

# EDP – Endpoint Discovery Protocol

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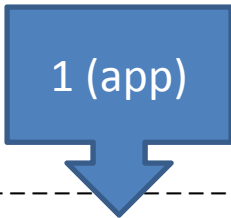
IETF 77 / Anaheim, CA, USA

# EDP

- draft-mcmahon-dtnrg-dtn-edp-00
- CLA-independent DTN application protocol for discovery of:
  - Node, registrations, storage, time, available CLAs, routing capabilities, security configuration, support of reactive fragmentation
  - Uses limited scope (hop count 1) facility [SCHL]
  - Reserves special EDPv1 EID
  - Needs new CLA ID specification (naming draft)

# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)		
AR expiration counters (*)			
CLA EID Reference Count (*)			
CLA list Ref_scheme_1 (*)	CLA list Ref_ssp_1 (*)		
PREF CLA Reference Count (*)			
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)		
SC (*)	SA (*)		
Delay (*)			




# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)		
AR expiration counters (*)			
CLA EID Reference Count (*)			
CLA list Ref_scheme_1 (*)	CLA list Ref_ssp_1 (*)		
PREF CLA Reference Count (*)			
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)		
SC (*)	SA (*)		
Delay (*)			

# EDPv1 Basic

Flags: BSP,  
custodian, rfrag,  
req, rdelay



Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)		
AR expiration counters (*)			
CLA EID Reference Count (*)			
CLA list Ref_scheme_1 (*)	CLA list Ref_ssp_1 (*)		
PREF CLA Reference Count (*)			
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)		
SC (*)	SA (*)		
Delay (*)			

# EDP v1 Basics

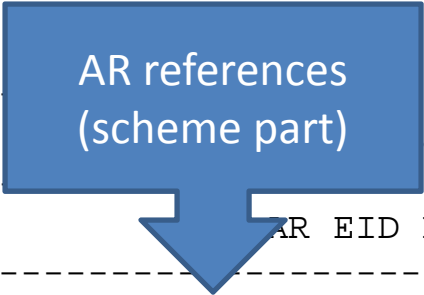
Active  
Registrations  
(ref count)



(ref count)			
Block type	Proc. ID (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)		AR list Ref_ssp_1 (*)	
AR expiration counters (*)			
CLA EID Reference Count (*)			
CLA list Ref_scheme_1 (*)		CLA list Ref_ssp_1 (*)	
PREF CLA Reference Count (*)			
PREF list Ref_AR_I (*)		PREF list Ref_CLA_I (*)	
SC (*)		SA (*)	
Delay (*)			

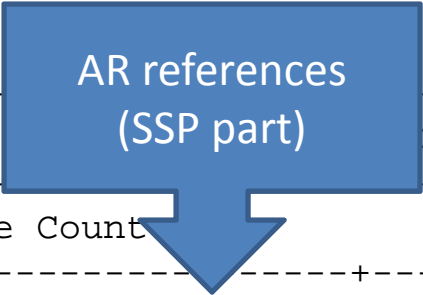
# EDPv1 Basics

AR references  
(scheme part)



Block	Tags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)		AR list Ref_ssp_1 (*)	
AR expiration counters (*)			
CLA EID Reference Count (*)			
CLA list Ref_scheme_1 (*)		CLA list Ref_ssp_1 (*)	
PREF CLA Reference Count (*)			
PREF list Ref_AR_I (*)		PREF list Ref_CLA_I (*)	
SC (*)		SA (*)	
Delay (*)			

# EDPv1 Basics



Block type	Proc. Flags (*)	CF (*)
AR EID Reference Count		
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)	
AR expiration counters (*)		
CLA EID Reference Count (*)		
CLA list Ref_scheme_1 (*)	CLA list Ref_ssp_1 (*)	
PREF CLA Reference Count (*)		
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)	
SC (*)	SA (*)	
Delay (*)		



# EDPv1 Basics

Block type	Block length(*)	DCF (*)
Reference Count (*)		
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)	
AR expiration counters (*)		
CLA EID Reference Count (*)		
CLA list Ref_scheme_1 (*)	CLA list Ref_ssp_1 (*)	
PREF CLA Reference Count (*)		
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)	
SC (*)	SA (*)	
Delay (*)		

AR expirations  
(secs from now)

# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR list Ref_s	AR list Ref_ssp_1 (*)		
AR expiration count			
CLA EID Reference Count (*)			
CLA list Ref_scheme_1 (*)	CLA list Ref_ssp_1 (*)		
PREF CLA Reference Count (*)			
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)		
SC (*)	SA (*)		
Delay (*)			

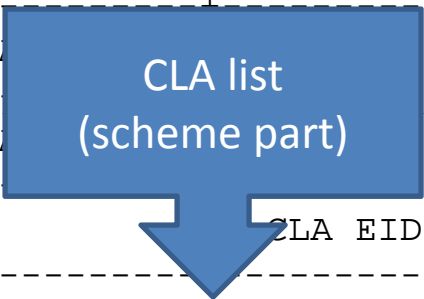
Available CLAs  
(ref count)



# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
CLA list (scheme part)			
CLA EID Reference Count (*)			
CLA list Ref_scheme_1 (*)		CLA list Ref_ssp_1 (*)	
PREF CLA Reference Count (*)			
PREF list Ref_AR_I (*)		PREF list Ref_CLA_I (*)	
SC (*)		SA (*)	
Delay (*)			

CLA list  
(scheme part)



# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)	AR list Ref_scheme_2 (*)	AR list Ref_scheme_3 (*)	AR list Ref_scheme_4 (*)
AR expiration counters (*)			
CLA EID Reference Count			
CLA list Ref_scheme_1 (*)	CLA list Ref_scheme_2 (*)	CLA list Ref_scheme_3 (*)	CLA list Ref_scheme_4 (*)
PREF CLA Reference Count (*)			
PREF list Ref_AR_I (*)	PREF list Ref_AR_O (*)	PREF list Ref_CLA_I (*)	PREF list Ref_CLA_O (*)
SC (*)	SA (*)	SA (*)	SA (*)
Delay (*)			

CLA List  
(SSP part)



# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)		
AR expiration c			
CLA	CLA Preference Order (ref count)		
CLA list Ref_scheme_1	CLA list Ref_ssp_1 (*)		
PREF CLA Reference Count (*)			
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)		
SC (*)	SA (*)		
Delay (*)			

# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)		
AR expiration counters (*)			
AR Preference List (indices)		Reference Count (*)	
		CLA list Ref_ssp_1 (*)	
PREF CLA Reference Count (*)			
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)		
SC (*)	SA (*)		
Delay (*)			

# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)		
AR expiration counters (*)			
CLA EID Reference			
CLA list Ref_scheme_1 (*)	CLA list Ref_ssp_1 (*)		
PREF CLA Reference Count			
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)		
SC (*)	SA (*)		
Delay (*)			

CLA Preference List  
(indices)

CLA Preference List  
(indices)



# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)		
AR expiration counters (*)			
CLA EID Reference Count (*)			
Storage Capacity (bytes)	Ref_scheme_1 (*)	CLA list Ref_ssp_1 (*)	
	PREF CLA Reference Count (*)		
	list Ref_AR_I (*)	PREF list Ref_CLA_I (*)	
SC (*)	SA (*)		
Delay (*)			

Storage Capacity  
(bytes)





# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)		
AR expiration counters (*)			
CLA EID Reference Count (*)			
CLA list Ref_scheme_1	CLA list Ref_ssp_1 (*)		
PREF CLA R			
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)		
SC (*)	SA (*)		
Delay (*)			


Storage Availability  
(bytes)




# EDPv1 Basics

Block type	Proc. Flags (*)	Block length(*)	DCF (*)
AR EID Reference Count (*)			
AR list Ref_scheme_1 (*)	AR list Ref_ssp_1 (*)		
AR expiration counters (*)			
CLA EID Reference Count (*)			
CLA list Ref_scheme_1 (*)	CLA list Ref_ssp_1 (*)		
PREF list Ref_AR_I (*)	PREF list Ref_CLA_I (*)		
SC (*)	SA (*)		
Delay (*)			

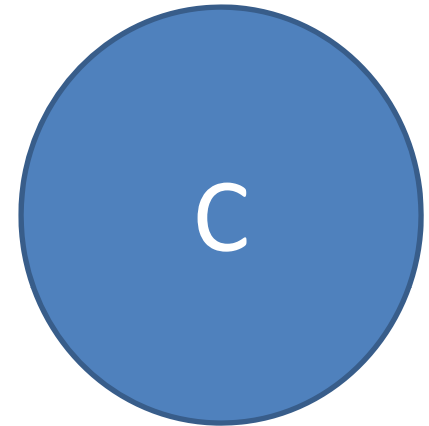
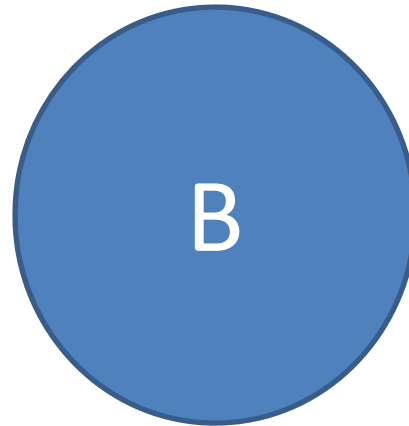
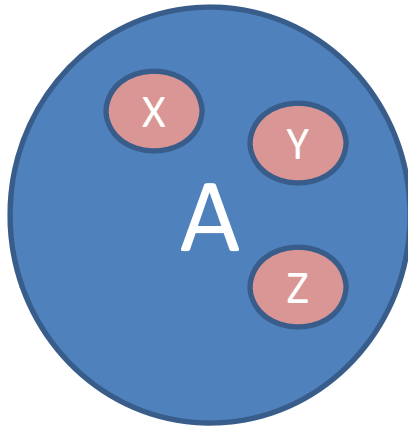
Requested Max  
Response Delay  
(seconds)



Requested Max  
Response Delay  
(seconds)

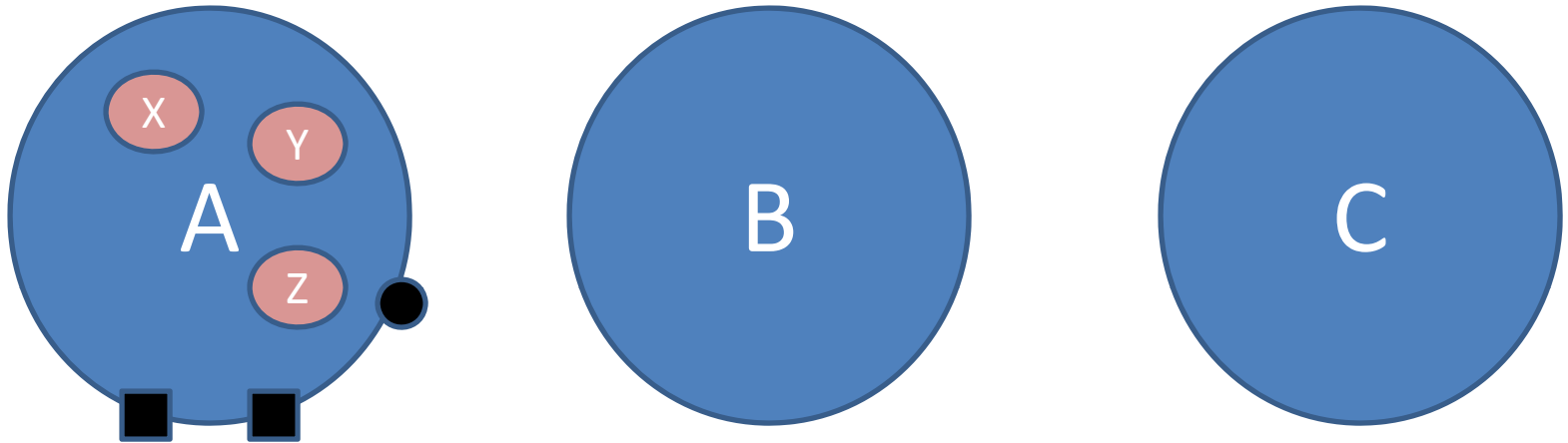


# Example (1)

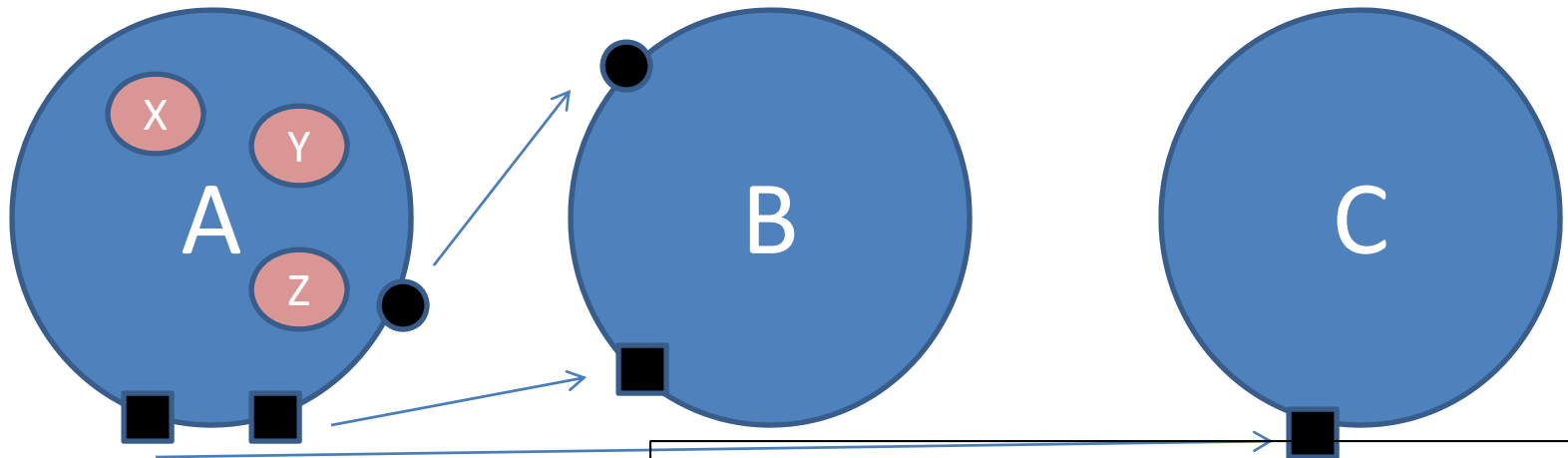


dttn::A/X  
dttn::A/Y  
dttn::A/Z

## Example (2)

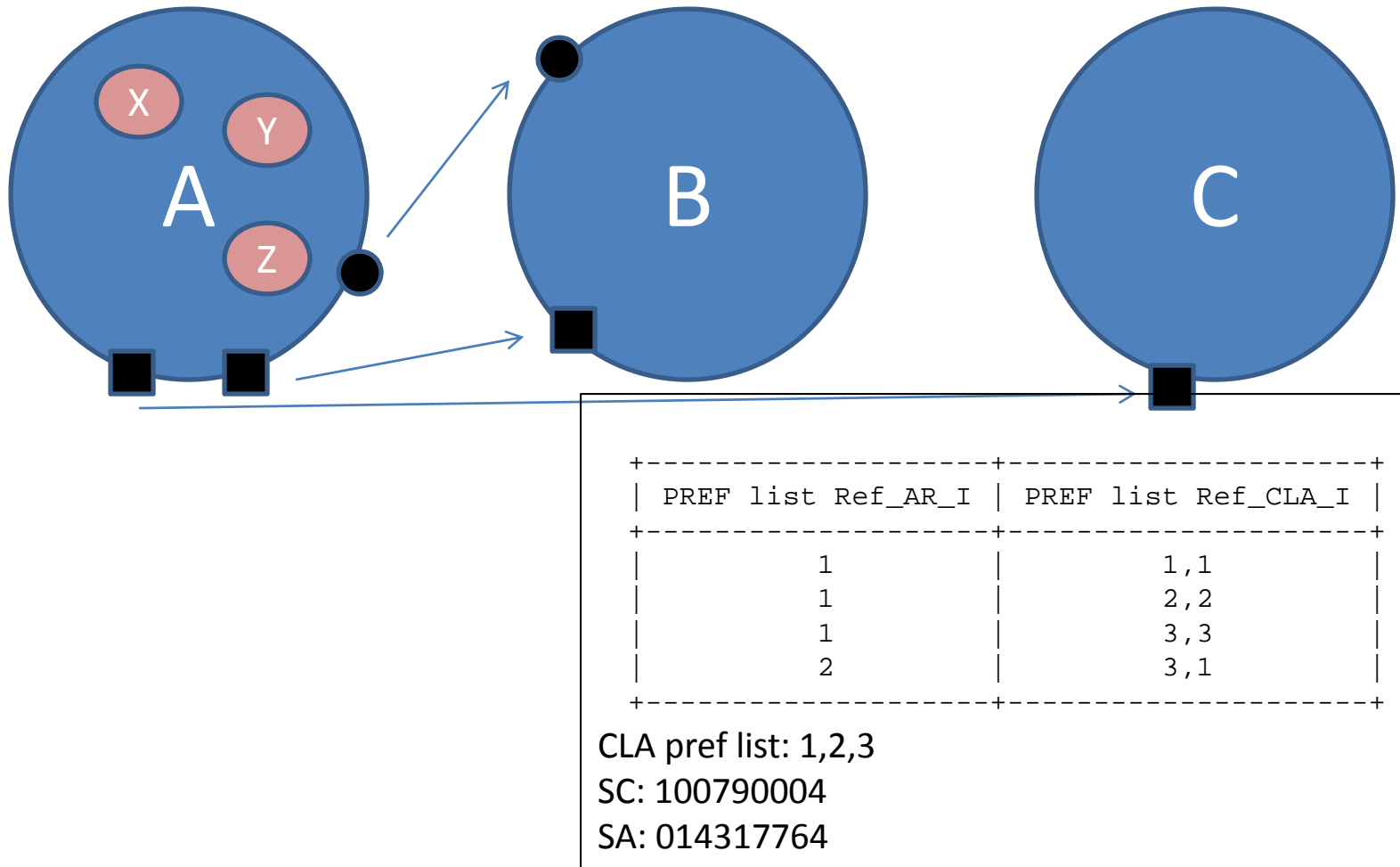


# Example (3)



Source: A's EID  
Dest: dtn::EDPv1  
Scope: one hop  
Flags: BSP, custodian, rfrag, request, random delay  
AR list:  
    dtn::A/X (expire 100)  
    dtn::A/Y (expire 1290)  
    dtn::A/Z (expire 3000)  
CLA list [3]:  
    dtn:next:eui-48:00:1c:bf:93:98:5d  
    dtn:next:eui-48:00:1b:38:cc:df:ef  
    dtn:next:eui-48:00:23:6c:9c:a5:f8

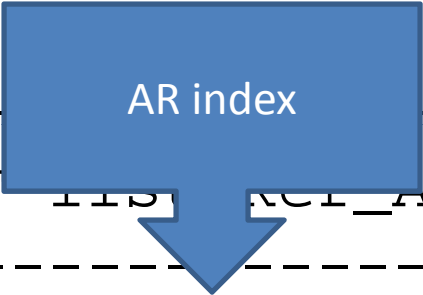
# Example (4)



# Preferences

+-----+-----+		+-----+-----+	
PREF list Ref_AR_I		PREF list Ref_CLA_I	
+-----+-----+		+-----+-----+	
	1		1,1
	1		2,2
	1		3,3
	2		3,1
+-----+-----+		+-----+-----+	

# Preferences

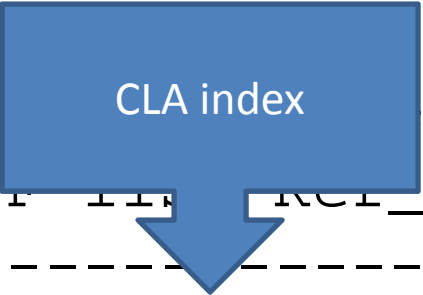


PREF list Ref_AR_I	PREF list Ref_CLA_I
1	1, 1
1	2, 2
1	3, 3
2	3, 1



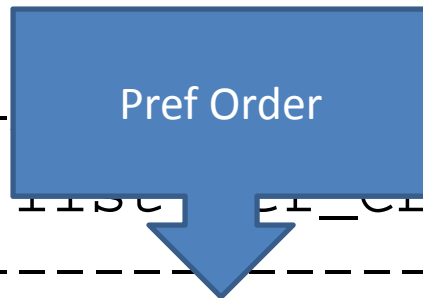
# Preferences

+-----+-----+		+-----+-----+	
PREF list Ref_AR_I		PREF list Ref_CLA_I	
+-----+-----+		+-----+-----+	
	1		1, 1
	1		2, 2
	1		3, 3
	2		3, 1
+-----+-----+		+-----+-----+	



# Preferences

+-----+-----+   PREF list Ref_AR_I   PREF list Ref_CHA_I   +-----+-----+	
1	1, 1
1	2, 2
1	3, 3
2	3, 1
+-----+-----+	



# Recap

- draft-mcmahon-dtnrg-dtn-edp-00
- Discovery of EIDs and other node features
- Depends on
  - Hop limit scoping (e.g., SCHL draft)
  - Naming of CLAs (e.g., new[?] naming draft)
- Action:
  - Adopt as draft-irtf-dtnrg?