

# Topology Frame Format

PAH – September 2002

# Topology Frame Format in 1.0

- Payload includes the following fields:
  - Station Capabilities
  - East and West Station Address
  - East and West Reserved Bandwidth
- Station Capabilities includes the following data:
  - Weight
  - Jumbo capable indication
  - Wrap protection capable indication

# Observations

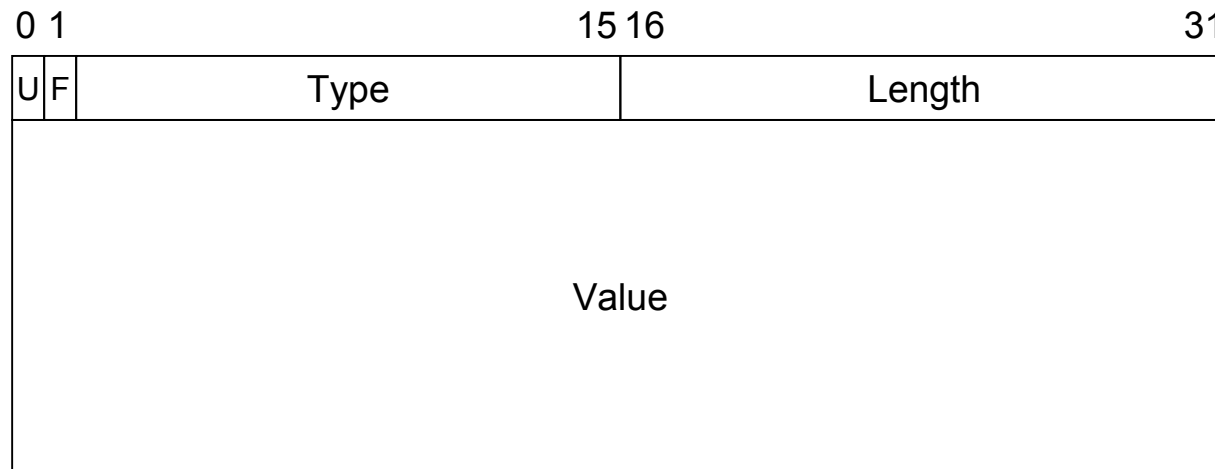
- Potential parameters that may be required:
  - Per link reserved bandwidth
  - Per link weights
  - Transit path option
  - Vendor specific data
- Parameters are not required during basic topology discovery
  - Message length, variability of parameters and desired optionality complicates fast processing
  - Conclusion: Use two types of messages

# Frame Format with TLVs

- TLVs (Type Length Value) can be used to have a flexible frame format
  - Adding new parameters will not change the general frame format
  - Parameters may be optional or mandatory
  - Stations may use the optional parameters or ignore them

# TLV format

- TLVs are defined in RFC3036



**U bit:** Unknown TLV bit. Upon receipt of an unknown TLV, if U is clear (=0), a notification must be returned to the management and the entire message must be ignored; if U is set (=1), the unknown TLV is silently ignored and the rest of the message is processed as if the unknown TLV did not exist.

**F bit:** Reserved

# New Topology message format

- Two messages defined:
  - Topology discovery message
    - Reports changes in ring topology
    - Fast transmission rate
  - Topology extended status message
    - Conveys additional information
    - Slower reporting timeframe
- Messages are differentiated by their control type value

# New frame format

Draft 1.0

New

## Topology discovery

## Extended Topology

	RPR Header
2 bytes	Station capabilities
6 bytes	East Station Address
6 bytes	West Station Address
4 bytes	East RSVD bandwidth
4 bytes	West RSVD bandwidth
	FCS

	RPR Header
2 bytes	Station capabilities*
4 bytes	FCS

	RPR Header
2 bytes	Station capabilities*
	TLV #1
N bytes (Optional)	
	TLV #N
4 bytes	FCS

## Station Capabilities

1 byte	Weight	R
1 byte	R	JC WC

## Station Capabilities

1 byte	R
1 byte	R JC WC

# TLVs examples

31	16	15	0
U	F	Type = RSVD Bandwidth	Length = 8 bytes
Ringlet 0 reserved Bandwidth			
Ringlet 1 reserved Bandwidth			

U	F	Type = Neighbors Address	Length = 12 bytes
East Neighbor MAC			
West Neighbor MAC			

U	F	Type = Vendor specific	Length = N bytes
Vendor OUI			



# Conclusion

- Using TLVs makes the scheme flexible and future proof
- Motion to accept the topology clause as defined in the document presented by the PAH