

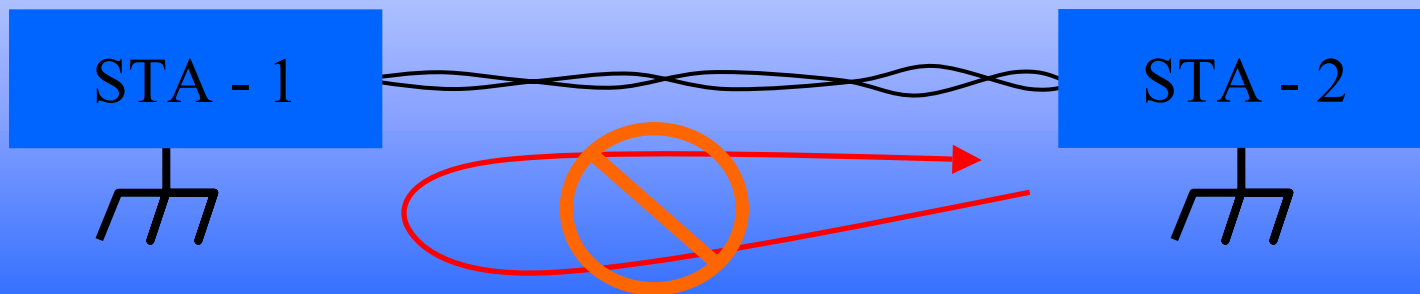
CAT 6e Concept

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hp ProCurve Networking Business

UTP vs STP

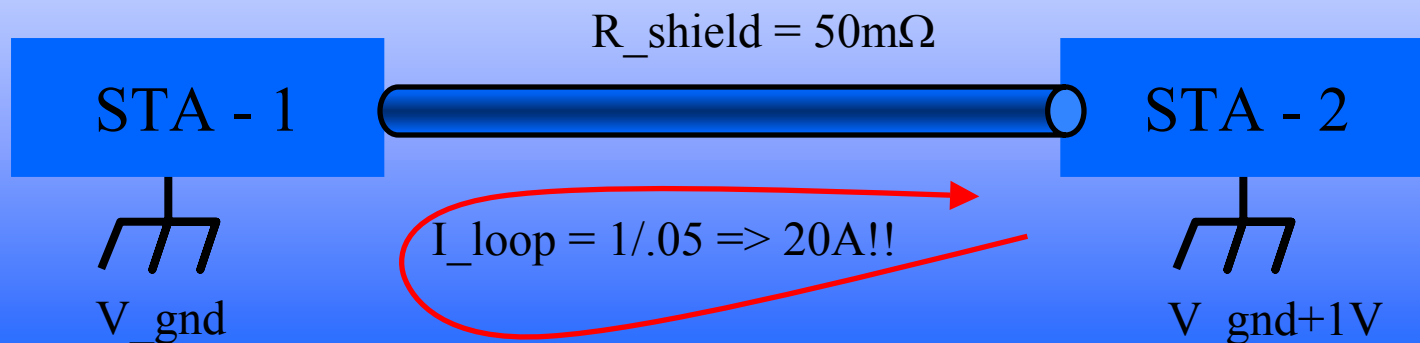
- + US industry has recognized for years that UTP provides substantial advantages over STP when considering the following;
- + Installation – Easier to connectorize
- = EMI Performance – Good twisting rates result in sufficient-very good behavior for emissions and susceptibility
- + Cable Management – No shield makes cables more flexible and easier to handle
- Bundling can lead to unacceptable levels of ANEXT
- + Isolation – Because cables have no shield, ground management is not necessary to prevent loops



STP vs UTP

European and some industrialized nations have recognized for years that STP provides substantial advantages over UTP when considering the following;

- ++ EMI Performance – Shielding can provide excellent behavior both with regard to emissions and susceptibility
- ++ Security – Shields reduce EMI to levels that provide substantial protection from RF “sniffers”
- Grounding – While more challenging, proper ground management can be done; Ground loops possible due to minor differences in ground potential



Types of Un-Shielded Cable

CAT-5e: Commonly used UTP, designed for broad LAN application

- + Very flexible
- + Easy to connectorize with common RJ-45 connectors
- While fully spec'ed, limited to 100MHz rated performance

CAT-6: Twisted Pair provided in 100 Ω with 4 twisted pairs surrounded by a metallized foil wrapper.

- + Less rigid... almost as flexible as traditional UTP
- + Easily connectorized
- + Can be spec'ed to the appropriate frequency to accommodate 10GBASE-T

Types of Shielded Cable

IBM TYPE 1: Traditional 150Ω cable includes twisted pairs wrapped in foil and completed with a metal braid around all conductors and then wrapped with an insulator

- Very rigid
- Difficult to connectorize
- Not compatible with 100Ω UTP LAN technologies due to size and impedance

CAT-6e FTP: Foil Twisted Pair provided in 100Ω with 4 twisted pairs surrounded by a metallized foil wrapper.

- + Less rigid... almost as flexible as traditional UTP
- + Easily connectorized
- + Can be specified to support 10GBASE-T
- Requires careful shield attention during connectorization
- Requires careful ground management to prevent loops

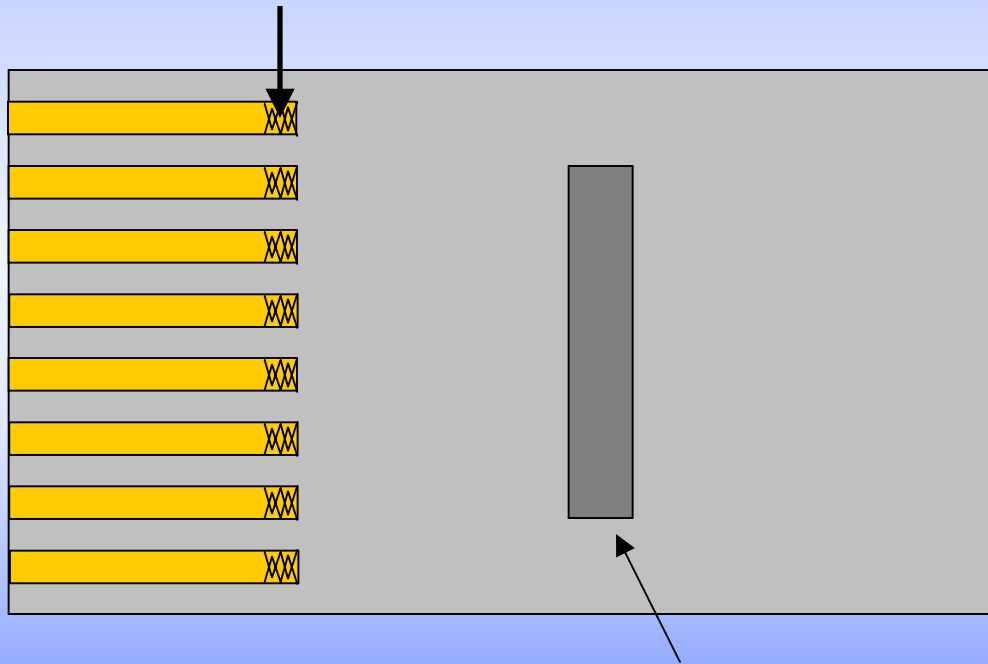
Concept Proposal

CAT-6e FTP: Foil Twisted Pair provided in 100Ω with 4 twisted pairs surrounded by a metallized foil wrapper.

- + Less rigid... almost as flexible as traditional UTP
- + Enhanced Shield termination makes it easily connectorized
- + Enhanced Shield termination provides isolation between devices
- + Enhanced Shield termination eliminates “ground loops”
- + With FTP, alien next can be reduced to almost zero
- + With FTP, RJ-45 and field termination can be used

Shielded Connector Concept (1)

Insulation Displacement Connectors

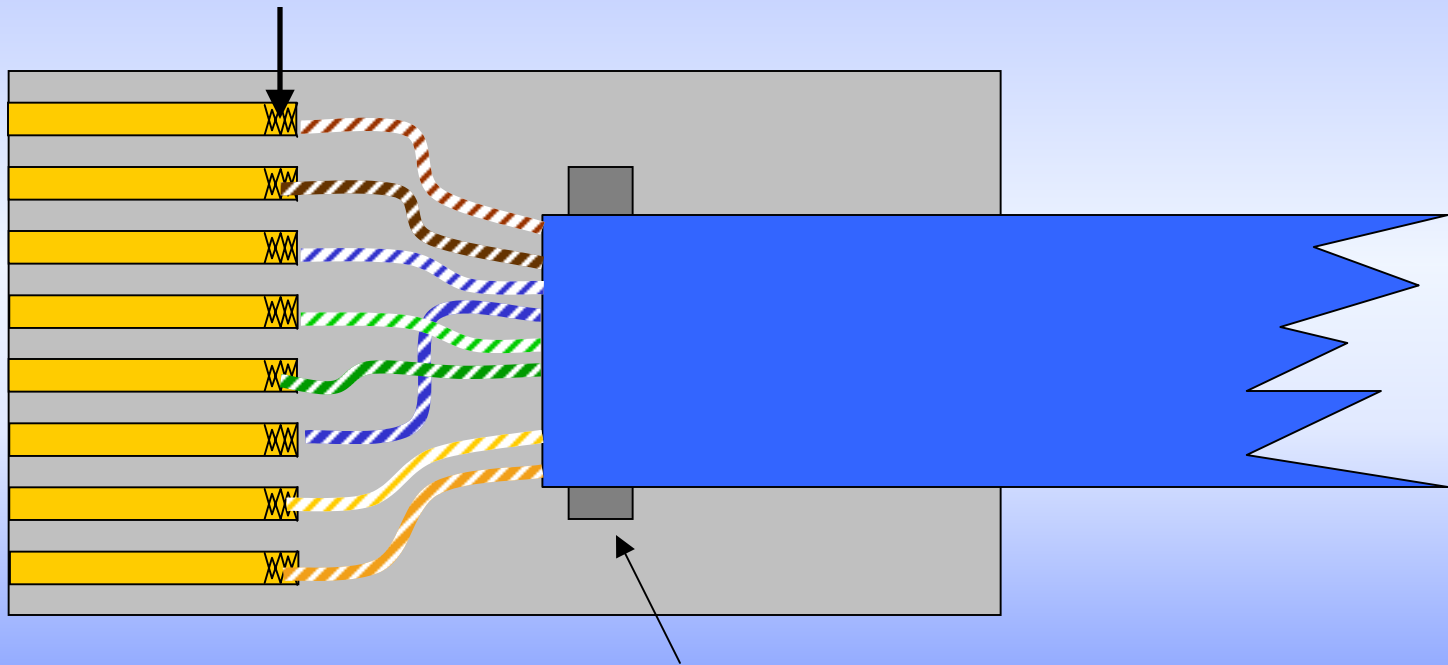


Crimp Style Strain Relief

Shielded RJ-45

Shielded Connector Concept (1)

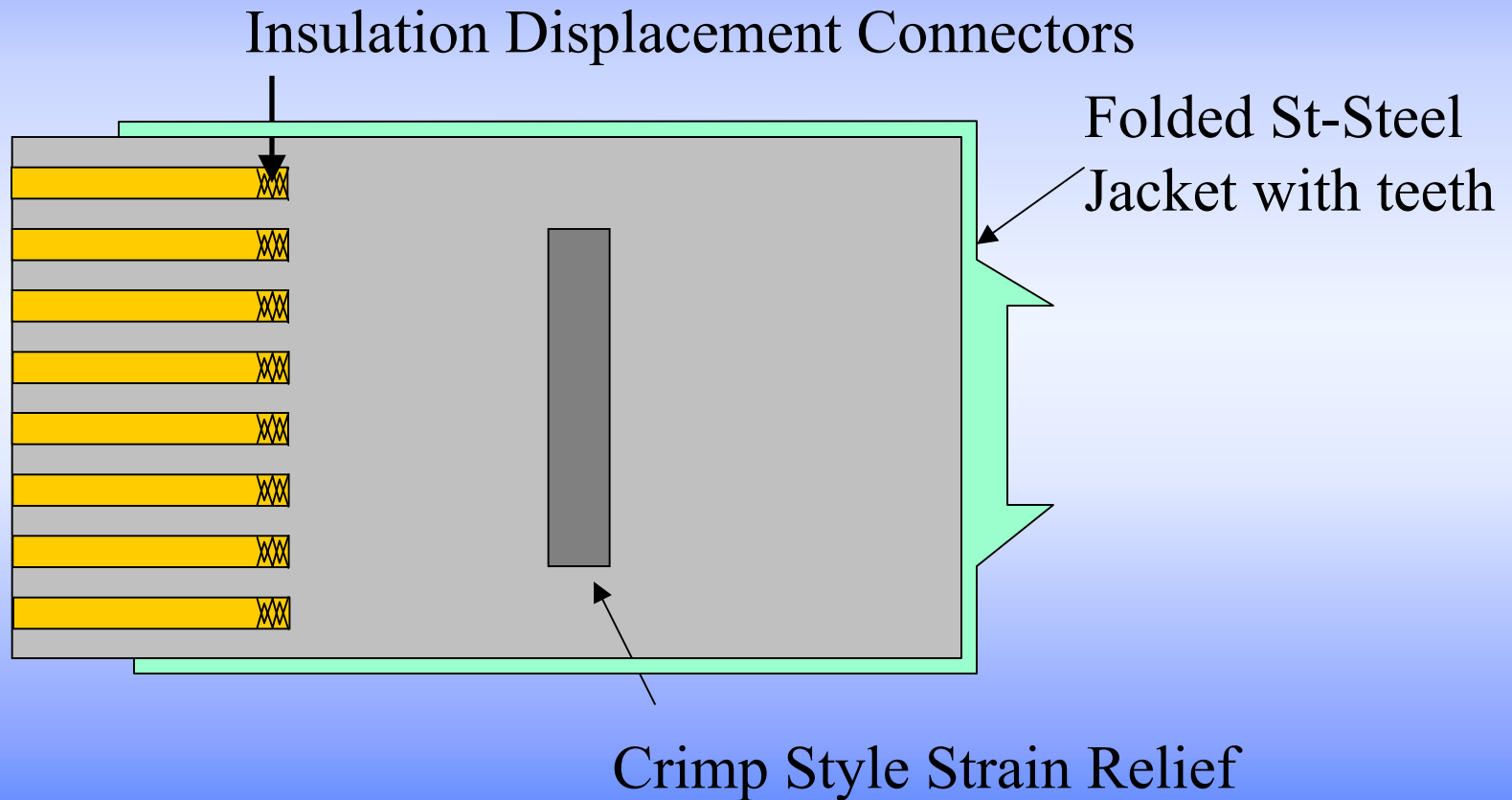
Insulation Displacement Connectors



Crimp Style Strain Relief

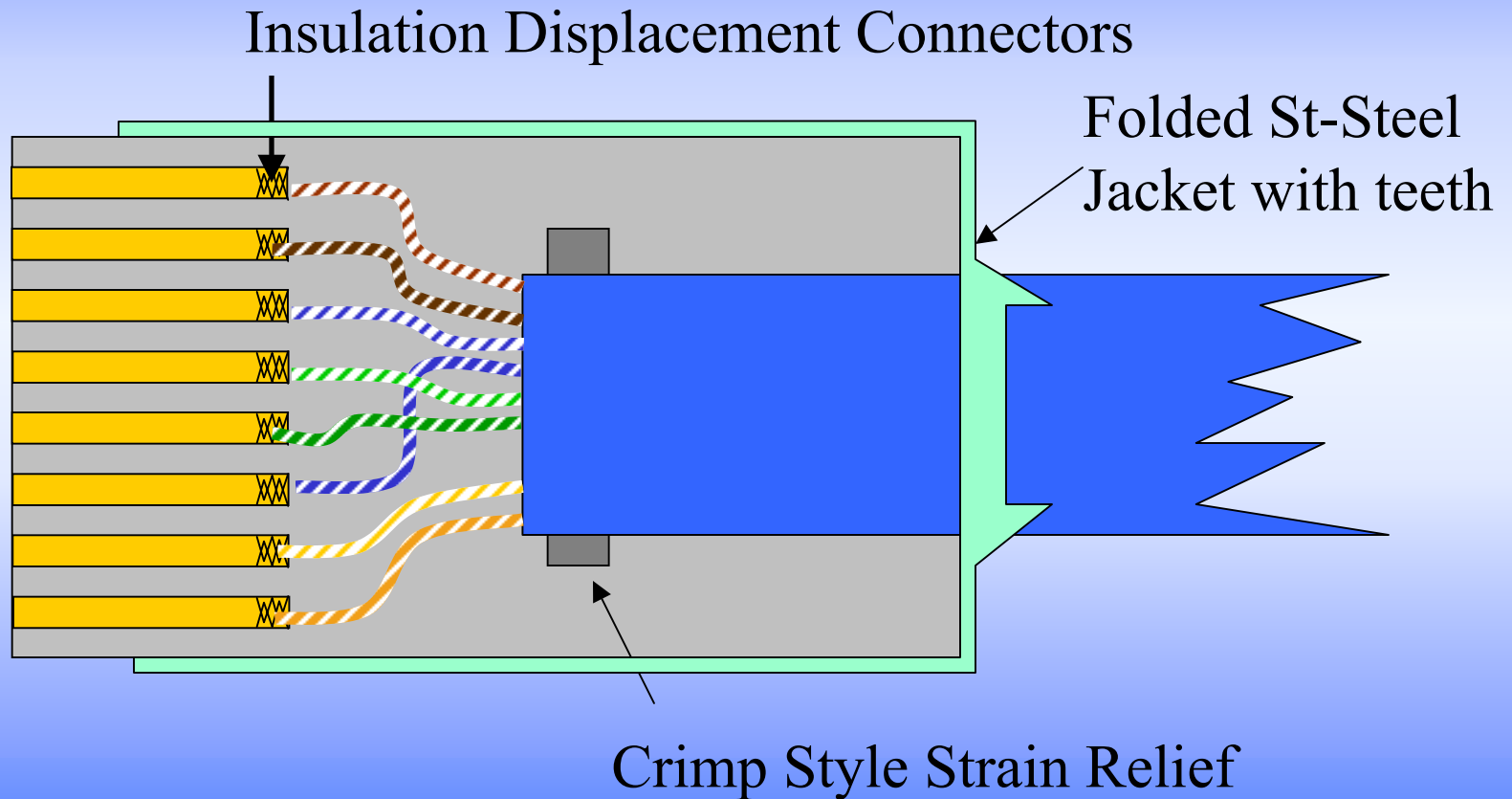
Shielded RJ-45

Shielded Connector Concept (2)



Standard RJ-45

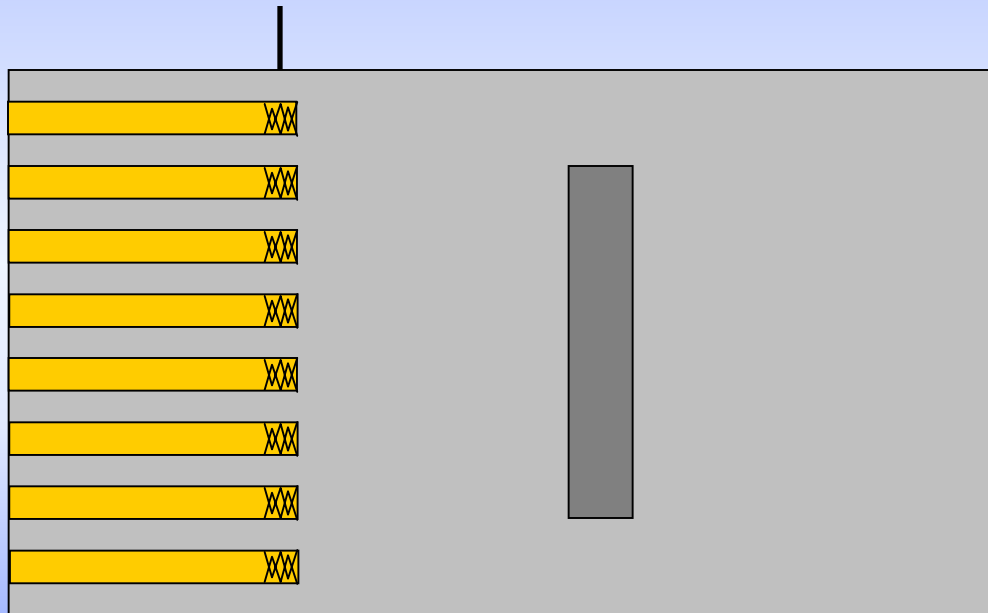
Shielded Connector Concept (2)



Standard RJ-45

Shielded Connector Concept (3)

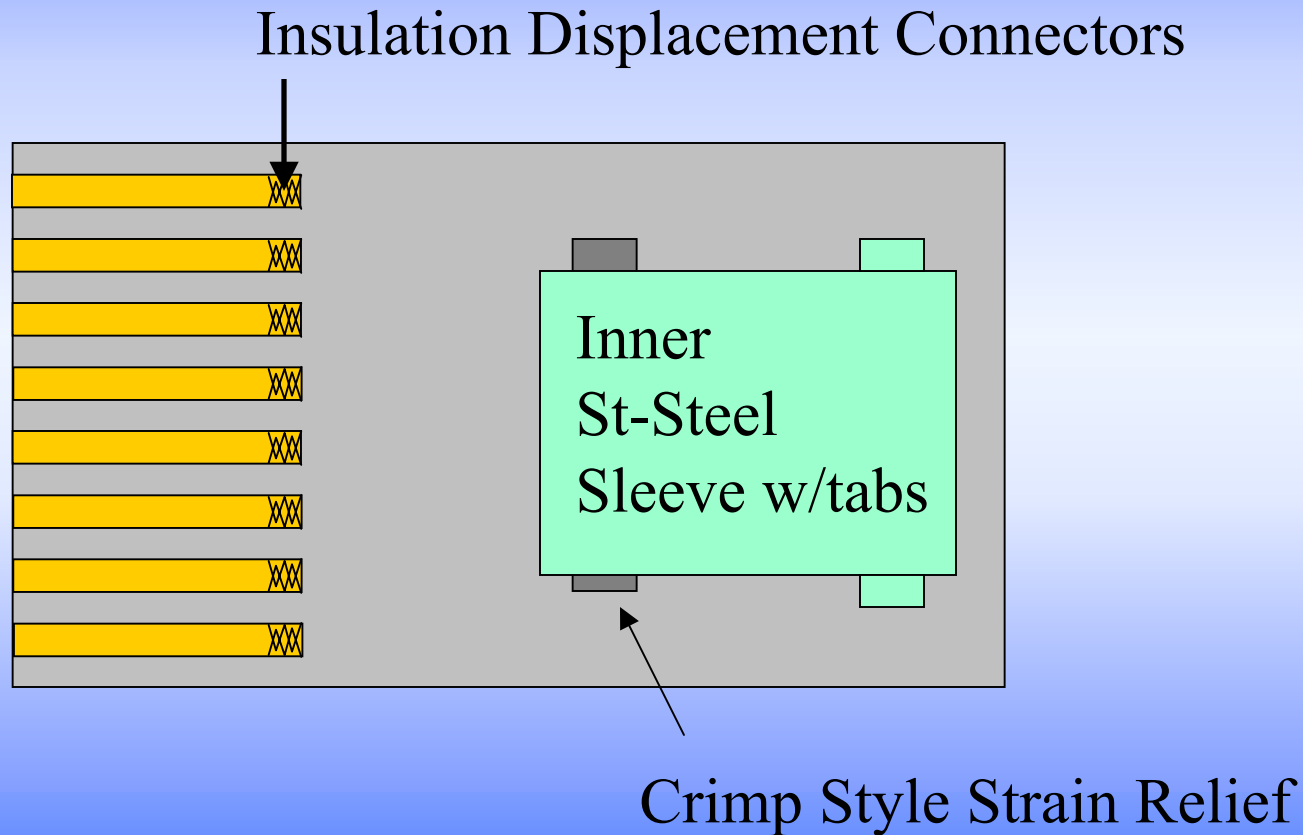
Insulation Displacement Connectors



Crimp Style Strain Relief

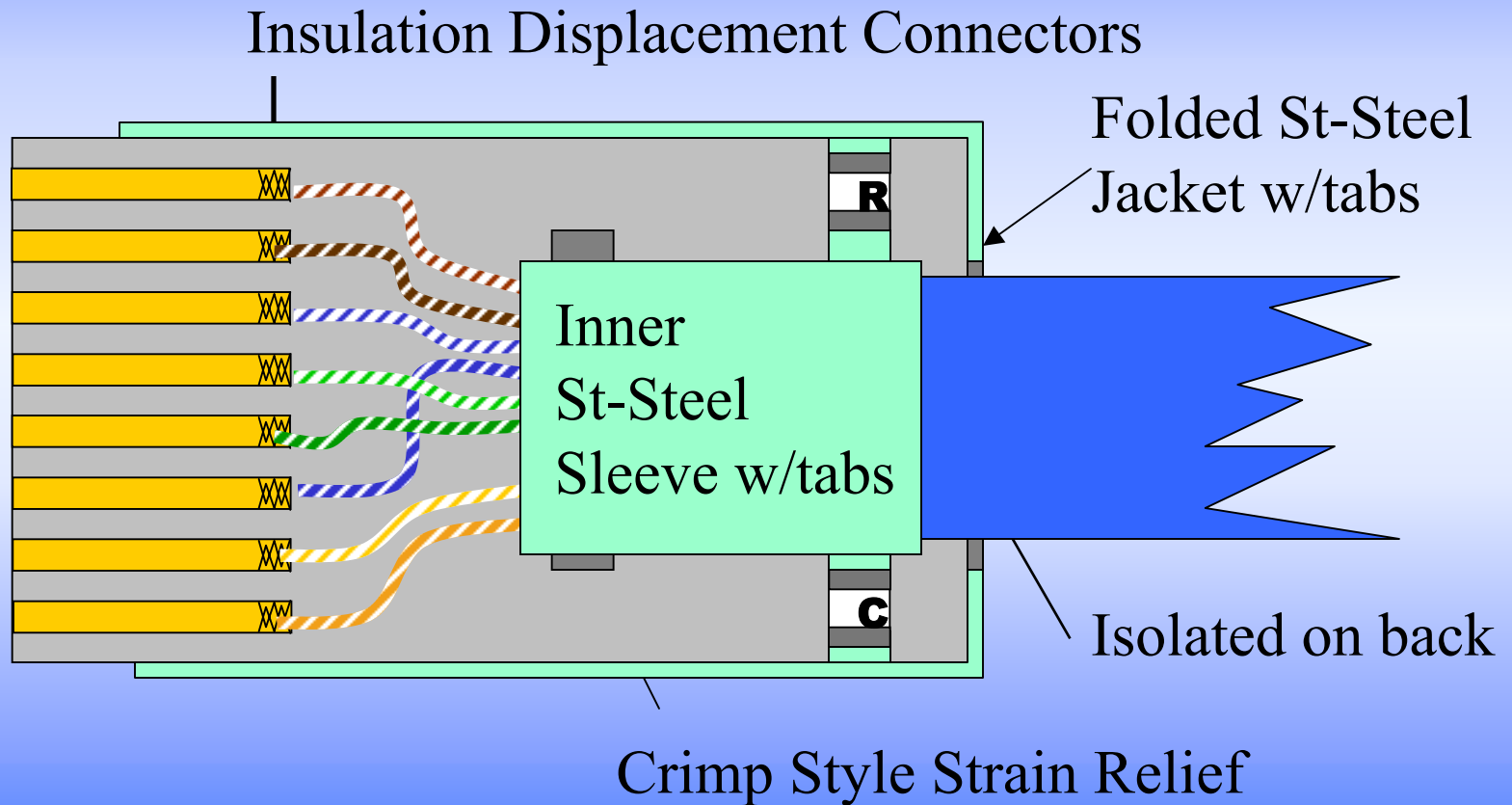
Standard RJ-45

Shielded Connector Concept (3)



Standard RJ-45

Shielded Connector Concept (3)



Standard RJ-45

Proposal: Isolated FTP connector

While operation over UTP may be interesting and possible, the effort required to obtain functional requirements could add cost and time to project... thus failing to meet market requirements.

Specification of an isolated FTP connector will allow substantial reduction in ANEXT and external disturbances which can simplify silicon design.

I'm calling on cable and connector vendors to investigate and determine the value of this proposal.