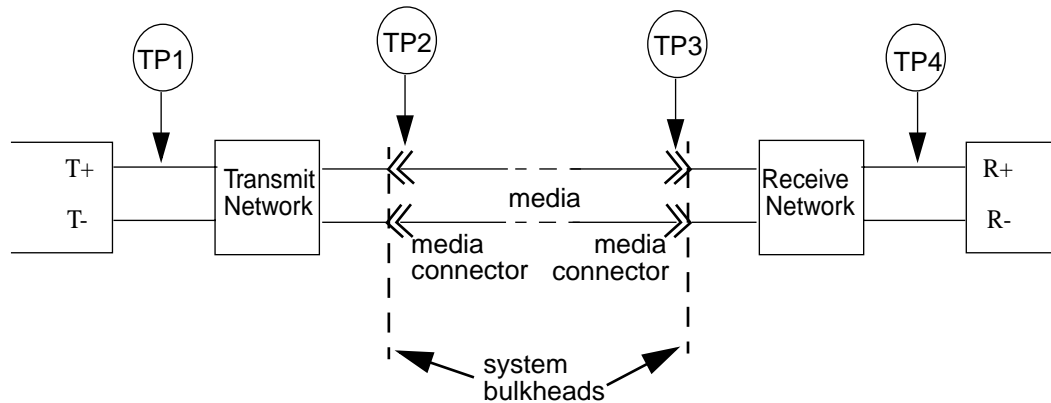


— UTP signal budget



- $950\text{mV} < \text{Transmit voltage at TP2} < 1050\text{mV}$
- Media losses = cable + connectors
 $= 100\text{m} \times 0.17\text{dB} + 4 \times 0.3\text{dB} = 18.2\text{dB} @ 62.5\text{MHz}$
- $117\text{mV} < \text{Received voltage at TP3} < 129\text{mV}$
- Received voltage may be degraded by ISI (baseline wander, imperfect equalisation) and noise (ingress, NEXT).

— UTP signal budget (cont.)

- ISI:

- Baseline wander, assume 2.5% = 3mV
- Imperfect equalisation, assume 10% (Eric?) = 12mV
- Result in rx. voltage being reduced to 102mV pk-pk

- Noise:

- Ingress noise < 40mV pk-pk
- NEXT = approx 2% transmit voltage = 21mV pk-pk
- If these were correlated then total noise = 61mV pk-pk, and receiver sensitivity = 41mV pk-pk.

BUT they are not correlated -> should add powers!

— Signal Detect (SD)

- Can be performed by measuring time-average of peak to peak rx. voltage. (thus reducing impact of noise)
- 100BaseT (adjusted for 2 level 1394b signaling) :
 - SD assertion threshold = 500mV pk-pk
 - SD deassertion threshold = 100mV pk-pk
 - *i.e. Hysteresis: SD on when pk-pk exceeds 500mV, SD off when pk-pk falls below 100mV.*
 - Also some timing requirements...

