



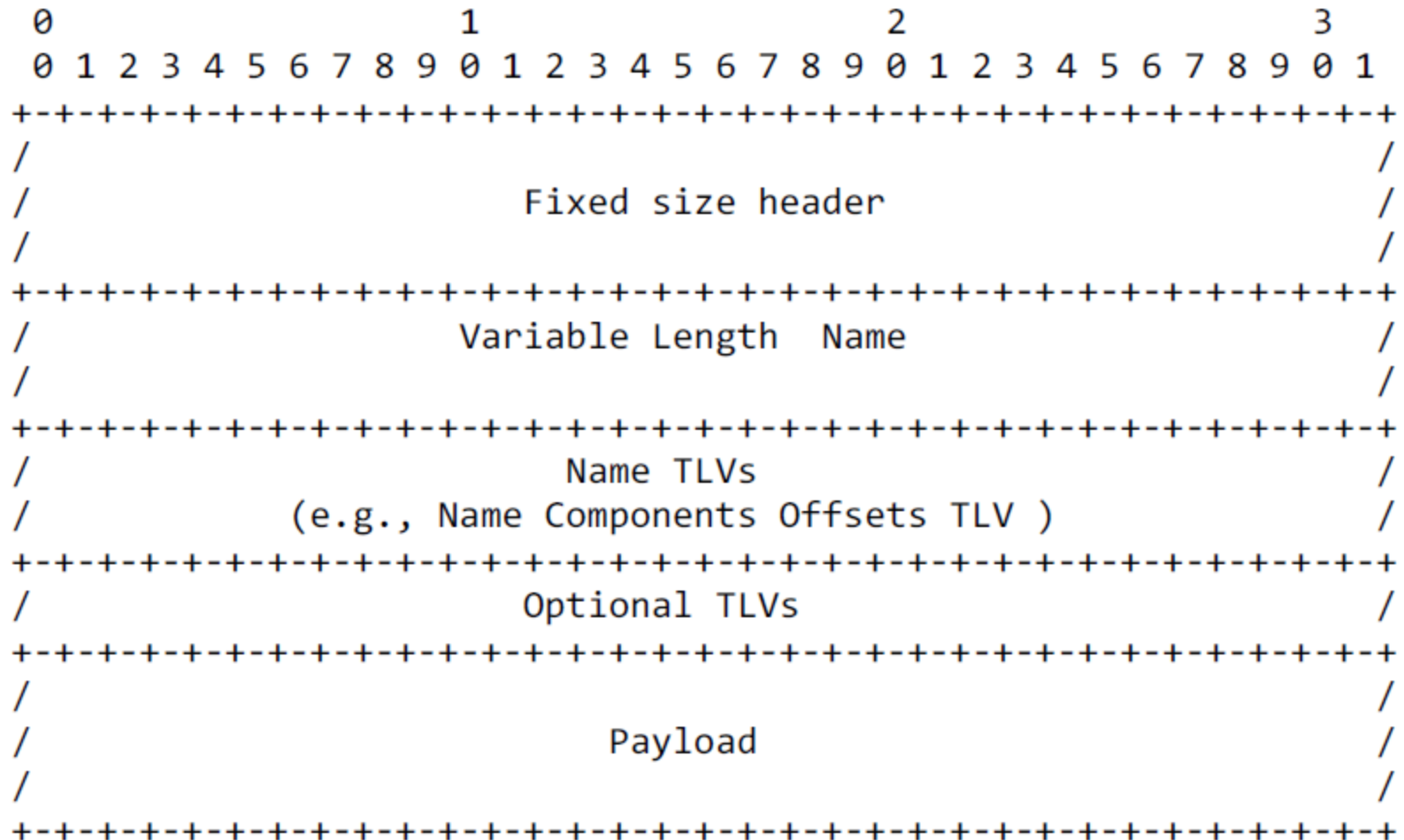
# UPDATE ON EXPERIMENTAL WIRE-SPEED PACKET FORMAT

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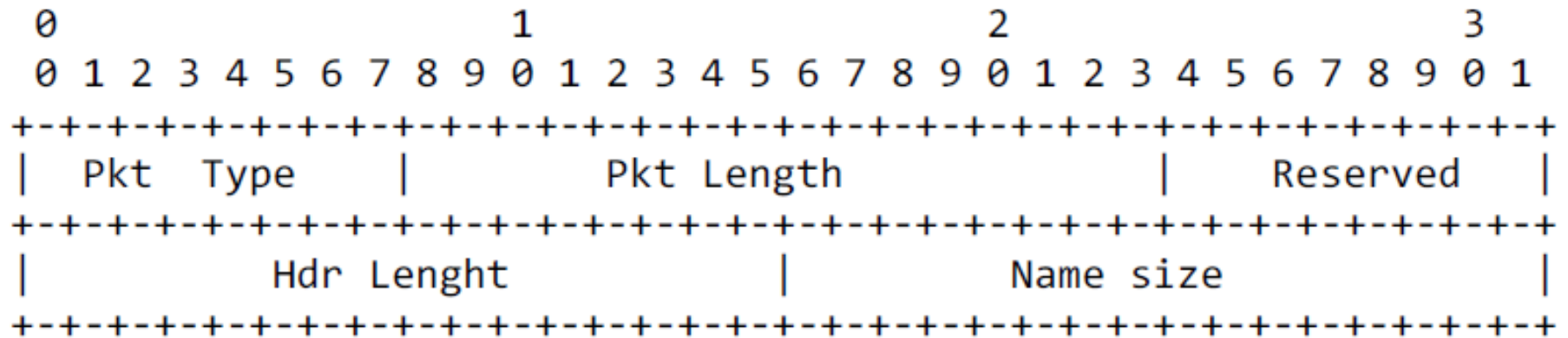
ICNRG interim meeting, Paris, September 27th, 2014

# Recall our generic packet format



Common fixed size header for fast access to critical fields (e.g., name).  
 Two packet types defined so far: Interest and Data.

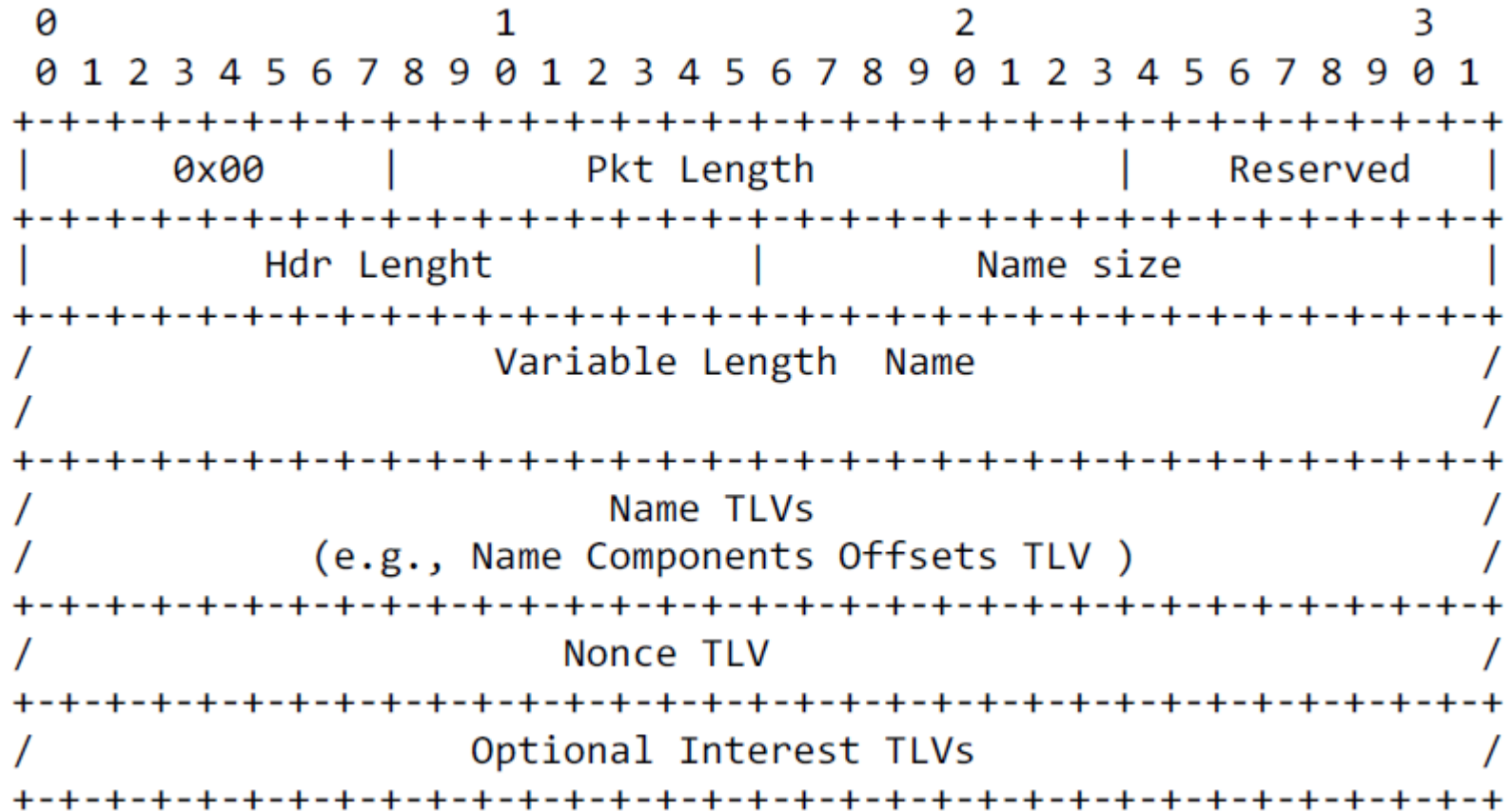
# Common header



## MAIN MODIFICATIONS

- Removed TTL field: it is now part of the convergence layer as other topological information
- Moved the name size in the fixed size header for cache alignment

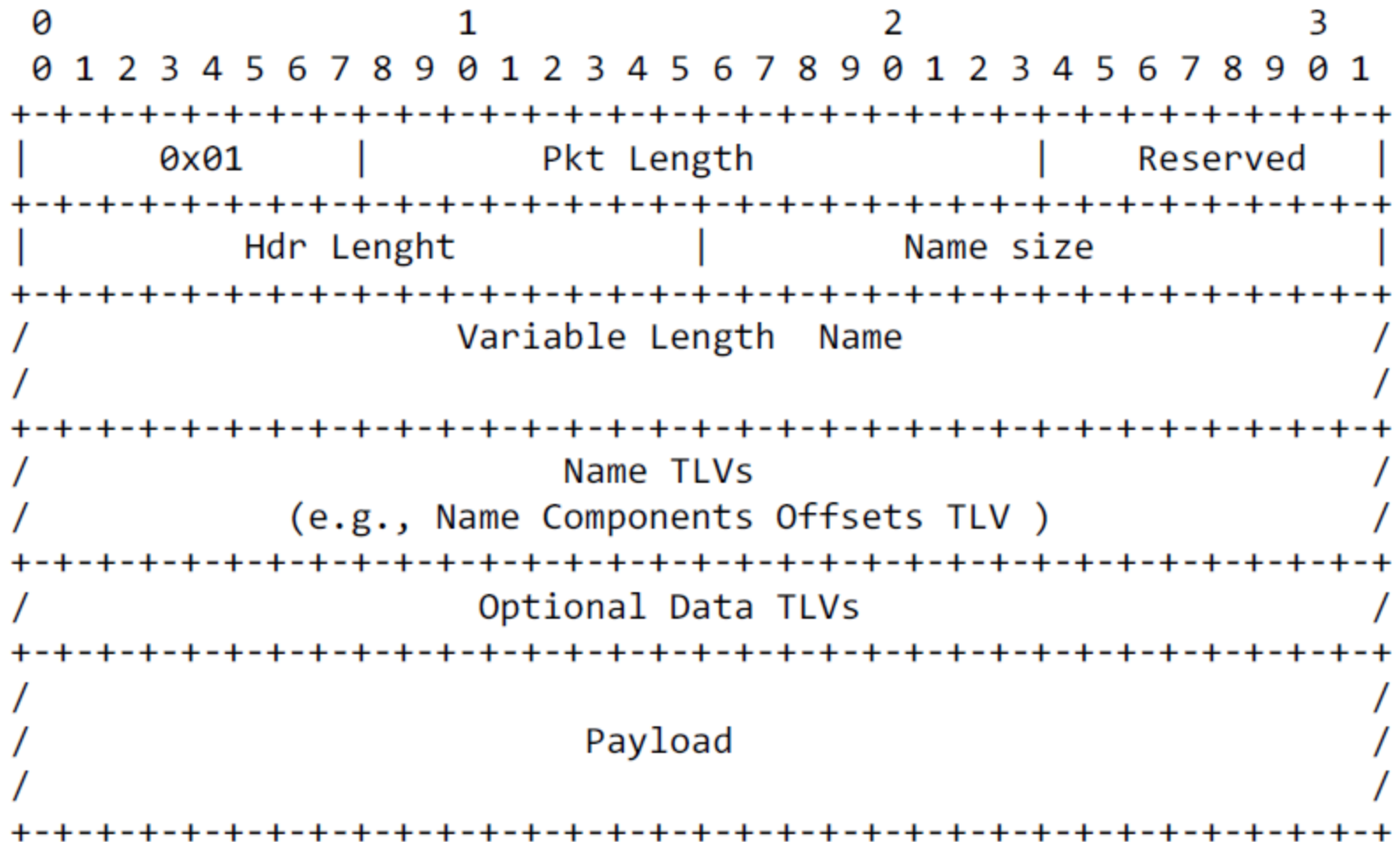
# Interest packet format



## MAIN MODIFICATIONS

- NONCE is a mandatory TLV after the name
  - Kept in PIT, used to avoid loops together with the name

# Data packet format



**UNCHANGED DATA PACKET**

# Miscellaneous

## Naming

- Only one type of component
- Segment ID is always the last component
- Name component offset TLV to identify component offsets in the name

## Matching algorithms

- Longest Prefix Matching on FIB
- Exact matching on PIT and CS
- LPM on CS/PIT is optional as other enhanced matching algorithms

## Convergence Layer

- Hop-by-hop fragmentation and reassembly
- Topological information (e.g., TTL, path identifier)

## Under discussion

- TLV format: for the moment 4 types of TLV, thinking to converge to one type only.
- Payload for Interest packet
- Enhanced security
- ICN architecture interoperability
- Network management/processing commands

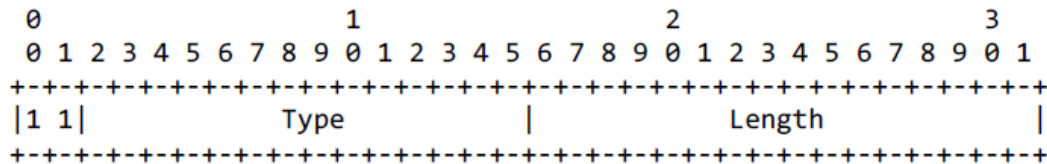
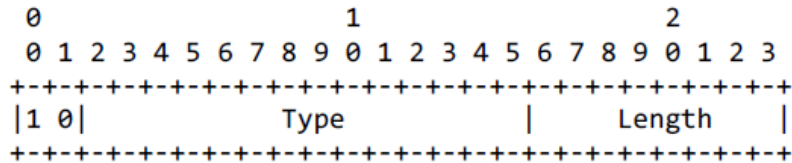
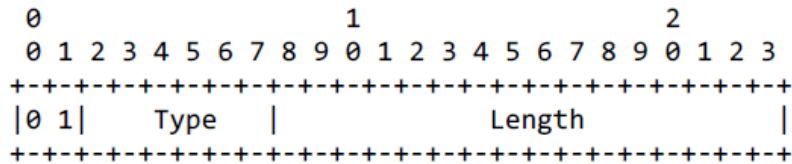
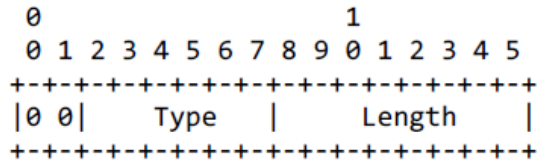
# Discussion

- Fixed header plus fully TLV packet
- Name format
- Fragmentation/reassembly
- Loop detection (NONCE and/or TTL)
- Basic matching algorithms
- TLV types
- Compatibility of different ICN design

**Backup slides**



# TLV formats



4 types of TLVs so far...

- Two length formats are required to support long Value fields (e.g. name) and to limit the overhead;
- Last two TLVs could be useful if many type values will be defined (e.g. application layer TLVs) .

...thinking to converge to one type only.

# TLV types

First Byte	Field Name	Field Description
0x00 0x40	Compact Name Components' Offset	Offsets (expressed using 1 Byte) of the components in the Name field.
0x01 0x41	Extended Name Components' Offset	Offsets (expressed using 2 Bytes) of the components in the Name field.
0x03 0x43	Interest Lifetime	Validity time for an Interest expressed in milliseconds.
0x04 0x44	Data Lifetime	Validity time for a Data Payload expressed in seconds.
0x05 0x45	Nonce	TLV for nonce.
0x06 0x46	Signature	Author's Signature for the Data payload
0x07 0x47	Key	The Content Object(s) that should be requested in order to retrieve the key used to sign the Data packet.

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