

# Last Mile

How I got "Fiber" at my house?

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# Conventional



# Microduct

Mid-span access or  
cut/re-splice

Branch

Simple tube connection

Fusion/mechanical at  
each branch

Fiber Link

Termination at only  
terminal point

Low

Network Reliability

High

# Conventional

## VS

# Microduct

Long

Installation Time

Short

High

Construction Cost

Low

Complex

Management

Simple and  
Straight forward

# Mid-span access vs. tube branch connection



Mid-span access tool and  
SZ-stranded loose tube cable

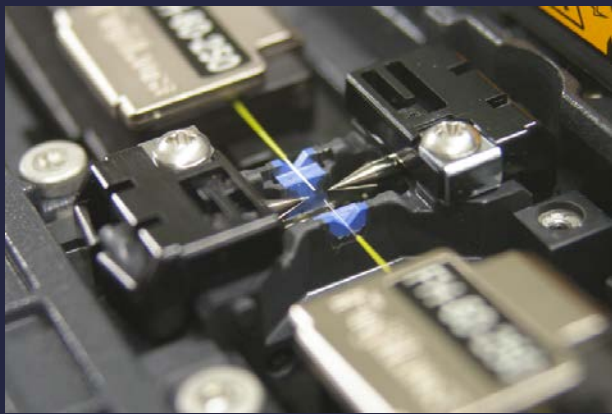
Some fibers in a tube are cut and  
spliced  
Applicable to SZ-stranded cables  
Delicate and elaborate skill is required  
Special tool is needed



Tube branch

Simple tube branch provides direct  
fiber path  
Increases reliability and reduces  
construction cost

# Fiber Connection



## Fiber fusion splice

- At each floor's TPS, fiber fusion should be made
  - Cost and time-consuming work



## Linked LSZH

- End-to-end blowing eliminates fusion splices at TPS with Microduct
- Linked LSZH enhances branch performance

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# Network reliability

- Discontinuity always causes problems
  - Branch and splice points
  - By temperature change and moisture ingress

VS

- Microduct cabling reduces splices
  - Enhances reliability
  - Reduces construction cost
  - LSZH material: Fire retardant

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# Installation time and cost

- Frequent access to TPS and long time needed
  - Cable preparation, splice and protection, fiber arrangement etc



- No splice at TPS needed
  - Only simple tube branch is made
  - Easy reroute and management (Easy to attract more subs.)
  - Future-proof technology (Easy Fiber replacing & expansion)

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# Management

- Frequent customer changes are expected
  - Accordingly, frequent visit to MDF and TPS are needed
  - Access to fiber splice tray is not an easy task



- Easy reroute is guaranteed
  - By simple change of tube connection
  - No splice work is needed

## Last Mile

# Applications

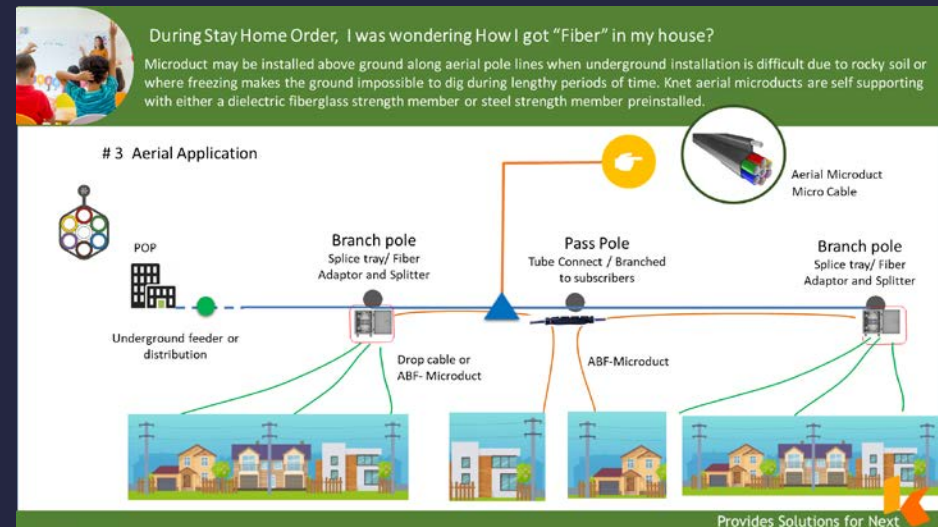
## SDU



## MDU



## Aerial



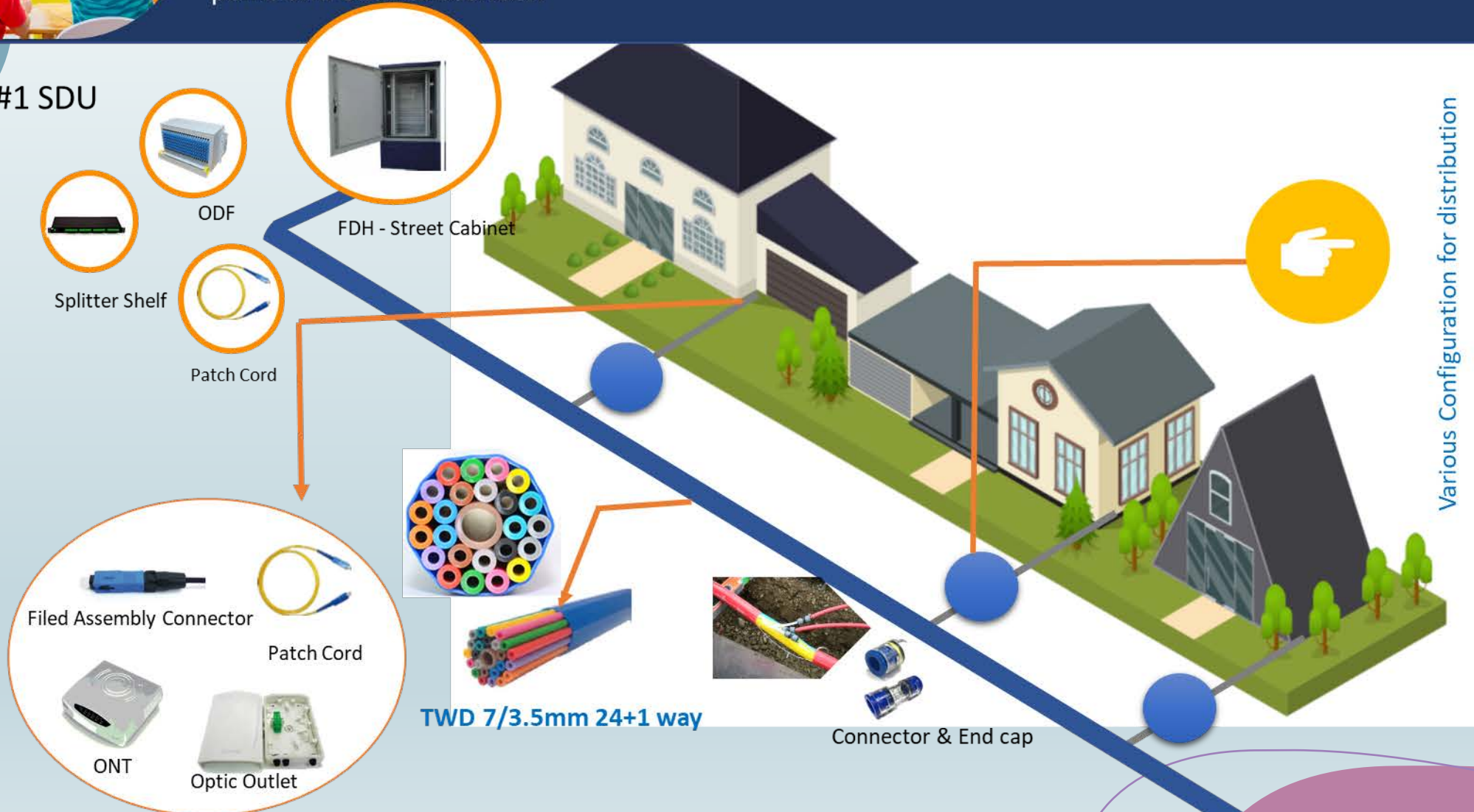
# Last Mile Solutions - #1 SDU

All subscribers' management can be done in FDH by installing splitter and connecting fiber(generally 2 Core) to each subscriber. You can install Ruggedized duct, Thick DB, or DB HS 1way to protect fiber, which connects the distribution point and each subscriber

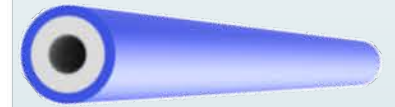
# During Stay Home Order, I was wondering How I got "Fiber" in my house? #1 SDU

All subscribers' management can be done in FDH by installing splitter and connecting fiber(generally 2 Core) to each subscriber. You can install **Ruggedized** duct, **Thick DB**, or **DB HS 1way** to protect fiber, which connects the distribution point and each subscriber.

#1 SDU



Various Configuration for distribution



Direct Buried HS 5/3.5mm



Thick Sheathed Duct 7/3.5mm  
Or Thick Walled 7/3.5mm



Ruggedized Duct 7/3.5mm

## Last Mile Solutions - #2 MDU

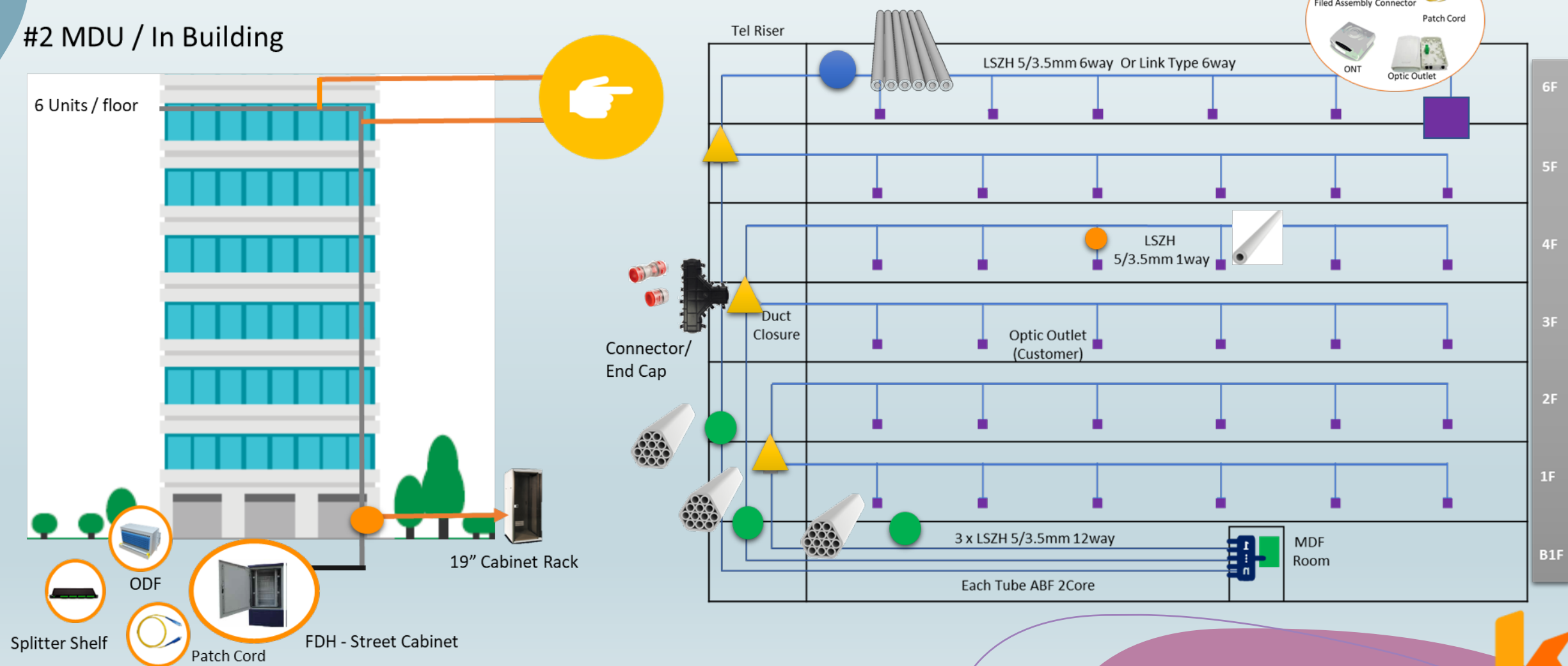
MDU and high-rise buildings often offer the highest subscriber density and can be very rewarding projects but offer unique challenges as well. It is often very difficult or impossible to re-access infrastructure after the building is complete. With microduct preinstalled to each unit fiber drops can be blown in by a single installer as customers take service, saving most of the material cost such as fiber drops until a customer takes service.



## During Stay Home Order, I was wondering How I got “Fiber” in my house? #2 MDU / In Building

MDU and high-rise buildings often offer the highest subscriber density and can be very rewarding projects but offer unique challenges as well. With microduct preinstalled to each unit fiber drops can be blown in by a single installer as customers take service, saving the majority of material cost until a customer takes service.

### #2 MDU / In Building



# Last Mile Solutions - #3 Aerial

Microduct may be installed above ground along aerial pole lines when underground installation is difficult due to rocky soil or where freezing makes the ground impossible to dig during lengthy periods of time. Knet aerial microducts are self supporting with either a dielectric fiberglass strength member or steel strength member preinstalled.

Fibers are installed and protected through microtube path. So, chance of fiber splice is minimized as well diminishes possible damages caused by rodents.

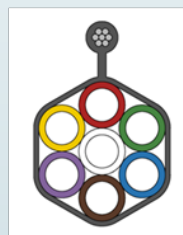
Microduct and cable blowing are combined allowing to have future growth at considerable lesser cost.



## During Stay Home Order, I was wondering How I got “Fiber” in my house?

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### # 3 Aerial Application



POP



Underground feeder or distribution

Branch pole  
Splice tray/ Fiber  
Adaptor and Splitter

Pass Pole  
Tube Connect / Branched  
to subscribers

Branch pole  
Splice tray/ Fiber  
Adaptor and Splitter

Drop cable or  
ABF- Microduct

ABF-Microduct

Aerial Microduct  
Micro Cable

