

# 802.3as Frame Expansion

## *Changes to Clause 4*

**Glenn Parsons**  
Nortel Networks

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# *Agenda*

- **Half & Full Duplex**
- **FCS coverage**
- **Frame size**
- **Constants & Types**
- **Sample frames**

# *Half & Full Duplex*

- **All changes apply equally to half and full duplex modes**
- **Or should we limit it to full duplex?**
  - **This would remove half-duplex repeater constraints**

# ***FCS coverage***

- **What is the maximum length that FCS can cover?**
  - **~9000 bytes ???**
- **Assumption is that FCS can cover at least the maximum of the proposed new lengths (2048 bytes)**

# Frame sizes

Frame Sizes	802.3-2002	802.3as
Minimum basic MAC frame size	64 octets	64 octets
Maximum basic MAC frame size	1518 octets	1518 octets
Minimum Tagged MAC frame size	64 octets	N/A
Maximum Tagged MAC frame size	1522 octets	N/A
Minimum Envelope MAC frame size	N/A	TBD octets
Maximum Envelope MAC frame size	N/A	TBD octets

Use to update Clause 4.4.2



# Allowable implementations - Clause 4.4.2

Parameters	10M, 100M	1G	10G
slotTime			
interFrameGap			
attemptLimit	<b>No change</b>		
backoffLimit			
jamSize			
<del>maxUntaggedFrameSize</del> maxBasicFrameSize	1518 octets	1518 octets	1518 octets
maxEnvelopeFrameSize	TBD octets	TBD octets	TBD octets
minFrameSize	64 octets	64 octets	64 octets
burstLimit	<b>No change</b>		
ifsStretchRatio	<b>No change</b>		

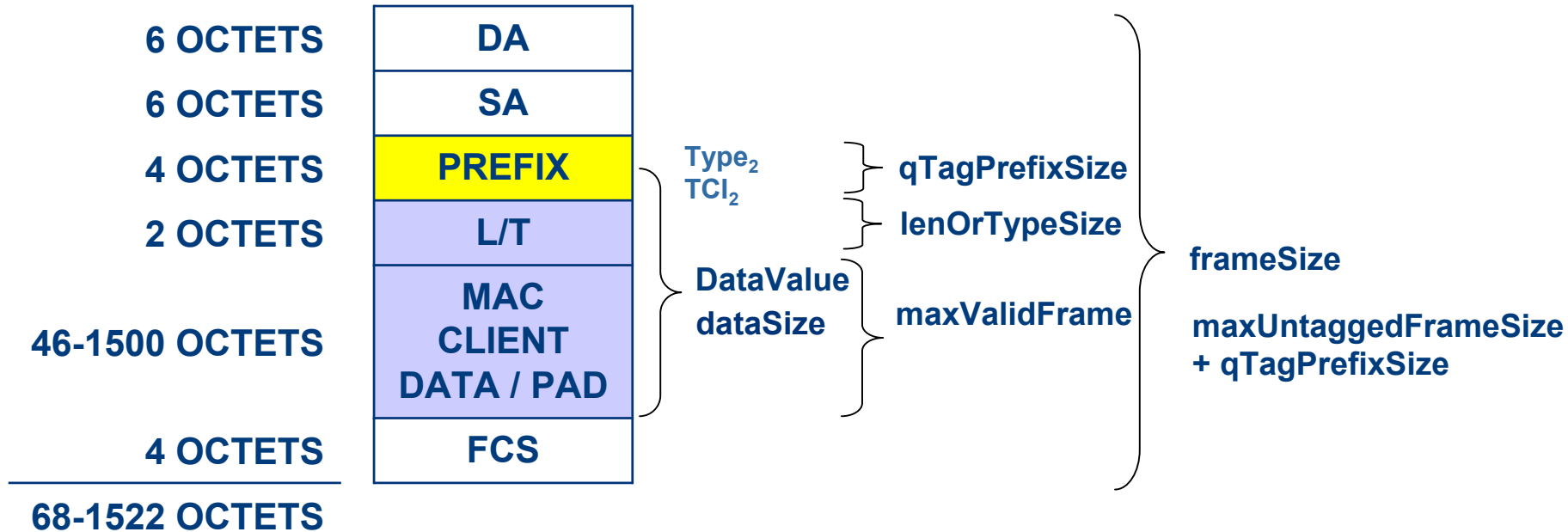
# Clause 4.2.7.1 - constants

Current	802.3as
frameSize = address + L/T + data + CRC	No change
minFrameSize = 64 octets	No change
maxUntaggedFrameSize = 1518 octets	maxBasicFrameSize = 1518 octets maxEnvelopeFrameSize = TBD octets
qTagPrefixSize = 4 octets	No change (grandfathered)
	prefixSize = 2 ... max[2, maxEnvelopeFrameSize – suffixSize] octets
	suffixSize = 0 ... max[0, maxEnvelopeFrameSize – prefixSize] octets
maxValidFrame	No change
DataValue = includes VLAN tag	DataValue = includes prefix & suffix
	BasicDataValue = without prefix & suffix
	PrefixValue
	SuffixValue

# Constants - 802.3-2002

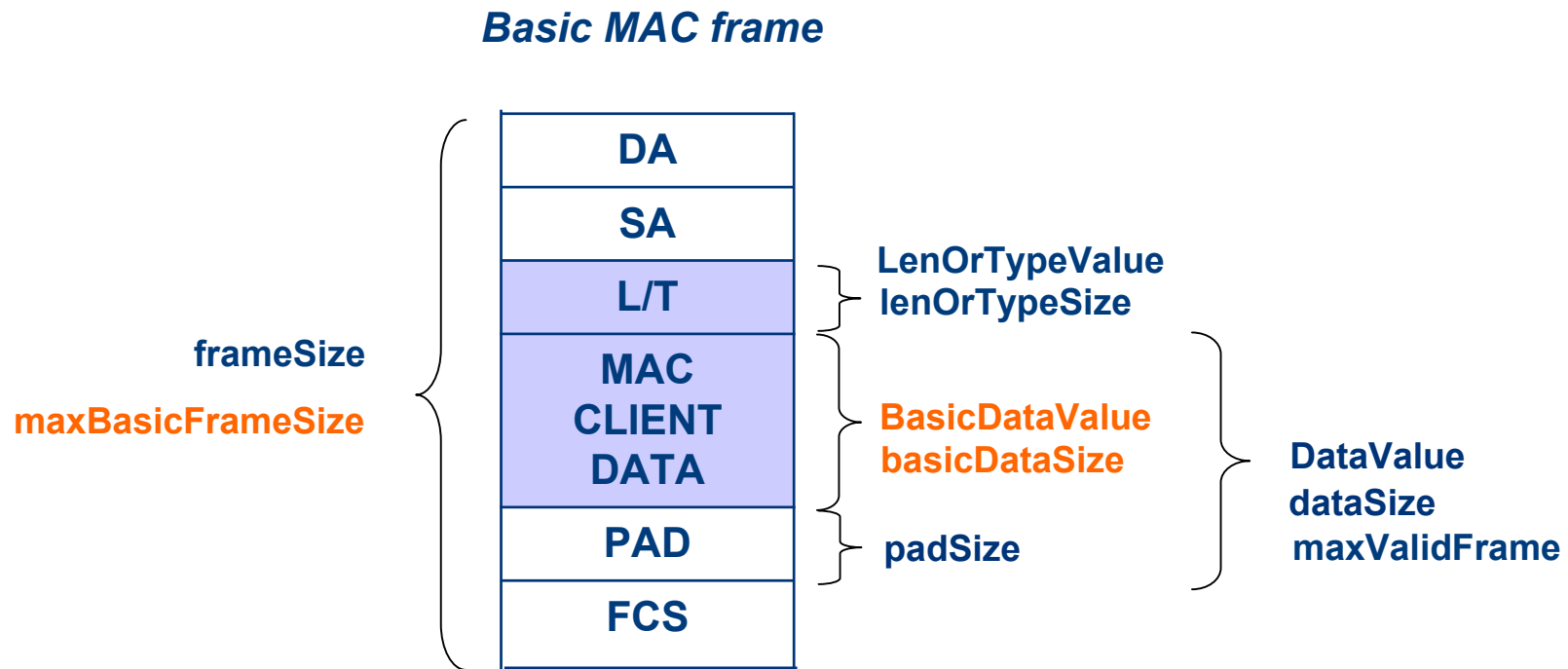
## 802.1Q Tagged Frame

### Envelope MAC frame



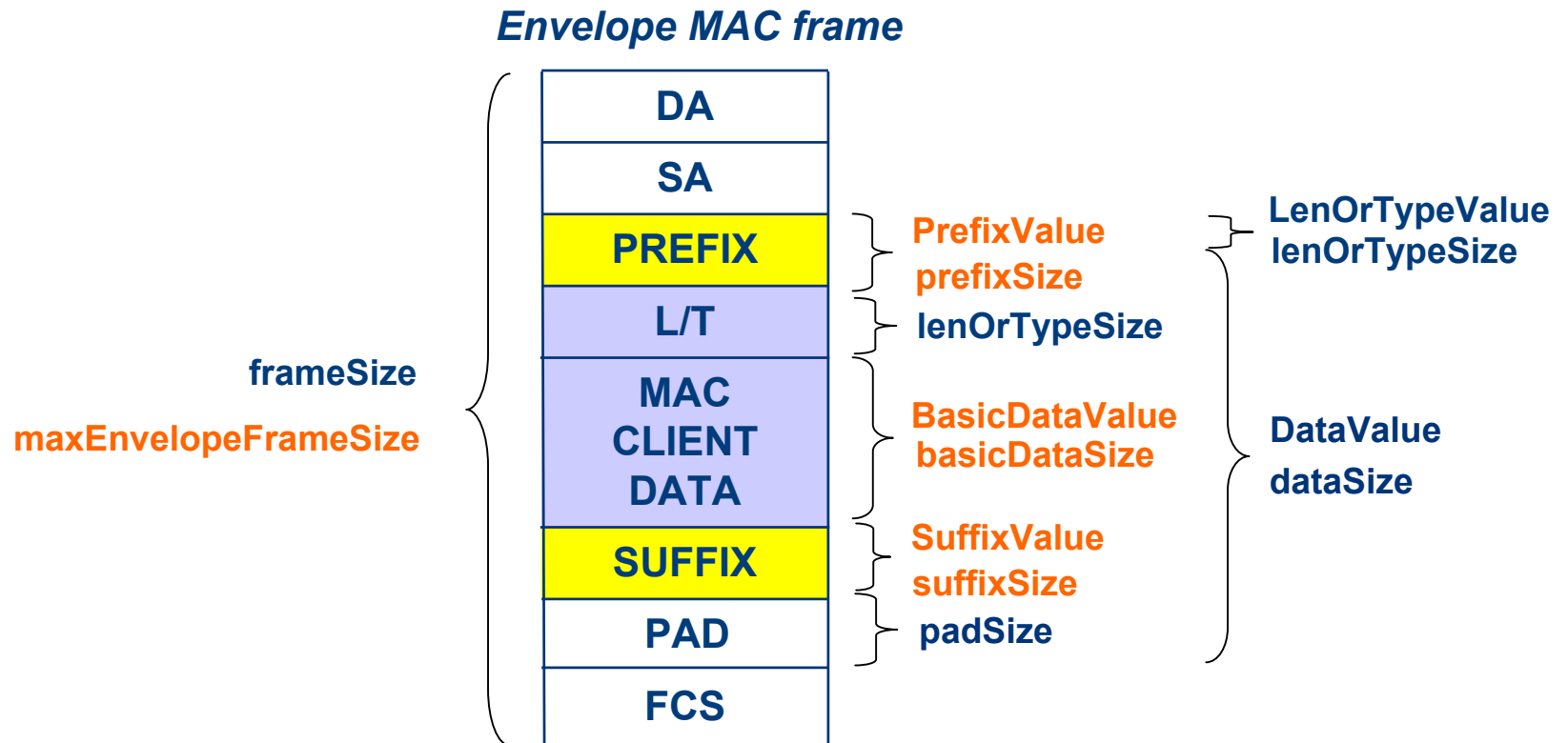


# Constants - 802.3as



$$\text{maxValidFrame} = \text{basicDataSize} + \text{padSize}$$

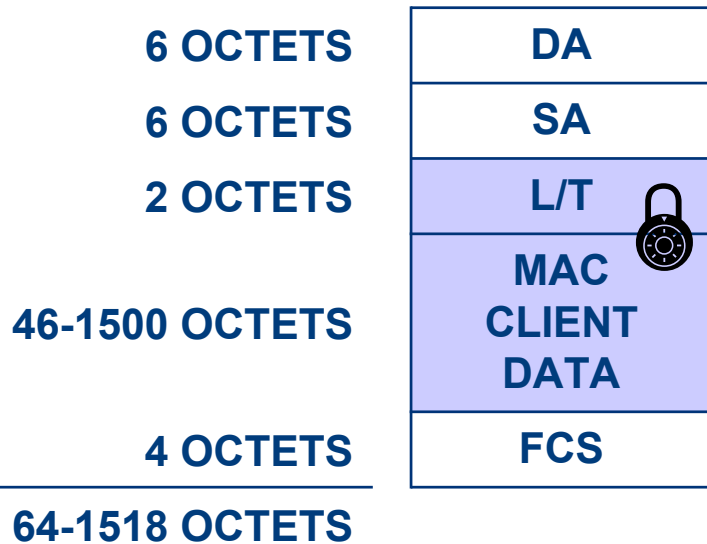
# Constants - 802.3as



$$\text{maxValidFrame} = \text{basicDataSize} + \text{padSize}$$

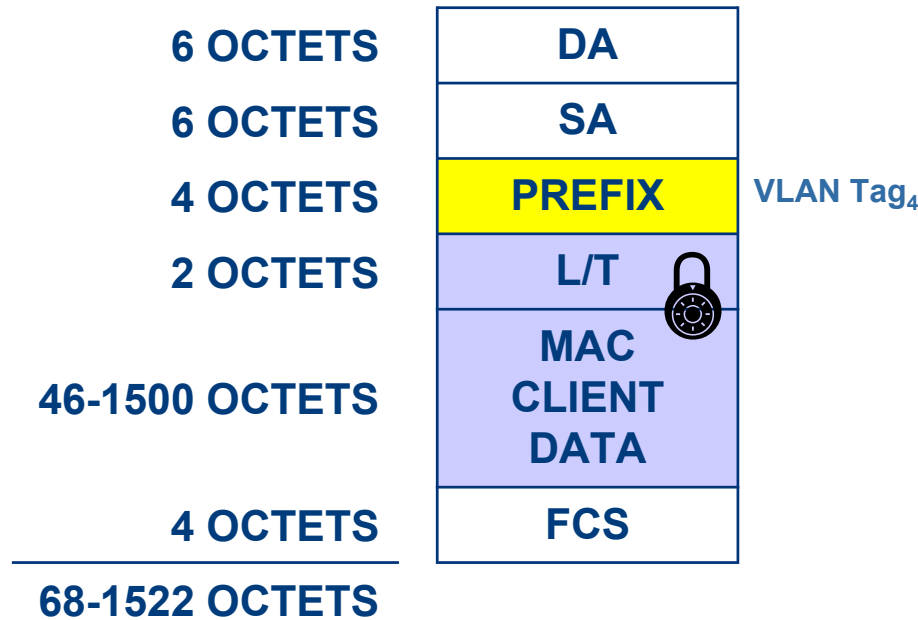
# Sample frames (1/3)

## Basic MAC frame



## 802.1Q Tagged Frame

### Envelope MAC frame

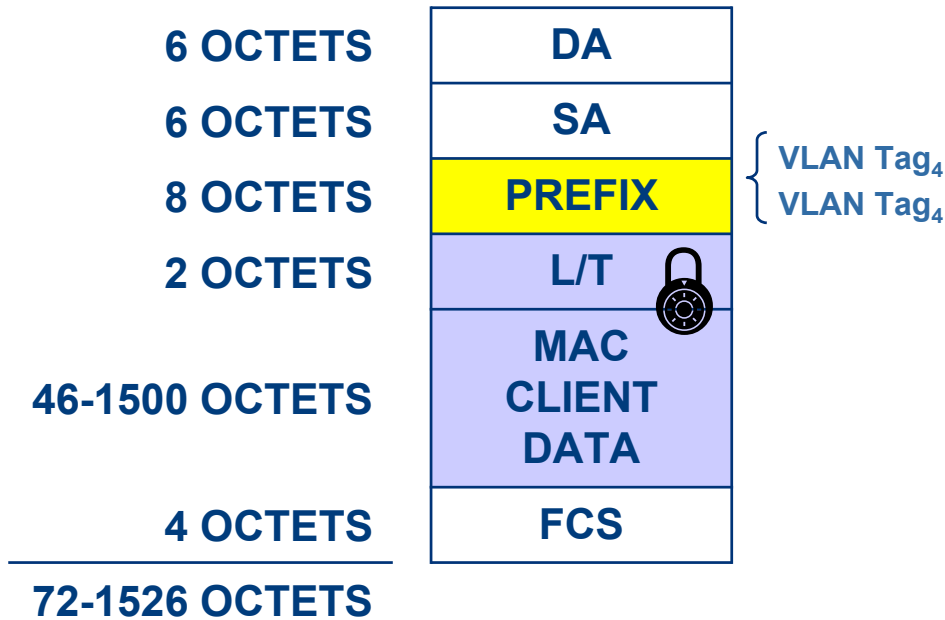


PREFIX=4, SUFFIX=0

# Sample frames (2/3)

## 802.1ad Double Tagged Frame

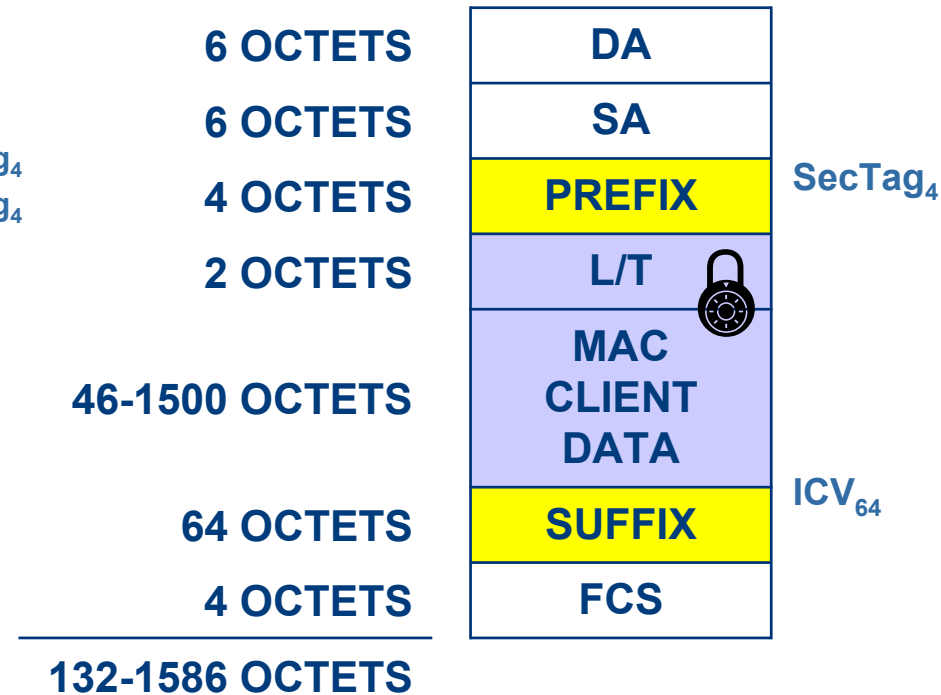
*Envelope MAC frame*



**PREFIX=8, SUFFIX=0**

## 802.1AE MACSec Frame

*Envelope MAC frame*

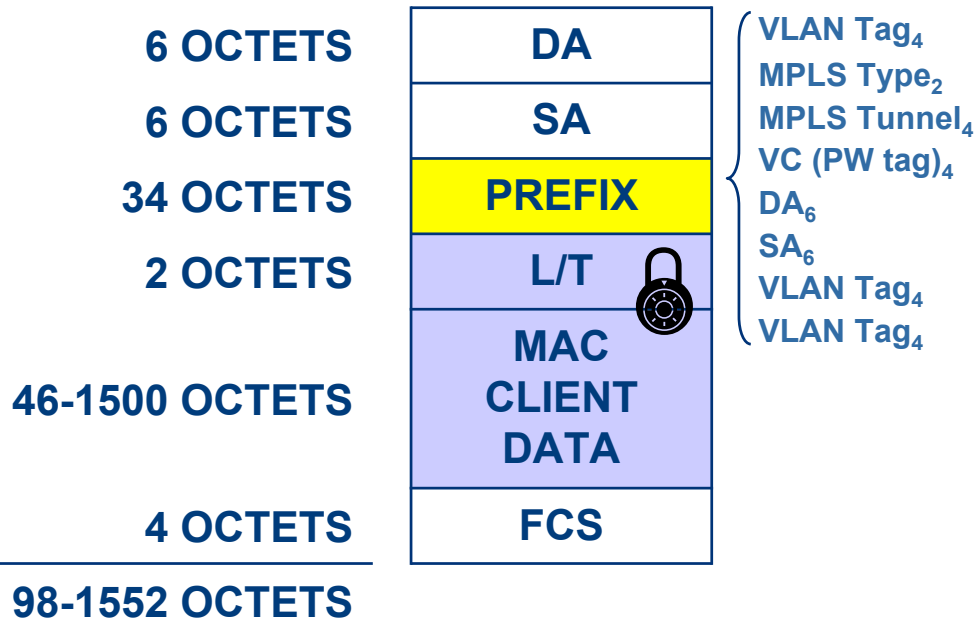


**PREFIX=4, SUFFIX=64**

# Sample frames (3/3)

## MPLS

### Envelope MAC frame



PREFIX=34, SUFFIX=0