

<< running the program " ./Project2" >>

----- Network Simulator Version 2.3 -----

Enter the number of messages to simulate: 100

Packet loss probability [enter number between 0.0 and 1.0]: .1

Packet corruption probability [0.0 for no corruption]: .1

Packet out-of-order probability [0.0 for no out-of-order]: .1

Average time between messages from sender's layer5 [ > 0.0]: .1

Enter Level of tracing desired: 3

Do you want actions randomized: (1 = yes, 0 = no)? 0

Do you want Bidirectional: (1 = yes, 0 = no)? 0

Input parameters:

Number of Messages = 100 Lost Packet Prob. = 0.100

Corrupt Packet Prob. = 0.100 Out Of Order Prob. = 0.100

Ave. time between messages = 0.10 Trace level = 3

Randomize = 0 Bi-directional = 0

```
A:      0.1080, Layer 5 to 4 Message = !fEVhy->Pbs'2J3m~2DU
A:      0.1205, Layer 5 to 4 Message = ##i.Qt9]!Eh-Ps8[~Dg,
A:      0.2893, Layer 5 to 4 Message = $X$d:oFzQ([3h>sJ~U,a
A:      0.3117, Layer 5 to 4 Message = %kS%$jR:#iQ9!hP8~gO7
A:      0.3719, Layer 5 to 4 Message = &}wq&e_XRLF?93-'~xrl
A:      0.4071, Layer 5 to 4 Message = '2=IT'kv$x:FQ]hs~,7C
A:      0.4520, Layer 5 to 4 Message = (Eb~=Z(6SpxLi(Eb~=Zw
A:      0.4939, Layer 5 to 4 Message = dW(V'U&)%S$R2Q!P~0}N
A:      0.5830, Layer 5 to 4 Message = *jL.nP2r*6vX:z]>~aC%
A:      0.7017, Layer 5 to 4 Message = +fpdWK>2&+k_RF3~~rfY
A:      0.7075, Layer 5 to 4 Message = ,16;AFKPUZ,ejoty~&+0
A:      0.8786, Layer 5 to 4 Message = -DZq*AWn'=T-$:Qh~7Ne
A:      0.8789, Layer 5 to 4 Message = .V~Iq;d.V~Iq.d.V~Iq;
A:      0.9578, Layer 5 to 4 Message = xiE~Z6pL(b=wSxiE~Z6p
A:      1.0394, Layer 5 to 4 Message = d{iVD1|jWE2}2X03~LYG
A:      1.0576, Layer 5 to 4 Message = 10x.-,+)(' &#$#1~}|{
A:      1.0821, Layer 5 to 4 Message = 2CSdt'7HXiy,<M^n21BR
A:      1.1531, Layer 5 to 4 Message = 3Uw;^!Df*Ln2Tv:]~3e)
A:      1.3048, Layer 5 to 4 Message = 4f=qGzP&Yxc8lB3K~T4^
A:      1.4875, Layer 5 to 4 Message = 5zbI0u]D+pW>&kR9~fM5
A:      1.6026, Layer 5 to 4 Message = 6x(~wpibZSLE=6x(~wpi
A:      1.7585, Layer 5 to 4 Message = d7LVaku!,6AK2`jt~+5?
A:      1.8005, Layer 5 to 4 Message = 8T8.Jf$?[w5Qm+Gc~<Xt
A:      1.9042, Layer 5 to 4 Message = 9g693a0^~Z*W'T$Q~N{K
A:      1.9577, Layer 5 to 4 Message = :yZ;;[<{]=|^>}?_~`A!
A:      2.1055, Layer 5 to 4 Message = ;.~qd;I;.~qdVI;.~qdV
A:      2.2235, Layer 5 to 4 Message = <AEIMQ<Y^bfjnrvz~%)~
A:      2.3054, Layer 5 to 4 Message = =fi~6Lb=xEZp(=3i~6Lb
A:      2.4766, Layer 5 to 4 Message = dfxV}Gn7>(0v2g0W~Ho8
A:      2.6134, Layer 5 to 4 Message = ?xS.gBzU0?D|W2kF~Y4m
A:      2.7498, Layer 5 to 4 Message = A~wdP<)s`LA%o[H4~kWD
```

A: 2.9407, Layer 5 to 4 Message = B?=-;97531x-B)'%#~|zx  
A: 3.0179, Layer 5 to 4 Message = CRbq#2BQap!1CP`o~0?0  
A: 3.0217, Layer 5 to 4 Message = De(Ij-No2St7XD<^~Bc&  
A: 3.1143, Layer 5 to 4 Message = EwL~S(Zxb6i=pEEL~S(Z  
A: 3.2968, Layer 5 to 4 Message = d,pV<#gM3w^D2nTF~eK1  
A: 3.4209, Layer 5 to 4 Message = Gf6.&{skcZRJB93)Gvnf  
A: 3.4707, Layer 5 to 4 Message = HQZdmv!+4=GPYclu~H3<  
A: 3.6549, Layer 5 to 4 Message = Id~;Vq.Id~;Vq.Id~;Iq  
A: 3.7614, Layer 5 to 4 Message = JvEq?l:g5b0]+W&R~MyJ  
A: 3.8079, Layer 5 to 4 Message = K+iI)gG'eE%cC#aA~>|  
A: 3.8964, Layer 5 to 4 Message = LLx~pbSE6(wiZL=x~pbS  
A: 4.0522, Layer 5 to 4 Message = dPMVY)`cfilo2ux{~\$'\*  
A: 4.1043, Layer 5 to 4 Message = NcwNCWl#7Lau,AUj~5J\_  
A: 4.1117, Layer 5 to 4 Message = Ou=dORxAgxU{Dj2X~Gm5  
A: 4.1181, Layer 5 to 4 Message = Pfb;sP'\_8pJ\$[53G~X2j  
A: 4.1856, Layer 5 to 4 Message = Q<(q]HQ|hS>\*s\_J5~jUA  
A: 4.2617, Layer 5 to 4 Message = ROLIFC?R9630~\*'\${~xu  
A: 4.2618, Layer 5 to 4 Message = Sbp~x=LZSw(6ESbp~x=L  
A: 4.2881, Layer 5 to 4 Message = dt6Vv8Xx:Tz<2|>~Aa#  
A: 4.3469, Layer 5 to 4 Message = U)Z.`3e8j=UCtHyM~R&W  
A: 4.5197, Layer 5 to 4 Message = V;~dI.qV;~dV.qV;~dI.  
A: 4.5430, Layer 5 to 4 Message = WNE;2)}tkbXOW<3\*~ulc  
A: 4.6075, Layer 5 to 4 Message = Xaiqy\$,4<EMU^Xnv~)19  
A: 4.7950, Layer 5 to 4 Message = YfxIc|8Rl(B[u1Ye~:Tn  
A: 4.8116, Layer 5 to 4 Message = Z(S~LwEp=i6bxZ(Z~LwE  
A: 4.9632, Layer 5 to 4 Message = d:wV5rQ0mL+h2&cB[^<y  
A: 5.0471, Layer 5 to 4 Message = ]M=.|m^N>x}n\_0?0~}`P  
A: 5.1740, Layer 5 to 4 Message = ^`bdfhjlnprtvxz|~#^'  
A: 5.1896, Layer 5 to 4 Message = \_r(;0cv,?Sgz0DWk~4H\_  
A: 5.2990, Layer 5 to 4 Message = ` 'Lq8^%Jo6[#Hm4Y~Fk2  
A: 5.3415, Layer 5 to 4 Message = aapI!X1hAwP)`8oH~W0g  
A: 5.3637, Layer 5 to 4 Message = bLb~iS=(pZExwbL6~iS=  
A: 5.5583, Layer 5 to 4 Message = dfZcRNJFB=952-3%~zv  
A: 5.7439, Layer 5 to 4 Message = dq~.dIVdq~.;IVdq~.;I  
A: 5.7627, Layer 5 to 4 Message = e&Ed%ec\$Cb#Ba!A'~?\_}  
A: 5.8945, Layer 5 to 4 Message = f8i;l>fBrEuHxK{N~Q\$T  
A: 5.9428, Layer 5 to 4 Message = gKxqU9{gD(jN2tX<~cG+  
A: 6.0313, Layer 5 to 4 Message = h^SI>4\*}hi\_TJ?5+~tj`  
A: 6.2126, Layer 5 to 4 Message = ipw~(x6=EiSZbipw~(x6  
A: 6.2538, Layer 5 to 4 Message = d%=Vo\*C[txja24Mf~9Rk  
A: 6.2907, Layer 5 to 4 Message = k7b.X%0yFp<k3^\*T~KuB  
A: 6.4085, Layer 5 to 4 Message = lf(dB}[9uS1ml)3C~]:v  
A: 6.4523, Layer 5 to 4 Message = m]L;+xhWG6&scmB1~n^M  
A: 6.5425, Layer 5 to 4 Message = nopqrstuvwxyz{~!#\$  
A: 6.6716, Layer 5 to 4 Message = o\$6I[n#5HZm!4GYo~3FX  
A: 6.8610, Layer 5 to 4 Message = p6Z~EixSw=b(Lp6ZpEix  
A: 6.9478, Layer 5 to 4 Message = dI~V.d;qI~V.2;qI~q.d  
A: 7.1268, Layer 5 to 4 Message = r[E.u\_H1xbK4{eN7~hr:  
A: 7.1589, Layer 5 to 4 Message = snid\_YT0JE?:50+&~yts  
A: 7.3080, Layer 5 to 4 Message = t#x;HTamy(4AMYfr~9F

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A:      7.3494, Layer 5 to 4 Message = uuSq10m-Ki)Ge%3a~>]z
A:      7.5468, Layer 5 to 4 Message = vHvIxJyKzL{M|N}0~P!Q
A:      7.6270, Layer 5 to 4 Message = wZ=wbE(iLxpS6wZ=~bE(
A:      7.7768, Layer 5 to 4 Message = dmbVx?4){peY2C7,~sh]
A:      7.8969, Layer 5 to 4 Message = y!(.4yAGMSY`flrx~'-3
A:      7.9505, Layer 5 to 4 Message = z4Ld{5ze|6Nf}70g~8Ph
A:      7.9710, Layer 5 to 4 Message = {Gp;e0Y{NwCl7a,U~Js>
A:      8.0500, Layer 5 to 4 Message = |Y6qN+fC|Z7r0,gD~[8s
A:      8.0894, Layer 5 to 4 Message = }lZI7&ra0},xgUD2~m[J
A:      8.0894, Layer 5 to 4 Message = ~fDUgx,=0a~&7I3l}1CT
A:      8.1361, Layer 5 to 4 Message = !3EVhy->Pbs'2J[m~2DU
A:      8.2028, Layer 5 to 4 Message = ##i.Qt9)!Eh-Ps8[~Dg,
A:      8.2743, Layer 5 to 4 Message = $X$d:oFzQ(]3h>sJ~U,a
A:      8.3471, Layer 5 to 4 Message = %kS%$jR:#iQ9!hP8~g07
B:      8.3822, Layer 4 to 5 Message = !fEVhy->Pbs'2J3m~2DU
A:      8.4241, Layer 5 to 4 Message = &}wq&e_XRLF?93-'~xrl
A:      8.4767, Layer 5 to 4 Message = '2=IT'kv$x:FQ]hs~,7C
A:      8.6089, Layer 5 to 4 Message = (Eb~=Z(6SpxLi(Eb~=Zw
A:      8.7795, Layer 5 to 4 Message = dW(V'U&)%S$R2Q!P~0}N
A:      8.8027, Layer 5 to 4 Message = *fL.nP2r*6vX:z3>~aC%
A:      8.8304, Layer 5 to 4 Message = +|pdWK>2&+k_RF9~~rfY
A:      8.9120, Layer 5 to 4 Message = ,16;AFKPUZ,ejoty~&+0
A:      8.9268, Layer 5 to 4 Message = -DZq*AWn'=T-$.Qh~7Ne
A:      9.1162, Layer 5 to 4 Message = .V~Iq;d.V~Iq.d.V~Iq;
A:      9.2176, Layer 5 to 4 Message = xiE~Z6pL(b=wSxiE~Z6p

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<< Initial Skips to 'Simulator terminated at time 9.040314 >>

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B:      10035.6216, Layer 4 to 5 Message = ##i.Qt9)!Eh-Ps8[~Dg,
B:      10064.9607, Layer 4 to 5 Message = $X$d:oFzQ(]3h>sJ~U,a
B:      10096.9734, Layer 4 to 5 Message = %kS%$jR:#iQ9!hP8~g07
B:      10131.3586, Layer 4 to 5 Message = &}wq&e_XRLF?93-'~xrl
B:      10169.2890, Layer 4 to 5 Message = '2=IT'kv$x:FQ]hs~,7C
B:      10214.5357, Layer 4 to 5 Message = (Eb~=Z(6SpxLi(Eb~=Zw
B:      10264.1494, Layer 4 to 5 Message = dW(V'U&)%S$R2Q!P~0}N
B:      10295.3861, Layer 4 to 5 Message = *jL.nP2r*6vX:z]>~aC%
B:      10319.6895, Layer 4 to 5 Message = +fpdWK>2&+k_RF3~~rfY
B:      10370.1499, Layer 4 to 5 Message = ,16;AFKPUZ,ejoty~&+0
B:      10401.1093, Layer 4 to 5 Message = -DZq*AWn'=T-$.Qh~7Ne
B:      15425.3183, Layer 4 to 5 Message = .V~Iq;d.V~Iq.d.V~Iq;
B:      15437.7966, Layer 4 to 5 Message = xiE~Z6pL(b=wSxiE~Z6p
B:      15464.4555, Layer 4 to 5 Message = d{iVD1|jWE2}2X03~lYG
B:      15470.3089, Layer 4 to 5 Message = 10x.-,+)('&%$#1~}|{
B:      25509.0113, Layer 4 to 5 Message = 2CSdt'7HXiy,<M^n21BR
B:      25544.4374, Layer 4 to 5 Message = 3Uw;^!Df*Ln2Tv:~3e)
B:      25571.2153, Layer 4 to 5 Message = 4f=qGzP&Yxc8lB3K~T4^
B:      25594.1263, Layer 4 to 5 Message = 5zbI0u]D+pW>&kr9~fM5
B:      35643.8610, Layer 4 to 5 Message = 6x(~wpibZSLE=6x(~wpi
B:      35675.8354, Layer 4 to 5 Message = d7LVaku!,6AK2`jt~+5?

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B: 40725.0821, Layer 4 to 5 Message = 8T8.Jf$?[w5Qm+Gc~<Xt
B: 45719.6405, Layer 4 to 5 Message = 9g693a0^-Z*W'T$Q~N{K
B: 45742.0754, Layer 4 to 5 Message = :yZ;:[<{]=|^>}_?~`A!
B: 45780.0862, Layer 4 to 5 Message = ;.~qd;I;.~qdVI;.~qdV
B: 50803.3268, Layer 4 to 5 Message = <AEIMQ<Y^bfjnrVz~%)-
B: 50820.6294, Layer 4 to 5 Message = =fi~6Lb=xEZp(=3i~6Lb
B: 50848.3950, Layer 4 to 5 Message = dfxV}Gn7>(0v2g0W~Ho8
B: 50862.2262, Layer 4 to 5 Message = ?xS.gBzU0?D|W2kF~Y4m
B: 60913.6154, Layer 4 to 5 Message = A~wdP<)s`LA%o[H4~kWD
B: 65941.1083, Layer 4 to 5 Message = B?=:97531x~B)'%#~|zx

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Printing the contents of the Simulation Event Q  
Event Time = 70917.333 A: Timer

Printing the contents of the Simulation Event Q  
Event Time = 70949.949 A: Timer

Printing the contents of the Simulation Event Q  
Event Time = 70949.949 A: Timer

Printing the contents of the Simulation Event Q

Printing the contents of the Simulation Event Q  
Event Time = 75949.949 A: Timer

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B: 70975.7261, Layer 4 to 5 Message = CRbq#2BQap!1CP`o~0?0
B: 70995.1479, Layer 4 to 5 Message = De(Ij~No2St7XD<^~Bc&
B: 71037.8425, Layer 4 to 5 Message = EwL~S(Zxb6i=pEEL~S(Z
B: 71094.2146, Layer 4 to 5 Message = d,pV<#gM3w^D2nTF~eK1
B: 76119.7076, Layer 4 to 5 Message = Gf6.&{skcZRJB93)Gvnf
B: 76156.5620, Layer 4 to 5 Message = HQZdmv!+4=GPYclu~H3<
B: 76167.9566, Layer 4 to 5 Message = Id~;Vq.Id~;Vq.Id~;Iq
B: 91213.2800, Layer 4 to 5 Message = JvEq?l:g5b0]+W&R~MyJ
B: 96239.6133, Layer 4 to 5 Message = K+iI)gG'eE%CC#aA~>|
B: 101268.5256, Layer 4 to 5 Message = LLx~pbSE6(wiZL=x~pbS
B: 101276.7735, Layer 4 to 5 Message = dPMVY]`cfilo2ux{~$'*
B: 101297.5124, Layer 4 to 5 Message = NcwNCWl#7Lau,AUj~5J_
B: 106350.0553, Layer 4 to 5 Message = Ou=d0RxAgxU{Dj2X~Gm5
B: 111390.4888, Layer 4 to 5 Message = Pfb;sP'_8pJ$[53G~X2j
B: 111437.9356, Layer 4 to 5 Message = Q<(q)HQ|hS>*s_J5~jUA
B: 111469.6895, Layer 4 to 5 Message = ROLIFC?R9630~*'$~{xu
B: 116487.8444, Layer 4 to 5 Message = Sbp~x=LZSw(6ESbp~x=L
B: 116518.1237, Layer 4 to 5 Message = dt6Vv8Xx:Tz<2|>_~Aa#
B: 116539.8506, Layer 4 to 5 Message = U)Z.`3e8j=UCtHyM~R&W
B: 121569.5224, Layer 4 to 5 Message = V;~dI.qV;~dV.qV;~dI.

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B: 126587.8756, Layer 4 to 5 Message = WNE;2)}tkbXOW<3*~ulc
B: 136629.3321, Layer 4 to 5 Message = Xaiqy$,4<EMU^Xnv~)19
B: 136635.2304, Layer 4 to 5 Message = YfxIc|8Rl(B[u1Ye~:Tn
B: 141654.3050, Layer 4 to 5 Message = Z(S~LwEp=i6bxZ(Z~LwE
B: 146701.6159, Layer 4 to 5 Message = d:wV5rQ0mL+h2&cB[^<y
B: 146727.6493, Layer 4 to 5 Message = ]M=.|m^N>x}n_0?0~}`P
B: 151759.2916, Layer 4 to 5 Message = ^`bdfhjlnprtvxz|~#^'
B: 151792.5756, Layer 4 to 5 Message = _r(;0cv,?Sgz0DWk~4H_
B: 151843.4938, Layer 4 to 5 Message = `''Lq8^%Jo6[#Hm4Y~Fk2
B: 151879.9203, Layer 4 to 5 Message = aapI!X1hAwP)`8oH~W0g
B: 161902.2550, Layer 4 to 5 Message = bLb~iS=(pZExwbL6~iS=
B: 161937.5611, Layer 4 to 5 Message = dfZcRNJFB=952-3%~zv r
B: 161968.5136, Layer 4 to 5 Message = dq~.dIVdq~.;IVdq~.;I

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Printing the contents of the Simulation Event Q  
Event Time = 166958.527 A: Timer

Printing the contents of the Simulation Event Q  
Event Time = 166972.551 A: Timer

Printing the contents of the Simulation Event Q

Printing the contents of the Simulation Event Q

Printing the contents of the Simulation Event Q  
Event Time = 176972.551 A: Timer

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B: 171993.7427, Layer 4 to 5 Message = e&Ed%ec$Cb#Ba!A`~?_}
B: 172030.0327, Layer 4 to 5 Message = f8i;l>fBrEuHxK{N~Q$T
B: 172073.6133, Layer 4 to 5 Message = gKxqU9{gD(jN2tX<~cG+
B: 172118.9043, Layer 4 to 5 Message = h^SI>4*}hi_TJ?5+~tj`
B: 172155.9161, Layer 4 to 5 Message = ipw~(x6=EiSZbipw~(x6
B: 172197.6156, Layer 4 to 5 Message = d%=Vo*C[txja24Mf~9Rk
B: 172246.3783, Layer 4 to 5 Message = k7b.X%0yFp<k3^*T~KuB
B: 172255.7330, Layer 4 to 5 Message = lf(dB}[9uS1ml)3C~]:v
B: 172274.2512, Layer 4 to 5 Message = m]L;+xhWG6&scmB1~n^M
B: 177309.0665, Layer 4 to 5 Message = nopqrstuvwxyz{n}~!#$
B: 177344.9104, Layer 4 to 5 Message = o$6I[n#5HZm!4GYo~3FX
B: 177376.9967, Layer 4 to 5 Message = p6Z~EixSw=b(Lp6ZpEix
B: 177427.2171, Layer 4 to 5 Message = dI~V.d;qI~V.2;qI~q.d
B: 177437.2099, Layer 4 to 5 Message = r[E.u_H1xbK4{eN7~hr:
B: 177467.2978, Layer 4 to 5 Message = snid_YT0JE?:50+&~yts
B: 177512.1721, Layer 4 to 5 Message = t#x;HTamy(4AMYfr~~9F
B: 177550.7030, Layer 4 to 5 Message = uuSq10m~Ki)Ge%3a~>]z
B: 177599.9248, Layer 4 to 5 Message = vHvIxJyKzL{M|N}0~P!Q

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B: 177632.9815, Layer 4 to 5 Message = wZ=wbE(iLxpS6wZ=~bE(
B: 177678.2660, Layer 4 to 5 Message = dmbVx?4){peY2C7,~sh]
B: 177717.4997, Layer 4 to 5 Message = y!(.4yAGMSY`flrx~'-3
B: 182706.7700, Layer 4 to 5 Message = z4Ld{5ze|6Nf}70g~8Ph
B: 192733.8091, Layer 4 to 5 Message = {Gp;e0Y{NwCl7a,U~Js>
B: 192783.4176, Layer 4 to 5 Message = |Y6qN+fC|Z7r0,gD~[8s
B: 192818.9639, Layer 4 to 5 Message = }lZI7&ra0},xgUD2~m[J
B: 192857.3689, Layer 4 to 5 Message = ~fDUgx,=0a~&7I3l}1CT
B: 192881.9370, Layer 4 to 5 Message = !3EVhy->Pbs'2J[m~2DU
B: 192914.8250, Layer 4 to 5 Message = ##i.Qt9)!Eh-Ps8[~Dg,
B: 197943.4029, Layer 4 to 5 Message = $X$d:oFzQ(]3h>sJ~U,a
B: 197994.1336, Layer 4 to 5 Message = %kS%$jR:#iQ9!hP8~g07
B: 198035.9796, Layer 4 to 5 Message = &}wq&e_XRLF?93-'~xrl
B: 203035.0986, Layer 4 to 5 Message = '2=IT'kv$x:FQ]hs~,7C
B: 203053.2728, Layer 4 to 5 Message = (Eb~=Z(6SpxLi(Eb~=Zw

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Printing the contents of the Simulation Event Q  
Event Time = 208041.531 A: Timer

Printing the contents of the Simulation Event Q

Printing the contents of the Simulation Event Q

Printing the contents of the Simulation Event Q

Printing the contents of the Simulation Event Q  
Event Time = 223080.468 A: Timer

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B: 218103.3645, Layer 4 to 5 Message = dW(V'U&)%S$R2Q!P~0}N
B: 218141.6897, Layer 4 to 5 Message = *fL.nP2r*6vX:z3>~aC%

```

Simulator terminated at time 218143.072440  
after receiving 100 msgs at layer5

Simulator Analysis:

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Number of messages sent from 5 to 4: 104
Number of messages received at Layer 5, side A: 0
Number of messages received at Layer 5, side B: 100
Number of messages incorrectly received at layer 5: 0
Number of packets entering the network: 271
Average number of packets already in network:      0.000
Number of packets that the network lost: 23
Number of packets that the network corrupted: 25
Number of packets that the network put out of order: 31

```