

UDP v TCP — Ports To & From

UDP

Connectionless  
No Error Checking  
Simple

— Video streaming

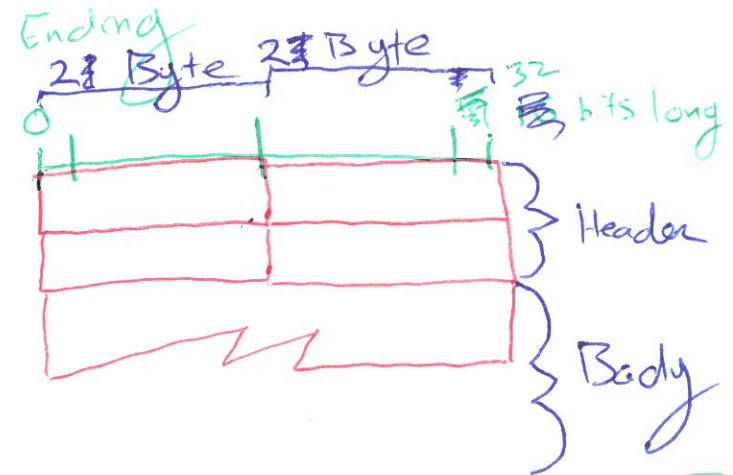
TCP

Connection-oriented  
Error Checking  
Complex

UDP

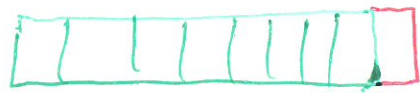
Beginning  
Header

Body / Payload



Need: Length of body  
Need: From Port  
Need: To Port

## Checksums + UDP



checksum  
If the # of  
1s is odd,  
0 otherwise

00000000 0  
00000000 1  
01110101 1

### Corruption

- Flip 1 bit  
↳ 100% catch
- Flip 2 bits  
↳  $\frac{1}{4}$  7/8 miss
- Flip 3 bits  
↳ ~ High

?s About checksums

- Ratio of  
Data size to  
Checksum size  
8:1

- Probability of  
missing corruption

### UDP Checksum

Ratio of Data to checksum

65K:2B

UDP Checksum rule: All 0's means NO CHECKSUM  
If you're doing a checksum & it comes out  
all 0's, change to all 1's.  
An all 1 checksum in UDP is otherwise impossible.