

Structured Cabling for Parallel PMDs

**Phil Schofield
Bernard Mercado**

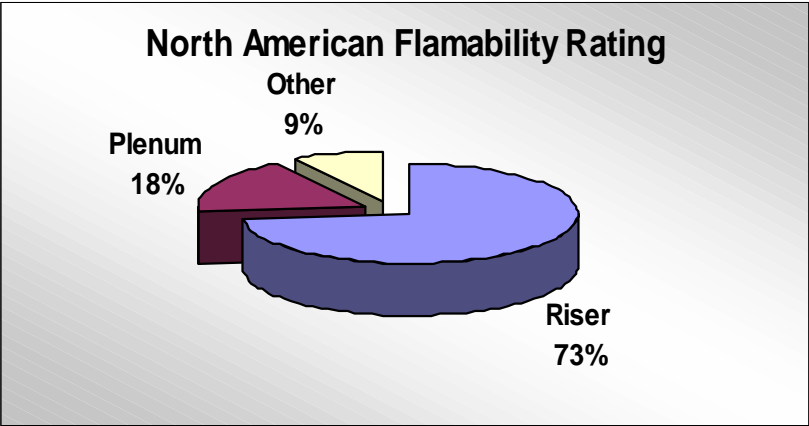
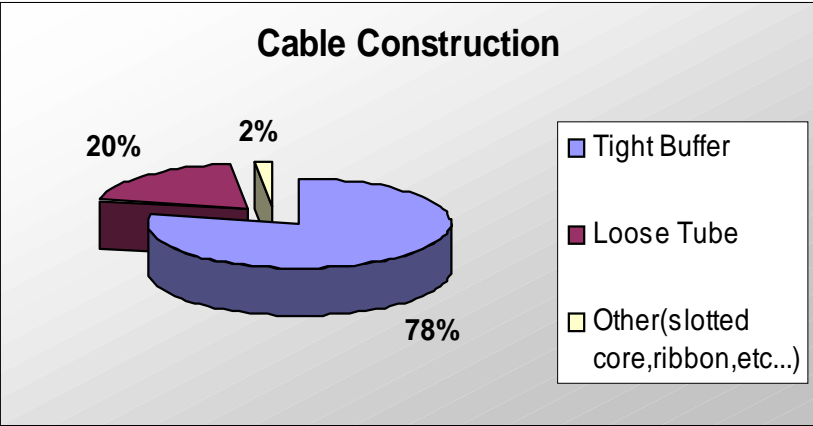
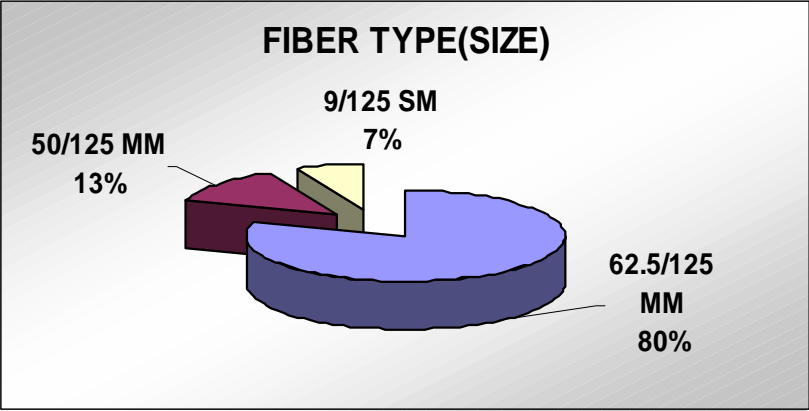
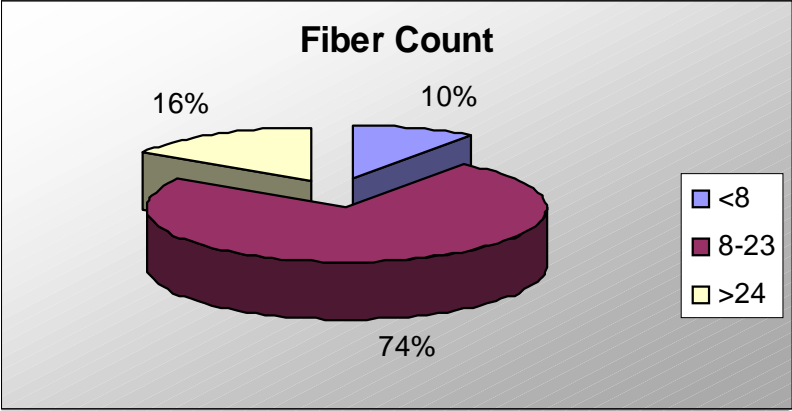
Road Map

- 1. Characterize “Installed MMF Fiber” Base.**
- 2. Describe Multi-fiber Connectivity Installation Options.**
- 3. Highlight Multi-fiber Backbone Cabling Solution(s).**

Enterprise/Premise MMF Installed Base

- North America and Australia 62.5/125, Japan and Europe 50/125 (typically) and rest of world “mix”.
- Loose tube and tight buffer constructions in UL-Riser applications.
- Tight buffer distribution constructions in UL-Plenum applications.
- Bandwidth (62.5/125-160/500 Standard, 200/500 MHz/km Enhanced, 50/125-500/500 MHz/km)

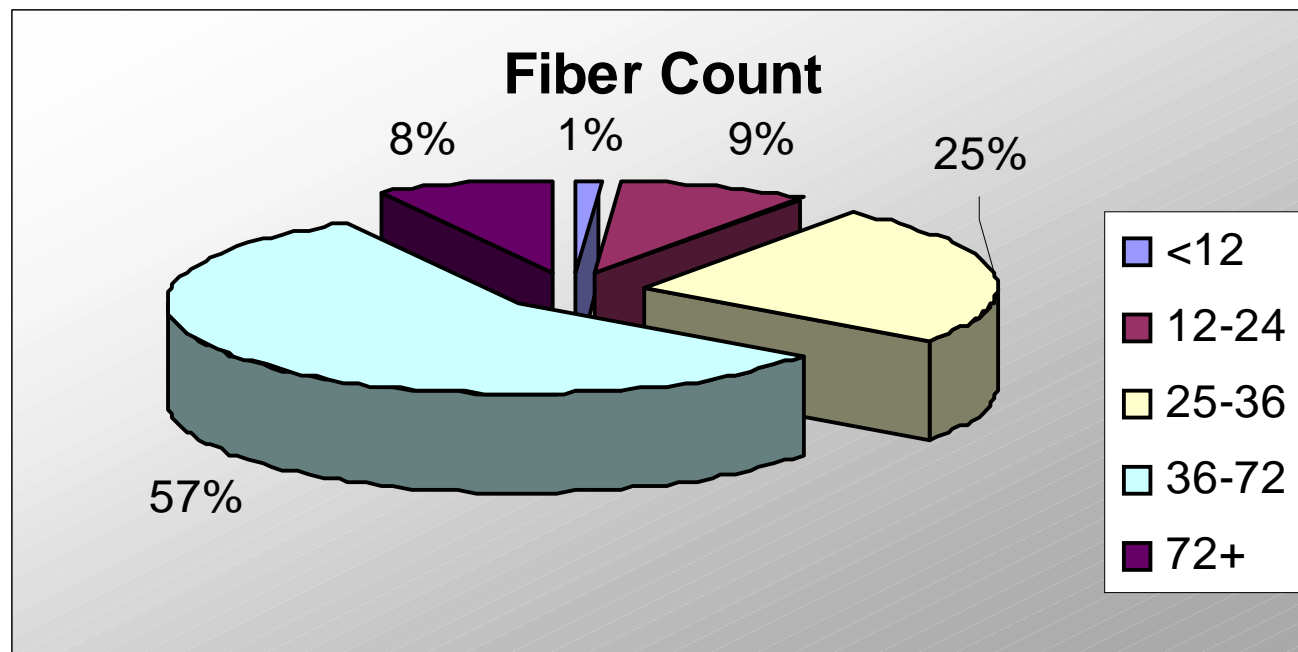
Installed Premise Backbone*



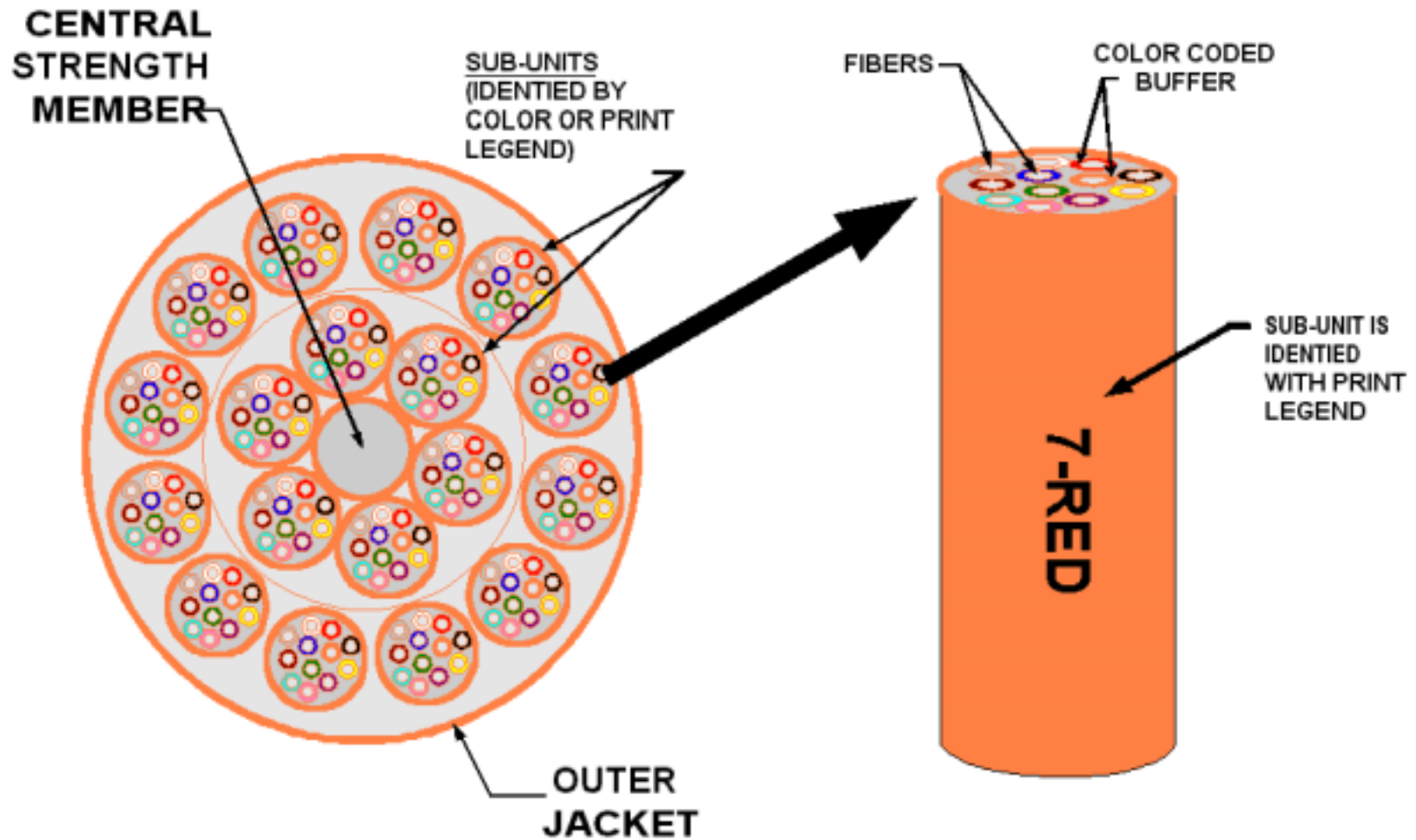
*North America

SOURCE: VENDOR SURVEY AUG. 2000

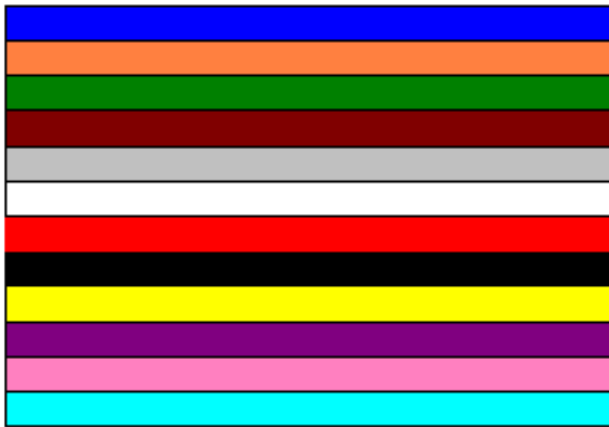
Installed Cable Enterprise



Typical Trunk Cable



TIA/EIA-598-A Specified Color Code



POS.	COLOR
1	BLUE
2	ORANGE
3	GREEN
4	BROWN
5	SLATE
6	WHITE
7	RED
8	BLACK
9	YELLOW
10	VIOLET
11	ROSE
12	AQUA

Manufacturers Fiber Cable EIA/TIA Compliance

“All of our standard cables and fiber ribbons are manufactured with the EIA/TIA standard color code: blue, orange, green, brown, slate, white, red, black, yellow, violet, rose, aqua.”

**Joseph A. Cignarale
Alcoa Fujikura, LTD.**

Manufacturers Fiber Cable EIA/TIA Compliance

“This is a section from a General Spec for fiber optic cable. All of our cables follow EIA/TIA color code.”

“3.3 Each fiber’s coating shall be distinguishable from the others by means of color coding to the following: blue,orange, green, brown, slate, white, red, black, yellow, violet, rose, aqua.”

**info@corning.com
Corning Cable Systems**

Fiber Cable Installers EIA/TIA Compliance

“99.9% of the fiber optic cable manufacturers use the TIA/EIA-598 color code and have been for years.”

**Ron Shaver
RCDD/LAN Specialist
BICSI Master Instructor**

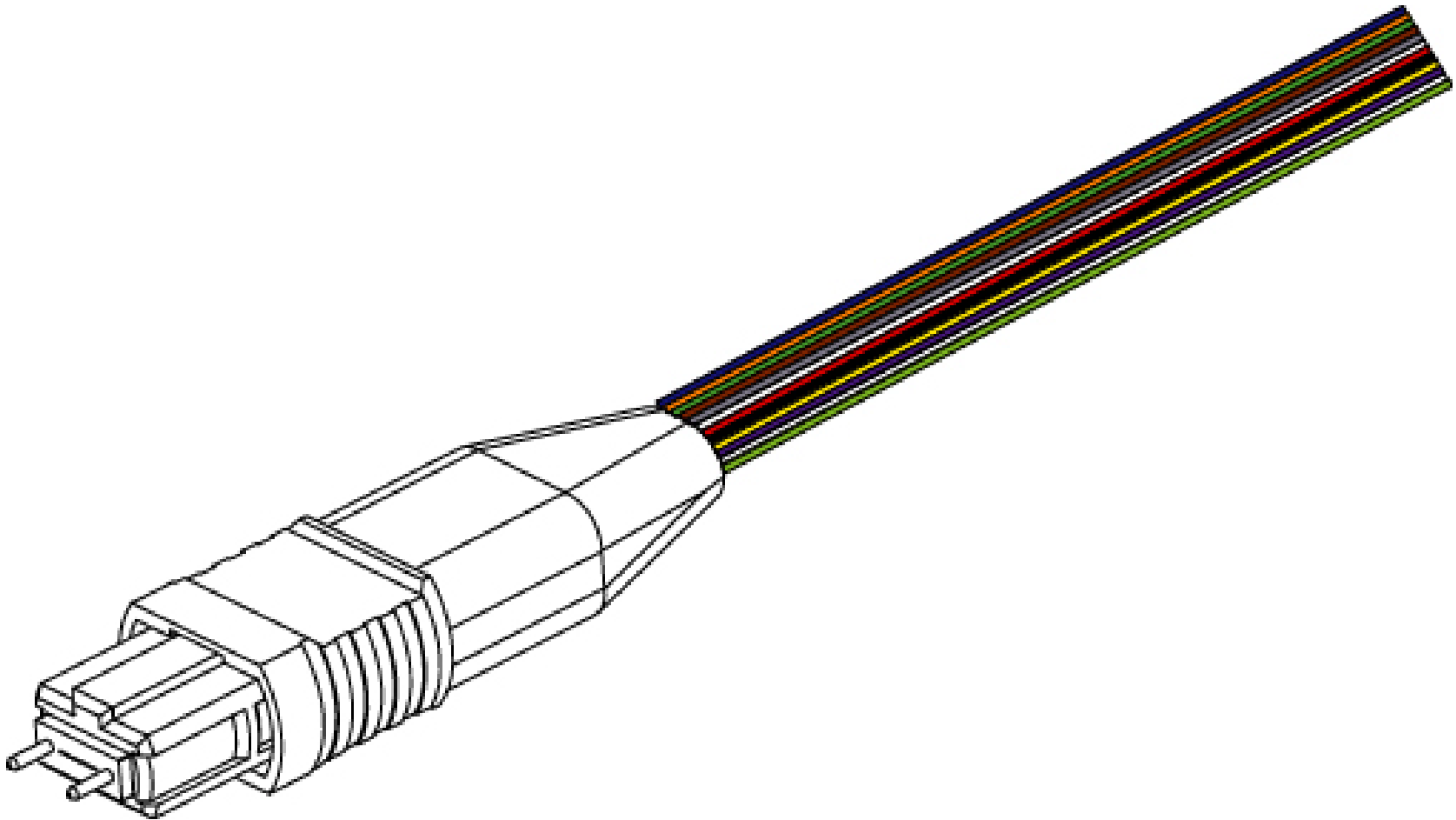
Fiber Splicing

- **Use of factory terminated pigtail.**
- **Splices intermate with each fiber or ribbonized fibers of sub-units.**
- **Mechanical Splice: cleave, insert, clamp (easiest, standard performance option).**
- **Fusion Splice: requires cleave, insert, fuse and protect operations (simple, high performance option).**

10Gb/s Interconnect Installation

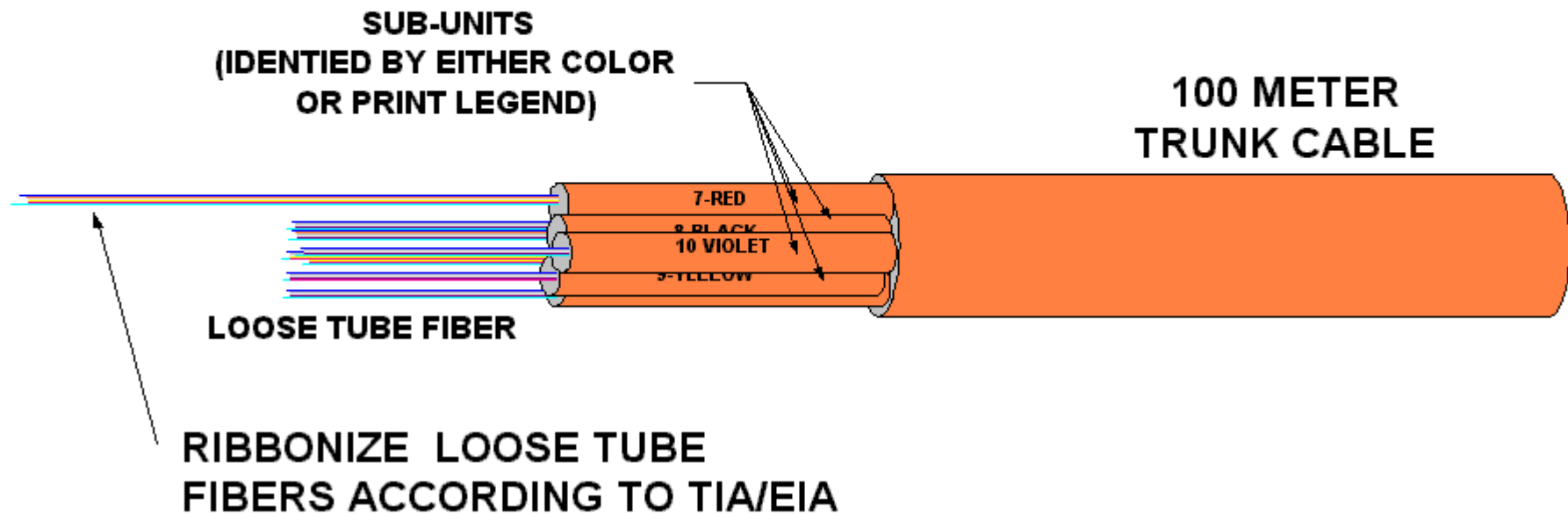
- **Splicing: Factory Terminated Connector to Trunk**
 - Mechanical
 - Fusion
 - Both either simplex or ribbon
- **Connector Field Termination**
- **Factory Pre-connectorized Trunk**

Terminated Ribbon Fiber Pigtail



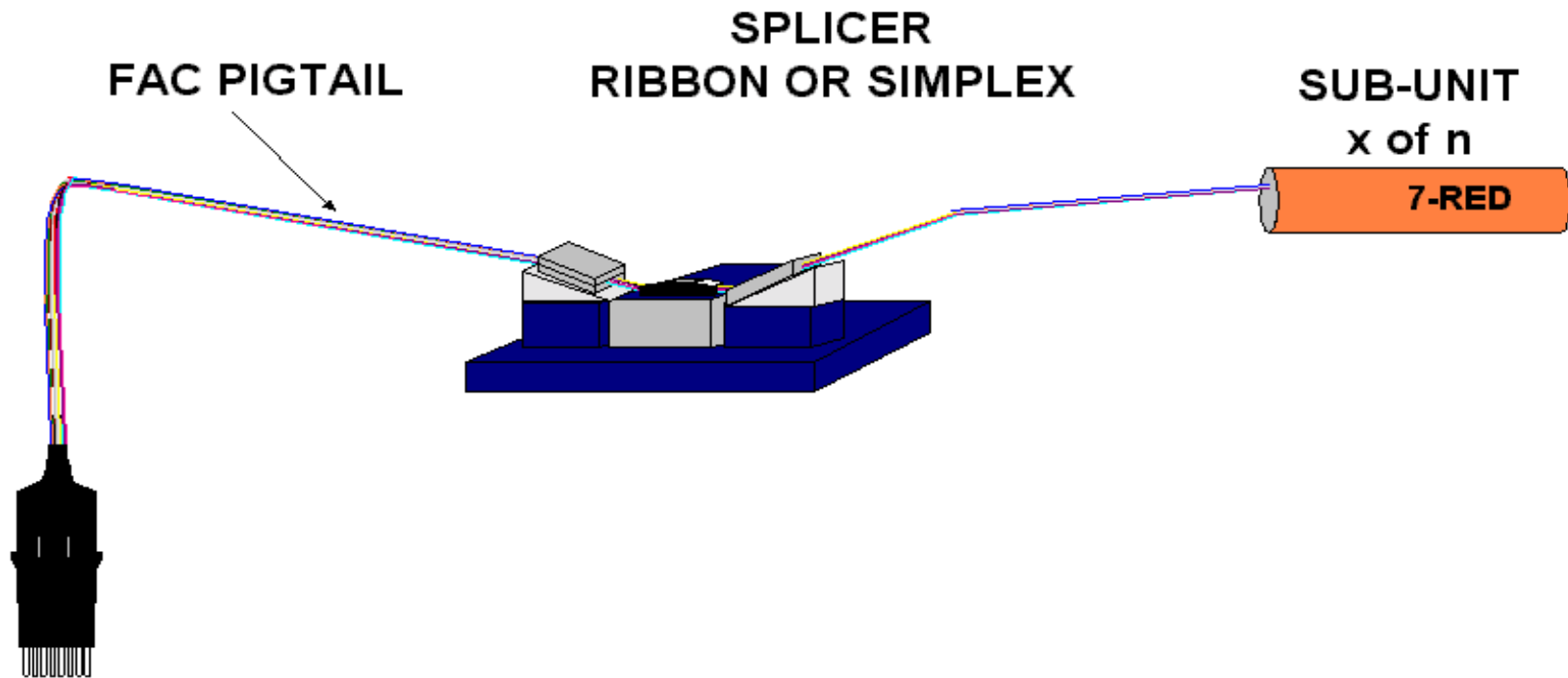
Cable Preparation Process

BREAK OUT SUB-UNITS FROM TRUNK. STRIP AWAY OUTER JACKET OF SUB-UNIT AND SECONDARY BUFFER-COATING



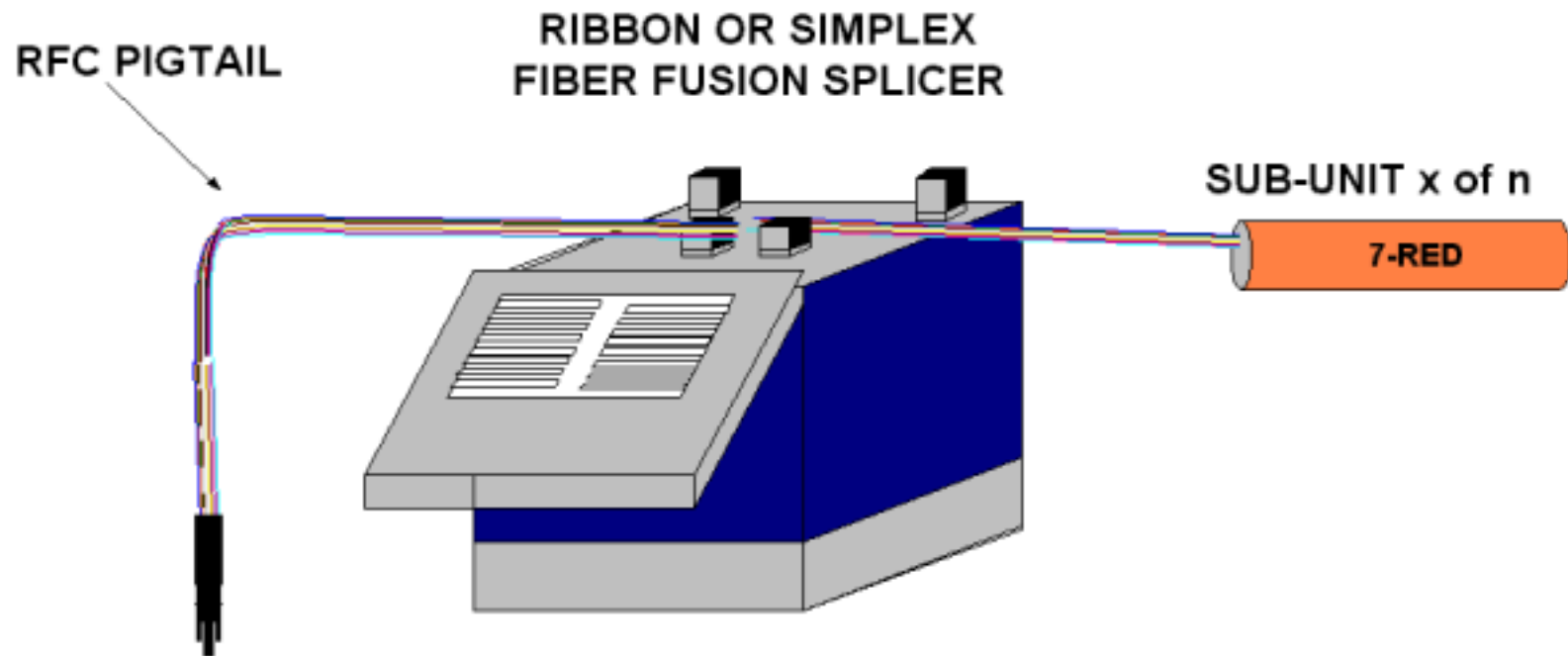
Splice on FAC/RFC Option

MECHANICALLY SPLICE THE FIBERS
FROM THE SUB-UNIT TO A FERRULE
ARRAY CONNECTOR(FAC) PIGTAIL



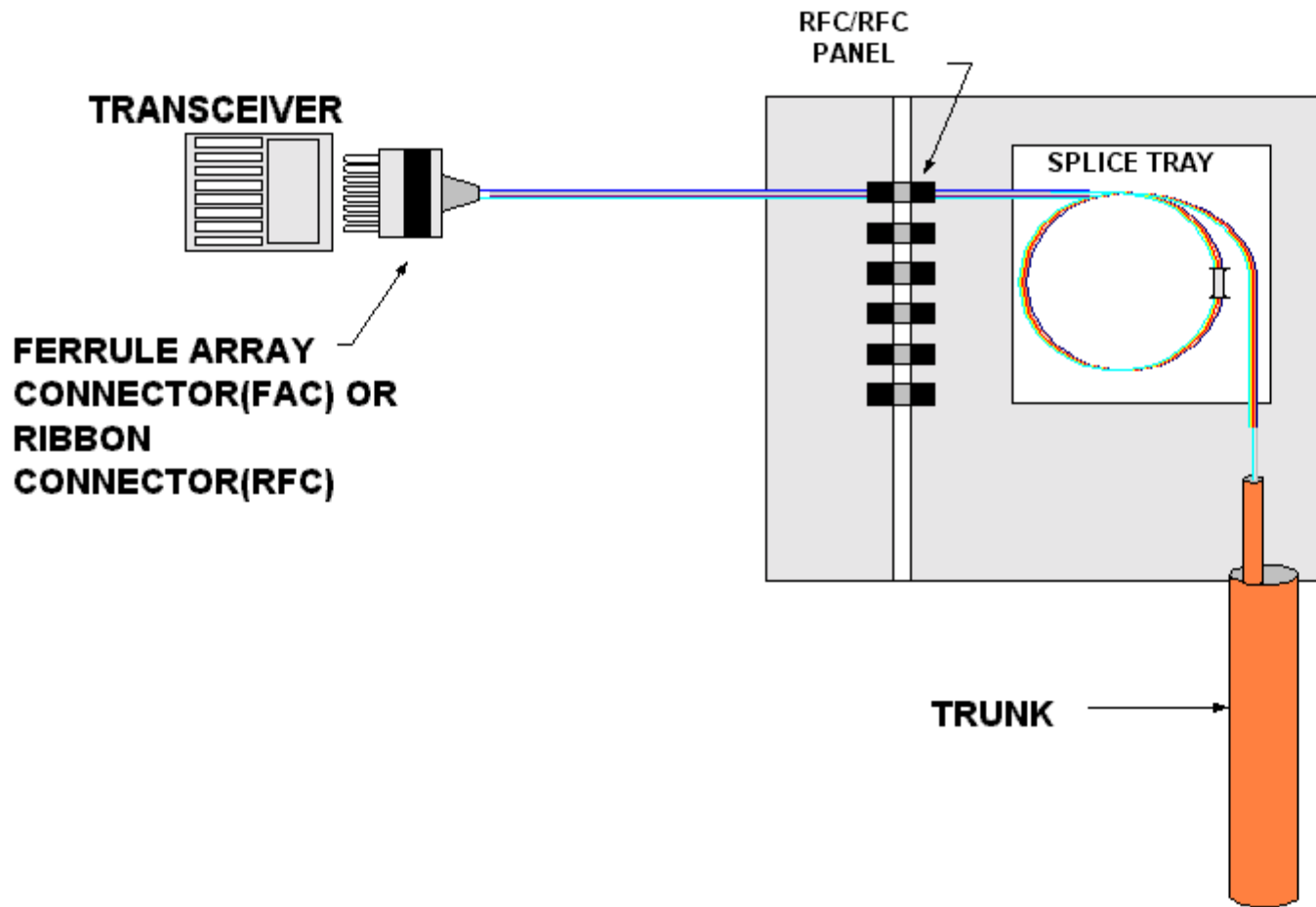
Splice and Distribution Option

SPLICE THE FIBERS FROM THE SUB-UNIT TO A PIGTAIL WITH A PATCHING CONNECTOR(RFC)



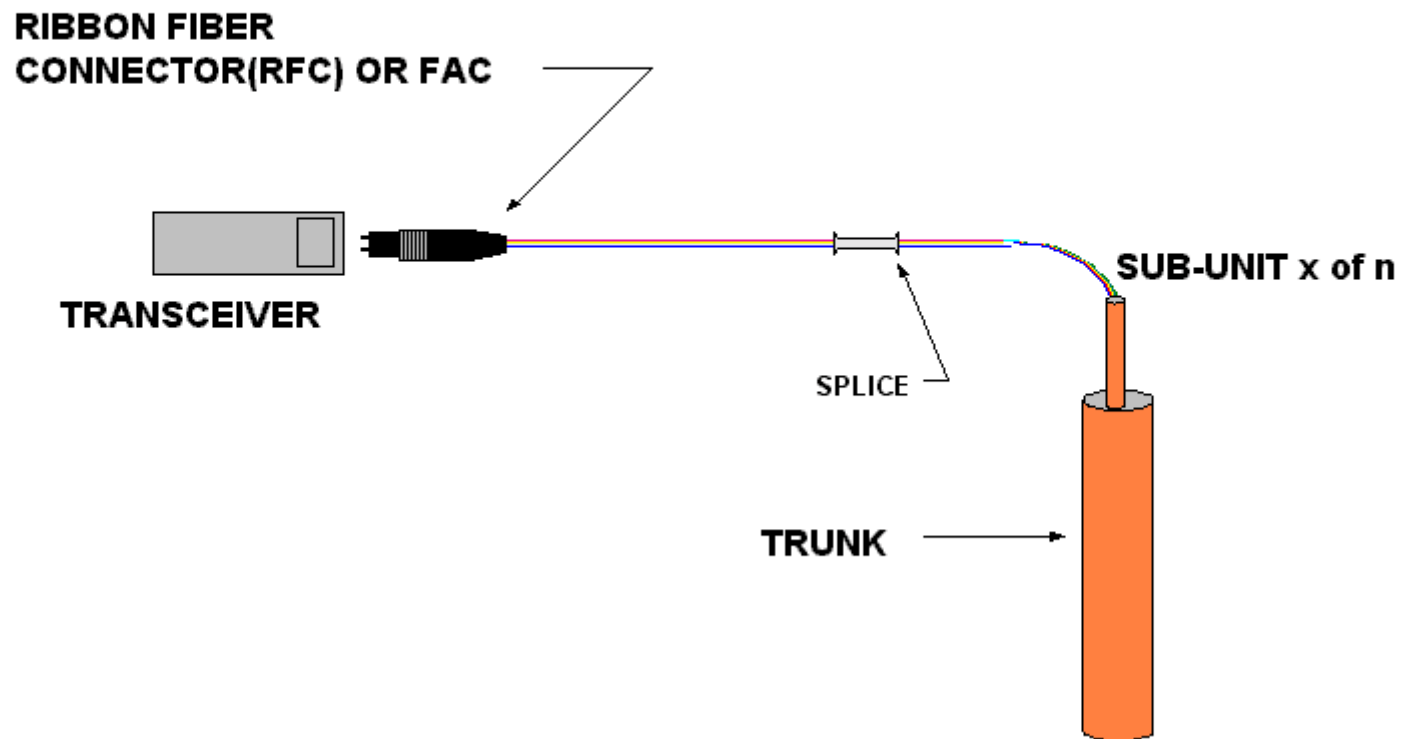
Patching Options

OPTION 1:CONNECT FAC ARRAY TO RFC/RFC PANEL

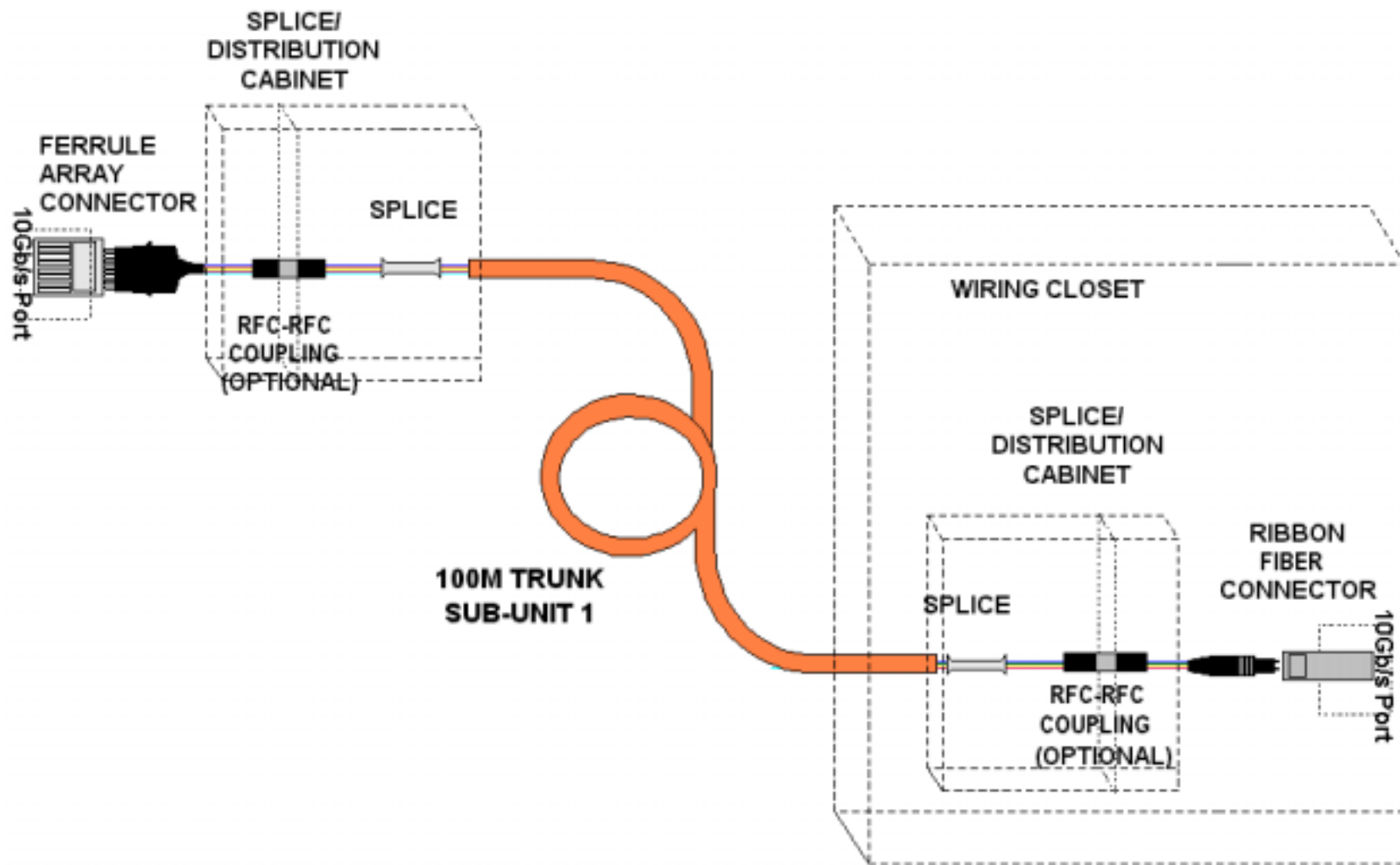


Patching Option

OPTION 2: BYPASS RFC/RFC PANEL BY SPLICING FAC PIGTAIL DIRECTLY TO TRUNK



Network Connection Scheme(s)



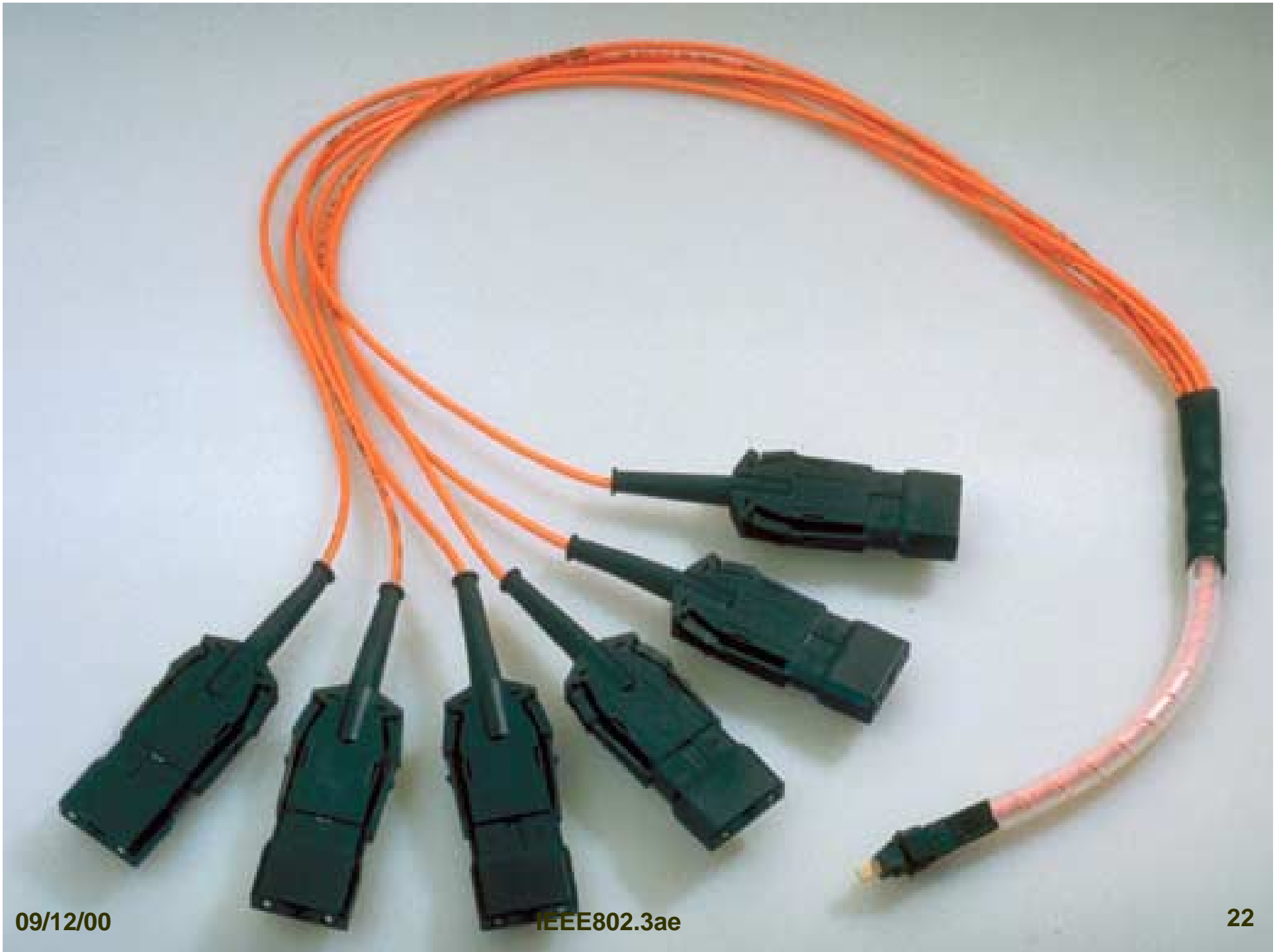


09/12/00

IEEE802.3ae

20







09/12/00

IEEE802.3ae

23



Conclusion

- **Cable installed base configured for Splice or Termination of RFC/FAC connectivity**
- **Cable management hardware and installation practices in-place and widely available.**
- **Multiple cabling strategies support multi-fiber array connectivity(FC0, FICON, FDDI, ESCON, EIA/TIA 568-A, 10GbE)**
- **Cabling is not an obstacle in moving forward.**