



BELDEN
SENDING ALL THE RIGHT SIGNALS

CABLE 201




Structured Cabling for the University Environment

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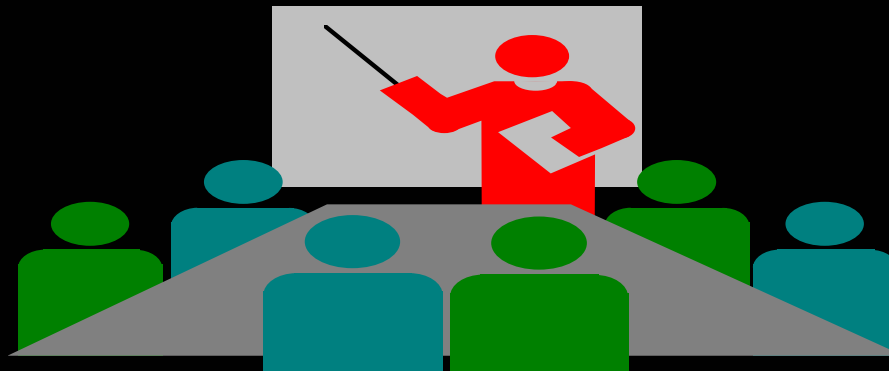
KEY TERMS

- Downtime
- Installation proof
- MediaTwist™
- Bonded pairs
- TIA/EIA 568A
- ACR
- Headroom
- Zo Fit impedance
- NEXT

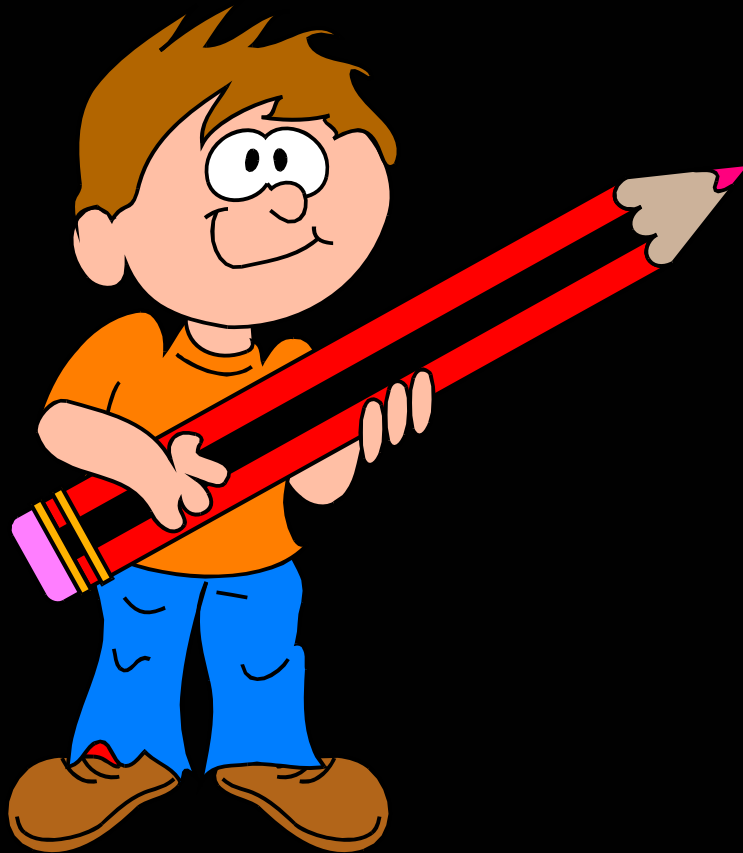
Reading, Writing, Arithmetic, and Belden



Structured Cabling for the University Environment

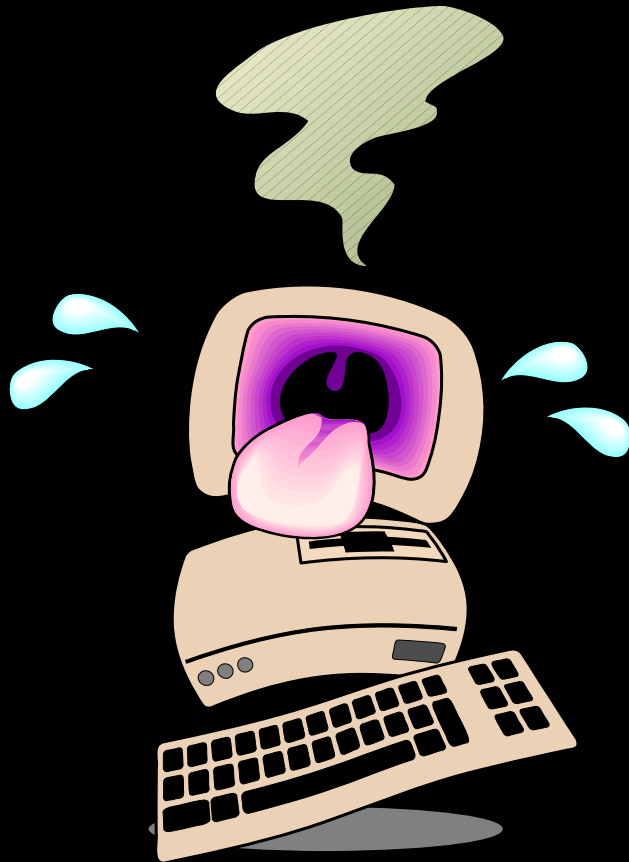


Technology Gains Have Changed the Educational Environment Forever



- **State of the art networks for students and faculty**
- **Dorms, lecture halls, and administration areas conducive to high tech learning**
- **Laptops for incoming students**
- **Implementation of campus wide Intranets**
- **Data, Video, and Voice accessible to all**

As the Network Improves, So Should Your Infrastructure

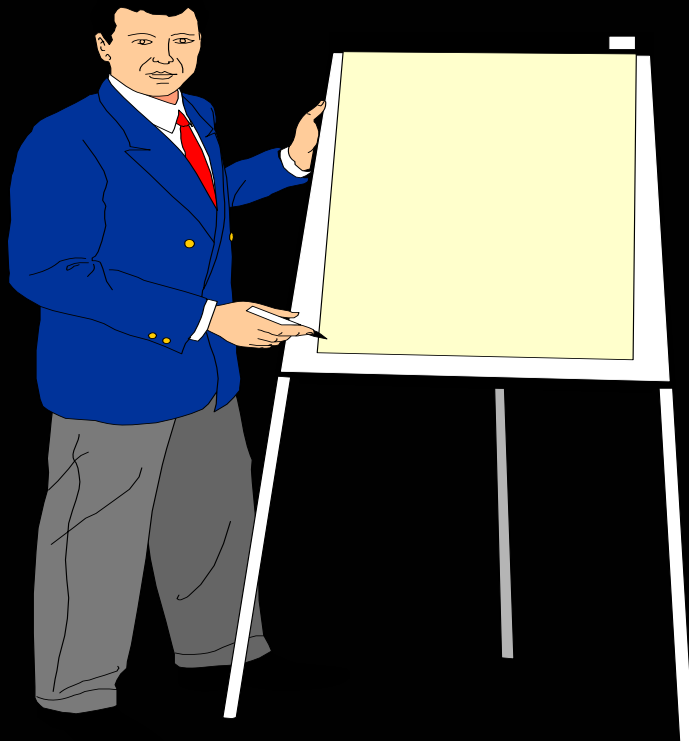


- Cabling represents 70% of downtime
- 5% of network cost is cable related
- The average system crashes 23.6 times a year
- Downtime costs range from \$1,000 to \$50,000 per hour

Proper Cable Selection Will Lower the Life Cycle Cabling Cost

- What is your network migration plan?
- What is important when choosing a cable?
- Is Category 5 cabling the best for you?
- Do you have a warranty on your current cabling infrastructure?
- Has your cable been installed in accordance with standards?

Belden Adds Value to Your Infrastructure



- New patented technology
- Installation proof cable
- Long term performance
- End user is focus of newest products

Imagine...



- One cable that handles all of your UTP needs
- One cable that outperforms all other UTP designs
- One cable that adds value to your infrastructure
- One cable that has proven performance above the current standard

Introducing...



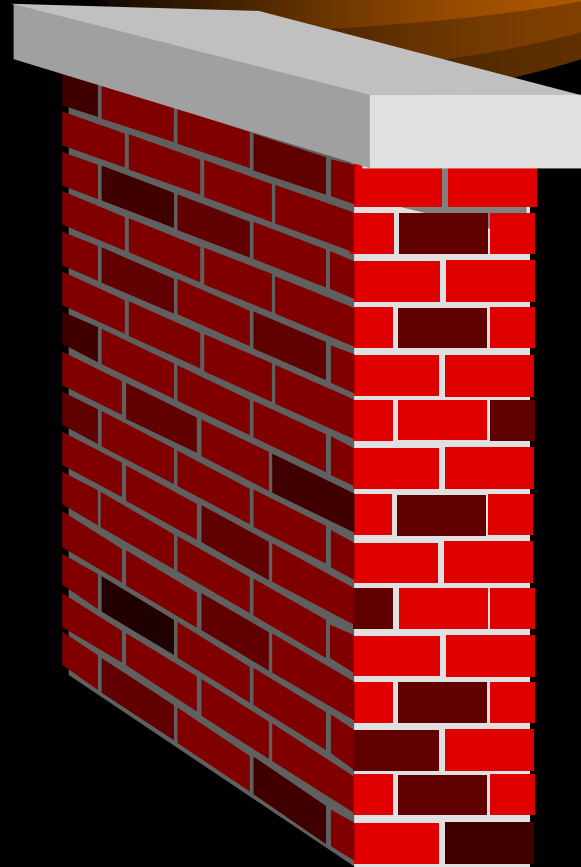
MEDIA  TWIST™

CABLE WITH CONFIDENCE™

The Industry Standard

TIA/EIA 568A

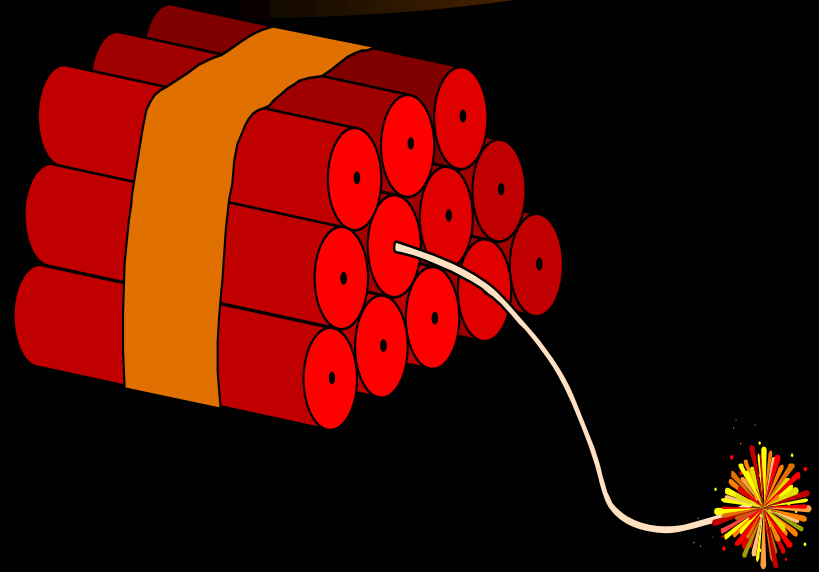
- Minimum based standard
- Distance limited
- Frequency limited
- Category 5 cabling has hit a wall
- Applications demand higher performance criteria on UTP cables



MediaTwist

Breaks the Barriers

- Proven Performance
above 100MHz
- Electrical Performance
Unmatched
- Distance Gains
- Multimedia
Applications
- Lifetime Warranty



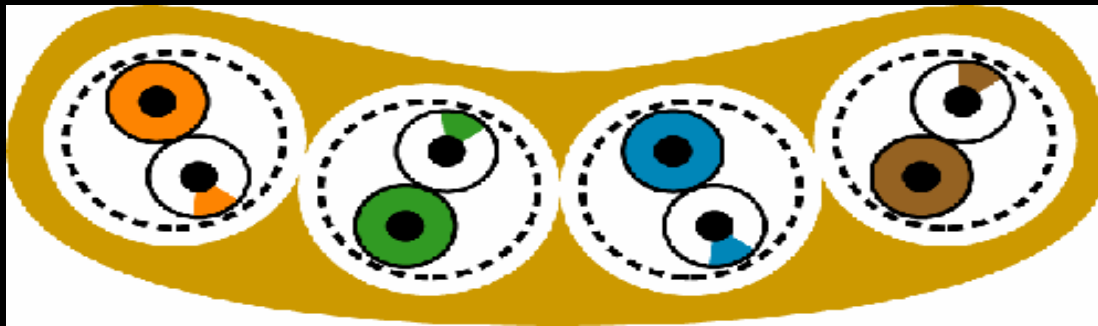
Proven Performance Beyond Category 5



- 135 MHz Digital Video
- 155MHz ATM
- 167MHz Gigabit Ethernet*
- Broadband Video to 550MHz/77 channels

*Proposed transmission scheme. Under review by standards committee

A New Crescent Shaped Design



Performance is “locked” in place

“Lock” in with Belden

- All four pairs are isolated from each other
- Pairs movement restricted inside jacket when cable is installed
- Cable is not susceptible to the rigors of installation practices
- Cable can be bent and flexed more than any traditional round design

Electrical Advantages to MediaTwist



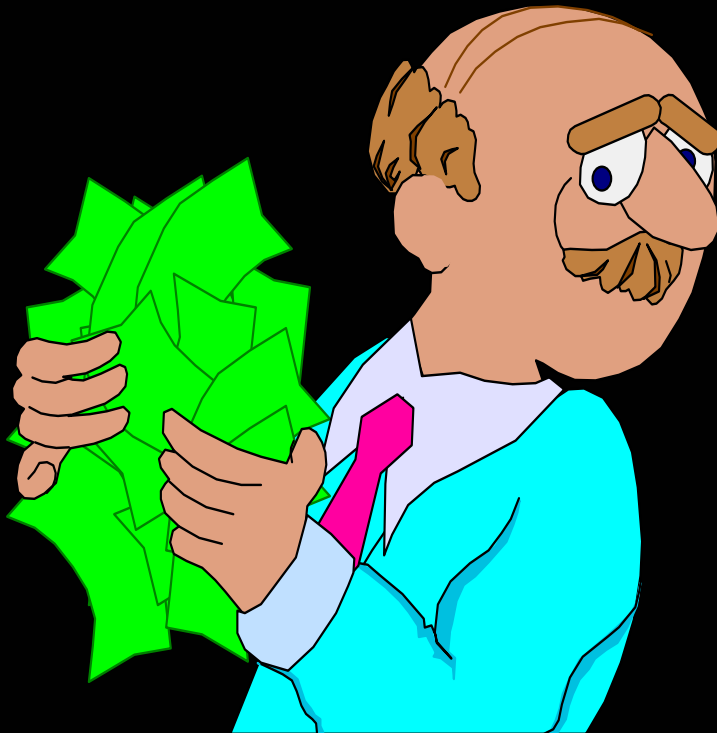
- Improved Attenuation
- Improved Power Sum Crosstalk
- True ACR/Headroom
- Impedance Control Offered Only by Belden

ATTENUATION



- Loss of signal strength
- Measured in Decibels (db)
- 3db represents a 50% loss of signal strength
- Lower Attenuation equates to a stronger signal
- Length dependent
- As frequency increases, Attenuation increases exponentially

MediaTwist Improves Attenuation



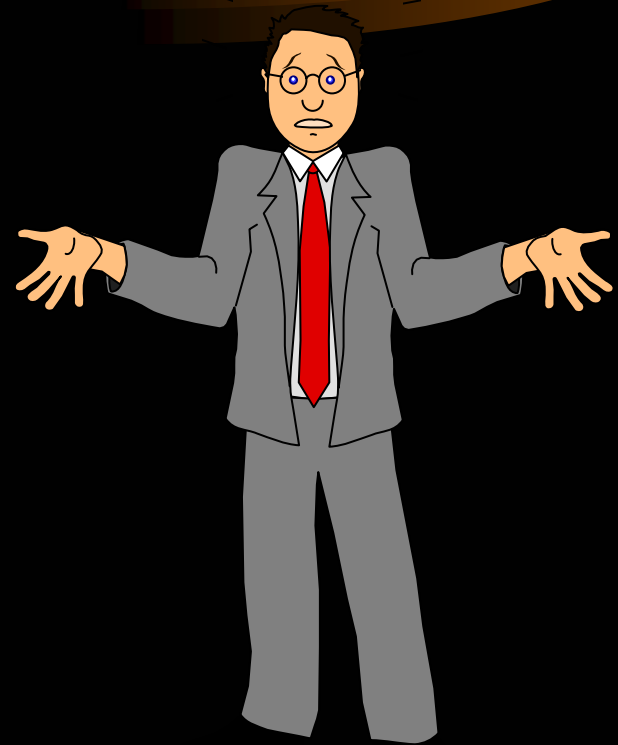
- Optimal Insulations
- 5 to 20% improvement in Signal Strength
- Longer distances
- Higher Frequencies
- Secures your financial investment

Near End Cross Talk (NEXT)

- The coupling of a signal from one pair to adjacent pair or pairs
- Measured in Decibels (db)
- Higher NEXT means less noise interference
- As frequency increases, NEXT increases exponentially

How Do We Achieve Better NEXT?

- Proximity of pairs
- Varied lay lengths
- Tighter twists



Belden Improves NEXT



- 200% improvement over typical “enhanced” CAT 5 cables
- Pair proximity improved through isolation
- Acts like four cables under one jacket
- Ideal design for simultaneous applications

ACR and Headroom

- Attenuation to Crosstalk ratio
- Measured in Decibels (db)
- High ACR represents a strong signal and low noise
- Headroom represents enhanced ACR above Category Five standard
- True ACR is a balance of attenuation and NEXT

Belden Provides a True Gain in ACR and Headroom

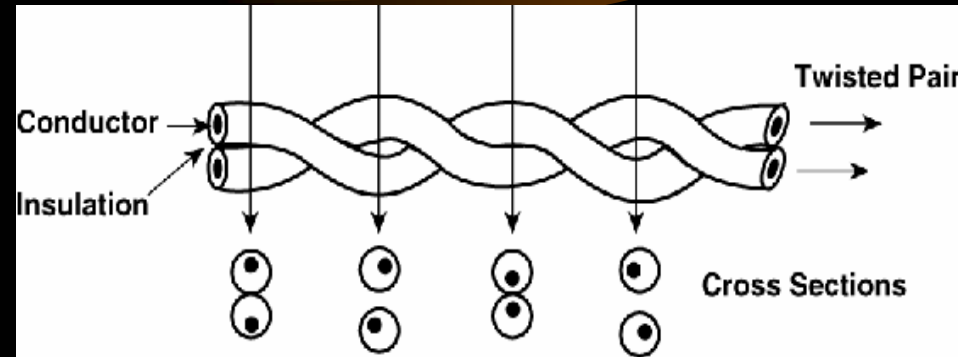


- Improvements in both Attenuation and NEXT
- Many manufacturers improve only NEXT
- Don't be fooled by the *illusion* of their claims to improving ACR/Headroom

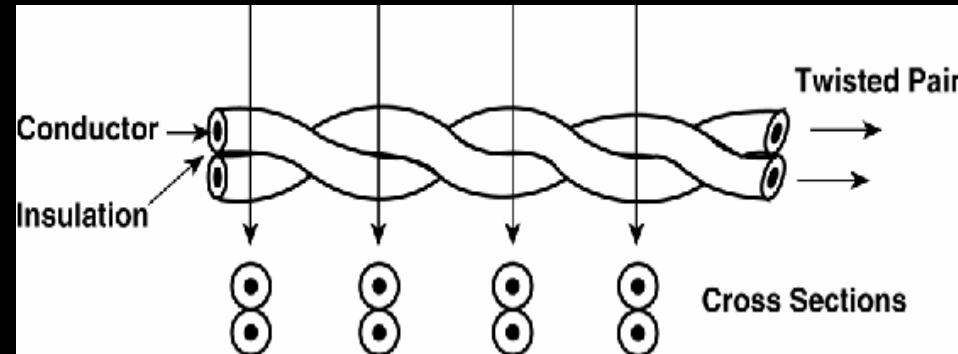
Physicals=Electricals

- Traditional manufacturing designs allow for wavering conductor to conductor spacing
- Tension placed on conductors may not be consistent
- Pairs can loosen up during manufacturing, installation, and connectorization
- Center to center spacing can easily change on unbonded constructions

Unbonded Pair



Bonded Pair

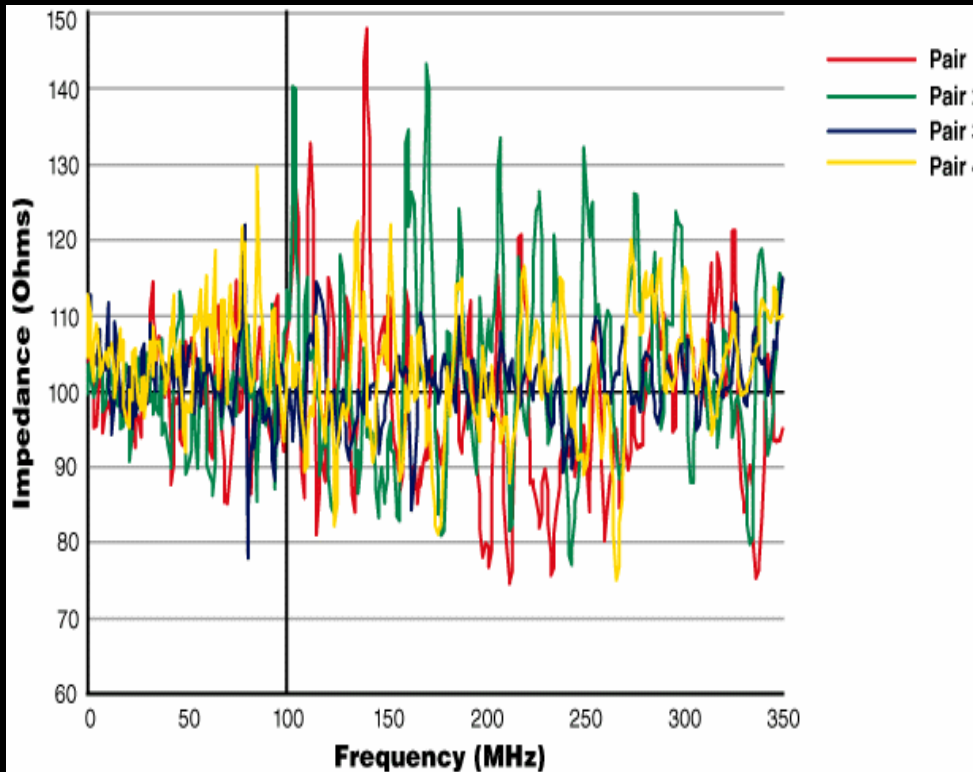


Impedance



- Measured in Ohms
- Cabling dimensions must be controlled to insure stable impedance
- Frequency NOT length dependent
- It's what the other guys don't like to talk about

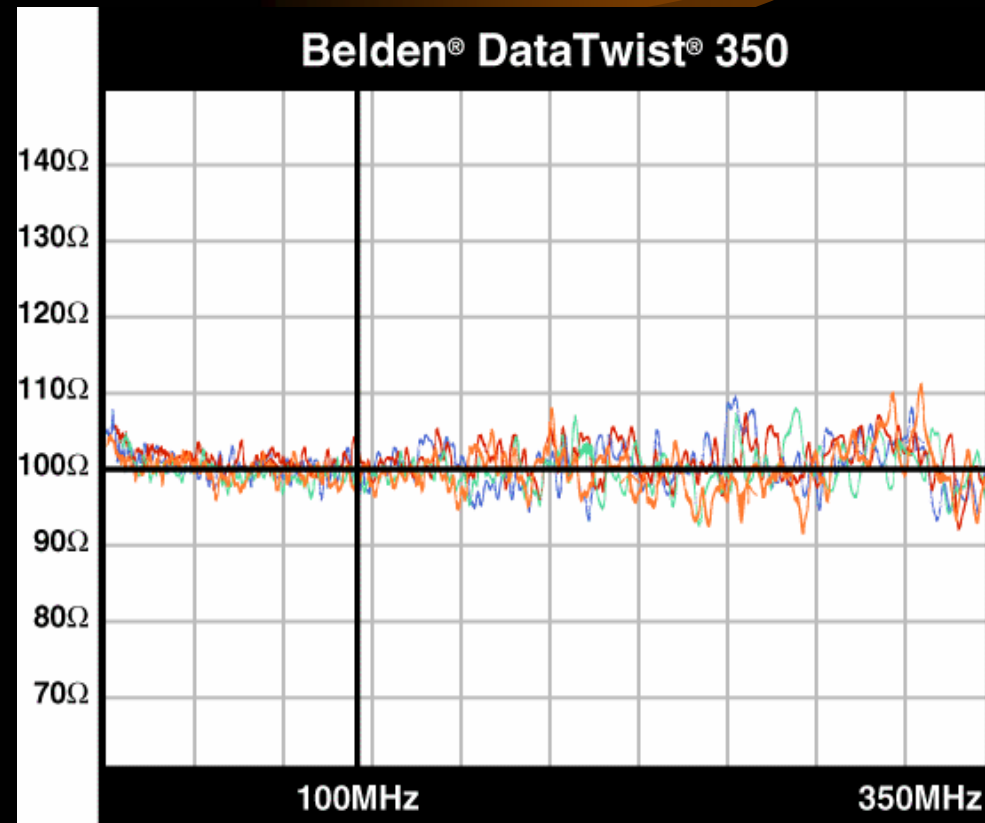
Impedance Values Can Be Misleading to the Customer



- Zo-fit Impedance
- Illusion of a passing cable
- Averaged Impedance just doesn't cut it at high frequencies
- Graded on a curve

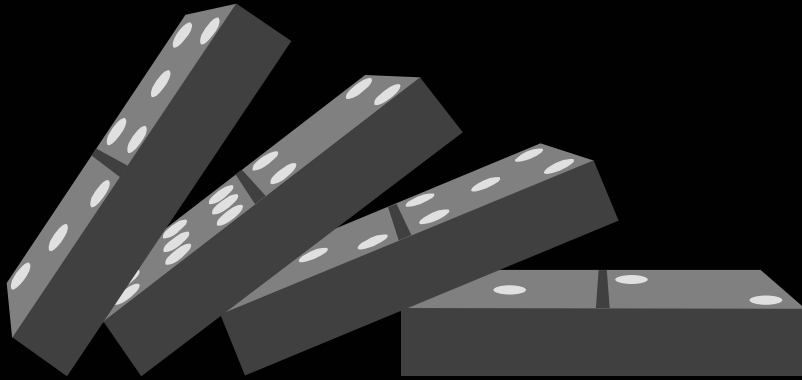
With Belden, Why Be Averaged?

- Uses no computer aided function
- Values are true representation of cables impedance
- Most balanced cable on the market
- Easy migration to high frequencies



MediaTwist

Can You Top This?



- Up to 20% better Attenuation
- 567% improvement in capacitance unbalance
- 200% improvement in power sum NEXT
- 110% improvement in Attenuation-to-Crosstalk Ratio

Belden Has the Future in Mind

- Applications over 100Mhz
- Bulletproof during installation
- Electrical characteristics unsurpassed
- Lifetime Warranty
- Ideal for shared sheath

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BELDEN
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Graduate with Honors

Cable with Confidence

