CSE 322

NS2 OFFLINE REPORT

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Contents

1 Network and Topologies Under Simulation

- Wireless 802.11 (mobile) [Grid + Random Topology]
- Wireless 802.15.4 (static) [Grid + Random Topology]

2 Parameters Under Variation

- Number of Nodes
- Number of Flows
- Packets per Second
- Speed of the Nodes [802.11(mobile)]
- Coverage Area [802.15.4(static)]

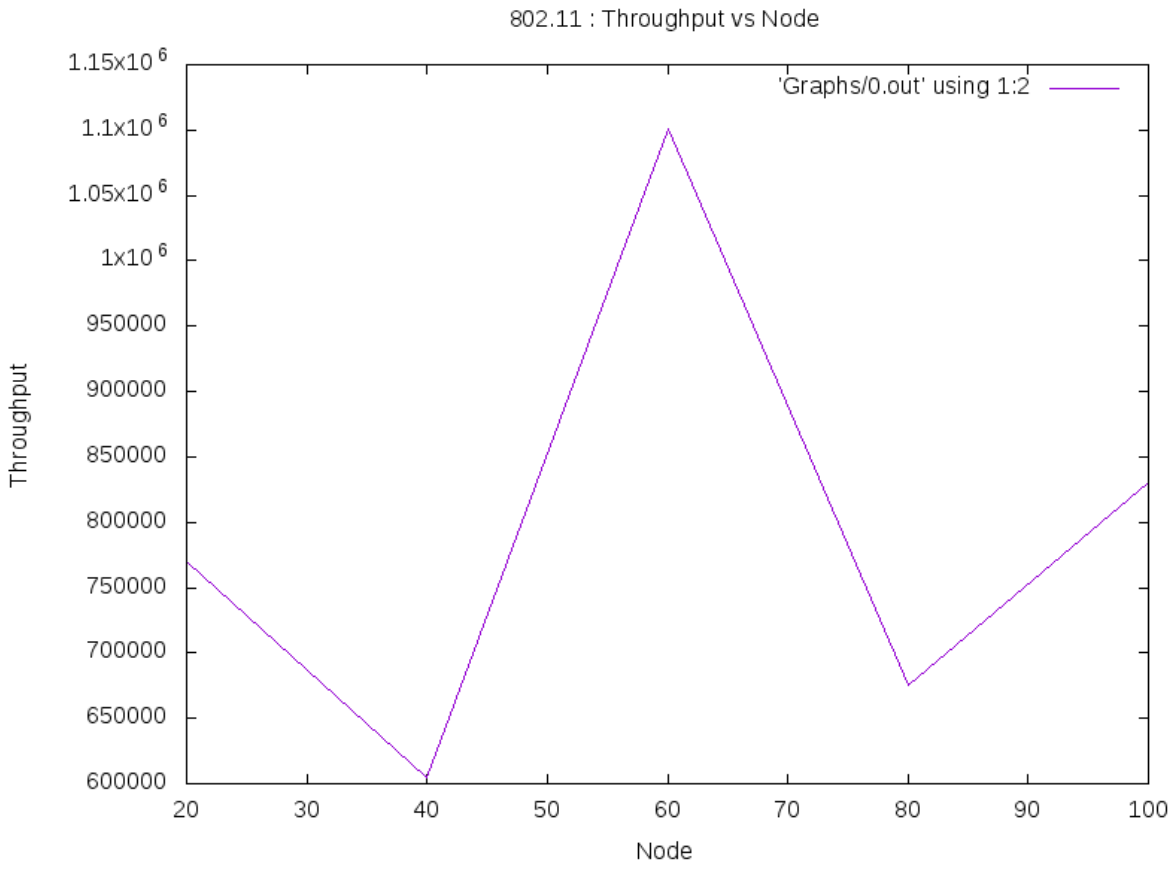
3 Modification Made In the Simulator

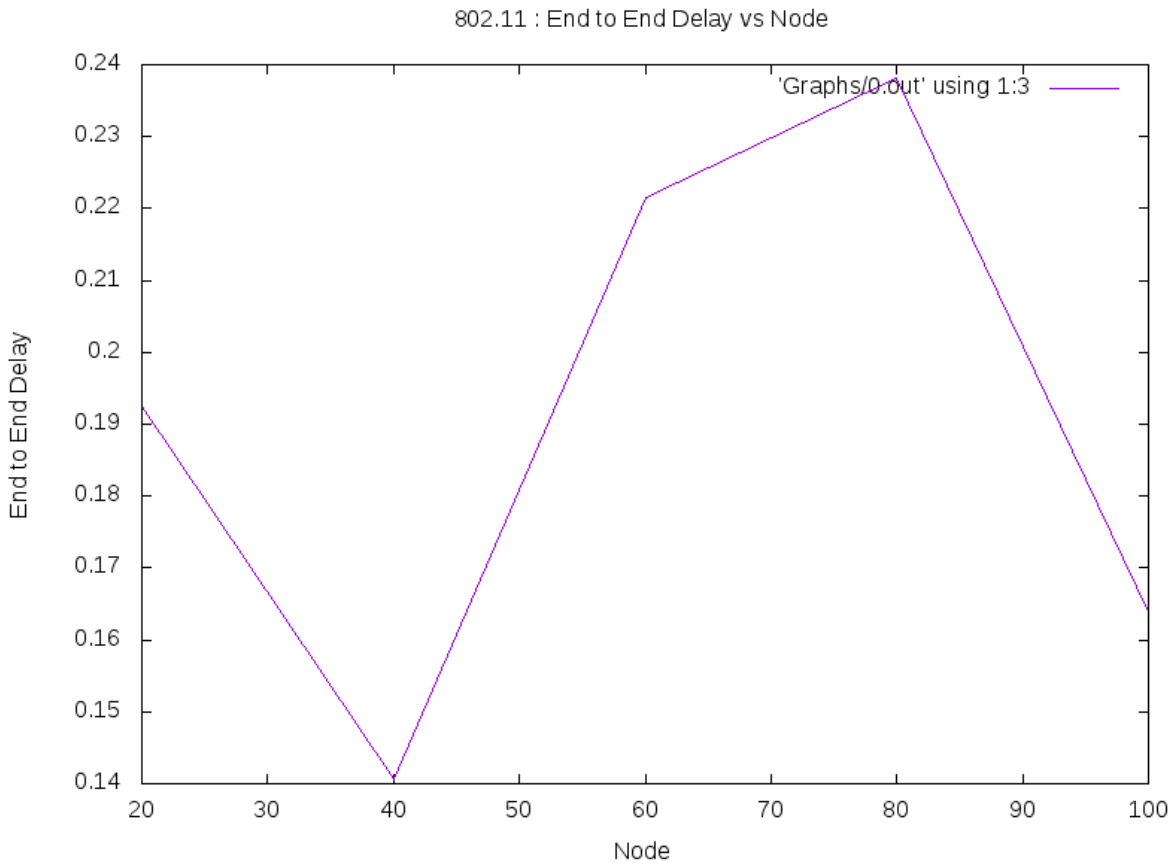
- Modification of TCP Vegas of by packet Pacing, Packet Pairing and Rapid Window Convergence. The New Vegas method is enabled in Tcl by setting newVegas variable to 1.
- Addition of a new Agent and Application which is basically a UDP variant. It changes the rate at which packets are sent according to a scale of 10 that is determined by congestion unlike UDP(constant rate). Further Queuing policy can be added over this agent and application.

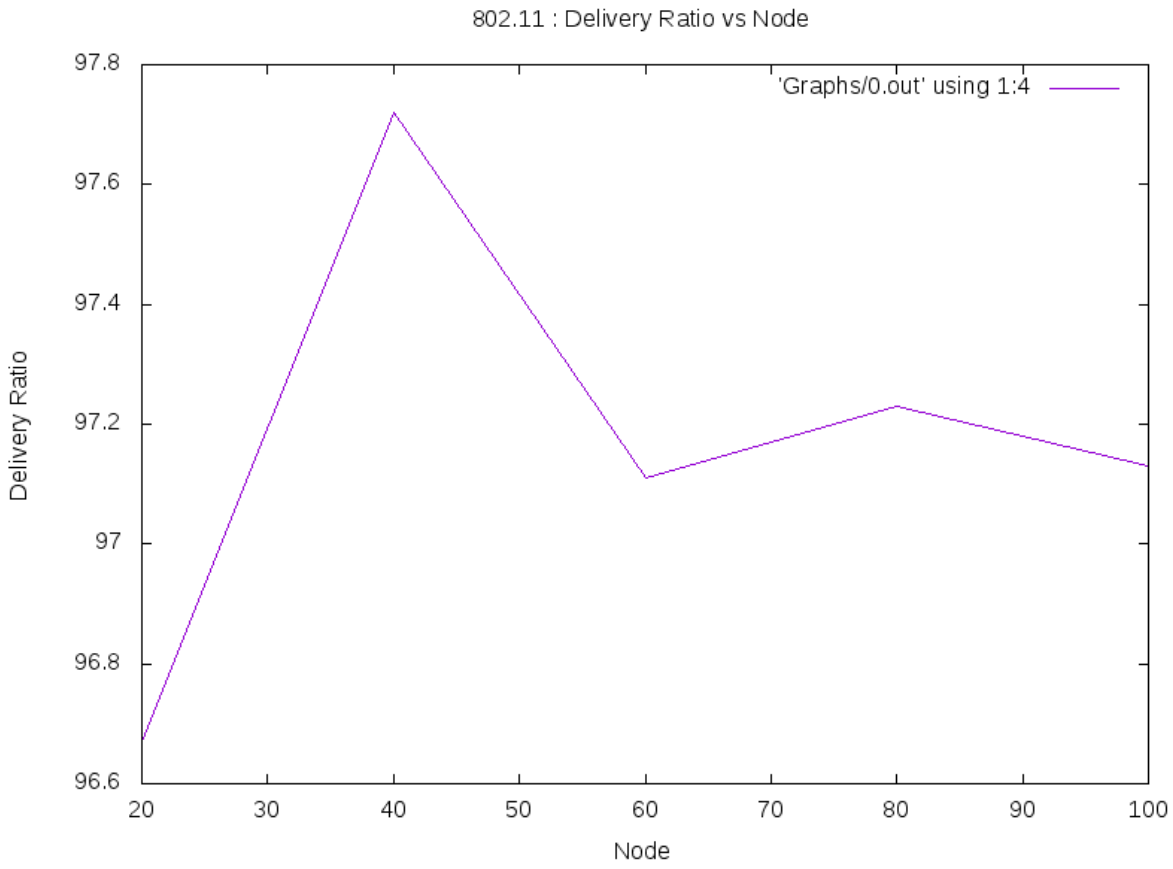
4 Summary Findings

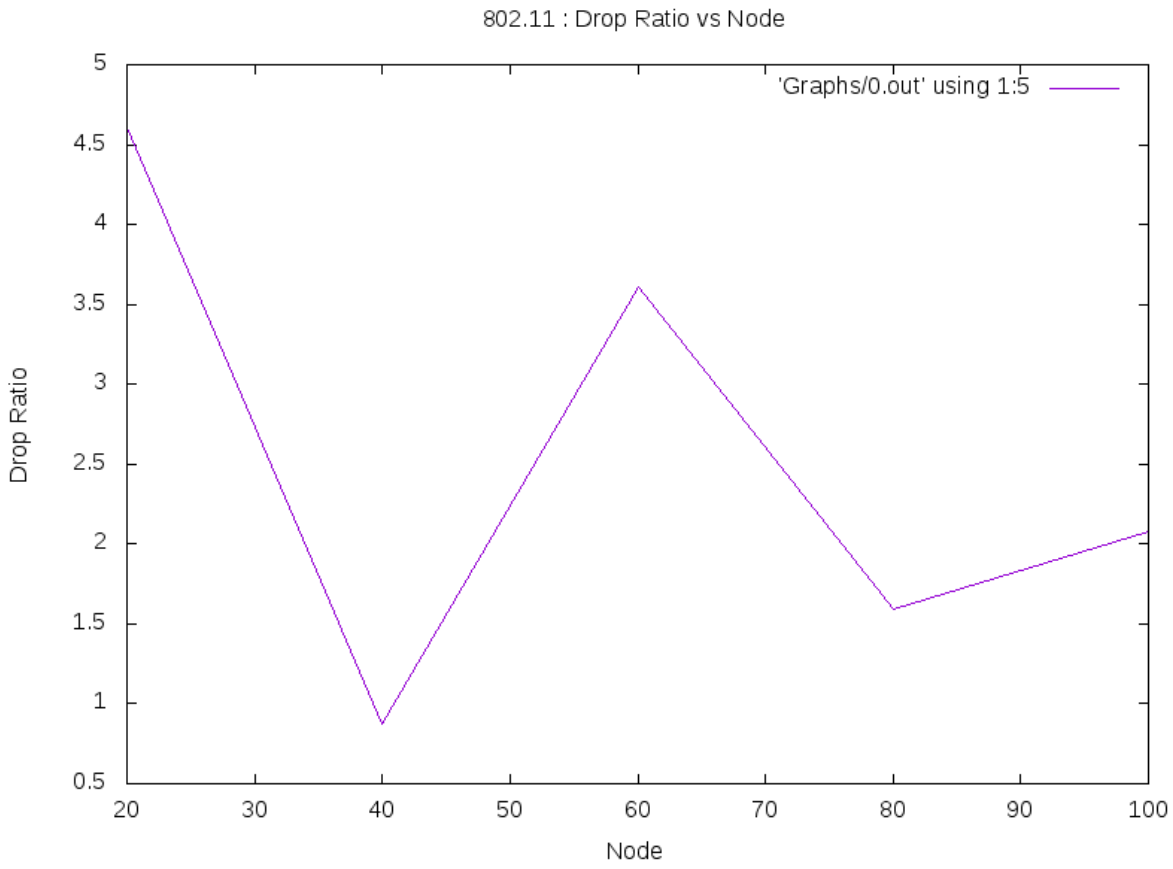
- Overall, the metrics analyzed after the wireless simulations, 802.11 performs better than 802.15.4 . More throughput, less drop ratio. Although, the energy consumed in 802.11 is higher, but it is reasonable compared to performance.
- The modification done in TCP Vegas improves the performance sometimes although very slightly.

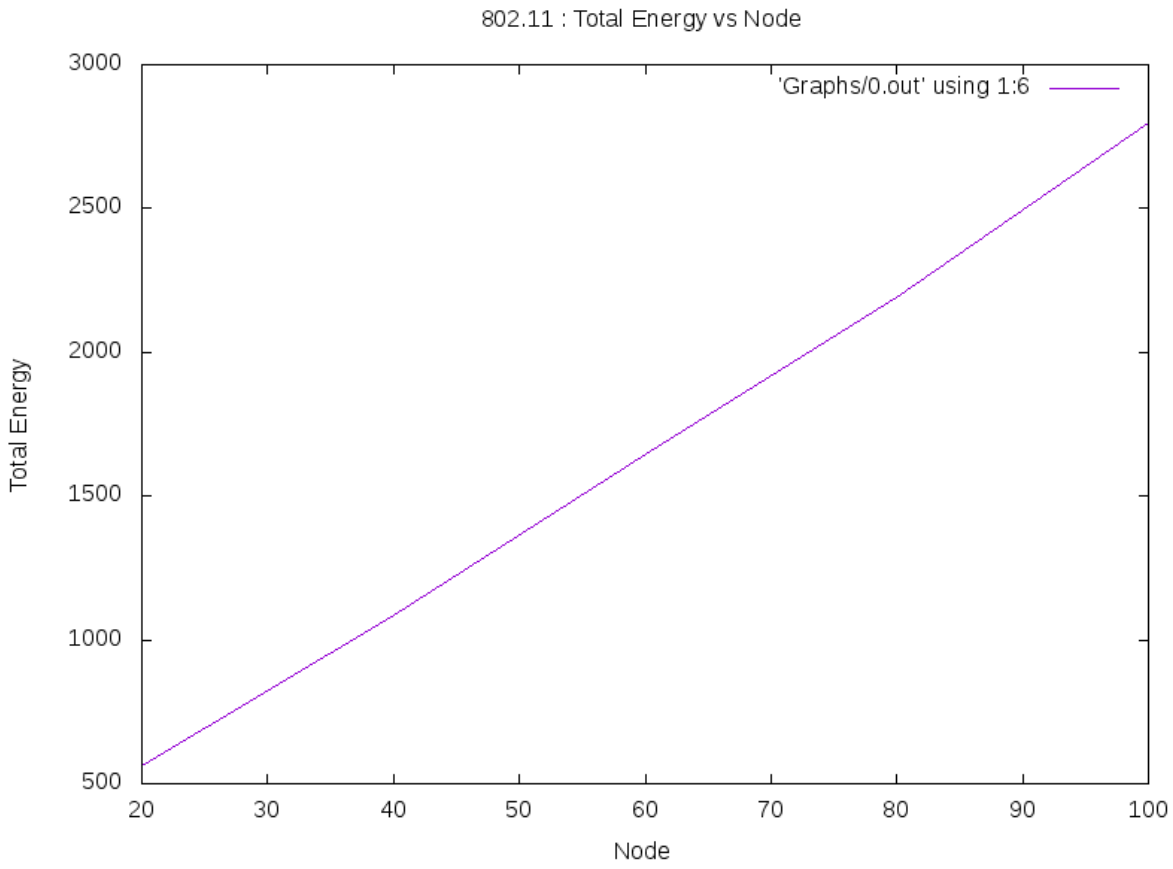
5 Results with Graphs

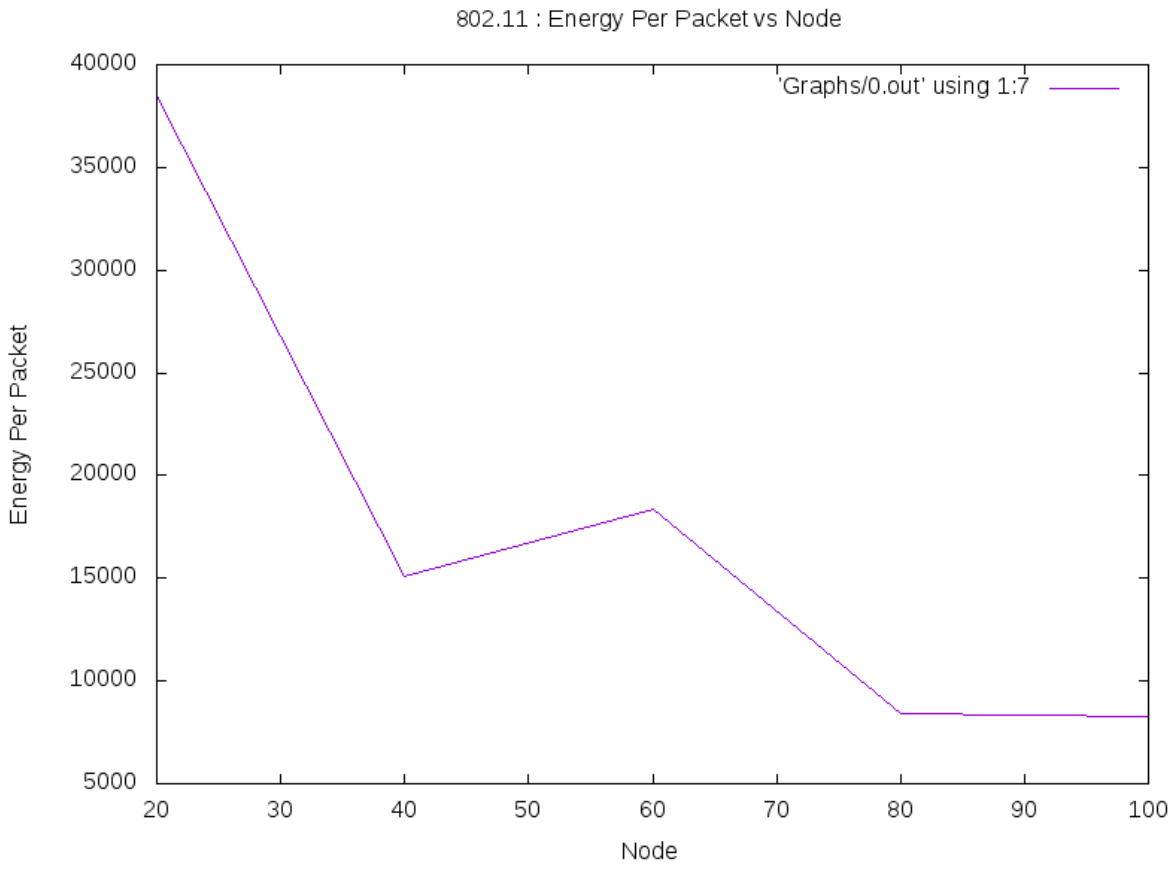


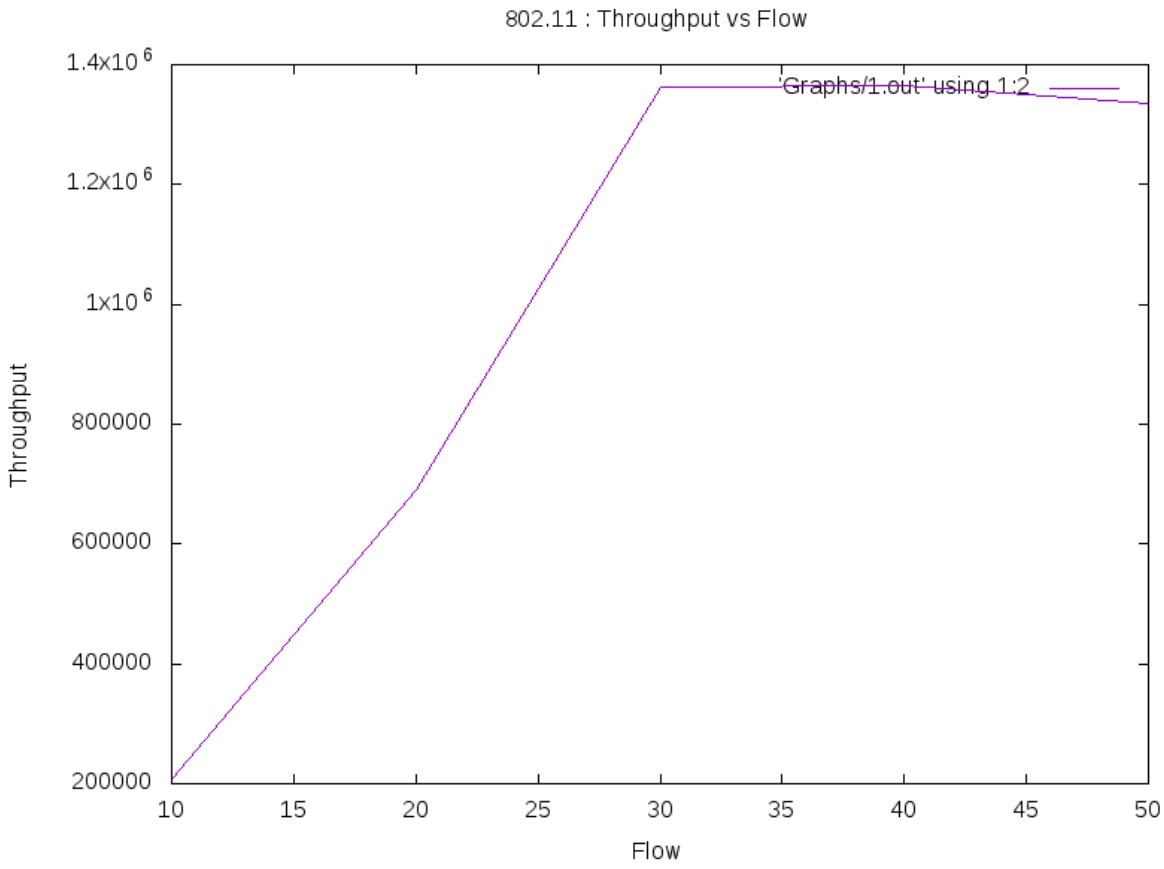

802.11 : End to End Delay vs Node
'Graphs/0.out' using 1:3
End to End Delay
Node
0.24
0.23
0.22
0.21
0.2
0.19
0.18
0.17
0.16
0.15
0.14
20
30
40
50
60
70
80
90
100

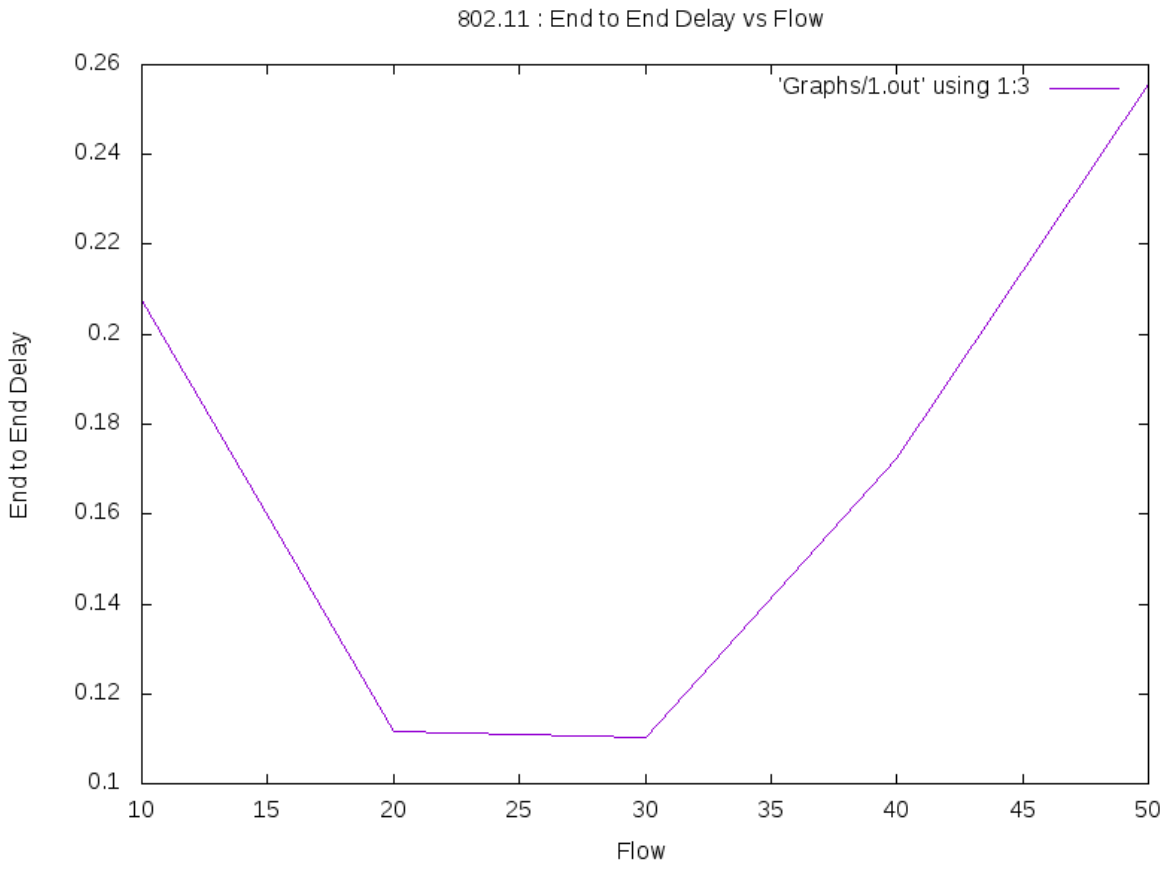

802.11 : Delivery Ratio vs Node
'Graphs/0.out' using 1:4
Delivery Ratio
Node
97.8
97.6
97.4
97.2
97
96.8
96.6
20
30
40
50
60
70
80
90
100

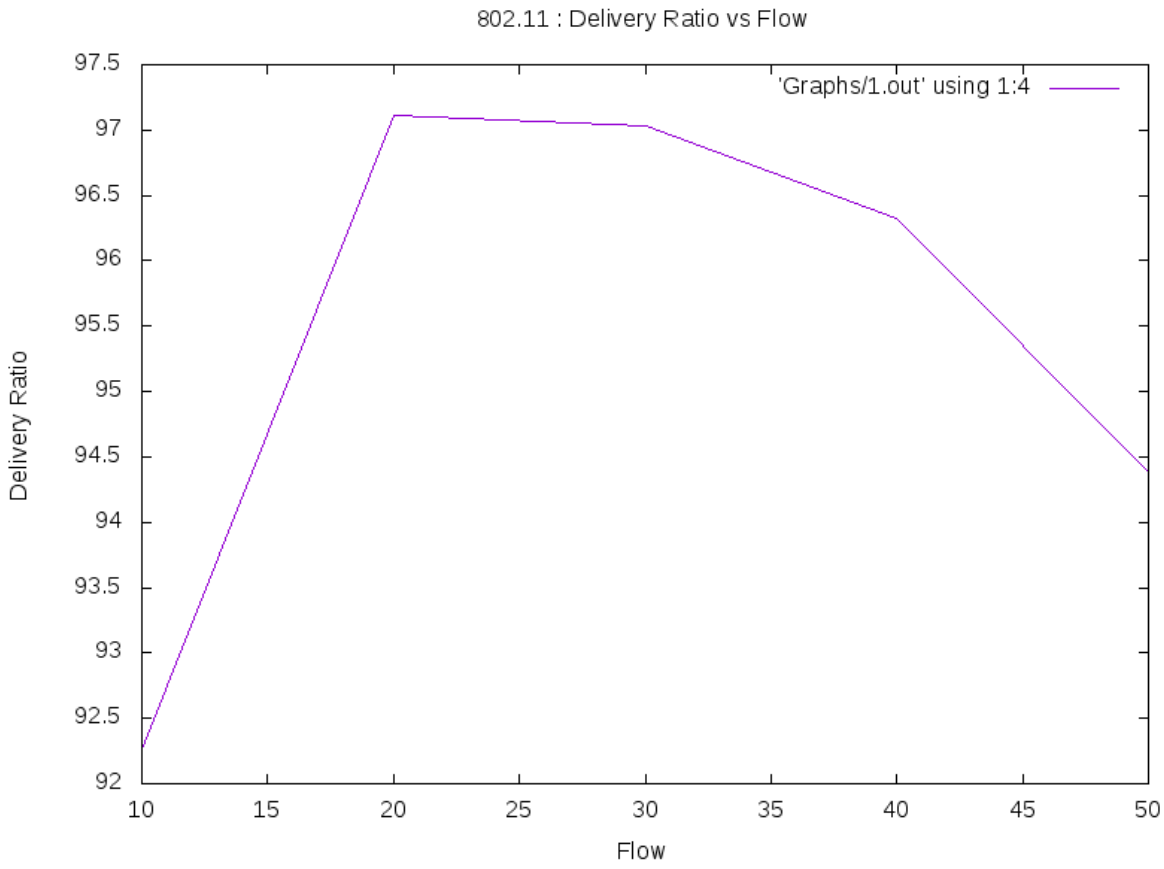

802.11 : Drop Ratio vs Node
'Graphs/0.out' using 1:5
Drop Ratio
Node
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
20
30
40
50
60
70
80
90
100

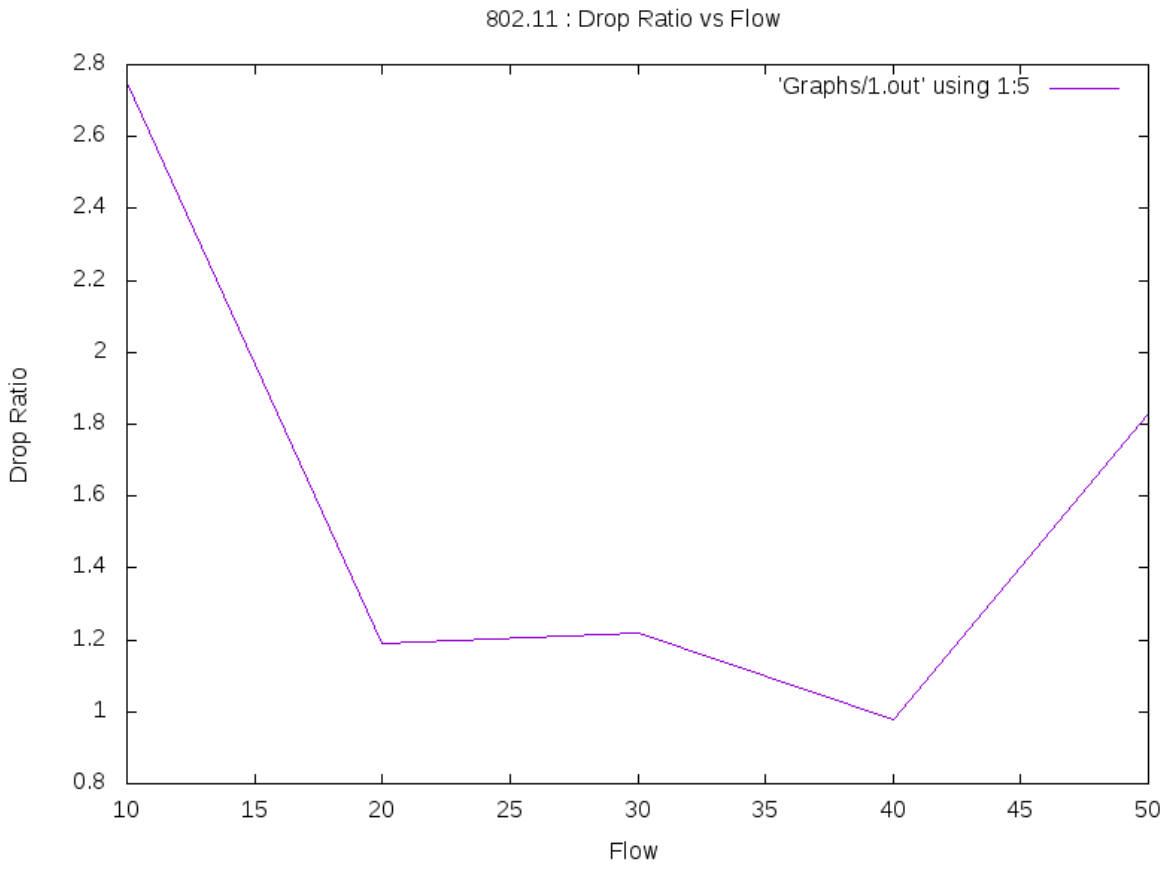

802.11 : Total Energy vs Node
'Graphs/0.out' using 1:6
Total Energy
Node
3000
2500
2000
1500
1000
500
20
30
40
50
60
70
80
90
100

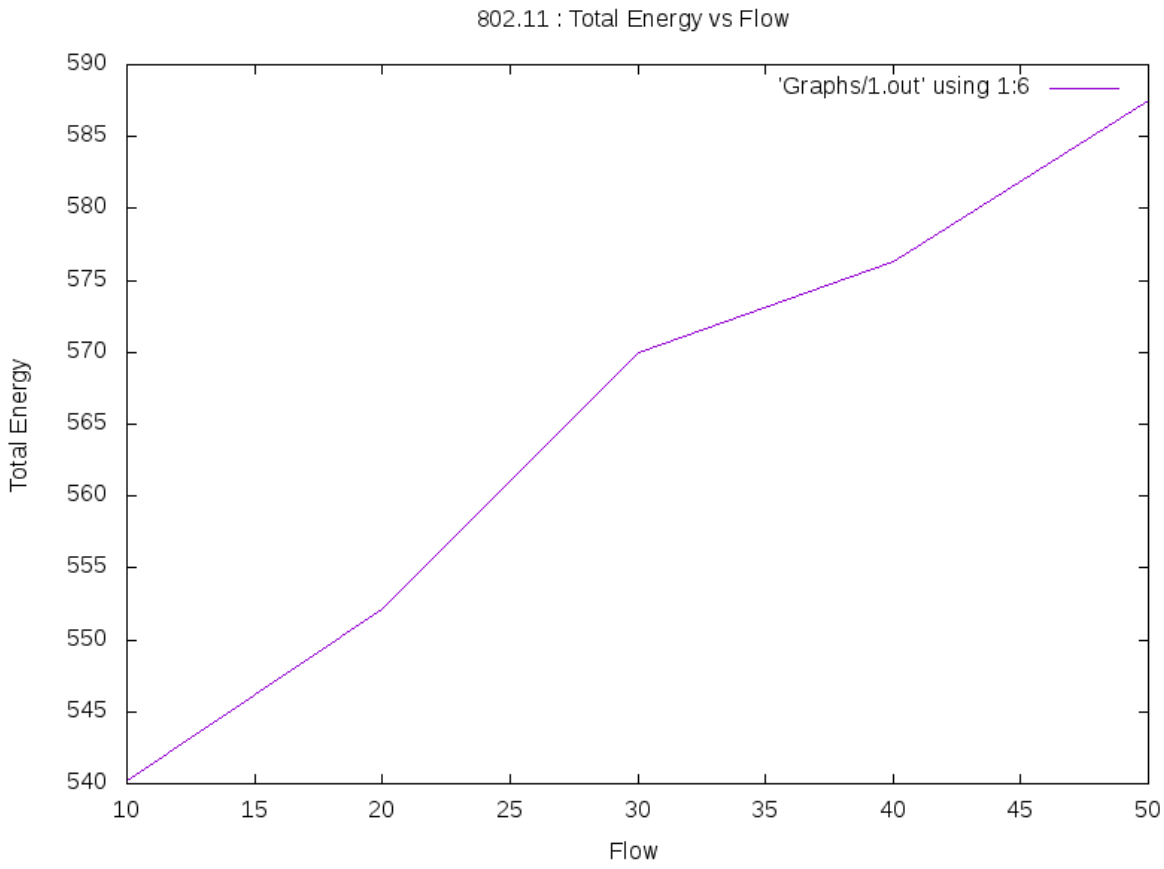

802.11 : Energy Per Packet vs Node
'Graphs/0.out' using 1:7
Energy Per Packet
Node
40000
35000
30000
25000
20000
15000
10000
5000
20
30
40
50
60
70
80
90
100

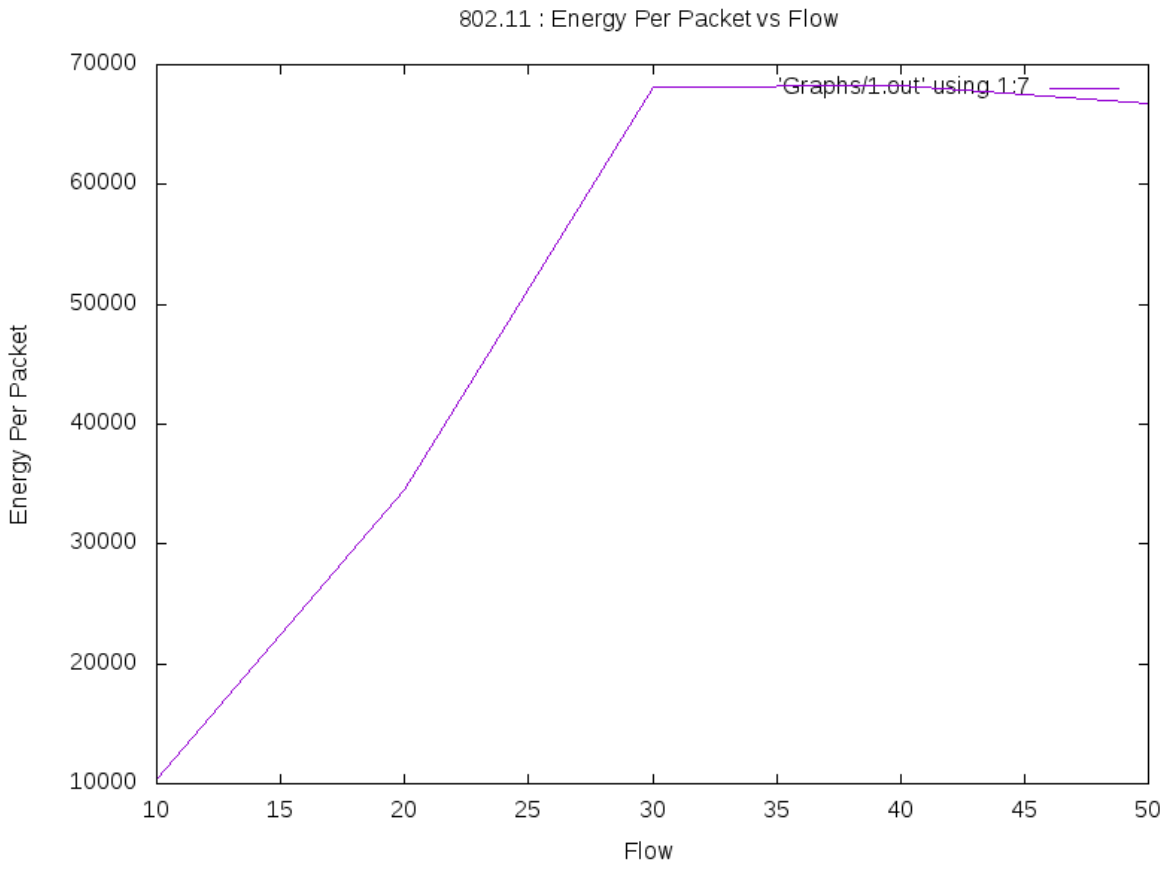

802.11 : Throughput vs Flow
'Graphs/1.out' using 1:2
Throughput
Flow
1.4x10 6
1.2x10 6
1x10 6
800000
600000
400000
200000
10
15
20
25
30
35
40
45
50

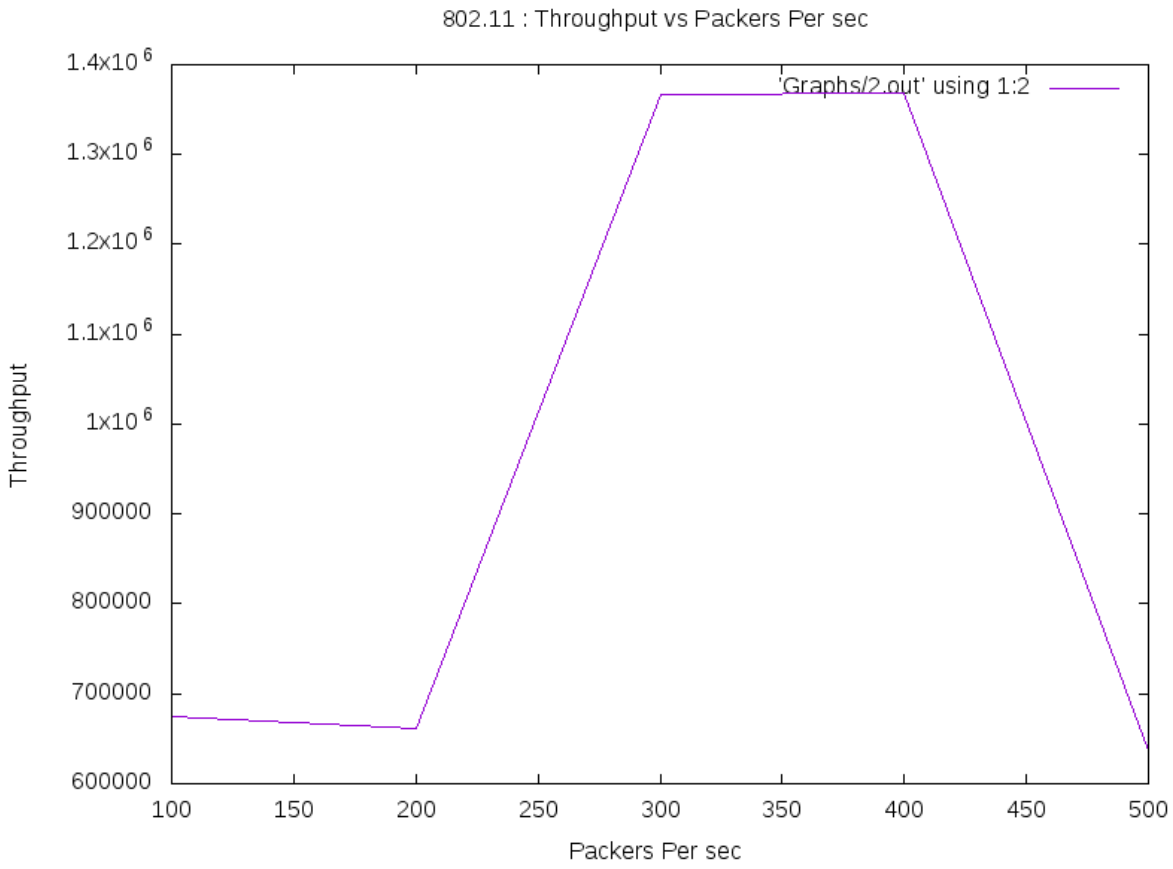

802.11 : End to End Delay vs Flow
'Graphs/1.out' using 1:3
End to End Delay
Flow
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
0.1
10
15
20
25
30
35
40
45
50

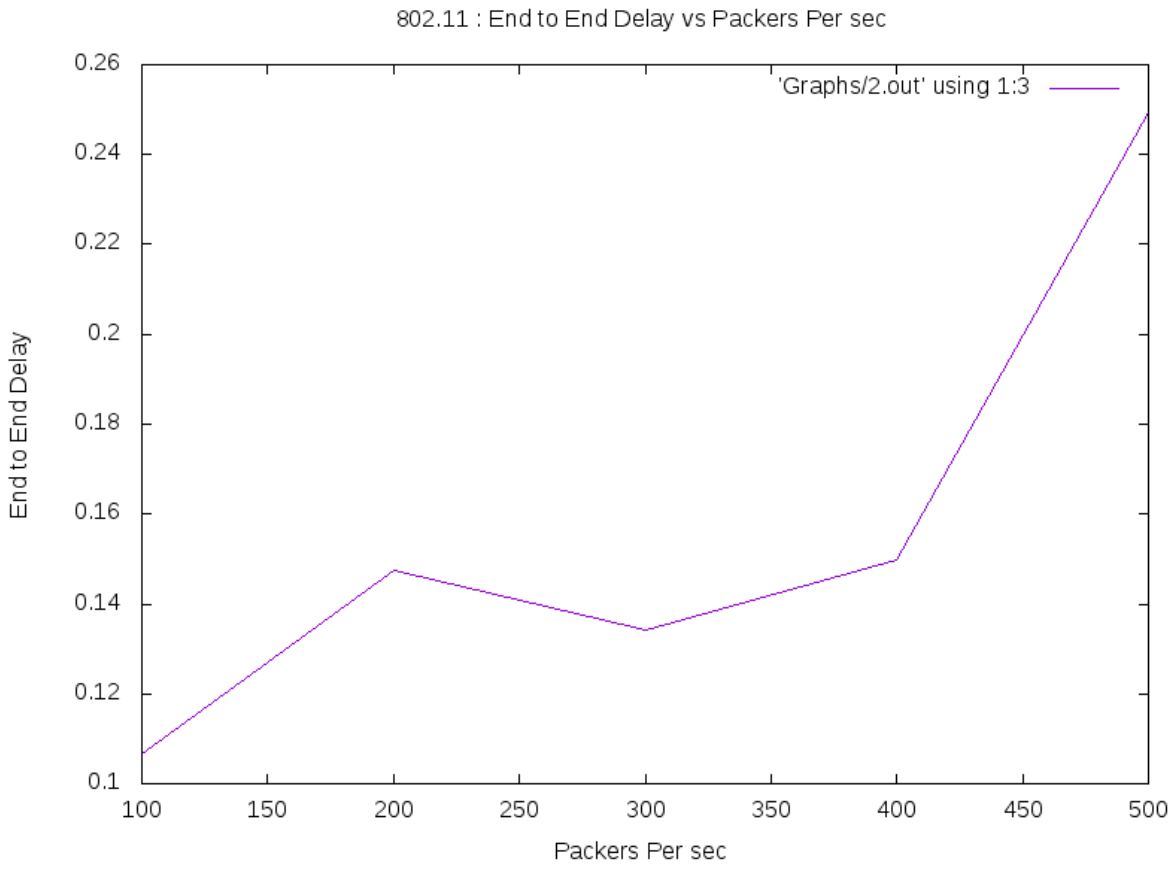

802.11 : Delivery Ratio vs Flow
'Graphs/1.out' using 1:4
Delivery Ratio
Flow
97.5
97
96.5
96
95.5
95
94.5
94
93.5
93
92.5
92
10
15
20
25
30
35
40
45
50

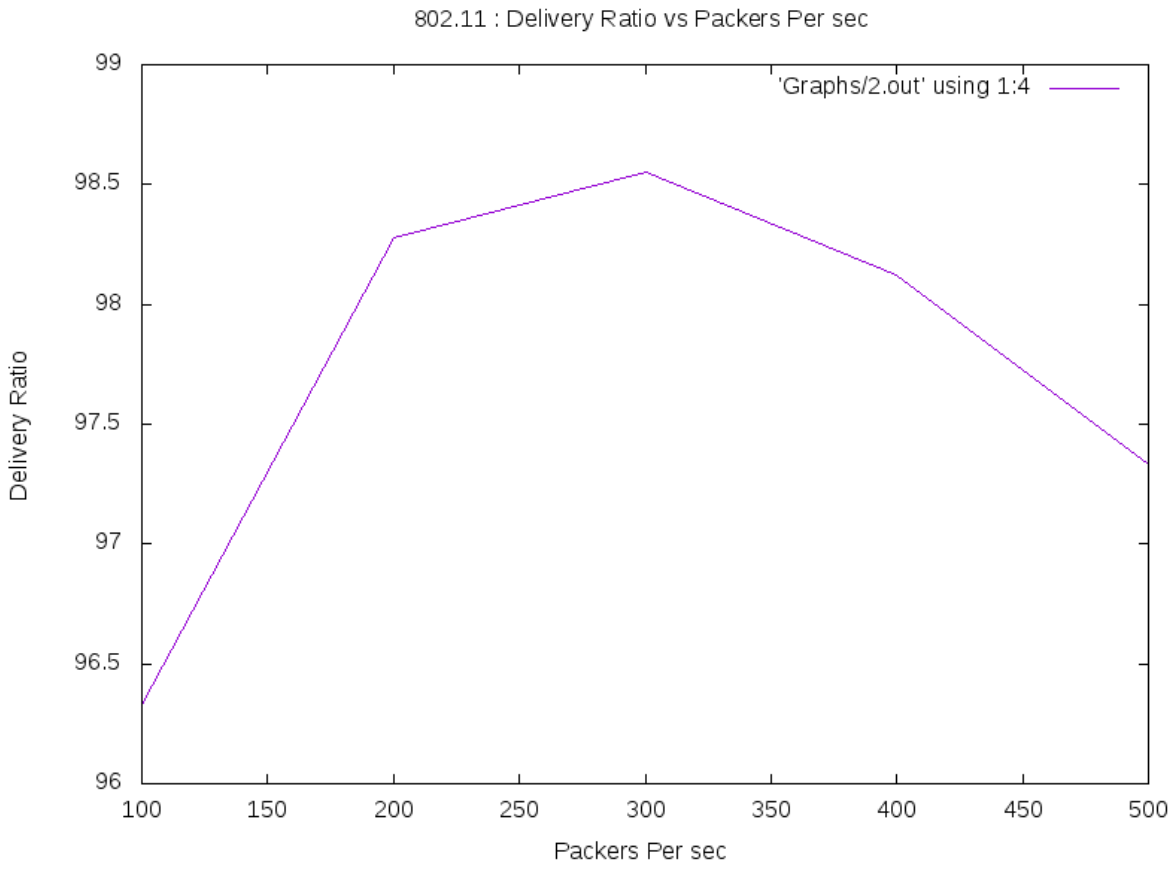

802.11 : Drop Ratio vs Flow
'Graphs/1.out' using 1:5
Drop Ratio
Flow
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
10
15
20
25
30
35
40
45
50

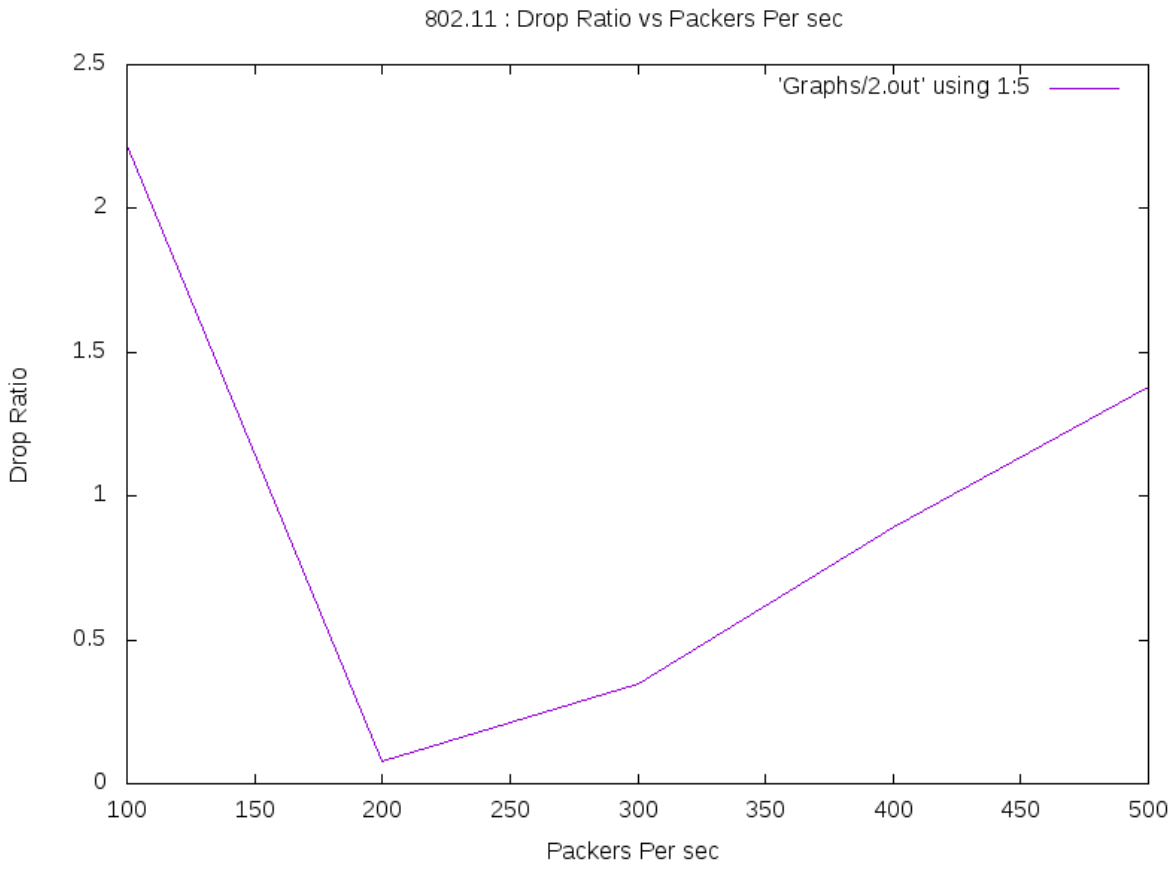

802.11 : Total Energy vs Flow
'Graphs/1.out' using 1:6
Total Energy
Flow
590
585
580
575
570
565
560
555
550
545
540
10
15
20
25
30
35
40
45
50

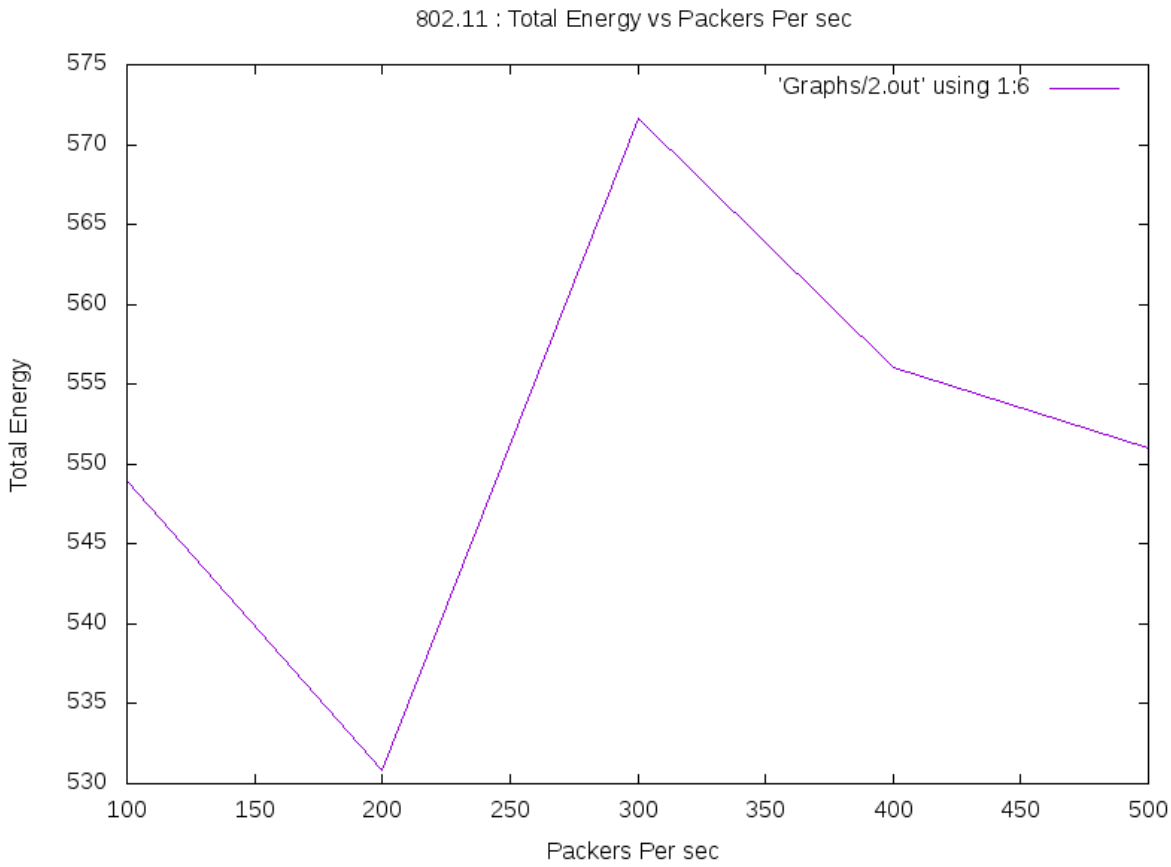

802.11 : Energy Per Packet vs Flow
'Graphs/1.out' using 1:7
Energy Per Packet
Flow
70000
60000
50000
40000
30000
20000
10000
10
15
20
25
30
35
40
45
50

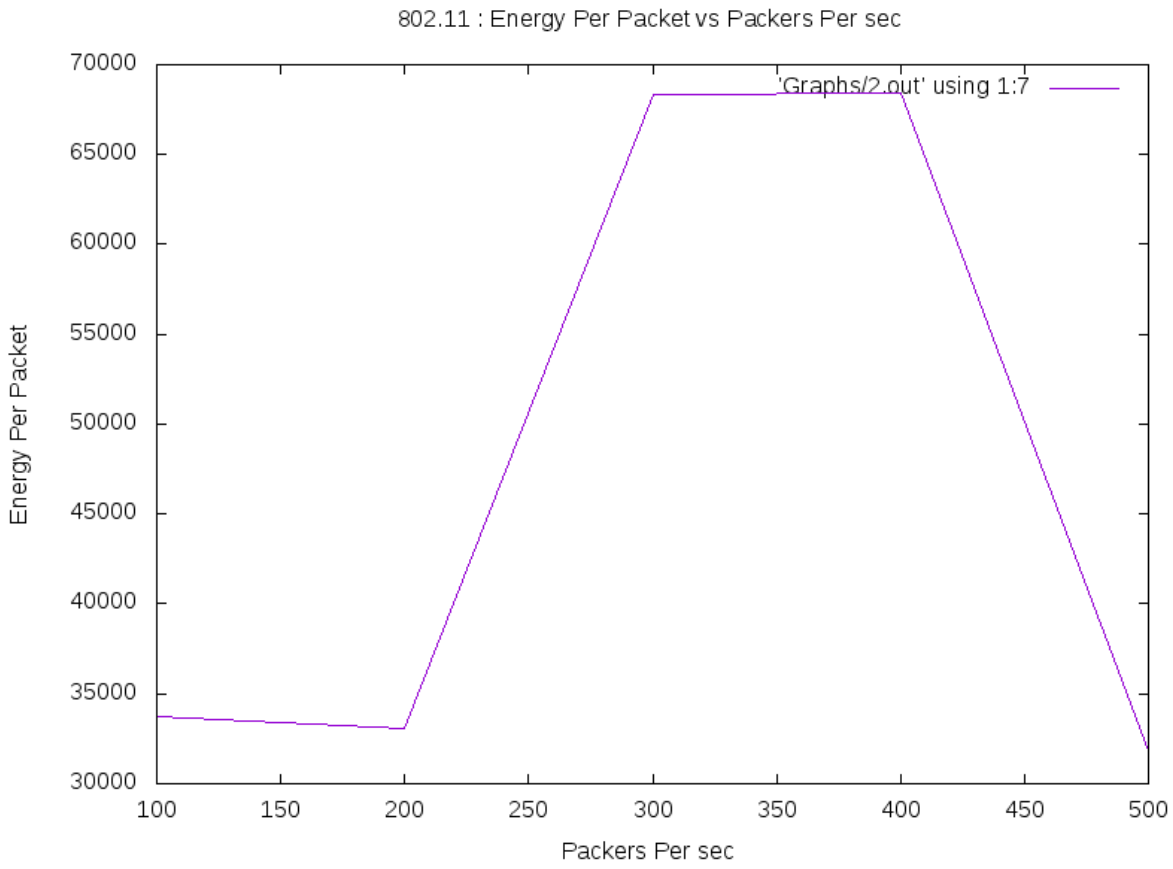

802.11 : Throughput vs Packers Per sec
'Graphs/2.out' using 1:2
Throughput
1.4x10^6
1.3x10^6
1.2x10^6
1.1x10^6
1x10^6
900000
800000
700000
600000
100
150
200
250
300
350
400
450
500
Packers Per sec

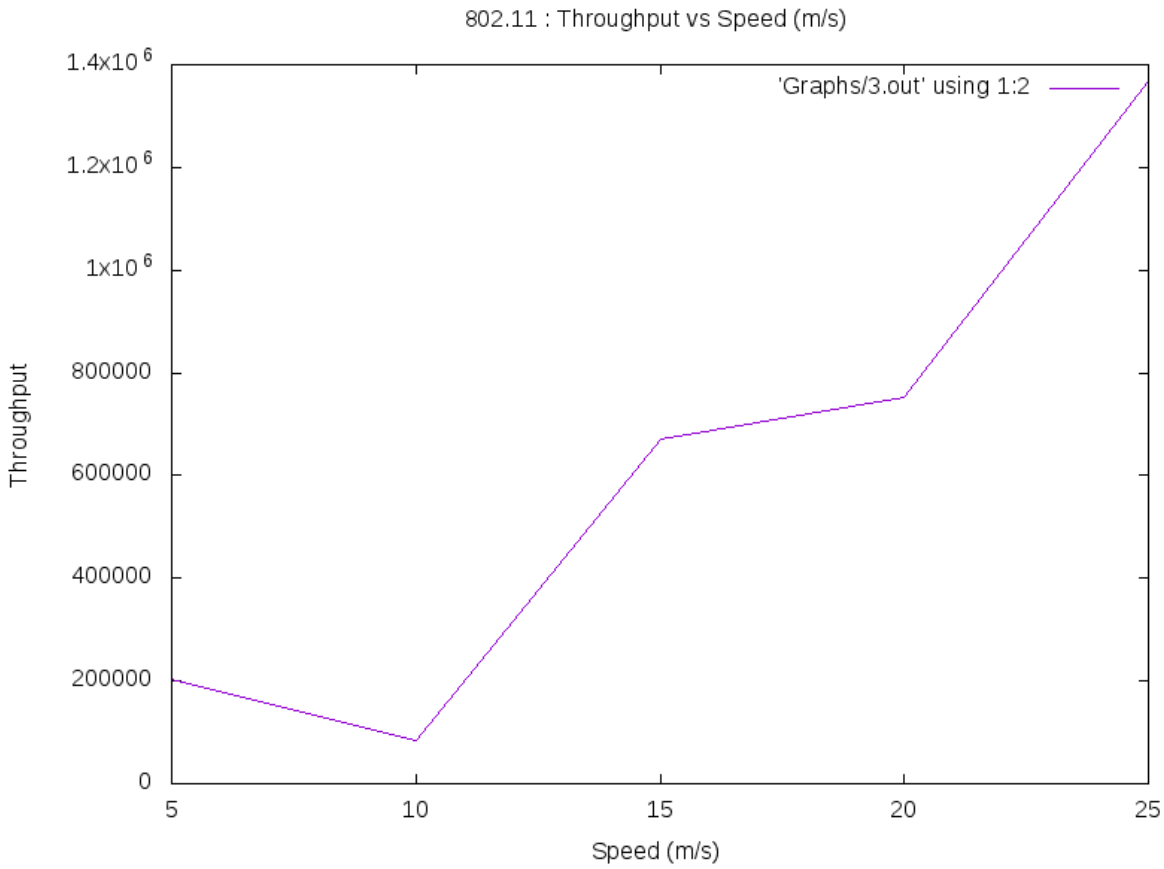

802.11 : End to End Delay vs Packers Per sec
'Graphs/2.out' using 1:3
End to End Delay
Packers Per sec
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
0.1
100
150
200
250
300
350
400
450
500

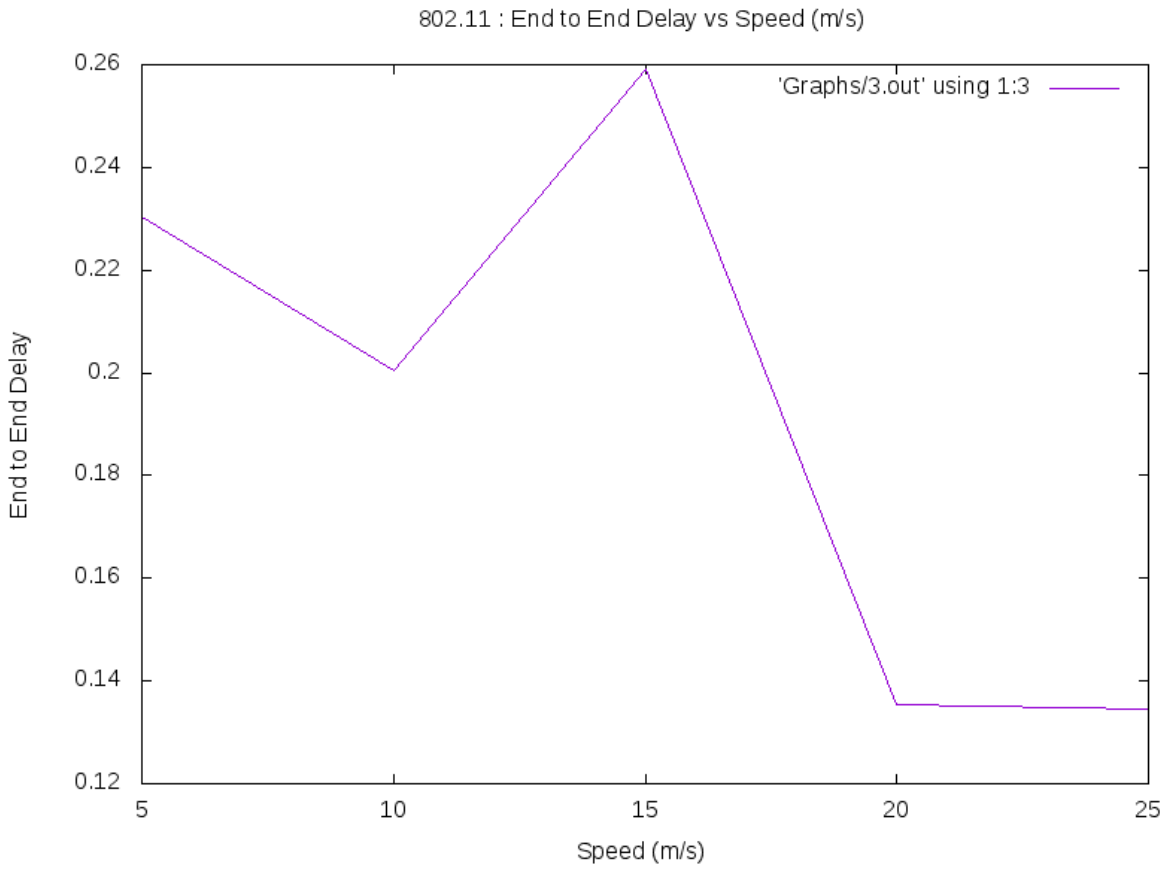

802.11 : Delivery Ratio vs Packers Per sec
'Graphs/2.out' using 1:4
Delivery Ratio
Packers Per sec
99
98.5
98
97.5
97
96.5
96
100
150
200
250
300
350
400
450
500


802.11 : Drop Ratio vs Packers Per sec
'Graphs/2.out' using 1:5
Drop Ratio
Packers Per sec
2.5
2
1.5
1
0.5
0
100
150
200
250
300
350
400
450
500

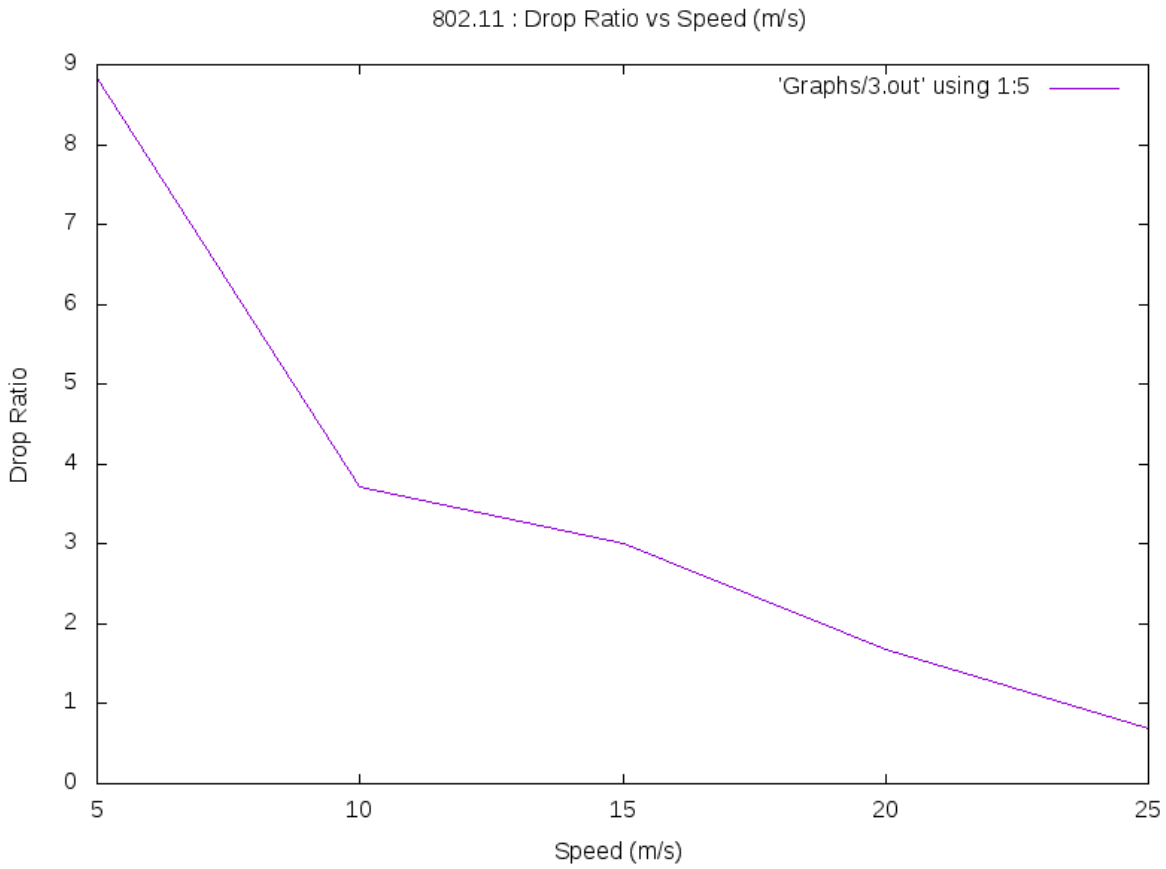

802.11 : Total Energy vs Packers Per sec
'Graphs/2.out' using 1:6
Total Energy
Packers Per sec
575
570
565
560
555
550
545
540
535
530
100
150
200
250
300
350
400
450
500

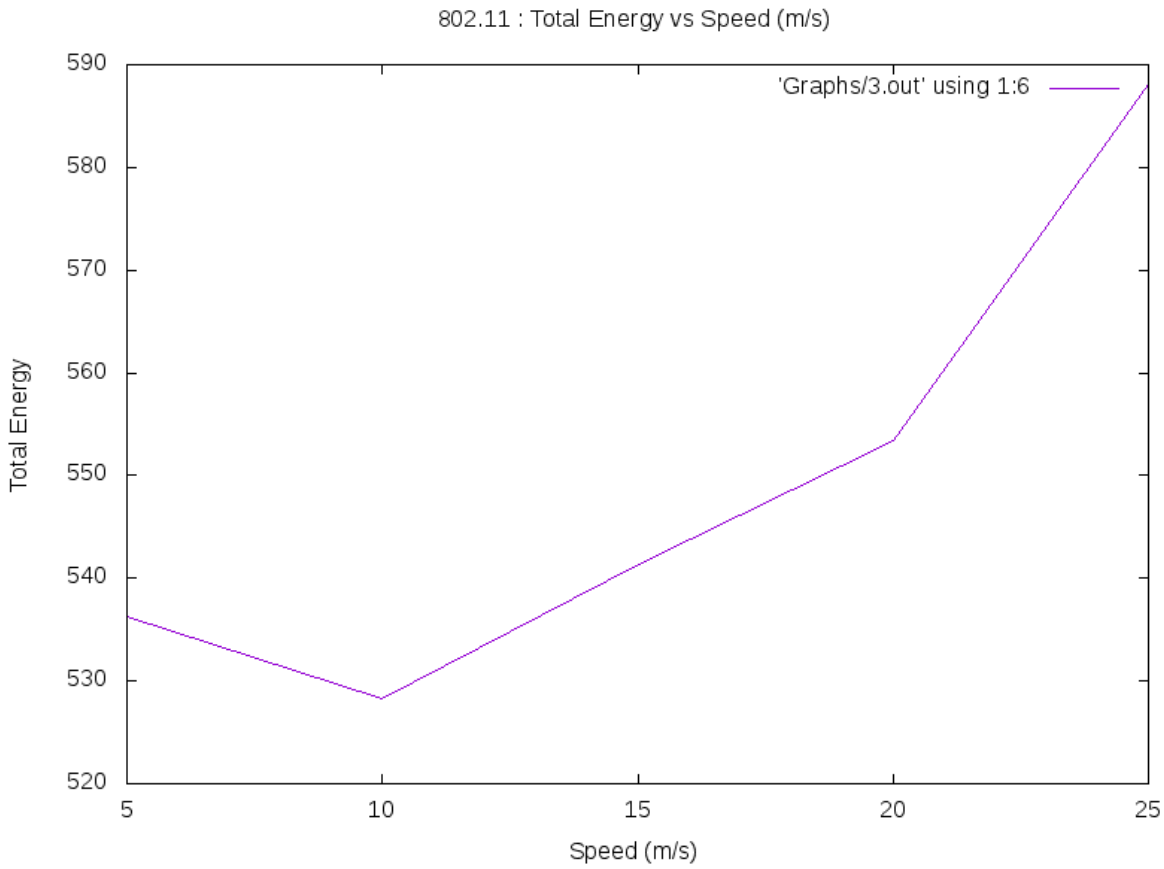

802.11 : Energy Per Packet vs Packers Per sec
'Graphs/2.out' using 1:7
Energy Per Packet
Packers Per sec
70000
65000
60000
55000
50000
45000
40000
35000
30000
100
150
200
250
300
350
400
450
500

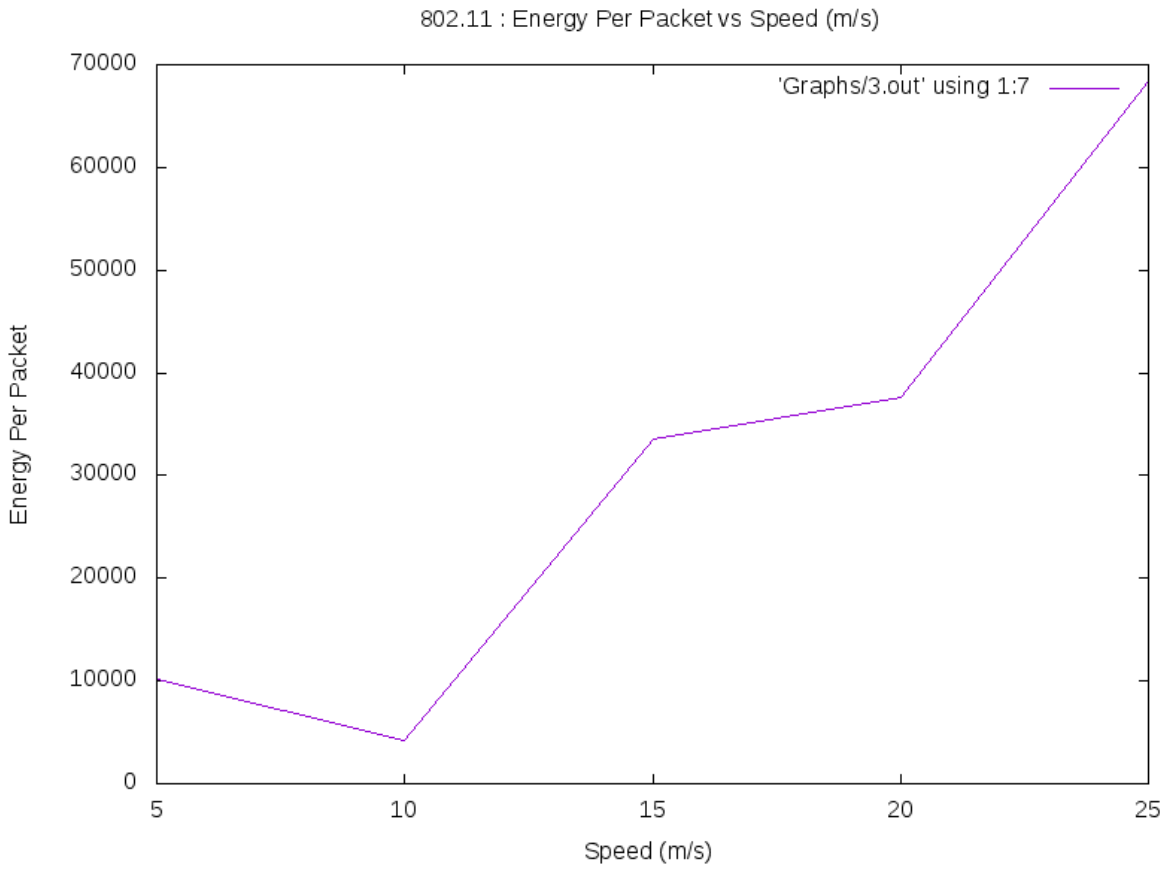

802.11 : Throughput vs Speed (m/s)
'Graphs/3.out' using 1:2
Throughput
Speed (m/s)
1.4x10^6
1.2x10^6
1x10^6
800000
600000
400000
200000
0
5
10
15
20
25

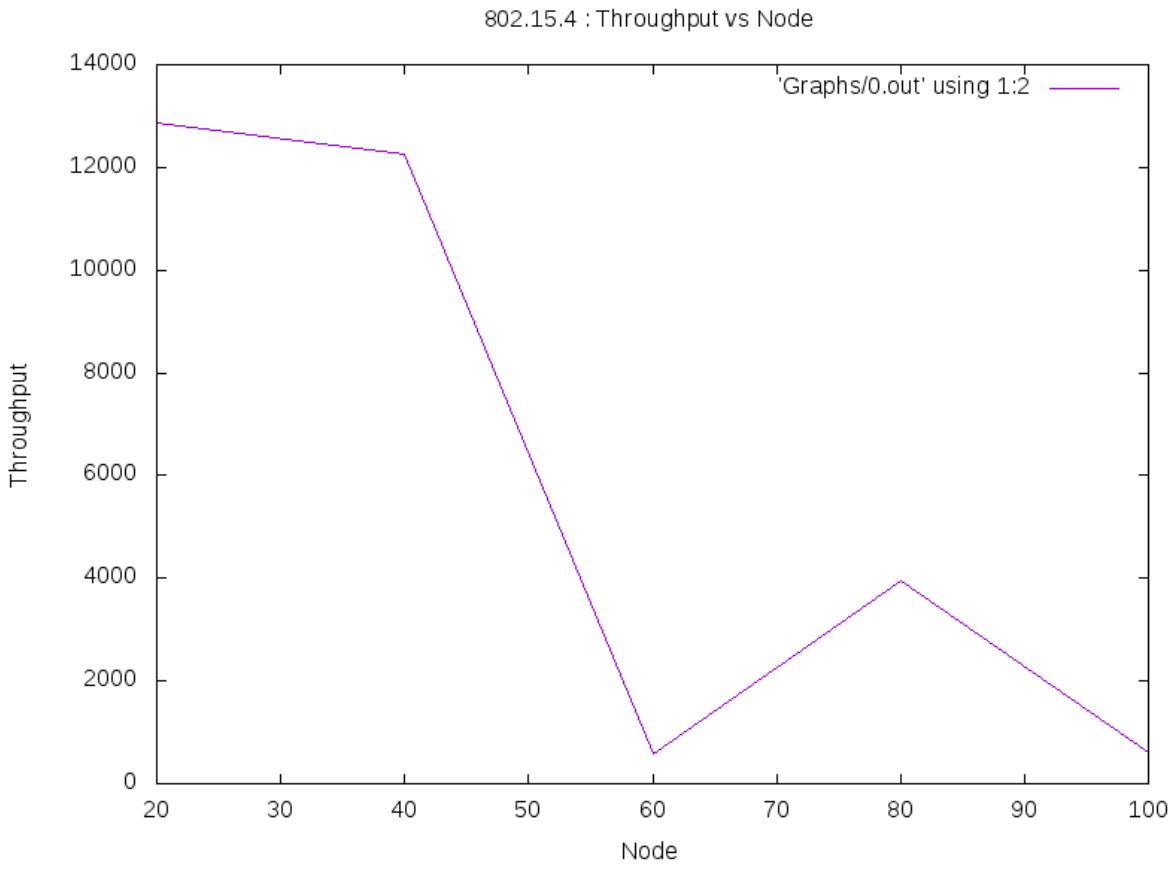

802.11 : End to End Delay vs Speed (m/s)
'Graphs/3.out' using 1:3
End to End Delay
Speed (m/s)
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
5
10
15
20
25

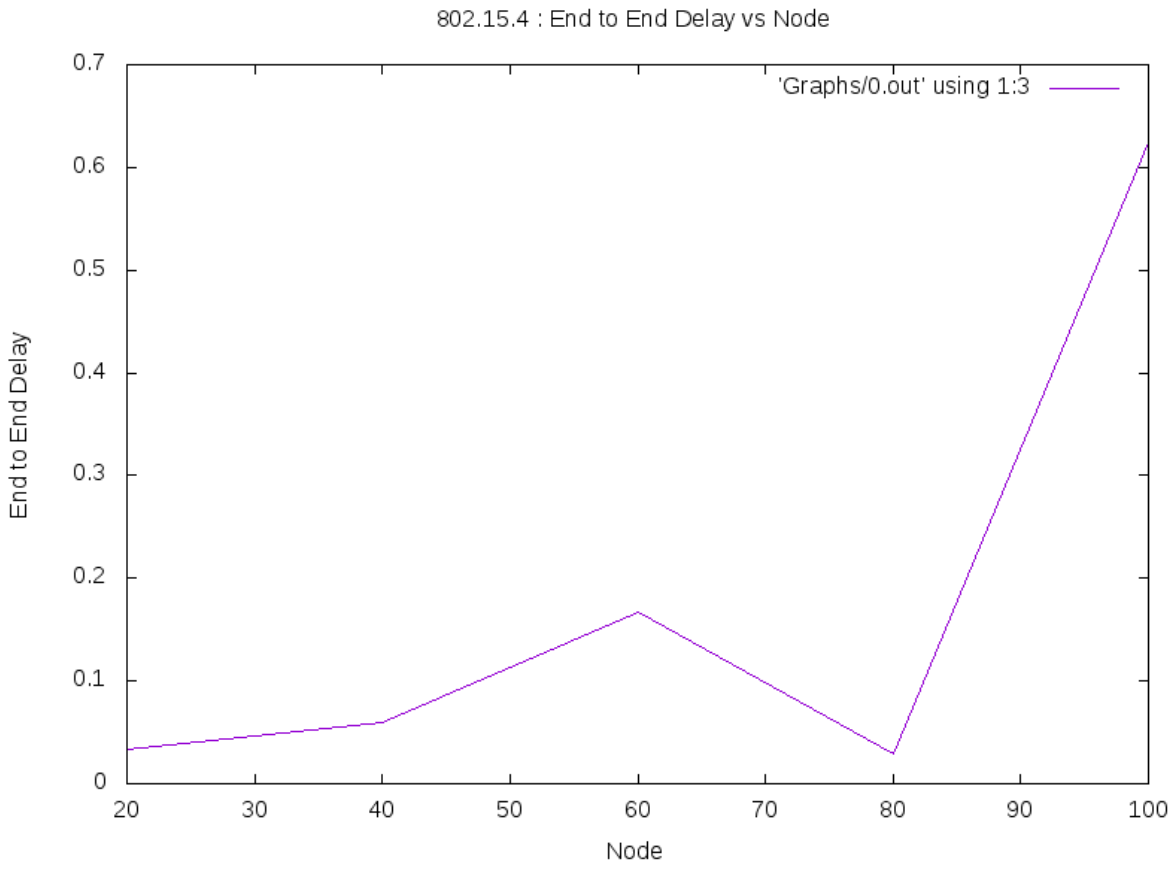

802.11 : Delivery Ratio vs Speed (m/s)
'Graphs/3.out' using 1:4
Delivery Ratio
Speed (m/s)
100
98
96
94
92
90
88
86
84
5
10
15
20
25

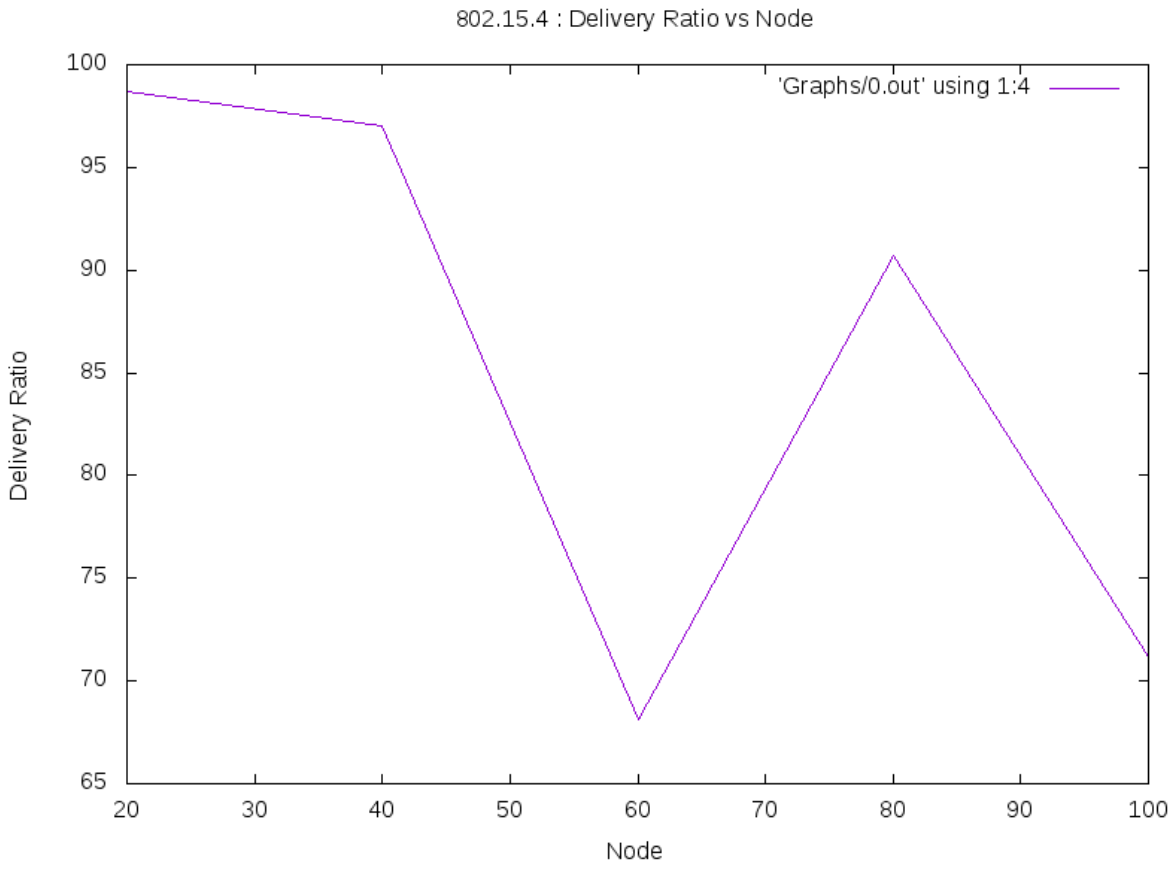

802.11 : Drop Ratio vs Speed (m/s)
'Graphs/3.out' using 1:5
Drop Ratio
Speed (m/s)
0
1
2
3
4
5
6
7
8
9
5
10
15
20
25

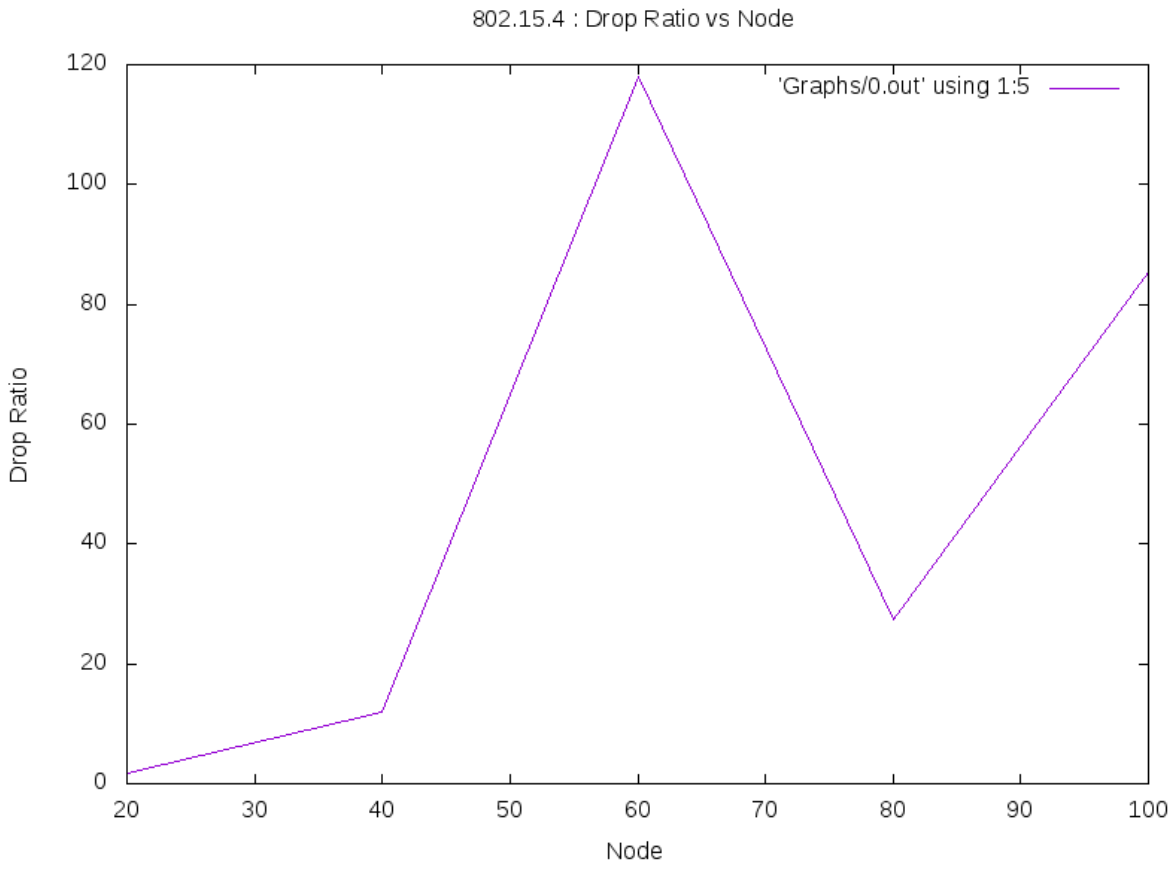

802.11 : Total Energy vs Speed (m/s)
'Graphs/3.out' using 1:6
Total Energy
Speed (m/s)
590
580
570
560
550
540
530
520
5
10
15
20
25

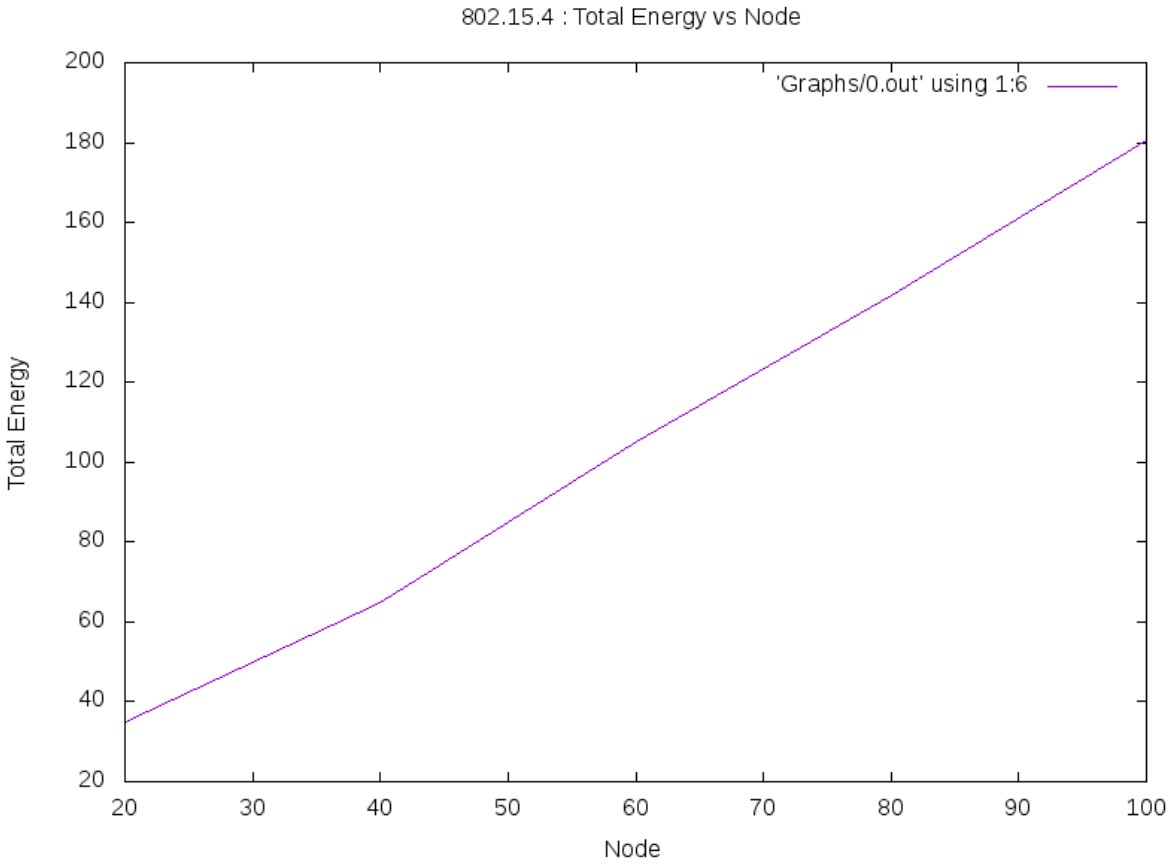

802.11 : Energy Per Packet vs Speed (m/s)
'Graphs/3.out' using 1:7
Energy Per Packet
Speed (m/s)
70000
60000
50000
40000
30000
20000
10000
0
5
10
15
20
25

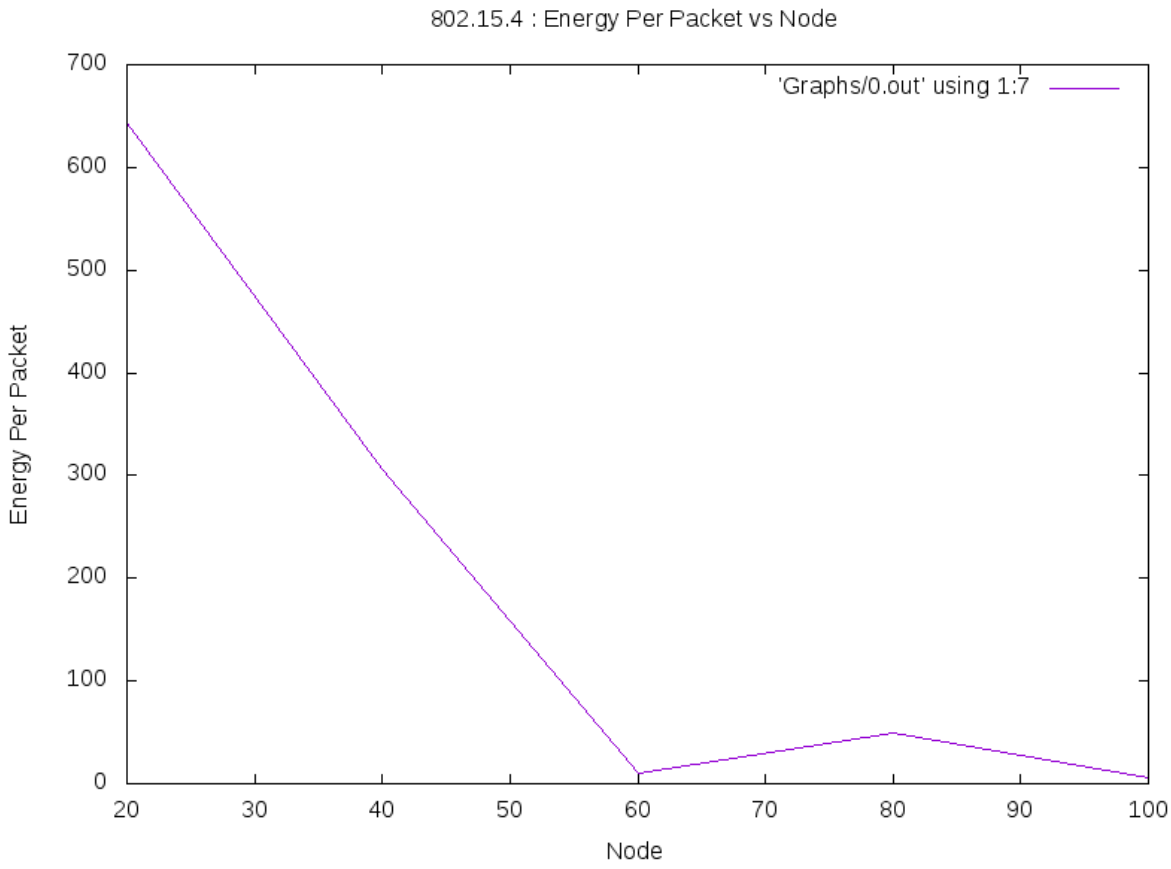

802.15.4 : Throughput vs Node
'Graphs/0.out' using 1:2
Throughput
Node
14000
12000
10000
8000
6000
4000
2000
0
20
30
40
50
60
70
80
90
100

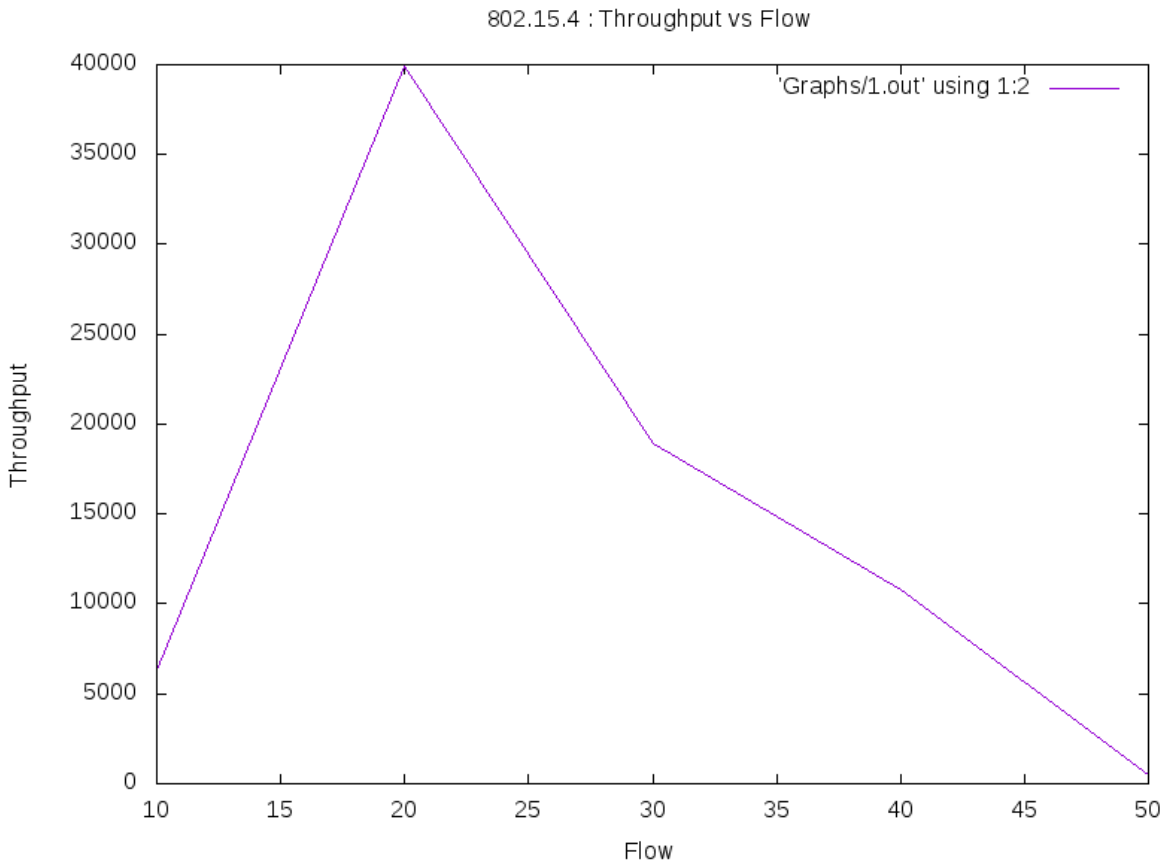

802.15.4 : End to End Delay vs Node
'Graphs/0.out' using 1:3
End to End Delay
Node
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
20
30
40
50
60
70
80
90
100

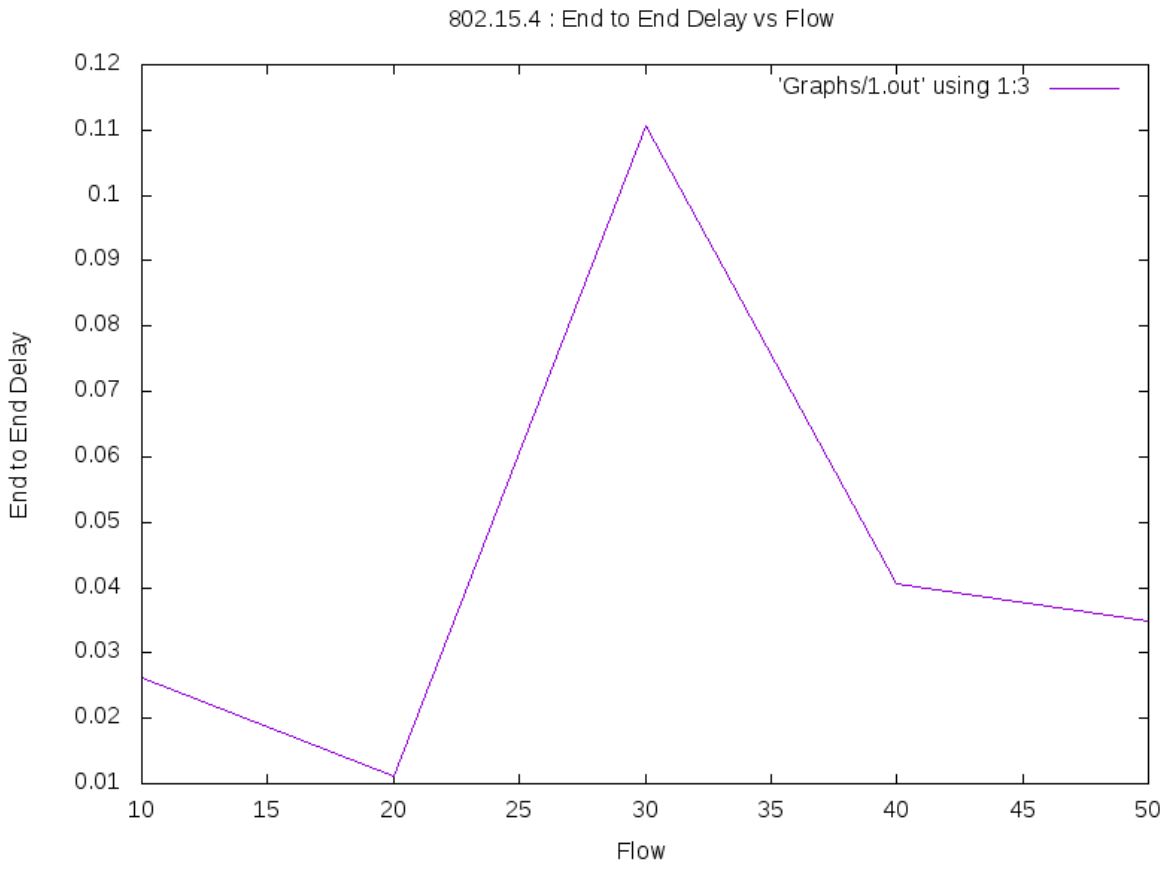

802.15.4 : Delivery Ratio vs Node
'Graphs/0.out' using 1:4
Delivery Ratio
Node
100
95
90
85
80
75
70
65
20
30
40
50
60
70
80
90
100

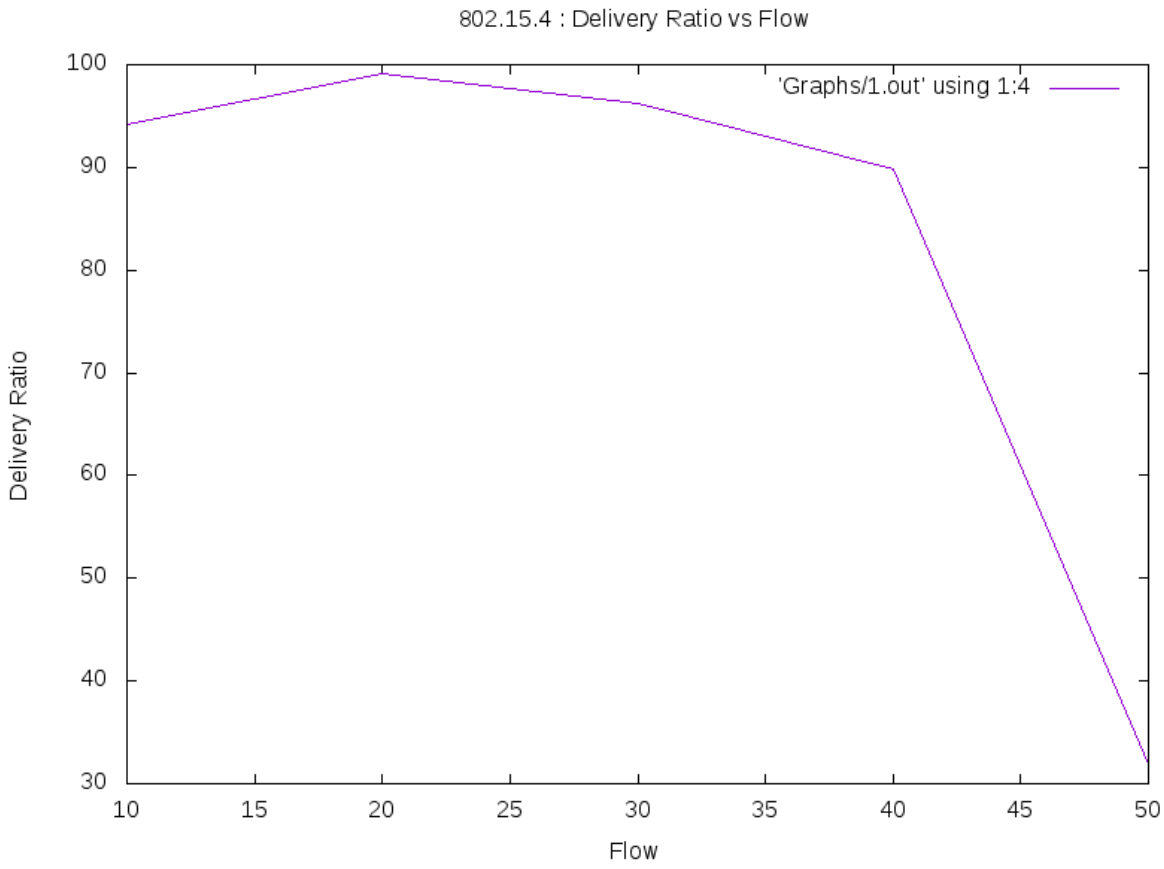

802.15.4 : Drop Ratio vs Node
'Graphs/0.out' using 1:5
Drop Ratio
Node
0
20
40
60
80
100
120
20
30
40
50
60
70
80
90
100

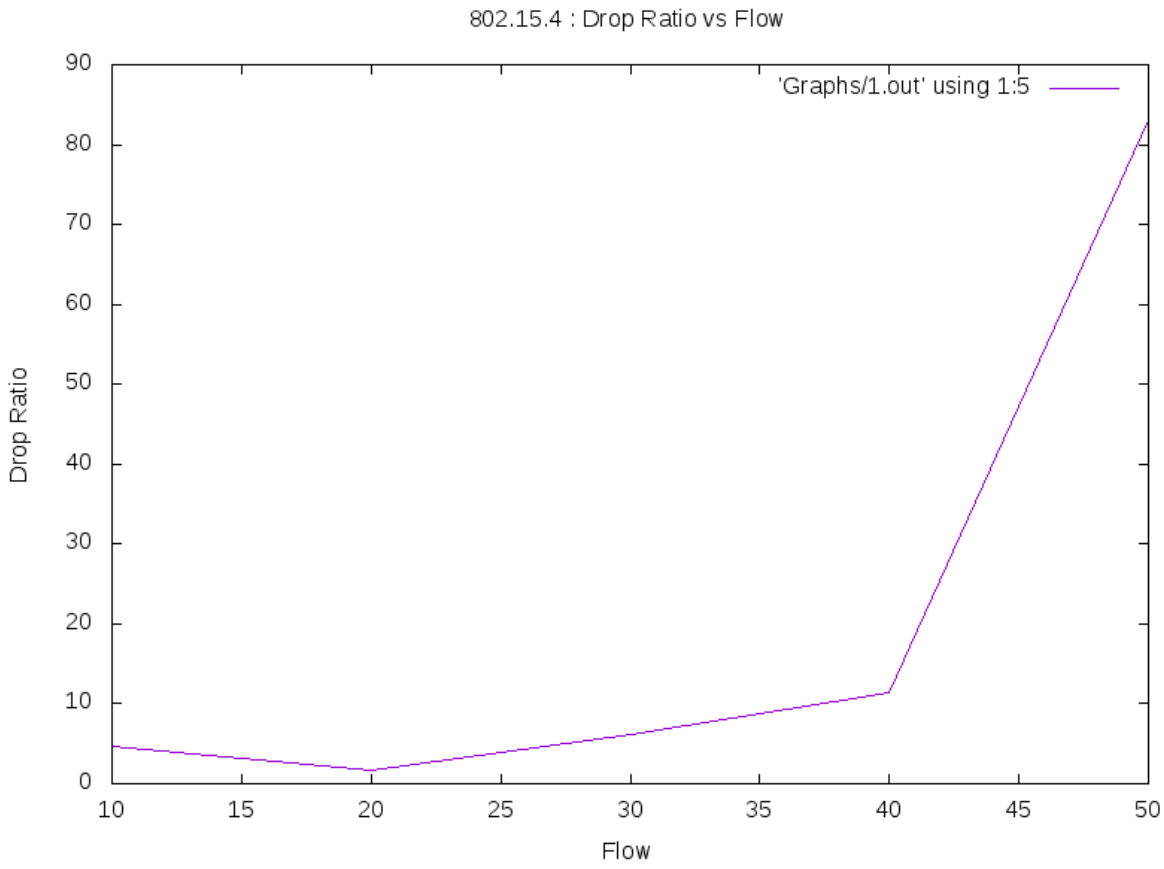

802.15.4 : Total Energy vs Node
'Graphs/0.out' using 1:6
Total Energy
Node
200
180
160
140
120
100
80
60
40
20
20
30
40
50
60
70
80
90
100

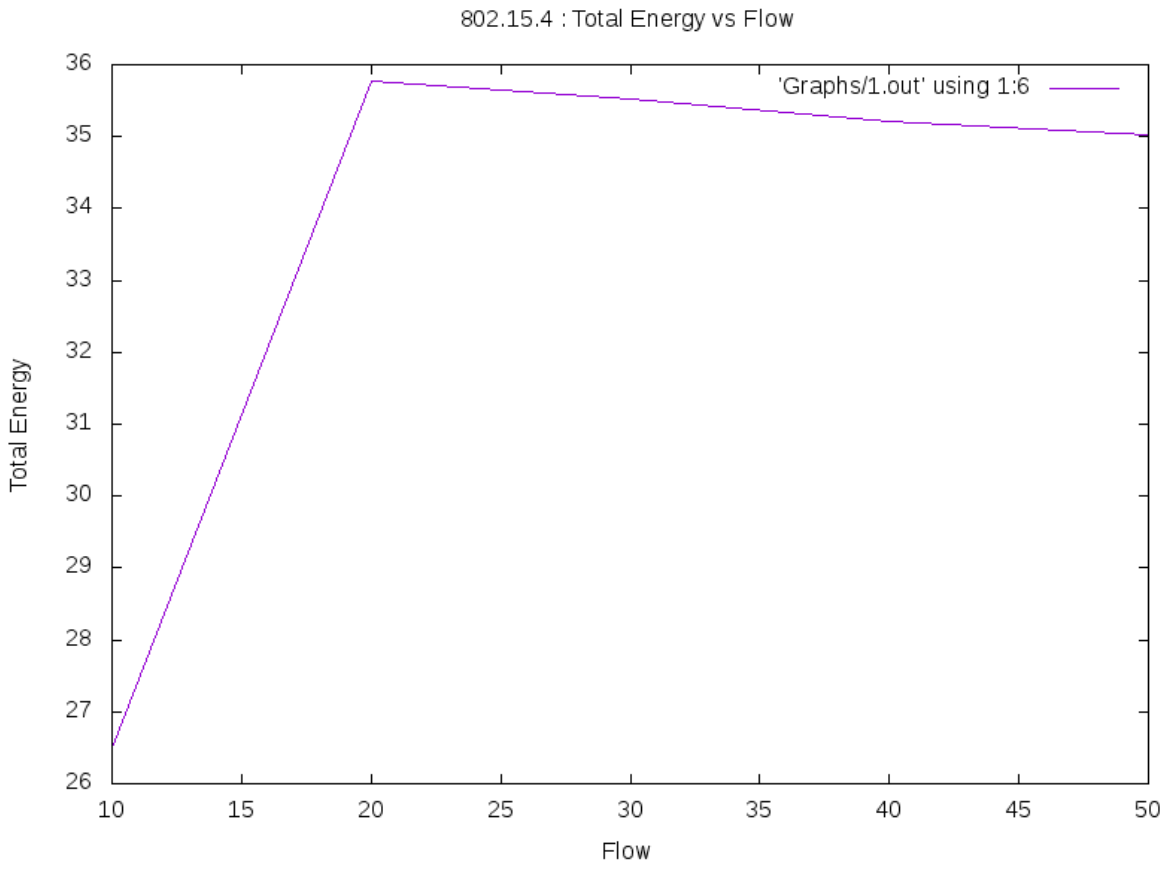

802.15.4 : Energy Per Packet vs Node
'Graphs/0.out' using 1:7
Energy Per Packet
Node
700
600
500
400
300
200
100
0
20
30
40
50
60
70
80
90
100

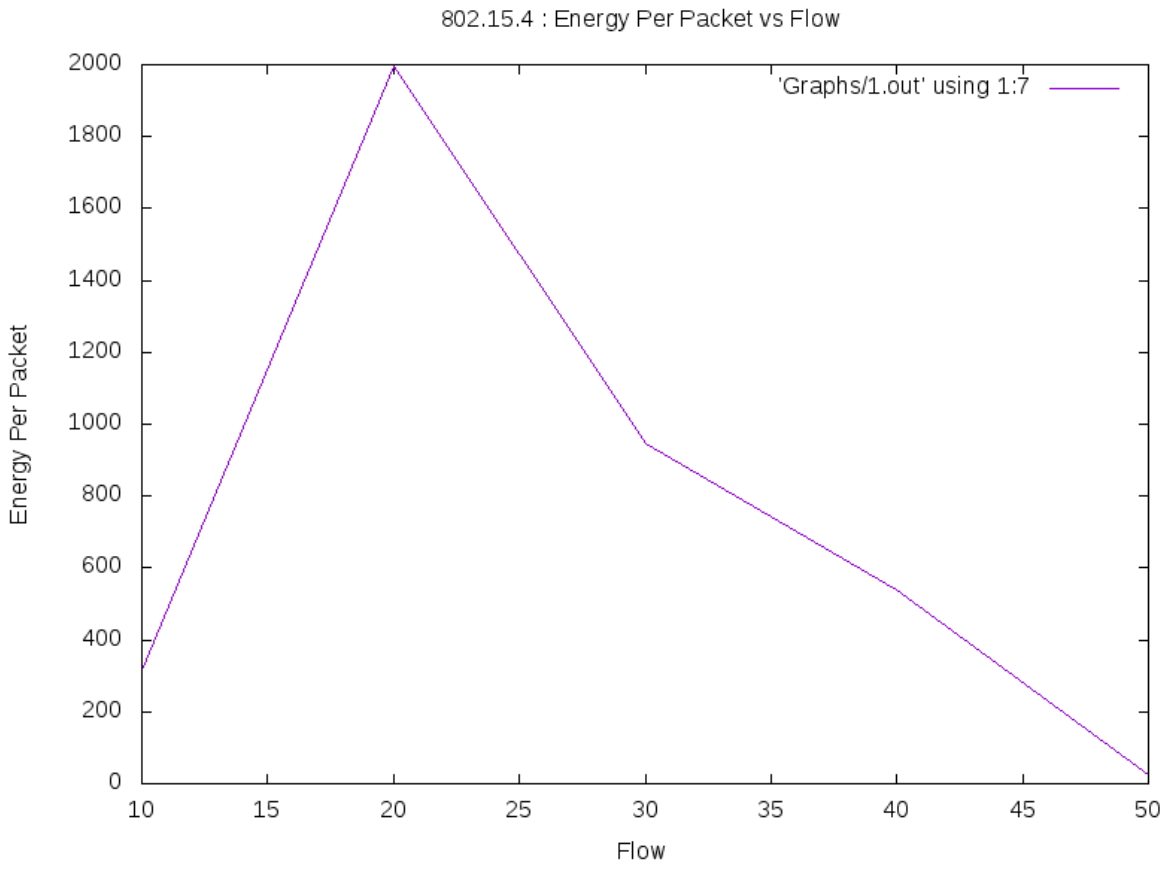

802.15.4 : Throughput vs Flow
'Graphs/1.out' using 1:2
Throughput
Flow
40000
35000
30000
25000
20000
15000
10000
5000
0
10
15
20
25
30
35
40
45
50

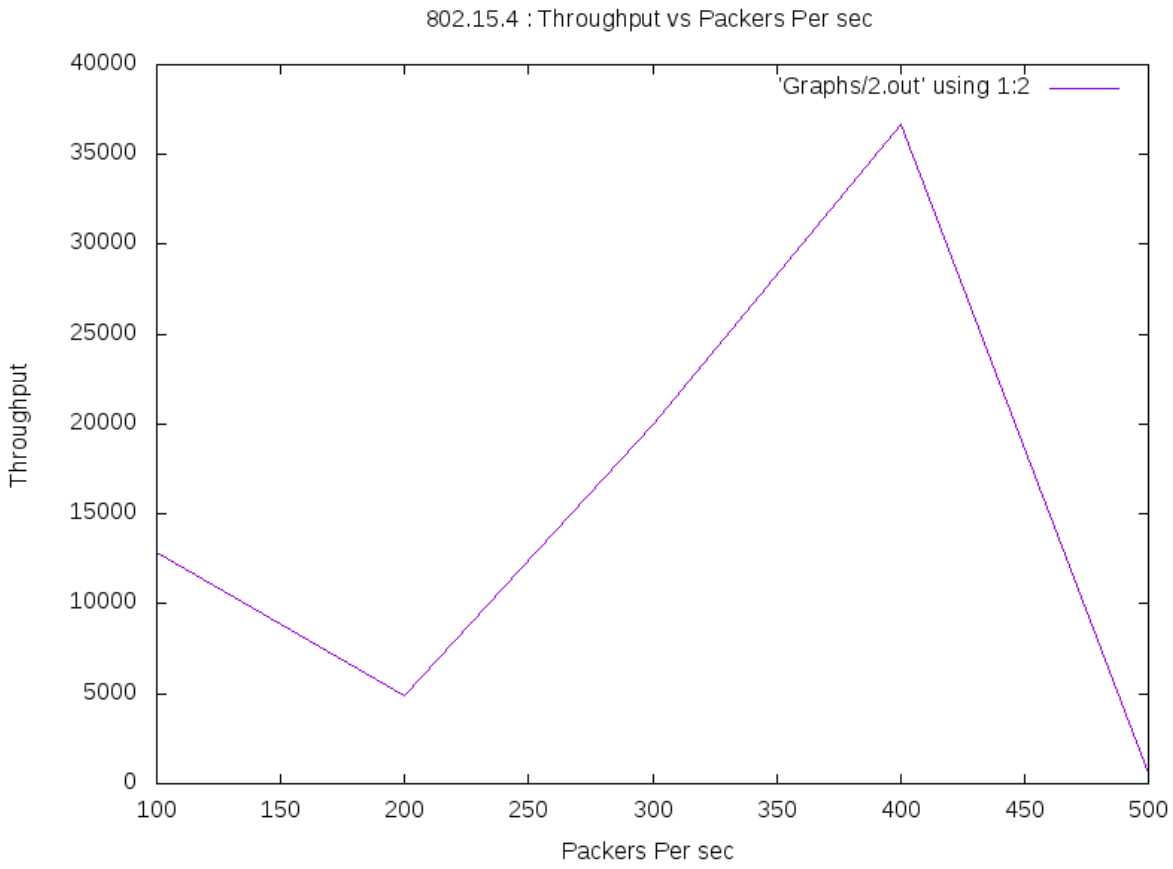

802.15.4 : End to End Delay vs Flow
'Graphs/1.out' using 1:3
End to End Delay
Flow
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
10
15
20
25
30
35
40
45
50

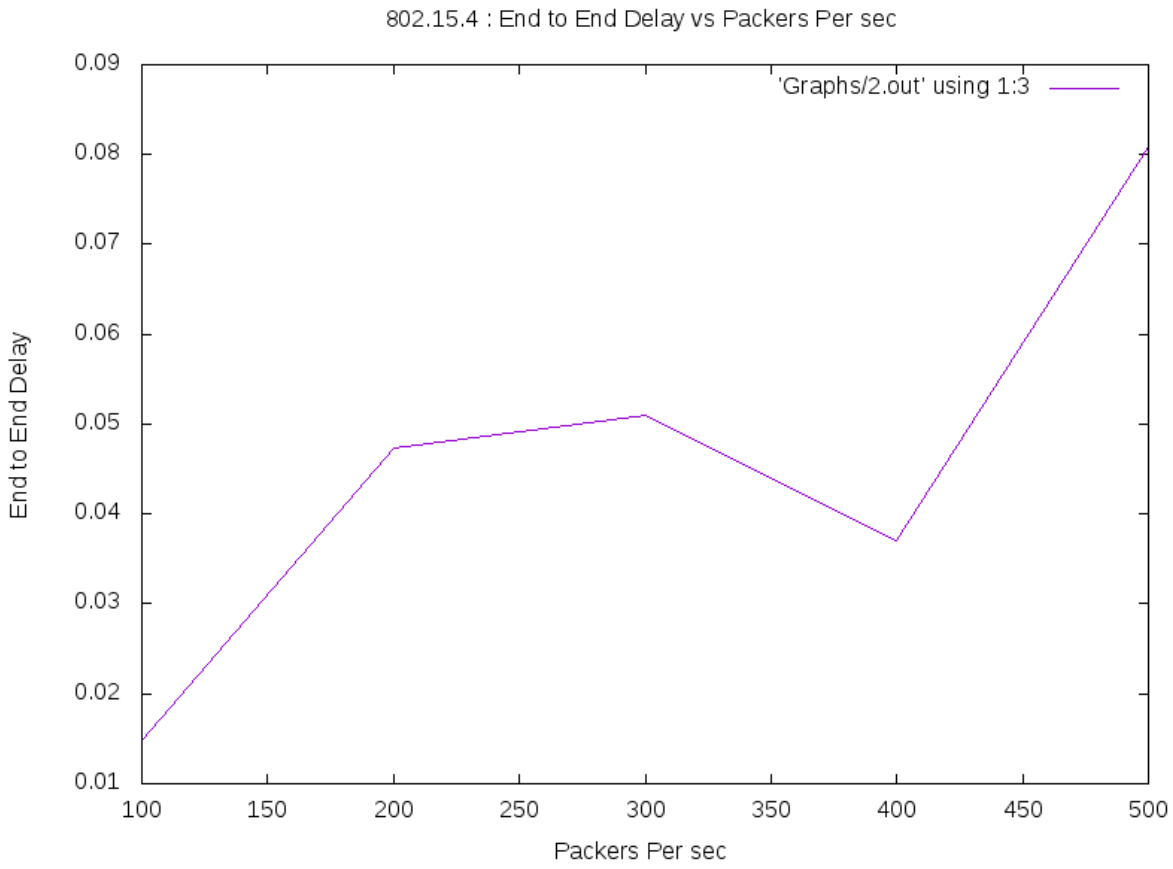

802.15.4 : Delivery Ratio vs Flow
'Graphs/1.out' using 1:4
Delivery Ratio
Flow
100
90
80
70
60
50
40
30
10
15
20
25
30
35
40
45
50


802.15.4 : Drop Ratio vs Flow
'Graphs/1.out' using 1:5
Drop Ratio
Flow
0
10
20
30
40
50
60
70
80
90
10
15
20
25
30
35
40
45
50

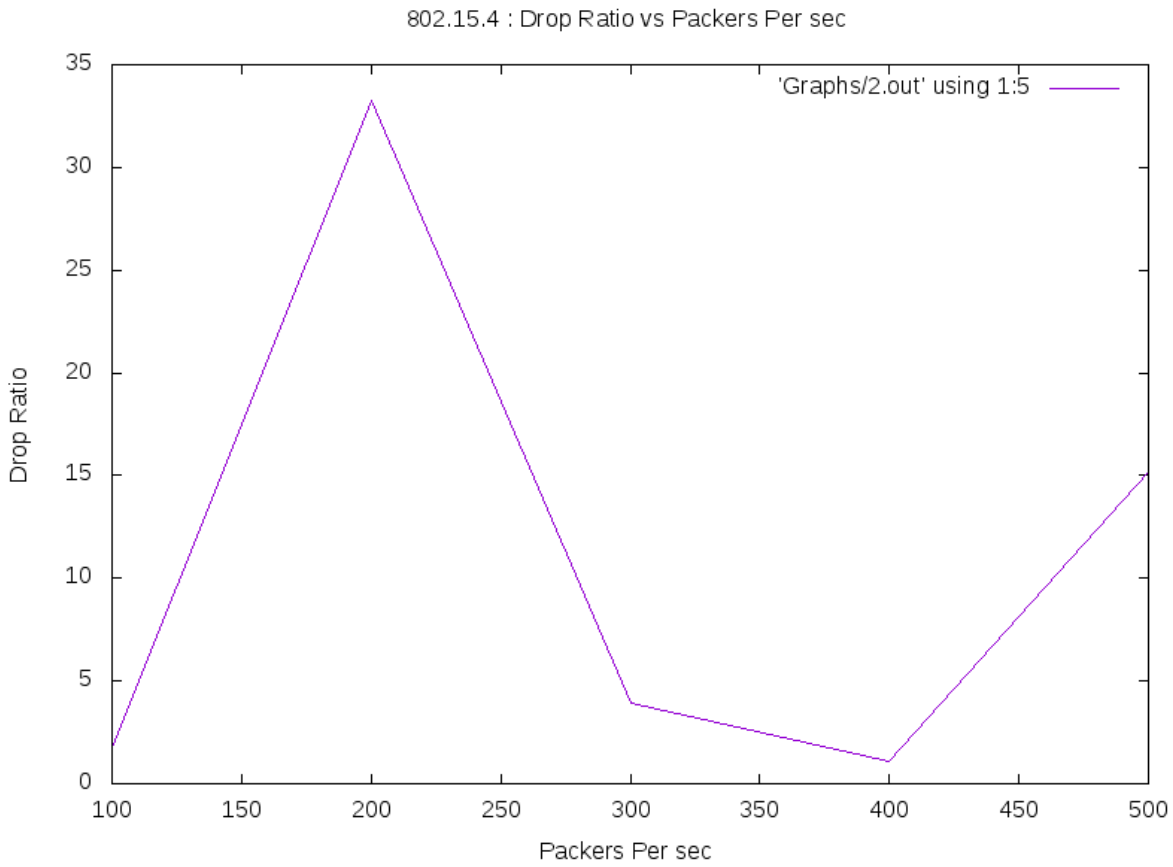

802.15.4 : Total Energy vs Flow
'Graphs/1.out' using 1:6
Total Energy
Flow
36
35
34
33
32
31
30
29
28
27
26
10
15
20
25
30
35
40
45
50

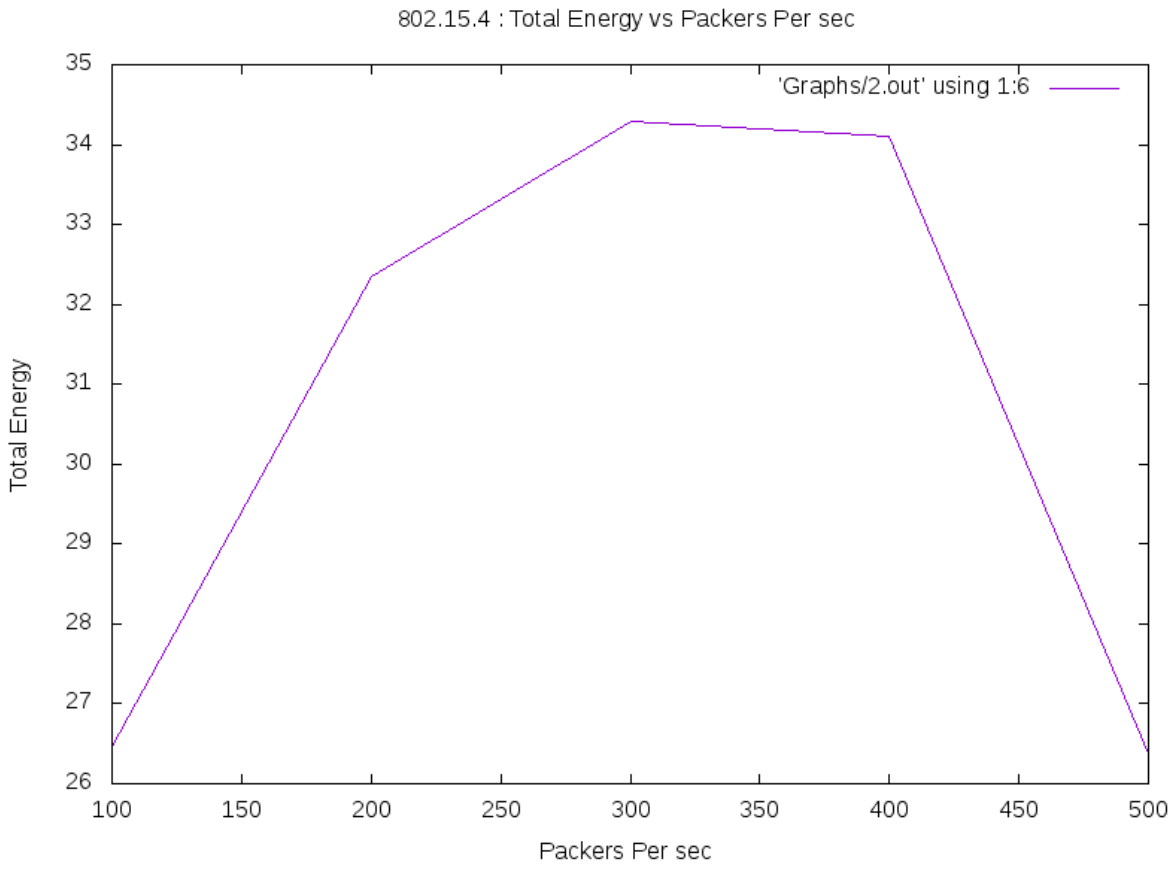

802.15.4 : Energy Per Packet vs Flow
'Graphs/1.out' using 1:7
Energy Per Packet
Flow
2000
1800
1600
1400
1200
1000
800
600
400
200
0
10
15
20
25
30
35
40
45
50

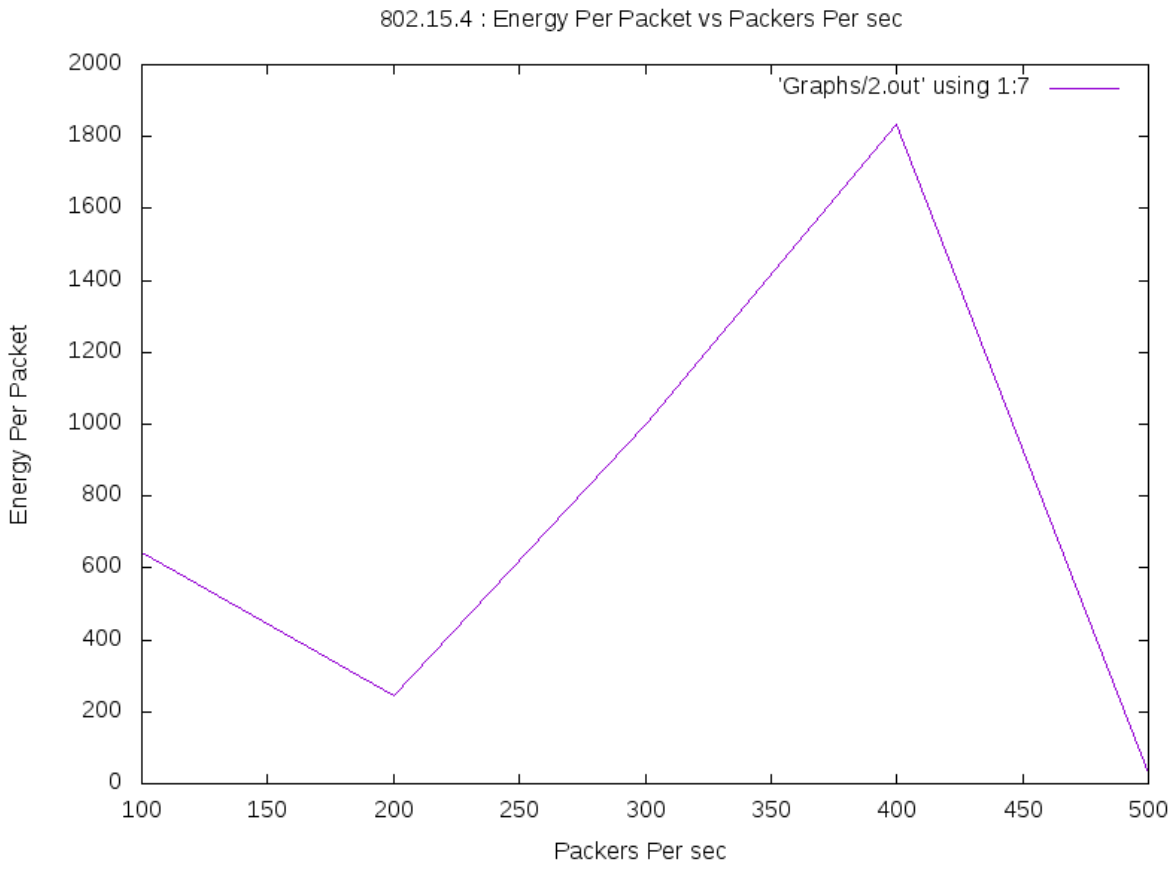

802.15.4 : Throughput vs Packers Per sec
'Graphs/2.out' using 1:2
Throughput
Packers Per sec
40000
35000
30000
25000
20000
15000
10000
5000
0
100
150
200
250
300
350
400
450
500

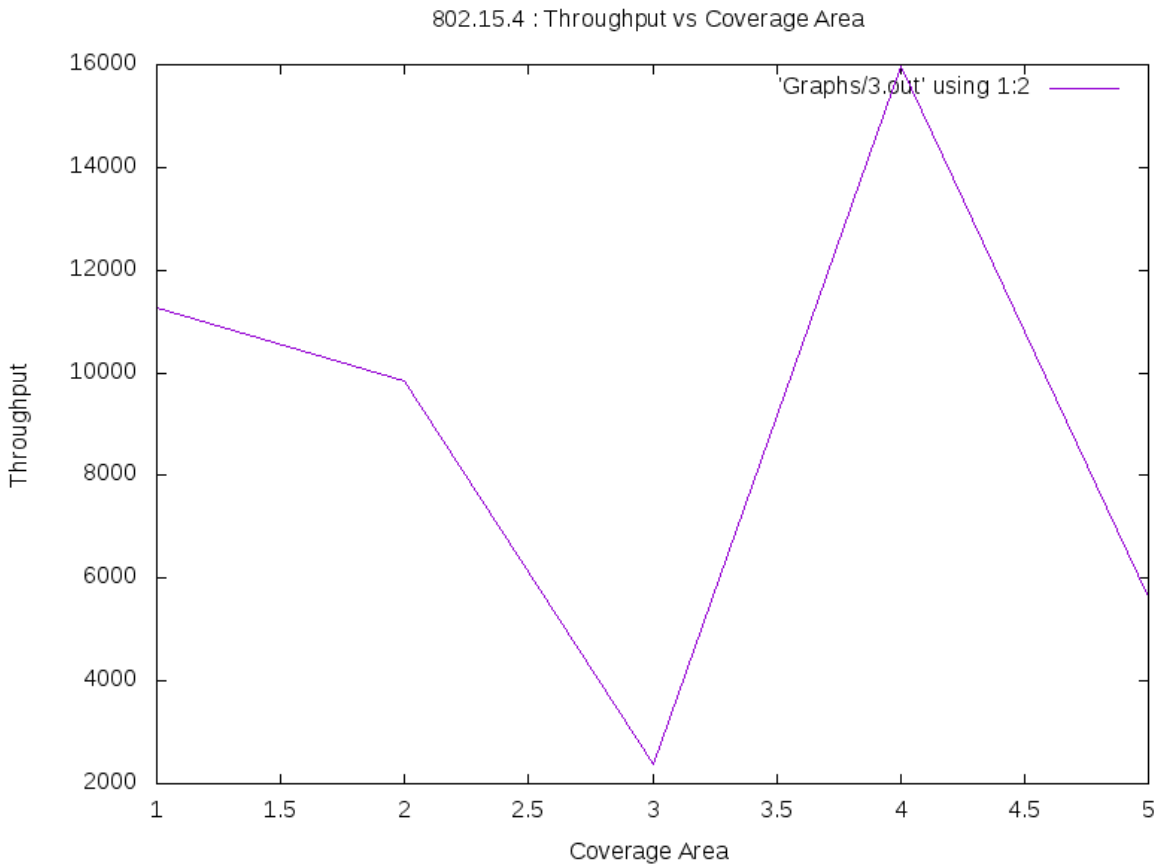

802.15.4 : End to End Delay vs Packers Per sec
'Graphs/2.out' using 1:3
End to End Delay
Packers Per sec
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
100
150
200
250
300
350
400
450
500

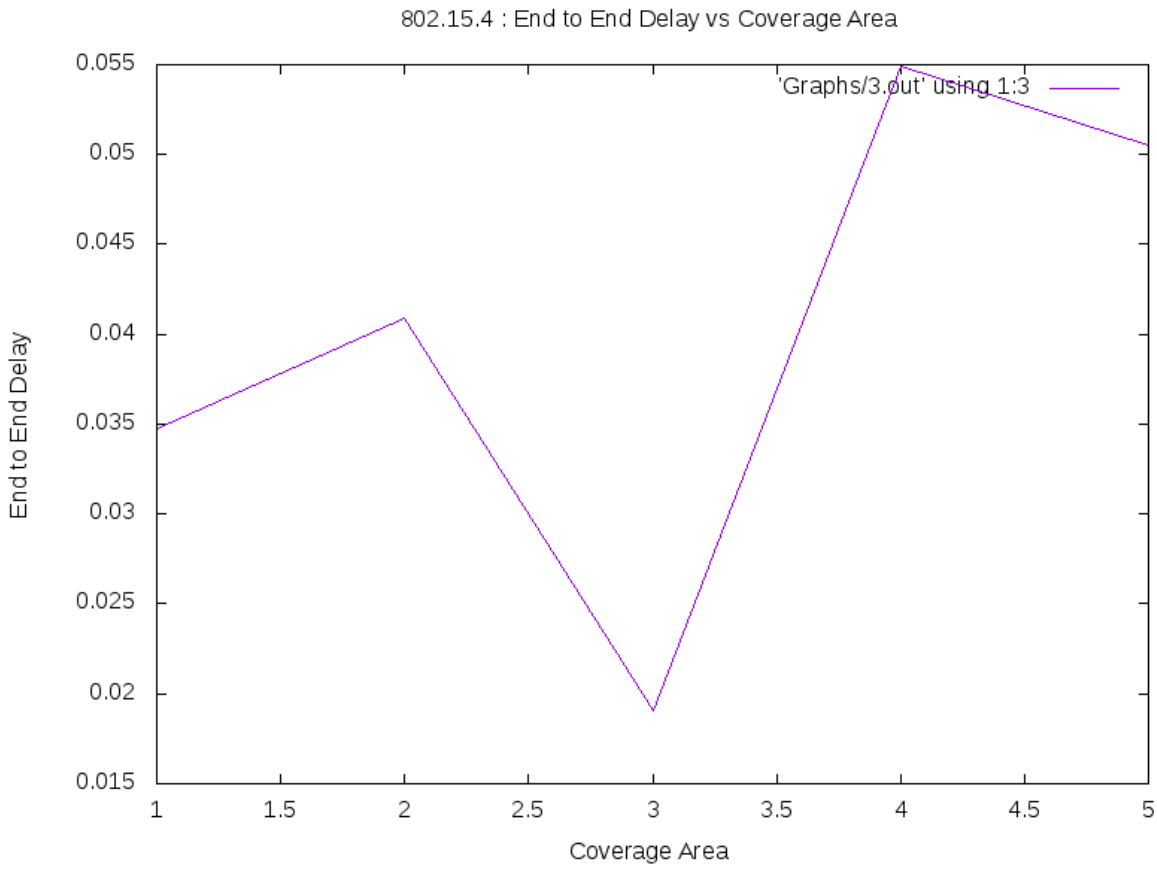

802.15.4 : Delivery Ratio vs Packers Per sec
'Graphs/2.out' using 1:4
Delivery Ratio
Packers Per sec
100
95
90
85
80
75
70
100
150
200
250
300
350
400
450
500

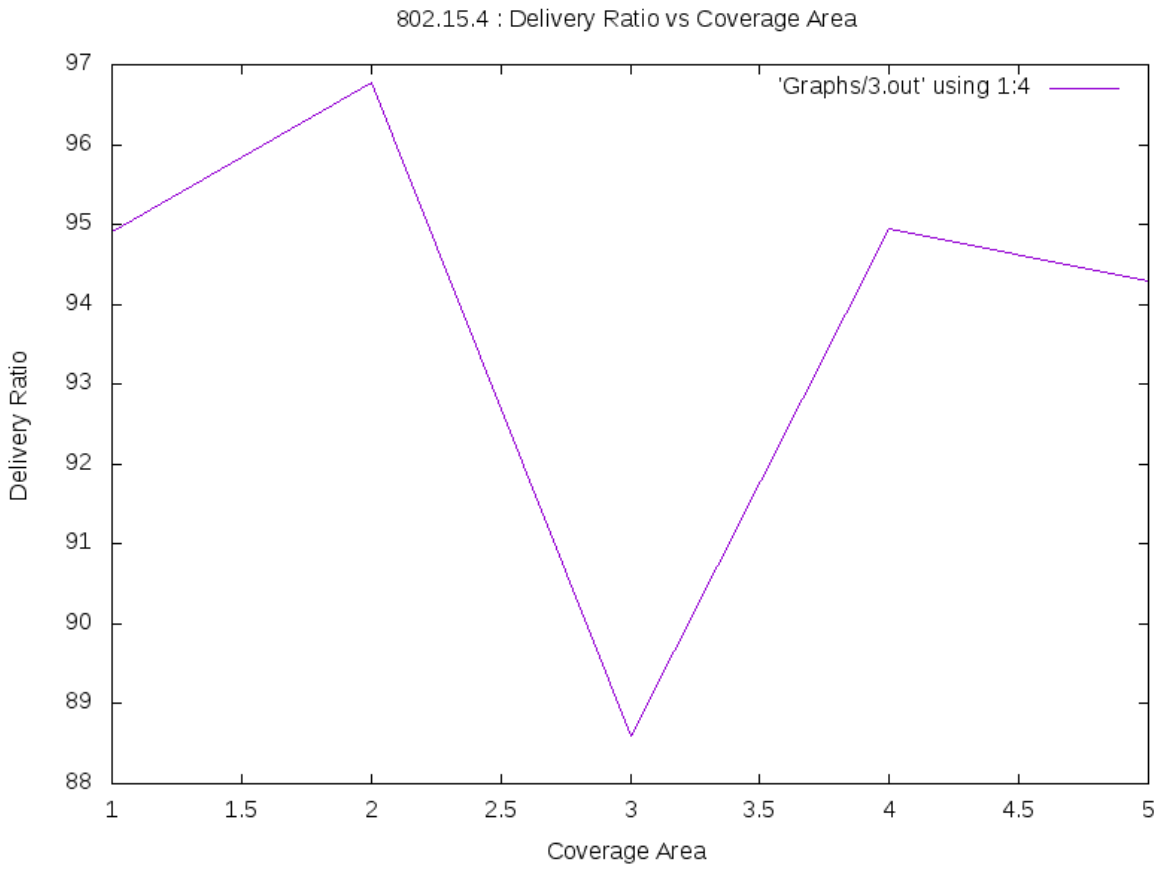

802.15.4 : Drop Ratio vs Packers Per sec
'Graphs/2.out' using 1:5
Drop Ratio
Packers Per sec
0
5
10
15
20
25
30
35
100
150
200
250
300
350
400
450
500

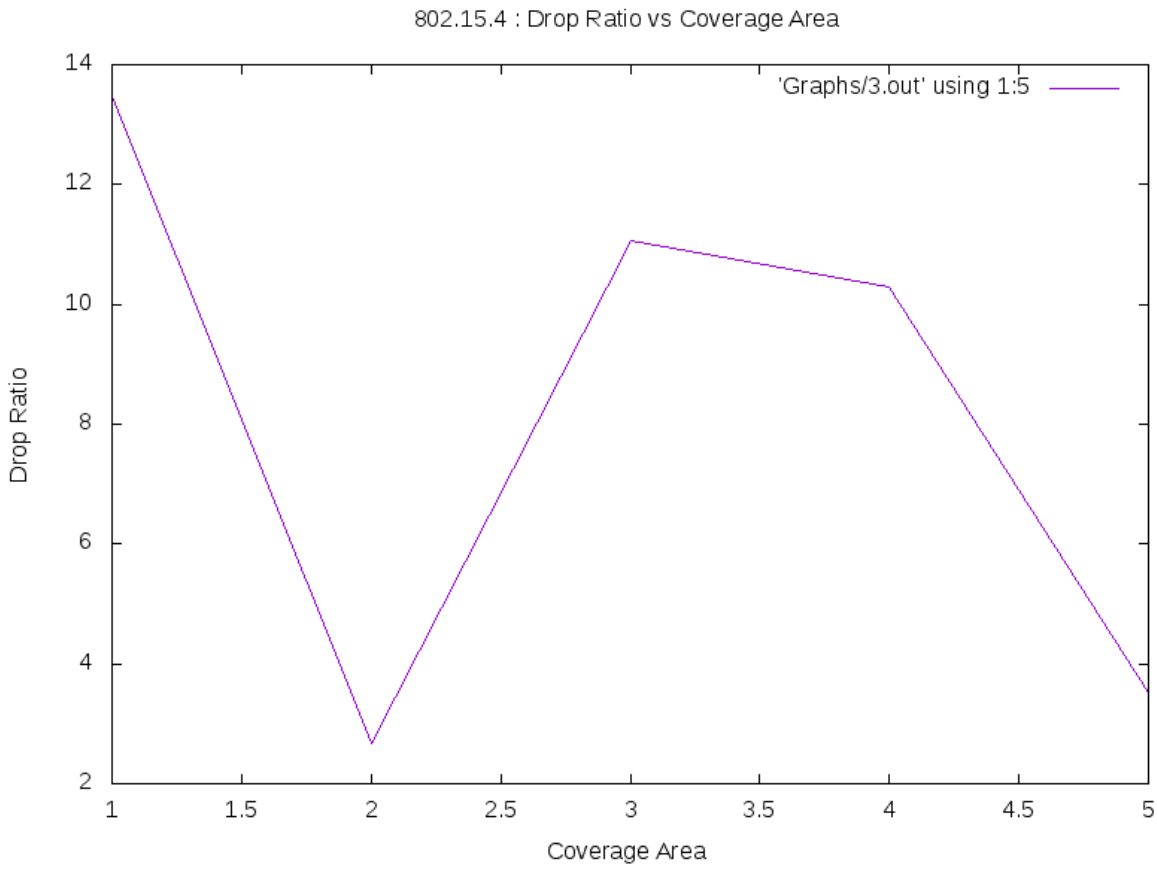

802.15.4 : Total Energy vs Packers Per sec
'Graphs/2.out' using 1:6
Total Energy
Packers Per sec
35
34
33
32
31
30
29
28
27
26
100
150
200
250
300
350
400
450
500

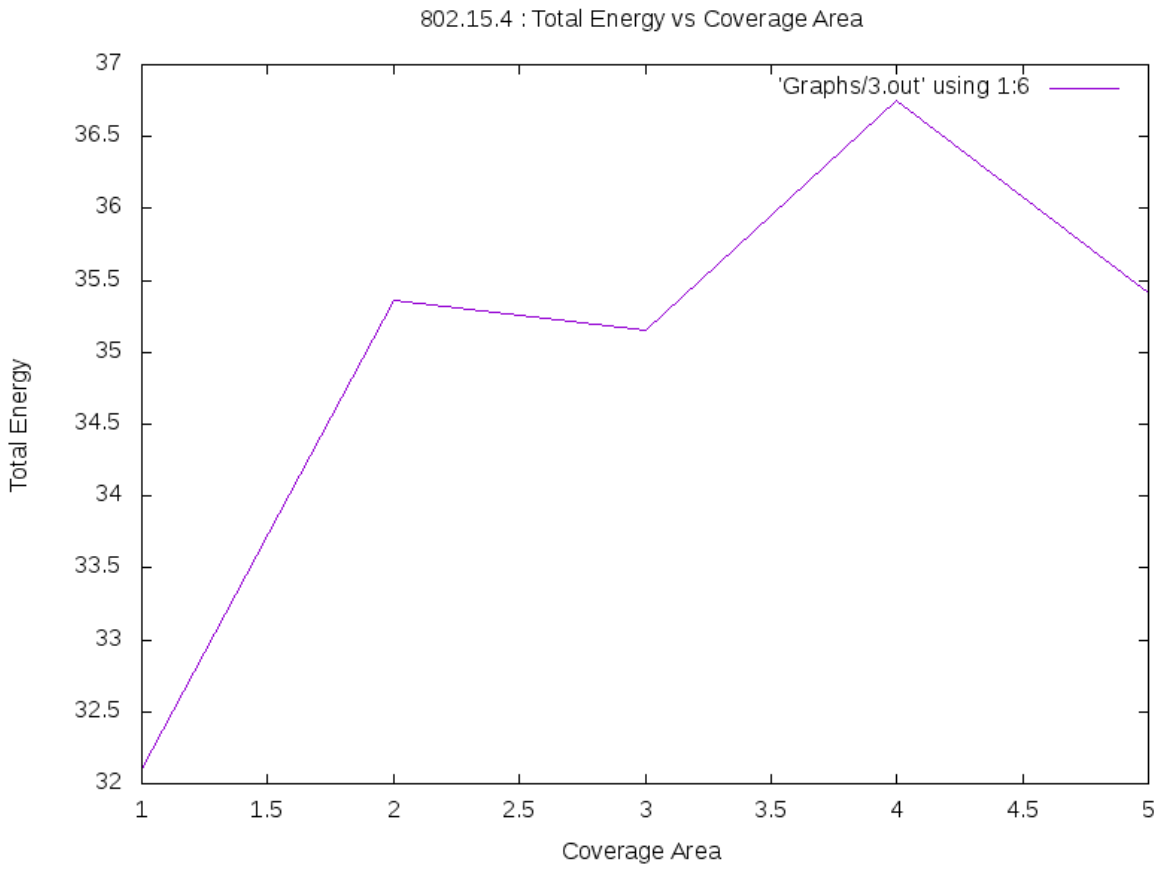

802.15.4 : Energy Per Packet vs Packers Per sec
'Graphs/2.out' using 1:7
Energy Per Packet
Packers Per sec
2000
1800
1600
1400
1200
1000
800
600
400
200
0
100
150
200
250
300
350
400
450
500

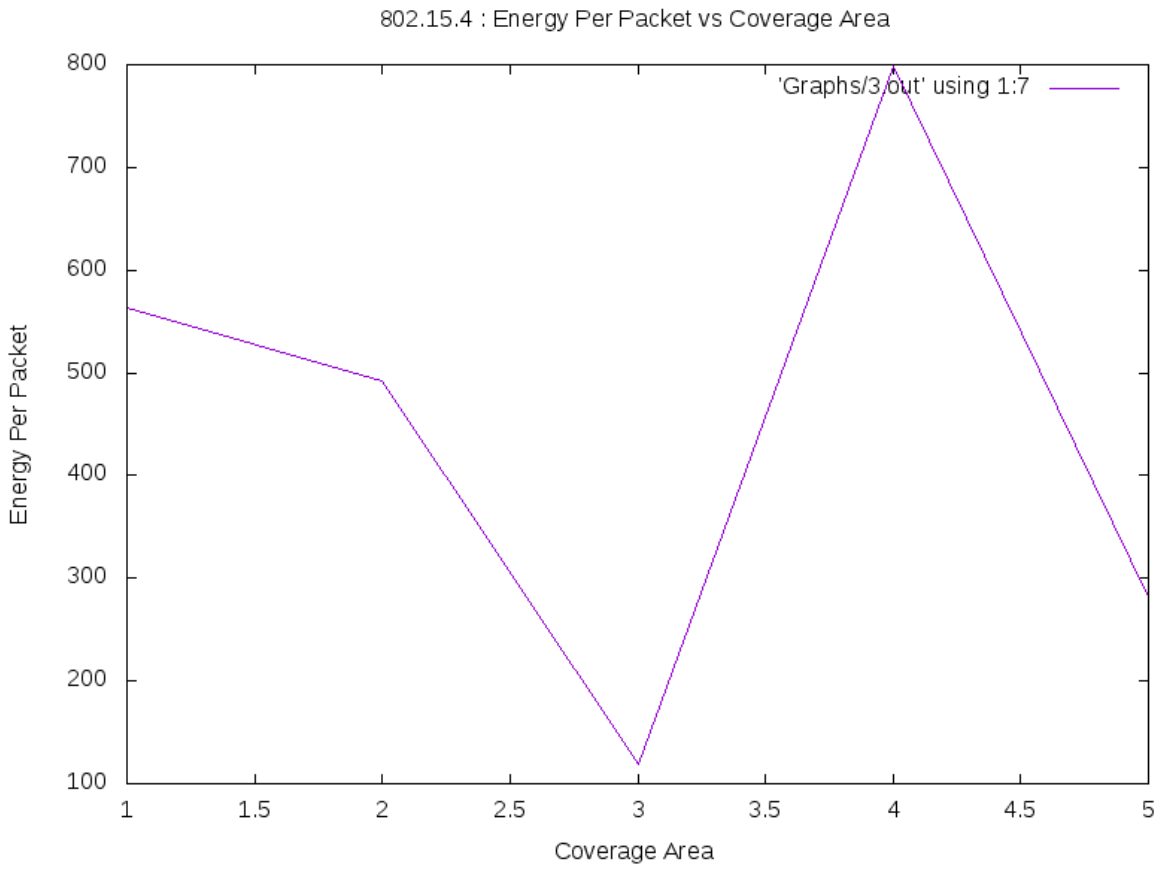

802.15.4 : Throughput vs Coverage Area
'Graphs/3.out' using 1:2
Throughput
Coverage Area
16000
14000
12000
10000
8000
6000
4000
2000
1
1.5
2
2.5
3
3.5
4
4.5
5

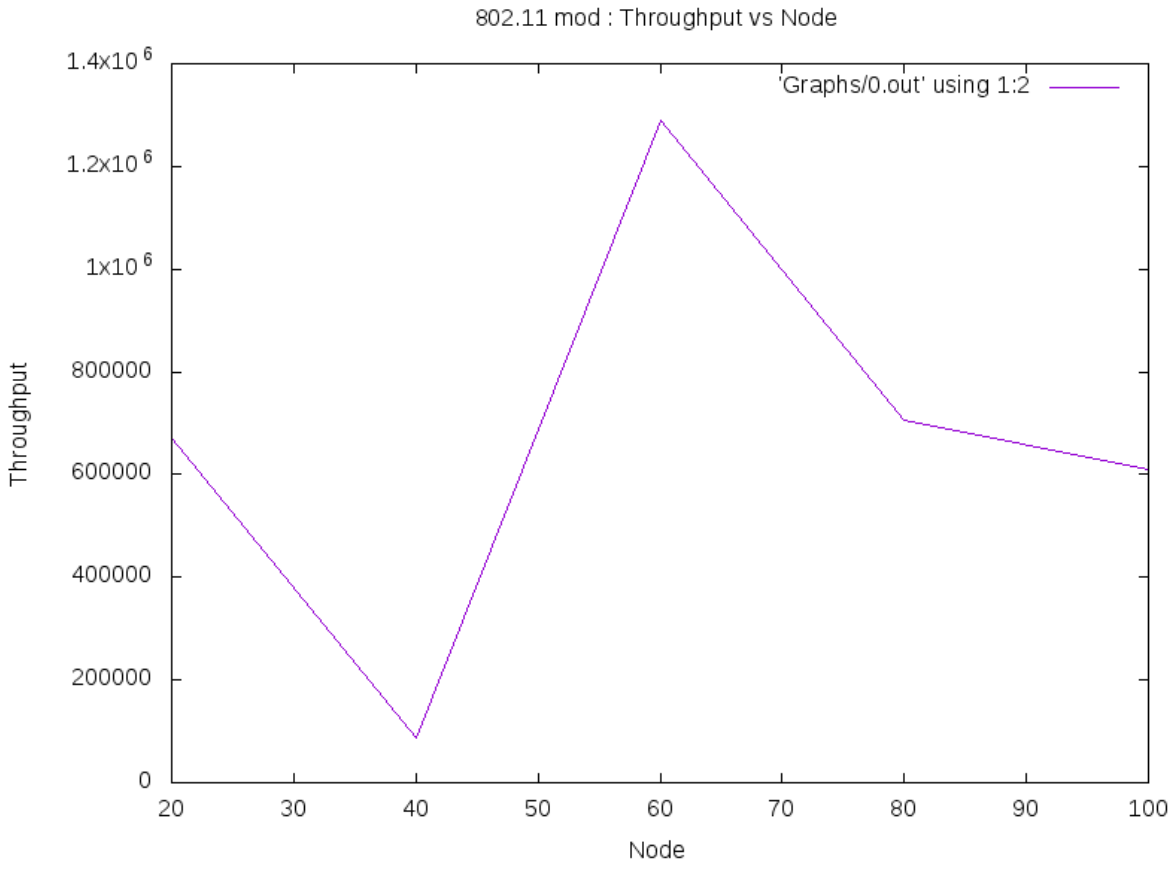

802.15.4 : End to End Delay vs Coverage Area
'Graphs/3.out' using 1:3
End to End Delay
Coverage Area
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
1
1.5
2
2.5
3
3.5
4
4.5
5

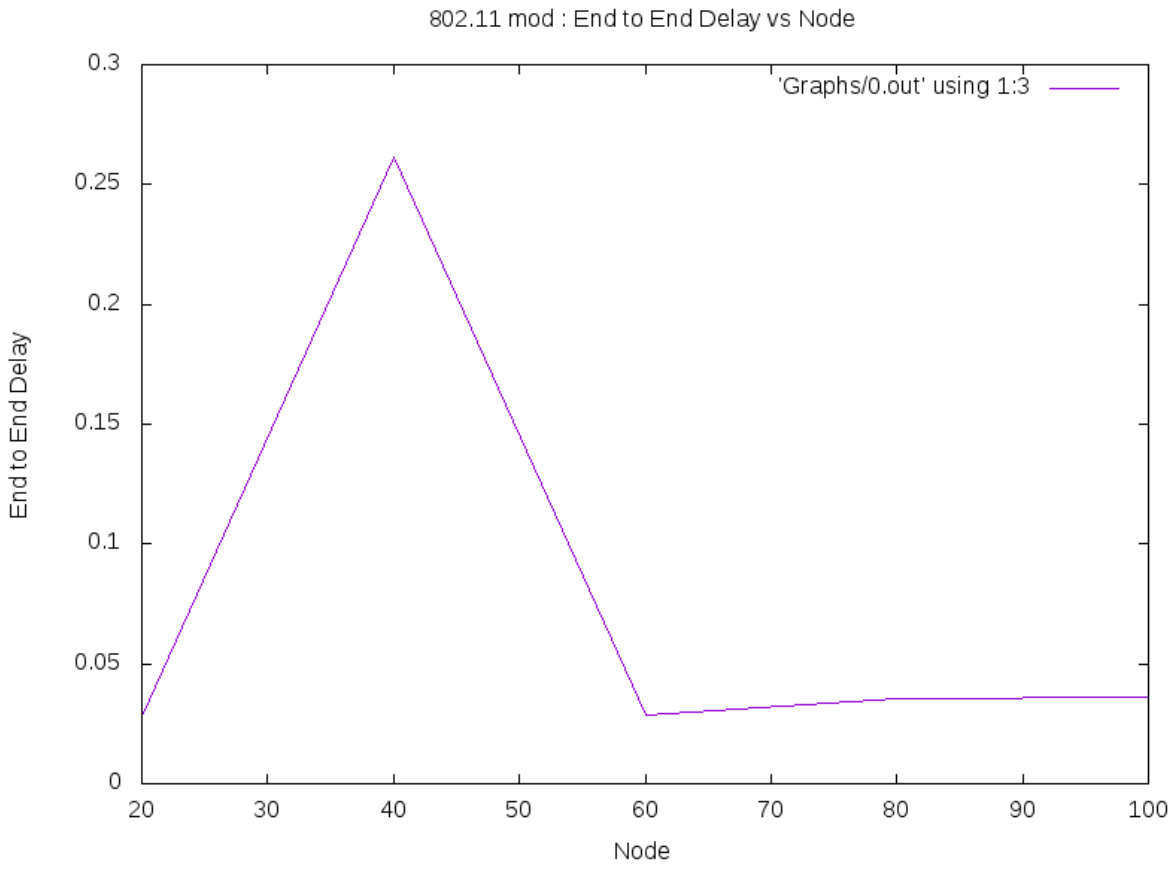

802.15.4 : Delivery Ratio vs Coverage Area
'Graphs/3.out' using 1:4
Delivery Ratio
Coverage Area
97
96
95
94
93
92
91
90
89
88
1
1.5
2
2.5
3
3.5
4
4.5
5

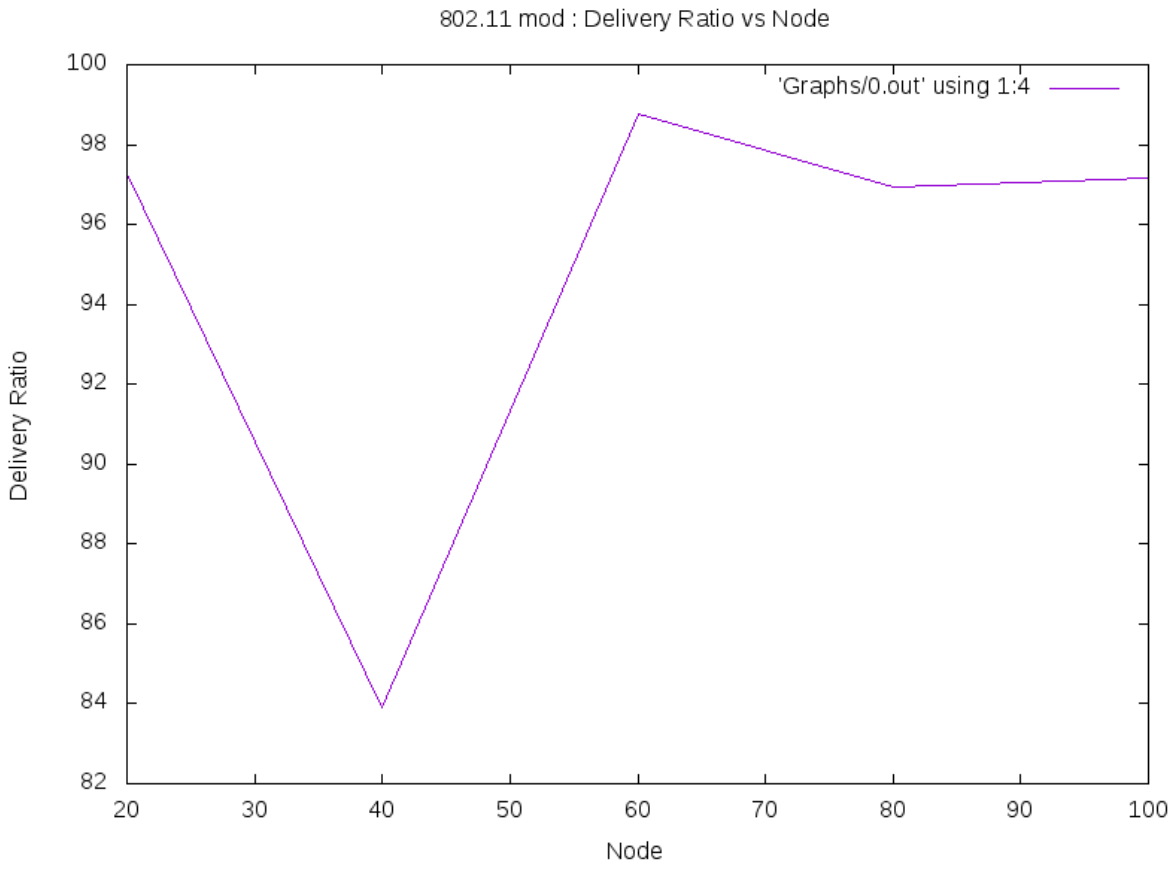

802.15.4 : Drop Ratio vs Coverage Area
'Graphs/3.out' using 1:5
Drop Ratio
Coverage Area
14
12
10
8
6
4
2
1
1.5
2
2.5
3
3.5
4
4.5
5

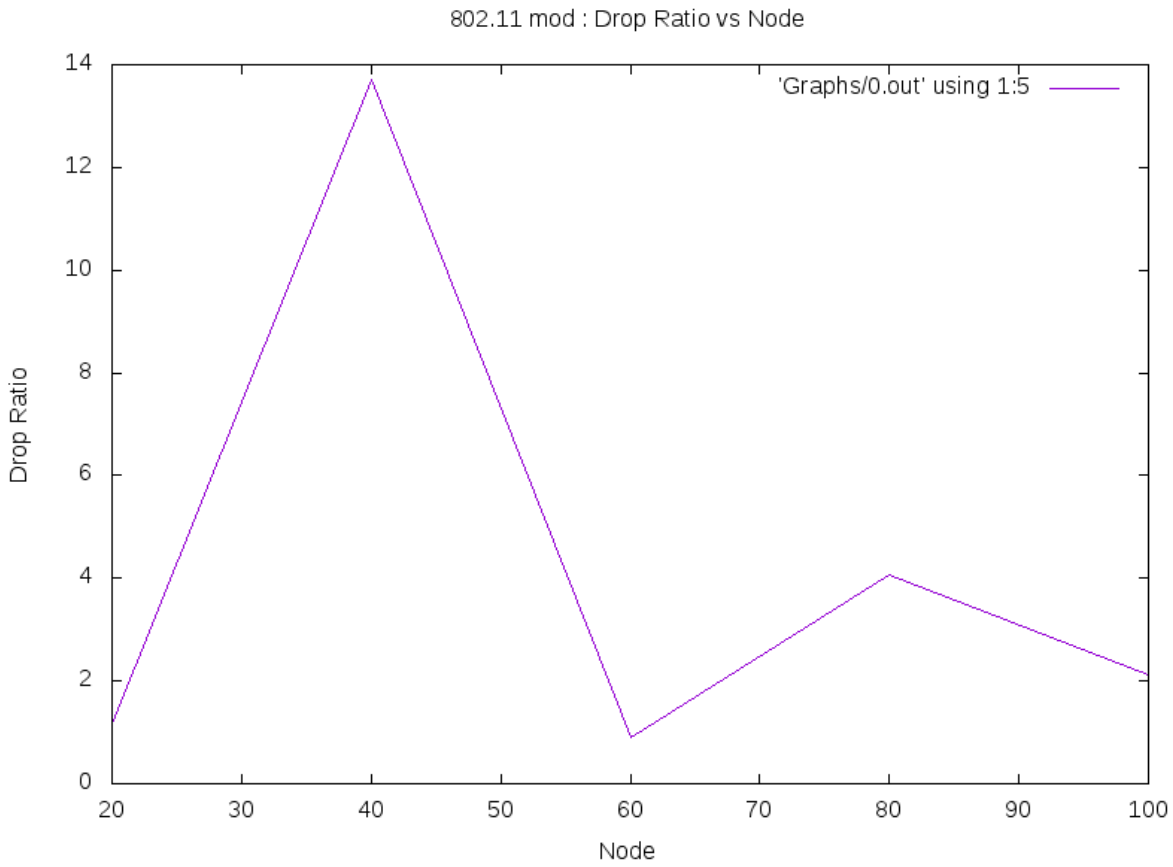

802.15.4 : Total Energy vs Coverage Area
'Graphs/3.out' using 1:6
Total Energy
Coverage Area
37
36.5
36
35.5
35
34.5
34
33.5
33
32.5
32
1
1.5
2
2.5
3
3.5
4
4.5
5

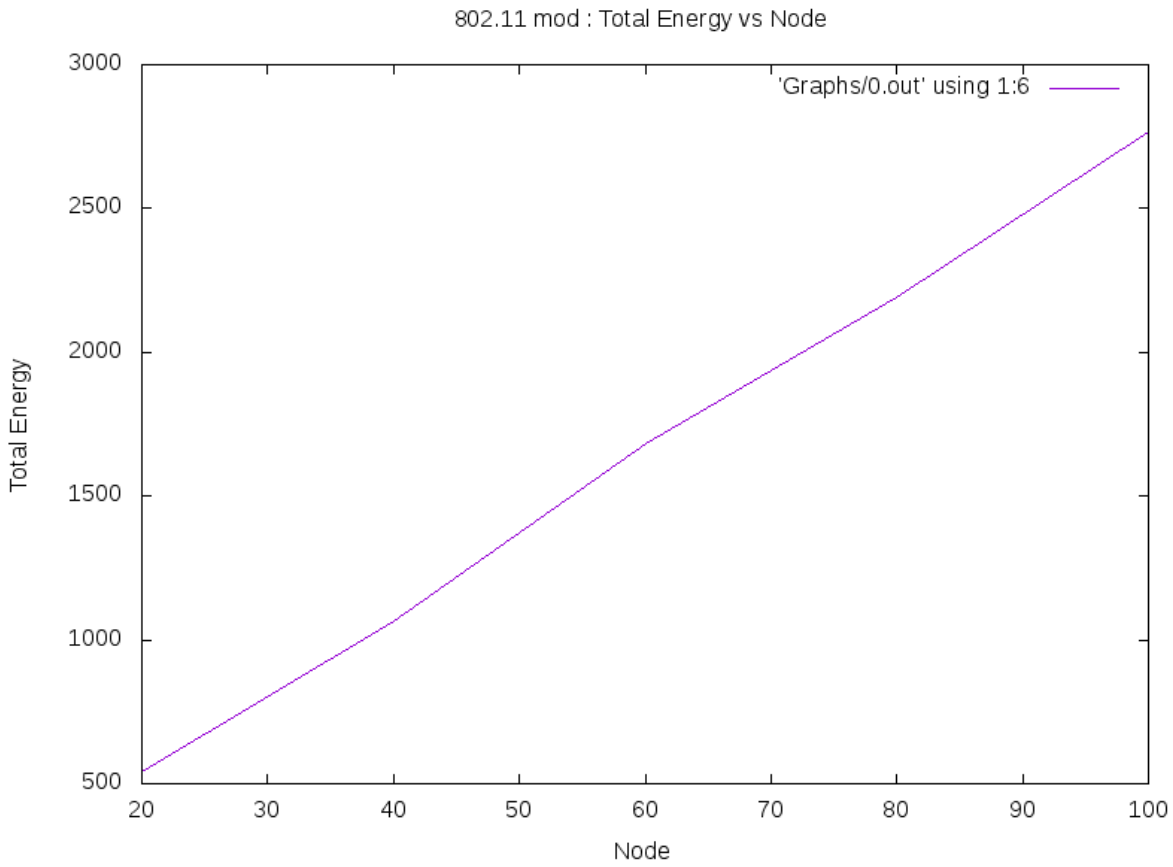

802.15.4 : Energy Per Packet vs Coverage Area
'Graphs/3.out' using 1:7
Energy Per Packet
Coverage Area
800
700
600
500
400
300
200
100
1
1.5
2
2.5
3
3.5
4
4.5
5

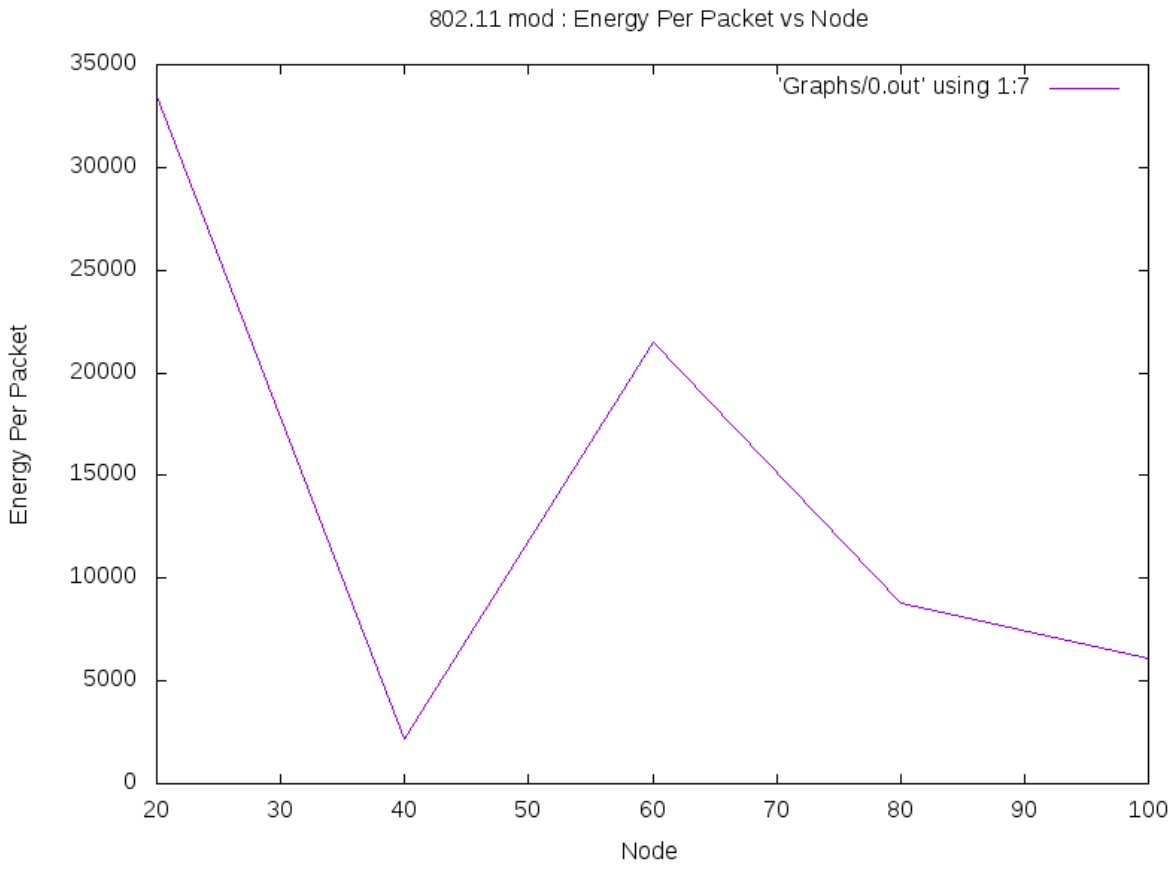

802.11 mod : Throughput vs Node
'Graphs/0.out' using 1:2
Throughput
Node
1.4x10 6
1.2x10 6
1x10 6
800000
600000
400000
200000
0
20
30
40
50
60
70
80
90
100

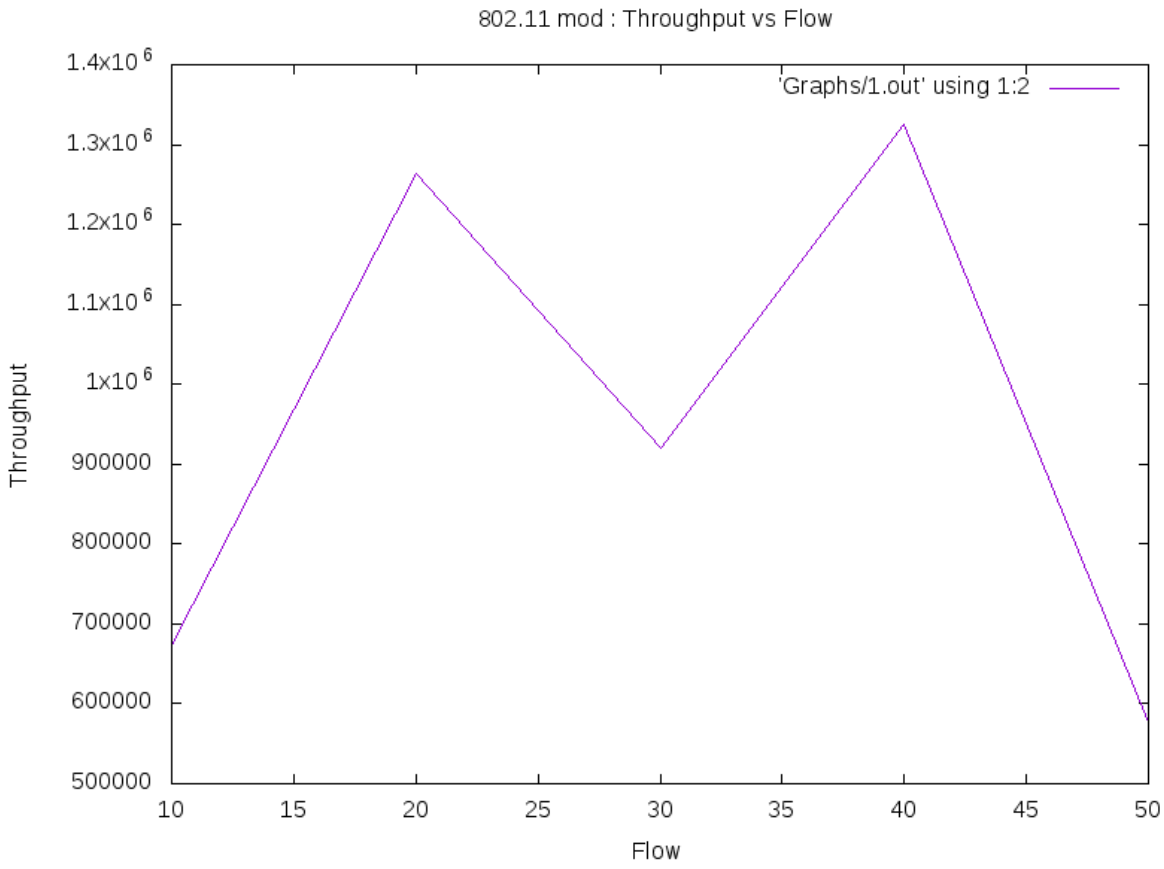

802.11 mod : End to End Delay vs Node
'Graphs/0.out' using 1:3
End to End Delay
Node
0.3
0.25
0.2
0.15
0.1
0.05
0
20
30
40
50
60
70
80
90
100

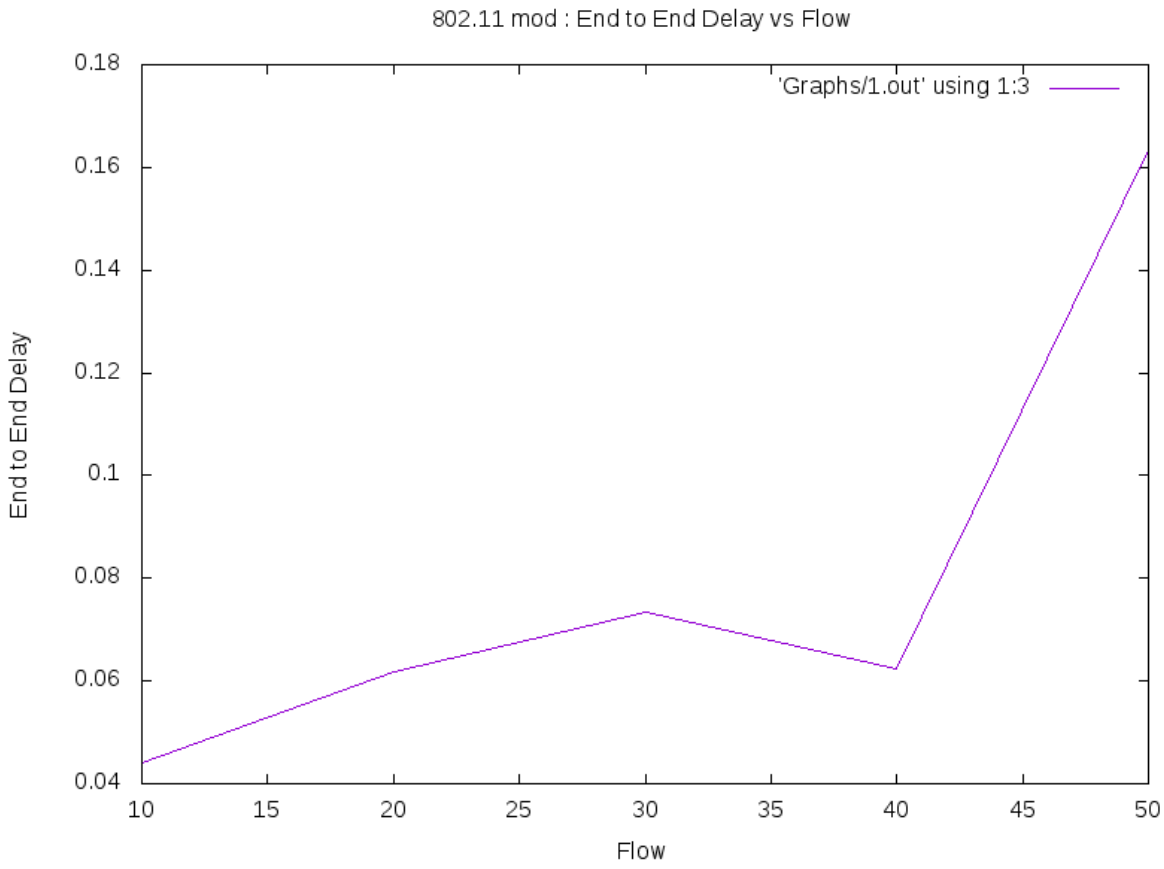

802.11 mod : Delivery Ratio vs Node
'Graphs/0.out' using 1:4
Delivery Ratio
Node
100
98
96
94
92
90
88
86
84
82
20
30
40
50
60
70
80
90
100

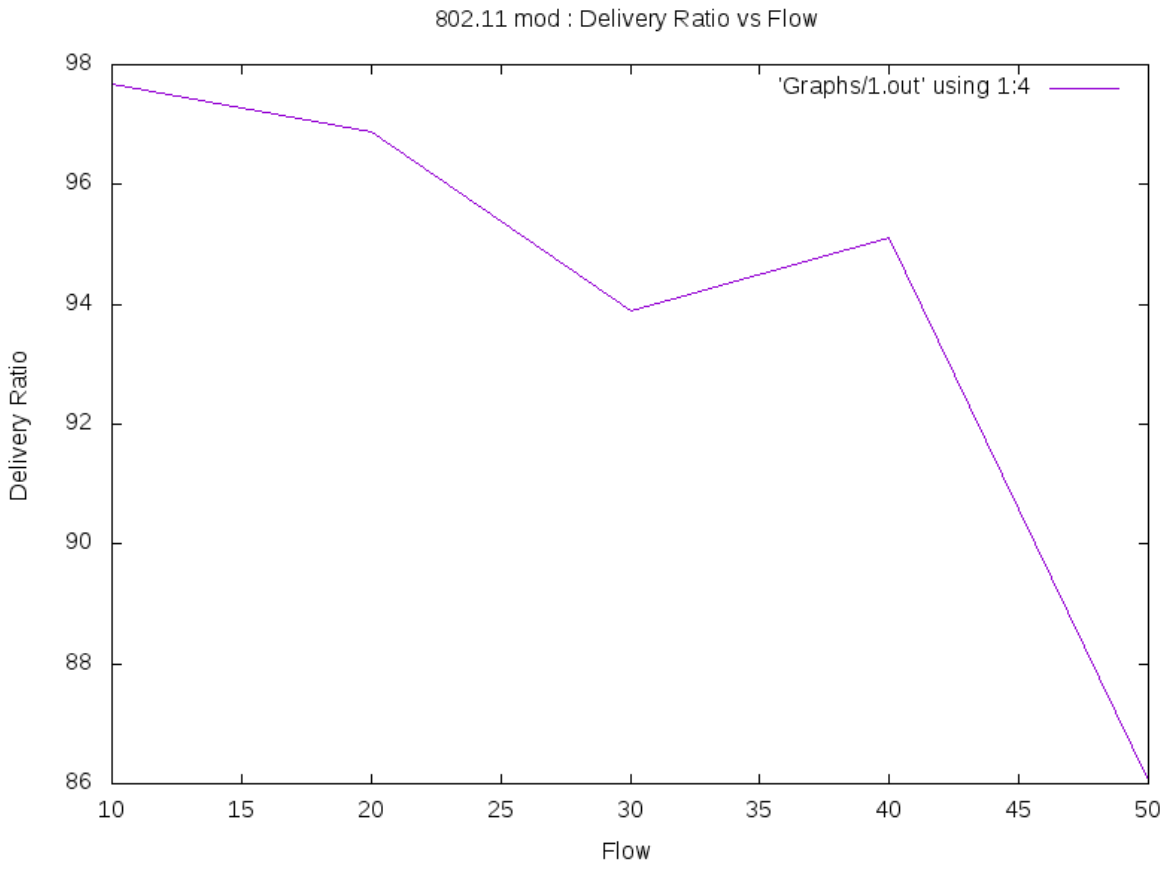

802.11 mod : Drop Ratio vs Node
'Graphs/0.out' using 1:5
Drop Ratio
Node
0
2
4
6
8
10
12
14
20
30
40
50
60
70
80
90
100

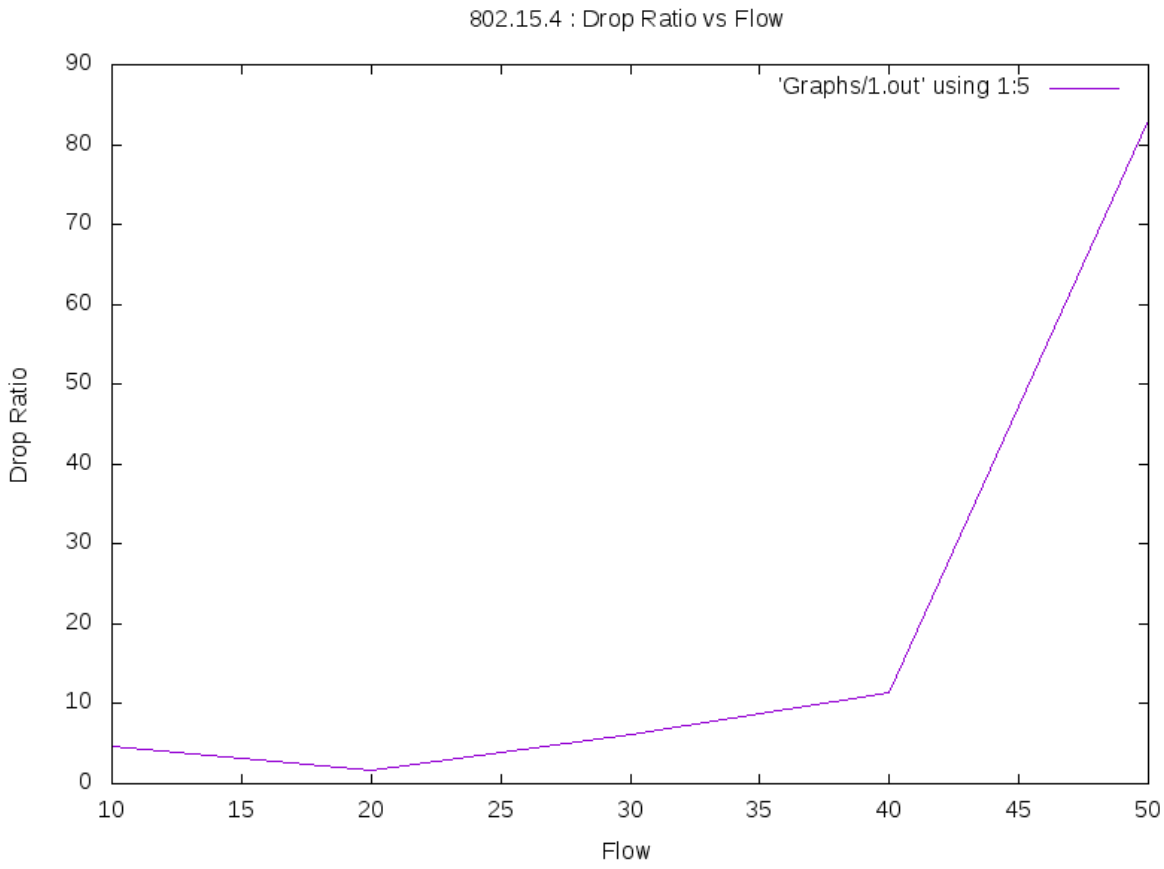

802.11 mod : Total Energy vs Node
'Graphs/0.out' using 1:6
Total Energy
Node
3000
2500
2000
1500
1000
500
20
30
40
50
60
70
80
90
100

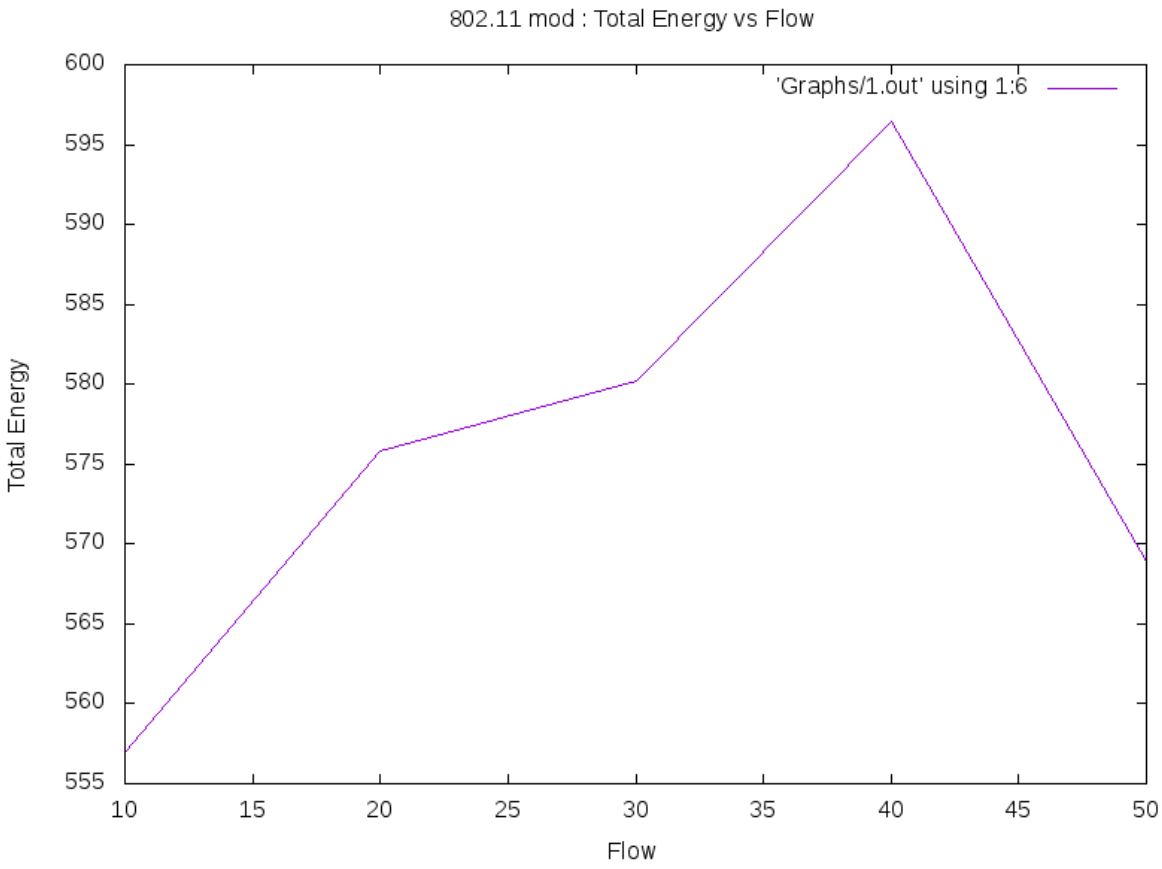

802.11 mod : Energy Per Packet vs Node
'Graphs/0.out' using 1:7
Energy Per Packet
Node
35000
30000
25000
20000
15000
10000
5000
0
20
30
40
50
60
70
80
90
100

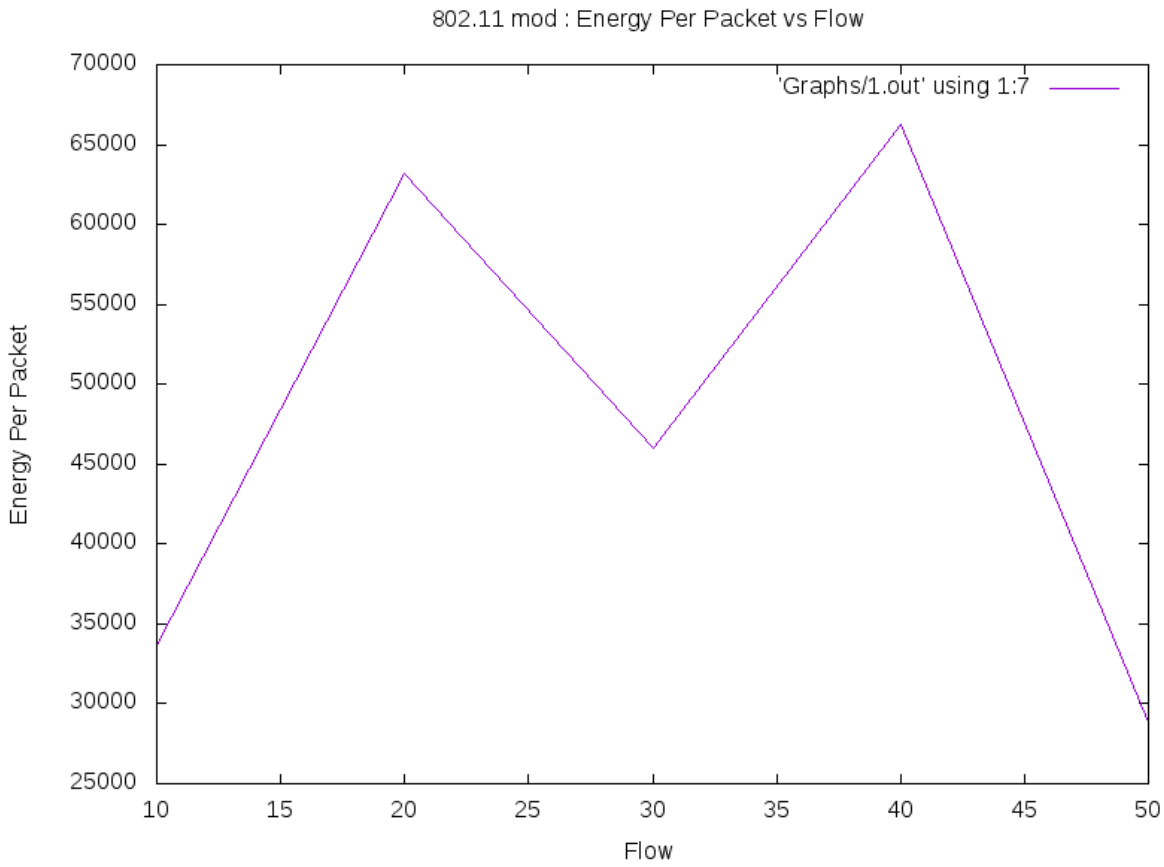

802.11 mod : Throughput vs Flow
'Graphs/1.out' using 1:2
Throughput
Flow
1.4x10^6
1.3x10^6
1.2x10^6
1.1x10^6
1x10^6
900000
800000
700000
600000
500000
10
15
20
25
30
35
40
45
50

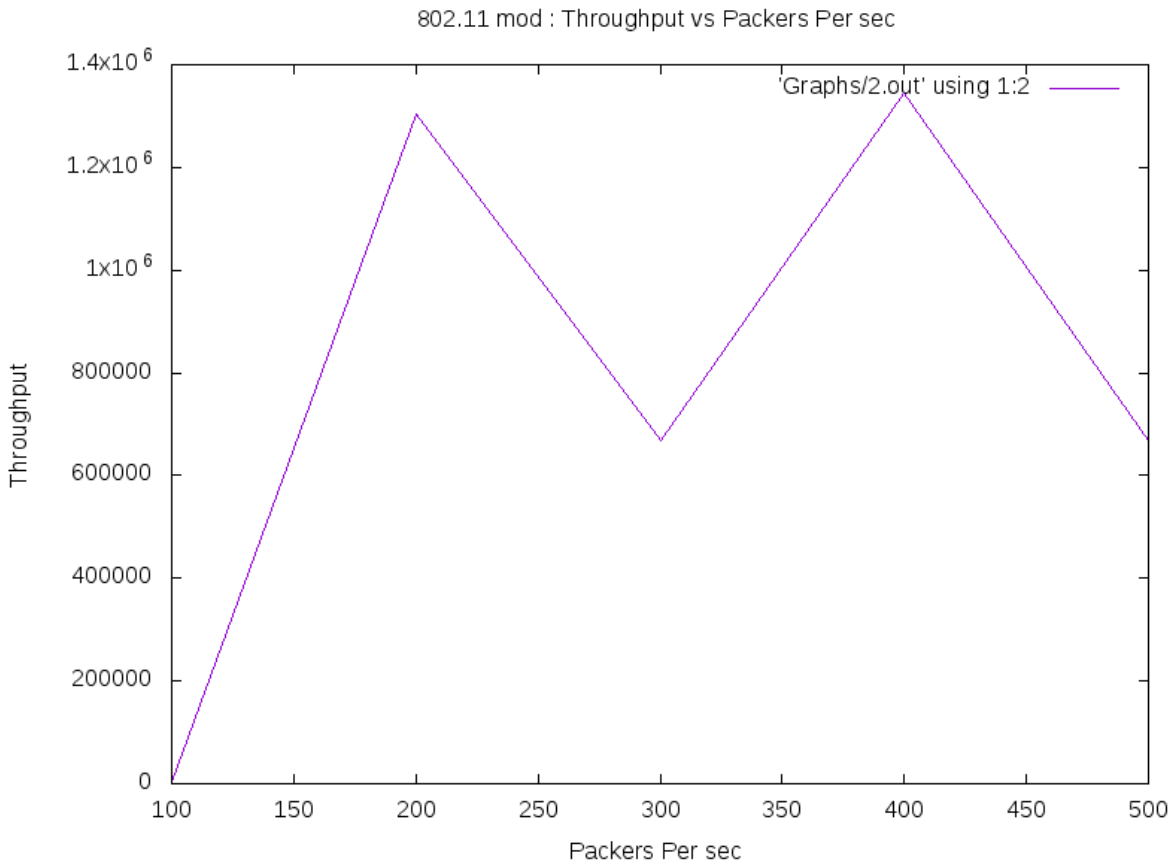

802.11 mod : End to End Delay vs Flow
'Graphs/1.out' using 1:3
End to End Delay
Flow
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
10
15
20
25
30
35
40
45
50

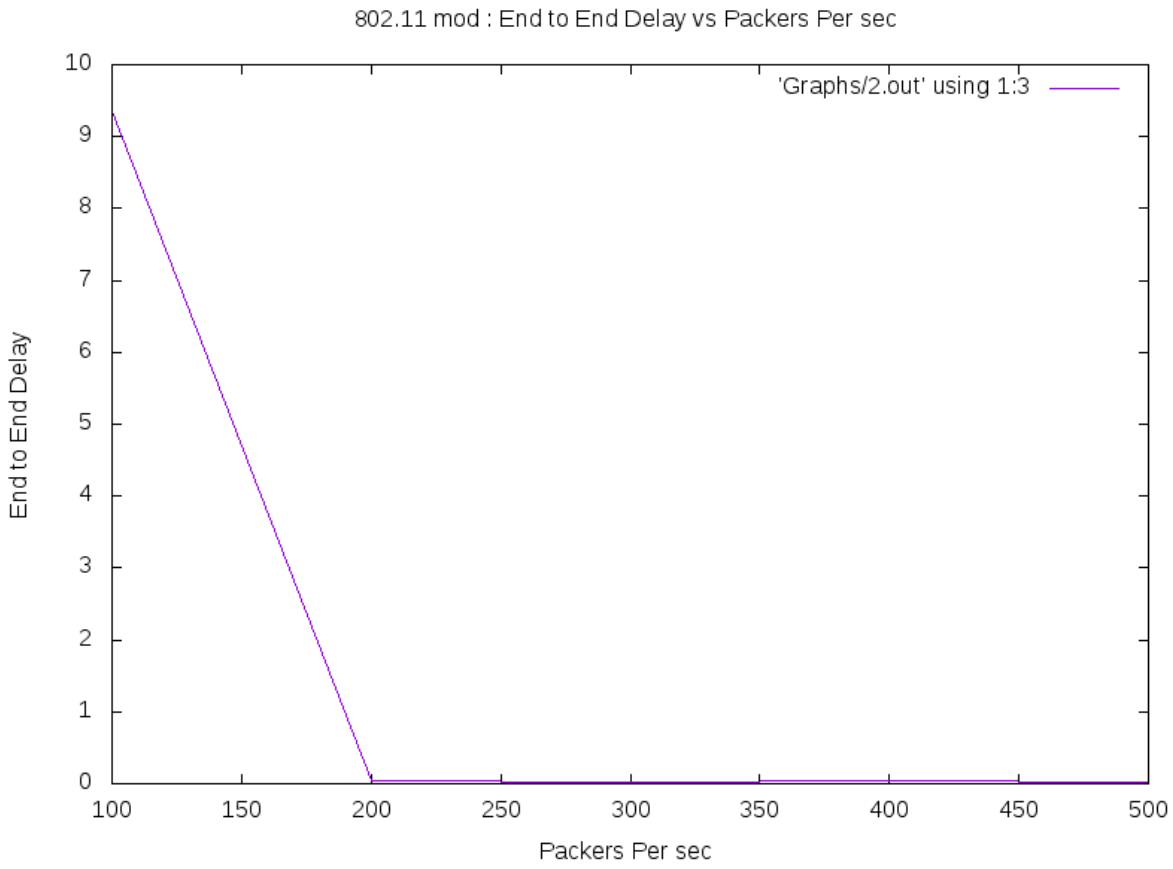

802.11 mod : Delivery Ratio vs Flow
'Graphs/1.out' using 1:4
Delivery Ratio
Flow
98
96
94
92
90
88
86
10
15
20
25
30
35
40
45
50

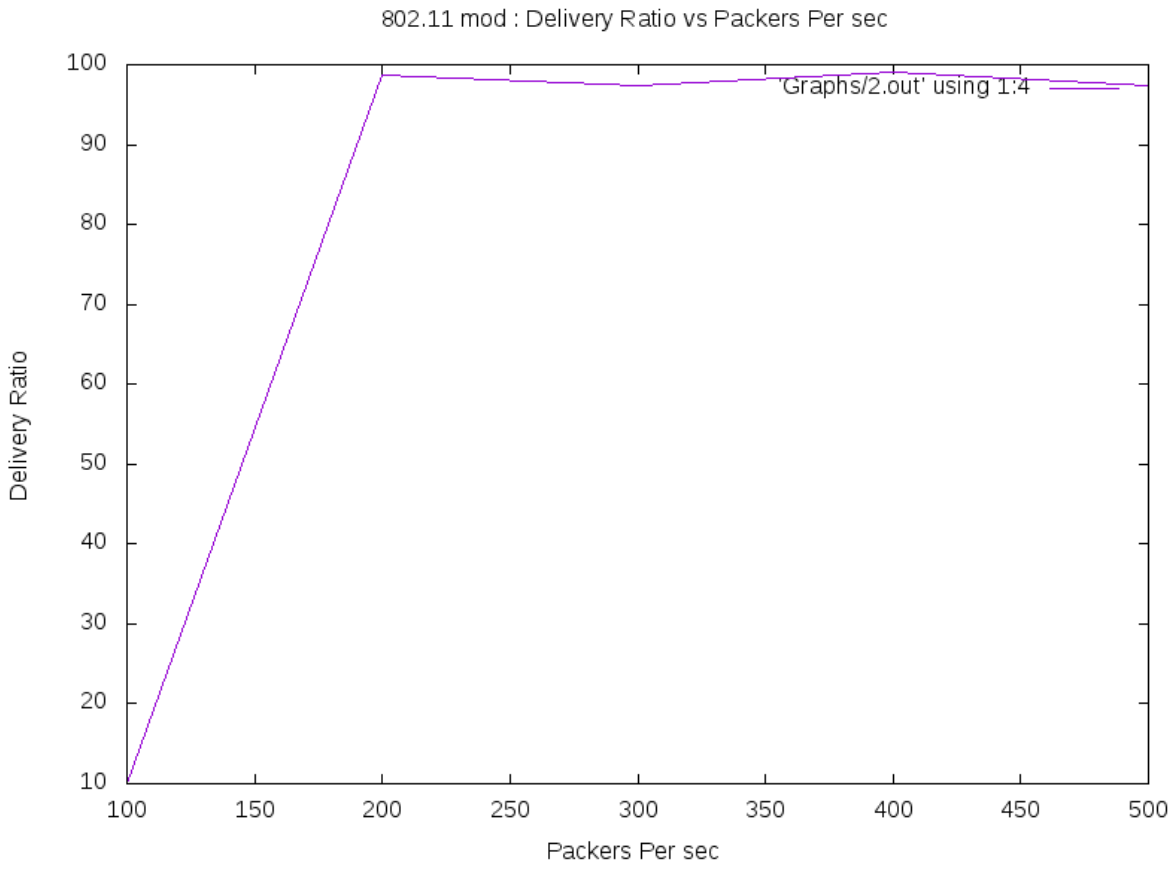

802.15.4 : Drop Ratio vs Flow
'Graphs/1.out' using 1:5
Drop Ratio
Flow
0
10
20
30
40
50
60
70
80
90
10
15
20
25
30
35
40
45
50

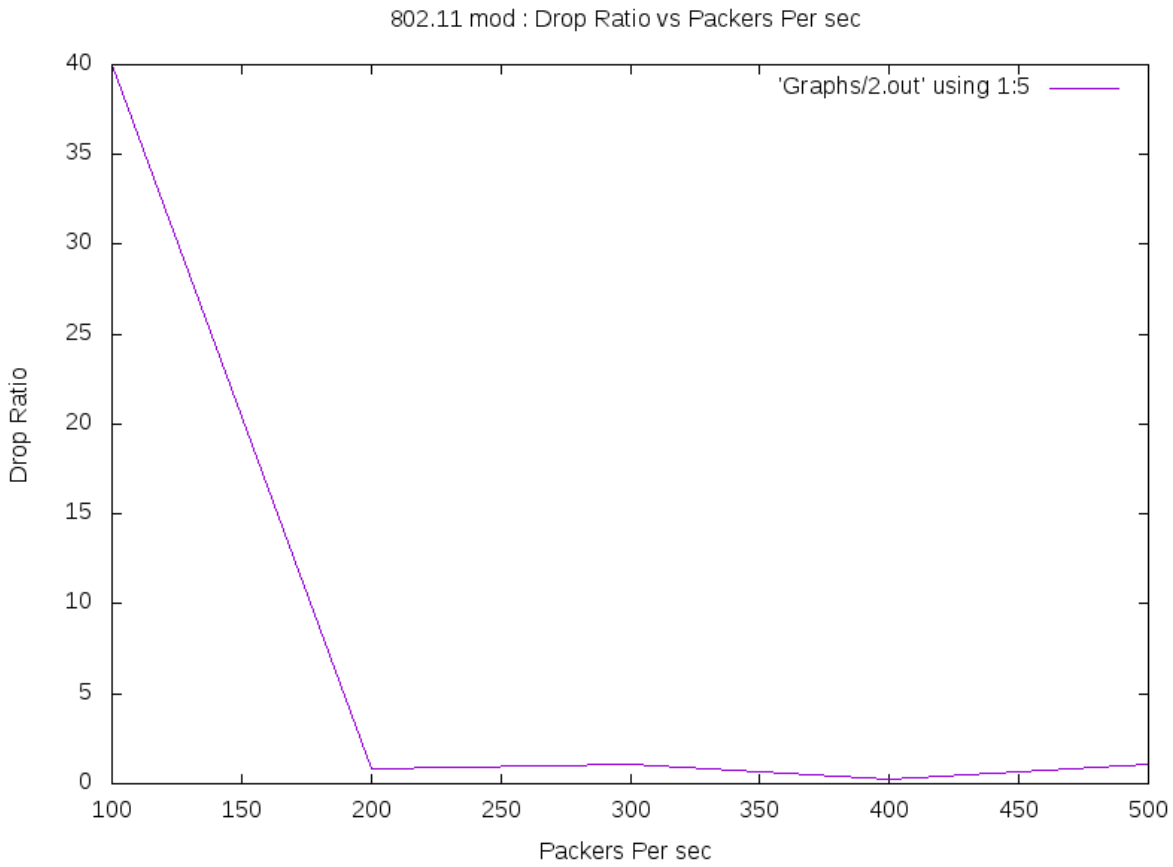

802.11 mod : Total Energy vs Flow
'Graphs/1.out' using 1:6
Total Energy
Flow
600
595
590
585
580
575
570
565
560
555
10
15
20
25
30
35
40
45
50

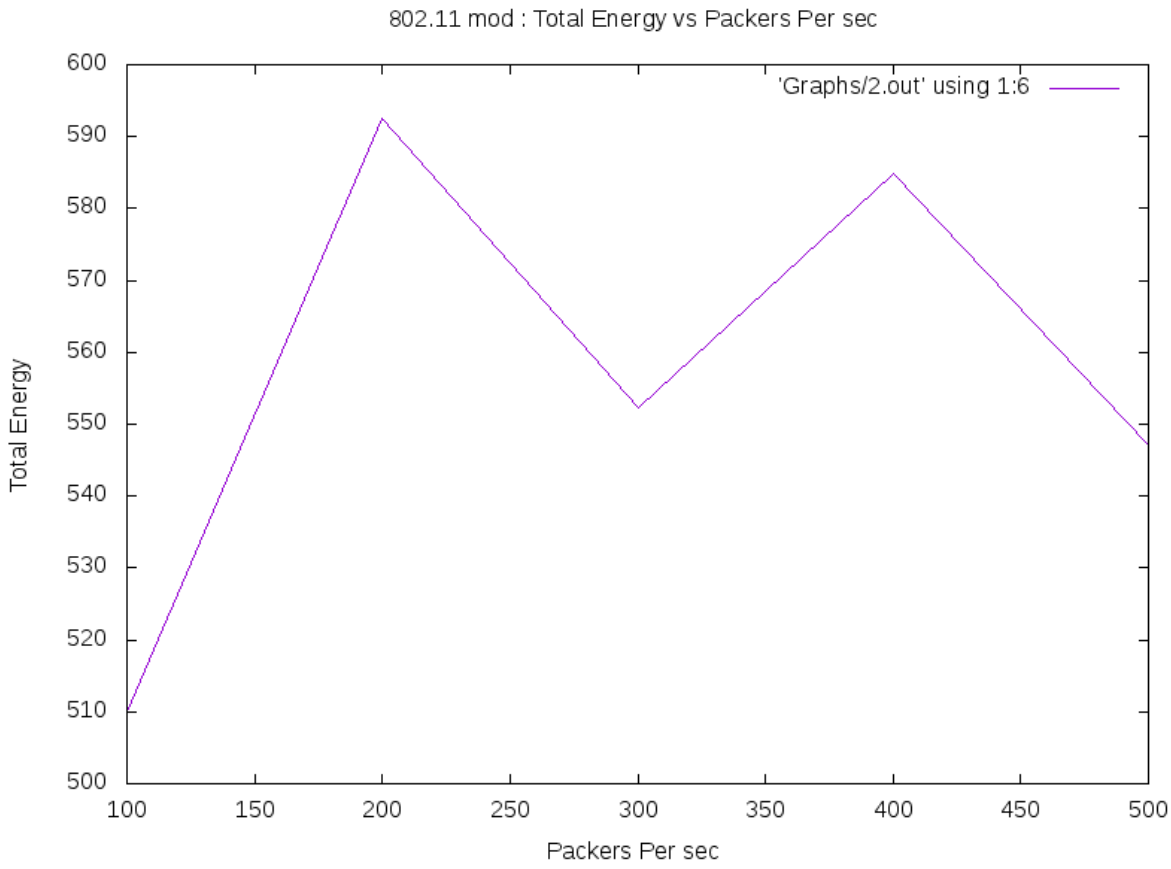

802.11 mod : Energy Per Packet vs Flow
'Graphs/1.out' using 1:7
Energy Per Packet
Flow
70000
65000
60000
55000
50000
45000
40000
35000
30000
25000
10
15
20
25
30
35
40
45
50

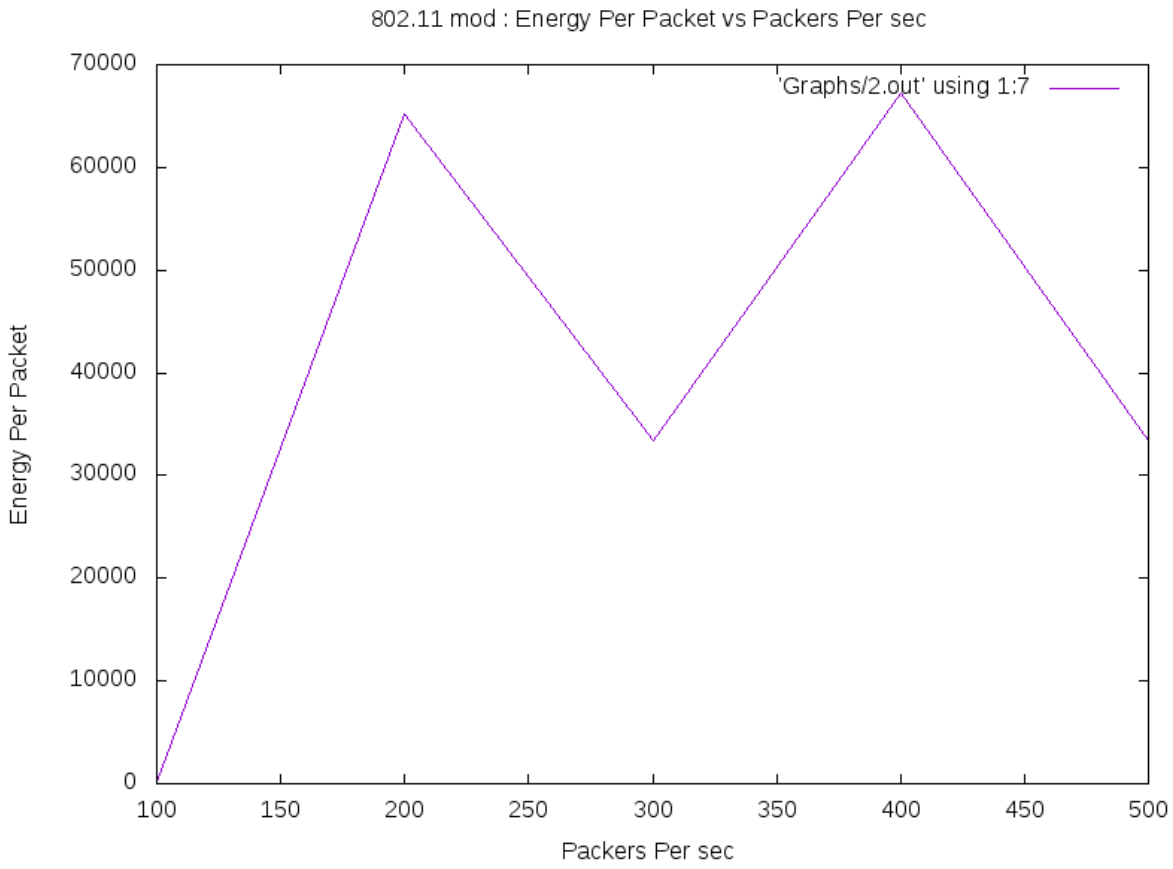

802.11 mod : Throughput vs Packers Per sec
'Graphs/2.out' using 1:2
Throughput
Packers Per sec
1.4x10 6
1.2x10 6
1x10 6
800000
600000
400000
200000
0
100
150
200
250
300
350
400
450
500

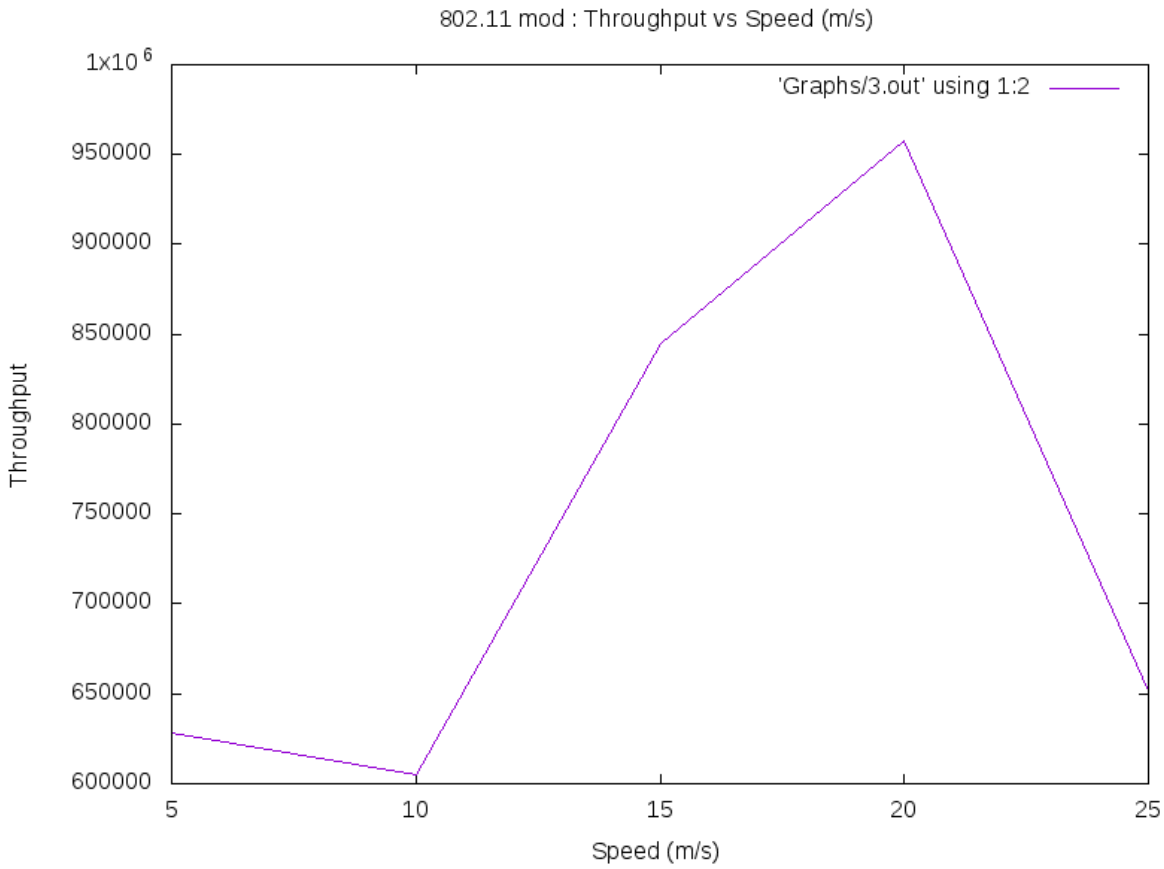

802.11 mod : End to End Delay vs Packers Per sec
'Graphs/2.out' using 1:3
End to End Delay
Packers Per sec
0
1
2
3
4
5
6
7
8
9
10
100
150
200
250
300
350
400
450
500

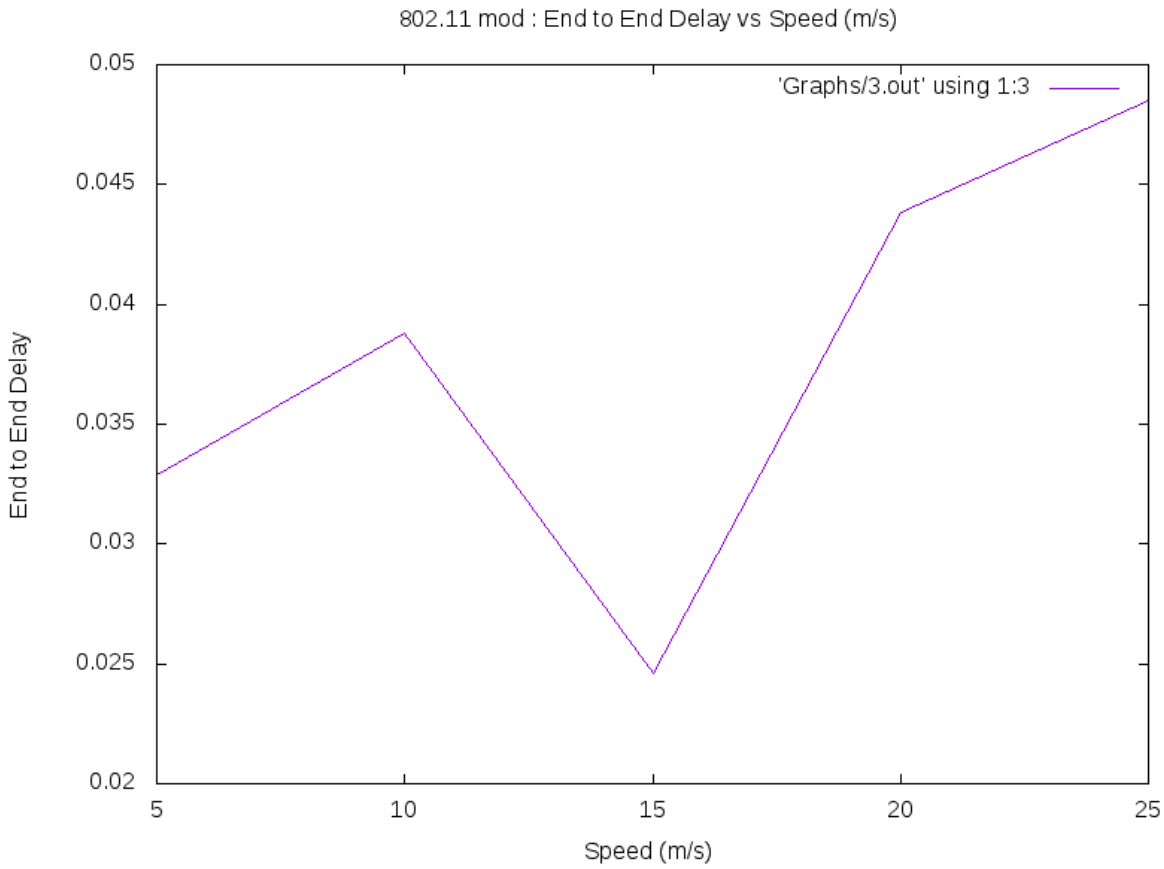

802.11 mod : Delivery Ratio vs Packers Per sec
'Graphs/2.out' using 1:4
Delivery Ratio
Packers Per sec
100
90
80
70
60
50
40
30
20
10
100
150
200
250
300
350
400
450
500


802.11 mod : Drop Ratio vs Packers Per sec
'Graphs/2.out' using 1:5
Drop Ratio
Packers Per sec
0
5
10
15
20
25
30
35
40
100
150
200
250
300
350
400
450
500

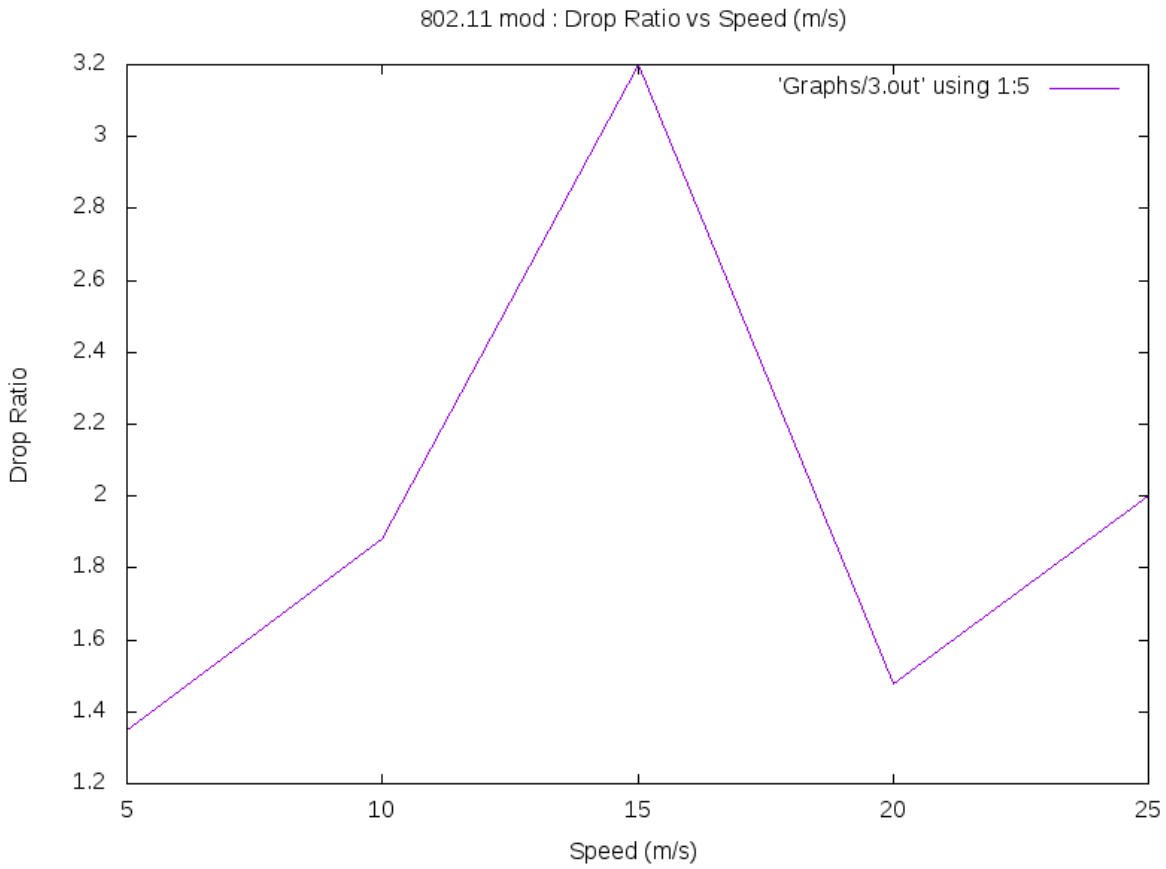

802.11 mod : Total Energy vs Packers Per sec
'Graphs/2.out' using 1:6
Total Energy
Packers Per sec
600
590
580
570
560
550
540
530
520
510
500
100
150
200
250
300
350
400
450
500

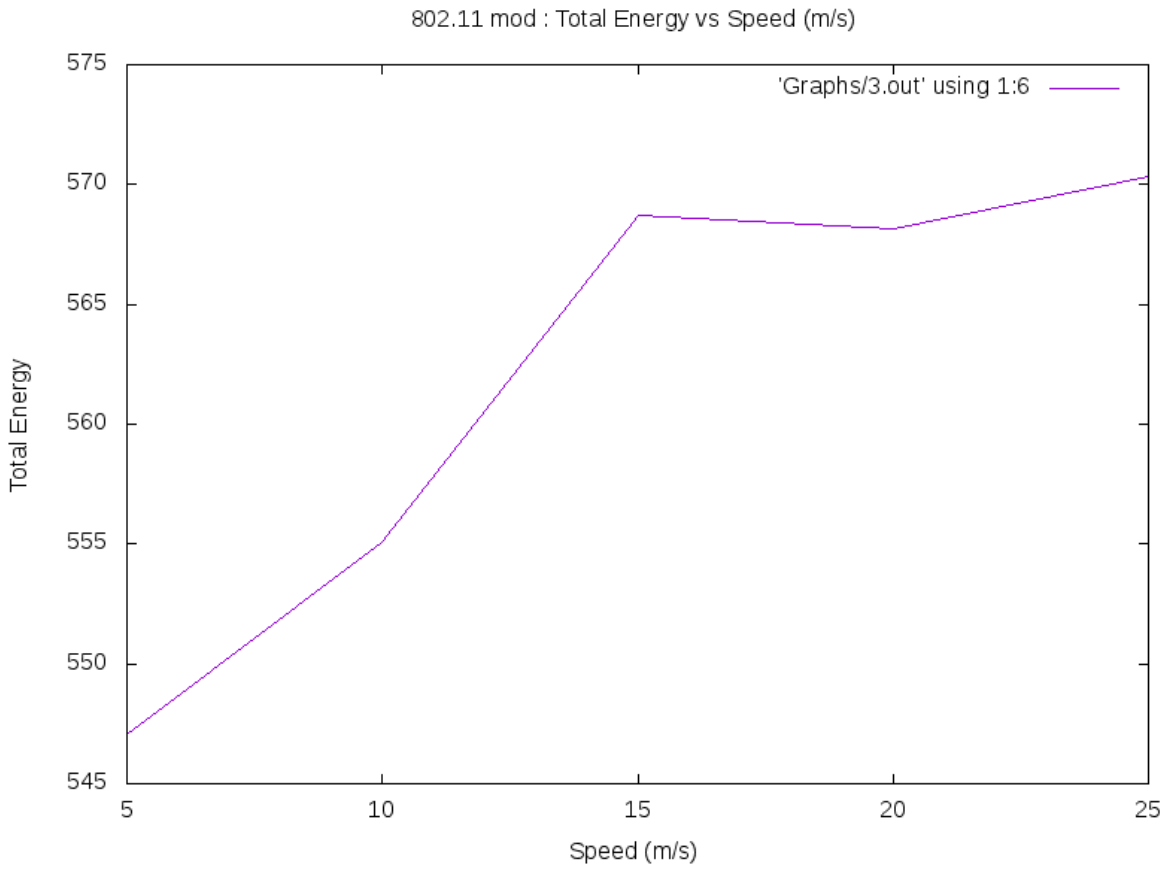

802.11 mod : Energy Per Packet vs Packers Per sec
'Graphs/2.out' using 1:7
Energy Per Packet
Packers Per sec
0
10000
20000
30000
40000
50000
60000
70000
100
150
200
250
300
350
400
450
500

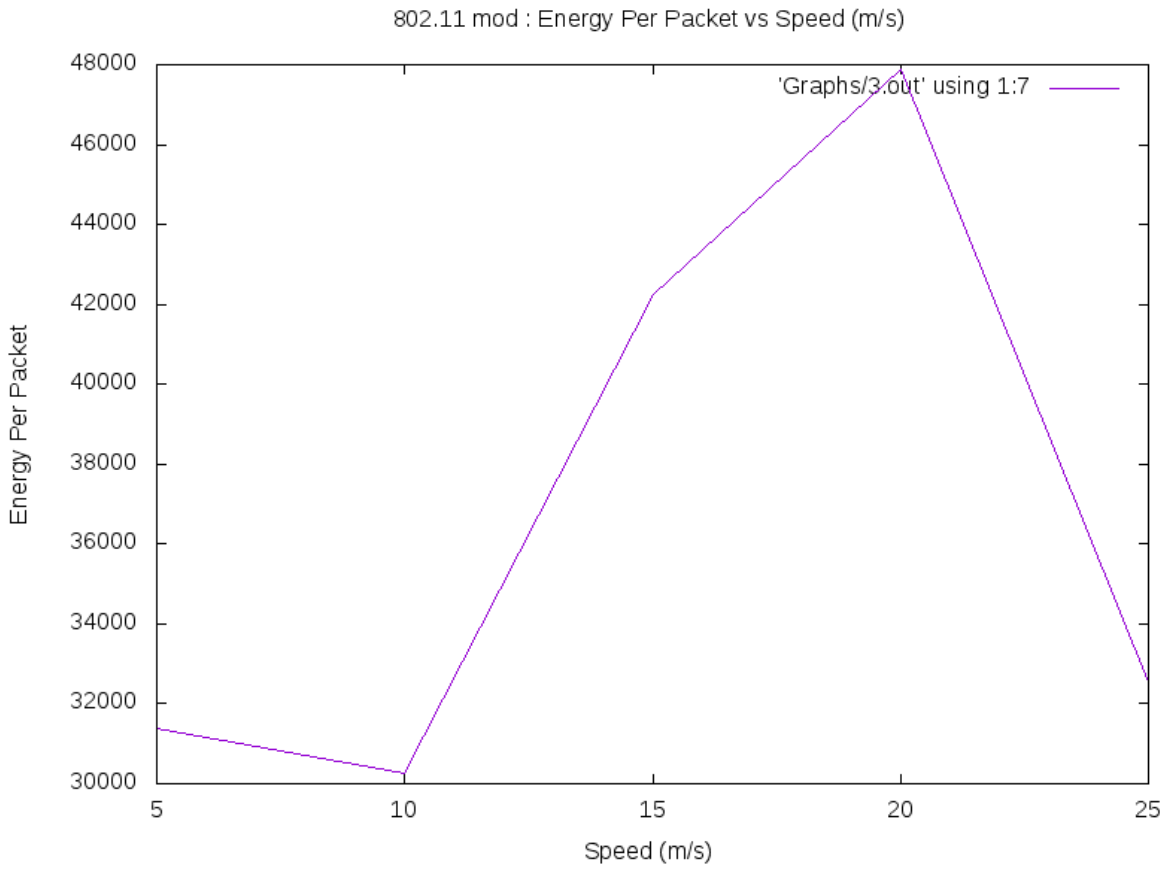

802.11 mod : Throughput vs Speed (m/s)
1x10 6
950000
900000
850000
800000
750000
700000
650000
600000
Throughput
'Graphs/3.out' using 1:2
5
10
15
20
25
Speed (m/s)

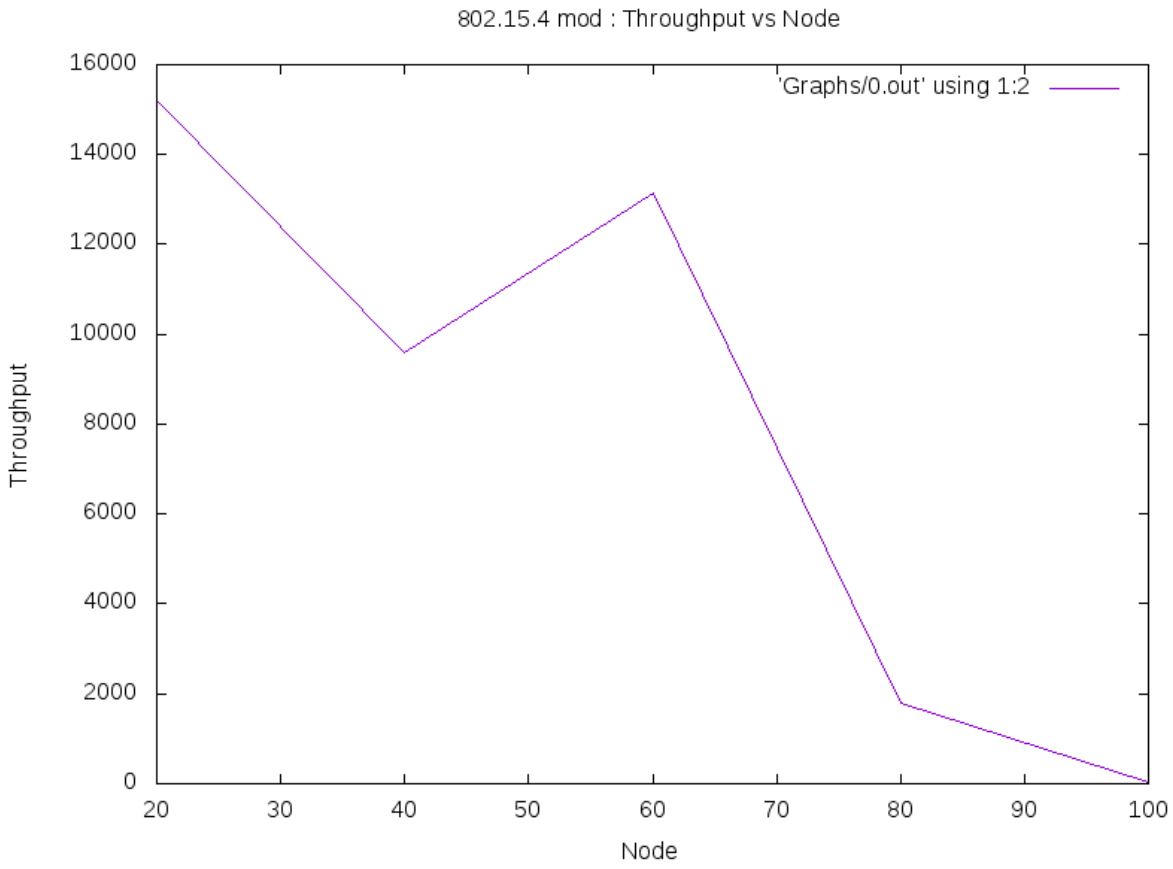

802.11 mod : End to End Delay vs Speed (m/s)
'Graphs/3.out' using 1:3
End to End Delay
Speed (m/s)
0.05
0.045
0.04
0.035
0.03
0.025
0.02
5
10
15
20
25

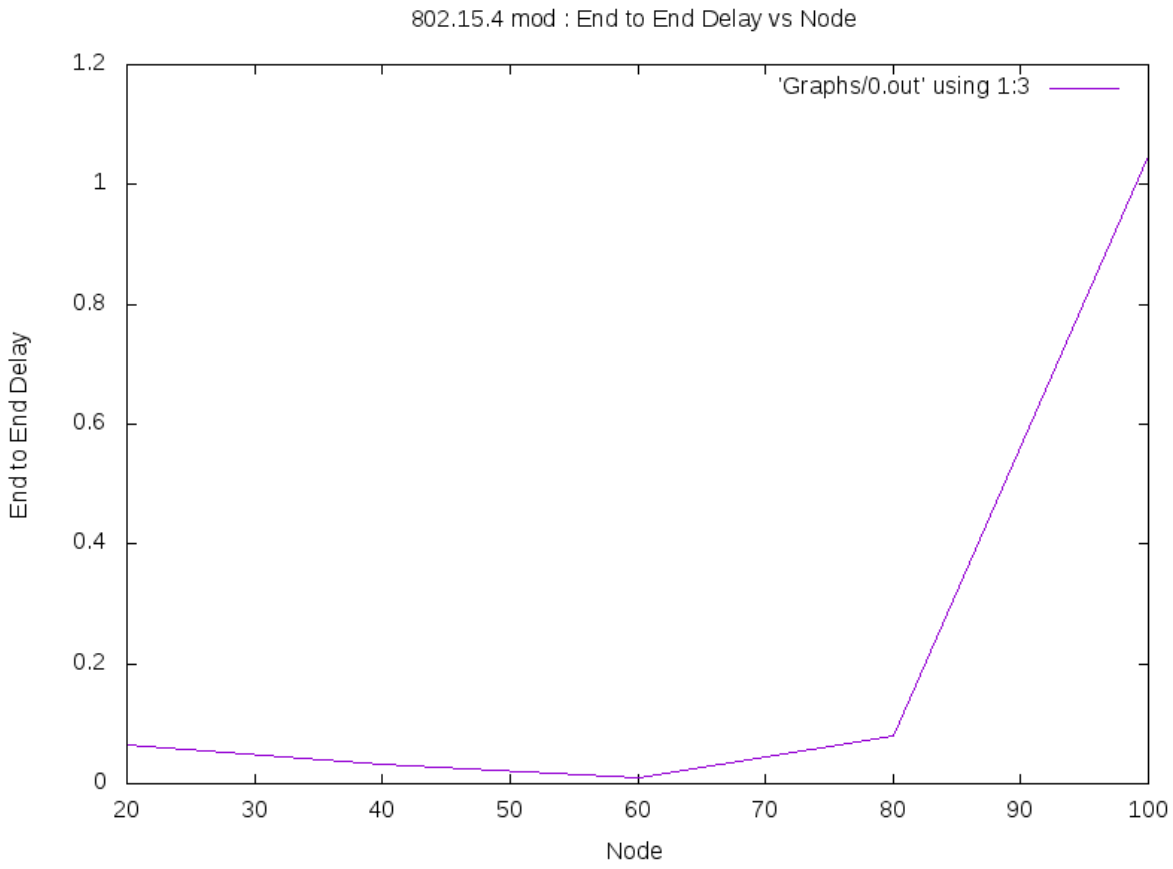

802.11 mod : Delivery Ratio vs Speed (m/s)
'Graphs/3.out' using 1:4
Delivery Ratio
Speed (m/s)
98.1
98
97.9
97.8
97.7
97.6
97.5
97.4
97.3
97.2
5
10
15
20
25

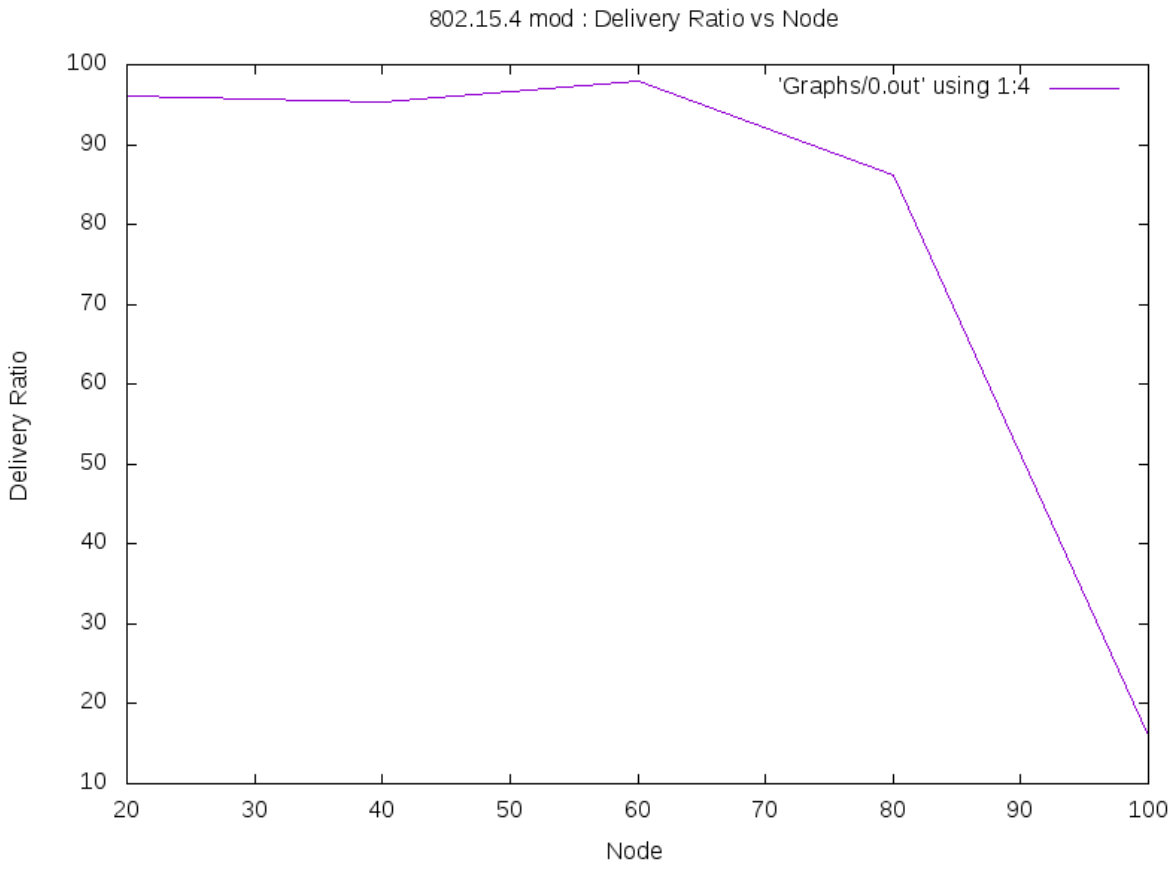

802.11 mod : Drop Ratio vs Speed (m/s)
'Graphs/3.out' using 1:5
Drop Ratio
Speed (m/s)
3.2
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
5
10
15
20
25

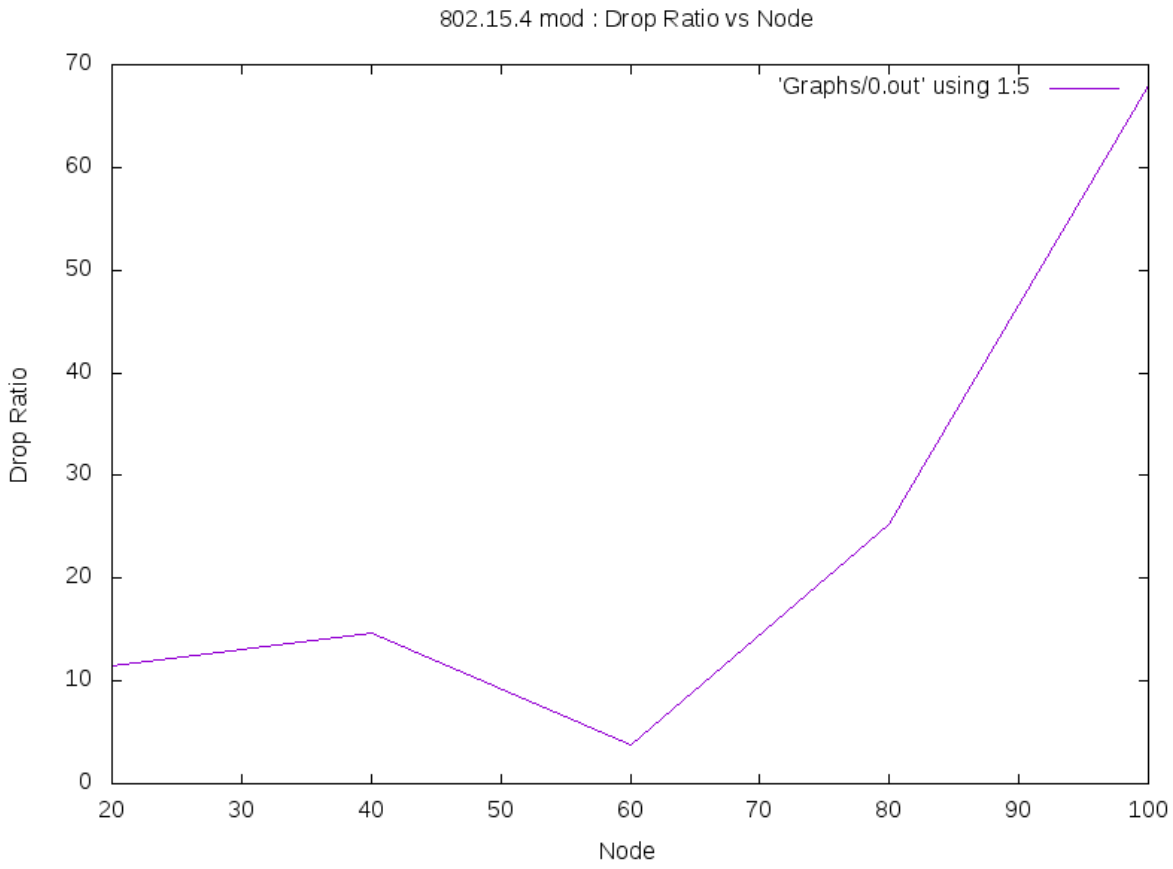

802.11 mod : Total Energy vs Speed (m/s)
'Graphs/3.out' using 1:6
Total Energy
Speed (m/s)
575
570
565
560
555
550
545
5
10
15
20
25

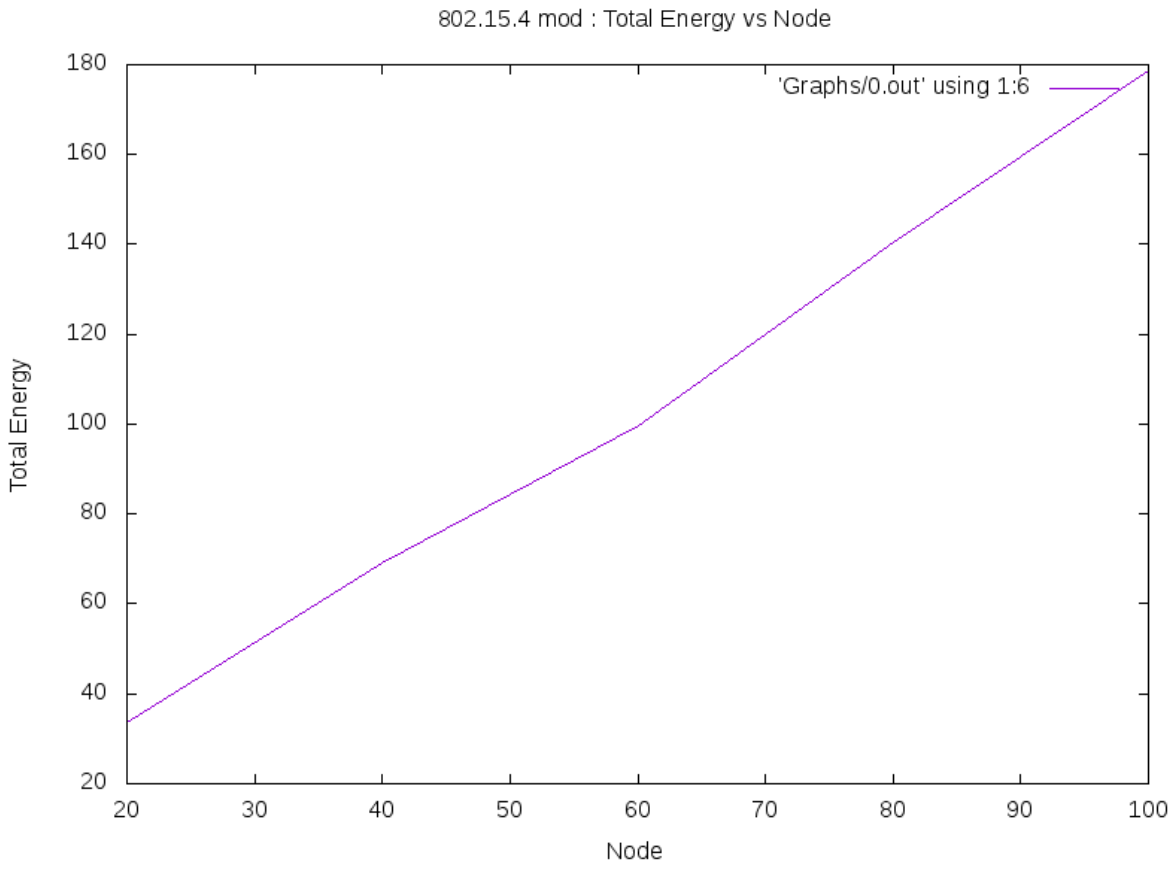

802.11 mod : Energy Per Packet vs Speed (m/s)
'Graphs/3.out' using 1:7
Energy Per Packet
Speed (m/s)
48000
46000
44000
42000
40000
38000
36000
34000
32000
30000
5
10
15
20
25

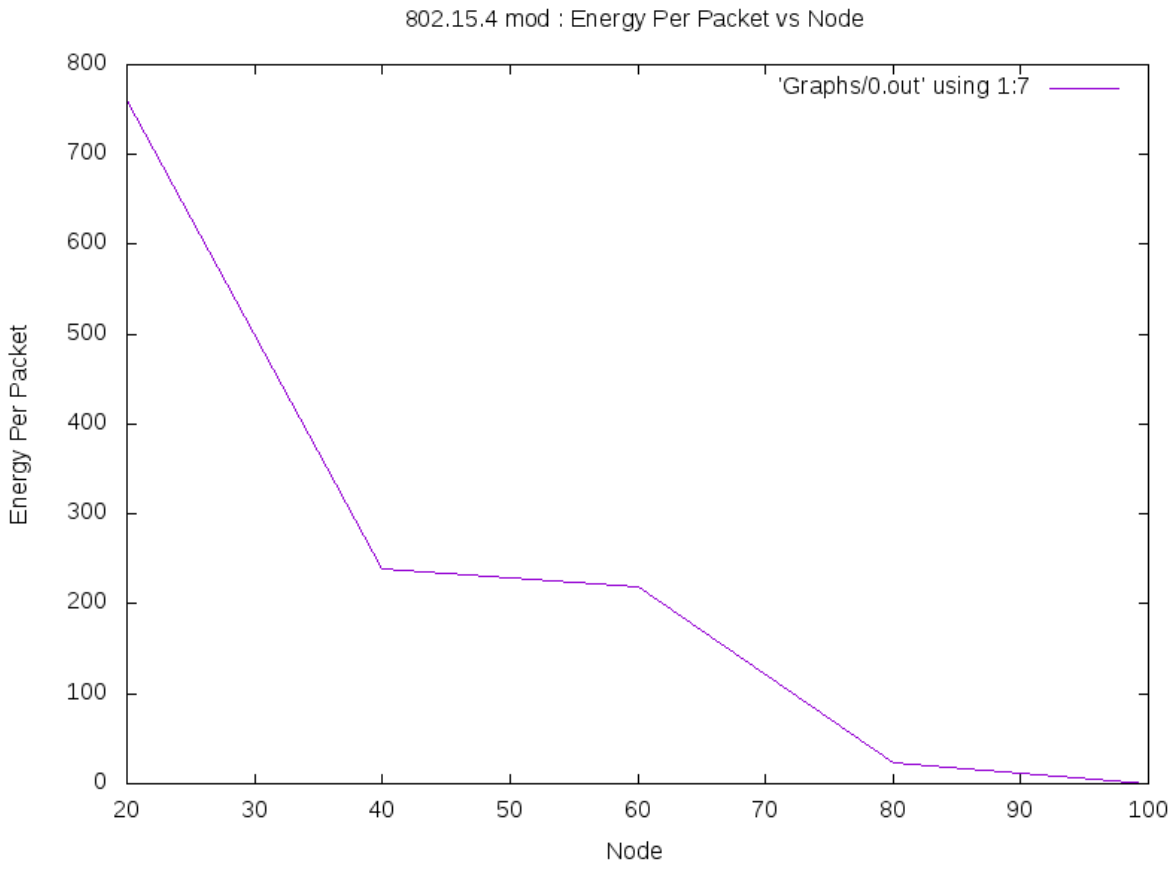

802.15.4 mod : Throughput vs Node
'Graphs/0.out' using 1:2
Throughput
Node
16000
14000
12000
10000
8000
6000
4000
2000
0
20
30
40
50
60
70
80
90
100

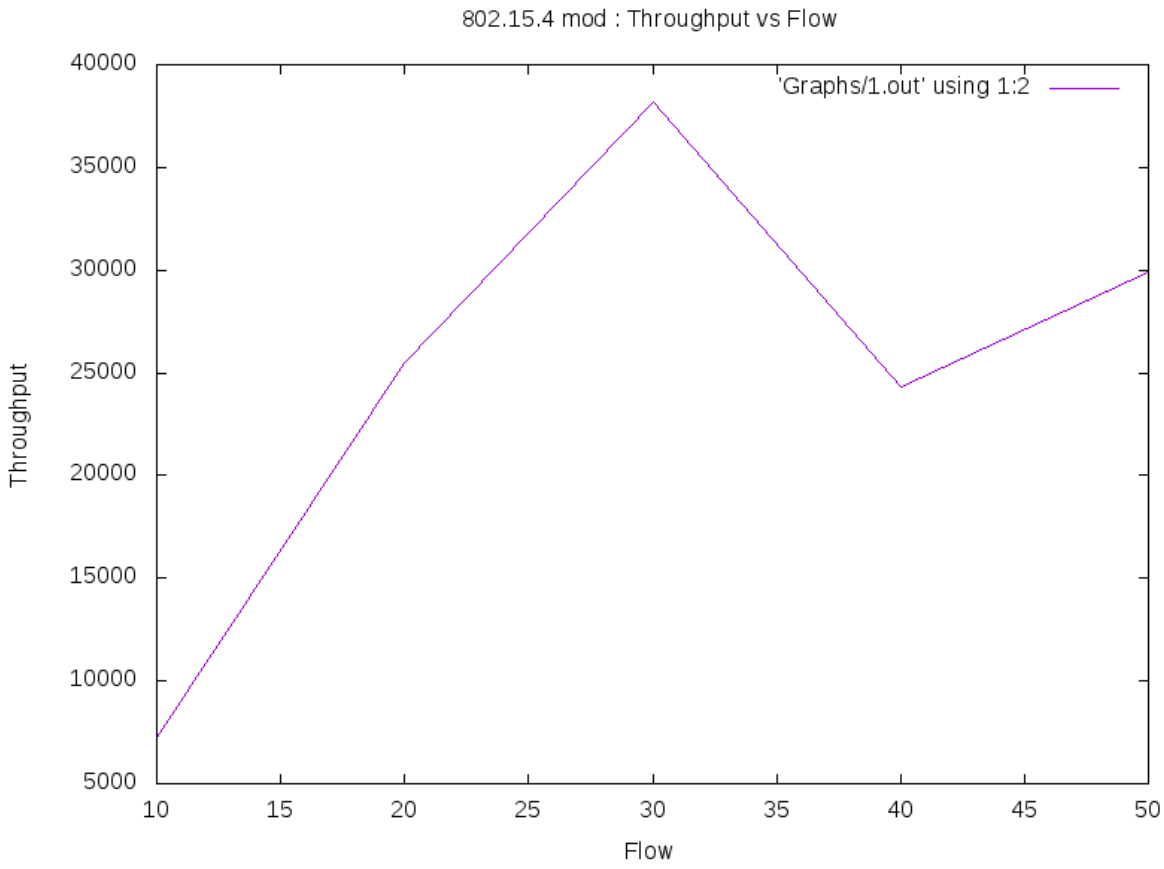

802.15.4 mod : End to End Delay vs Node
'Graphs/0.out' using 1:3
End to End Delay
Node
0
0.2
0.4
0.6
0.8
1
1.2
20
30
40
50
60
70
80
90
100

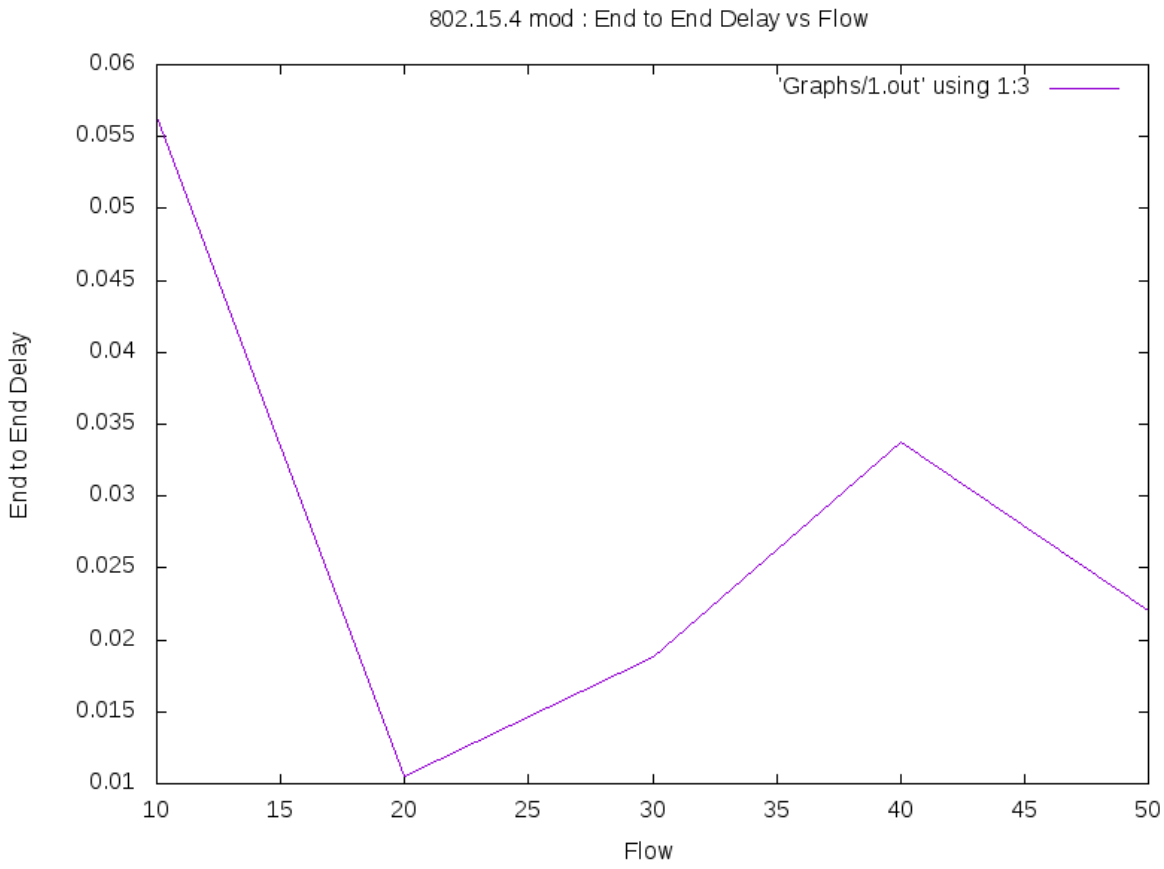

802.15.4 mod : Delivery Ratio vs Node
'Graphs/0.out' using 1:4
Delivery Ratio
Node
100
90
80
70
60
50
40
30
20
10
20
30
40
50
60
70
80
90
100

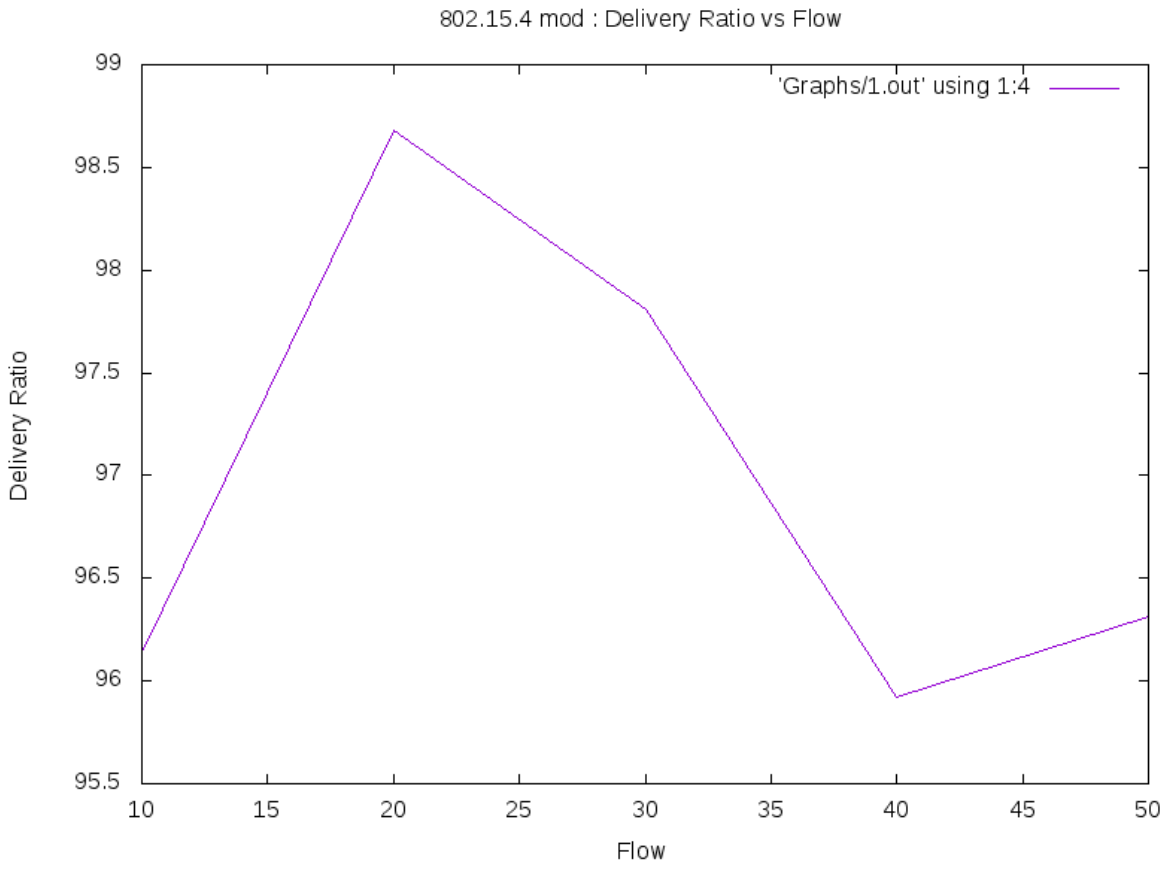

802.15.4 mod : Drop Ratio vs Node
'Graphs/0.out' using 1:5
Drop Ratio
Node
0
10
20
30
40
50
60
70
20
30
40
50
60
70
80
90
100

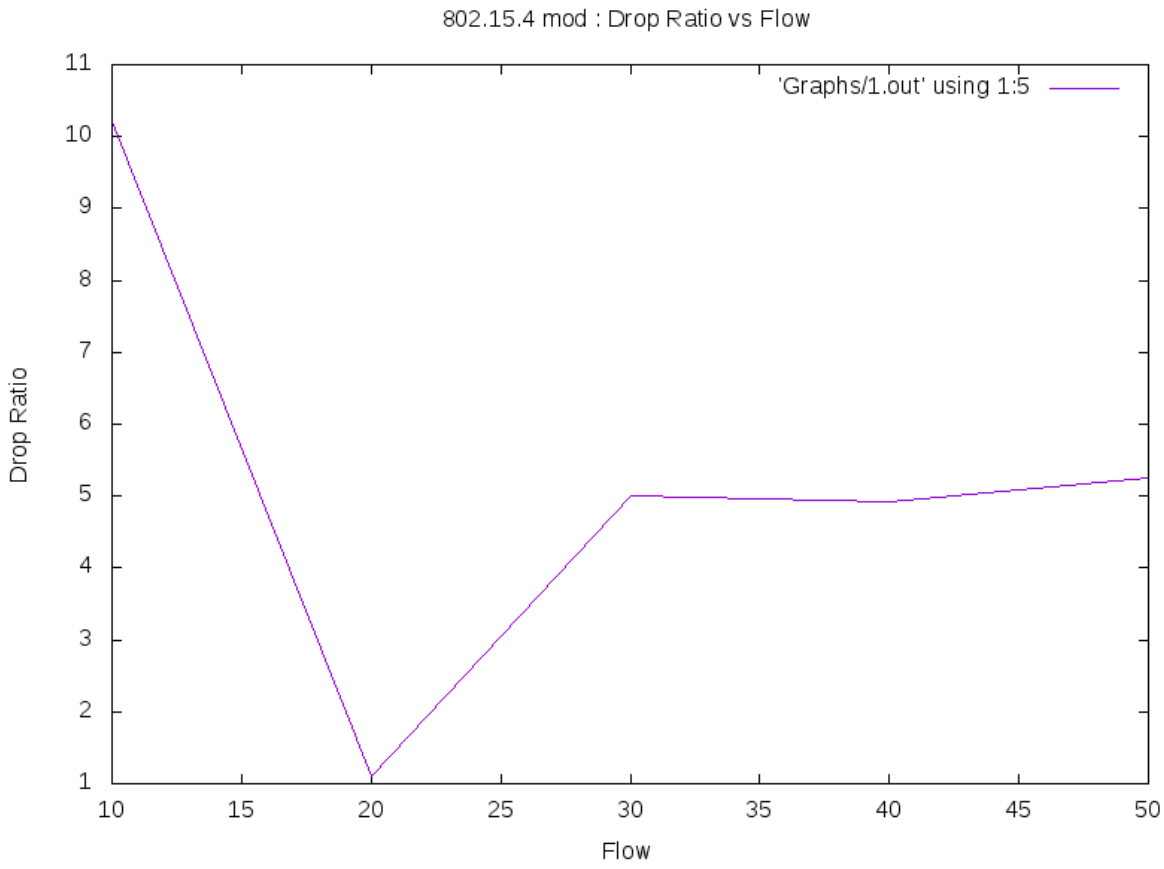

802.15.4 mod : Total Energy vs Node
'Graphs/0.out' using 1:6
Total Energy
Node
180
160
140
120
100
80
60
40
20
20
30
40
50
60
70
80
90
100

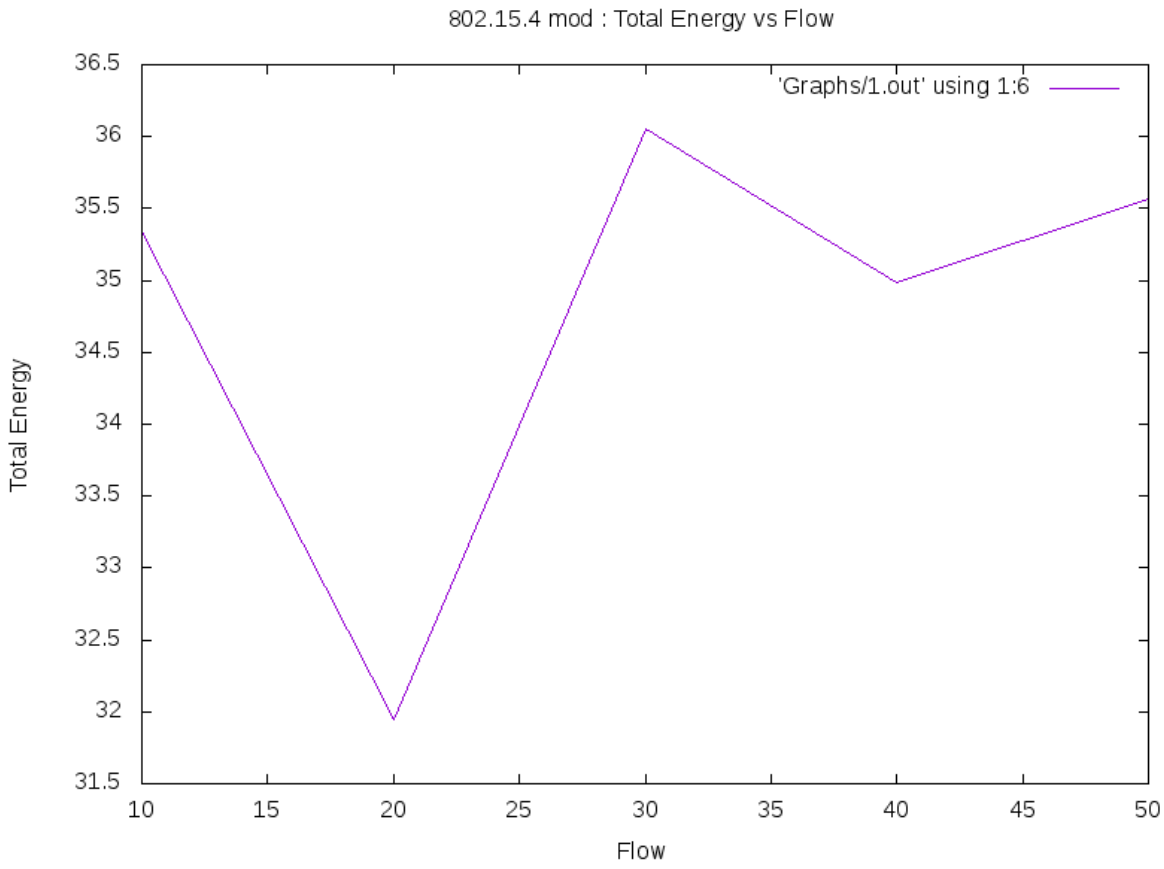

802.15.4 mod : Energy Per Packet vs Node
'Graphs/0.out' using 1:7
Energy Per Packet
Node
800
700
600
500
400
300
200
100
0
20
30
40
50
60
70
80
90
100

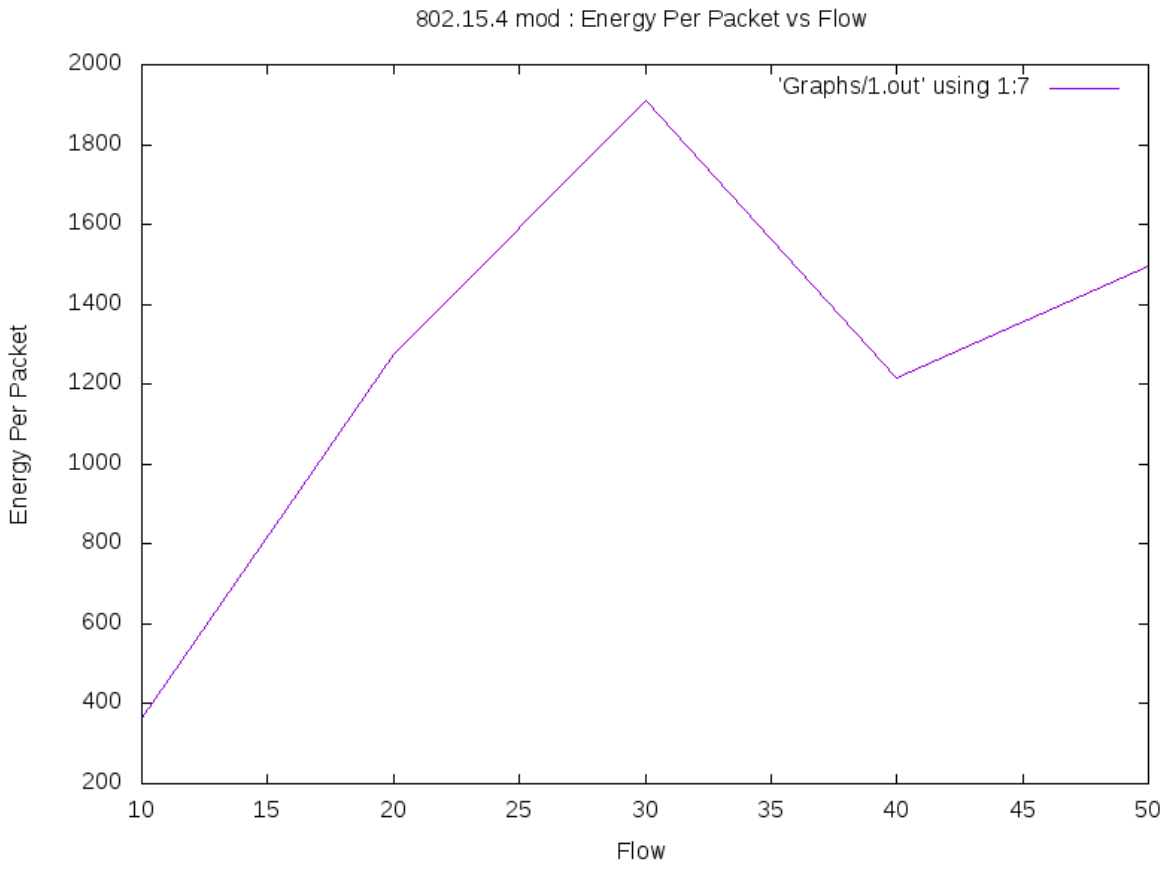

802.15.4 mod : Throughput vs Flow
'Graphs/1.out' using 1:2
Throughput
Flow
40000
35000
30000
25000
20000
15000
10000
5000
10
15
20
25
30
35
40
45
50

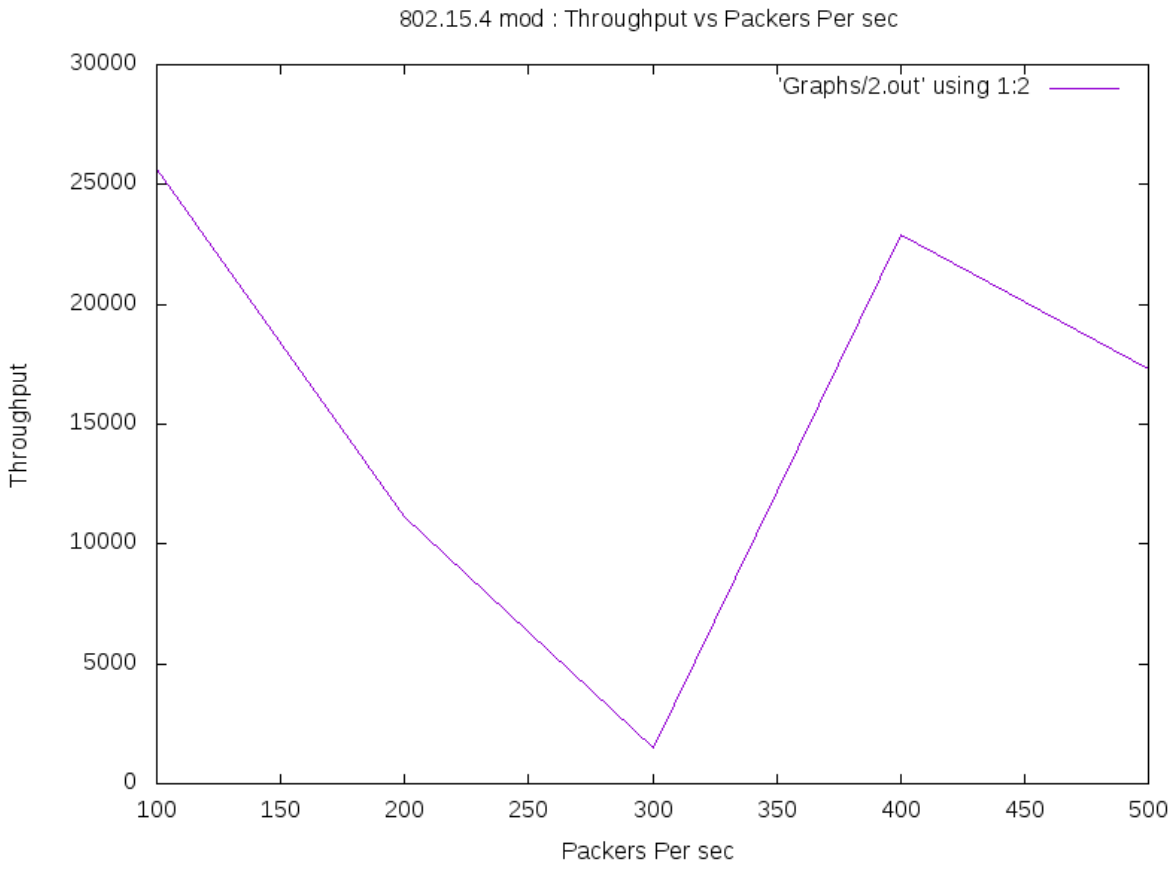

802.15.4 mod : End to End Delay vs Flow
'Graphs/1.out' using 1:3
End to End Delay
Flow
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
10
15
20
25
30
35
40
45
50

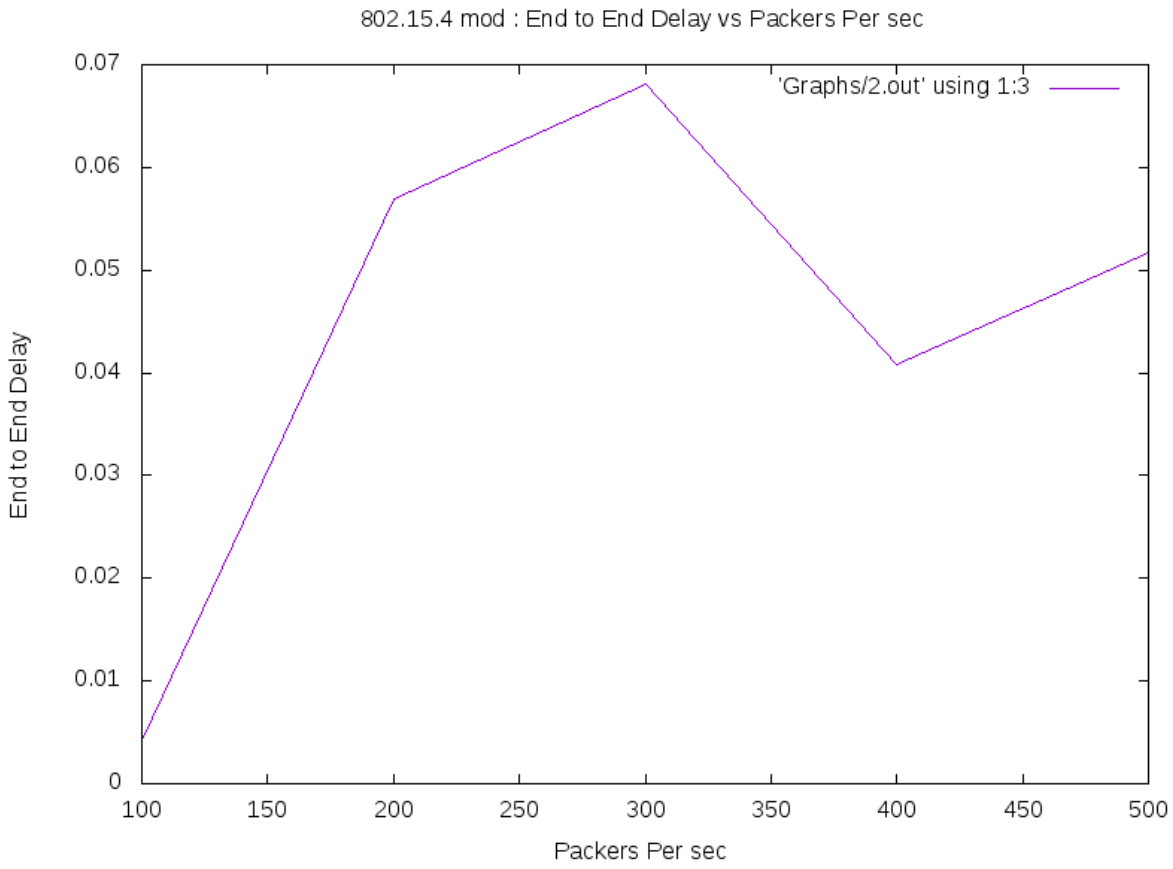

802.15.4 mod : Delivery Ratio vs Flow
'Graphs/1.out' using 1:4
Delivery Ratio
Flow
99
98.5
98
97.5
97
96.5
96
95.5
10
15
20
25
30
35
40
45
50

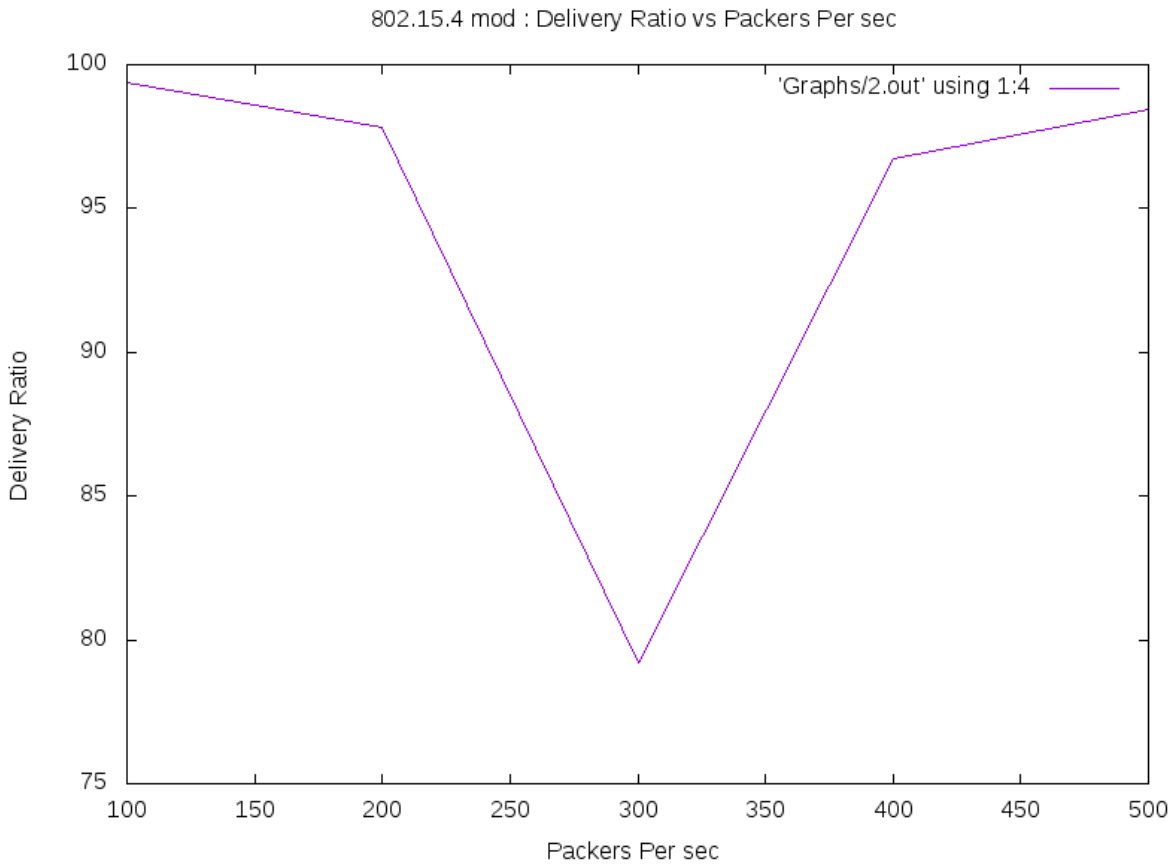

802.15.4 mod : Drop Ratio vs Flow
'Graphs/1.out' using 1:5
Drop Ratio
Flow
11
10
9
8
7
6
5
4
3
2
1
10
15
20
25
30
35
40
45
50

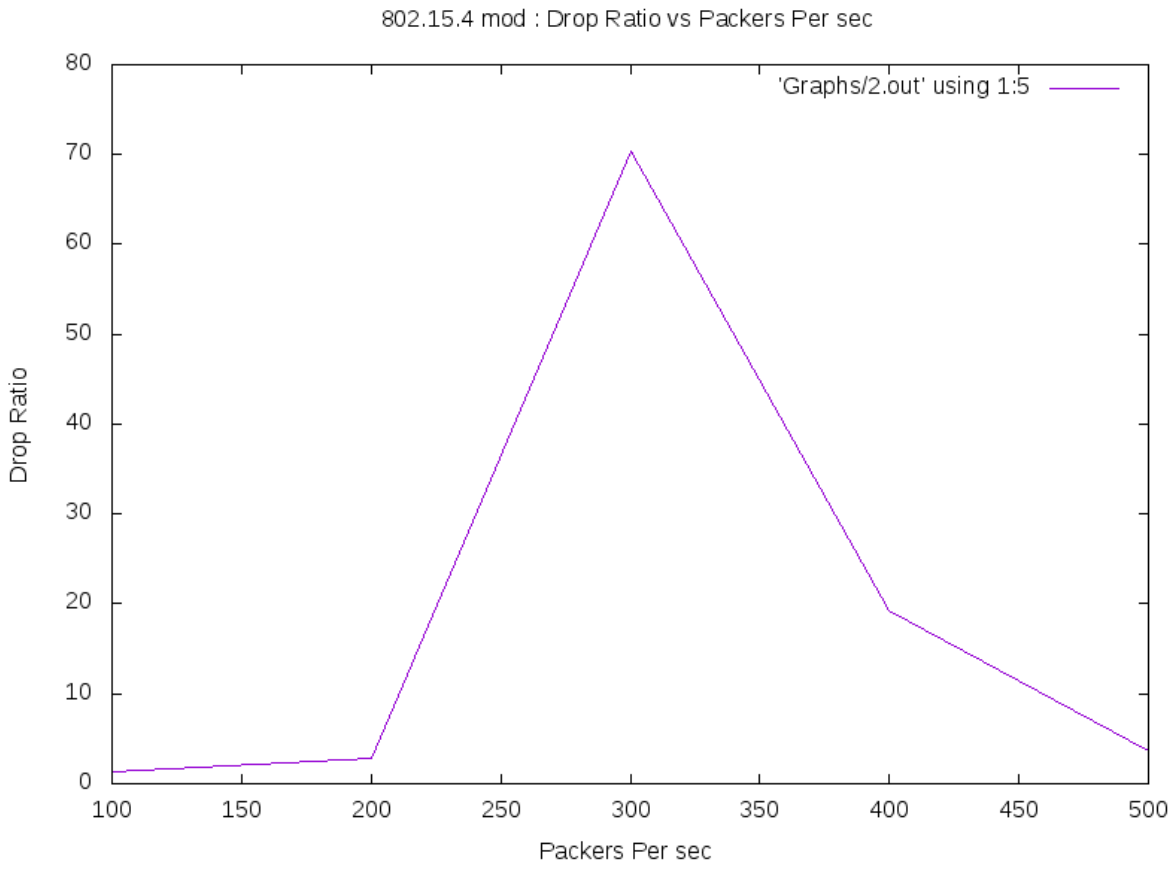

802.15.4 mod : Total Energy vs Flow
'Graphs/1.out' using 1:6
Total Energy
Flow
36.5
36
35.5
35
34.5
34
33.5
33
32.5
32
31.5
10
15
20
25
30
35
40
45
50

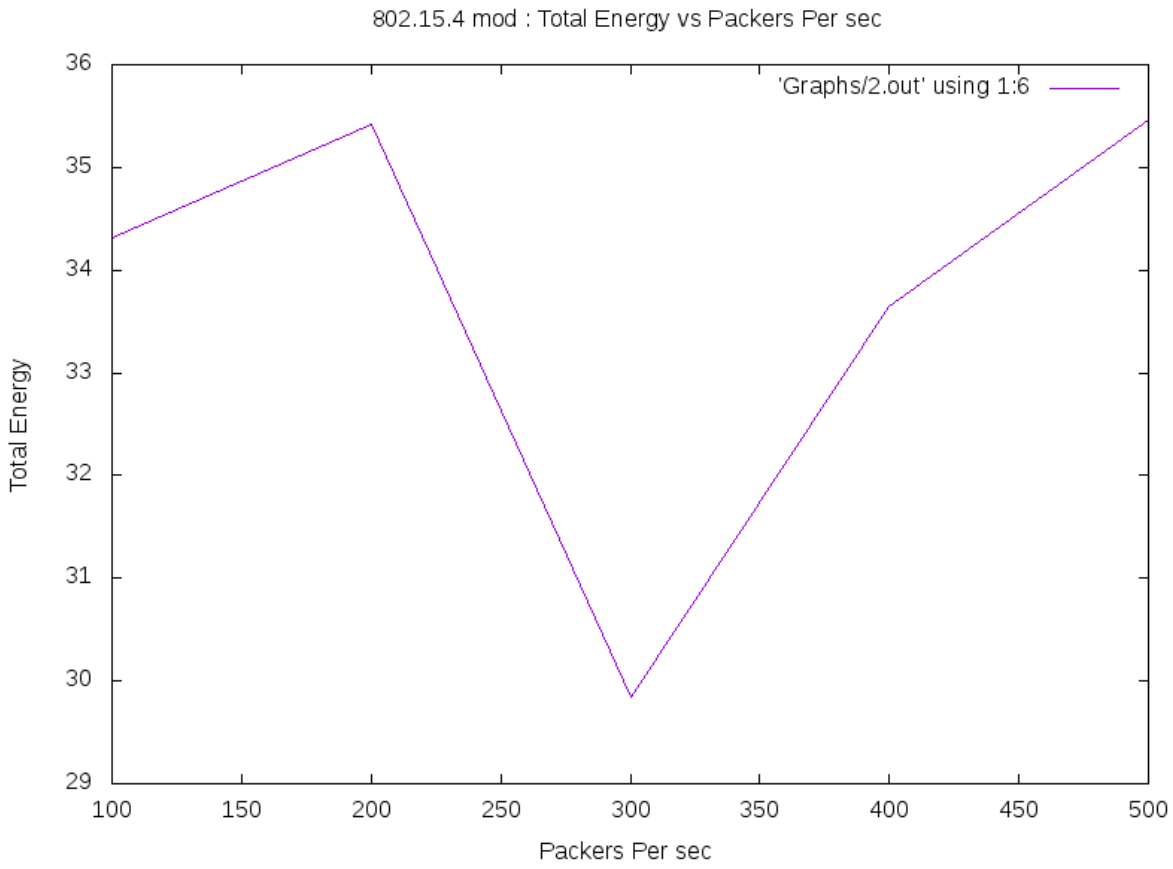

802.15.4 mod : Energy Per Packet vs Flow
'Graphs/1.out' using 1:7
Energy Per Packet
Flow
2000
1800
1600
1400
1200
1000
800
600
400
200
10
15
20
25
30
35
40
45
50

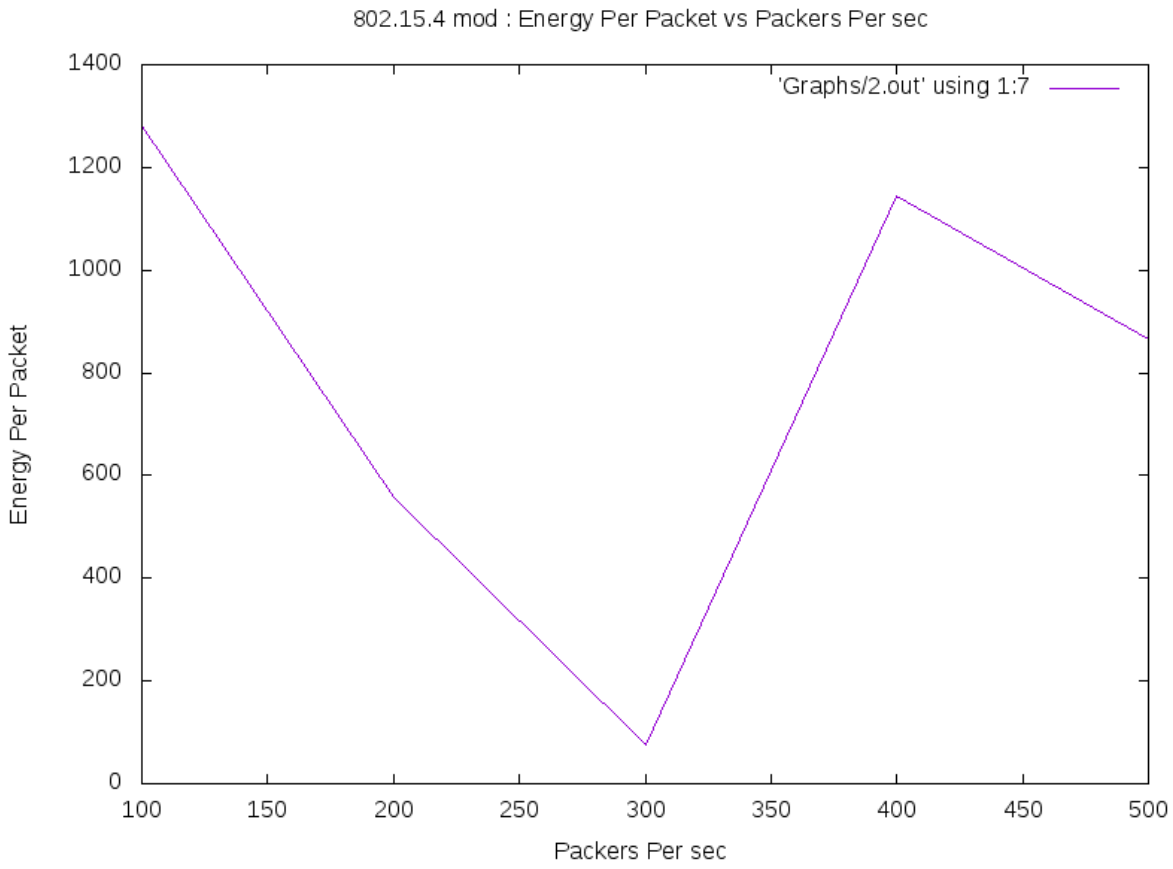

802.15.4 mod : Throughput vs Packers Per sec
'Graphs/2.out' using 1:2
Throughput
Packers Per sec
30000
25000
20000
15000
10000
5000
0
100
150
200
250
300
350
400
450
500

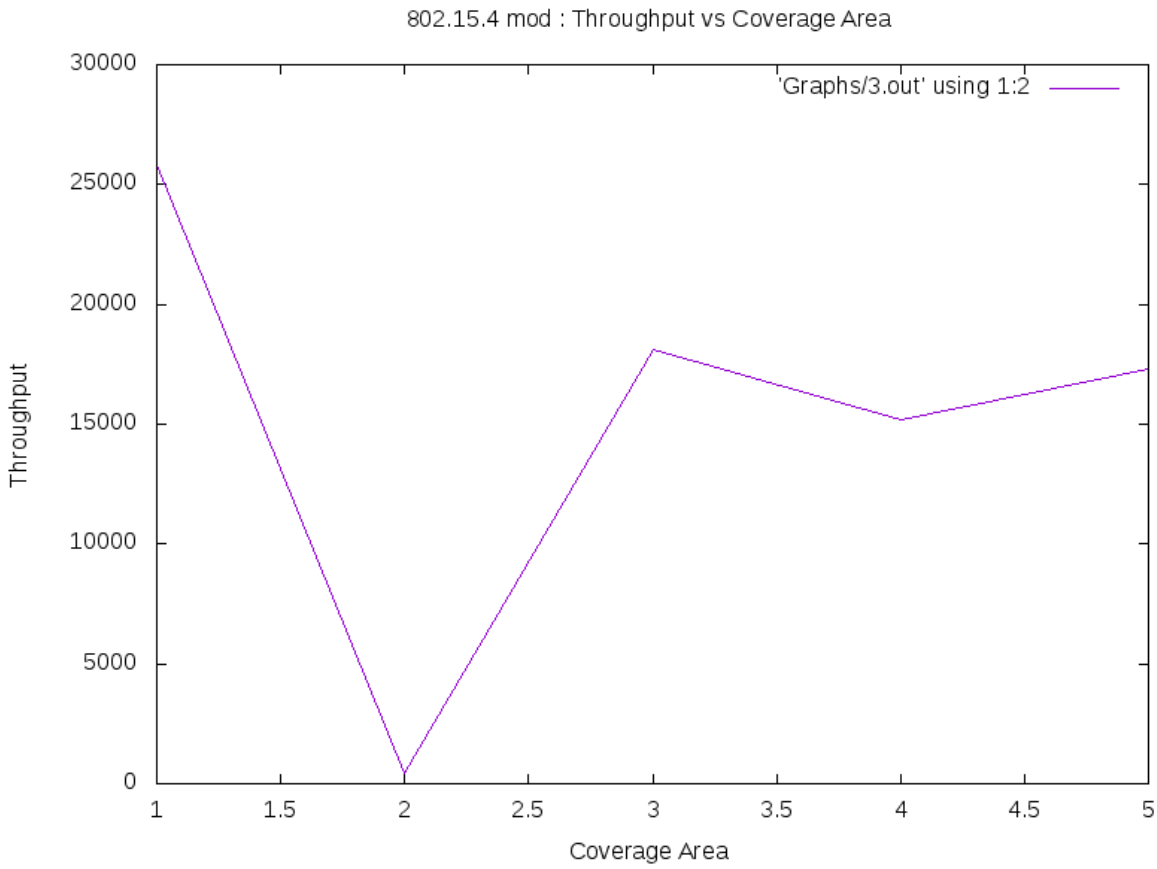

802.15.4 mod : End to End Delay vs Packers Per sec
'Graphs/2.out' using 1:3
End to End Delay
Packers Per sec
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
100
150
200
250
300
350
400
450
500

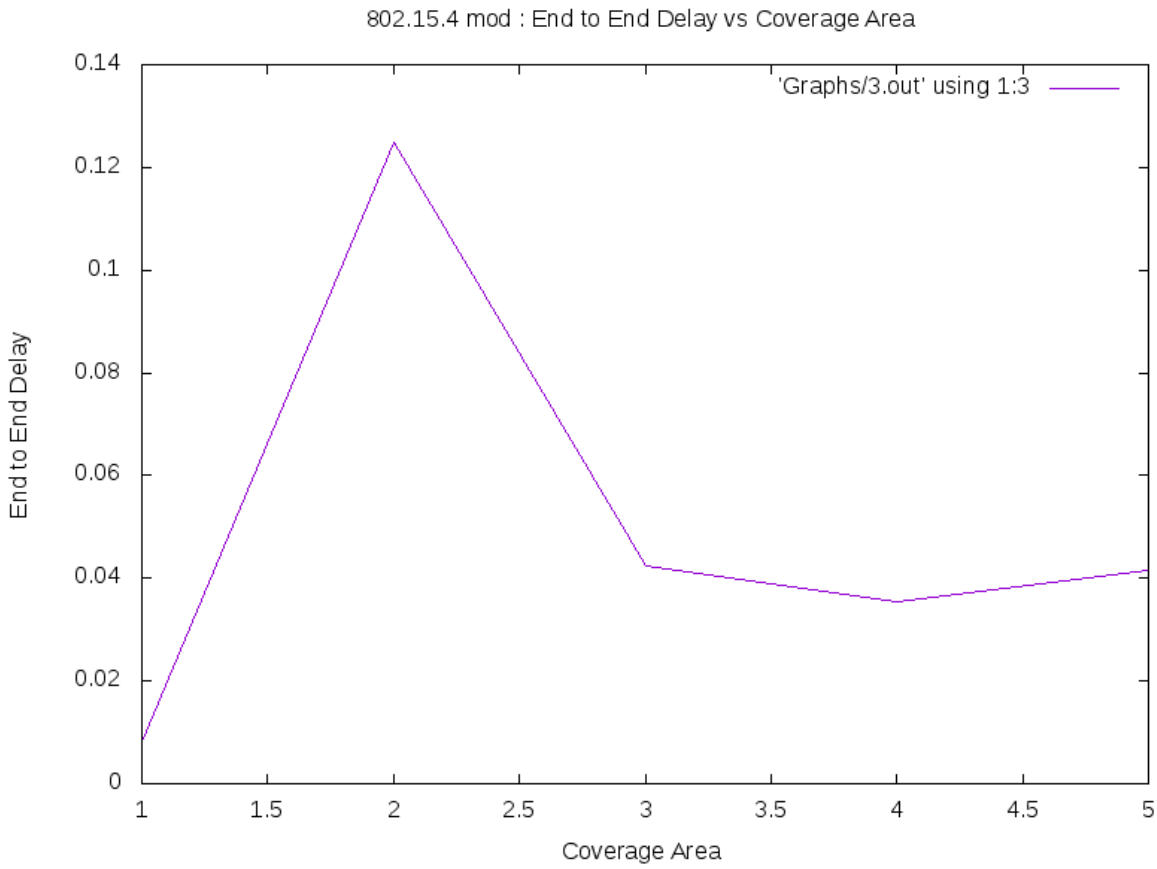

802.15.4 mod : Delivery Ratio vs Packers Per sec
'Graphs/2.out' using 1:4
Delivery Ratio
Packers Per sec
100
95
90
85
80
75
100
150
200
250
300
350
400
450
500

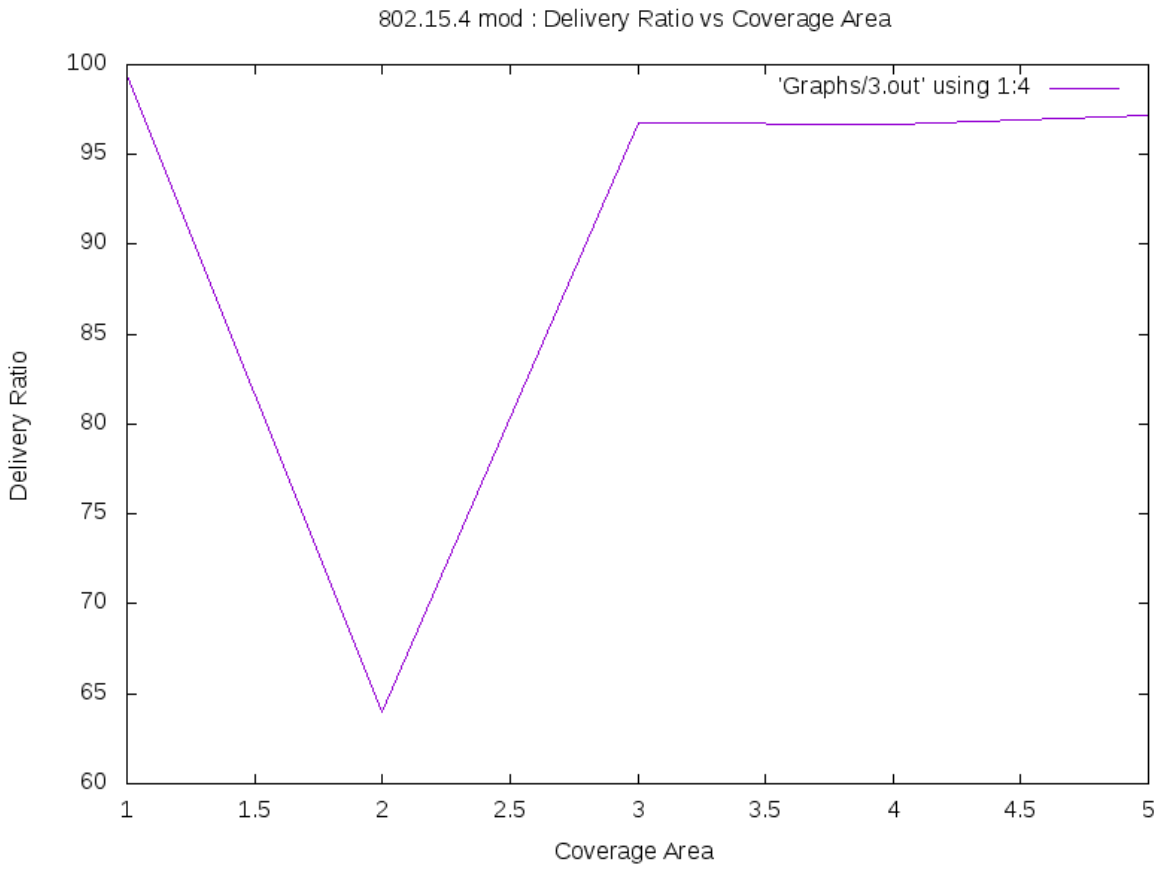

802.15.4 mod : Drop Ratio vs Packers Per sec
'Graphs/2.out' using 1:5
Drop Ratio
Packers Per sec
0
10
20
30
40
50
60
70
80
100
150
200
250
300
350
400
450
500

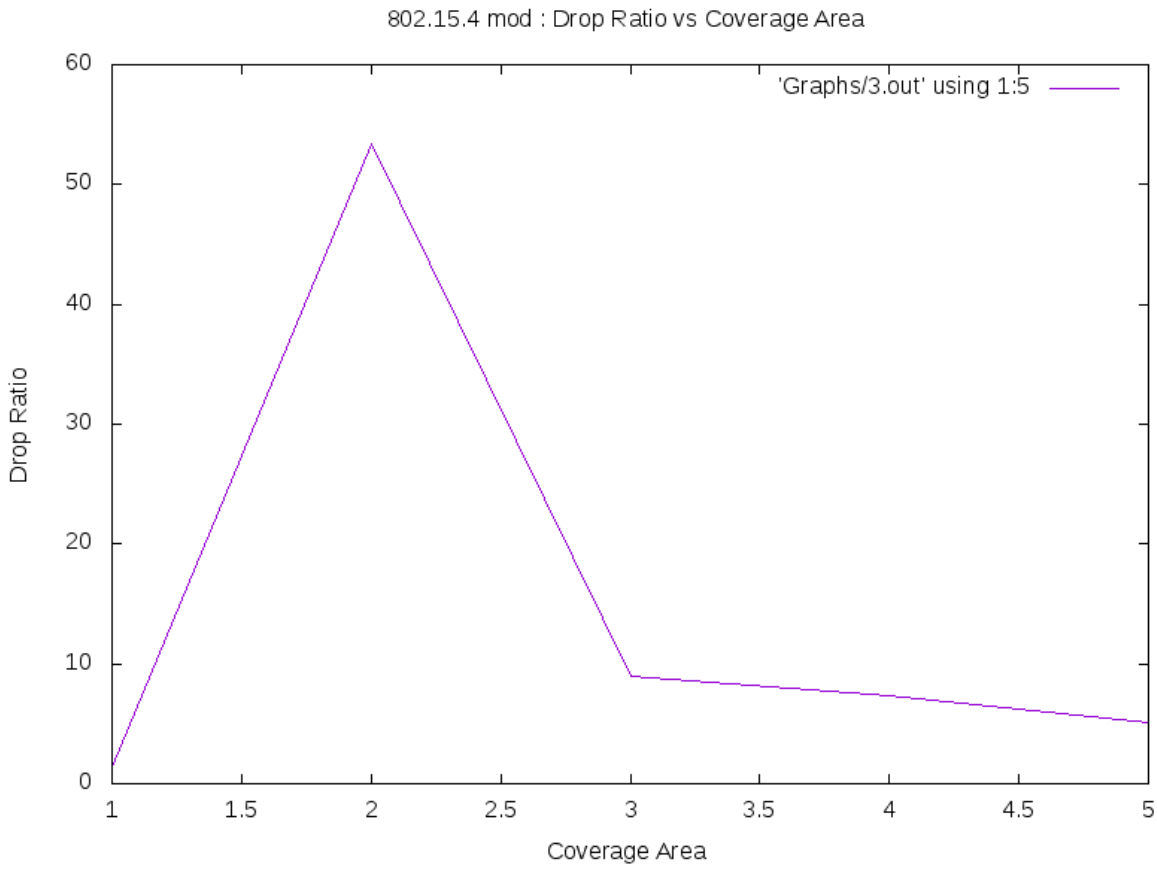

802.15.4 mod : Total Energy vs Packers Per sec
'Graphs/2.out' using 1:6
Total Energy
Packers Per sec
36
35
34
33
32
31
30
29
100
150
200
250
300
350
400
450
500

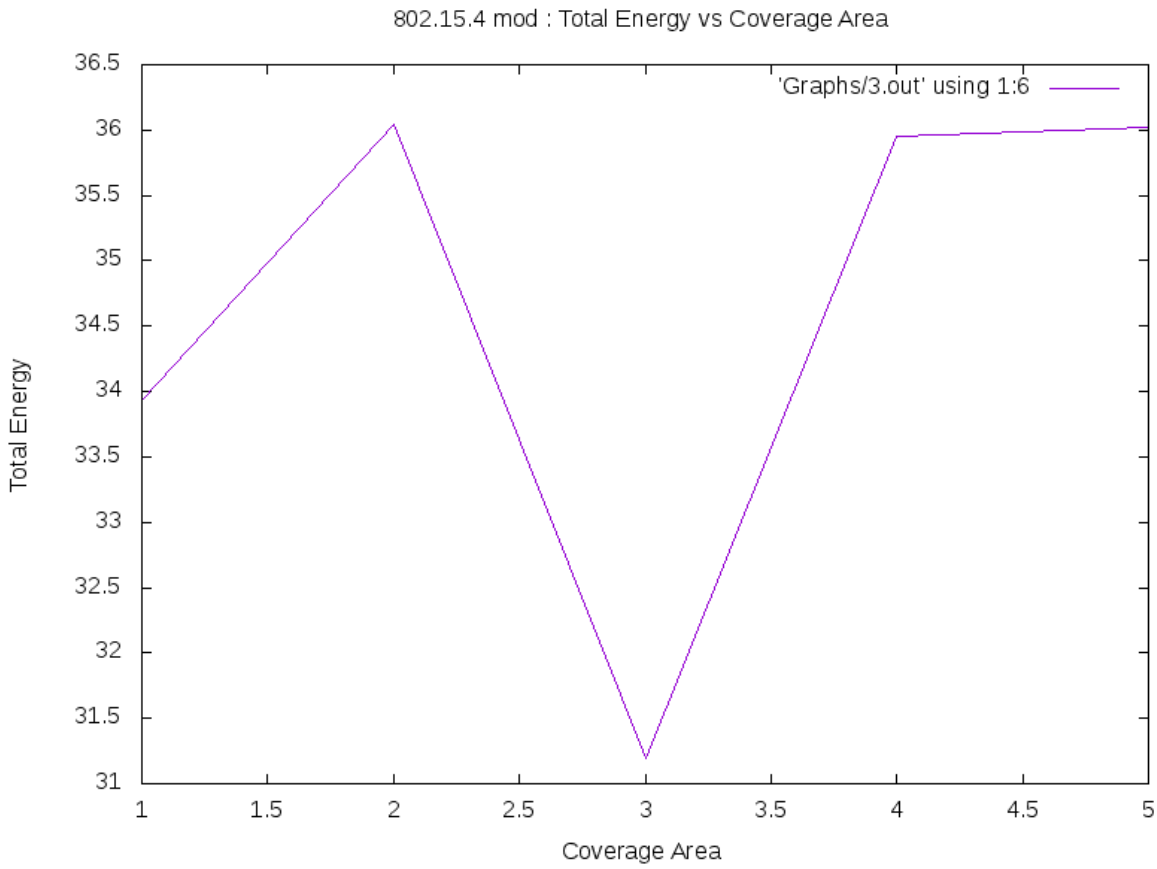

802.15.4 mod : Energy Per Packet vs Packers Per sec
'Graphs/2.out' using 1:7
Energy Per Packet
Packers Per sec
0
200
400
600
800
1000
1200
1400
100
150
200
250
300
350
400
450
500

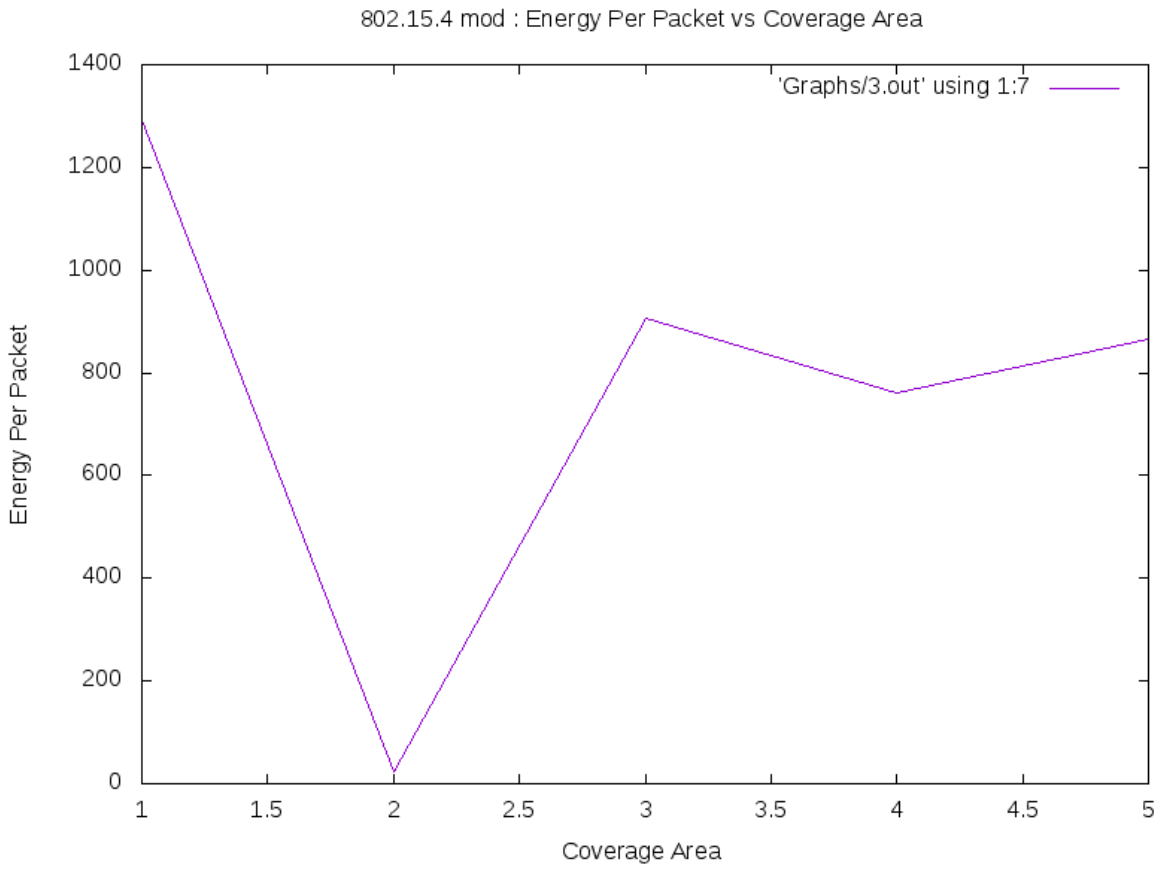

802.15.4 mod : Throughput vs Coverage Area
'Graphs/3.out' using 1:2
Throughput
Coverage Area
30000
25000
20000
15000
10000
5000
0
1
1.5
2
2.5
3
3.5
4
4.5
5


802.15.4 mod : End to End Delay vs Coverage Area
'Graphs/3.out' using 1:3
End to End Delay
Coverage Area
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1
1.5
2
2.5
3
3.5
4
4.5
5


802.15.4 mod : Delivery Ratio vs Coverage Area
'Graphs/3.out' using 1:4
Delivery Ratio
Coverage Area
100
95
90
85
80
75
70
65
60
1
1.5
2
2.5
3
3.5
4
4.5
5


802.15.4 mod : Drop Ratio vs Coverage Area
'Graphs/3.out' using 1:5
Drop Ratio
Coverage Area
0
10
20
30
40
50
60
1
1.5
2
2.5
3
3.5
4
4.5
5


802.15.4 mod : Total Energy vs Coverage Area
'Graphs/3.out' using 1:6
Total Energy
Coverage Area
36.5
36
35.5
35
34.5
34
33.5
33
32.5
32
31.5
31
1
1.5
2
2.5
3
3.5
4
4.5
5


802.15.4 mod : Energy Per Packet vs Coverage Area
'Graphs/3.out' using 1:7
Energy Per Packet
Coverage Area
0
200
400
600
800
1000
1200
1400
1
1.5
2
2.5
3
3.5
4
4.5
5