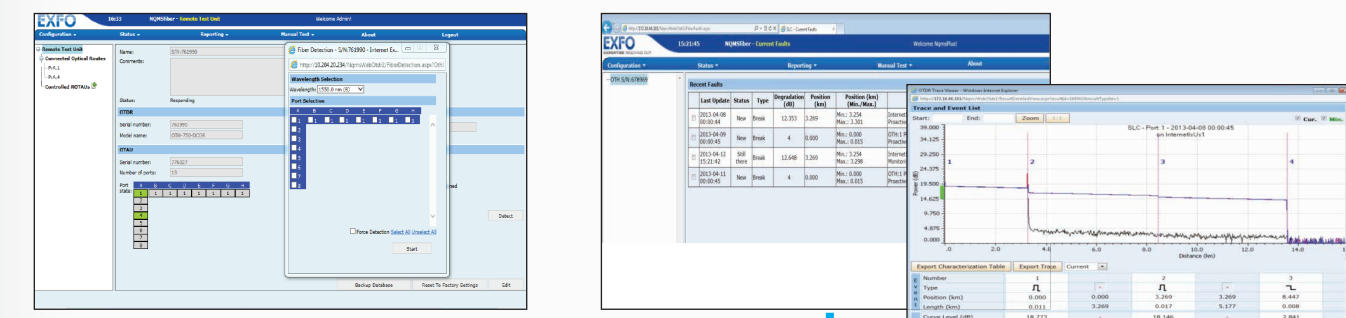


# Fiber Network Monitoring and Management

## Standalone Solution (Fiber Guardian)

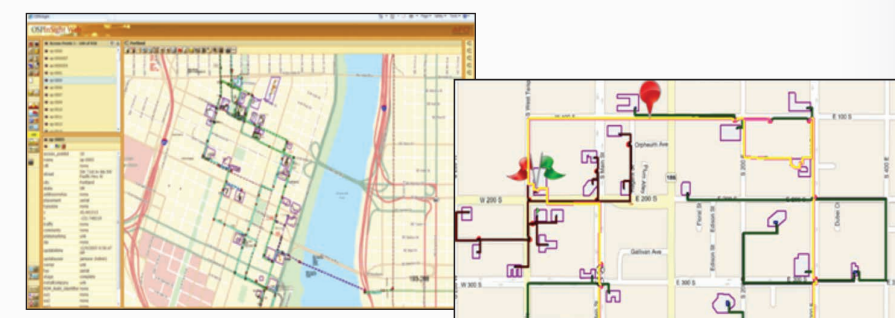
Full System Power in a Single Test Unit  
Fiber Guardian – Architecture



- 100% Web-Based Solution**
- Only two clicks to provision new test routes via web
  - Render OTDR on any port
  - Easy to setup and schedule fiber tests
  - Four states of alert: new, still there, changed, cleared

- Alarm View**
- Alarm status GUI
  - One-click view of trace with full alarm details
- OTDR Trace View**

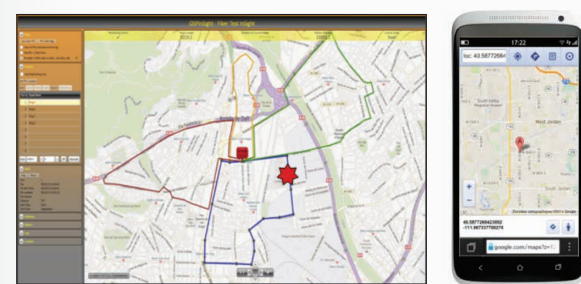
Fault-on-Map and Outside Plant Inventory Solution  
Fiber Guardian with OSPInSight – Architecture



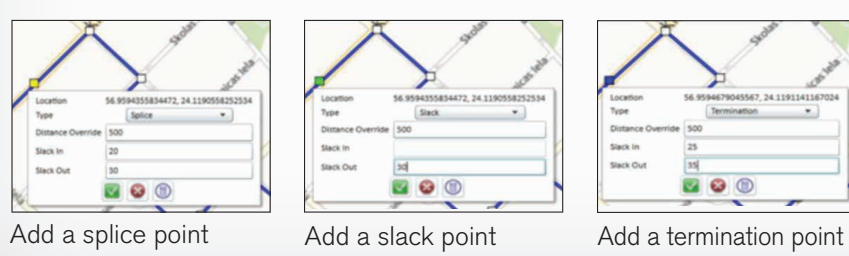
- OSPInSight®-Web**
- View alarms and inventory reports
- OSPInSight®-Edit**
- Create and maintain the OSP inventory
  - View capability

## Fault-on-Map Web Application

Fiber Guardian with Fiber Test InSight – Architecture



- Fiber Test InSight**
- Draw and monitor
  - Create fiber routes and correlate geographical and optical distance based on OTDR information
  - Free internet maps
  - Export route details to other systems
  - Email with fault coordinates and Google Maps Link



## NMS and GIS Integration Solution

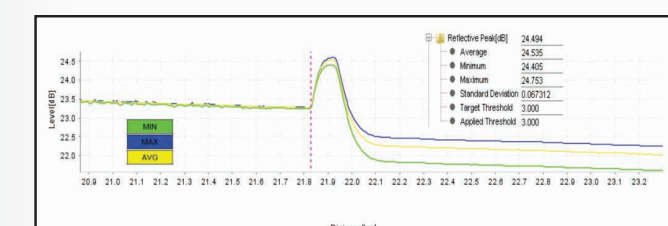
Fiber Guardian with Third-Party Integration – Architecture



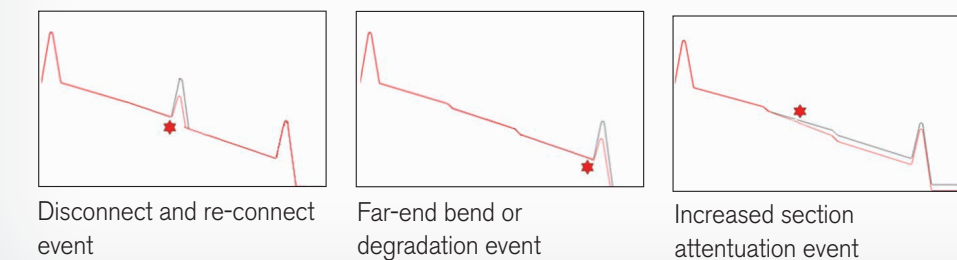
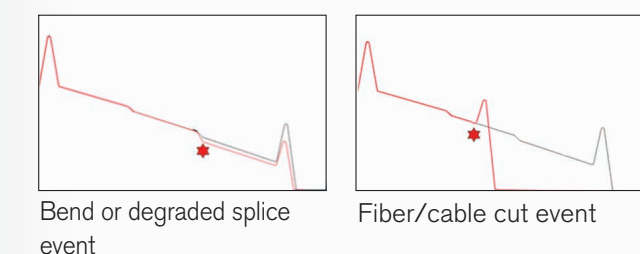
- NMS Integration**
- Integration to unify alert views at the NOC via SNMP and web services
  - Integration with a third-party GIS application to show fault-location alerts

## Unique Features

- The Learning Phase**
- Optimized automatic thresholds applied to entire monitored link
  - Attenuation changes resulting from seasonal variations and environment are considered
  - No false alarms due to misconfigured thresholds

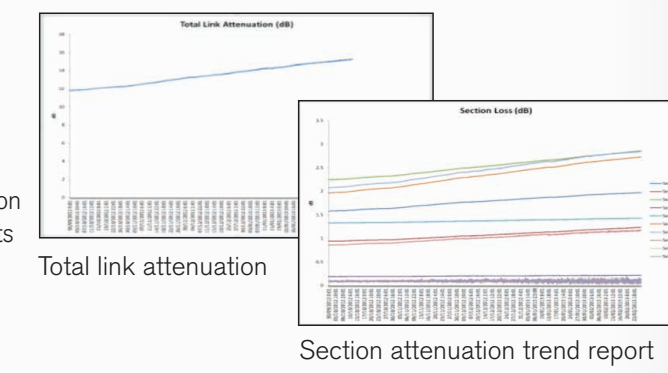


### Automatic Baseline to Isolate and Locate



### Create Trend Reports

- Make proactive planning decisions, recognize trends and identify potential problems before they affect business-critical services
- Detect cable failures early with attenuation reports for whole link, sections and events



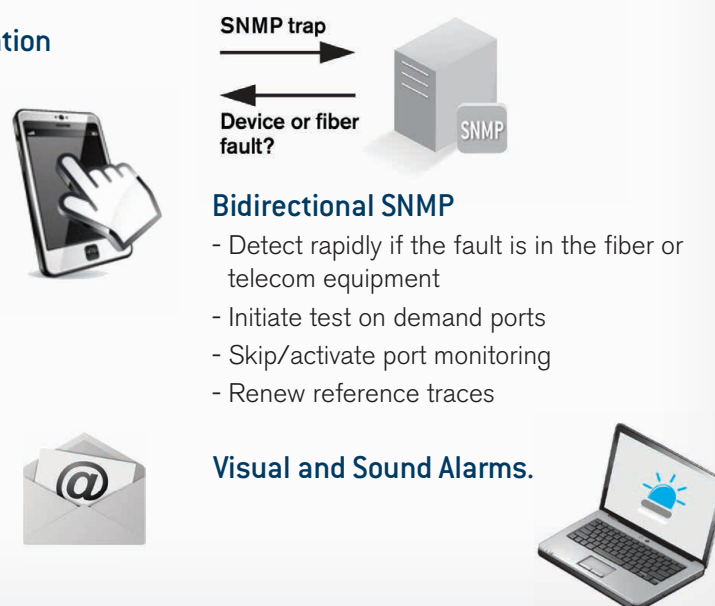
### Bidirectional SMS Communication

- Receive alarms
- Initiate test on demand ports
- Skip/activate port monitoring
- Renew reference traces

**SmartPhone app:**

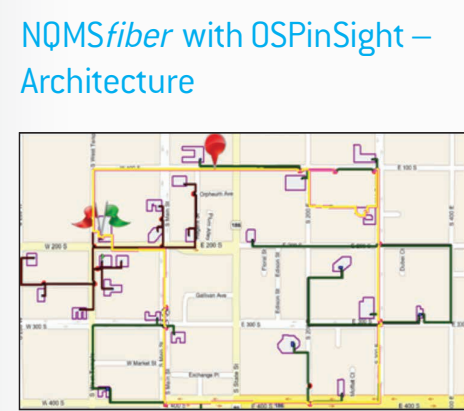
- Go to RTU web GUI for detailed information

**Detailed Alarm Information by Email.**

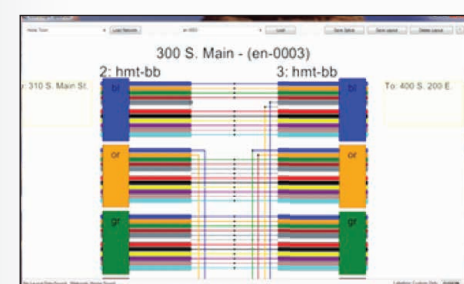


## Centralized Server Solution (NQMSfiber)

Fault-on-Map and Outside Plant Inventory Solution  
NQMSfiber with OSPInSight – Architecture

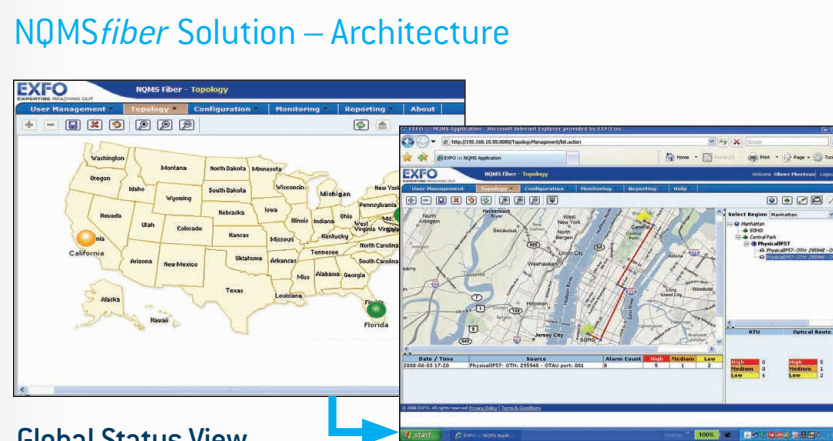


- OSPInSight®-Edit**
- Create and maintain the OSP inventory
  - View capability

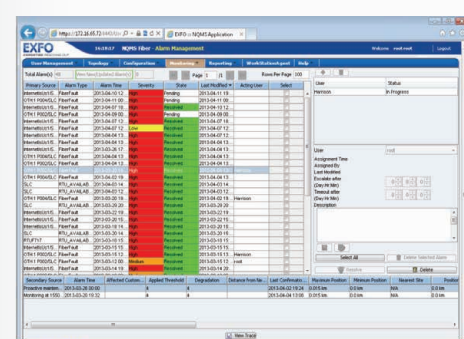


- OSPInSight® – SpliceGUI**
- Add/modify and manage splice points with this graphical tool

Centralized Operation, Data Aggregation and Reporting Solution  
NQMSfiber Solution – Architecture



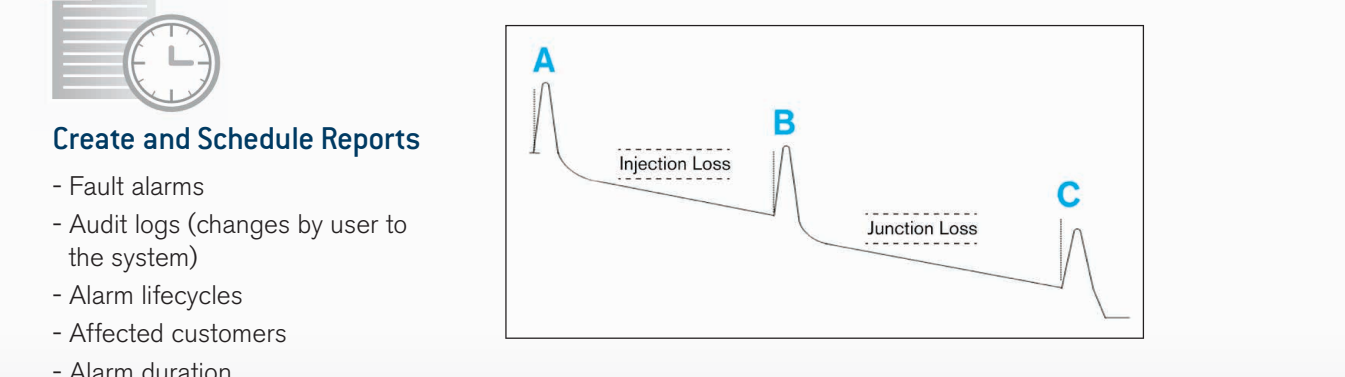
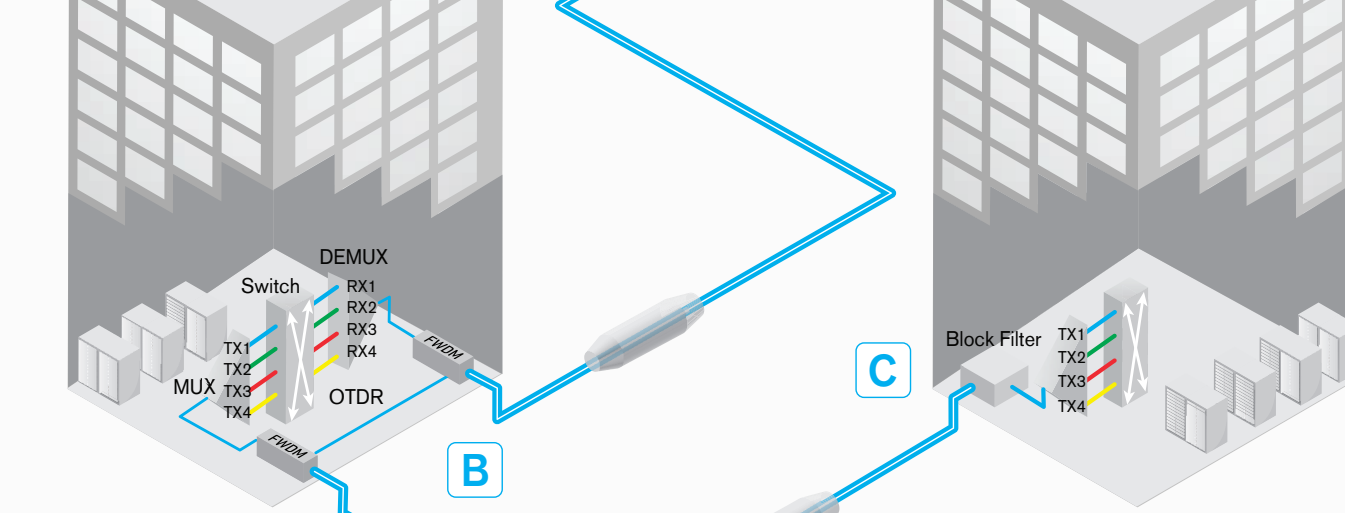
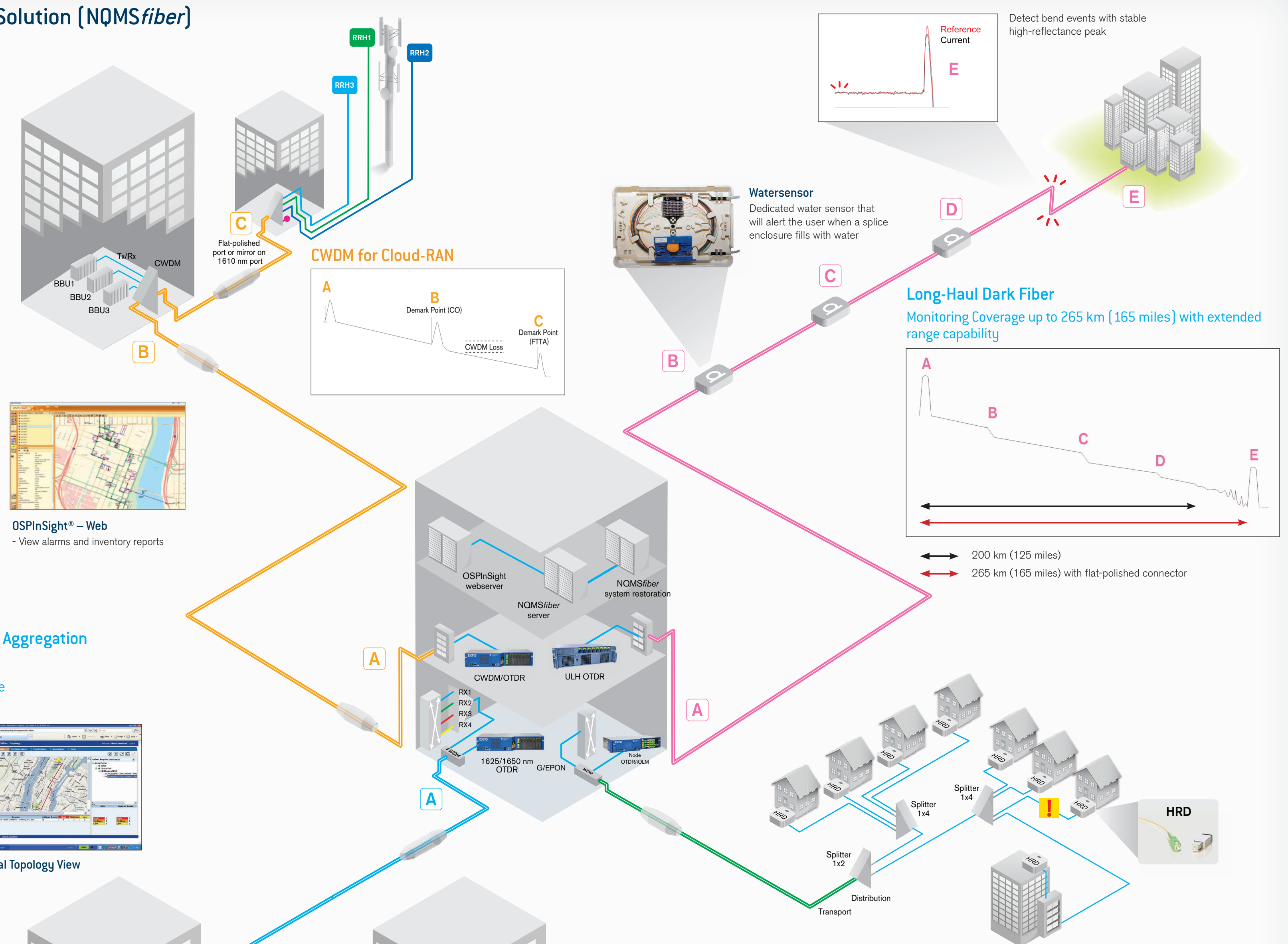
- Global Status View**
- Drill down from Global view to Regional view
  - Determine user access per region
  - Manage user preferences and profiles
  - Get alarms based on schedule
  - Display affected customers(s)
- Regional Topology View**



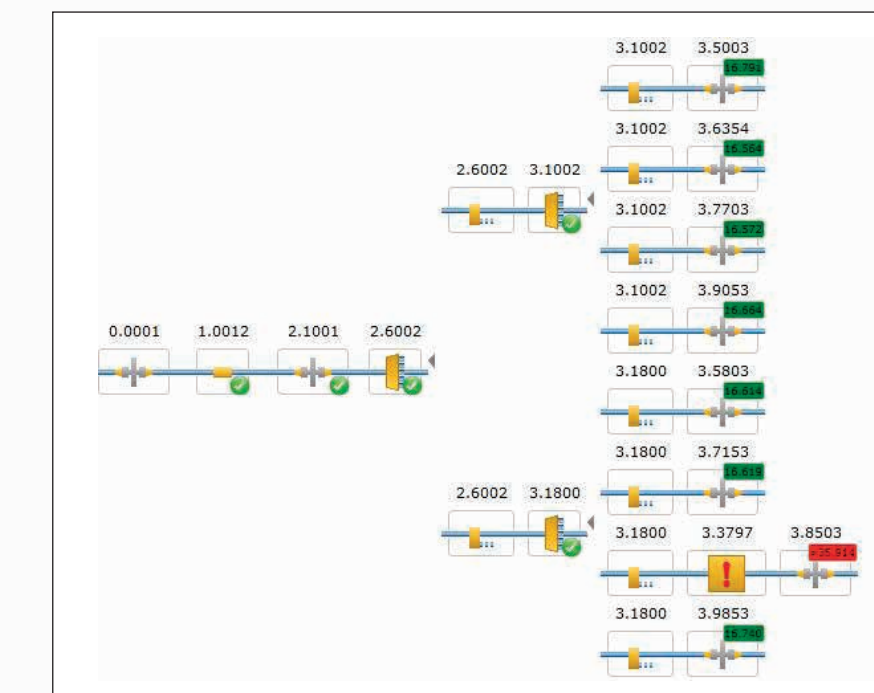
- Active Alarm Management View**
- Show system status at the NOC
  - Assign trouble tickets
  - Automatic ticket escalation



- Executive Dashboard**
- Create custom reports such as:
- Fiber availability (%)
  - MTTR trend (hours)
  - Fault distribution (counts)
  - TTR distribution (counts per category) Per region, RTU or route and over time



## Central Diagnosis in FTtx FG-750 Node iOLM



- Management**
- Certify FTtx construction
  - Standardize fiber-network infrastructure acceptance tests among multiple contractors
  - Reduce OPEX/CAPEX and improve network quality
  - Confirm new subscriber connections with service activation
- Monitoring**
- E2E loss at 1650 nm
  - Fault isolation and location after the splitter
  - Demarking at customer premises with HRD filter
  - Faster root-cause identification





