



X-Fiber



X-Fiber Smart Optical Cable Monitoring Solution

Wuxi May Telecom Co., Ltd.

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- 3.** Function Introduction
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- 5.** Application



Cloud Computing



X-Fiber



Learning Analysis



Big Data



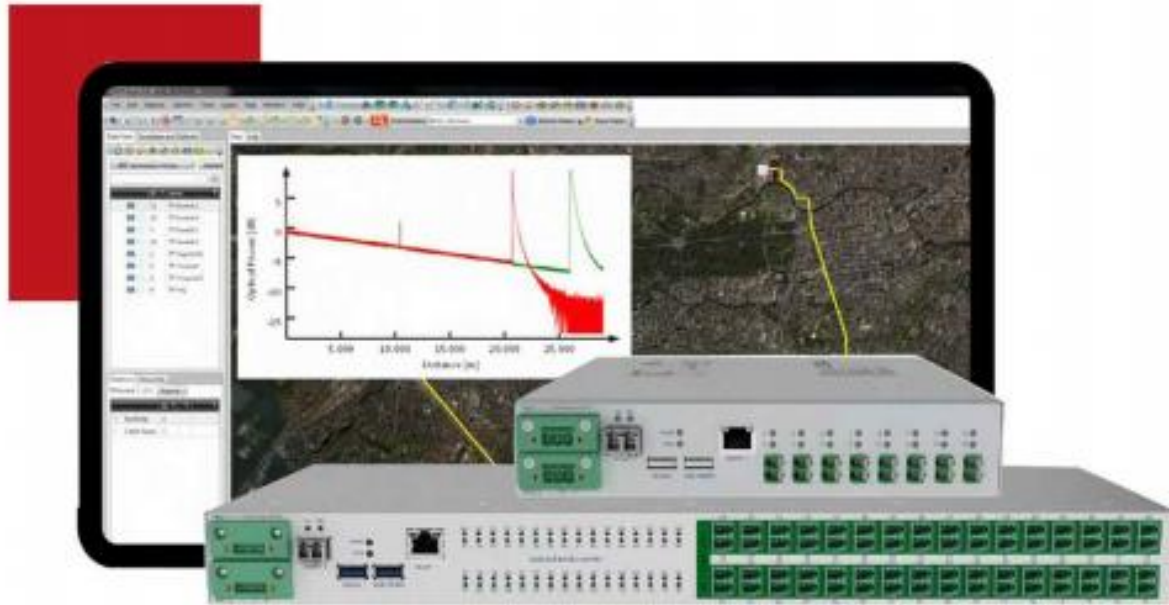
PART 01

Product Introduction





X-Fiber Introduction



X-Fiber Smart Optical Cable Monitoring Solution

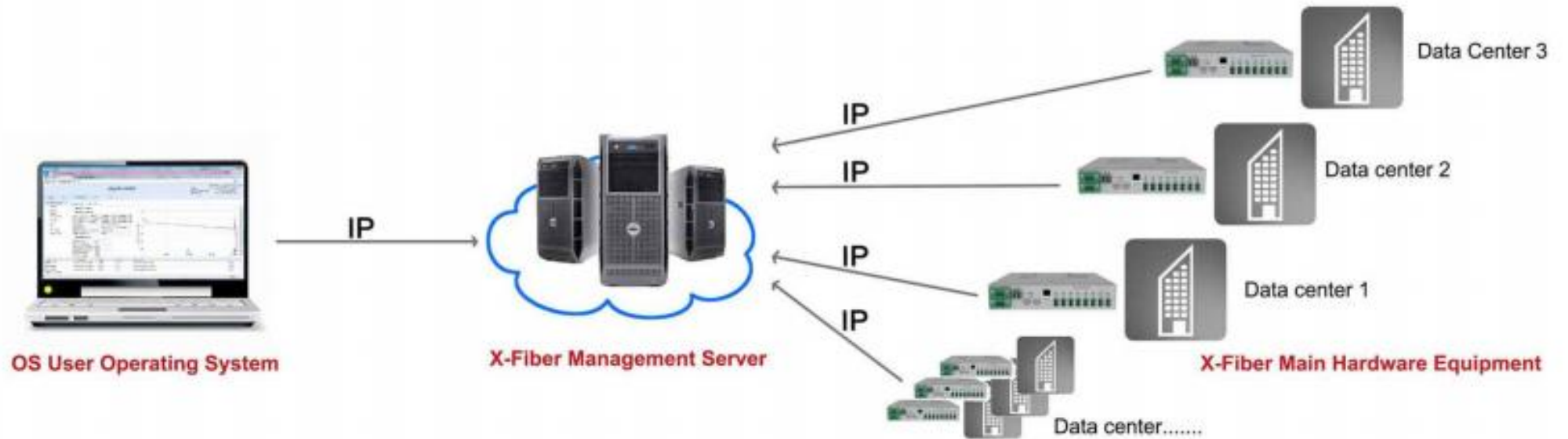
- Monitoring, Alarm, Location, Fault Analysis and Management
- Performance Analysis of OTDR Technology
- 24-hour Automatic Monitoring
- Optical Cable Monitoring and Cable Resource Management
- Cable health trend analysis, detection of potential faults

Hardware X-Fiber Main Hardware Device Independent Server OS User Operating System

Software 24/7/365 Surveillance Automatic Alarming GIS Mapping Fiber Health Long-Term
Trend Analysis OTDR Trace Comparison.....



Network Structure



X-Fiber main hardware device connects the server through independent IP. The management server intelligently analyses and processes the data and stores it in the database. Users can access the database at any time through the server to obtain data information.

- **X-Fiber Main Hardware Equipment:** Fingerprint creation, OTDR measurement, real-time fault alarm and comprehensive analysis.
- **X-Fiber Management Server:** Responsible for real-time data analysis, data storage, data download and so on.
- **OS user operating system:** The client can log on to the operating system at any time to view and manage the cable information.



PART 02
Customer value





Maintenance of Optical Cable

Local Side



Limited Maintainer

Data Center



Unattended

Test Instrument



Need to borrow

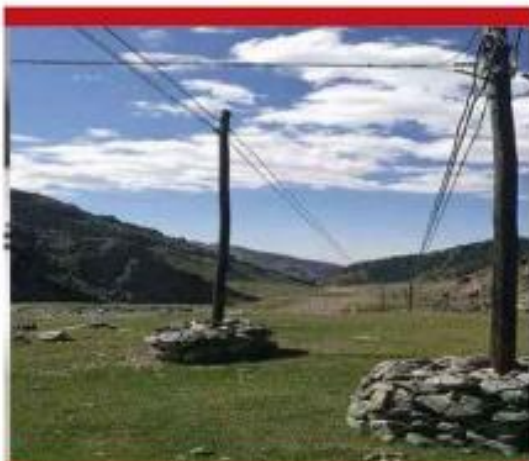
Potential Failure



Difficult to Detect



Limited maintainer, which takes up a lot of manual time and takes a long time to deal with the malfunction when it occurs.



Some data center are relatively remote. There are often problems of personnel coordination, which makes maintenance difficult.



When the fault occurs, the test equipment needs to be seconded. The maintainer needs to be familiar with using OTDR equipment.



It is impossible to understand the loss of the whole optical cable and judge the deterioration trend, which leads to the difficulty of finding potential faults.



X-Fiber Customer Value



Cost

Reducing Maintenance Costs

X-Fiber realizes 7*24h monitoring, automatic fault location and alarm, reduces the cost of manpower, test instruments and so on.

Service

Complete After-sales Service

X-Fiber integrates various functions such as GIS cable resource management, cable health data reporting, and supports secondary development to meet different customer needs.

Efficiency

Improving Maintenance Efficiency

Automatic fault location alarm, directly into the emergency repair mode, greatly improving efficiency.

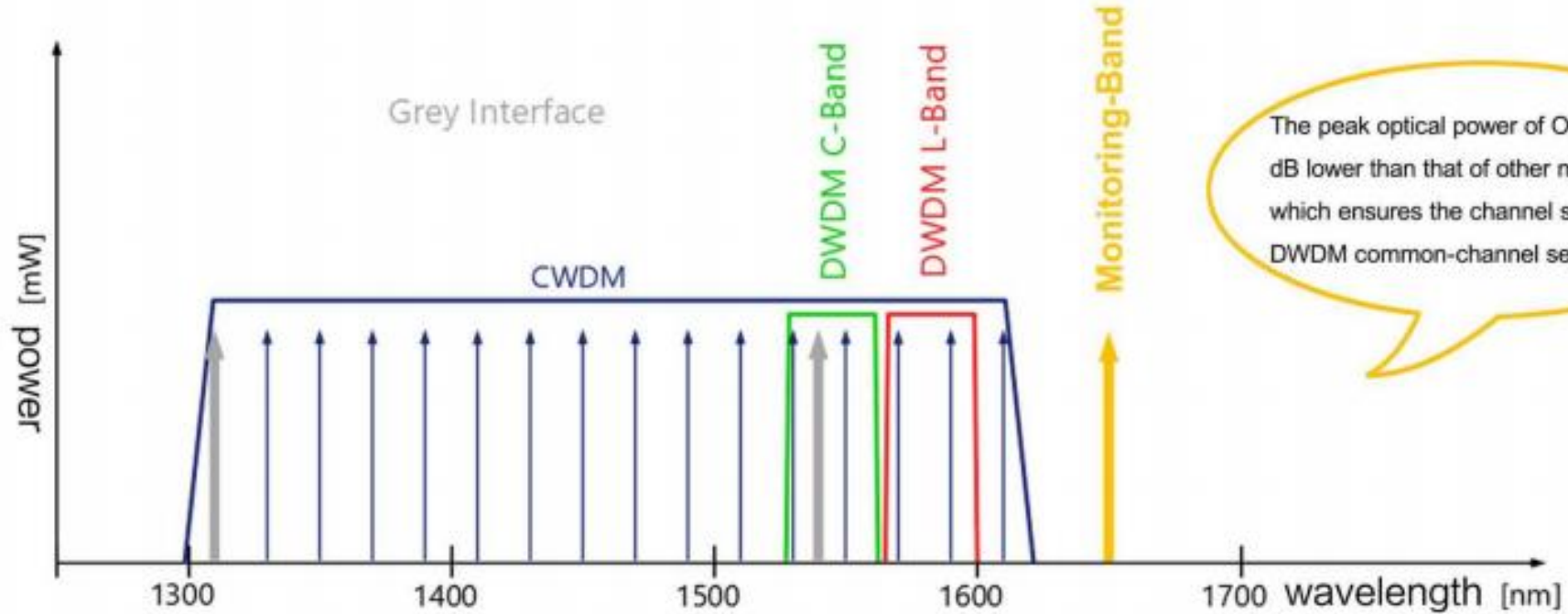
Resources

No Occupancy of Resources

The 1650nm band is coupled to the network for monitoring, and it does not occupy the resources of optical cables.



Resources — Do not occupy optical cable resources

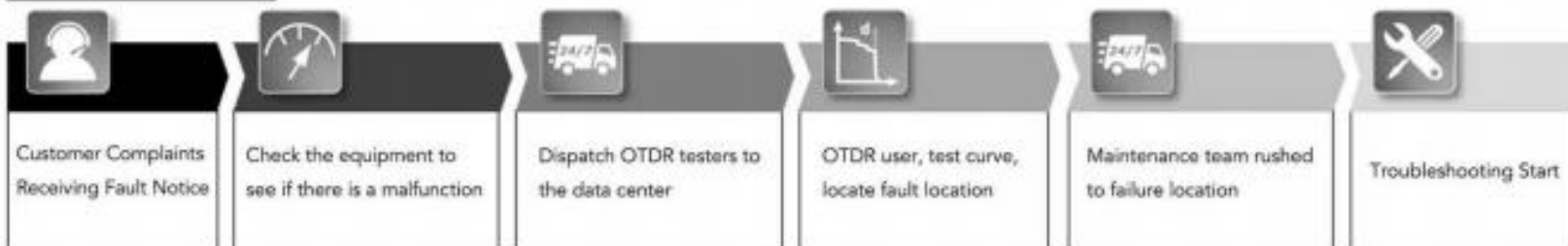


Safe, Efficient and Does not occupy optical cable resources.

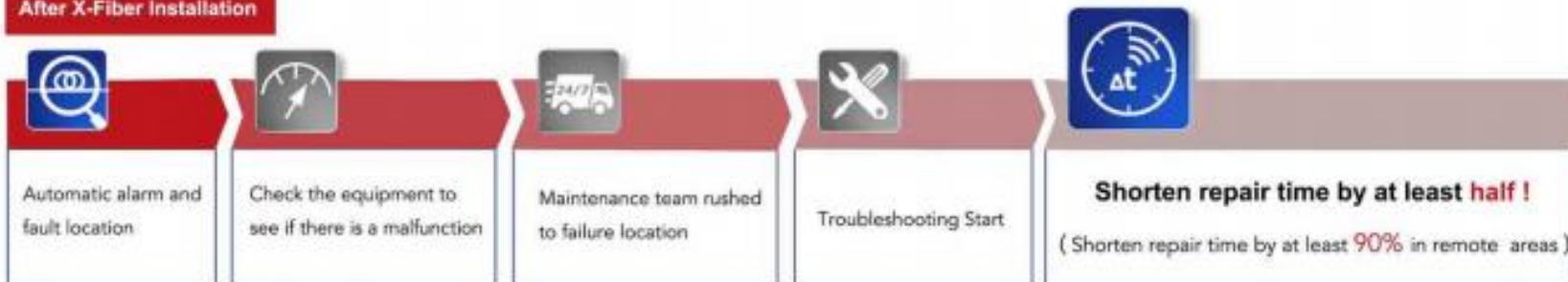


Efficiency — Shorten fault duration

Before Installing X-Fiber



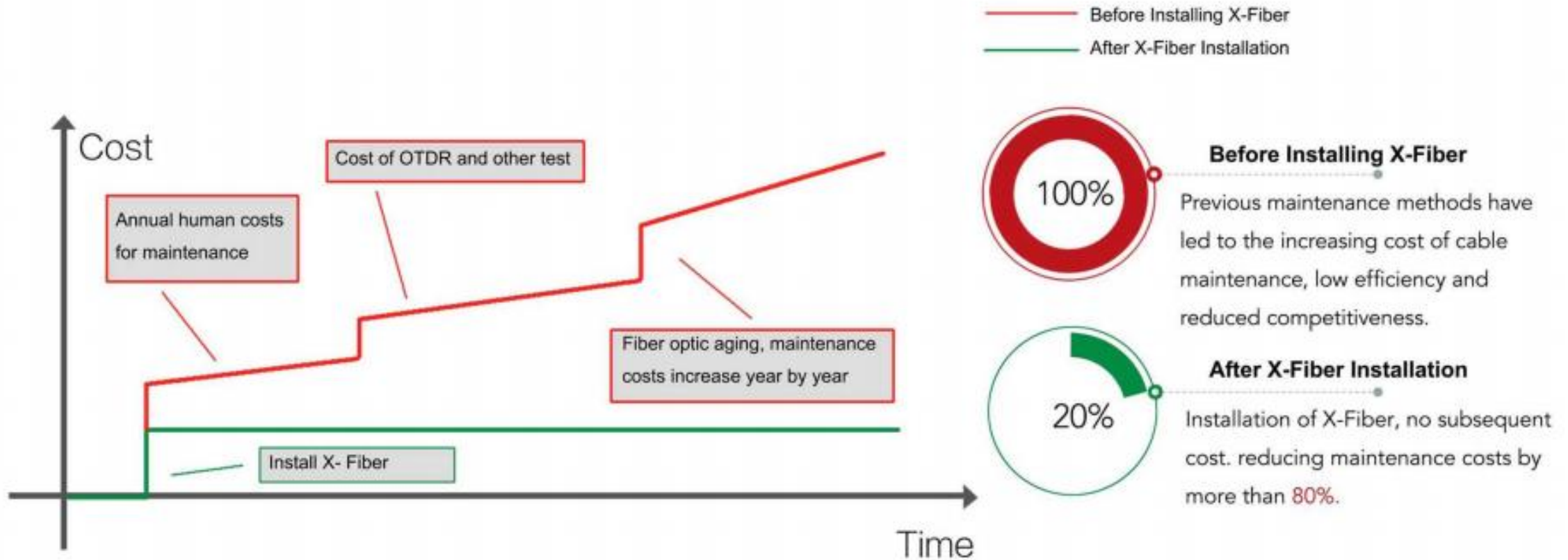
After X-Fiber Installation



Real-time monitoring, timely repair and operation automation



Cost — Save Maintenance Costs



Save costs and Improve competitiveness



Service — Scientific Management of Cable Resources



Before installing X-Fiber: Fiber optic cable resources are disorderly,
It is difficult to distinguish.



X-Fiber

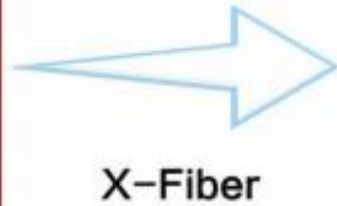


After X-Fiber Installation: GIS Mapping, Optical Cable Resources are clearly visible

GIS Mapping Optical Cable Management System, Scientific Management of Optical Cable Resources



Service — Identify potential faults ahead of time



Before Installing X-Fiber: With the change of time, the fiber optic cable is aging gradually, and there is a risk of breaking at any time.



After X-Fiber Installation: Cable aging trend analysis, early prediction of failure risk.

Intelligent cable aging trend analysis, early warning of failure risk, avoid loss



Typical Application — Unmanned Data Center



Installing X-Fiber to Realize Unmanned Data Center

Some data center are located in remote areas, which brings severe challenges to the operation and maintenance work, and also increases the cost of operation and maintenance. Traditional operation and maintenance methods consume a lot of manpower and material resources, and also waste a lot of operation and maintenance time in the process of dealing with faults.



**7 x 24h
Monitoring**



**Automatic fault location
Shorten fault duration**



Typical Application — Intelligent Large Screen Monitoring Platform



Large Data Platform for Optical Cable Health

X-Fiber Intelligent Optical Cable Data Platform intellectualizes the analysis of optical cable data. Through the big data algorithm, Realizing Mapping of Optical Cable Resources and Visualization of Optical Cable Data.



**Mapping of Optical
Cable Resources**



**Visualization of Optical
Cable Data**



PART 03

Function Introduction





Function Introduction — 24/7/365 Surveillance

NAME	ROOM	LENGTH	LOSS	STATUS	UNIT	UNIT	UNIT
1.00000000000000000000	00000000	0.000000	0.000000	0.000000	0000	20.7	<100
1.00000000000000000000	00000000	0.000000	0.000000	0.000000	1000	20.0	<100
1.00000000000000000000	00000000	0.000000	0.000000	0.000000	0100	30.0	<100
1.00000000000000000000	00000000	0.000000	0.000000	0.000000	0000	20.0	<100
1.00000000000000000000	00000000	0.000000	0.000000	0.000000	1000	10.0	<100
1.00000000000000000000	00000000	0.000000	0.000000	0.000000	0000	7.0	<100
1.00000000000000000000	00000000	0.000000	0.000000	0.000000	0000	30.0	<100
1.00000000000000000000	00000000	0.000000	0.000000	0.000000	1000	30.0	<100
1.00000000000000000000	00000000	0.000000	0.000000	0.000000	0000	20.0	<100
1.00000000000000000000	00000000	0.000000	0.000000	0.000000	1000	15.0	<100

Legend:

- PASS
- FAIL
- ▲ ALARM
- UNKNOWN

24/7/365 Surveillance

- Name of Monitoring Circuit
- Attribution Room Information
- Line length
- Line Real-time Loss
- Optical cable monitoring status, etc.



Function Introduction — Fault Analysis

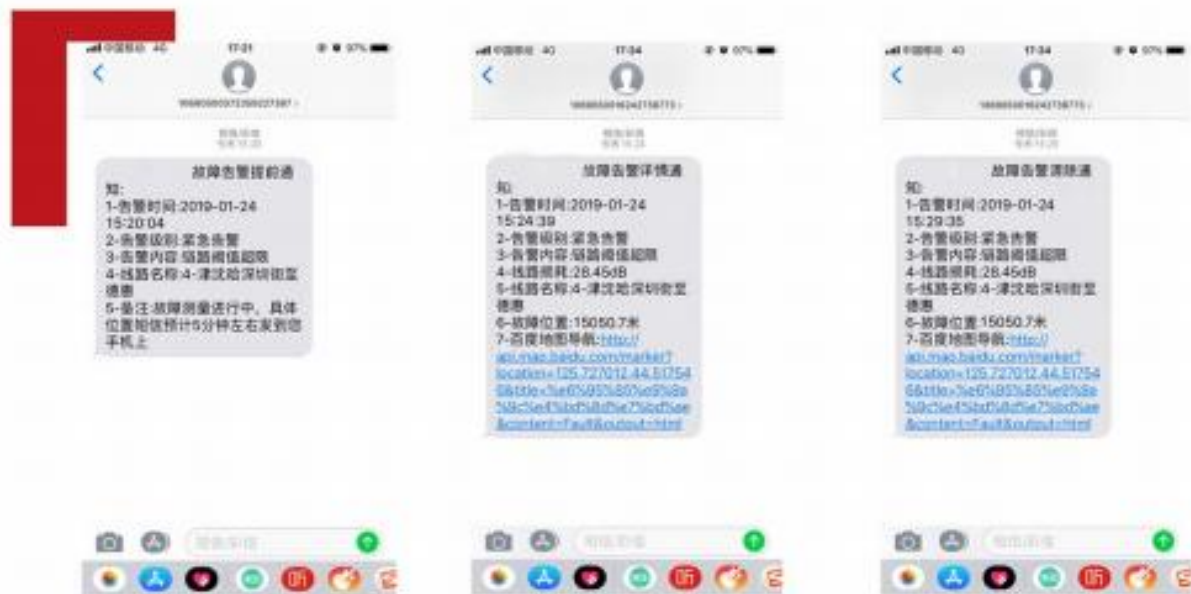


The most complete function of fault analysis

- Link loss
- Fault location
- Current test parameters
- Curve comparison



Function Introduction—SMS Fault Alarm



The most complete function of SMS alarm

- Failure Warning Advance Notification
- Fault alarm details
- Notice of Release of Warning
- Accurate fault location



Function Introduction — Fault Alarm and GIS Navigation

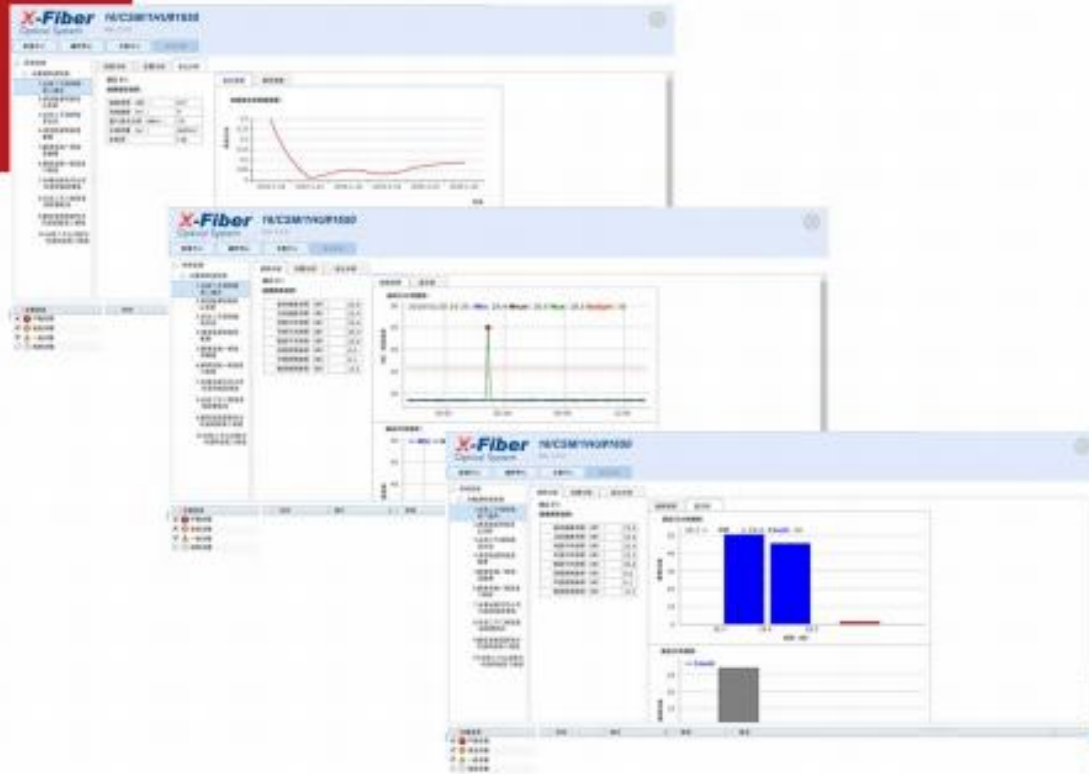


Short Message Fault Alarm GIS Map Navigation

- GIS Map System for Docking X-Fiber Cable Resources
- Detailed SMS Alarm Information
- Specific Fault Location Navigation
- Suitable for Intranet Environment



Function Introduction — Analysis of Cable Cracking Trend



Analysis of Fiber Optic Cable Health Data

- Analysis of aging trend in 365 days
- Analysis of 30-day Loss Trend
- 24-hour loss trend analysis
- Loss Histogram of Optical Cable



Function Introduction — User Level Management



Perfect User Classification Function

- Send different managers according to alarm level
- Privilege Settings of Line Network
- Read-only and Editor Rights Settings
- Flexible to meet different levels of customer needs



Function Introduction — Intelligent Cloud Data Platform

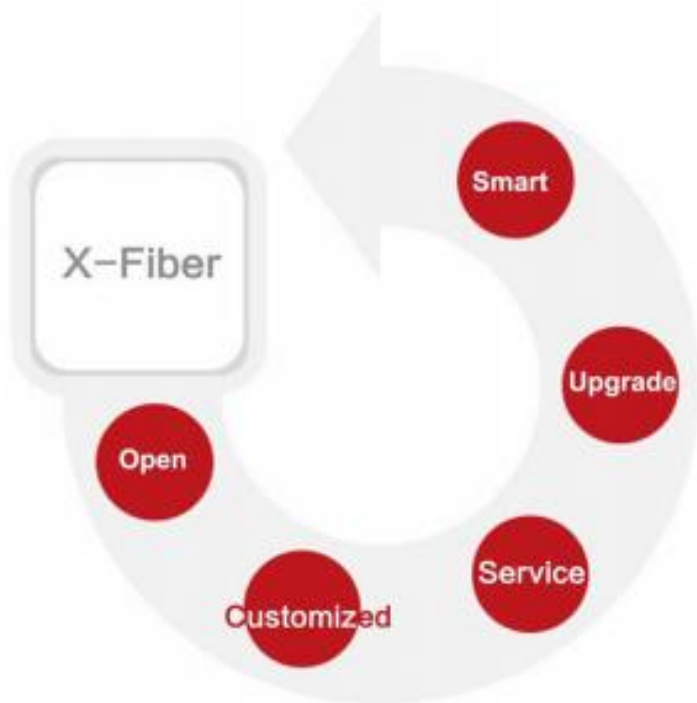


X-Fiber Max Cloud Platform

- GIS Map System
- Analysis of Fiber Optic Cable Health Data
- Analysis of Loss Trend of Optical Cable
- Efficiency Analysis of Fault Handling



Function Introduction — Open Interface Services Support Secondary Development



Flexible application to meet different needs of customers

- Support secondary development
- Customer Customization Service
- Modular services are more integrated
- Fusion of more optical fiber sensing technologies (vibration detection, etc.)



PART 04

Our Advantages





The Smallest cable Monitoring Equipment in the World



The Smallest cable Monitoring Equipment in the World

The power consumption of X-Fiber is 10W and the frame width of 1HU is half. The mass is less than 2 kg. Ultra-high integration technology, greatly saving customer resources.

Average daily consumption of 0.24 kWh, to achieve the entire line monitoring, positioning, alarm and intelligent analysis.



Power Consumption 10W



1 HU rack



Strictly Certified in the World



Global Communications Business (GTB)
Joint Innovation Award 2016

The world's most stable monitoring equipment

Even if the equipment fails, it will not affect the transmission line.

X-Fiber smart cable equipment has undergone the most rigorous NEBS testing.

Optical coupler and reflector are tested by GR1212 and GR1209.

China Unicom, the largest telecom operator in China, deploys on a large scale



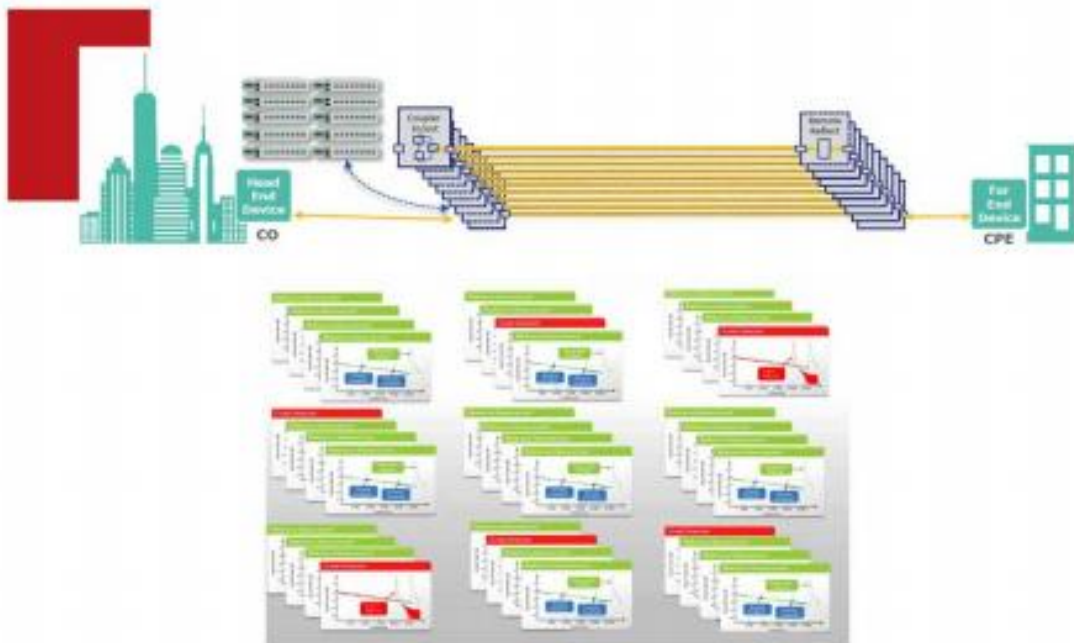
Quality Certification
NEBS



Optical Coupler and Reflector
GR1212, GR1209 Test



X-Fiber Adopts High Scalability Design



X-Fiber uses high scalability design to meet customer upgrade needs

X-Fiber intelligent optical cable system is designed with high scalability. It can analyze and track multiple cable events at one time to improve diagnosis. A single MNS supports 10K units and 1000 curves for comparative analysis.

The industry has the highest expansibility to satisfy customers' network of all sizes



10K
Single MNS supports 10K



1000 curves
Simultaneous analysis



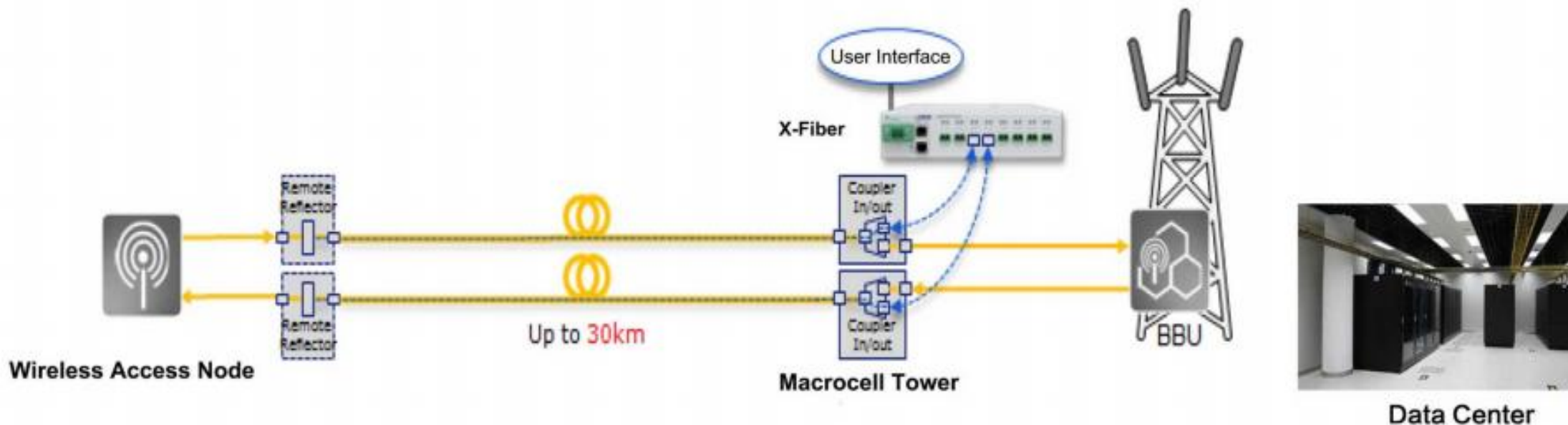
PART 05

Application





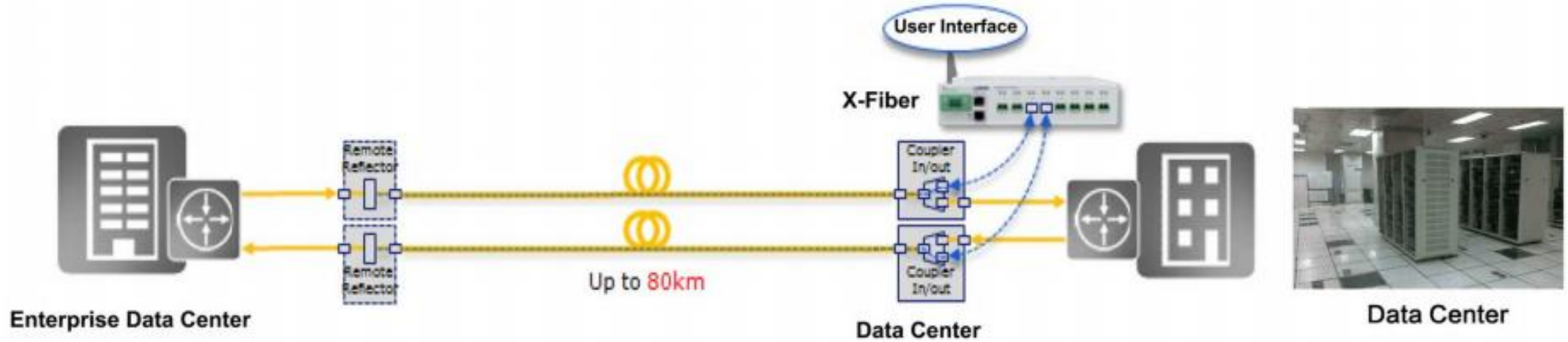
Application — Mobile Forward Networking Monitoring



The picture above shows China Unicom's large-scale commercial deployment of mobile forward networking monitoring project in Changchun, using X-Fiber to monitor the 30 km optical cable line between RRU (radio frequency remote module) and BBU (baseband processing unit) to achieve intelligent monitoring and management.



Application: Monitoring of Customer Dedicated Line Networking



The picture above shows the cable monitoring project of China Tencent's major customer dedicated line network. The X-Fiber intelligent cable system is installed to realize the intelligent management of optical cable between enterprise data center and data center, and to ensure the information security of dedicated line network.



X-Fiber



World's Leading Remote Fiber Management System

Wuxi May Telecom Co., Ltd.