

The Broadband Service Providers Imperative

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Broadband providers—especially those with legacy copper networks and cable networks—are overwhelmed by the pace at which revenue is dissipating. Over the top (OTT) service offerings have hit full force, attacking every fundamental service that exists except for the “pipe” to the consumer’s premises. Simply put, voice, video, long distance, international, conferencing services, video sharing, and more, all of which have traditionally been the domain of the service provider, are no longer safe. The reality is that many of the folks disrupting the service providers’ traditional business are leveraging service provider assets and providing services that were traditional to the service provider with new business models. These new business models transcend the boundaries of the service providers, offering worldwide opportunities.



Service providers need to dramatically reduce their operating costs and find new revenue streams. One new revenue model is differentiated services—Pipes with Priorities. First, let’s talk about operational challenges and how to reduce costs.

Legacy networks are run by large teams, made up of technicians and customer support representatives with large investments in OSS/BSS and automation software systems with large IT and support teams. Over the years, the OSS/BSS systems have evolved to consist of many layers and blocks of software provided by a multitude of vendors. The sunk cost of a deployment is in the multimillion dollar range and any thought of change or re-architecture is daunting. Those with courage to step out to try to re-architect or migrate to a new vendor offering are often humbled by the complexity of the network and the intricacies of its interconnections.



Pipes with Priorities is an area that offers hope in creating new revenue services. And, it is key for service providers to investigate. We believe that this can happen with improved and effective use of Wi-Fi, which has become the default distribution point for bandwidth in the home. While it may not be possible to expend the capital to deploy giga-speed networks everywhere, effective delivery over Wi-Fi networks can lead to enhanced customer experience—and can be a differentiator.

Thus, in order to remain relevant, the focus areas for a broadband service provider are:

1. Be operationally nimble and reduce cost to match the new revenue reality.
2. Maximize the effectiveness of bandwidth provided to the consumer, thus creating the

possibility of Pipes with Priorities.

Operational Cost Containment:

The first goal of any broadband provider is to contain costs. As services dissipate faster than new ones can be added, and the markets drive the service providers to become the providers of “pipes,” it is imperative that operating costs be controlled.

In our estimation, service providers have service churn in their customer base of 20 to 50 percent per year. This churn includes changing service, modifying bandwidth, moving addresses, and deleting and/or adding services. These touchpoints lead to a lot of activity through the OSS/BSS for orchestration and provisioning. If this churn is not managed well, it can lead to customer dissatisfaction. In addition, most of these changes are done in “batch mode,” meaning they are processed overnight. This lag in updates leads to other uncertainties concerning the customer, including tasking them to validate whether the service request was processed successfully.

Of all the orders processed, 15 to 35 percent fall out, or fail in the automation process. Service providers need to put in place methods so that these failed orders are automated as well.

There are many root causes of these failures. One example involves network elements not responding to Element Management systems (EMS). These EMSs control multiple Network Elements (NEs), comprising a network from a single vendor. Usually service providers have multiple EMSs from multiple vendors’ network equipment. Many times, the EMSs may have bugs that result in error-prone control of the network elements. Identifying these bugs is often difficult, as they may be intermittent and require specialized logging and review for effective communication back to the vendor. An alternative is to reach the NE directly, bypassing the EMS, to carry out the control functions. This will increase the success rate of completed orders.

Another example is insufficient bandwidth between network elements on the control channel. Solving this challenge requires monitoring and managing of the control channel, over which commands to the NE are sent.

In the same vein, a third example is the level of expertise of the personnel contending with multiple EMSs and OSS/BSSs to fix the orders that have fallen out. Providing the personnel with a single UI that integrates these systems would give the service provider the benefits of lower training costs and a simplified user interface. This keeps the complexities of various EMSs from different vendors out of sight of operations personnel. This single, integrated UI will further reduce training costs and make resources flexible to be able to work across vendors without specialized training.

Many of these failed operations require field operations personnel to visit the customer or the equipment terminating outside the customer premises—the outside plant. Once the field technician is on location, he or she needs to call the operations center to do any provisioning tasks such as resetting a circuit, changing a port, or so on. This leads to delays (hold time) and then an interaction with personnel at the operations center. The result occupies the time of two resources. The operations personnel have to look up inventory platforms to validate a port move, for instance. As a cost-saving measure, field operations can be moved to an app on a handheld device. The handheld device app can be implemented to permit secure access to the network with a simple UI, enabling the field technician to run commands that manage the network and adjust allocation of resources as required. This creates a better work experience for the technician while also significantly reducing the need for interactions with the operations center personnel. This can lead to a much-improved customer experience with rapid service delivery.

Another area where the above capability would have a huge impact is repair centers. Repair centers routinely take calls from 4 to 10 percent of the deployed customer base per month. Taken on an annual basis, 40 to 120 percent of customers are calling repair centers on a yearly basis—a dismal statistic indeed.

Repair includes customer education, along with actual problems in the network and issues with the customer home equipment and Wi-Fi delivery to that equipment. Many of these network problems

can be automated. By automating—and linking the automation to an Integrated Voice Response System or a web portal—much of this type of manual customer support can be reduced or eliminated. The typical model for service providers to lower costs has been to “off shore” and use call centers in the Philippines, India or other low-cost geographies. As a result, the customer experience is often less than satisfactory. Automation of “network fix,” and implementation of the ability to “customer premises equipment reboot” will lead to lower cost for the service provider and higher satisfaction for the customer. Combined with network operations that can be performed via apps for field technicians, along with much simplified UI at the operations center, this direction is the optimal path to reducing costs.

Manage Social Media Grievances

Furthermore, by tying in to social media feeds, the service provider can access customer grievances. Using this information, the service provider can proactively direct a dissatisfied customer to a customer portal for a specific action. This level of customer service increases customer retention and leads to higher customer satisfaction scores.

As service provider IT teams figure out how to deliver the operational efficiencies identified above, the service provider needs to maximize the effectiveness of bandwidth provided to the consumer—thus creating the possibility of Pipes with Priorities.

Pipes With Priorities: Increased Customer Satisfaction, New Revenue Source

Now let's turn to the question of defining what exactly Pipes with Priorities are. Wi-Fi inherently is very poor at carrying video and audio (isochronous) traffic. Yet, Wi-Fi is the delivery point for all devices in the consumer home. The service efficiency of Wi-Fi is strongly affected by constant variations in signal strength, contention and interference. Though Wi-Fi does very well for short, bursty data, it is particularly poor at carrying multiple video streams, which require constant contention and larger and continuous packets. The Wi-Fi performance in homes is further exacerbated by a new wave of sensors, especially home or baby monitoring devices (which introduce new sources of continuous video streams). Currently, some of the coverage and bandwidth issues can be addressed with mesh Wi-Fi, but there is dire need for content-based traffic management of Wi-Fi.

There is no established Quality of Service (QoS) standard today for all the streams of traffic on Wi-Fi. Currently all data (including video) streams are treated equally. QoS (also now called Quality of Experience, or QoE) is needed not just to rate the performance but also to help the Wi-Fi routers to intelligently deliver video streams. Machine learning techniques allow identification and separation of traffic based on QoE. This enables routers to handle delivery of isochronous traffic differently than other data traffic.

In addition, control and management information can now made be available to any customer service rep, greatly reducing the cost of mitigating the Wi-Fi related issues that consumers face.



Intelligence that offers insight into the consumer's home is highly valuable to a customer service rep. Arming reps with information on what devices are connected and the bandwidth demanded by each device will lead to a more satisfying interaction between rep and consumer.

In conclusion, it is absolutely imperative that service providers pave a path to a new future. This future is one where many of the traditional services will not be controlled by providers. International voice, messaging, conferencing and more are all but gone from their domain. The control lies with organizations that, in many cases, don't care about the revenue associated with such transactions; they prioritize access to consumer credentials, which are used in different ways to generate revenue for such organizations. With this reality, the service provider needs to automate and become a shining star in the choice for providing the pipe to the consumer. The new reality involves better delivery of Wi-Fi with good visibility into connectivity of devices in the home as well as the ability to provide Quality of Experience on certain streams where the consumer may be willing to pay more. At the same time, operational efficiency that reduces the current "burn" rate significantly will allow the service provider the time and space needed to compete in the new OTT-engaged world—and remain relevant into the next few decades.