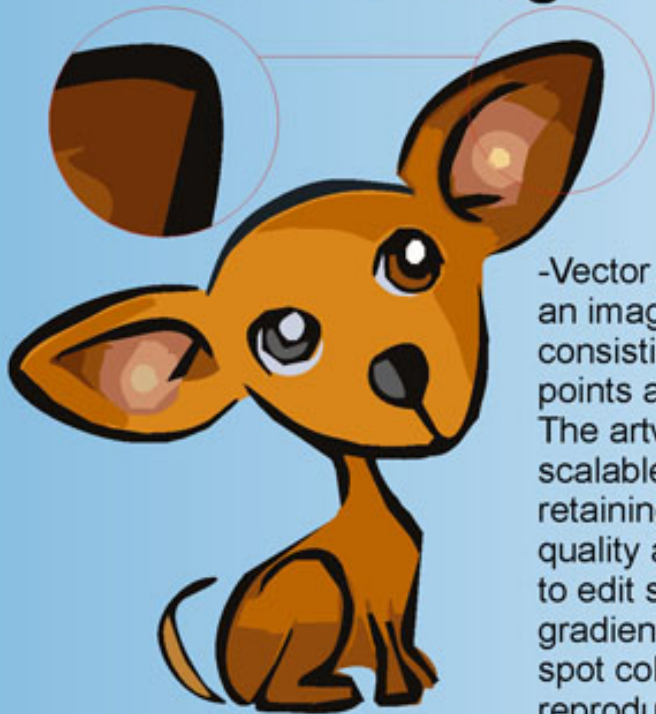
Vector and Raster

Raster (Bitmap) Vector

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Vector and Raster
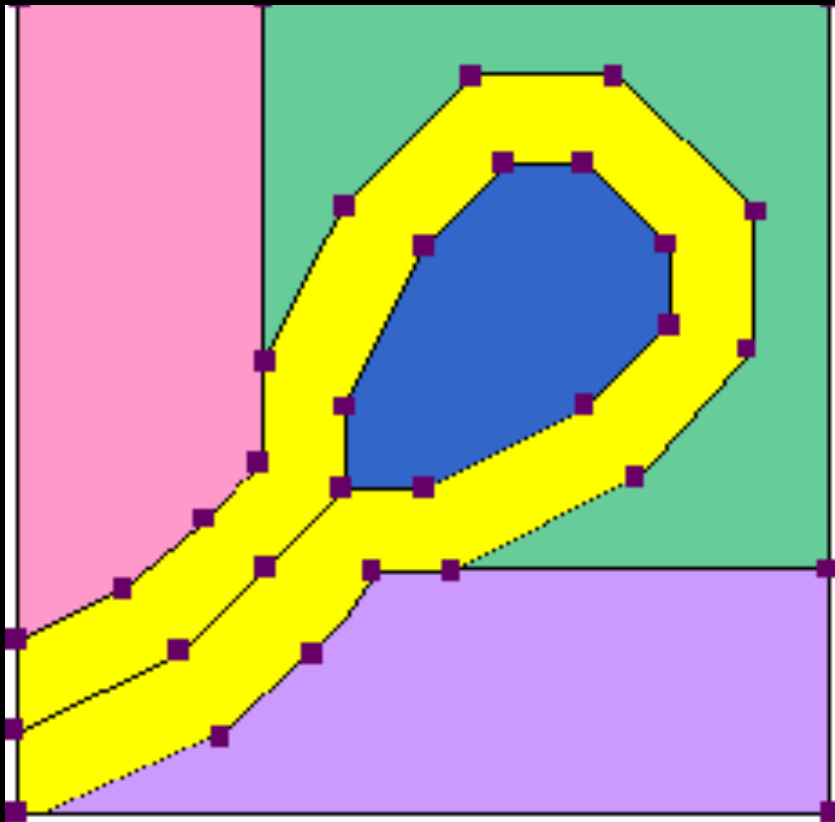
Vector
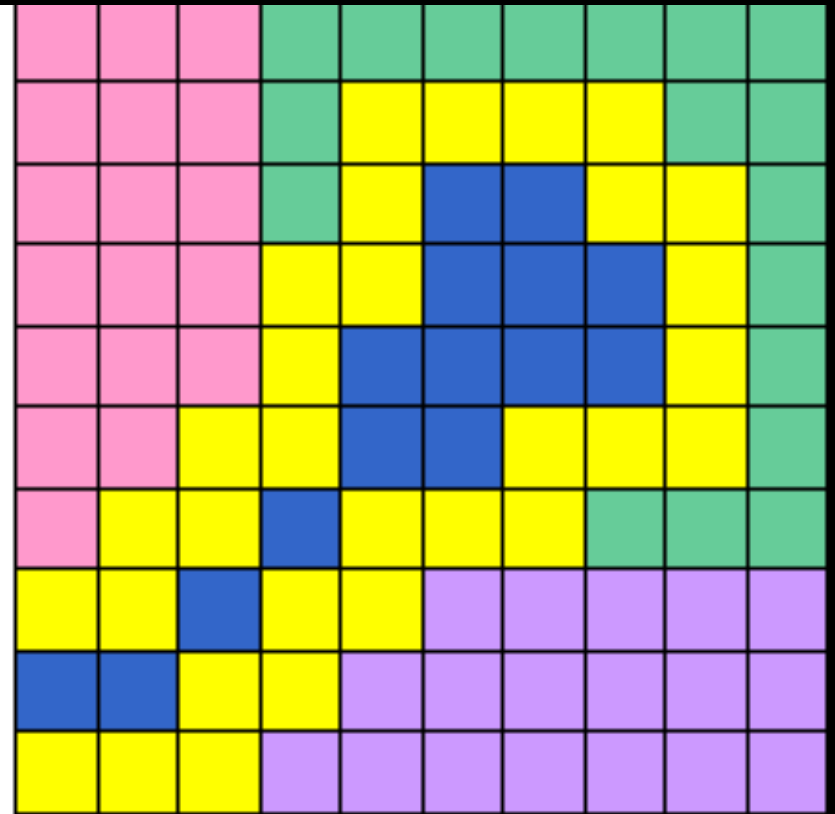
Raster

Vector and Raster

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Vector and Raster

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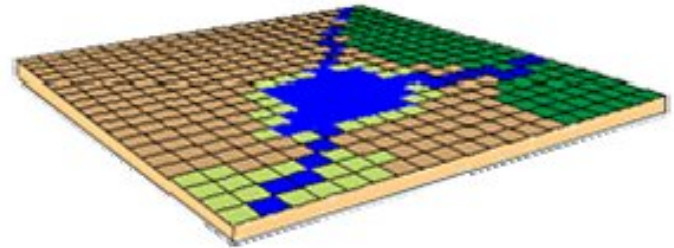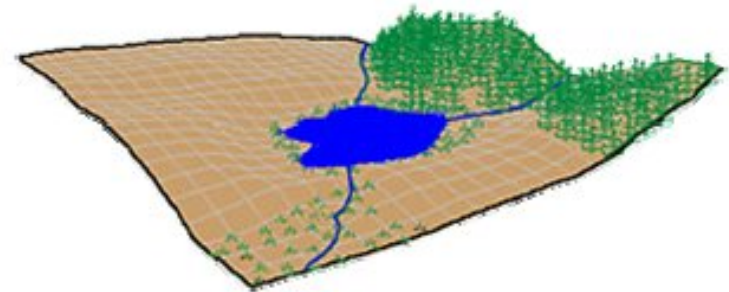
"What is a…"

QR CODE

QRCodes

- Quick Response Code (Toyota 1994)

- Matrix Bar Code. Encodes 100s of characters.

- License free

- Generators online

1. Version information
2. Format information
3. Data and error correction keys
4. Required patterns
   - 4.1. Position
   - 4.2. Alignment
   - 4.3. Timing
5. Quiet zone