★ @HackProKP

UDP Checksum

Jailash Parshad

Checksum = UDP Header + UDP Data + Pseudo Header of IP

- Not compulsory
  - IPv4
- Compulsory
  - IPv6

Some Part — Network Layer

Provides for Error Detection

Example 1. (with carry)

We have three 16-bit numbers

0110011001100000
0101010101010101
1000111100001100

Step 1: We perform addition

```
 0110011001100000
 0101010101010101
+1000111100001100
------------------
10100101011000001
```

↑ Carry are wrapped around

```
 0100101011000001
                +1
------------------
 0100101011000010
```

Step 2: One's Complement [1→0, 0→1]

```
 0100101011000010
------------------
 1011010100111101
```

↑ Final Checksum Sender Side

Receiver Side (Data + Checksum)

```
[0110011001100000
 0101010101010101
 1000111100001100]
+[1011010100111101]
------------------
 1111111111111110
```

```
 1111111111111110
                +1
------------------
 1111111111111111
```

Data Verified ↑

Example 2. (without carry)

We have three 16-bit numbers

0110011001100110
0101010101010101
0000111100001111

Step 1: We perform addition on 16-bit numbers.

```
 0110011001100110
 0101010101010101
+0000111100001111
------------------
 1100101011001010
```

↑ No Carry Forward (result)

Step 2: One's Complement of the result (Step 1) [1→0, 0→1]

```
 1100101011001010
------------------
 0011010100110101
```

↑ Final Checksum, calculated at Sender Side

Receiver Side (Data + Checksum)

```
[0110011001100110
 0101010101010101
 0000111100001111]
+[0011010100110101]
------------------
 1111111111111111
```

↑ Data is Verified! on the receiver

↳ output is all 1's