# CCN Packet Formats

ICNRG Interim Meeting - Paris 2014-09-27

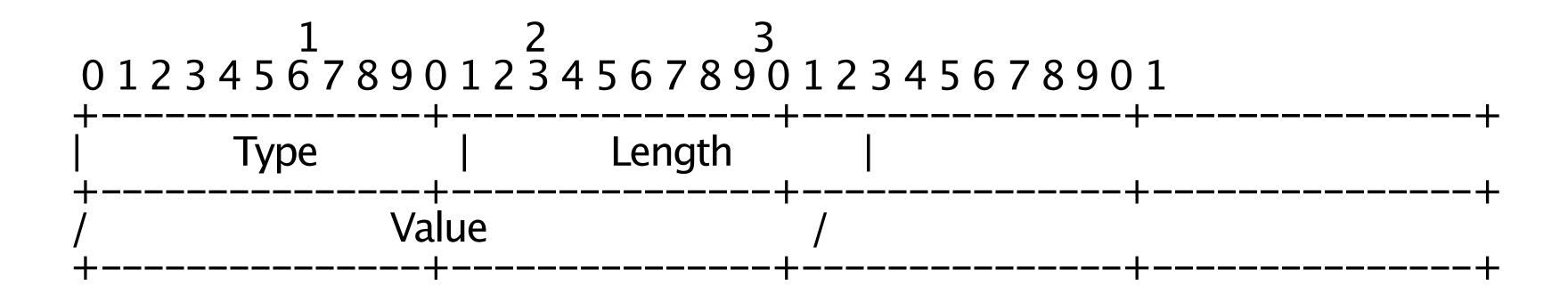
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## Packet Structure



#### 2+2 TLV Format



#### 2-Byte Type

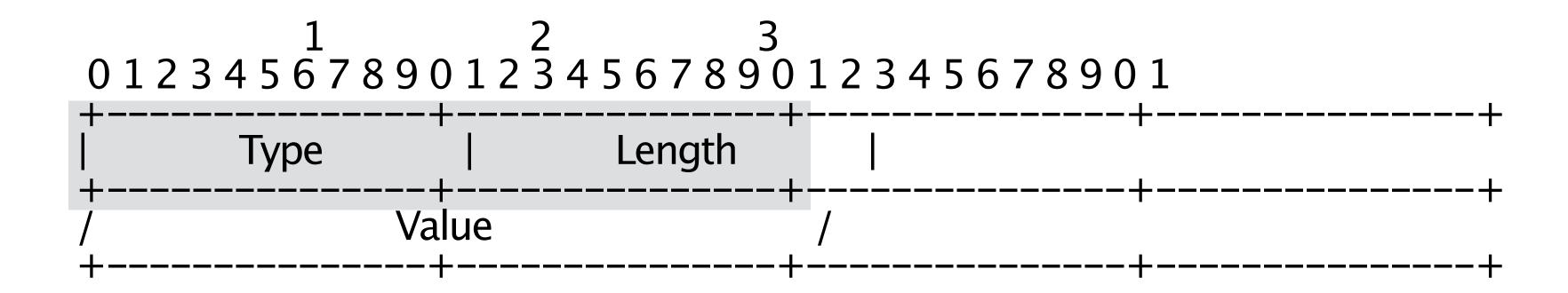
Enough for expansion and experiments Inherently hierarchical (not many types) Fast to jump over (no parsing needed) No aliasing (0 vs 00) Canonical sorting

#### 2-Byte Length

Don't cover what doesn't fit in a packet Enough for large fields like payload Fast to jump over (no parsing) No aliasing (0 vs 00) Canonical sorting



## Type space



#### **Flat Type**

Simple
No ambiguity
Coordination

#### Hierarchical

Compartmentalization
Typespace for name components
Vendor/App specific



#### CCN Packet



#### Static Header



## Optional Headers



### Validation



## CCN Message



## Interests



### Interests

```
PacketType | PayloadLength
  Version
                         HeaderLength
  HopLimit | reserved
 Optional header TLVs
    T_INTEREST
                      Interest Length
Name TLV
Optional Metadata TLV(s)
Optional Payload TLV
 Optional CCNx ValidationAlgorithm TLV
Optional CCNx ValidationPayload TLV (ValidationAlg required) /
```



### Interests

```
PacketType |
                   PayloadLength
 Version
 HopLimit | reserved
                     HeaderLength
 Optional header TLVs
    T_INTEREST
                   Interest Length
                    Name Length
     T_NAME
            NAME
Optional Metadata TLV(s)
Optional Payload TLV
Optional CCNx ValidationAlgorithm TLV
/ Optional CCNx ValidationPayload TLV (ValidationAlg required) /
+----+
```



### Content Packet



## Content Objects

```
\begin{smallmatrix} & & & 2 & & 3 \\ 0 \ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 9 \ 0 \ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 9 \ 0 \ 1 \\ \end{smallmatrix}
               PacketType | PayloadLength
   Version
                                     HeaderLength
  reserved * | reserved
 Optional header TLVs
                                    Content Object Length
    T_CONTENT_OBJECT
 Optional Name TLV
Optional Metadata TLV(s)
Optional Payload TLV
 Optional CCNx ValidationAlgorithm TLV
 Optional CCNx ValidationPayload TLV (ValidationAlg required) /
```



## Content Objects

```
PacketType | PayloadLength
 Version
                     HeaderLength
 reserved * | reserved
 Optional header TLVs
  T_CONTENT_OBJECT
                    Content Object Length
                   Name Length
    T_NAME
            NAME
Optional Metadata TLV(s)
Optional Payload TLV
Optional CCNx ValidationAlgorithm TLV
/ Optional CCNx ValidationPayload TLV (ValidationAlg required) /
```



## Agreement Topics

Static header agreement

TLV agreement

Parsing agreement

Type agreement



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