Extended BFD

draft-mirmin-bfd-extended

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Motivation

- Observed proposals to monitor:
  - quality of a BFD session;
  - performance;
  - path MTU
- Extend BFD beyond continuity checking/ connectivity verification to:
  - ensure backward compatibility;
  - extensibility

Extended BFD Control Message Format

BFD Control Message
Guard Word
TLVs

- BFD Control Message as defined in RFC 5880
- Guard Word – unique four octets long word to identify Sender and Responder
- TLVs - optional

Capability Negotiation

- No Extended BFD by default
- Capability negotiation using the Poll sequence and the Capability TLV

```
0                   1                   2                   3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
```

L	D	M	Reserved

L – Loss measurement
D – Delay measurement
M – Link MTU discovery

Performance Measurement

- Use Loss and Delay messages defined in RFC 6374:
  - Loss Measurement
    - Direct mode
    - Inferred, a.k.a. synthetic, mode
  - Delay Measurement
    - Explicit timestamp format of a Sender and Responder
  - Combined Loss/Delay Measurement
    - All of the above
- Telemetry query/collection in support of
 - one-way PM
  - direct LM

Loss Measurement

Type = Loss Measurement		Length	
Version	Flags	Control Code	Message Length
DFlags		OTF	
Session Identifier			
Origin Timestamp			
Counter 1			

.
.
.

Counter 4

Delay Measurement

Type = Delay Measurement		Length	
Version	Flags	Control Code	Message Length
QTF		RTF	RPTF
Session Identifier			
Timestamp 1			

.   .
.   .
.   .

Timestamp 4

Combined Loss/Delay Measurement

Type = Loss/Delay Measurement		Length	
Version	Flags	Control Code	Message Length
DFlags	QTF	RTF	RPTF
Session Identifier			
Timestamp 1			

.   .
.   .

Timestamp 4
Counter 1

.   .
.   .

Counter 4
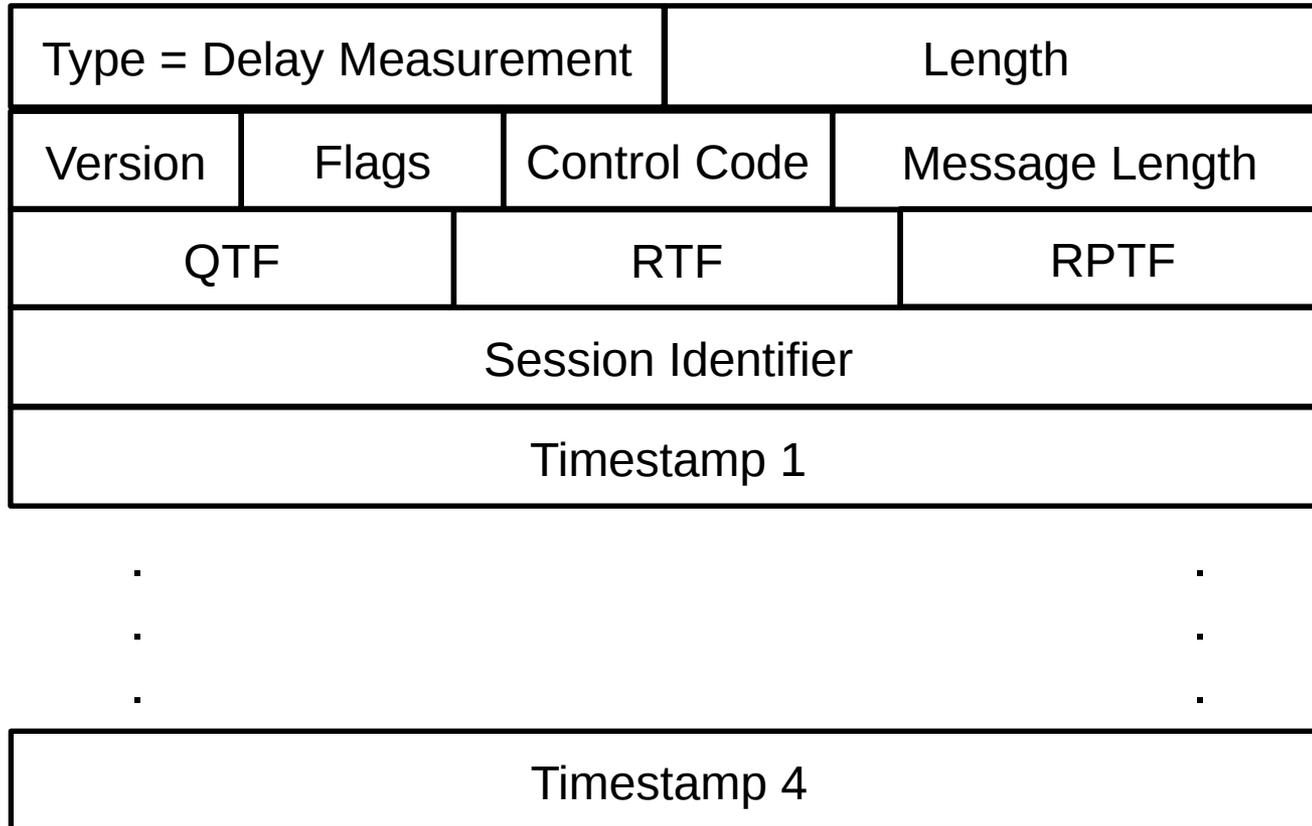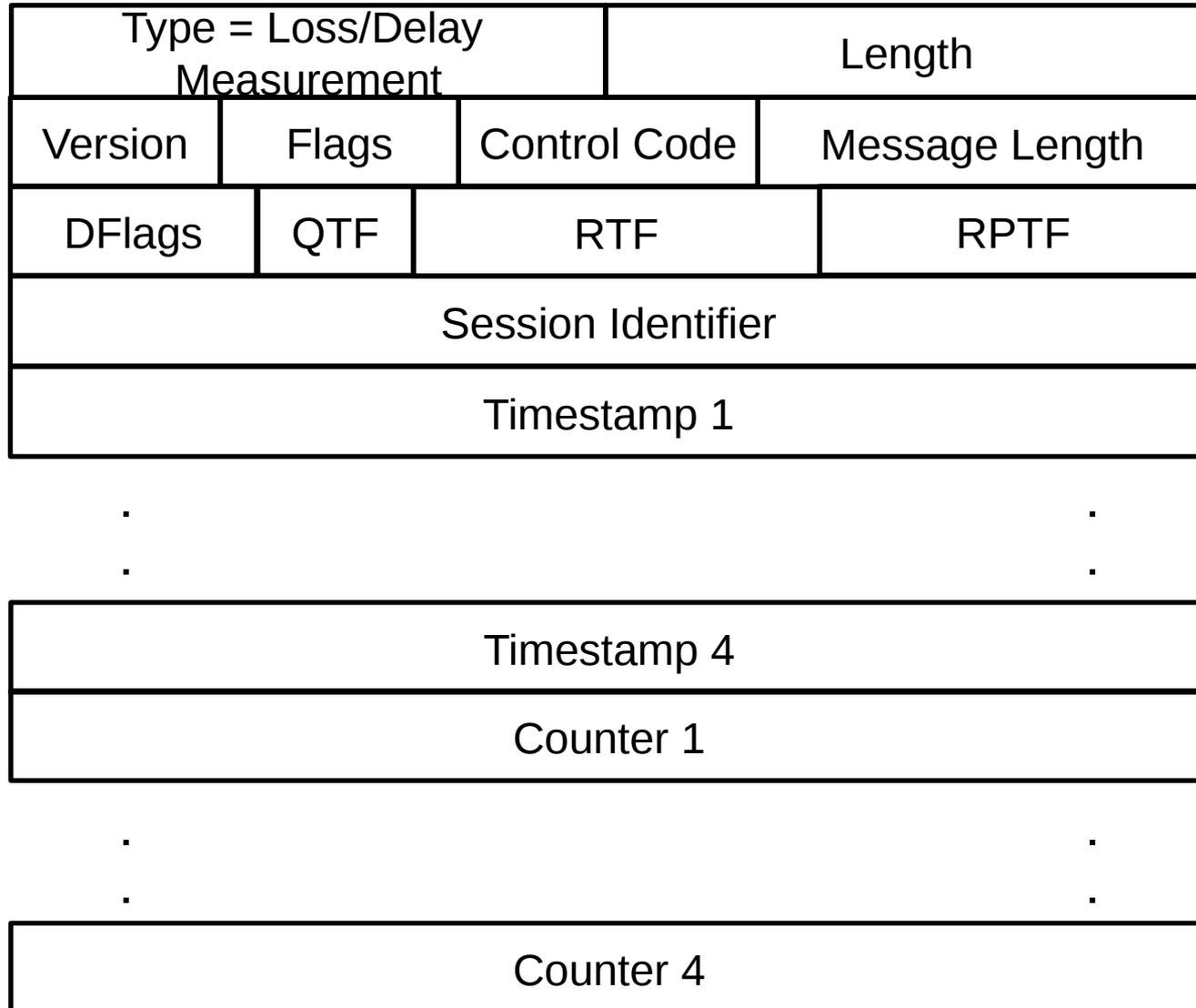
Path MTU Monitoring

- Use the Extra Padding TLV

Type = Extra Padding	Length
Variable number of octets	
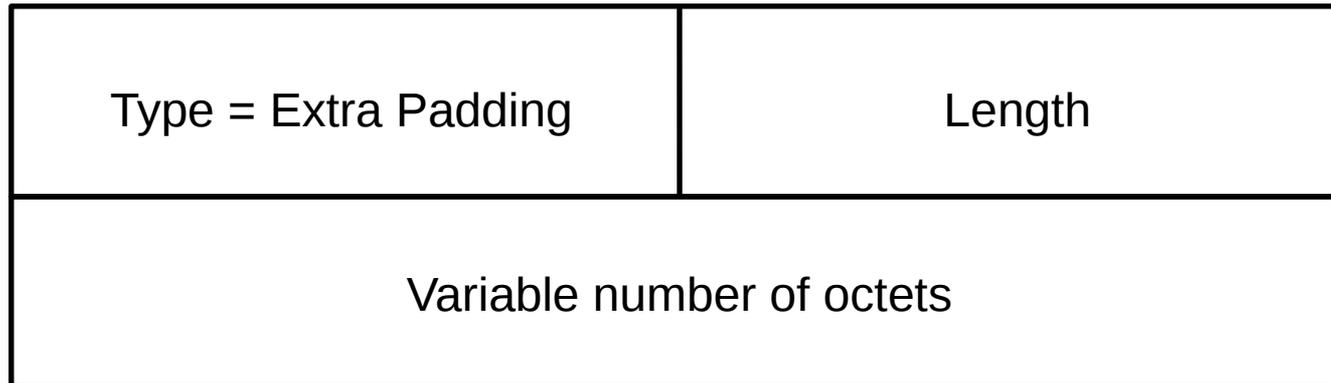
Next Steps

- Continue adding details
- Discuss, discuss, discuss
- Welcome comments, suggestions, and cooperation