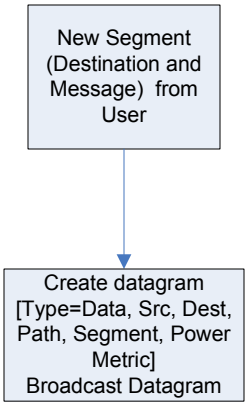
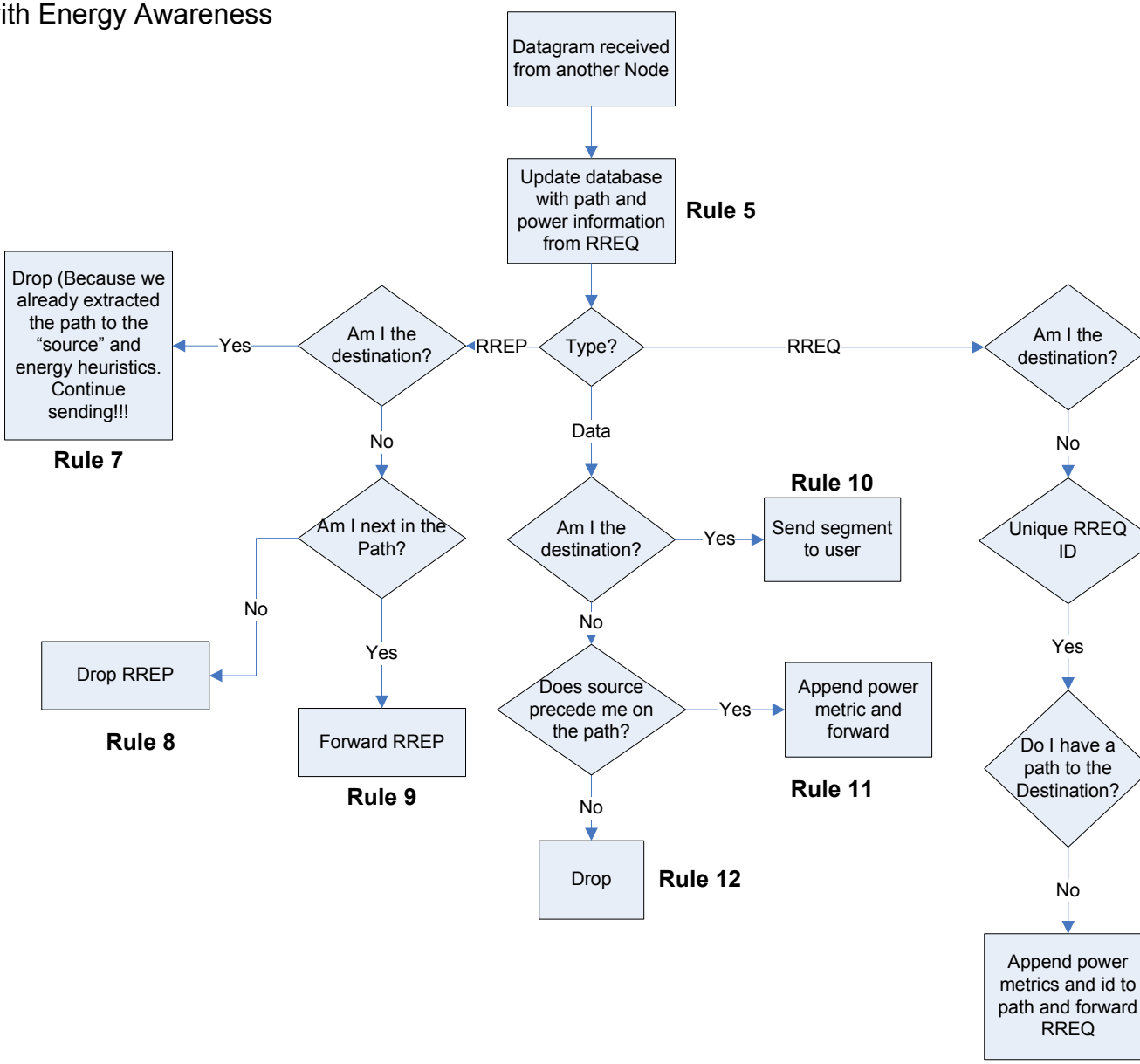
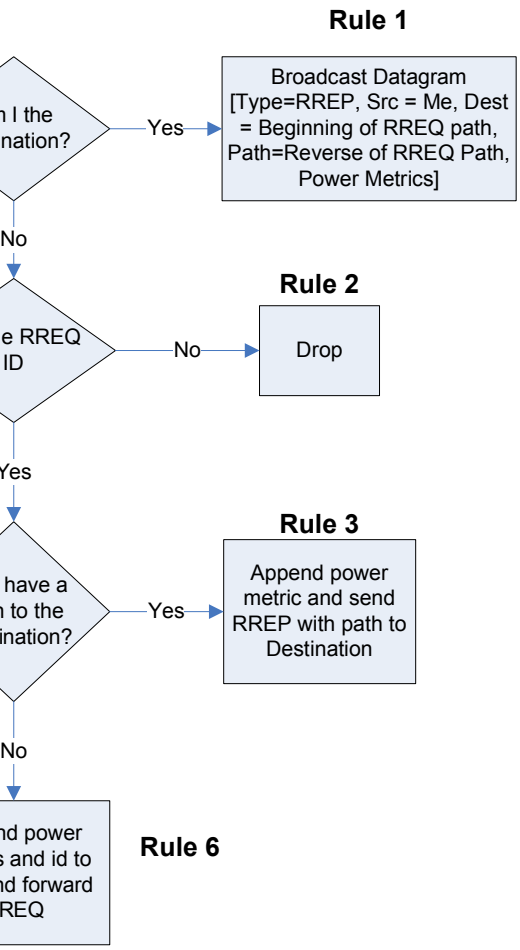
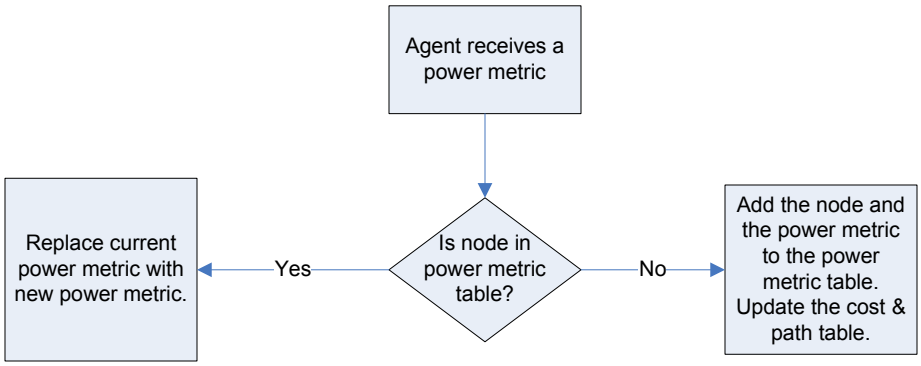

New Segment (Destination and Message) from User
Create datagram [Type=Data, Src, Dest, Path, Segment, Power Metric] Broadcast Datagram

Decision Tree

DSR Protocol with Energy Awareness

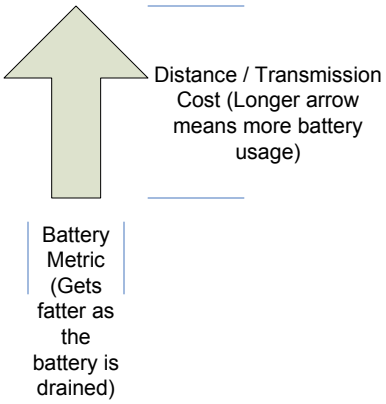



Rule 1
n I the
nation?
Yes
Broadcast Datagram [Type=RREP, Src = Me, Dest = Beginning of RREQ path, Path=Reverse of RREQ Path, Power Metrics]
No
Rule 2
e RREQ
ID
No
Drop
Yes
Rule 3
have a
n to the
ination?
Yes
Append power metric and send RREP with path to Destination
No
nd power
s and id to
nd forward
REQ
Rule 6



Evaluating Power Metric	
Battery	Power Metric
100 - 90%	1
89 – 70%	2
69 – 50%	3
49 – 25%	4
24 – 0%	5

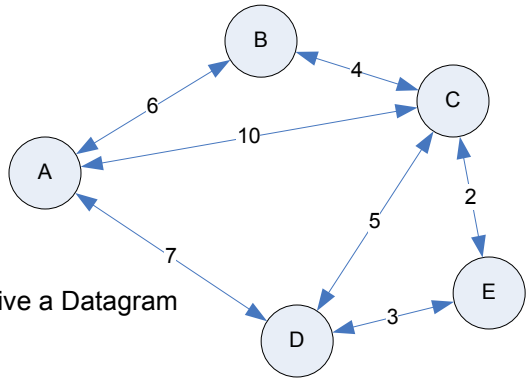
We want to use a system with a Lower Power Metric more often. As a battery on a system gets used up, we want to use it less.



=== Every time we receive a new path, we update the power, cost & path table ===

---- Path Listing Table ---- Potentially updated when we read a path in the datagram
(Unlimited Paths to a Node)

Dest	Path
A	Null (Us)
B	
C	
D	
E	A-D-E: (1*7+4*3=19)
E	A-B-C-E: (1*6+6*4+5*2=30)

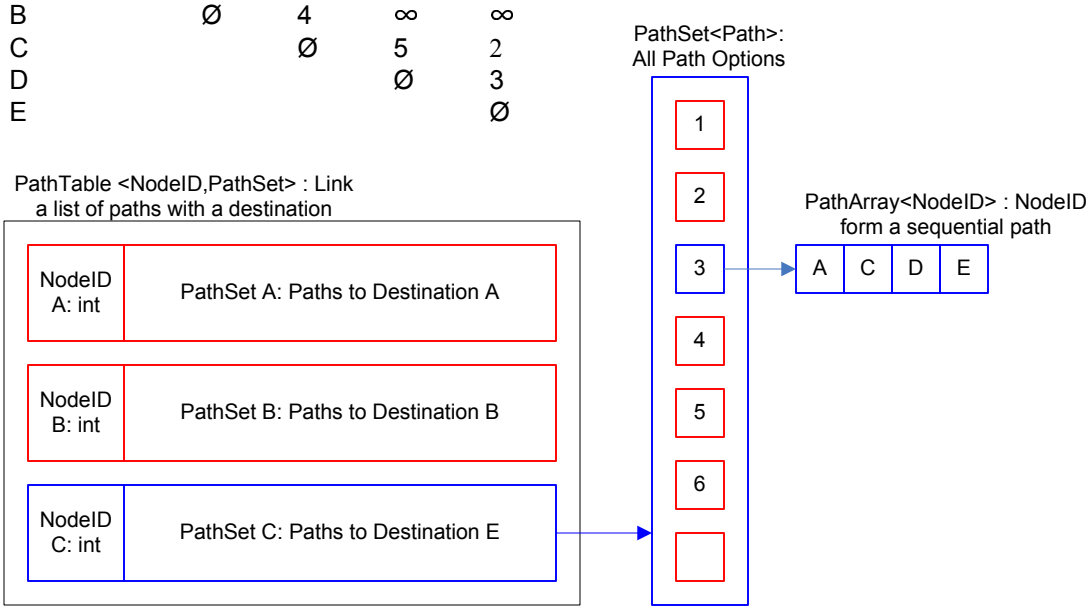


---- Battery Metric Table --- Updated when ever we receive a Datagram

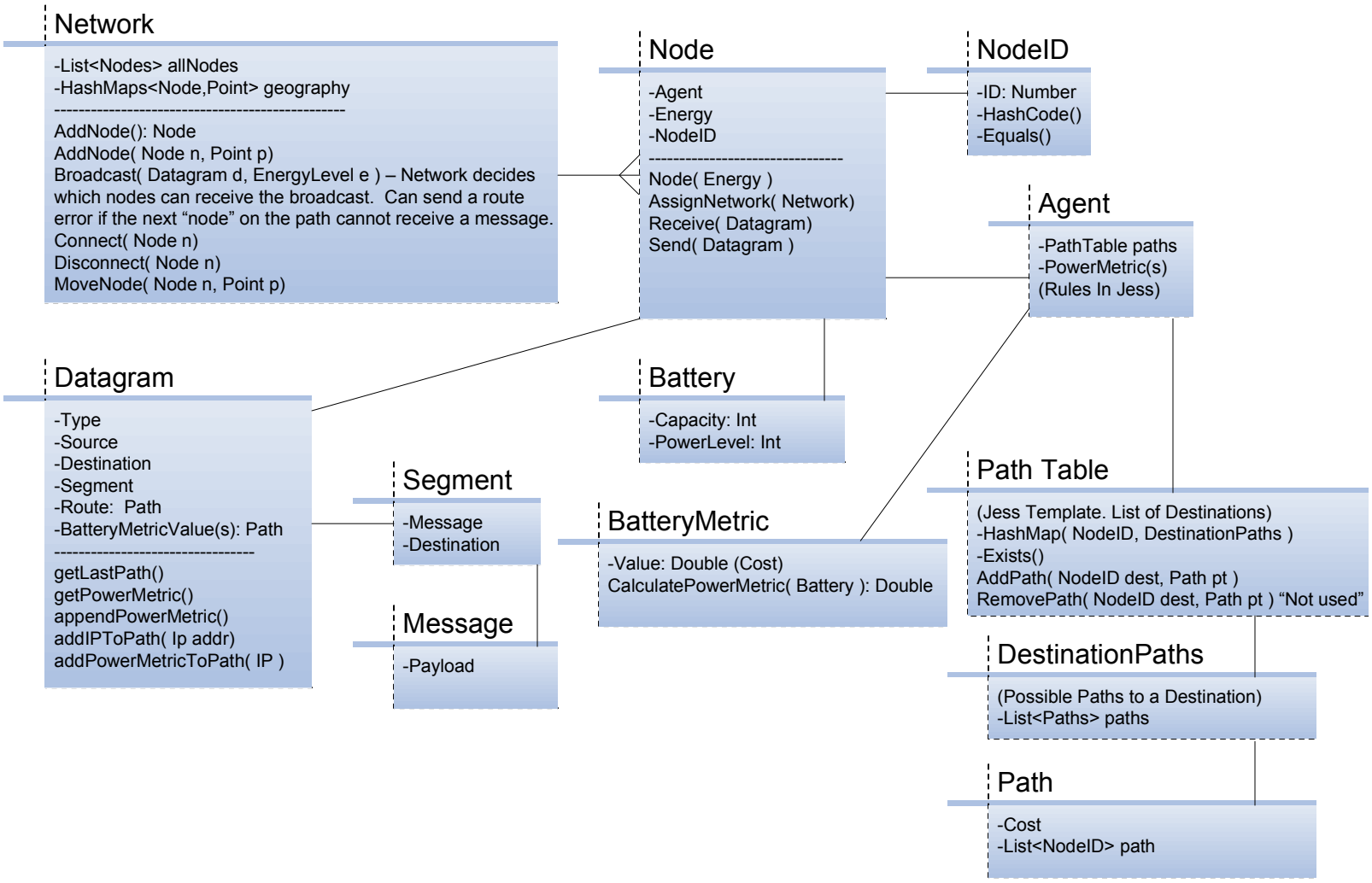
Node	Battery Metric
A	1
B	6
C	5
D	4
E	1

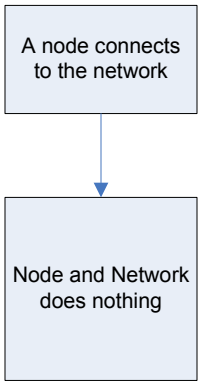
---- Transmission Cost ----
(Based on distance between any two nodes)

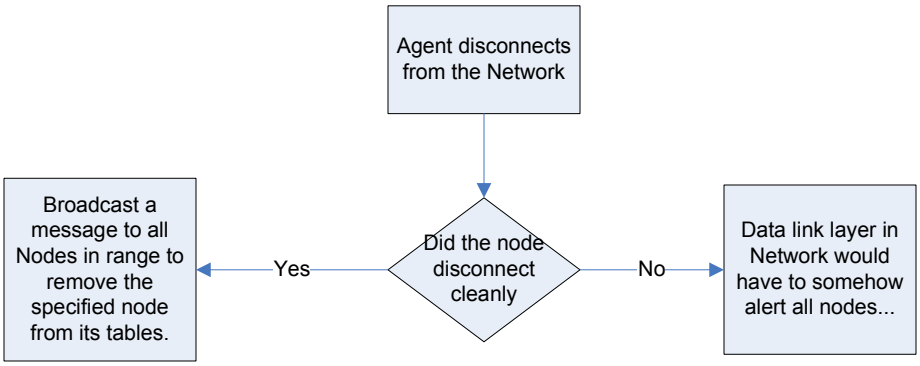
Hop	Cost				
	A	B	C	D	E
A	Ø	6	10	7	∞
B		Ø	4	∞	∞
C			Ø	5	2
D				Ø	3
E					Ø



Energy Aware Routing Protocol UML




A node connects to the network
Node and Network does nothing


Agent disconnects from the Network
Did the node disconnect cleanly
Yes
No
Broadcast a message to all Nodes in range to remove the specified node from its tables.
Data link layer in Network would have to somehow alert all nodes...

Datagram

Type	Source	Destination	Segment	Path	Transmission Cost(s)	Battery Metric(s)