Connectivity

Overview

Setting up today's satellite TV components goes beyond hooking up a few coax cables. New technologies include DISH Cinema, Sling, and Google TV, while old technologies include Pay-Per-View and Caller ID. All of these technologies require connecting to Internet or landline phone to create a richer experience for the customer.

This module covers connecting the receiver to the customer's Internet or landline phone and the value associated with those connections to DISH Network and our customers.

Module Time

4.5 Hours

Objectives

By the end of this training, you will be able to:

- List benefits of having receivers connected
- State the DNS connectivity goal
- Describe basic home networks
- Explain connectivity options for ViP and non-ViP receivers
- Determine the best connectivity option for the customer's equipment
- Successfully connect all receiver types

Connectivity

Agenda

Introduction

Why Connect

- Benefits of receiver connectivity
- Connectivity goal

What's Being Connected

- Two Connectivity options
- Broadband Internet
- Phone
- Receiver options

Broadband Connections

- Links in the connectivity chain
- Internet connection
- Customers connectivity components
- LAN/Phone tester
- HomePlug tester
- DISH Network broadband connectivity devices
- Ethernet cable
- Sling Link
- Wireless adapter
- DISH Network broadband connectivity accessories
- Switch
- Router
- Broadband Connections chart
- Hands-on broadband connections

DISH Network Router

Landline Phone Connections

- Direct landline phone
- DishCOMM modem
- Phonex Easy Jack 2
- Hands-on landline phone connections

Verify Receiver Connection

Putting it All Together

- Connectivity Hierarchy chart
- Connectivity scenarios

Troubleshooting

- Escalation process
- Troubleshooting Matrix

Closing

Why Connect

Benefits of Receiver Connectivity

Customer Benefits

- DISH Remote Access
- SlingLoaded content
- Google TV
- Video on Demand
- DISHOnline.com
- IP callback
- Caller ID
- View and pay bill
- Upgrade programming
- Better technical support
- Additional self-service options
- Increased customer satisfaction
- Premium channel programming on-demand
- Others future developments

Connecting ViP receivers to broadband Internet ensures customers can enjoy these features. Technicians should also connect all non-ViP receivers to the customer's phone line, which enables caller ID and other interactive features to improve their viewing experience.

Connectivity

DISH Network Benefits

- Fewer calls to CSC
- Endeavor to stay Best-in-Class
- Keep cutting edge technology available to the customer
- Set Top Box Health (STBH) information

STBH identifies issues before they affect customers, which only works if you connect the Internet or a phone line to all receivers you install. This allows us to address receiver issues before the customer knows they exist and helps us perform more accurate troubleshooting when they call in.

Technician Benefits

- Increase your connectivity percentage
- Increase your job satisfaction, knowing you are doing the most you can for your customers
- Help you move up your career path by meeting your connectivity goal

Connectivity is not optional. Doing this, or not doing this, directly affects your Connectivity goal and scores on Customer Satisfaction Surveys.

Connectivity Goal

Connecting the primary receiver counts for your Connectivity goal, but you should aim to connect all receivers.

- The company goal for having customers' receivers connected to either broadband or phone line is 60% with 40% internet connectivity

What's Being Connected

Two Connectivity Options

There are two main types of connection options. The first is to connect the receiver to broadband Internet and the second is to connect to a phone line.

Connectivity

Broadband Internet Connection

- Connected through the customer's broadband Internet
- ViP receivers only
- Newer technology
- More benefits
- Future developments will focus on the broadband connection

Landline Phone Connection

- Connected through the customer's landline phone
- Older technology
- Many customers no longer have landlines and have opted for cell phones only
- If there is not a ViP receiver, this is the only connectivity option available to the customer

What connectivity option must be your focus to ensure our customers have access to all the benefits of future technology?

Broadband Internet is the primary focus when the customer has a ViP receiver

Receiver Options

ViP Receivers

- A broadband Internet connection is always the first choice
- ViP receivers possess the ability to connect to a home network via direct Ethernet cable, SlingLink , or Wireless adapter
- A broadband Internet connection allows access to thousands of movies, TV content, and items of special interest, all at the push of a button
- The only things a broadband connection doesn't provide that a phone line connection does, are the ability to view/pay your bill through the DishHOME Interactive CSA and enable Caller ID
- ViP receivers can also be connected to a phone line and have the ability to share a phone connection from one ViP receiver to another for a total of 15 receivers

Connectivity

Non-ViP Receivers

- Only connect to a landline phone via direct phone line, DishCOMM modem, or wireless phone outlet (Phonex)
- This allows Caller ID to function if the customer subscribes to caller ID through their home phone provider
- Order Pay-Per-Views with the remote control
- Report STBH status
- Use DishHOME Interactive, which allows viewing and paying your bill on the TV screen

The Broadband Connection

Links in the Broadband Chain

1. Internet provider

- Broadband

2. Customer's hardware

- Wired: modem, router, gateway, switch
- Wireless: wireless router or access to a shared wireless network (for example: wireless service in their apartment complex)

3. DISH Network system

- ViP receiver
- Ethernet cable, SlingLink, or wireless adapter

Broadband Internet Connection

How will you find out about the customer's Internet connection?

- Ask the customer the questions below.
- Confirm by visual inspection, during site survey.

1. Do you have Internet access?

- Dial-up - not fast enough, not a broadband connection
- Satellite - not fast enough, not enough bandwidth
- Cable - a broadband connection
- DSL - a broadband connection

2. How do you access the Internet?

- Customers must have a home network or access to a shared wireless network to connect a receiver
- A home network exists when more than one device can be connected to the Internet
- The customer must have a router or gateway for there to be a home network, or have access to a shared wireless network

3. What devices are connected to the Internet?

- Computer, gaming system, etc.
- Helps determine connection options and need to increase number of ports

4. Can you show me your devices and Internet setup?

- The customer must have a router or gateway with an open port for a wired connection OR a password to their wireless router, gateway, or shared wireless network for a wireless connection
- If the customer only has a modem, you can provide and install a router

Customer's Connectivity Components

Modem

- Creates a connection between Internet and the customer's computer
- Provides only one connection unless a router is added
- A switch will not work if added directly to a modem

Router

- Connects to modem
- Allows multiple devices to access the Internet
- Most routers sold today have wireless capability

Connectivity

Gateway

- Is a combination of a modem and router
- Provides Internet connection and routing capability
- Replaces modem and router

Switch

- Expands the ports on a router or gateway
- Connecting directly to a modem will only allow one device to connect

*Note: Always use the Connectivity Hierarchy chart to determine the best connectivity option for your customer.

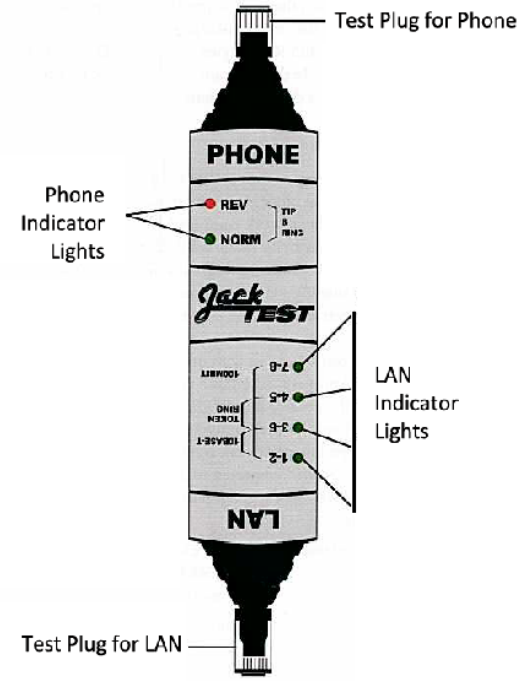
Here is a simplified way to think about the customer equipment.

- Modem provides one connection
- Router provides more than one connection
- Gateway combines modem and router
- Switch creates additional ports on a router or gateway

Let's take a look at the tools to help us check the customer's phone jacks, cables, and outlets to verify that they're compatible with our equipment and in working condition before attempting to connect to our receivers.

LAN/Phone Tester

The LAN and Phone tester is included in the technician tool kit. With this tool, you can test LAN and phone jacks and cables during the pre-site survey to ensure they are working before attempting to connect the receiver.



Test Outlet Activity

Practice using the LAN/Phone tester to test various Ethernet and phone connections in the training room.

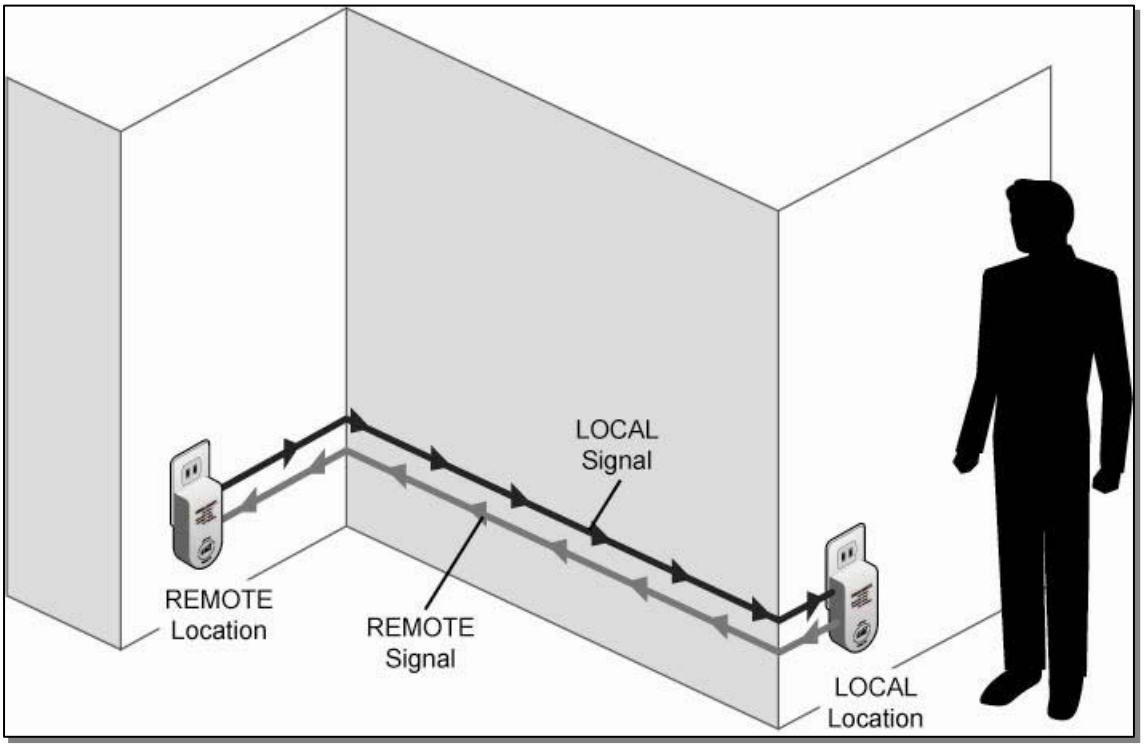
HomePlug Tester

ViP receivers and the SlingLink are equipped with HomePlug technology, which allows data to be passed through electrical outlets. Later in training we will be discussing the DishCOMM modem, which is also a HomePlug equipped device used to pass phone signal over power.

In your tool case you will find a HomePlug tester. Use this to confirm the customer's wiring will support the ViP receivers, SlingLink, or DishCOMM.

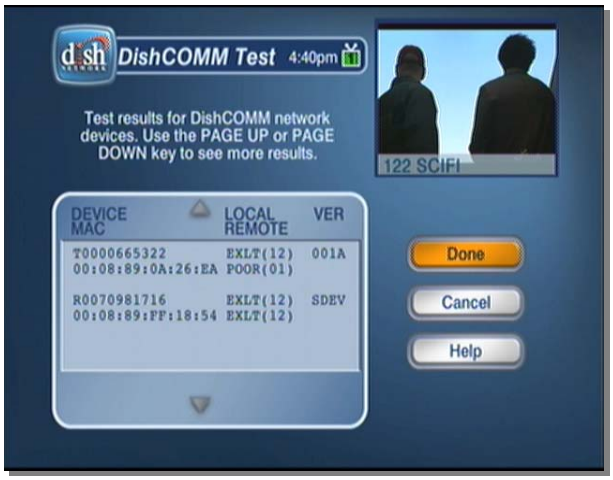
- Tests that wall outlet pairs are suitable for use with HomePlug devices
- Can be used with a second HomePlug Tester or a DISH Network ViP receiver
- This is not a circuit tester (always test outlets using circuit testers before starting any installation or troubleshooting)
- Indicator Lights
- Indicate signal quality
- Local indicates signal strength on this tester
- Remote indicates signal strength received by remote device

Connectivity



HomePlug Testing with Receiver

- MENU, System Setup, Installation, DishCOMM Setup, then test
- Receiver will act as second tester
- Check both if “poor” is indicated on receiver



DISH Network Broadband Connectivity Devices

Now that we have tested the customer’s Ethernet and phone lines, and have checked for compatibility with HomePlug devices, we can make a better decision about which connectivity devices we’re able to use in the customer’s home. Next, let’s discuss some of these devices, what they’re used for, and how they’re installed.

Ethernet Cable

- Direct connection to:
- An open port in the wired router, wireless router, gateway, or switch
- An active Internet wall plate (in newer homes the Internet may be pre-wired to wall plates in several rooms)
- Direct connections are preferred as they are more reliable than wireless and less expensive to establish since less equipment is needed

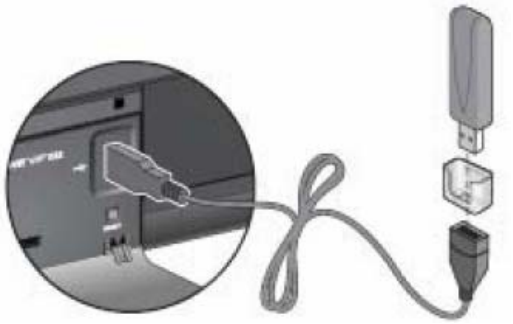
SlingLink

- SlingLink (also know as the Powerline Broadband Connector) is a HomePlug device that passes broadband Internet signal over home electrical lines to ViP receivers
- Used when NO direct connection to the receiver is available
- The SlingLink is plugged into an electrical outlet near the connectivity equipment and connects to a wired router, gateway, or switch using an Ethernet cable
- SlingLink can connect multiple ViP receivers in the same home

SlingLink Hands-On

Refer to the IRHB page 12-7 to 12-8 for complete instructions on setting up the SlingLink with the customer's receiver.

Wireless Adapter



- Use this option only if direct Ethernet cable or SlingLink adapter will not work
- A wireless router will have wired ports on the back, some wireless gateways do not
- A wireless adapter will only connect one receiver
- Only one wireless adapter per customer
- Additional devices can be purchased by the customer via DISH.com/get connected
- Use only one wireless adapter per customer.

Refer to the IRHB page 11-4a to 11-4b for complete instructions on setting up the Wireless adapter with the customer's receiver.

Connectivity

DISH Network Broadband Connectivity Accessories

Switch

- Enables Internet connectivity for customers who have broadband with a router or gateway, but don't have an open port for the receiver
- Connects to a router or gateway with an Ethernet cable; connecting directly to a modem will not work

Router

- Enables Internet connectivity for customers who have broadband but don’t have a gateway or a router
- Creates a network in the customer’s home
- Can be used in conjunction with wired and wireless connectivity options

We will cover the router installation in detail later in this module.

Note: As needed, technicians can provide one connectivity device and one accessory during an installation at no charge to the customer (e.g. router and SlingLink).

Connections Chart

Instructions

As the facilitator moves around the screen, clicking on the boxes, call out what equipment is required to provide an open port for the receiver. Then write the answers in your book.

		Modem 	Router 	Gateway 
Receiver within cable reach	Open Ethernet port	_____	_____ receiver to router port	Ethernet cable receiver to _____ _____
	No open Ethernet port	Technician can add a _____	_____	
Receiver NOT within cable reach	Open Ethernet port	_____	SlingLink to outlet _____	_____ outlet and gateway port
	NO open Ethernet port	Technician can add a _____ to outlet and router port	_____	
Wireless	Wireless network*	_____	Technician can add a _____ receiver	

* Wireless network require a router or gateway

Connectivity

DISH Network Router

A router is available to allow a technician to connect when broadband is available but the customer only has a modem. Let's review how to install it.

- Enables Internet connectivity for customers who have broadband but do not have a gateway or a router
- Always follow the connectivity hierarchy when determining the best connectivity device option

Customer Eligibility

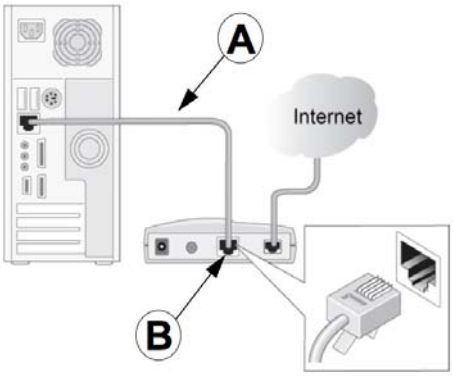
- Determine the customer has a modem only by looking over their current home network
- Keep in mind that installing a router into a network where one is not needed will cause the customer to have an interruption in their connectivity

Conversation with Customer

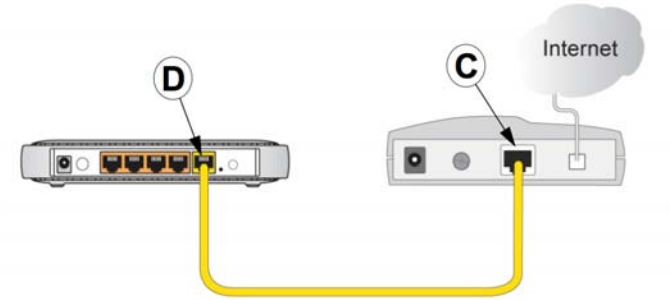
- Get the customer's agreement when connecting a router
- Make sure they understand the features and benefits that come with connecting their ViP receiver
- There is no extra cost for the router or its installation
- Explain what you are doing and why
- Customer must be present when you connect the router and be able to help with router set up on their computer

Install the Router

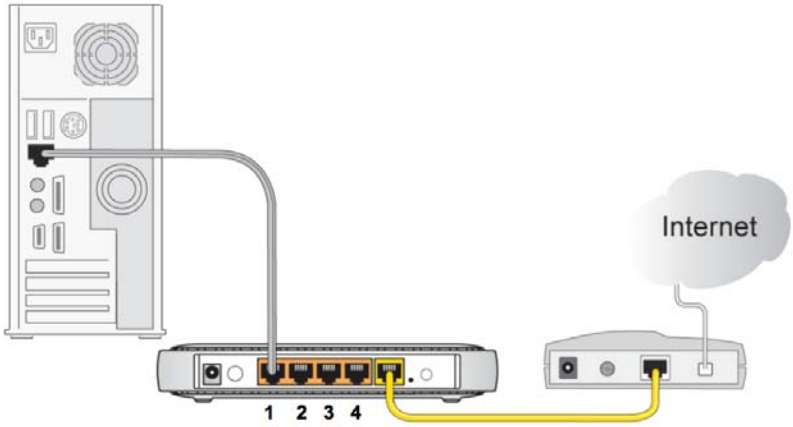
Once you have completed the dish installation and the receiver is downloading, proceed to the router installation. Use the router manufacturer's instructions to complete the installation with the customer. Here is an overview of the steps.



1. First, turn off the customer's computer and turn off and unplug the modem
2. Locate the cable that connects the computer to the modem and disconnect the cable at the modem end only



3. Locate the Ethernet cable that came with the router, securely insert one end of the Ethernet cable into the modem and the other end into the Internet port of the router; the cable and the Internet port label are color coded
4. Locate the cable that is still attached to the computer and securely insert that cable into a port on the router



Complete the physical installation

1. Plug in and turn on the modem ; wait 2 minutes
2. Plug the end of the power adapter's cord into the wall or a power strip, and into the power adapter outlet of your wireless router; wait 1 minute
3. Turn on the computer; it may take a few minutes for the router to establish a connection with the customer's computer and their Internet provider

Connectivity

Configure Router to Computer

- Customer inserts the CD into their computer
- If no CD drive, refer to the Installation Guide for the URL to access the setup wizard online
- Customer walks through the wizard with your assistance
- Follow the wizard prompts
- Completing the wireless settings protects the customer's security, as the wizard creates security settings and sets a password
- Record the password on the router Installation Guide so the customer can refer to it in the future
- If the customer doesn't want to generate a unique network name (SSID) and password, use the customer's street name for the SSID and dish1234 as the password

Disable Wireless

- Press the WiFi ON/OFF button on the side of the router
- Verify the WiFi light on the front of the router is OFF
- Only enable the wireless, if you used a wireless adapter or Logitech Revue

Confirm Internet Connectivity

- After the router installation, have the customer log back into the computer and verify they are still able to connect to the Internet
- Access at least two Web sites
  - dishnetwork.com
  - Have customer try another site (like Blockbuster.com)

Customer Education

- Take the time to complete customer education for the router during router configuration
- Explain the wireless function will be disabled for security reasons (unless you are installing a wireless adapter or Logitech Revue)
- Show the customer the wireless on/off switch on the side of the router
- Refer them to the router installation disc and the Installation Guide booklet if they elect to enable the wireless function at a later date
- Remind them not to change any connections to the router, power supply, connectivity devices (i.e. SlingLink), or they will lose their connection to the receiver

The last step is to confirm the receiver connection. We will discuss that later in this training.

Additional Notes:

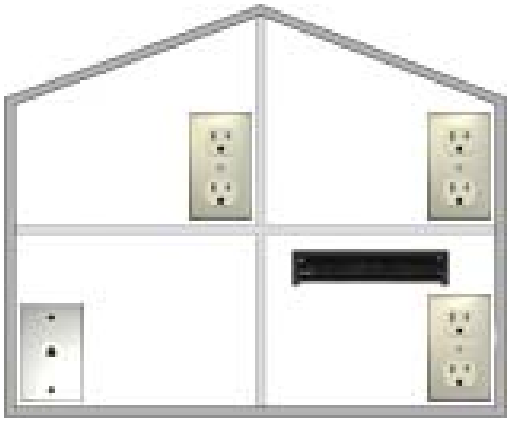
When the DISH installation takes place before the customer has broadband or phone service, we shouldn't leave routers or switches behind. The customer should get these accessories through their service provider as part of their installation.

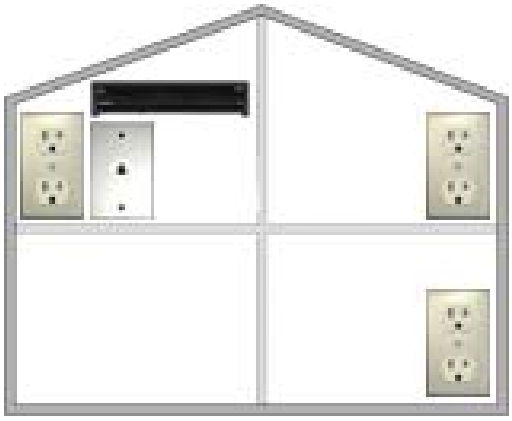
DISH sells (but does not install) Internet and phone service through 3rd party providers like Verizon and CenturyLink. The customer may be confused about the relationship DISH has with these providers since sales agents in the CSC sold them the service. Advise the customer that their questions can be answered by the company that is providing their phone or Internet service.

Landline Phone Connection

These customers do not have a broadband connection. Review each picture and answer yes or no to the following question.

Is a direct phone line the best connection?





Connectivity

DishCOMM Connections

DishCOMM Discussion

If a phone outlet is not near the receiver locations and all receivers are DishCOMM compatible, you may install a DishCOMM modem.

- DishCOMM modems only work with DishCOMM compatible ViP receivers
- All compatible receivers can share one DishCOMM modem in the house
- Test outlets using HomePlug Tester any time the DishCOMM modem is used

DishCOMM Installation Considerations:

Refer to your IRHB on page 8-10 for information on DishCOMM.

- If using a surge protector, you must use a HomePlug approved one, which allows the signal through
- Do not plug into switched outlets, which will cause signal interruptions
- Do not use dimmers on the same circuit as DishCOMM, which will cause signal interruptions
- Do not use Ground Fault Interrupter (GFI) outlets, they will cause signal interruptions
- DishCOMM does not work in conjunction with Phonex Easy Jack 2.
- Test outlets not performing as expected using a pair of the Home Plug testers, or one tester in conjunction with a DishCOMM compatible ViP receiver

Review the following:

- All compatible receivers can share one DishCOMM modem
- The current DishCOMM compatible receivers are ViP receivers

All future DishCOMM compatible receivers

- You will need the ID number on the back of the DishCOMM modem to complete the installation
- Once you physically connect the modem, receivers, and phone lines, you must also set up the DishCOMM network

Phonex Easy Jack 2 Video Connection

Fill in the following:

- A red indicator light on the Base unit indicates no live phone connection
- Always verify the indicator lights are solid green on all units
- The buttons on both the base and extension units are used to program the link code
- Circle the item that Phonex Extension units should be kept away from
- Phones
- Electrical outlets
- Halogen lamps
- HDTVs

Phonex Easy Jack 2 System

Landline Phone Hands-On

Use IRHB pages 8 – 10 and 8 – 11 for these exercises.

- Set up DishCOMM network
- Create a DishCOMM network, at a single receiver
- DishCOMM network without a DishCOMM Modem

Use IRHB page 8 – 9 for these exercises.

- Install the Phonex Easy Jack 2

Verify Receiver Connection

Remember that with STBH Live Confirmation, you have not fully verified the broadband connection if you quit before all three steps are completed.

1. The first step confirms the broadband connection by finding the IP address
2. The second step checks the receiver signal strength
3. It is not until the third step that data transmission takes place and you receive a confirmation code

Connectivity

Without completing this important step, it's possible the connection is not working properly.

STBH Live Confirmation is available currently on most receiver models. For other receiver models, you will use Send Status instead. Send Status transmits data back to the server just like STBH Live Confirmation but you will not receive a confirmation code.

STBH Live Confirmation

Connectivity Confirmation by Receiver			
Receiver	STBH Live Confirmation	Send Status	Non-STBH Capable
622/722/722k	X		
612	X		
522/625	X		
512	X		
222	X		
222K	X		
211/211k/411	X		
322	X		
922	ETA Q2 '11	X	
3X1			X
501/508/510			X
All Other			X

- Press Menu
- System Setup
- Diagnostics
- Send Status
- Connection
- Test Signal
- Send Data
- Done
- Regardless of Pass/Fail, technician receives an STBH Live Confirmation code
- Pass and Fail codes are different, the fail code will be RED
- If the process fails, the connection is not properly established and data has not been transmitted

Steps for Send Status on ViP922 SlingLoaded receivers

- Menu
- Settings
- Diagnostics
- Send Status

If STBH Live Confirmation or Send Status Fails

- Reset router
- Reset modem
- Check all the connections
- Retry the Send Status

Putting it All Together

Connectivity Hierarchy Chart

Remember, if you are unable to connect to a broadband connection it is important to attempt a phone line connection. A direct Ethernet connection is the most reliable; whenever possible use this option unless the customer has more than one ViP receiver. A SlingLink is a better option in this case because you can connect all ViP receivers in the home using only one device.

Connectivity Device Hierarchy		
Receiver Configuration		**Order of Preference**
1 ViP Receiver		1) Ethernet
		2) SlingLink
		3) Wireless Adapter
		4) Phone Line (Not Phonex)
		5) DishCOMM
2+ ViP Receivers		1) SlingLink
		2) Ethernet
		3) Wireless Adapter
		4) Phone Line (Not Phonex)
		5) DishCOMM
No ViP Receiver	322, 512, 522, or 625 on account	1) Phone Line
		2) Phonex *(must be connected to the 322, 512, 522, or 625)*
	No 322, 512, 522, or 625 on account	1) Phone Line Only

Remember to use only one non-direct device (SlingLink, Wireless Adapter, DishCOMM modem, and Phonex) per installation. The customer can purchase additional devices from the DISH website.

Connectivity

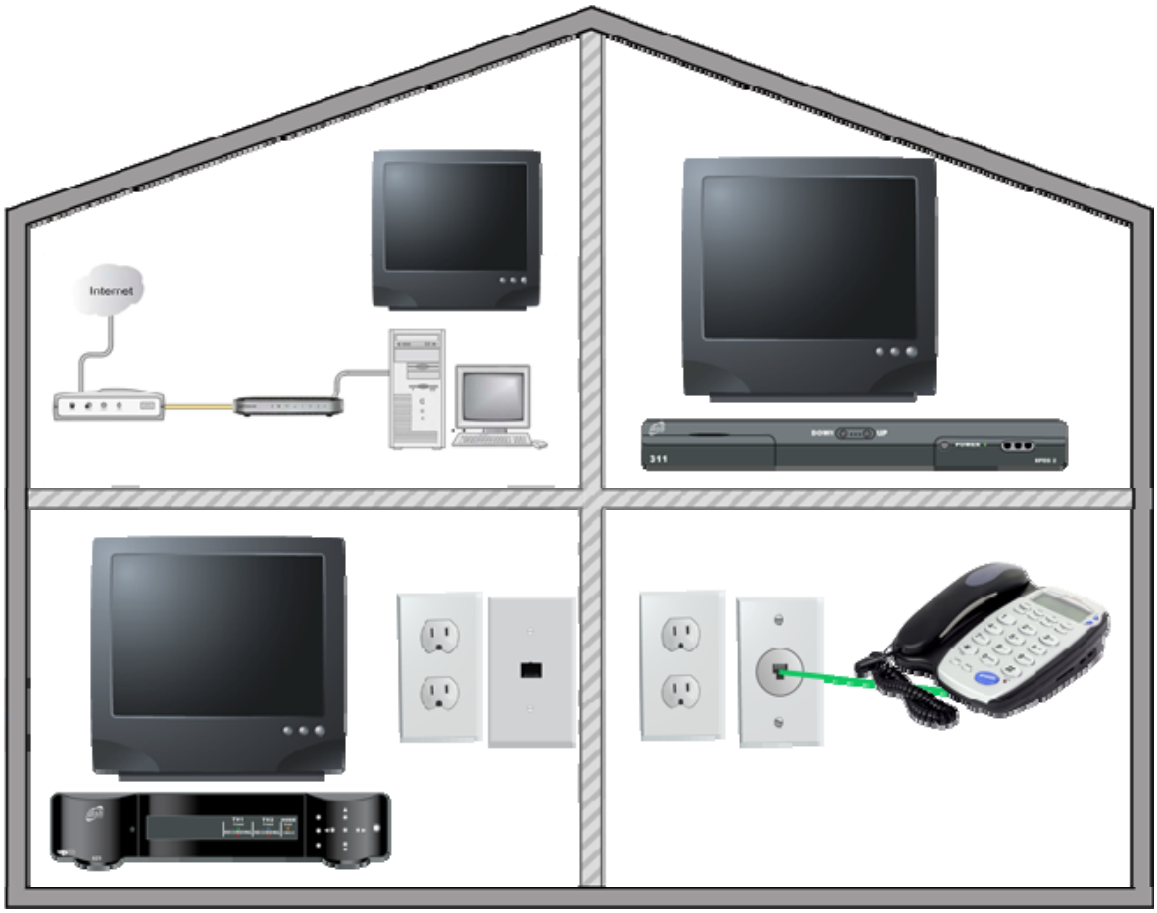
Hands-on with Connectivity Scenarios

Consider the following:

- Connectivity type available:
- Broadband Internet
- Landline phone
- Customer equipment
- DISH Network equipment location
- Existing connectivity location
- Customer preferences
- Receiver models

Connectivity

Scenario 1



Your customer has a DISH Player DVR 625 in their main room and a DISH 311 upstairs in their bedroom. The landline phone outlet is in the kitchen. The customer has a broadband Internet connection in their office.

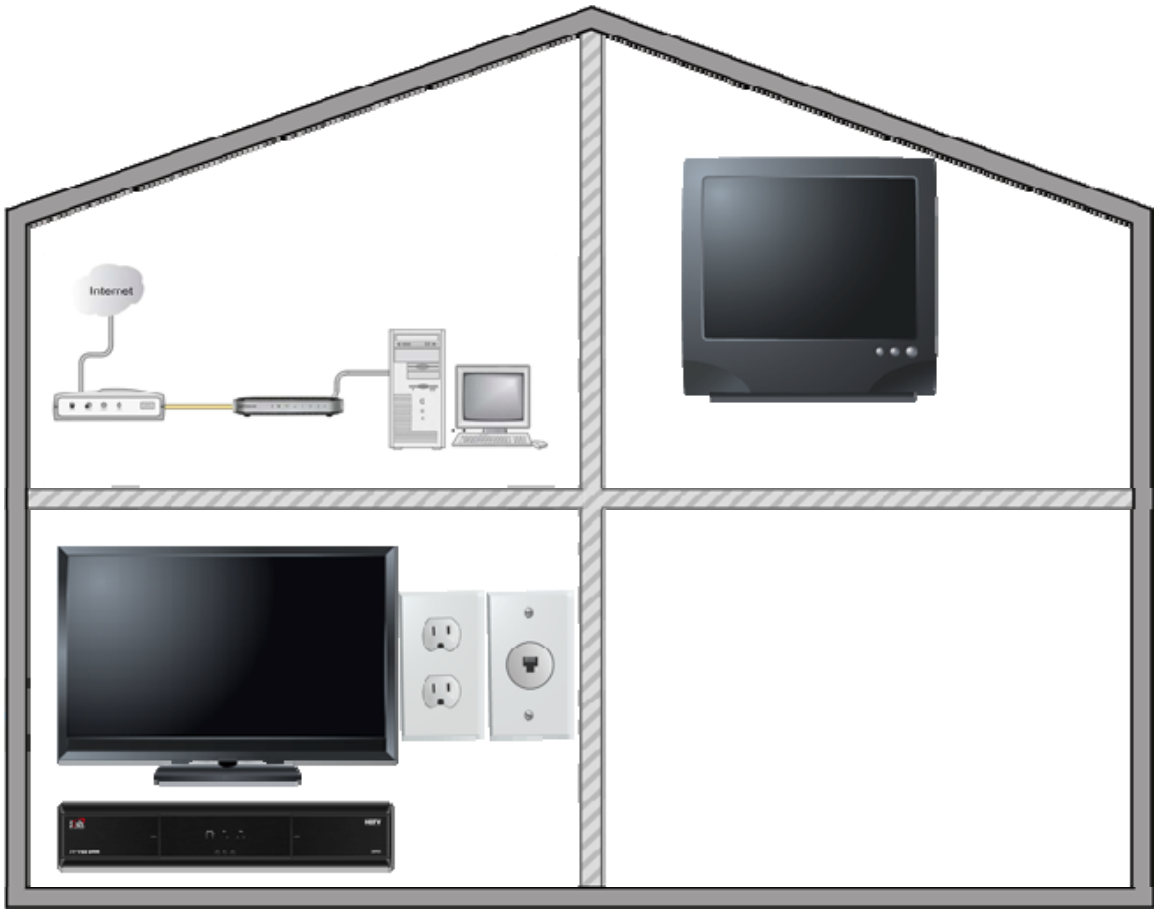
The best connectivity solution for this situation is: _____

_____

Challenges: _____

Connectivity

Scenario 2



Your customer has a ViP722 in their main room. In the den is the computer with a wireless router. You tested the outlets from the den to the primary receiver location and determined that the outlets are on different circuits so a SlingLink will not work. The phone line is located on the same wall as the receiver.

The best connectivity solution for this situation is: _____

_____

Challenges: _____

Scenario 3

Your customer has a ViP722 in their main room and a ViP211 upstairs in their bedroom. Their computer is in the den and has broadband with a modem and router.

The best connectivity solution for this situation is: _____

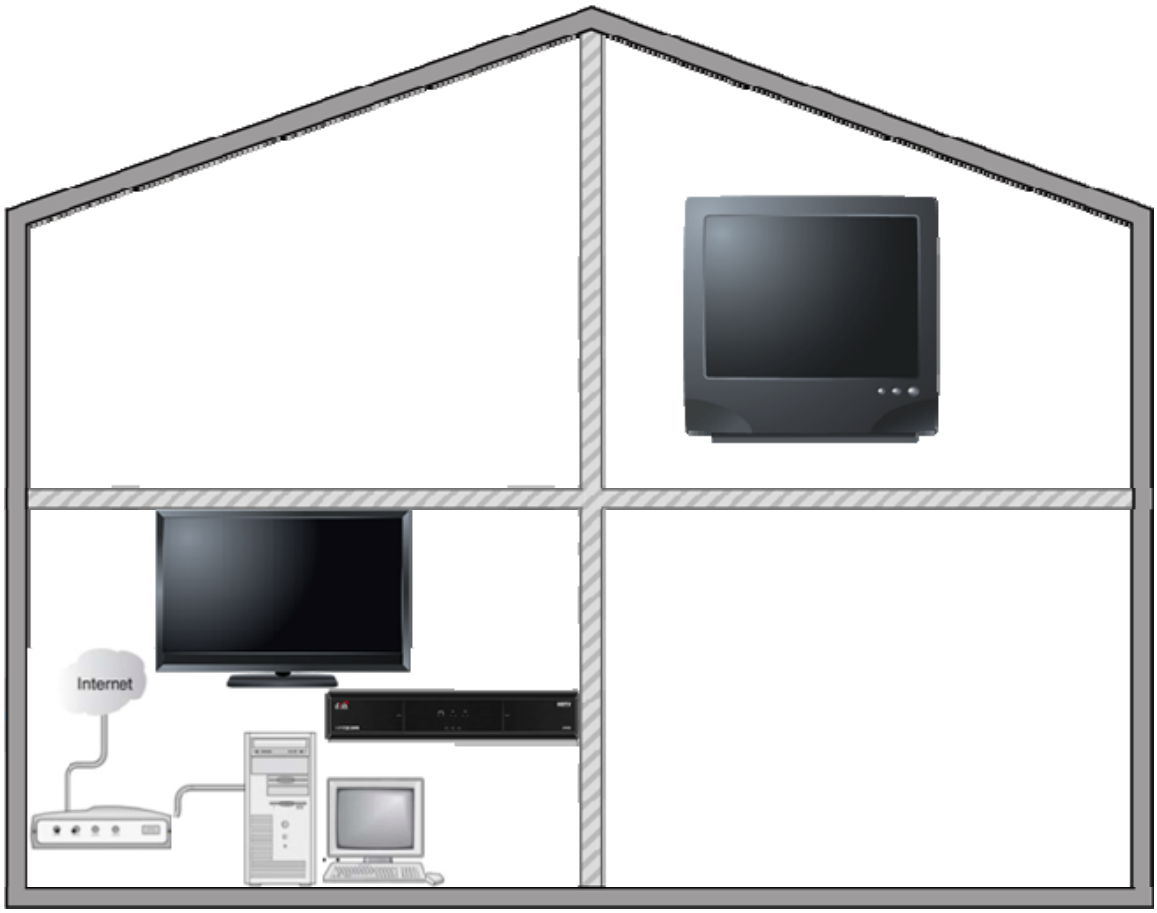
_____

_____

Challenges: _____

Connectivity

Scenario 4



Your customer has a ViP722 in their main room. There is a computer connected to the Internet with only a modem in the same room. They do not have a phone line in the house.

The best connectivity solution for this situation is: _____

_____

_____

Challenges: _____

Troubleshooting

Connectivity Troubleshooting Matrix

Troubleshooting the Broadband Connection

Take turns reading the scenarios below while the other two solve the problem using the matrix.

- Scenario 1: This will be a wired setup using a router and a "bad" switch; simulate a "bad" switch by unplugging the Ethernet cable from the switch
- Scenario 2: This will be a wired setup that has been connected incorrectly; on the switch, connect the "in" cable to the "out" port, and the "out" cable to the "in" port
- Scenario 3: There is a "bad" cable between the router and the receiver; you must have access to a bad Ethernet cable to complete this scenario

Escalation Process

During connectivity troubleshooting, or if you are unsure of connectivity options, you need to know how to escalate the issue to minimize impact to the customer. Use the following steps.

Perform normal troubleshooting

- Ensure the links in the broadband chain are active and correctly set up

Contact your FSM

- Work through the Connectivity Troubleshooting Matrix

Call DASH (866-688-3274) to reach a specialty agent as a last resort, for further troubleshooting

- Select option 5
- NOTE: Don’t contact the CSC to determine connectivity options; this should be handled by the FSM

Connectivity

Closing

Can you answer the following questions?

- Who benefits from Internet or phone line connectivity?
- Why is connecting the Internet or phone line to receivers a critical part of quality installations?
- Does the Ethernet outlet or phone jack need to be located near the receiver?
- Does DishCOMM work on all DISH Network receivers and equipment?
- When should you use the wireless adapter?
- Can you configure a ViP receiver for an Ethernet connection?
- Can a switch be connected directly to a modem? Why?
- Can you determine the best connectivity solution to use in each installation?