The
Number
Portability
Switch

Unbundling Number
Portability from IP
Voice Installation
Yields Dividends

By Jay Junkus*

In the cable telephony game, a rapid turnaround from customer order to installation is critical. Video and high-speed data can often be up and running within one to three business days. Voice service, however, often requires arranging for the subscriber to keep an existing phone number, and this porting process can take as long as three weeks.

Enter a new category of devices that allows customer premises work to be completed for all services at the same time, with automatic voice service activation when the porting is ready.

A little background

Not every cable telephony install involves waiting for the local telco to port a number. If the customer is adding cable telephony for a second line or is willing to switch to a new phone number, there's no porting delay. The cable operator has a ready pool of phone numbers on which to draw in such cases. Also, if the cable operator is already backed up on installs, a porting delay may be a moot point; a 10-day wait to port loses significance when there's a 14-day backlog on installs.

However, many, if not most, new cable telephony customers want to switch wholesale, using the cable telephony service as their primary line in lieu of the incumbent provider, and they want service up and running as soon as possible. In these cases, number porting delays can be a problem.

The mission

In many systems, installers have been able to complete an increased number of new customer installations in a shorter time by becoming experts in the use of traditional installation materials and processes, but the time it takes to transfer a customer's telephone number from an incumbent service provider is outside the control of the cable company.

Traditional procedures for telephony installation with a number port leave two alternatives to satisfy customer demand for timely service installation:

Option 1: Roll a truck to complete the video or data portion of the install request within the one-to-three busi-

ness day window and roll a second truck seven to nine business days later to complete the digital phone install on porting day.

Option 2: Determine if the customer is willing to wait for video and data services to be installed on the scheduled porting day. This option delays up to 14 calendar days of video and/or data revenue.

As for improving on these options, operators can ask themselves several questions. Can one truck complete combination installs (video, data or both with digital phone) without feeling the impact of the 10 business day processing period to port an existing number? Can occasional delays in the competitive local exchange carrier (CLEC) number processing be minimized? Is it possible to gain the ability to complete native and ported digital phone installs seven days per week, porting the number at a later schedule date?

A good way to meet these needs is to simplify the porting process by separat-

ing the customer premises installation from the back office porting operation. The solution is a voltage-controlled switch that automatically transfers service from the incumbent when porting is complete. Such switches are available from **TII Network Technologies** (www.tiinettech.com), **PCI Technologies** (www.pci.com), **Sistellia** (www.sistellia.com) and **Broadband Telecommunications LLC** (www.dropcheck.com).

Business Case

The value of this application depends upon existing company policy and other variables. Let's first assume that a switch costs $20, a truck roll ranges from between $50 and $70 and two truck rolls are required. In that case, the MSO saves between $30 and $50.

If the company policy is to delay installation until porting is ready, the situation is more complicated. Assume (conservatively) premium video with digital service @ $50 per month ($1.66/day) and high-speed data @ $45 per month ($1.48/day). In that case, nine actual days of lost video and data revenue (because of weekends) becomes $3.14 x 9 = $28.26, resulting in a net savings of $8.26.

Harder to measure still are quality control benefits, such as the solving of polarity and alarm-system wiring problems, which ensue from the changes in the installation procedure.
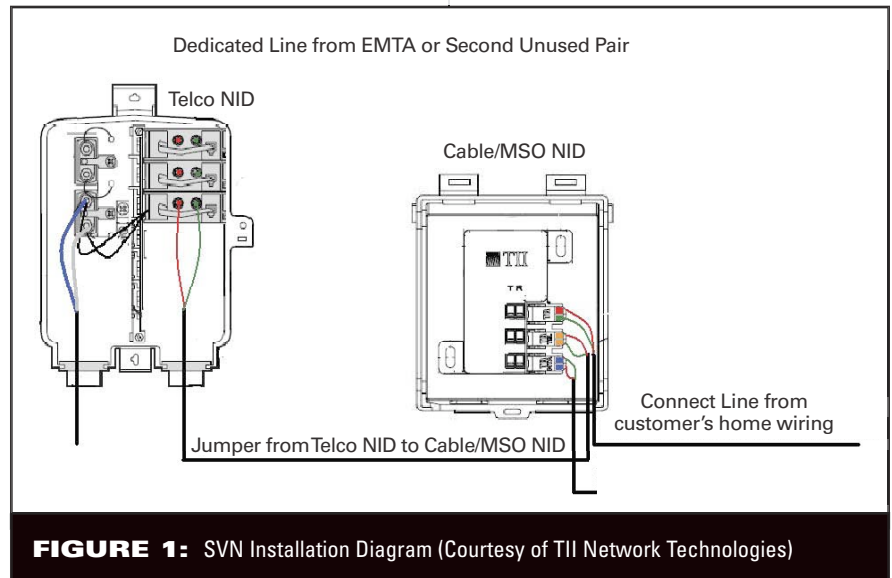

FIGURE 1: SVN Installation Diagram (Courtesy of TII Network Technologies)

How it works

Electrically, a voltage-controlled switch is inserted between the house telephone wiring and both the embedded multimedia terminal adapter (EMTA) and the incumbent telco service network interface unit (NID). Until a number is ported, all phone calls to and from the home continue to be completed via the old service provider's network. Once porting has been completed, the pub-

lic switched telephone network (PSTN) directs calls to complete via the cable company, which means that incoming calls will then cause a ringing voltage to be generated at the EMTA and applied to the leads running to the switch.

To prevent false triggering of the switch by stray high voltages, the first incidence of ringing voltage is used to check for a valid ringing signal, and the second appearance of ringing switches to digital phone service. Dial tone will then be provided by the EMTA for all subsequent calls.

Installation consists of physically mounting the switch, connecting leads from the EMTA, re-routing house wiring from the old NID to the switch, and connecting a short jumper between the switch and the former house wiring connection point in the old NID. The switch is often physically mounted on the side of the house, near the telco NID. A new pair of wires is run direct from the EMTA to terminals on the switch. Customer premises wiring to the telco NID is then disconnected at the NID and re-routed to the switch. Finally, a jumper is run between the telco NID and the switch as shown in Figure 1 (on page 41). An alternate option for the path from the EMTA to the NID is to connect via an unused wiring pair from the EMTA location to the NID, but in this case, care must be taken to verify that the pair is not connected at other points to either the regular house wiring or to customer premises equipment (CPE) via a four-wire jack.

The outside job

Although a VoIP switch may be installed inside the house rather than outside by the old NID, outside installation offers certain benefits. Ease of access is an obvious benefit to the operator, and modification of installation practices necessitated by outside deployment of the switch avoids some service-affecting conditions. Ensuring proper polarity and correct connection to an alarm system are simplified.

With conventional EMTA installation, a common practice is to "backhaul" the telephone wiring from the EMTA to the rest of the home's phone outlets. For installations done this way, silver satin

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Q&A

Number portability has certainly helped wireless carriers over the past several years. It has surely helped cable operators get into the telephony business, hasn't it?
Yes. The customers are reluctant to change their phone numbers. Many people have had the same phone numbers for 10 or more years. Every one of their family and friends as well as their business associates have the customer's existing number, and changing it to a new number would be a huge inconvenience. Being able to port the customer's number over from the existing telco alleviates that inconvenience.

But it's also a point of friction with incumbent telcos, right?
The incumbent telcos do not want to lose their customers.

Do you have insight on how long it typically takes a cable voice subscriber to get a number ported? Or how long it can take?
As little as four days and as long as three weeks. Seven to 12 working days are the norm.

Could you offer a quick explanation of how your switchable network interface device works?
The TII Switchable Voice NID allows the MSO to complete a triple-play installation on the first truck roll. The unit will continue to pass signals from the incumbent phone provider until the time that number is ported. After the phone number has been ported, the MSO will provision the EMTA and make a courtesy phone call to that number. The Switchable Voice NID will recognize the ringing voltage presence from the MSO side and will automatically switch from the incumbent telco to the MSO voice service.

Your company also has long experience the surge protection area. Is this also an issue for cable VoIP deployments?
The primary surge protection is mandated by the National Electrical Code (NEC) to be installed on the telephone lines to prevent injury to users and damage to their equipment/property from lightning and other hazardous surges. TII strongly believes that the MSOs should provide similar surge protection, especially when MSOs begin providing the voice along with their other services to customers.

phone wire from the EMTA is plugged into the nearest phone outlet. Because the polarity of the EMTA is opposite to a normal telephone station set, either a special "straight through" cable must be used, or the outlet must be rewired to reverse the connection to the rest of the premises wiring. Both of these methods are susceptible to human error because the installer must remember to use either a special jumper or field modify an outlet near the EMTA. Also, if the customer has an alarm system, the backhaul wiring must be re-terminated on the proper side of the alarm.

On the other hand, when the switch is mounted on the side of the home near the old NID, the procedure for installing an EMTA is to create a home run from the EMTA to the switch. Connections to the house wiring are then made from the switch at the same point where the old NID connected, rather than from an outlet at the EMTA that reverses polarity. By accessing the home wiring at the old NID, proper polarity for all house outlets is thus maintained. In addition, an alarm system remains on the proper side of the EMTA-to-house wire connection. ↙