

Physical Layer 2.0

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Secure and Intelligent





Vision

The physical layer is the foundation of any network, large or small. Behind every Outlook email, computer, router or switch is a cable. It is the most essential part of a network, yet it is the least understood.

Unlike other areas of the network, the physical cable is still in the dark ages. It is like bringing a knife to a gun fight. You may win, but one thing is for sure, you are at a major disadvantage.

Our vision of the physical layer is to make it an asset rather than a dormant liability in the network. The only way to do this is to bring it out of the dark ages of technology. Our innovations digitalize the physical layer and bring it online so that it can be tracked and monitored, giving real-time visibility to what was once opaque.

One of the first objection to the internet was that no one would use it. Fax and telephone worked just fine.



Physical Layer Pain Points

01
Disorganized



02
Spaghetti-net



03
Inefficient Utilization



04
Costly to Maintain



05
Vulnerable



06
Manual Operation



07
Inefficient Processes



Physical Layer Surveys

What is a physical survey? How often is it performed? Imagine a haystack. Every straw in the haystack is a fiber cable and you have to document information about each straw.

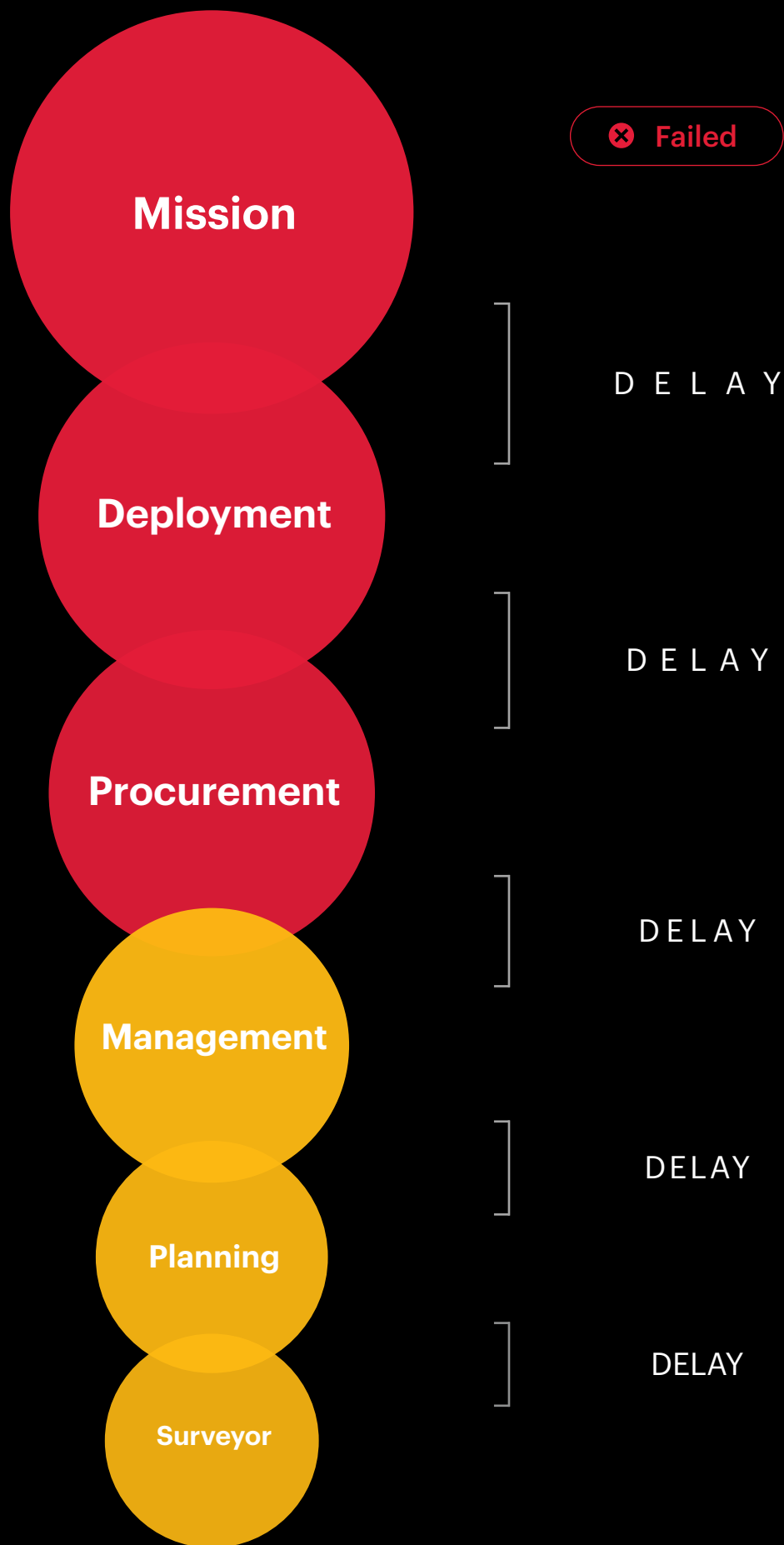
How do you do it? Firstly, you will hope that each straw has a unique identifier, a name, a number, a QR code, a barcode, but that is usually not available. This is much like searching for a needle in the haystack.

The new Physical Layer Infrastructure has real time information about network connectivity. It is 100% accurate. What about surveys?

Traditionally, as one Fiber Mountain customer noted, surveys are a necessarily evil in most physical layer network projects. You must know how many cables and ports there are and where it is to start a project. The only way to get this information is the old fashion one. Just like Lewis and Clark did nearly 200 years ago, surveyors must physically venture into the unknown in every building, room, closet, conduit, and wire basket to record what they find. The worst part of this type of survey is that it is inaccurate the moment it is done. But it doesn't have to be this way with the new Physical Layer.

A physical layer survey is equivalent to not only finding the needle but also finding where the string ends and how long it is.





Human Capital

Managing a physical layer data center requires trained human capital. Most data centers have key individuals who know the connectivity picture well and are required for daily operation of the data center; these individuals know the communication closets, points of presence (PoP), and data centers.

During installation of new assets, troubleshooting for issues, or regular maintenance tasks the key human assets must be present. What happens if one of the personnel leaves the position to pursue a different opportunity or decides to retire from their position; out goes with them the native knowledge that few people possess. Human capital is one of the most important asset and needs to be managed appropriately.

A software-based system that automatically documents the connectivity infrastructure allows the human capital to perform their tasks with accuracy, with speed and without overburdening and stressing these resources. A system that is known and accurate allows these key personnel to spend their time in planning and ensuring that the network has a high up-time and maintain a higher level of security.

Cost

In addition to human capital cost, there is also the cost of lost opportunities and inefficiencies. The former is hard to measure, but the later has been well documented in the industry.

Operational Efficiency

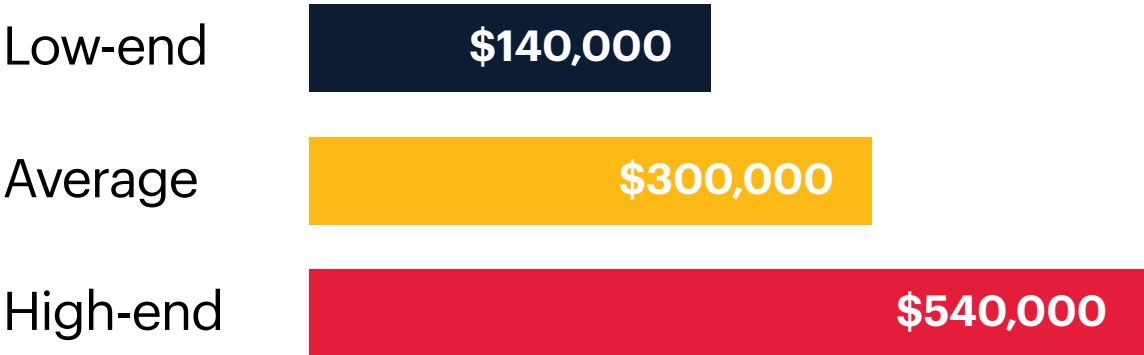
A business such as a university, or a financial institute or our Federal Government must rely on networks to perform their tasks. The network must be alive all the time, and deliver a fast, reliable and secure service for business continuity.

Maintaining a first-class network can be expensive and there are a few factors that have to be empowered to achieve success. Operational Efficiency is one of the top factors, where the use of dollars, human capital and best in class equipment are brought together for optimum results. To attain operational efficiency for a given organization, it is essential that knowledge about the network and human assets is well documented and only when you have the appropriate data readily available can you make decisions that will deliver success for the organization.

\$5,600 / min

Average IT Outage Cost
as per Gartner

Per Hour Cost



22%

Outages caused by Human Error

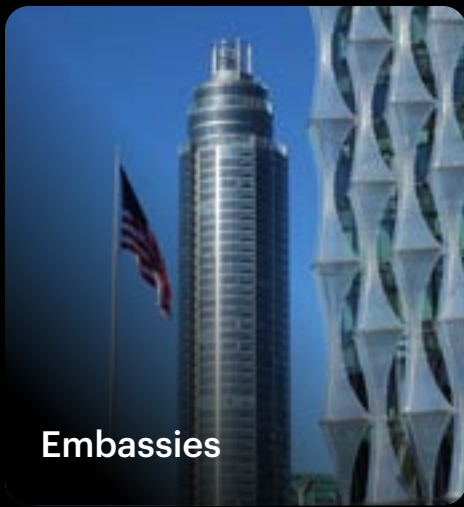
Government Network Challenges



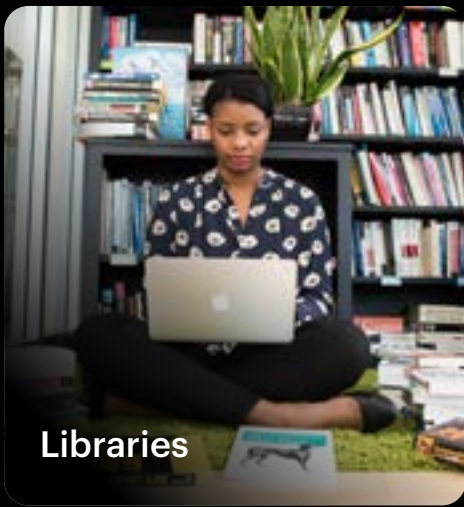
What happens when you need a remote hand?

Your remote networks are here...

...and your networking staff is here



Embassies



Libraries



Battleships



Military Bases

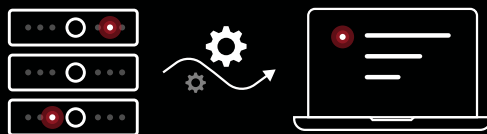


Federal Buildings



Fiber Mountain Physical Layer Solution

Automated Documentation



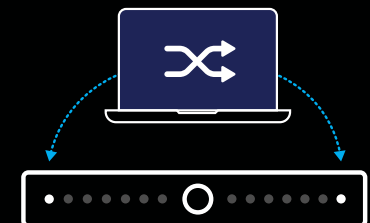
Capacity Management



Guided Remote Hands



Automated Cross Connects



Automated Documentation

Physical layer connections are automatically documented when moves, adds, and changes (MAC) occur. Provides 100% accurate physical layer network documentation. Simplifies management of remote locations such as embassies, gunships, federal libraries, other sites. The basic tenet of security is knowledge, because if we do not know about the network how are we going to secure it. We need trusted connectivity documentation, which is a fundamental building block of a secure network.

Physical Layer Security

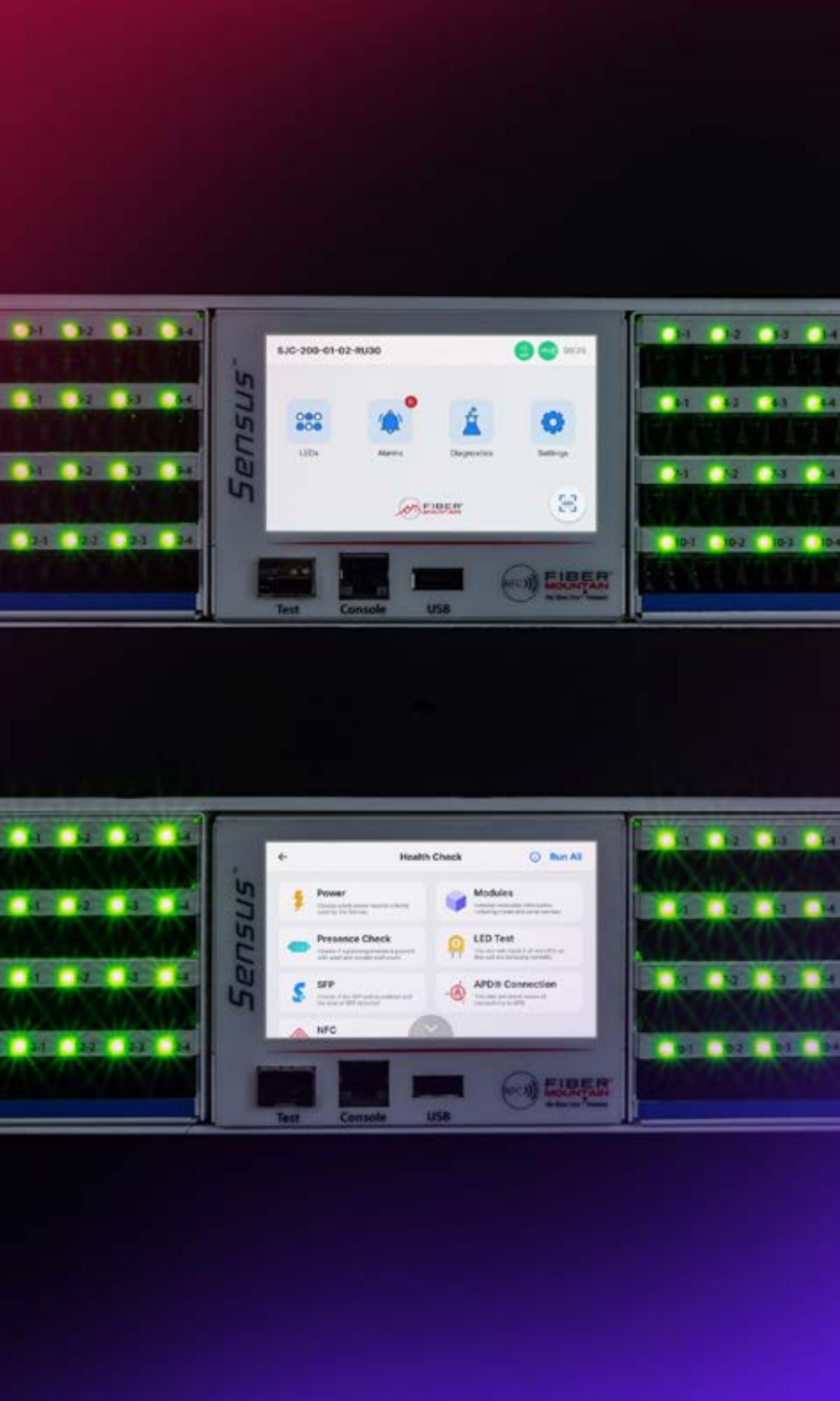
Physical Layer security comes from real-time documentation, visibility into every physical layer change through the comprehensive event logs and the ability to trigger actions based on changes in the network.

Guided Remote Hands

Per port tri-color LEDs are remotely controlled and can guide technicians for any work performed at a local or remote site. These allow for quick asset identification, and to provide remote hand guidance. Reduces move, add and change (MAC) errors, reduces work order time for completion, provides instant feedback to managers and engineers, and decreases completion time for physical layer work orders.

Infrastructure Planning

A part of network operations is infrastructure planning, which may mean the planning that goes into a new build or design of the network, growth of the network, or even a single change in the connectivity environment. In a smart physical layer system, the automatic documentation of the network, the knowledge of which network ports are occupied and by whom, which ports are available for use, and which are reserved for a planned future project help the process of any planning. When a technician is sent to a site where the work is to be performed, there is a known plan and once the changes to the network are performed, tickets are tracked and closed accurately.



Return On Investment

Physical layer is the building block of any and all network activity. Effectively it is the most integral component of any data center. In order to maximise data center agility, we need to re-imagine the physical layer with integrated security and intelligence.

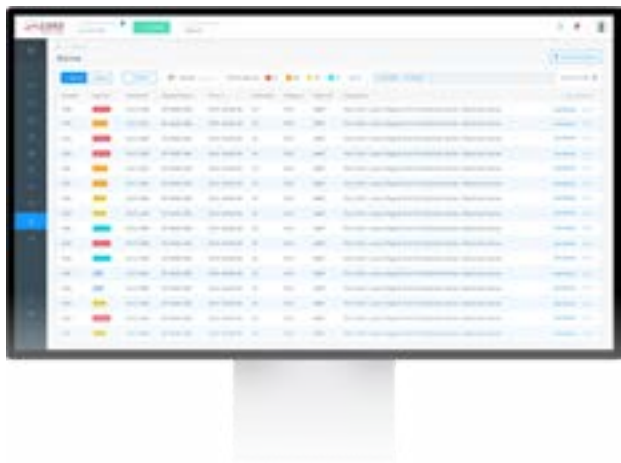
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Physical Layer 2.0 adds immense capabilities to the layer 1 network, capabilities that were previously deemed impossible. By creating a single pane of glass view for the physical network - this is an investment that would effectively reduce management, operational and deployment costs of small and large scale data centres



Fiber Mountain Products

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AllPath® Director



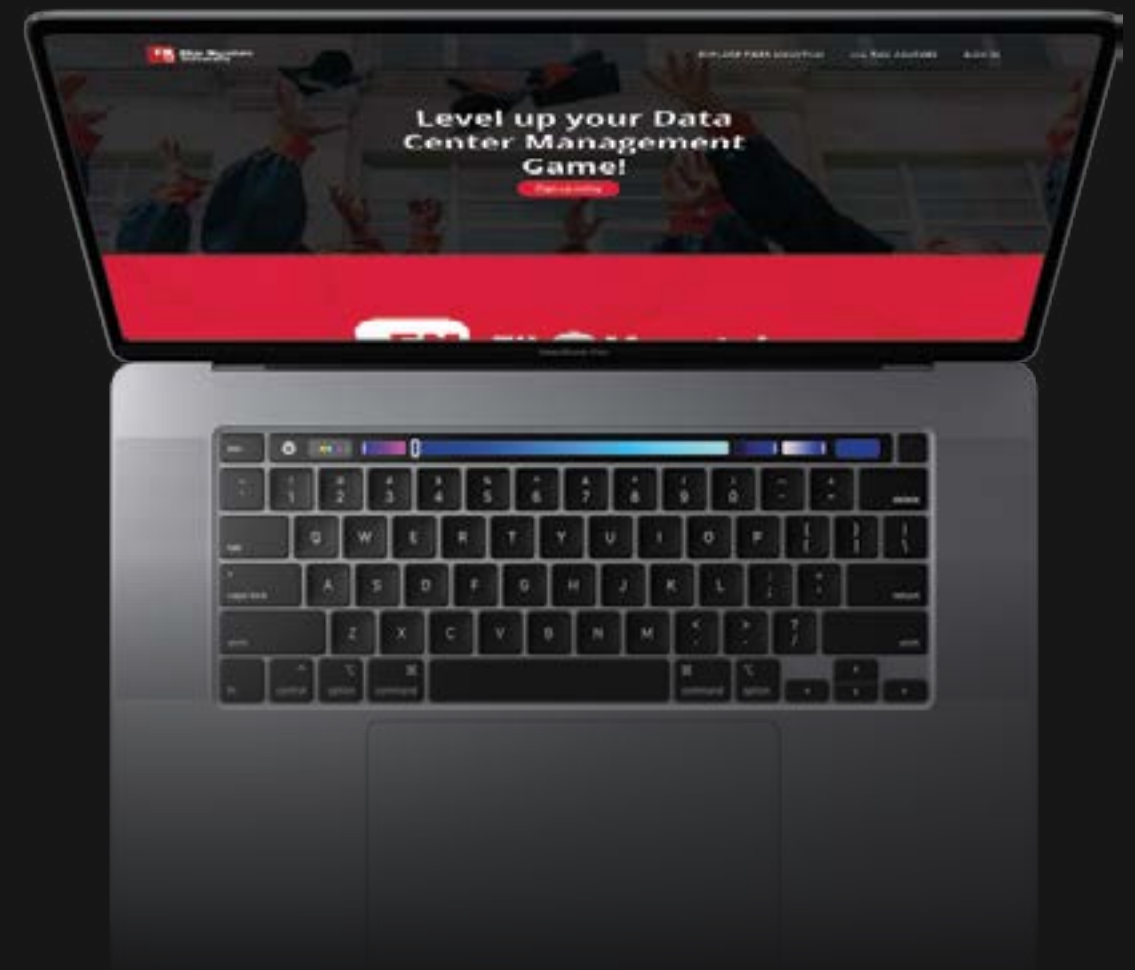
Sensus™



Intelligent Fiber Cables



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