SPATIALinfo User Conference 2008

SPATIALnet Fiber Management

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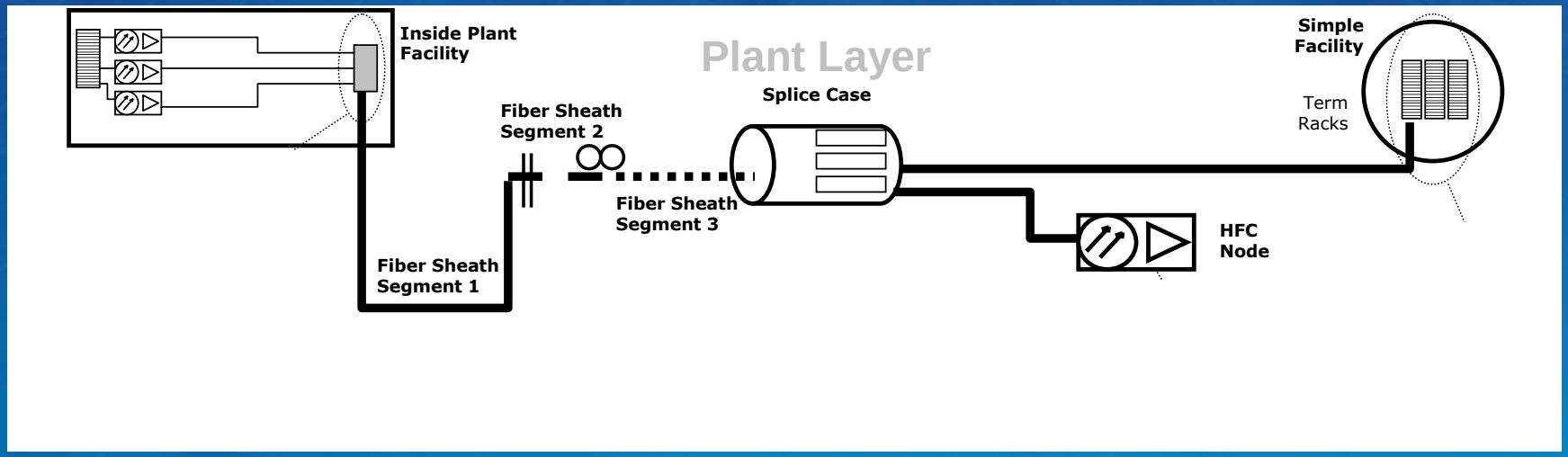
Topics

- Overview of SPATIALnet Fiber Optic Model
- Cables and Segments
- Termination
- Usages
- Getting the Directions Right
  (and why this is so important…)
- Splicing and Rules for assigning Usage
- Couplers

SPATIALnet Fiber Optic Model

- **SPATIALnet models fiber optic plant at 3 levels:**
  - **Physical Plant**
  - **Optical Network**
  - **Signal Carriers** (not covered this session)



Cables and Segments

- **SPATIALnet Fiber Cables are "Segmented".**
  - **Allows a single database record to represent a single cable asset.**
  - **Allows different portions of the cable to have different properties (aerial, underground, storage loops) and for each of these to start and end at specific points, and have specific lengths.**
  - **When they are rendered, Segments are assigned to a layer depending on their construction type (Aerial, Underground, etc.)**

Termination

- **SPATIALnet Fiber Cables MUST physically terminate at sites such as splice cases, buildings, HFC nodes etc. The software enforces this.**
- **Fibers which are in use SHOULD ALSO TERMINATE at (be spliced to) the ports of an appropriate device (Termination panel, Fiber Tap Box, Node, etc.)**

The software DOES NOT enforce this.

(as we shall see…) Failing to terminate used fibers can lead to unexpected results when tracing and splicing the network.

Usages

- Understanding Usage Codes is CRITICAL to using the SPATIALnet Fiber Model correctly.
- SPATIALnet models optical circuits as either directed or peer-to-peer.
  - Directed circuits have a definite "source" ("A-end") and "consumer" ("Z-end").
  - Peer-to-peer networks do not have a natural direction and "A-end" and "Z-end" are arbitrary labels.
- Note that "source" and "consumer" DO NOT refer to the direction that light is traveling. They refer to the roles played by either end of the optical circuit.
- Clearly understanding whether a circuit type is directed or peer-to-peer is essential to configuring it correctly in SPATIALnet

Getting the Directions Right...

- **To configure directed circuits:**
  - **Set up Usage Codes in the Usage Code Dictionary with state type "Supply" or "Customer".**
  - **Configure the terminating equipment in the Node, Tap Box or Term Panel dictionary with a default State Type that is either "Supply" or "Customer"**

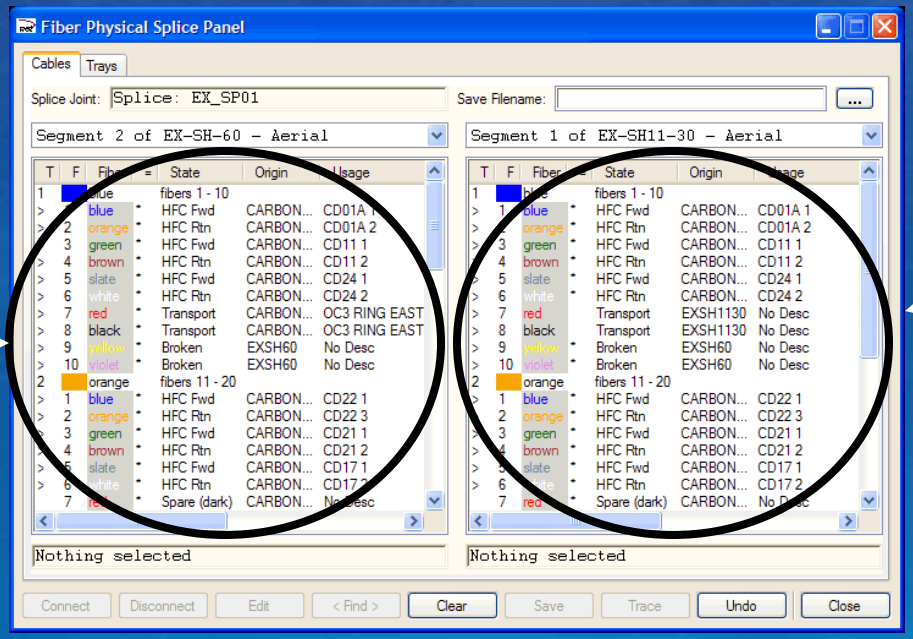
... and why this is so important

- **Note that configuring equipment ports as Spare will cause unexpected behavior when the network is connected. Leaving terminating ports in a SPARE state in a directed network means SPATIALnet will not be able to determine the direction of the network. This will adversely affect tracing and splicing behavior.**

Splicing and Rules for Assigning Usage

- **This can be one of the most confusing parts of using SPATIALnet Fiber IF the network is not set up correctly.**
- **The problem…**

If I connect a fiber with usage code X on this side…



… to a fiber with usage code Y on this side…

… What will be the usage code of the newly connected circuit?

Splicing and Rules for Assigning Usage

- **This can be one of the most confusing parts of using SPATIALnet Fiber IF the network is not set up correctly.**
- **The solution…**
  - **Make sure directed networks are configured correctly!**

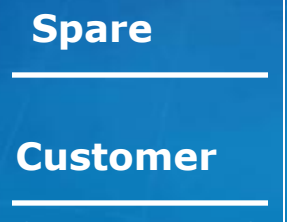
Left Connection	Right Connection	Usage After Connection
Spare	A-End	A-End
Z-End	Spare	Z-End
A-End	Z-End	Whichever has higher priority.
A-End	A-End	Lower priority is reversed.
Z-End	Z-End	Lower priority is reversed.

… But this isn't the whole story.

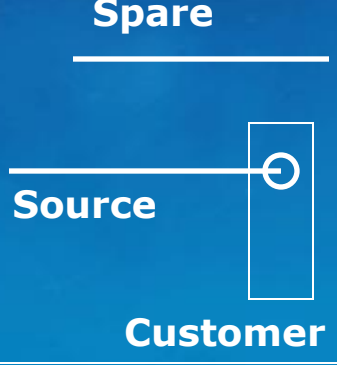
Splicing and Rules for Assigning Usage

- **This can be one of the most confusing parts of using SPATIALnet Fiber IF the network is not set up correctly.**
- **There's a catch…**
  - **Fibers which aren't terminated at a device may have an "A-end" or "Z-end" usage assigned to them.**
  - **However, because there are no "A" or "Z" end devices, it is impossible to tell which end is the "A" end and which the "Z" end.**

1. Fiber is not terminated and initially Spare.
2. "Customer" usage is assigned.
3. But which is the "A" end and which is the "Z" End?



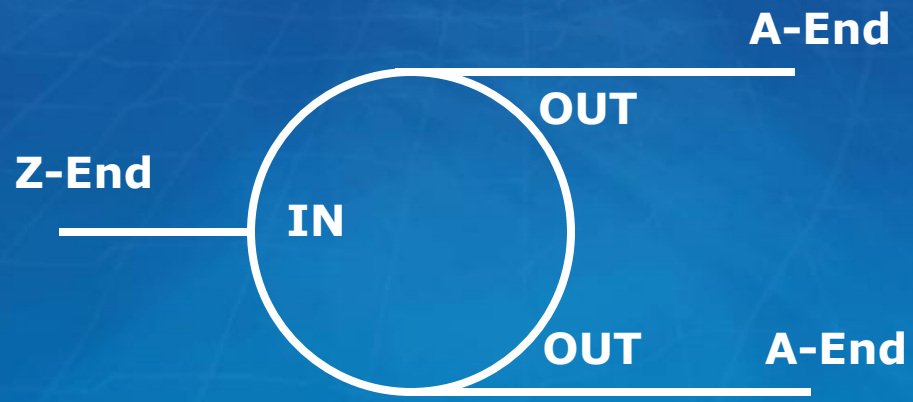
1. Fiber is not terminated and initially Spare.
2. "Customer" equipment is connected.
3. "A" and "Z" end are now unambiguous.



Couplers

- Note that from SPATIALnet's perspective, the input of a coupler behaves like a termination.

- Therefore, coupler input ports should be configured with Z-End usage, and their outputs with A-End usage.



Questions?

Thank you.