ICT Field of Vision Presentation

Advancements and Solutions for Next-Generation Data Centers

Virtual

Shopping

Viewing Sports

Business

Worship

Education

Health Care

Dining

Celebrations &
Social Events

Buying & Selling

Pre – COVID 19

We were doing more and more over massive and expanding interconnected networks

During COVID 19

We have experienced an acceleration of the Pre-COVID 19 practices that likely only existed in fiction or the imagination. But the phenomena is real, and we now find ourselves living in a virtual world

One of the meanings of Virtual –

carried out, accessed, or stored by means of a computer, **especially over a network**

Many organizations were already on a trajectory of expanding network capacity and large scale, multi phase deployment projects pre-COVID 19. And while not everything and/or everyone has faired well during the last six months, the demands for network growth most likely still exist but now on an even larger scale.

In recent years the Internet of Things (IoT) and the emergence of Hyperscale data center organizations were driving forces in the demand for new solutions, technology and innovations to meet evolving network requirements and overcome challenges that legacy products and offerings could not.

One technology and innovation that played a significant roll in meeting these new requirements was pliable ribbon. The introduction of this technology by multiple companies within the ICT industry allowed for the build of ultra high fiber count networks and was a catalyst for a full solution development revolving around the key pliable ribbon component

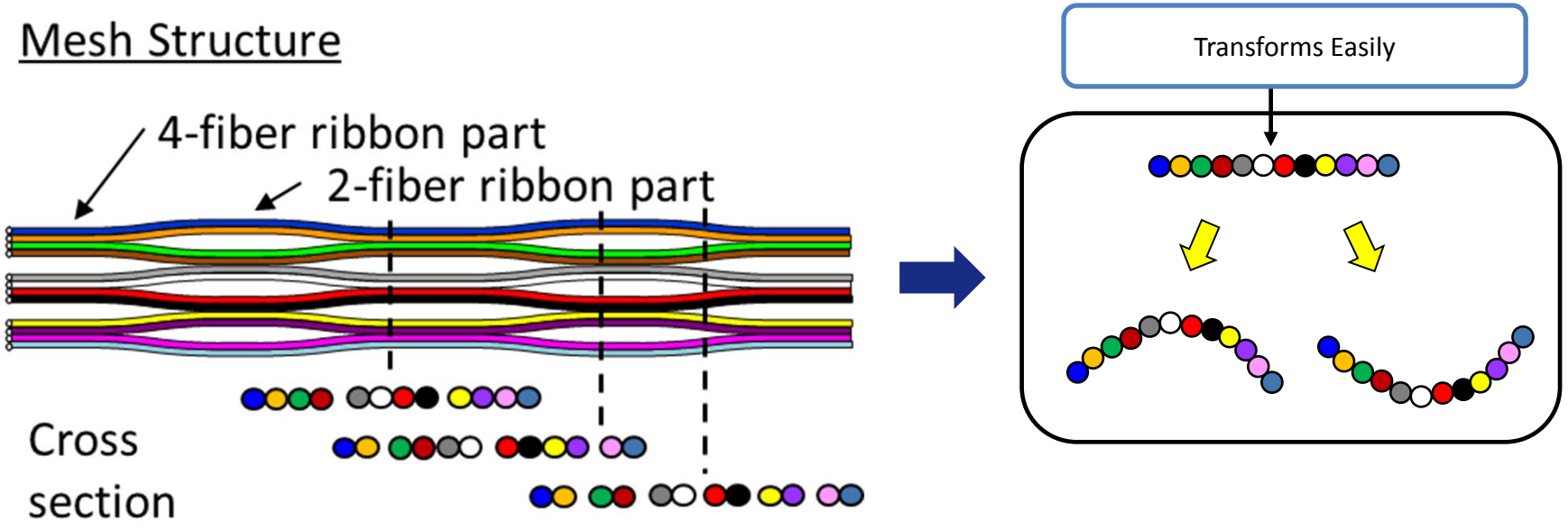
This presentation will review the development of pliable ribbon, what challenges it resolved, benefits it brought and the still expanding array of resulting complementing solutions

Legacy Ribbon Construction

Characteristics of Legacy Ribbon

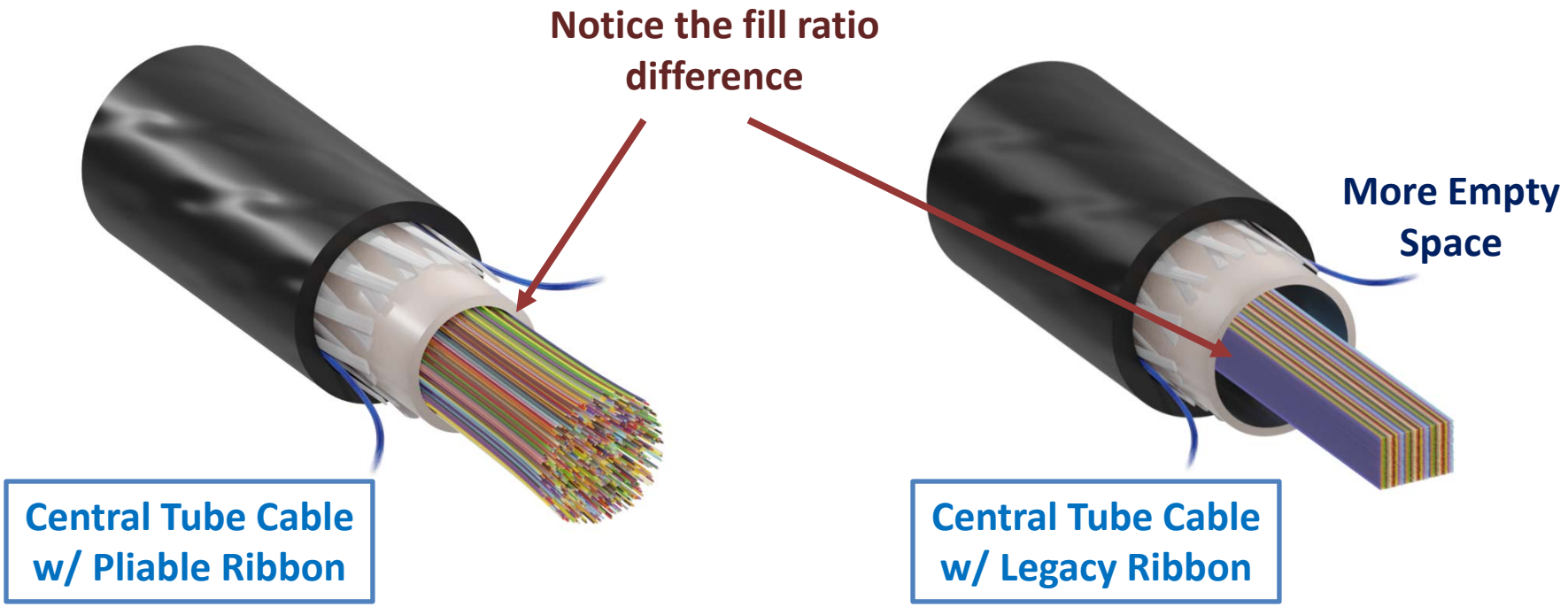
- Flat design
- Fiber-to-fiber positioning designed to minimize offset and ensure optimal fusion splicing performance
- Standard is 12ct following industry standard color coding
- 24ct and 36ct options available and typical for high fiber count cables (288ct and above)
- Flat design may translate in to cable with noticeable bend preference
- Cable construction with lower fill ratio to allow for cable maneuvering without inducing loss.
    - Equals a lot of empty space in the cable construction

Pliable Ribbon Construction

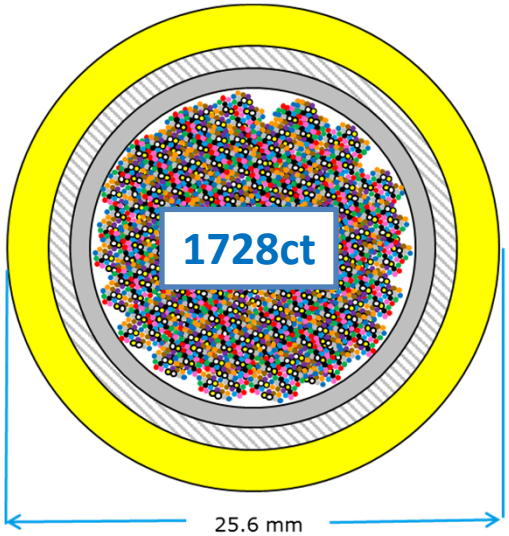


One example of several pliable ribbon construction options

Pliable vs. Legacy Ribbon

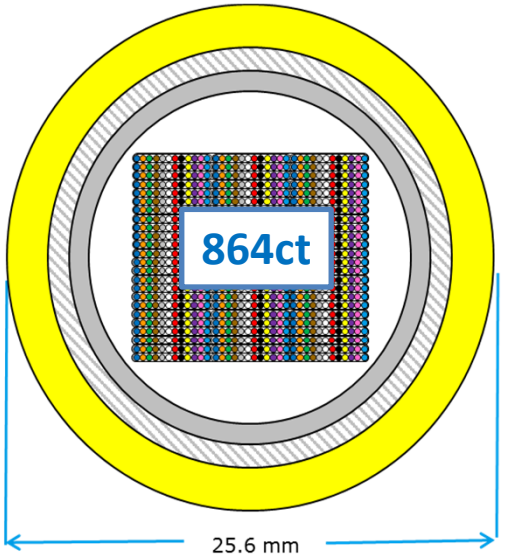


Pliable vs. Legacy Ribbon



Central Tube Cable w/ Pliable Ribbon

Same OD (25.6mm), but DOUBLE the capacity when using Pliable Ribbon



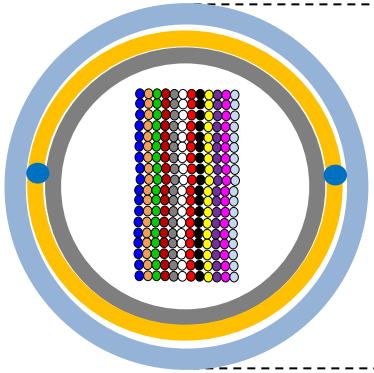
Central Tube Cable w/ Legacy Ribbon

Pliable vs. Legacy Ribbon

216ct Ribbon Central Tube Cable

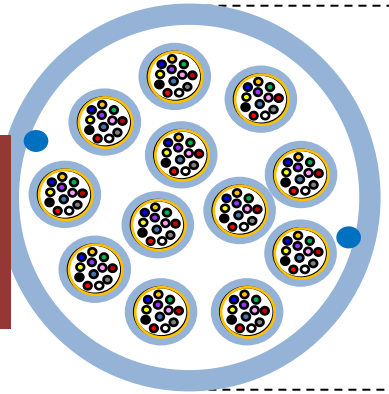
The use of pliable ribbon provides a packing density and flexibility similar to that of Loose Tube cable

144ct 250um Loose Tube Cable



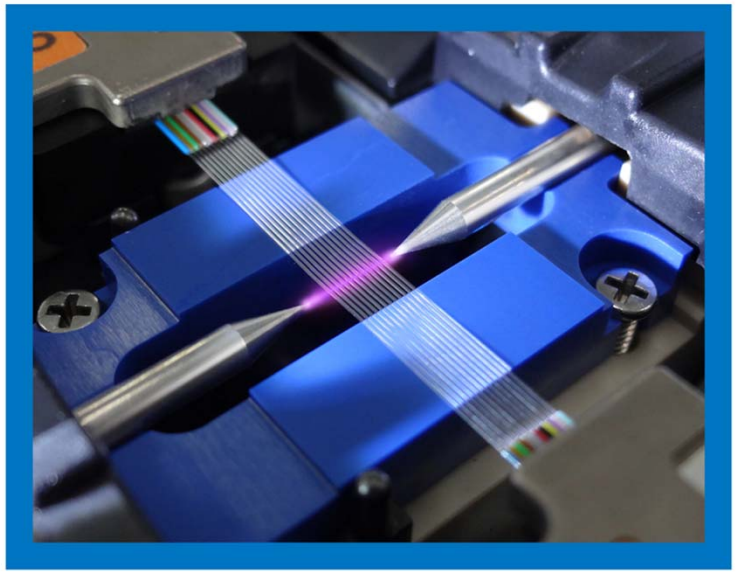
~0.6
(15.6

But it retains the splicing advantage of legacy 12ct ribbon



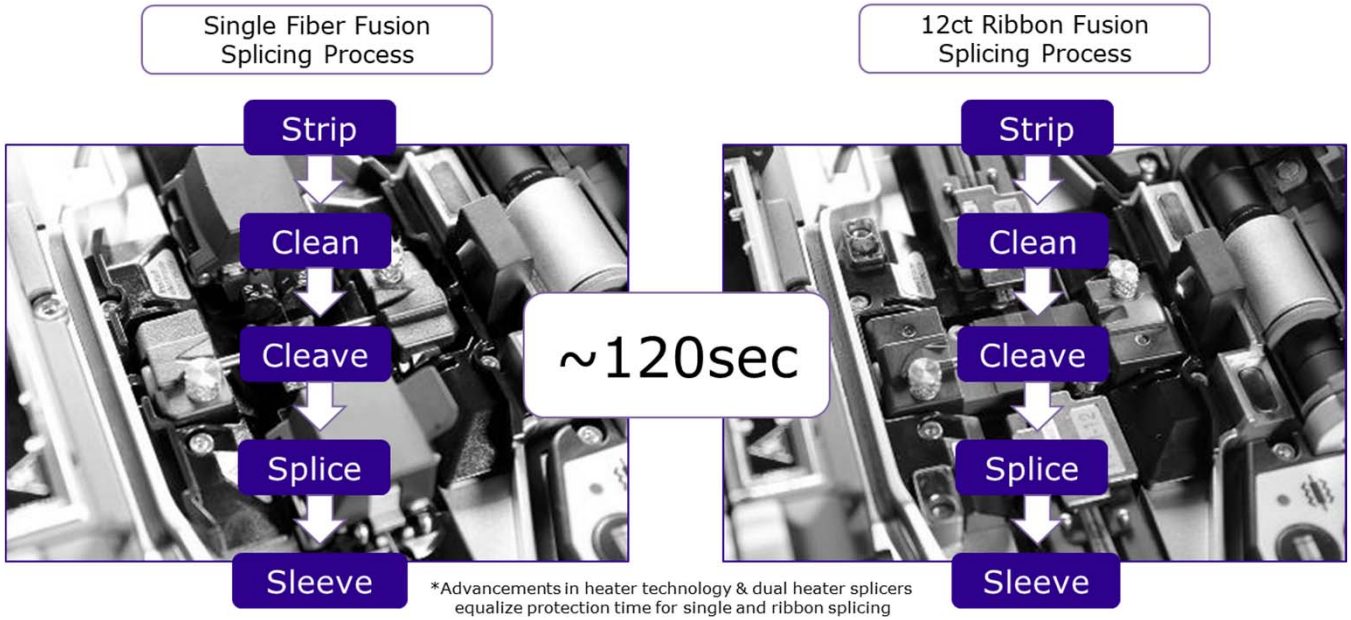
~0.625in.
(15.9mm)

Pliable vs. Legacy Ribbon



By utilizing a mass or ribbon style fusion splicer the pliable 12ct ribbon can be fusion spliced very similar as a legacy 12ct ribbon

Pliable vs. Legacy Ribbon



Ribbon splicing provides enormous time and cost savings, compared to loose tube cable & single fiber splicing, when performing high volume of fiber splicing, which is typical in many network applications today.

Pliable vs. Legacy Ribbon

So where does the advantage come in for using pliable ribbon?

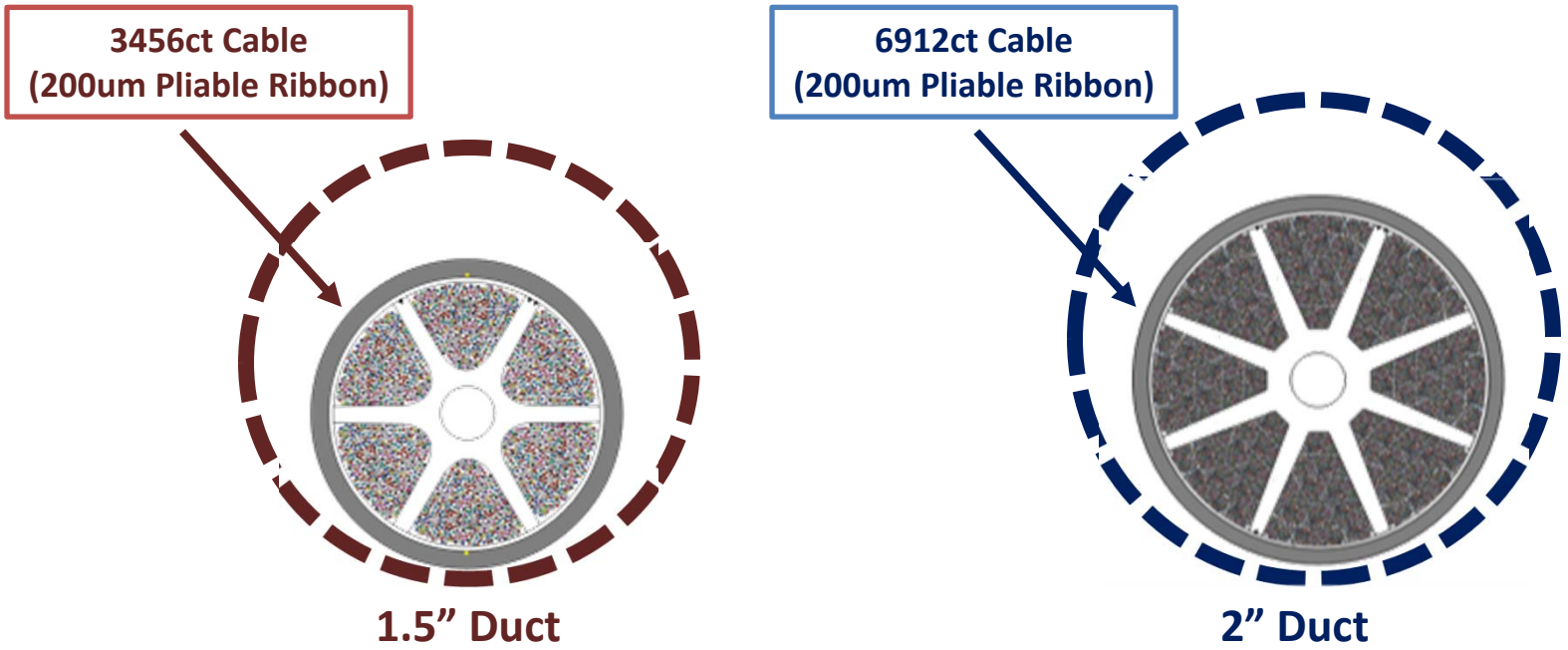
Pliable vs. Legacy Ribbon

Ultimate Advantage of Pliable Ribbon

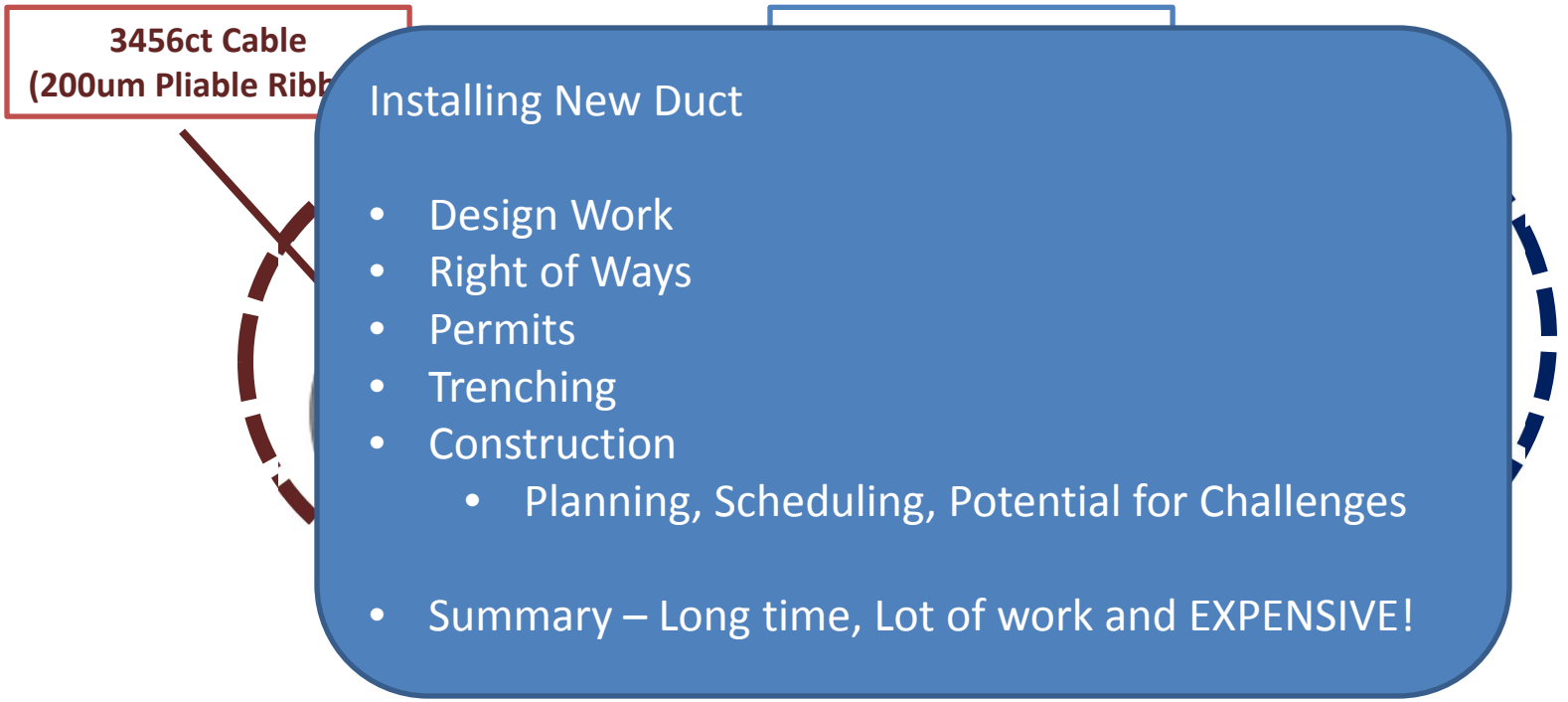
- **In the maximization of use for existing and new duct banks**
- **Maximization and use of indoor cable management trays, racks, enclosures, etc.**

- **DOING MORE IN THE SAME OR LESS SPACE!**
  + *The cost savings that comes along*

Pliable vs. Legacy Ribbon

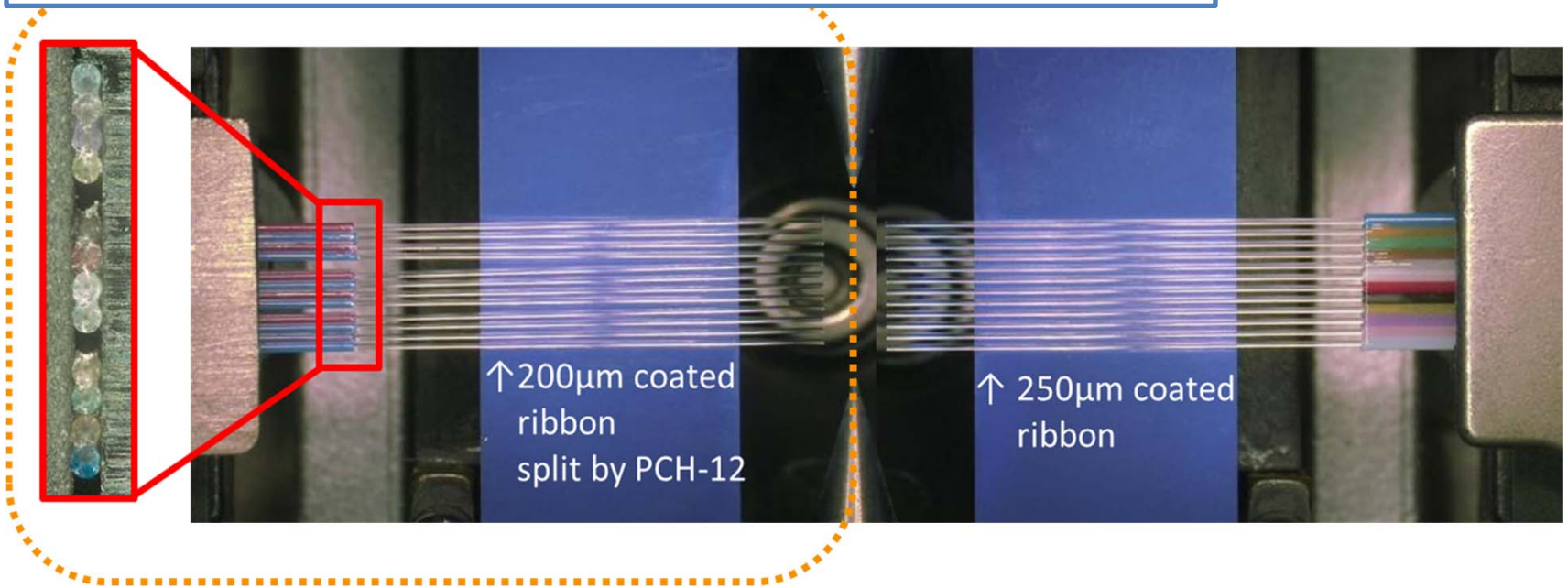


Pliable vs. Legacy Ribbon



Pliable vs. Legacy Ribbon

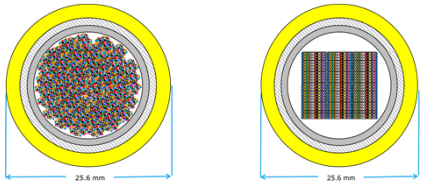
200um Pliable Ribbon can splice similar to 250um version



Pliable vs. Legacy Ribbon

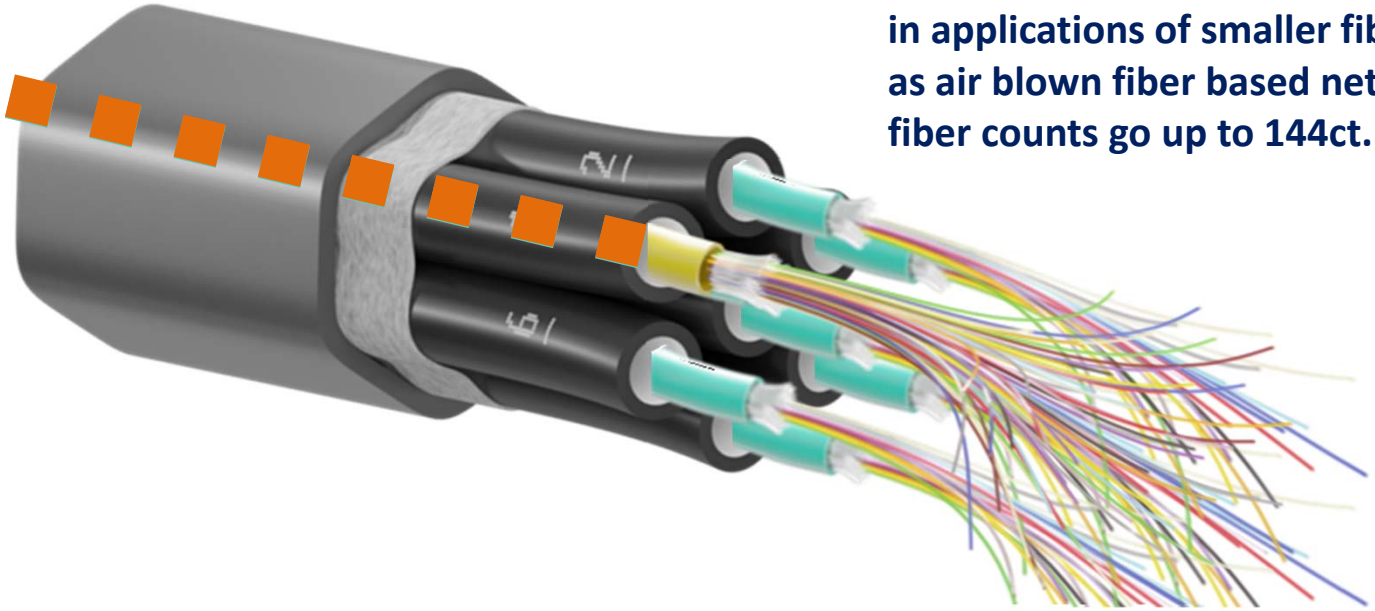
Similar to maximizing available duct space, maximizing the indoor cable management space is also key

Ability to double fiber density in same cable construction yields a lot of benefit & value



https://www.ptsdcs.com/data-center-computer-room-design-and-engineering-services/pts-data-center-cabling-architecture-design-service/

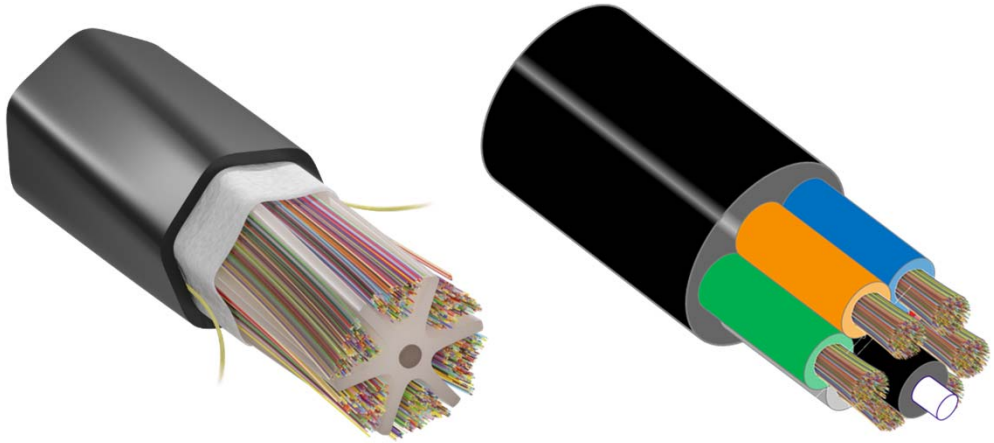
Pliable vs. Legacy Ribbon



The space utilization benefit is even realized in applications of smaller fiber count, such as air blown fiber based networks where fiber counts go up to 144ct.

The Evolving Solution

One solution leads to the need for more solutions



Examples of Ultra High Fiber Count (UHFC) cables (1152ct and higher) that utilize pliable ribbon

How do you handle butt or distribution splicing in the field for UHFC cables?

Once these UHFC cables reach the facility how do you manage initial distribution?

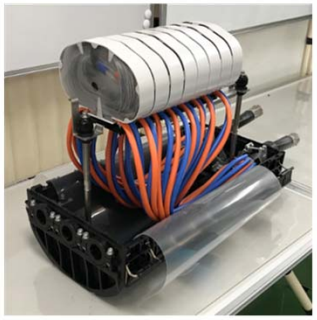
Secondary distribution?

The Evolving Solution

One solution leads to the need for more solutions

How do you handle butt or distribution splicing in the field for UHFC cables?

Innovation plus development, more so than new technology, were the primary components of several ICT companies to adapt existing products, such as OSP enclosures, to now accommodate these new UHFC cables

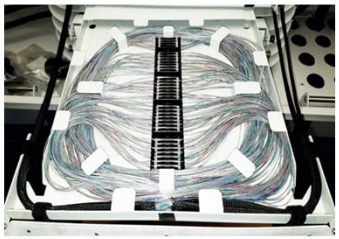


The Evolving Solution

One solution leads to the need for more solutions

Once these UHFC cables reach the facility how do you manage initial distribution?

New development and innovation again has and continues to yield new products and solutions from ICT companies. For example, Entrance Cabinets with capacity over 40K fibers and splice trays capable of managing 864 fibers did not exist pre-pliable ribbon, but now there are a variety of options in the market

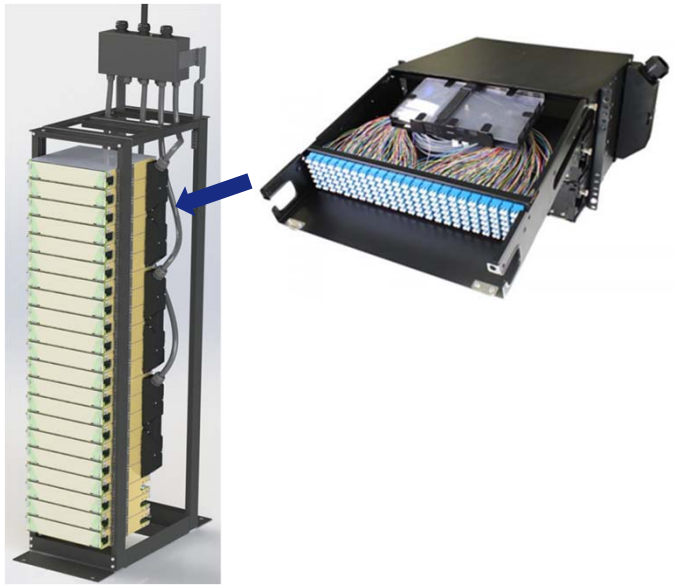


The Evolving Solution

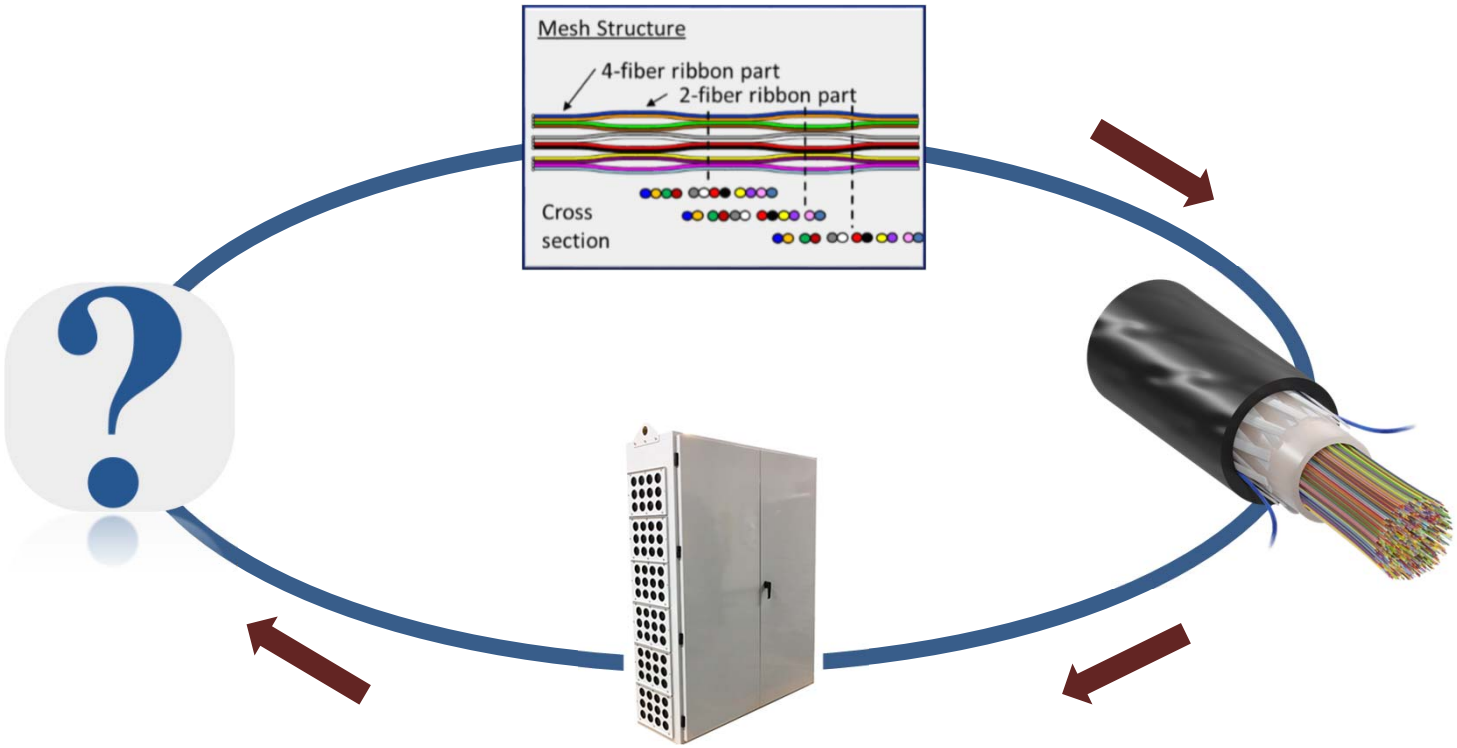
One solution leads to the need for more solutions

Secondary distribution?

For a few of the new market solutions a combination of all three; innovation, technology and development have yield new capabilities for maximizing the fiber density in a 19” rack, while keeping access for management and build-out available



Summary


Mesh Structure
4-fiber ribbon part
2-fiber ribbon part
Cross
section

Thank You!

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