

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



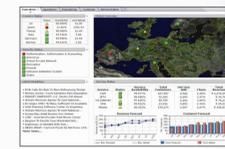
- Fiber Test InSight**
- Draw and monitor
 - Create fiber routes and correlate geographical and optical distance based on OTDR information
 - Free internet maps
 - Export route details to other systems
 - Email with fault coordinates and Google Maps Link



Add a splice point Add a slack point Add a termination point

NMS and GIS Integration Solution

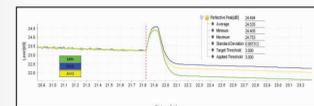
Fiber Guardian with Third-Party Integration – Architecture



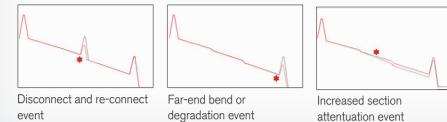
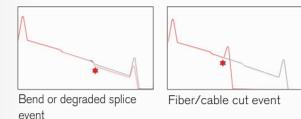
- NMS Integration**
- Integration to unify alert views at the NOC via SNMP and web services
 - Integration with a third-party GIS application to show fault-location alerts

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

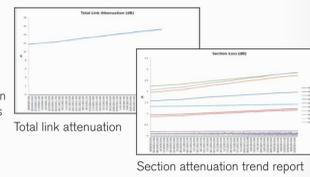


Automatic Baseline to Isolate and Locate



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



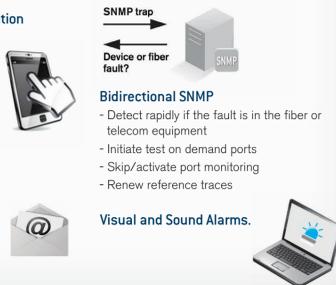
Bidirectional SMS Communication

- 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.

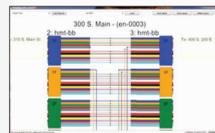


Centralized Server Solution (NQMSfiber)

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



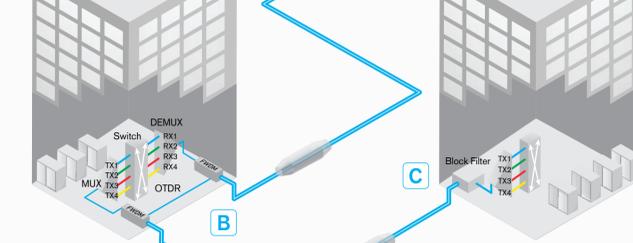
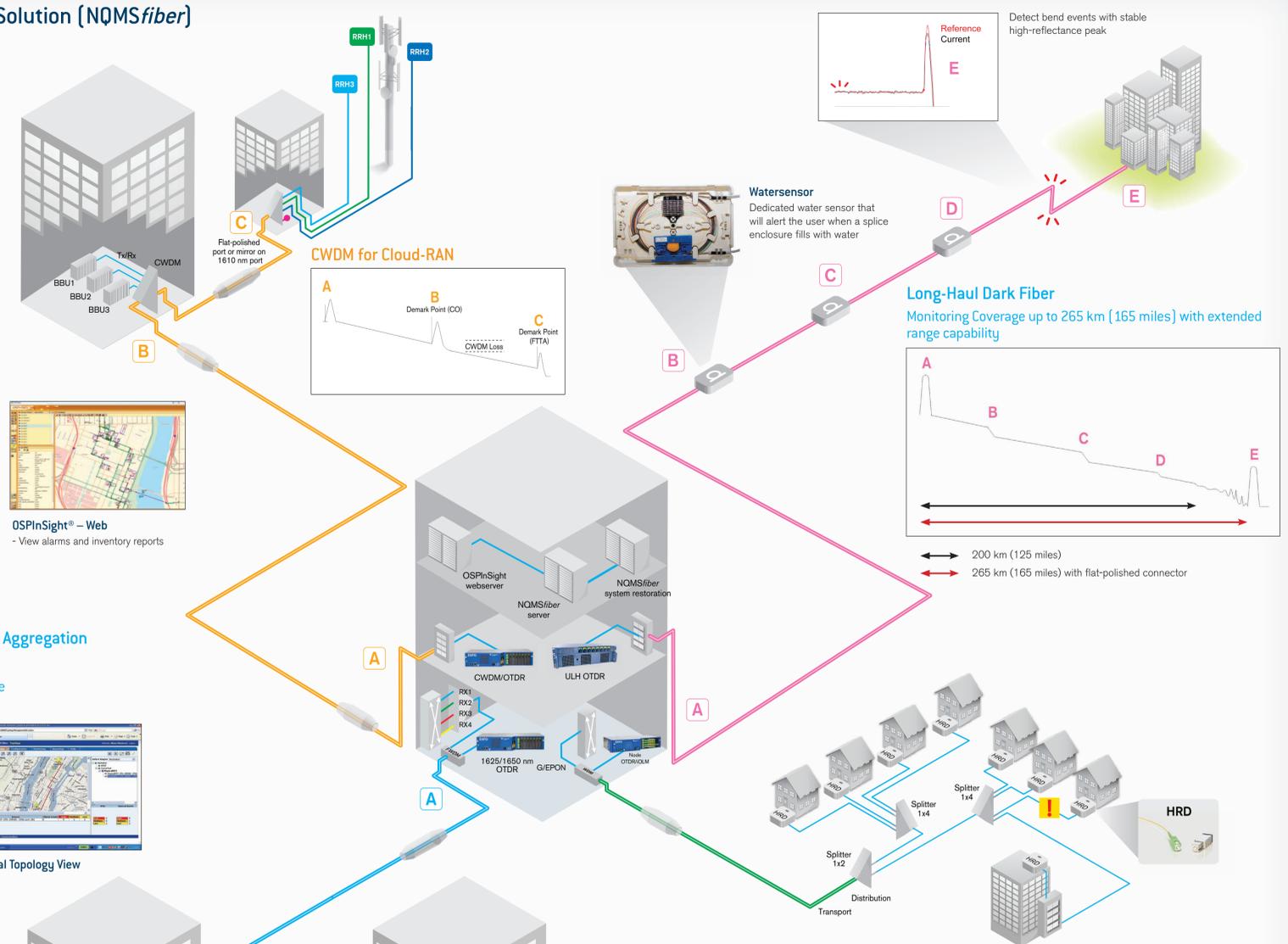
- Global Status View**
- Drill down from Global view to Regional view
 - Determine user access per region
 - Manage user preferences and profiles
 - Get alarms based on schedule
 - Display affected customers(s)
- Regional Topology View**



- 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



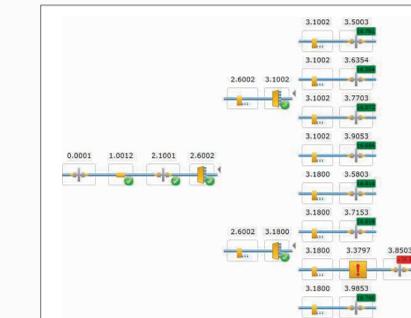
Mobile Access

Create and Schedule Reports

- Fault alarms
- Audit logs (changes by user to the system)
- Alarm lifecycles
- Affected customers
- Alarm duration



Central Diagnosis in FTTx



- 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
 - Faster root-cause identification



