

NIMBLE THIS

PROACTIVE, PROVEN, PRODUCTIVE POWER AT YOUR FINGERTIPS

NIMBLE THIS PNM IS A MUST HAVE TOOL AND ENABLES CABLE OPERATORS TO MEET THEIR 10G JOURNEY



*Don't Suffer From Vendor Lock!
Have the freedom to effectively
and also efficiently maintain your
network without being locked
into a traditional equipment
vendor which saves money!*

THE CABLE OPERATORS USING NIMBLE THIS' PNM SOLUTION HAVE THESE PRIMARY BUSINESS OBJECTIVES IN COMMON:

Customer Quality of Experience and Reduction in Churn

- Maintaining subscribers is very difficult in a competitive marketplace. Subscribers have more choices than ever before and poor quality of experience (QoE) is the number one reason for subscribers canceling service.
- Therefore, it is more important than ever to find and address issues with the physical plant before they impact subscribers.
- It is also imperative to repair issues faster and efficiently to drive down costs.
- A truck roll to a subscriber's home is unwanted for both the subscriber and the cable operator. An ineffective truck roll is even worse for both parties. Stop unnecessary truck rolls.

Increased Return on OPEX Investment

By using Nimble This, cable operators can significantly improve their plant maintenance and repair practices by:

- Reducing truck rolls and unnecessary visits to subscribers' homes.
- Significantly reducing the time to locate impairments and confidently resolve them.
- Scheduling proactive maintenance instead of continuous reactive firefighting mode.
- Effectively improving field force and resource management.
- Avoiding vendor lock-in by using a variety of meters from the vendor of their choice.
- Improving features, upgrade ability, and diversity of off-the-shelf servers, as well as repurposing existing hardware through the use of software technology.

Using pre-equalization coefficients to detect, correlate, and localize plant impairments before they impact subscribers is a proven technology. This is further extended to making the determination of whether the problem is in the outside plant or in the subscriber's home. Not all software applications are created equal, and good results come from using a solid and proven PNM platform, such as the Nimble This PNM solution. Building on the CableLabs foundation, Nimble This has created a platform that tier one cable operators worldwide value and trust. While several companies have entered the PNM market, not all of them have provided a successful platform for cable operators to find value. Hardware companies, by nature, may not be laser-focused on PNM like Nimble This.

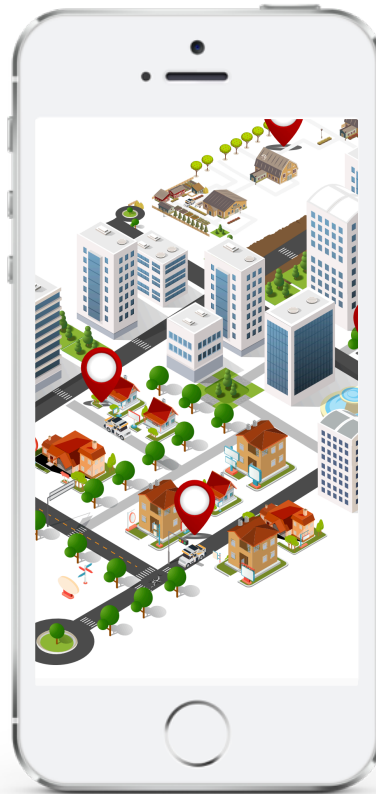
Common questions cable operators ask about PNM:

- The PNM platform provides technicians with actionable information. Nimble This PNM provides clear and concise information on subscriber modems that are likely to experience problems in the near future
- Is the PNM data easy to understand? Absolutely. We use the Red / Green color scheme

- Can Nimble This PNM platform process big data? Yes! We are built on a big data solution
- Can scale for enterprise-wide use? You bet; we can easily scale to 10's of millions of modems

EFFECTIVELY USING PNM

The PNM platform is most effective when used daily.



Regular plant maintenance is necessary as issues such as loose connectors and cracked hardlines do not resolve themselves. By using PNM, truck rolls can be more productive as technicians are able to identify

and fix impairments on the first visit with certainty. This leads to a reduction in the number of truck rolls required to repair outside plant impairments at subscriber's homes. Realizations of OPEX Benefits Operators Observed after PNM deployment:

Eliminate Unnecessary Outside Plant Re-Balancing

Quickly Identify and locate the root cause of impairments rather than searching amp-to-amp and making unnecessary adjustments to mask the underlying issue

When Techs are in the Area of located impairment, they can search for nearby modems

- Service techs ensure in-home connectors and wiring is correct using Nimble This' birth certificate before leaving premise.
- Maintenance technicians repair hidden plant weaknesses while troubleshooting other HFC issues in the outside plant

Cable operators looking for solutions to reduce truck rolls

Many cable operators rely on subcontractors for their field force, and they are billed per truck roll, even if the impairment is not fixed. Our PNM tool has effectively helped reduce unwanted truck rolls and help ensure that subcontractors complete the assigned task correctly before leaving the premise. We do this with the Nimble This birth certificate.

THE BENEFITS OF PNM ADOPTION

Realizations of OPEX Benefits Operators Observed after PNM deployment: Accuracy Improved on Dispatch of technicians and field force management

- In-home vs outside plant
- Repeatedly dispatching a technician to the same home
- Integration with cable operators plant maps is used to pinpoint location
- Intermittent issues are identified and located on the map and in reports
- Dispatched technicians can quickly locate issue on the map. After fixing the issue the technician can immediately determine if the issue is fixed.
- Instead of rolling trucks repeatedly to repair intermittent cable modems, cable operators can address previously hard to solve issues on the first truck roll!

The Benefits of PNM Adoption

Churn Reduction

Operators utilize PNM to reduce customer churn due to poor broadband service resulting from hard-to-find plant impairments such as micro-reflections, filters, water in coax, intermittent issues and more. Most operators tend to have the "maddening 10%" impairments – that require weeks if not months of many truck rolls to resolve and repair the actual root cause.

Universally, the troubleshooting process for these problematic 10% of impairments tends to make a bad situation even worse for customers.

Repeatedly tweaking amps to mask symptoms usually results in even worse issues when the plant heats up or cools down. Swapping tap face plates and amp modules resulted in sporadic service outages while still not

addressing the real root cause

Customers on troubled nodes lose patience and switch providers in large numbers or rage on social media, degrading the company image

Data points from a wide range of cable operators show the type of issues which tend to contribute to intermittent performance. Pre-equalization can generally compensate for most impedance mismatches, effectively hiding them until the issue worsens with temperature changes or other issues emerge, the digital cliff is reached, and service is impacted. Often a fiber node can be on a cable operators worst performing node list, but the source of the problem is not obvious using traditional tools and methods.

Using the Nimble This PNM tool underlying impairments such are

impedance mismatches and CPD are easily identified and the distance to fault calculated. Addressing common metrics such as MER or codeword errors. PNM Identified a cluster of cable modems with common impairment, diagram of what to look for, and distance to fault. TDR validated distance estimate



Common impairments and issues resolved with PNM

- Nimble This PNM Tool displays impacted cable modems on a user-friendly visual map and helps identify the impairment type and location on the map
- Nimble This PNM helps ensure success of repair before closing the ticket
- Nimble This will ensure your users are effectively trained, the product is launched, your team has support, the product evolves with your team, and we are committed to maintaining the tool over the long run

THE BENEFITS OF NIMBLE THIS ADOPTION

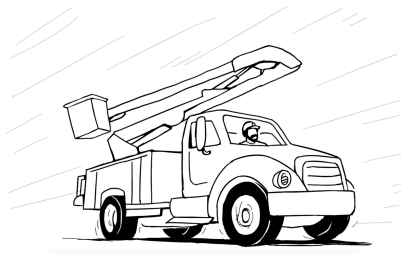
BUDGET IMPACT:

Using Nimble This Enterprise Edition (highest tier product with all features)

Industry assumptions: Annual subscriber churn for cable operators is typically ~ 3-7% worldwide. About half of this churn is caused by issues with quality and performance, while the other half is due to factors such as cost or new promotions. PNM (Proactive Network Maintenance) can effectively identify and resolve the underlying issues that contribute to avoidable QoE churn, often before subscribers are affected.

If ~4% of subscribers leave the cable company yearly and it costs ~\$1,000 each time a subscriber leaves, this is a significant loss per subscriber. PNM can help reduce this if the said cable operator is losing subscribers based off of QoE. This means that for every subscriber that PNM helps keep, the company will save money per subscriber. Cable operators can expect to make back the investment it spent on PNM in less than a year just from the money it saves from just keeping subscribers. This figure is not including the optimization of the cable operators field force and the reduction in ineffective truck rolls.

Please note this analysis does not take into account the potential reduction in unnecessary CPE replacements, which can lead to cost savings for operators. Additionally, there can be a significant impact on subscriber satisfaction, as subscribers are often dissatisfied with technician visits that do not resolve their broadband service issues.

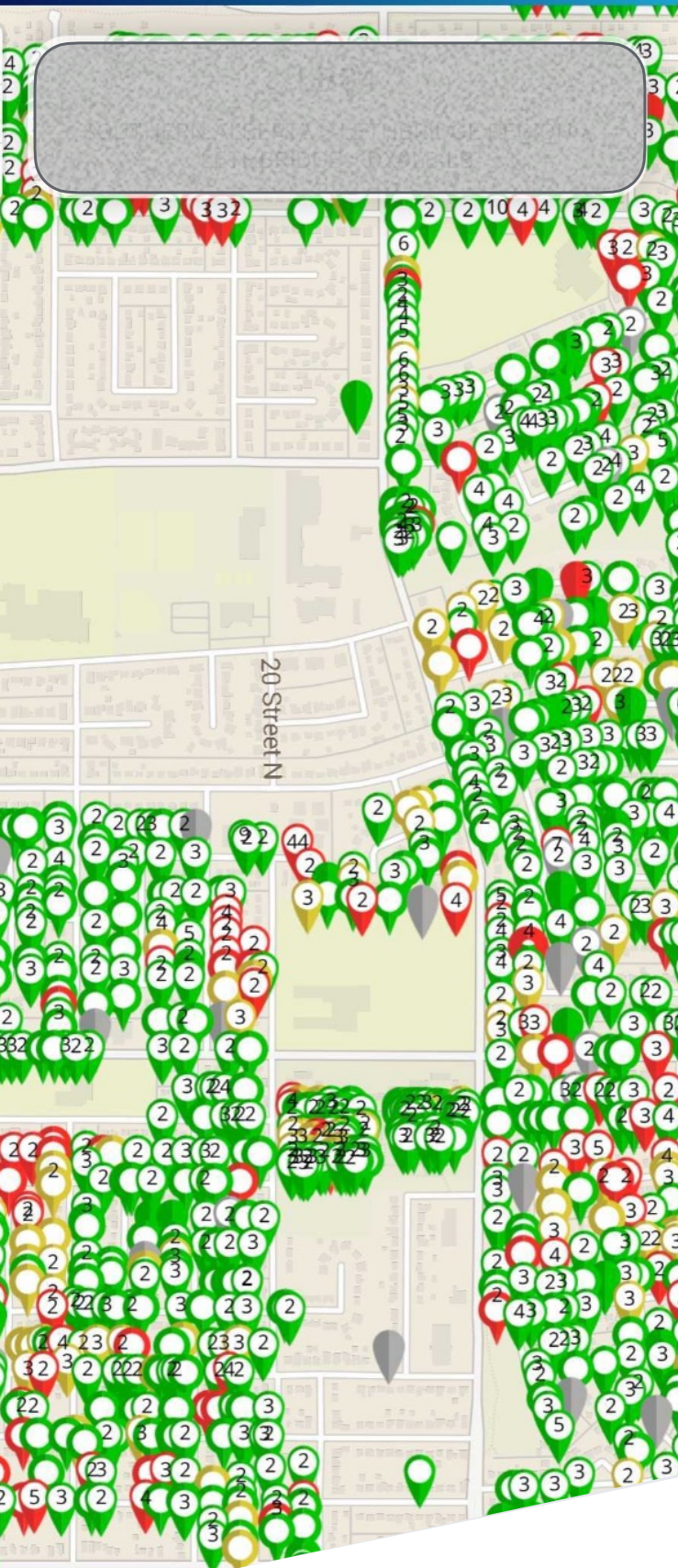


PNM PLATFORM INVESTMENT CONSIDERATIONS

- Your PNM platform must be easy for employees to understand.
- Nimble This platform is highly rated as very easy to use and quick technician adoption by tier one operator.
- Must be used successfully by technicians
- Have accountability and easy to use metrics
- May not break with CMTS/CPE firmware changes
- Must be compatible with new CPE introductions
- Must be secure
- Be vendor-neutral on multiple fronts such as work with data from all network equipment vendors and test and measurement solutions
- Must easily work with new technologies such as DOCSIS 3.1 and remote-PHY
- Shouldn't require vendor specific hardware purchase tied to PNM platform
- Should be straightforward and not have hidden costs included
- Integrates with multiple test and measurements solutions, not vendor specific
- Add on modules available such as but not limited to upstream and down stream analyzers. Go to nimblethis.com for a full list of features
- Enterprise ready
- API ready and included (free)
- Mobile App included (free)

The effectiveness of PNM capabilities can be greatly increased when a capable PNM tool is used. By carefully evaluating PNM platforms, ensuring proper implementation and providing ongoing support, this investment can deliver both tangible and intangible benefits for years to come, resulting in a superior financial payback.

Node Modems



LOCATE AND RESOLVE IN-HOME OR OUTSIDE PLANT IMPAIRMENTS BEFORE THEY IMPACT OPERATIONS AND SUBSCRIBERS

PNM technology has proven to be highly effective in the cable industry, enabling cable operators to quickly identify and locate impairments in their cable plant on a map, and more. This technology helps operators locate and resolve in-home or outside plant impairments before they impact operations and subscribers, resulting in lowered maintenance costs for the operator and improved cable video and high-speed data service for subscribers. PNM technology is easy to use and offers a wide range of benefits such as cost savings, improved network health, KPI-readiness, and built-in dashboard for management to monitor the effectiveness of their investment. It also provides an easy way to find the impairment location on a map before going out in the field, making it a valuable tool for both technical and non-technical staff, and those working in both customer satisfaction and quality control. Overall, PNM technology is a cost-effective solution that offers a wealth of knowledge at your fingertips, accessible through a desktop, tablet, or smartphone.

Our enterprise PNM solution is unparalleled in the industry for its robustness and wealth of features. Nimble This has invested years in optimizing this technology specifically for cable operators, resulting in a significant reduction in maintenance costs and improved operational efficiencies. To learn more about the specific features and benefits of our PNM suite, please visit the Nimble This website.

- Nimble Upstream
- Nimble PNM Basic
- Nimble PNM Pro
- Nimble PNM Enterprise

THE INTELLIGENT TOOL WITH THE INNOVATIVE EDGE

“An ounce of prevention is worth a pound of Cure” – Ben Franklin

- Proactive network maintenance (PNM) is a vital aspect of the telecommunications industry, as service providers are facing growing demands on their networks. In order to remain competitive, it is essential to ensure that the network is able to meet these demands while also reducing operating expenses (OPEX). To achieve this, networks require a high level of reliability, and that's where Nimble This' PNM comes in.
- Our PNM solution offers several benefits that can help you improve customer satisfaction, increase efficiency, and reduce costs. By using advanced technologies such as advanced algorithms and machine learning, it can collect and correlate different types of data, including network geospatial references, topology, subscriber and operating data, and use it to detect and localize issues before they impact operations and customer satisfaction. This allows you to proactively reduce troubleshooting and issue resolution time, which in turn can help you reduce OPEX while improving reliability and introducing new services. Overall, our feature-rich and advanced PNM product is designed to help you improve network performance and reliability, so you can meet the growing demands of your customers.

By being proactive in network maintenance, cable operators can save costs and improve subscriber experience. Proactive measures, such as using tools from Nimble This, can standardize data collection, automate troubleshooting, and provide management with actionable data. Nimble This's DOCSIS Proactive Network Maintenance provides cable operators with dependable tools and key performance indicators that can lower costs and improve subscriber Quality of Experience (QoE). Subscribers care about reliable and fast service, and

being proactive in maintenance can help maintain their satisfaction. With more people working and learning from home, it is important for cable operators to proactively maintain their networks, including the HFC plant, DOCSIS network, and connected devices, to support these modern needs. Ultimately, subscribers care about their overall experience, and proactive maintenance can help ensure they have a positive one.

Cable operators need to be proactive in providing fast and reliable service to maintain happy subscribers. Subscribers care about their overall experience and may not be as concerned about specific speed numbers, as long as their streaming and internet usage is smooth and uninterrupted. With more people working and learning from home, cable operators need to maintain their

NIMBLE THIS DOCSIS PROACTIVE NETWORK MAINTENANCE ALSO CAN HELP IDENTIFY CABLE MODEMS IN NEED OF FIRMWARE UPGRADES & SECURITY PATCHES AMONG OTHER FEATURES.

infrastructure to support modern home offices and learning environments. Meeting the expectations of subscribers is crucial to avoid them switching to other providers, and proactively managing the network and connected devices is the way forward.

DIFFERENTIATE AND RESOLVE IN-HOME OR OUTSIDE PLANT IMPAIRMENTS FAST 

PNM LOWERS MAINTENANCE COSTS BY IDENTIFYING THE PRESENCE OF UPSTREAM OR DOWNSTREAM RF IMPAIRMENTS

The Advantage of DOCSIS PNM?

Nimble This - Troubleshooting Solutions

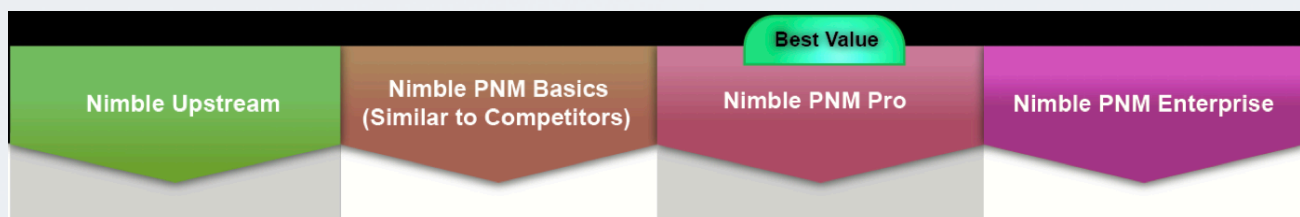
- Full Band Capture
- RxMER per Subcarrier
- Cable Modem Monitor
- Reports
- Upstream Analyzer
- Upstream Monitor
- Traditional PNM
- Integration
- Alerts
- Android and IOS apps
- Cable Modem Birth Certificate
- Cable Modem Installer
- Show modems being effected by common impairment
- Severity of modem impairment shown by three threshold levels
- Work Orders
- Noise / Ingress detection both graphically and in report format
- GIS
- OFDM / OFDMA
- Excellent Support

Benefits of Nimble This Enterprise PNM

- Field Force Management - Lower Maintenance Costs
- Quickly Identify Locations of Network Impairments within 50 feet
- Group Delay or Micro Reflections / In-home or Outside plant
- Increased Subscriber Satisfaction
- Interactive map shows location of modems and level of impairment!
- In-Channel Frequency Response
- Preemptive Troubleshooting
- Drop in repeat calls
- Birth Certificate for Cable Modems
- Geo Code on site with your phone*
- Integrate with NMS
- Seamlessly upgrade from DOCSIS 3 to DOCSIS 3.1
- Correlation Groups
- Remote-PHY
- Vendor Neutral both CPE / CMTS and T&M
- Sweep Analytics Tool
- Use best in class Test and Measurement

Reduce Expenditure With PNM

- First 60 days 50% decrease in repeat calls
- That's between \$6 - \$9 dollars in savings a call
- No more plant Sweeping - PNM does this for you
- Spikes in summertime calls significantly decrease
- Detect plant faults before the customer calls you
- Save money on truck rolls between \$75 - \$100
- Use mobile app reduce need for test equipment
- Evaluate contractors cable modem installs with cable modem installer with your phone
- Make sure RF levels and Micro Reflections are good before you leave the premise for no return visits from the install
- Cable modem birth certificate with your smart phone
- Reduce Resolution Time
- PMA
- Multi-language
- Enabled for color blindness



PINPOINT IMPAIRMENTS FAST

Nimble This is a company that offers a PNM (Proactive Network Maintenance) Platform, which helps cable operators quickly discover and locate network impairments. In turn this can lower maintenance costs and improve broadband service. The platform's graphical map and correlation groups make it easy to identify and troubleshoot issues impacting multiple subscribers, whether they are related to in-home or outside plant. The PNM Platform

provided by Nimble This offers a competitive technological advantage, ensuring that cable operators can maintain a stable, efficient, and cost-effective data network, providing the best possible service to both subscribers and operations. The technology offered by Nimble This enables cable operators to be proactive in managing their network and providing the best service to their customers, making them more nimble in the industry.



NIMBLE THIS

WWW.NIMBLE-THIS.COM