

Broadband Readiness

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Abstract

The most basic requirement of service activation is still connectivity. Without connectivity it does not matter how quickly new services can be provisioned. Broadband Readiness proposes a way to achieve significant efficiencies in wiring customers for new services.

Today, a majority of the homes passed by our cable plant have facilities to support cable television (CATV). These facilities include:

- A drop connecting that home to the cable plant
- Some type of grounding device to protect the home from lightning strikes on the cable plant
- Some type of splitter network device that allows the single drop to provide cable signal to multiple devices
- Cabling that runs from the splitter to one (or more) rooms in the house

It is these facilities that allow various cable television information services to be “relatively” quickly installed and activated in customers’ homes. These facilities are based on an installation model developed by the Society of Cable Telecommunications Engineers, Inc. (SCTE) that is 20+ years old. However, new services like telephony, high-speed data (HSD), and digital video require enhancements to this model before they can work properly. These enhancements range from replacing out dated splitters to pulling new cable to the desired room(s). It is these very modifications that represent Broadband’s single largest obstacle in terms of

streamlining the installation of new services. Time studies of cabling enhancements range from 5 minutes to 2+ hours depending on the size and complexity of the job. Due to this wide range of time spent cabling a home (which is referred to as the radio frequency (RF) portion of the install), the growth in installation rates for new services has been slow because of its high dependency on labor.

While efforts proceed towards streamlining the remaining service specific portions of installs (i.e. performing installation/configuration tasks unique to a specific information service – like configuring a PC for Internet access), each installation still requires completion of the RF portion of the install to activate the customer. Therefore, no matter who/what completes the service specific portion or how quickly it can be completed, the RF portion will remain the single most time consuming task associated with the install. Installation of these new services must follow stringent hardware and cabling requirements to achieve the manufacturers’ recommended operational signal strengths. As a result, if cabling is done improperly, its likely to result in a service call to that customer to correct the problem or worst, the improper cabling could negatively affect other customers’ service or performance.

The need to complete installations correctly along with the need to grow the installed base for new services gives rise to the conclusion that the current method or model of installing cable (for all services) is suspect. I propose a new model or method of installing services that I call “Broadband

Ready.” Instituting Broadband Ready will further elevate MediaOne as a leader in providing broadband services. Broadband Ready is as much a strategy as it is an installation model. Basically, the idea is to expand the task of standardizing the wiring of customer residences to “every” field organization in the company. Make it the mission of every member of the MediaOne field staff to convert every customer residence to a Broadband Ready residence. Field staff in this case would include installers of all types (video, HSD, telephony), service technicians, even field sales staff. If everyone focused on wiring every residence to make them Broadband Ready, all services would benefit from faster installation times, better cable plant performance, and reduced customer initiated wiring. Along with this initiative, it is beneficial to encourage standardization and stomp out the competition. The following action items would limit competition and significantly ease our development and deployment of new broadband services.

Action Item #1: Don’t wire a house with category 5 (cat5) twisted pair wire when you can instead wire it with RG6 (MediaOne’s chosen standard for coax in the home). By wiring the house with RG6 you prevent competitors from easily replacing our products with their own and then using our wiring. If we wire with cat5, we open the home to any Internet provider that is able to convert to this widely accepted wiring standard.

Action Item #2: Standardize all homes to a similar wiring model. This allows MediaOne to more easily expand the number of services in each home without completely rewiring it with each new addition. Implementing a standard wiring plan for all homes passed increases the market value of each home and simplifies the job of

engineering new services to work in that environment.

Action Item #3: Establish regional boards that work with local building professionals, city planners, and state certification agencies to uphold recommended wiring practices and material requirements for expanding only the “approved” use of broadband. Closely track the progress of these regional boards in changing public policy, codes, and new building practices to use the approved standards. Make these boards responsible for reporting on their progress and set goals for the assimilation of all involved parties to the new standards.

By the Numbers:

MediaOne currently performs three different types of field activity: installation, service, and direct sales for each service type (video, HSD, telephony) it provides. The numbers in Table 1 represent a single region’s annual occurrences of this activity for an area with 583,707 homes passed and 317,819 active customers. Table 2 attempts to translate these numbers across all regions by basing these numbers on per homes passed and per active subscriber which was obtained from Table 1. The objective of Tables 1 and 2 is to provide reasonably good numbers that represent how often we visit a customer’s residence. What this means for the Broadband Ready initiative, is that each visit to a customer residence represents an opportunity to perform the needed work to make that residence Broadband Ready.

	Per Home Passed	Per Subscriber
Number of Subs	583,707	317,819
Installation Visits	150,780	150,780
Service Visits	204,180	204,180
Direct Sales Visits	1,712	1,172

Table 1 -- Annual field activity for MN region

	Per Home Passed	Per Subscriber
Installation Visits	0.2583	0.4744
Service Visits	0.3498	0.6424
Direct Sales Visits	0.002933	0.005387
Combined Visits	0.611033	1.122187

Table 2 -- Estimated number of annual visits

In between the lines of these numbers represent “reality” in terms of actual non Broadband Ready residence (or unique) customer visits – where “unique” visits represent those to customers that are not already upgraded to the Broadband Ready. For example, each year MediaOne does not perform installations to 47.44 percent unique subscriber residences or service 64.24 percent of unique subscriber residences. There are repeat service calls to the same residence and repeated installations to the same subscriber residence (i.e. apartments). Therefore some fraction of these numbers hold true for year-to-year unique subscriber residence visits. Conservatively, I estimate that ¼ of each of these types of visits are actually to a unique subscriber residence. While the initial years of implementing the Broadband Ready initiative would have a high degree of unique subscriber visit opportunities, the years that follow would steadily decrease. Also note that during the first year there may be higher than estimated unique subscriber visits. However, not all customers will want or be willing to allow the upgrade to take place because of personal preferences, time constraints, or other inconveniences that could reduce the number of Broadband Ready upgrades actually performed. Any lower than average response during the first two to three years, would merely result in a slower accumulation of Broadband Ready homes passed in the years to come.

Assuming the number of homes passed remains constant, its predicted in Table 3 that over first 3 years of implementation approximately 45 percent of the homes passed would become Broadband Ready. Since, as a company, we typically penetrate close to 60 percent of the homes passed, the 45 percent of homes passed that are Broadband Ready would represent 75 percent of our current subscribers as being Broadband Ready. Any increase in the homes passed (i.e. system trades) would only extend the initial accumulation phase, however, note that after the initial accumulation phase the percent of Broadband Ready homes passed will grow more slowly over time.

	1 st Year	2 nd Year	3 rd Year
Installation visits	6.48 %	6.48 %	6.48 %
Service visits	8.75 %	8.75 %	8.75 %
Direct sales visits	0.0733 %	0.0733 %	0.0733 %
Accumulated % Broadband Ready homes passed	15.30 %	30.60 %	45.90 %

Table 3 -- Accumulation of Broadband Ready homes passed

Projected Payback:

The payback of the Broadband Ready initiative is significant. It is also likely to yield additional installation, marketing, and engineering efficiencies than what is explained in this document across all MediaOne services -- not to mention the under the cover increases that the model would bring to plant signal quality and improved video. The most obvious efficiency that the Broadband Ready initiative will yield is to HSD and digital video installations (which are the focus of this document). Activating the Broadband Ready would mean that approximately 75

percent of all HSD installations to current subscribers would not require any RF installation time to complete. Like wise, each year that the Broadband Ready is active there would be further increases in the percentage of HSD installs that would not require any additional RF wiring. If the Broadband Ready initiative was taken seriously and adopted as a long term company goal it is realistic to anticipate a time where only trivial RF wiring (i.e. custom jumpers) is required to install services. Table 4 displays the projected return on investment in terms of increasing the installation capacity of the existing HSD install team without increasing the number of its full time employees (FTE)s.

	1 st Year	2 nd Year	3 rd Year
Accumulated % Broadband Ready homes passed	15.30 %	30.60 %	45.90 %
% HSD Installs in Broadband Ready residences	25 %	50 %	75 %
Installer time savings on Broadband Ready installs	½	½	½
Increase in overall number of HSD installations due to encountering Broadband Ready residences	+12.5 %	+25 %	+37.5 %

Table 4 -- Payback on investment for Broadband Ready

Basically, each of the first three years that the Broadband Ready initiative is active, MediaOne should expect an approximate 12.5 percent increase in installation capacity* of its existing HSD install team. This increase would be the result of being able to do twice the number of “normal” HSD installations 25 percent of the time the first year, 50 percent of the time the second

year, and 75 percent of the time the third year.

**Note this does not take into account the improvements in streamlining the PC portion of the HSD installation. When improvements to the PC portion can be realized, the impact (when combined with Broadband Ready efforts) would yield significant reductions in the overall time spent to install HSD services. In fact, its likely that we’d see average HSD installations times in the order of 30 minutes at that point – most of which would be time taken for customer education. Also note that installation capacity is dependent on sales/marketing and cannot be directly attributed to actual increases in subscriber count.*

The other payback is the inside sales data that is accumulated as a result of the customer having a Broadband Ready residence. For example, if a customer is flagged as having a PC at the time they are upgraded to Broadband Ready, this information could be used by MediaOne telemarketing to offer them HSD services at a later date. Alternatively (once ready), MediaOne could send them a self-installation CD so they would be able to subscribe to HSD services at their convenience (without any truck roll)**.

***Caution: It is my belief that MediaOne provides a “personal” service to the customer by going to their residence and helping them get access to information services (be it video, high-speed Internet, telephony, digital video, pay-per-view, etc.). Additionally, MediaOne helps the customer use this service by teaching them how to use it as well as answering questions one-on-one. The fact that we come to the customers’ residence is what makes MediaOne a superior information/technology provider.*

Therefore, it is NOT in our best interest to provide service without any customer contact. It's the contact (sales, installation/instruction, and service) with the customer that differentiates us from our competition.

Projected Costs:

To proceed with the Broadband Ready initiative, MediaOne will need additional resources (FTE)s and contractors to help carry out the mission of making every subscriber residence Broadband Ready. A majority of these resources already exist within the current video side of the business and merely need to include additional duties with each unique subscriber visit.

	1 st Year	2 nd Year	3 rd Year
Accumulated % Broadband Ready homes passed	15.30 %	30.60 %	45.90 %
% of video installs and service calls requiring upgrade to Broadband Ready	15.30 %	15.30 %	15.30 %
Time required to upgrade customer to Broadband Ready	½ - 2 hours	½ - 2 hours	½ - 2 hours

Table 5 -- Projected time requirements of implementing Broadband Ready project

Table 5 represents the additional time required to complete Broadband Ready upgrades on new or existing unique customer residences. Once a customer is upgraded to Broadband Ready, a flag in the billing system would be set for that residence upon check-in process. This flag would then provide information to those routing technicians to installations and

service calls as to the anticipated amount of work required during each customer visit. This information could also be used by the billing system to correctly associate the number of points with Broadband Ready customer visits as opposed to non-broadband ready customer visits. Based on the requirement of up to a 2 hour extension of 15.30 percent of the customer visits during each of the first three years, field fulfillment organizations should plan on an increase of 15-20 percent in the number of FTEs currently supporting video installations and service calls. Excess and peak demand for Broadband Ready upgrades could be handled by hiring of contractors to fill the gap. Note that in the event of direct sales initiated upgrade, additional wiring could be provided or scheduled with a contractor that day.

In addition to the resources needed to carry out the Broadband Ready, another dollar figure must come into play for the extended time and materials video service or installation personnel would require to complete an Broadband Ready upgrades. This approximate dollar figure (see Formula 1) is based on the following assumption:

The technician is already on site (i.e. the Broadband Ready upgrade does not incur the full costs of a truck roll because the technician was already required to be at that customers' residence).

$$\begin{aligned} & \text{Cost of Broadband Ready upgrade } (\$27.37) \\ & = \text{Cost of Additional Outlet labor/parts} \\ & \quad (\sim\$19.95) + \text{HSD Required Parts } (\$7.42) \end{aligned}$$

Formula 1 -- Cost of each Broadband Ready upgrade

To determine the cost of implementing Broadband Ready from a time and materials stand point (less the cost of actually employing the required additional FTEs

mentioned earlier) the following formula calculates this out by using the annual combined visits per homes passed calculated earlier (see Table 2):

$$0.09349 \text{ unique visits per hm passed} = 0.611033 \text{ Combined annual visits per hm passed} \times 15.30\% \text{ Broadband Ready residences growth}$$

Finally, the number of unique visits per home passed allows us to determine the cost of Broadband Ready per home passed. This is calculated as follows:

$$\text{\$2.56 dollars per home passed} = 0.09349 \text{ unique visits per hm passed} \times \text{\$27.37 cost of Broadband Ready upgrade}$$

Based on these calculations, one can approximate the cost of time and materials required of implementing the Broadband Ready program for any MediaOne region (again minus the cost of actually employing additional FTEs mentioned earlier). To determine this cost multiply the \$2.56 figure times the total number of homes passed. For example, in the case of the MN region where it currently has 583,707 homes passed, the annual cost of time and materials for implementing the Broadband Ready would be approximately \$1,494,289.92

Review of Costs and Paybacks:

As with any long-term project of this magnitude the costs up-front are significant! However, the long-term payback for this outweighs the up front investment. For example the number of FTEs required by a region to increase HSD installation rate by 12.5 percent alone may be worth the investment.

Installers	100
Maximum number of installs per day	40
Maximum number of installs per year counting 2 weeks vacation and no other absences or turnover	96,000
12.5 % increase would amount to this many additional installs	12,000
Equivalent number of FTEs to produce same output: 120 / (40x24)	12.5 FTE

A 12.5 percent increase in HSD installs would require a similar 12.5 percent increase in the number of FTEs dedicated to HSD to achieve a similar increase in the number of install capacity. Any increase in installation personnel is costly as it requires paying the FTE’s salary, benefits, vehicle, and all the supplies needed to outfit the installer to accomplish his/her job. Using the numbers from above and assuming the costs of each installer is \$70,000 (\$20,000 vehicle, \$40,000 FTE/benefits, \$10,000 installation test equipment and materials) the savings of 12.5 percent* FTEs would save the company \$875,000*.

After the third year the 37.5 percent increase in the number of HSD installs and reduction in FTEs would save the company \$2,625,000*. MediaOne could also capitalize the opportunity cost created by the addition of approximate 36,000* additional HSD customers it would not have realized without the Broadband Ready. This amounts to approximately \$2,876,400 in annual revenue. These savings would continue to rise as the HSD installation rate continue to increase (due to the time savings of the Broadband Ready) while the costs of running the Broadband Ready decline (due to reducing number of non Broadband Ready visits).

**Based on the example above using 100 installers*

Based on these numbers, and after 3 years, MediaOne could let go or promote the expanded FTEs required to implement the initial labor oriented phase of Broadband Ready initiative and fall back to today's field fulfillment FTE count yet improve this groups overall installation capacity 37.5 percent. Additional benefits of improved video performance, reduction in the numbers of service calls, and the reduction of time required to complete video or telephony installations are difficult to quantify in terms of cost savings. However, it is projected that as the number of Broadband Ready homes passed approaches 50 percent (a 5 year projection) MediaOne will have paid back the investment required to initiate the Broadband Ready and begin seeing enormous reductions in its operating costs and average installation times.