Part III

Implementing AoI-related metrics in wireless links

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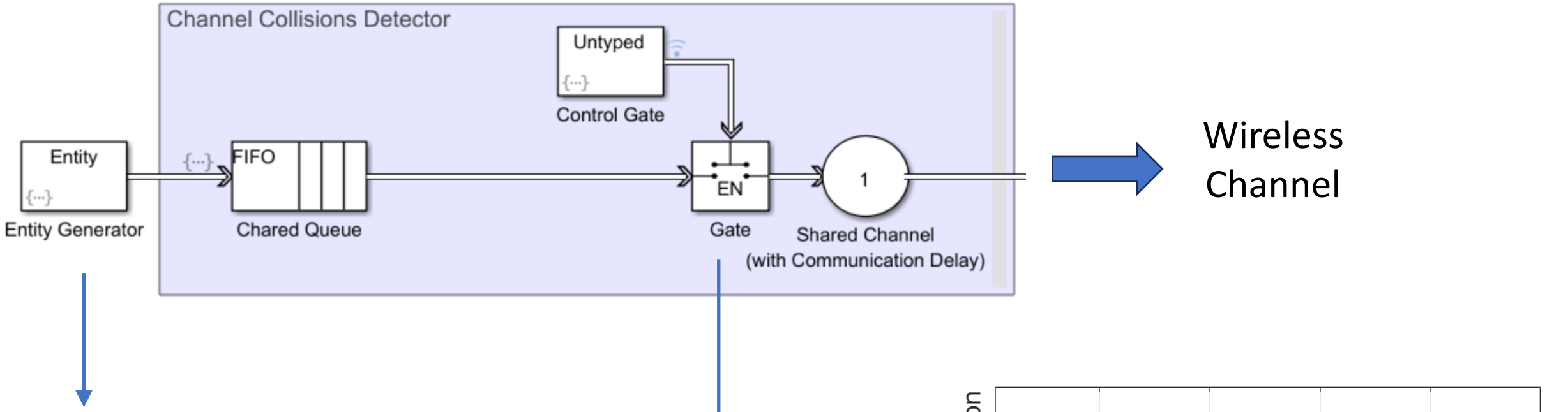
TU Berlin

Nikolaos Pappas
University of Linköping

NetSys 2023, International Conference on Networked Systems 2023
4-7 September 2023 – Potsdam, Germany

Transmitter



Attribute	Value
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	AoI Workshop
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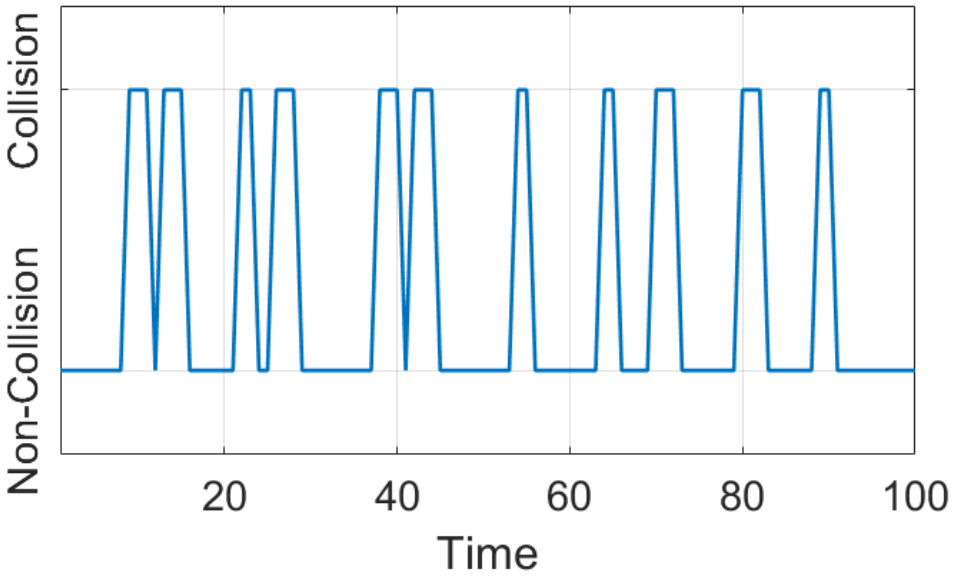
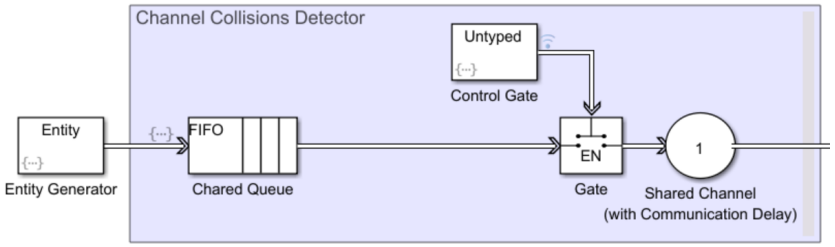


Transmitter



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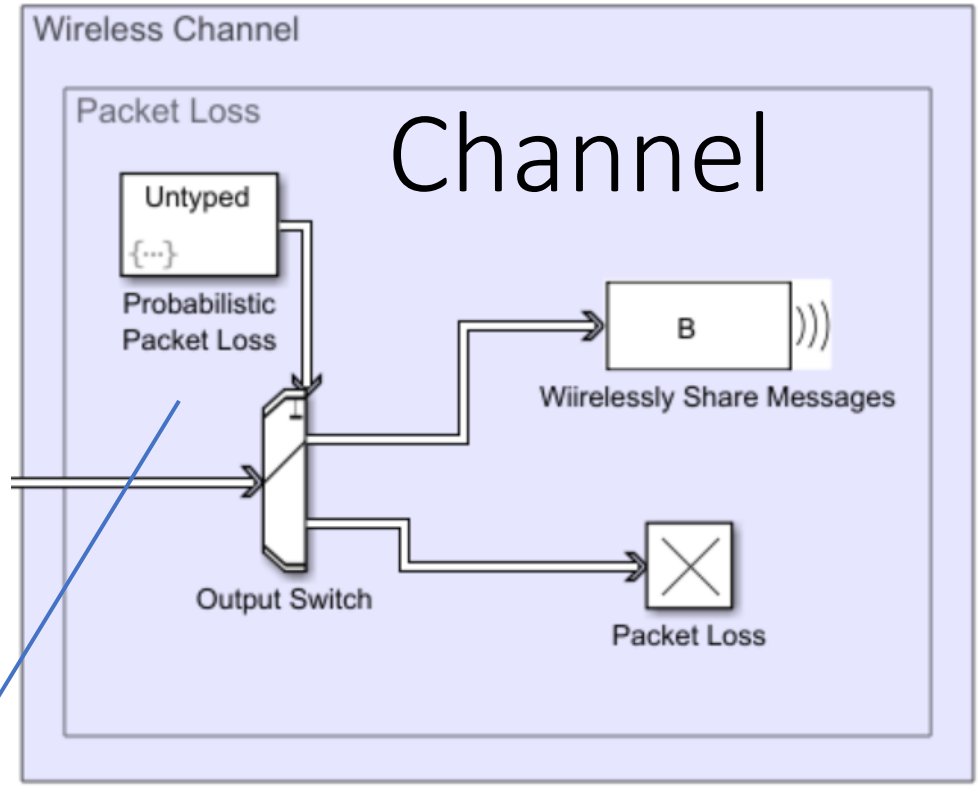
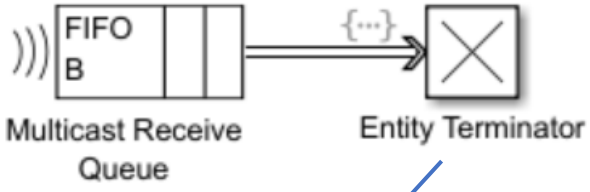
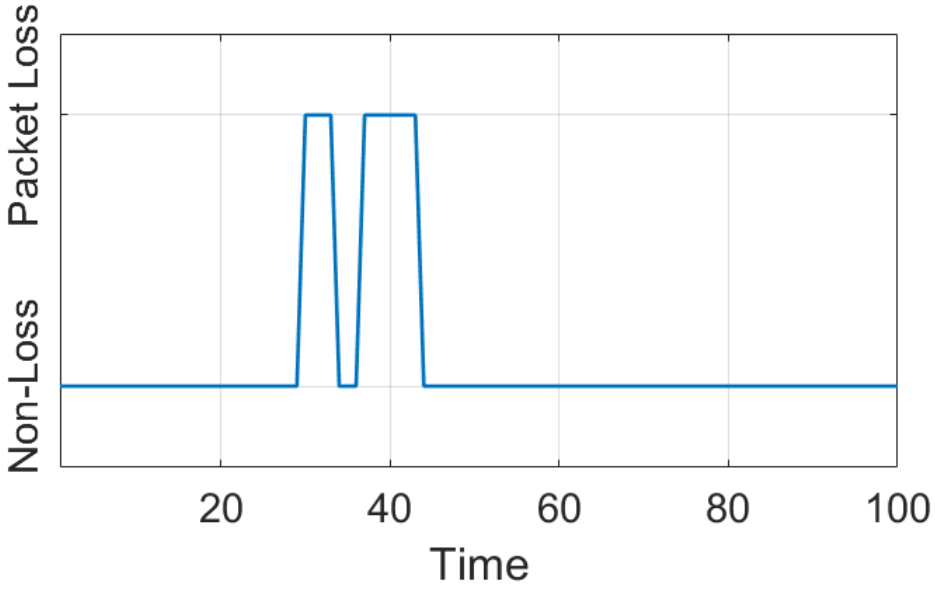
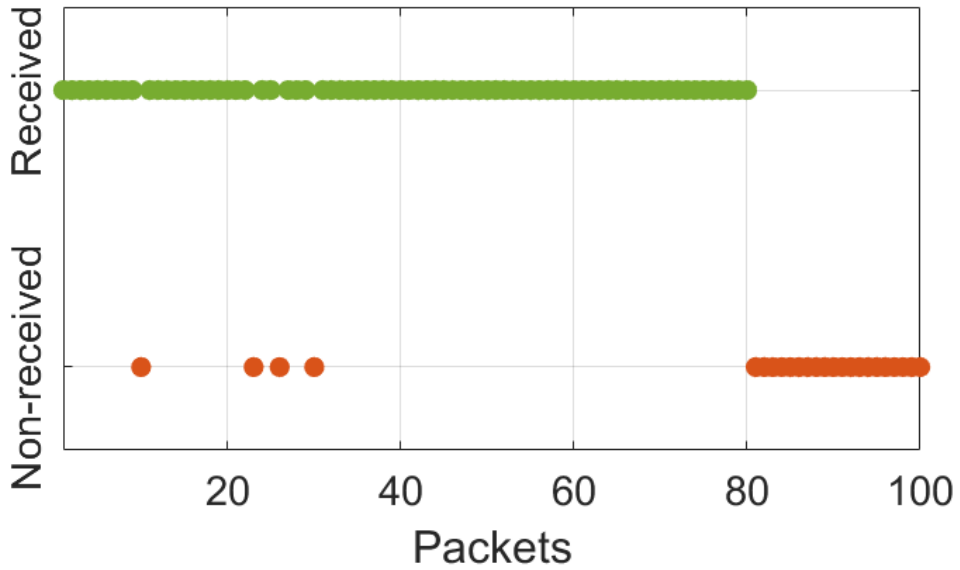


Receiver

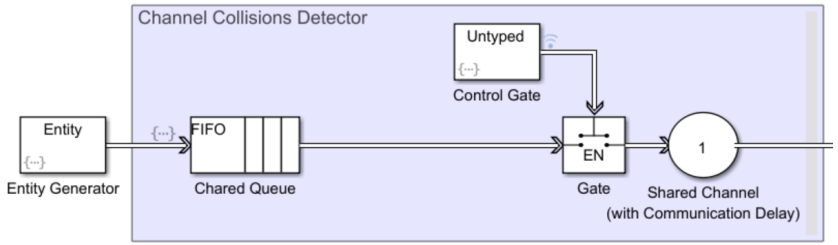


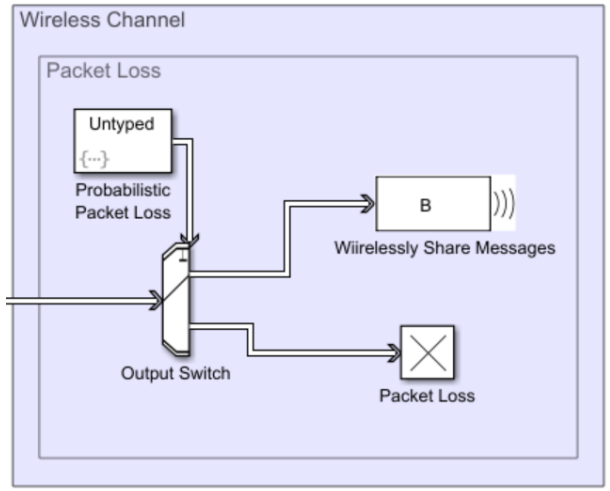


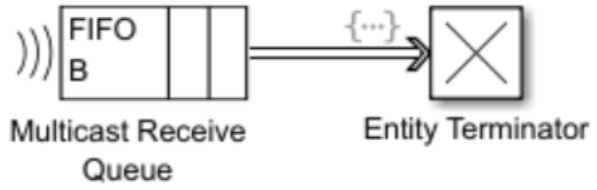


GitHub Repo

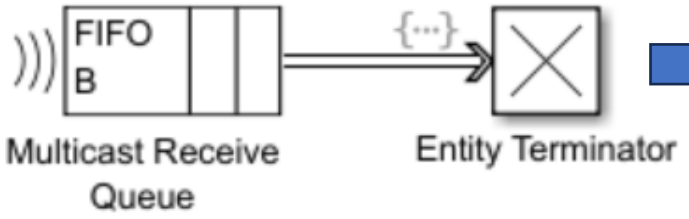
Matlab Access

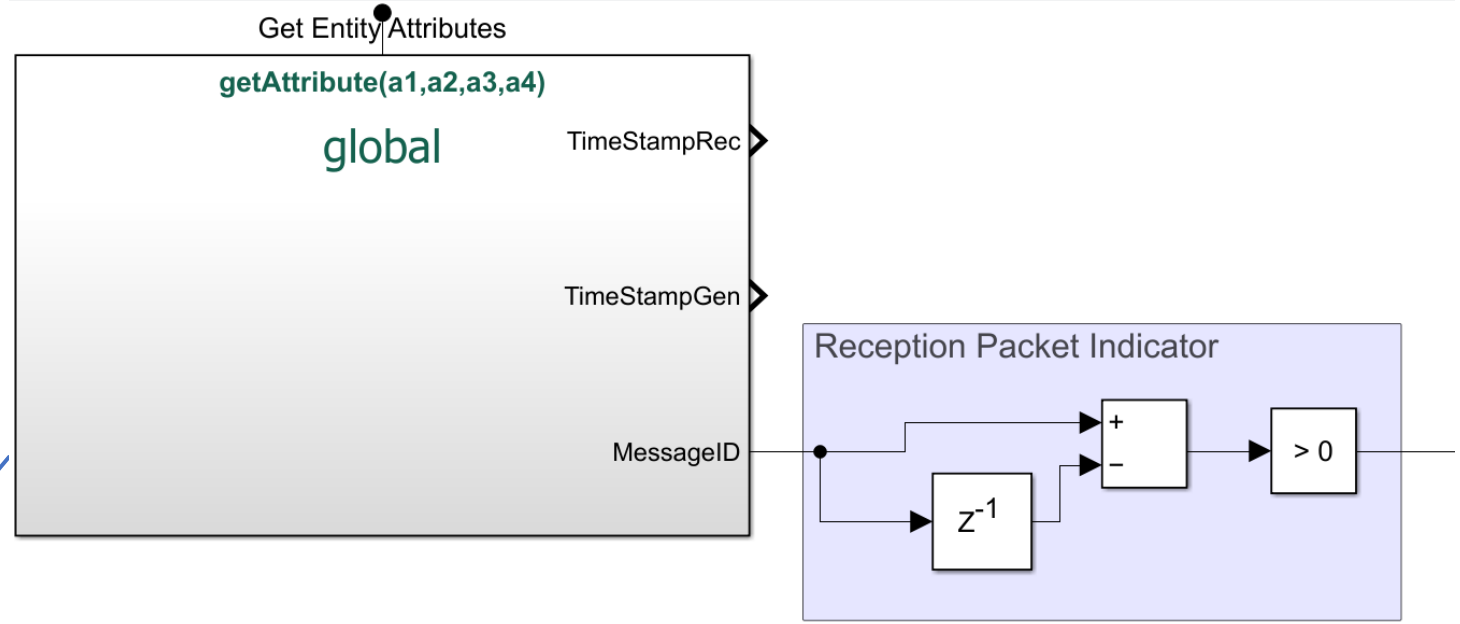


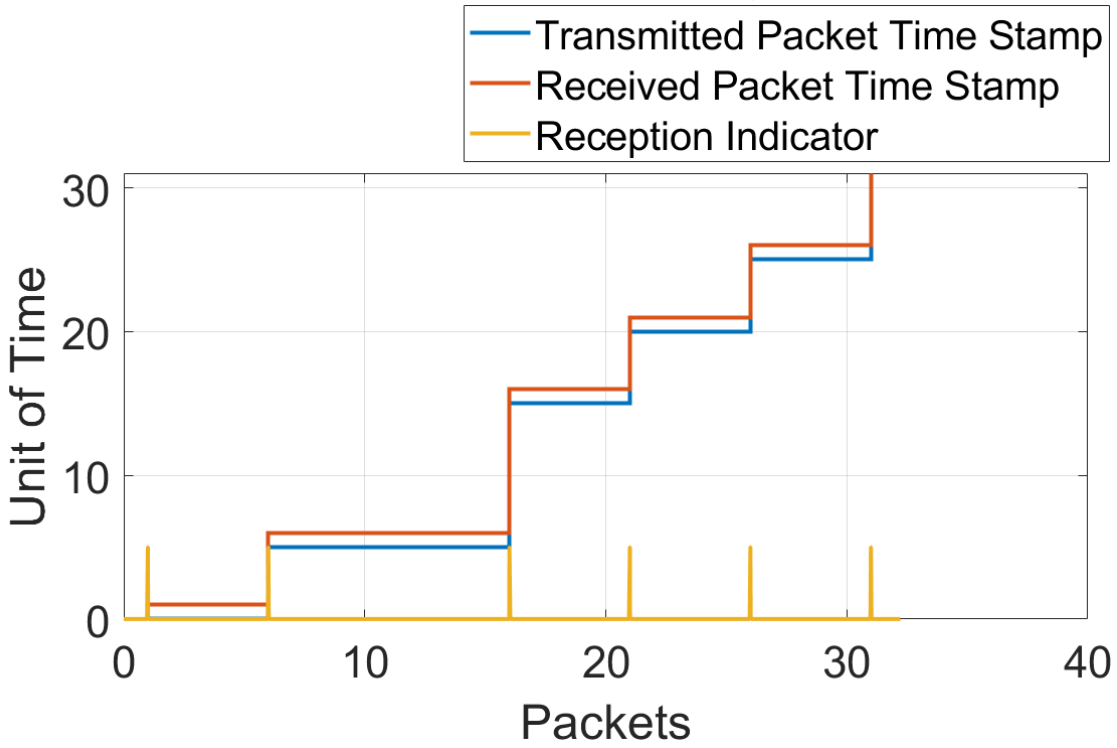


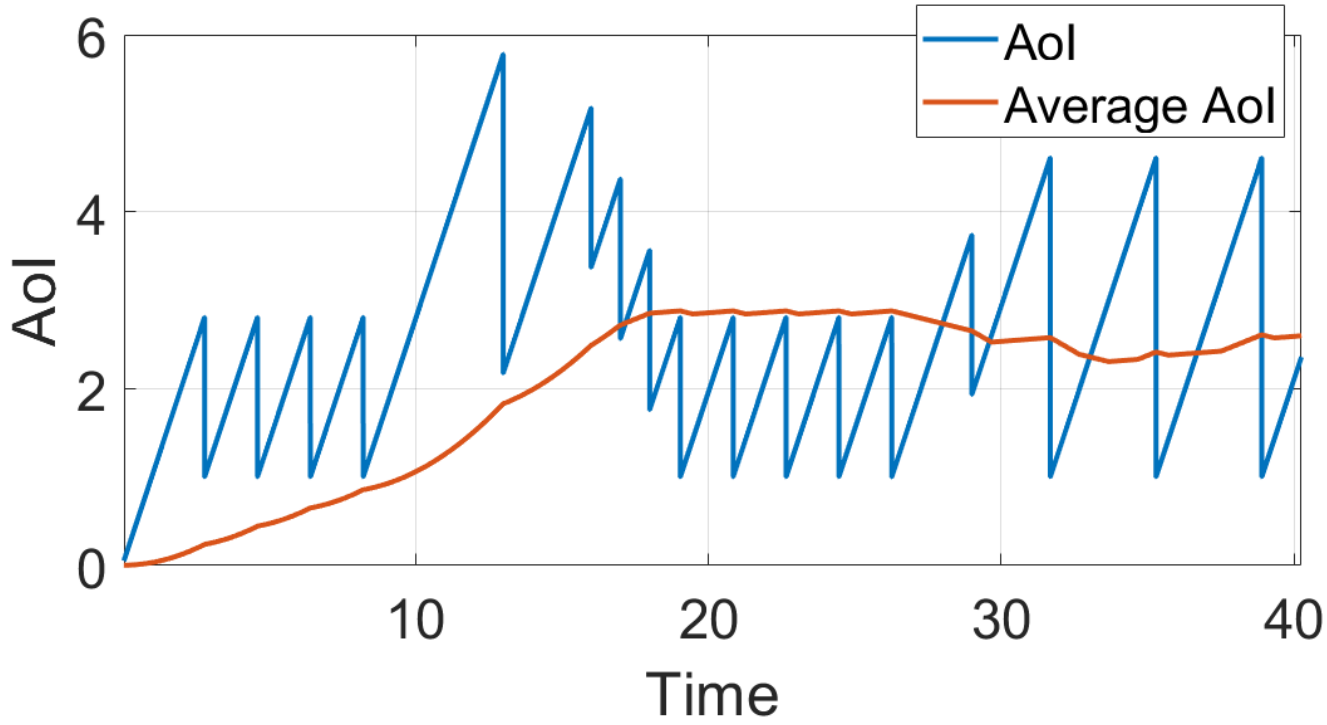


Receiver

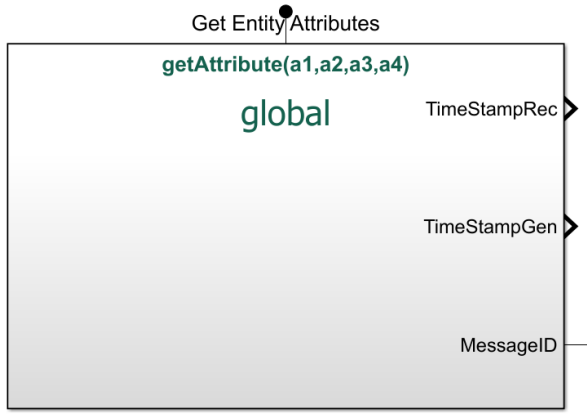

FIFO
B
Multicast Receive Queue
Entity Terminator

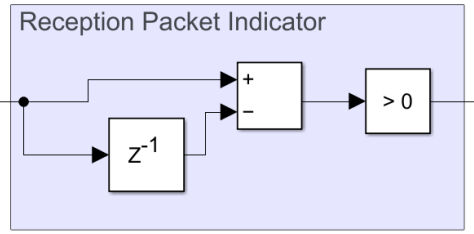

Get Entity Attributes
getAttribute(a1,a2,a3,a4)
global
TimeStampRec
TimeStampGen
MessageID
Reception Packet Indicator
+
−
> 0
z-1

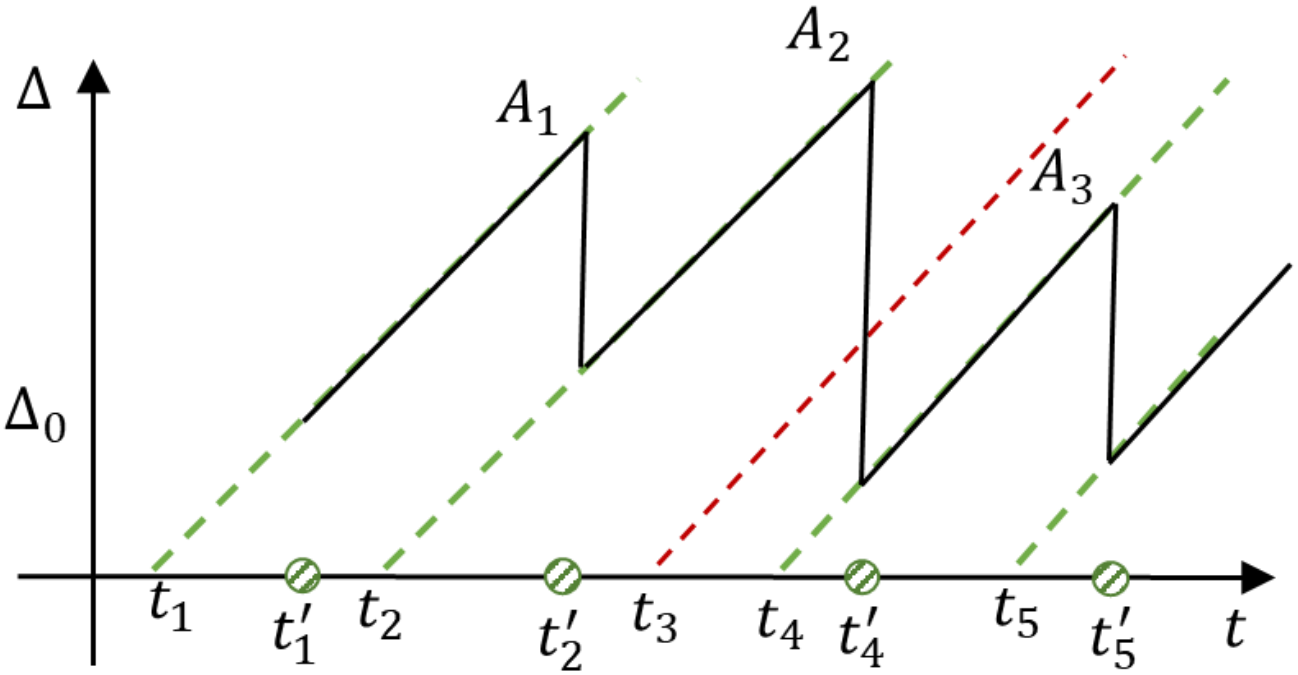

Transmitted Packet Time Stamp
Received Packet Time Stamp
Reception Indicator
Unit of Time
Packets
0
10
20
30
40

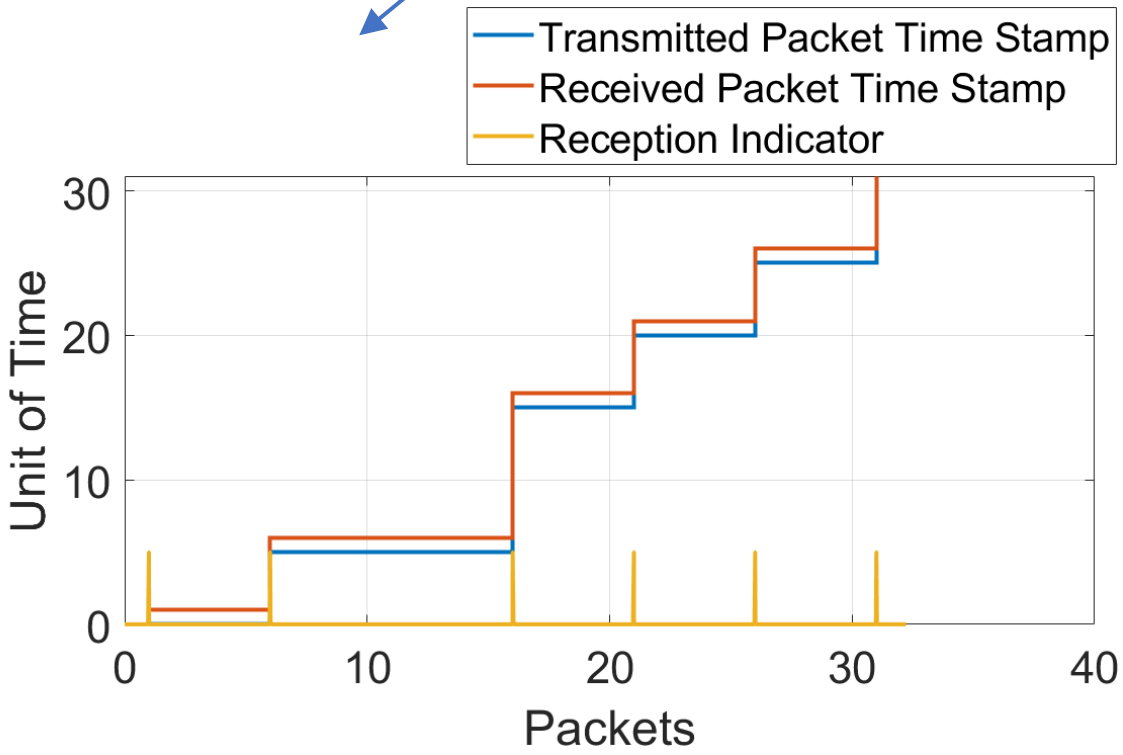

AoI
Average AoI
AoI
Time
0
2
4
6
10
20
30
40

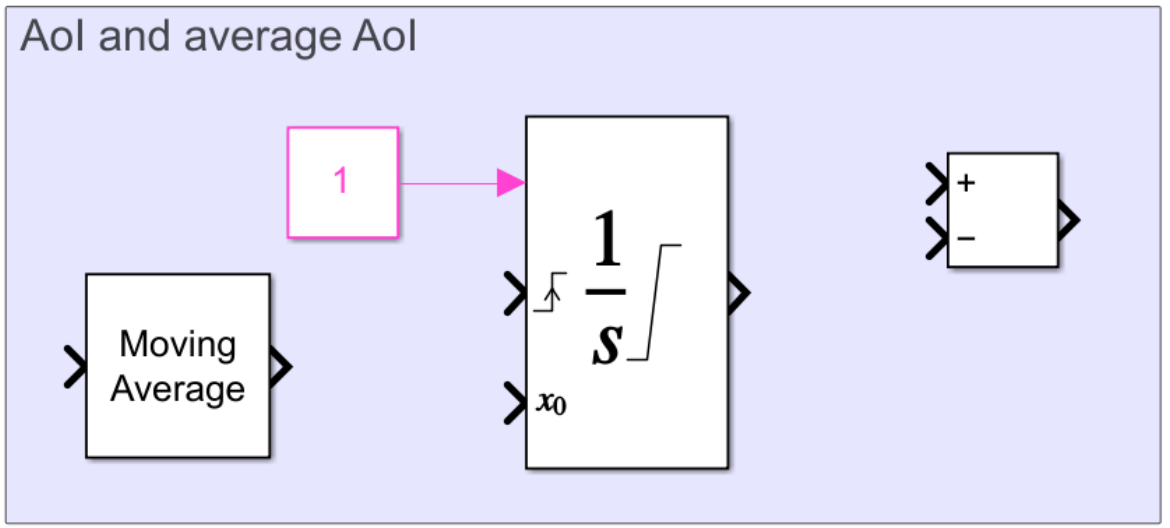
Receiver


Get Entity Attributes
getAttribute(a1,a2,a3,a4)
global
TimeStampRec
TimeStampGen
MessageID

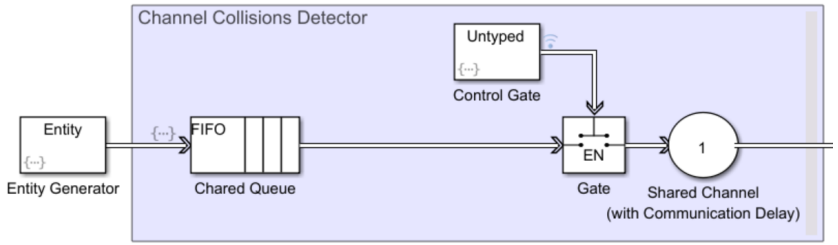

Reception Packet Indicator
+
−
> 0
z-1


Δ
Δ0
A1
A2
A3
t1
t1'
t2
t2'
t3
t4
t4'
t5
t5'
t

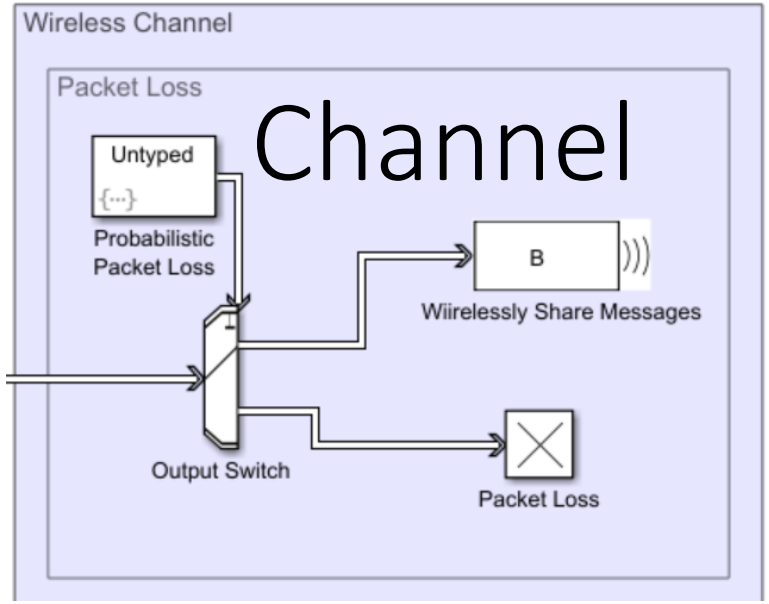

Transmitted Packet Time Stamp
Received Packet Time Stamp
Reception Indicator
Unit of Time
Packets
0
10
20
30
40


AoI and average AoI
1
Moving Average
1/s
x0
+
−

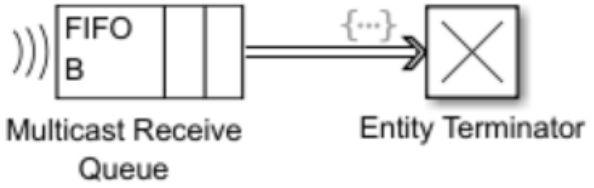
Transmitter

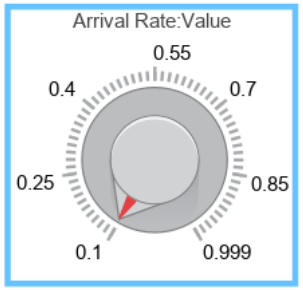


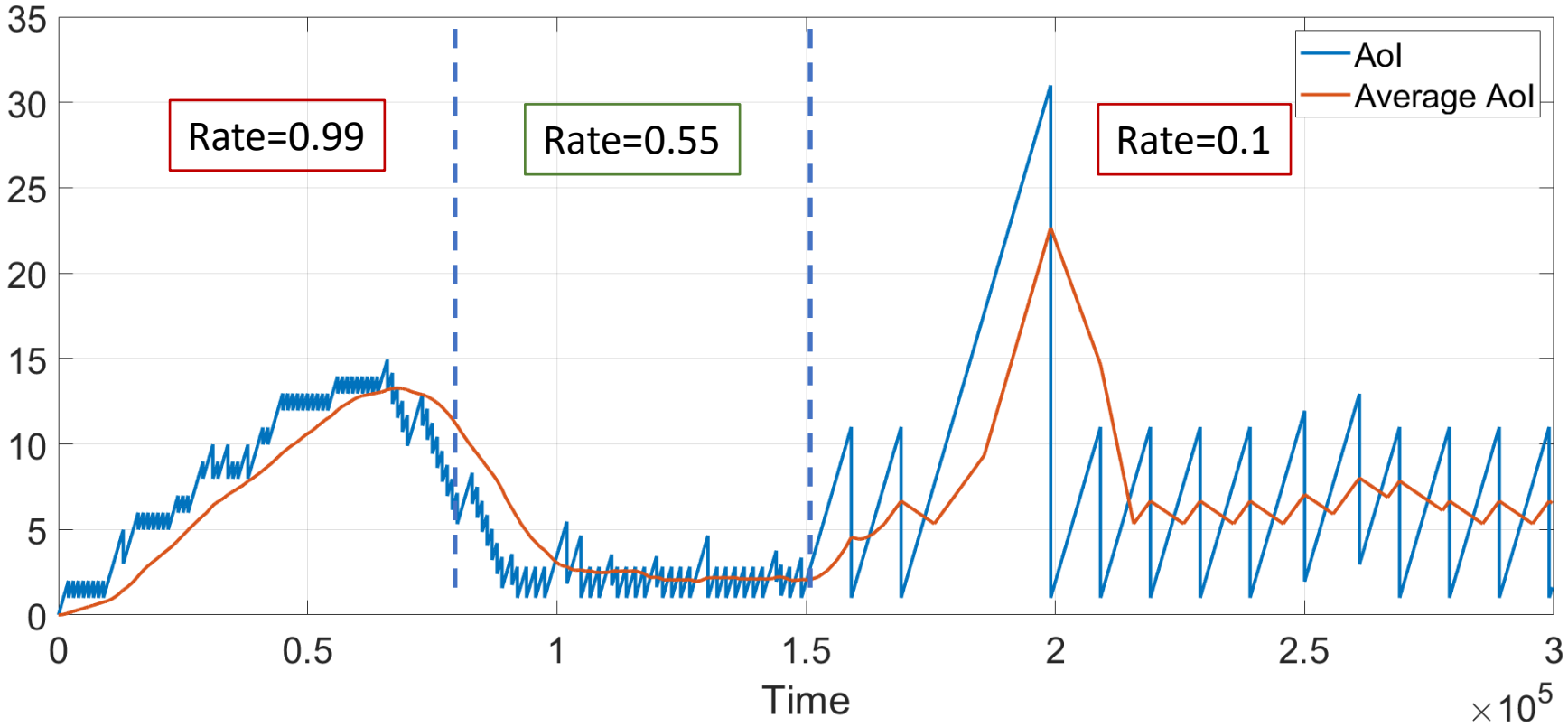
Channel



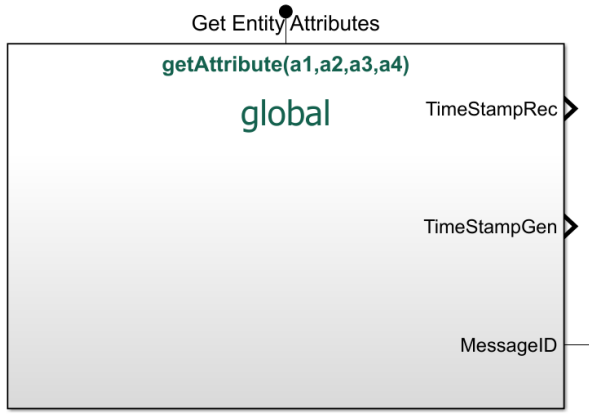
Receiver

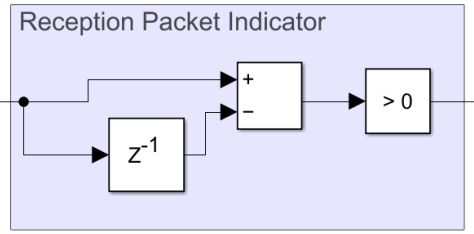


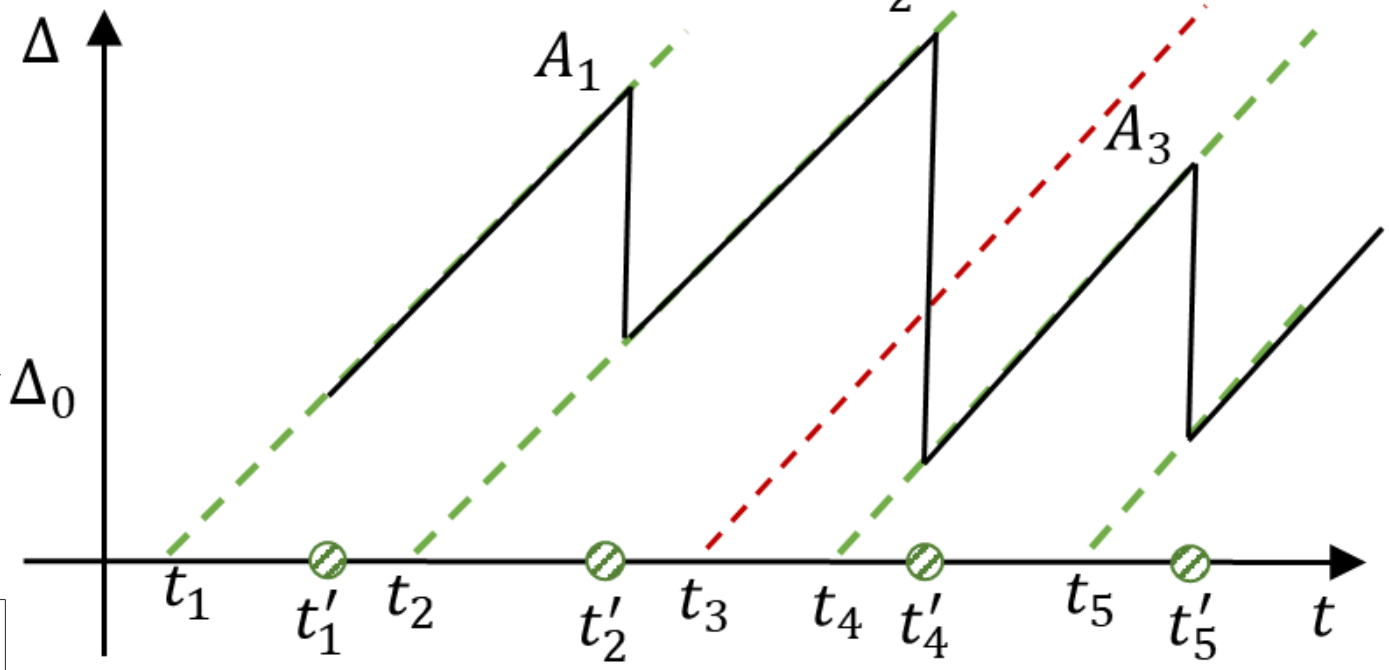


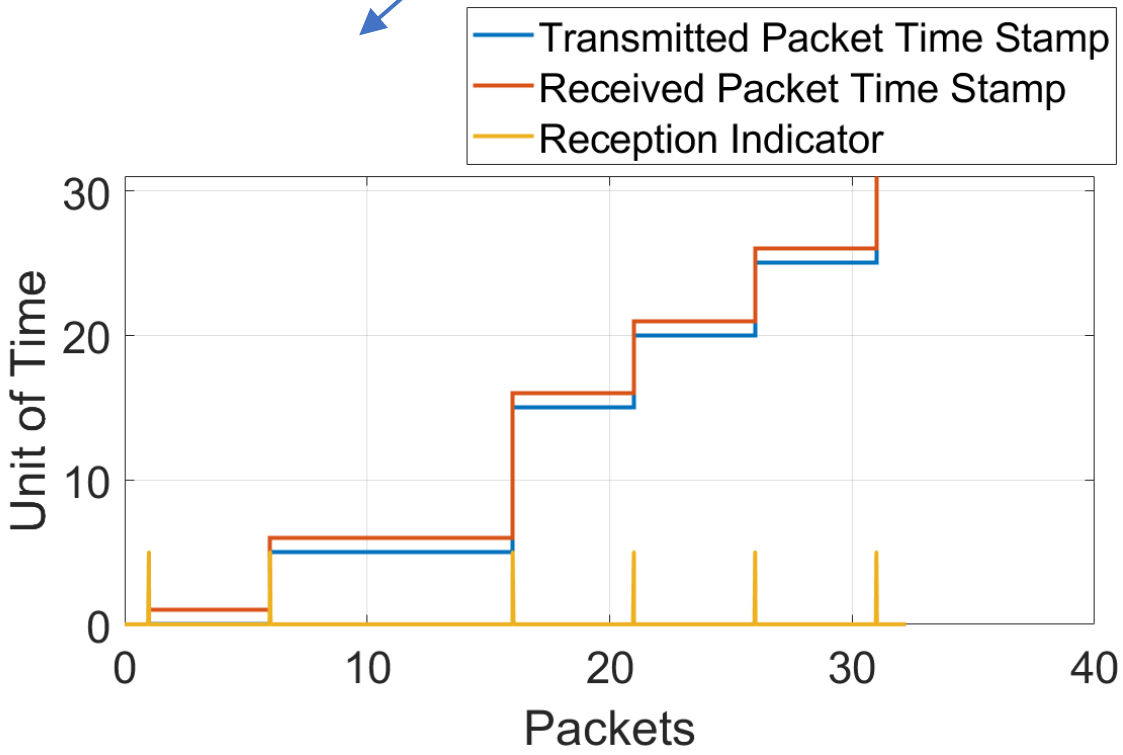


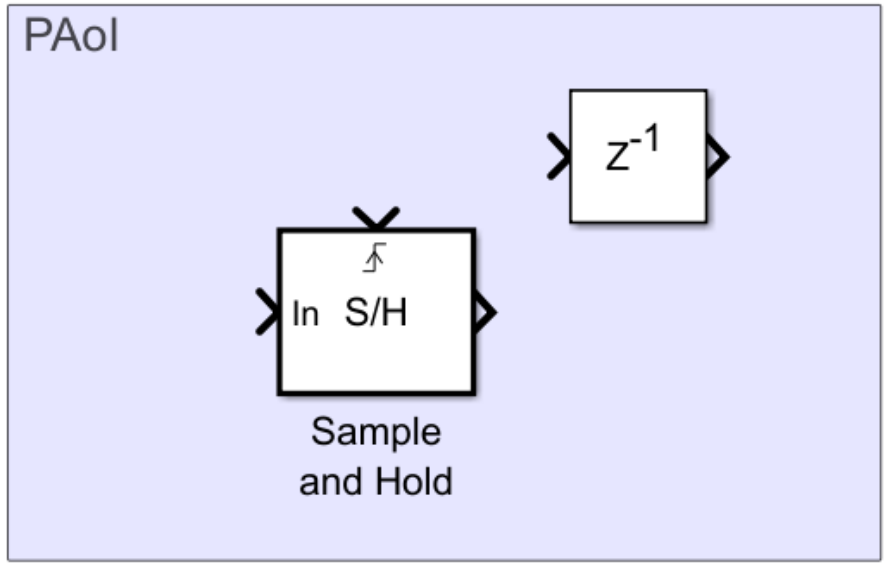
Receiver


Get Entity Attributes
getAttribute(a1,a2,a3,a4)
global
TimeStampRec
TimeStampGen
MessageID


Reception Packet Indicator
+
−
> 0
z-1


Δ
Δ0
A1
A2
A3
t1
t'1
t2
t'2
t3
t4
t'4
t5
t'5
t


Transmitted Packet Time Stamp
Received Packet Time Stamp
Reception Indicator
Unit of Time
Packets
0
10
20
30
40


PAoI
z-1
In S/H
Sample
and Hold

Part III

Implementing AoI-related metrics in wireless links

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TU Berlin

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University of Linköping

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