



Terminal Session Management

Beyond emulation, the functionality required to effectively manage the use of Wireless Terminal Devices

Wireless Terminal Emulation: A different approach is needed

By definition, a “terminal” device is meant to provide the ability for a user to enter data and view screen updates for an application that resides on the host system it is connected to. It is important to note that there is no data entry application running on the device itself. As such, our philosophy is that any hardware device being used as a “terminal” should have as little software on it as possible, and only for the purpose of enabling the functions of capturing/displaying user input/output. This belief has proven to be especially valid when connecting terminal devices to application hosts “wirelessly”.

With this thinking in mind, we created what we call our Client2Host™ architecture. It is the foundation for our popular StayLinked™ solution for wireless terminal emulation and session management. Virtually all other wireless terminal emulation products utilize an architecture that features emulation software running as an application on the device itself to create a remote Telnet client session. This has always been done on “wired” personal computers in the past. The feedback we received when doing our research prior to developing the Client2Host architecture, nearly three years ago, clearly indicated that a different type of software design was needed for terminal emulation applications making a “wireless” connection to an application host.

Our research included feedback from device manufacturers, device resellers/integrators and end-user organizations. While they all told us that terminal emulation running on a handheld wireless device worked, they all said that there were some major and very painful challenges they were all dealing with that did not surface in a “wired” world.

Of primary concern to our research base was that a loss of connection to the host, even for a short duration, would cause “dropped” or “abandoned” user sessions. This situation creates the need to reset and clean-up the host and device environment so the user can resume working (a major productivity killer for users and IT support staff).

They also conveyed to us that since the devices were mobile and remote from the support staff, there was really no way to effectively manage the terminal user sessions from the help desk (e.g. can’t walk over to the user’s desk to see what they are seeing on the device, to take control of the session if the device went bad, to share data entry interactively with the user for training purposes, etc.). In short, remote and mobile Telnet user sessions were a “black hole” for the help desk staff when problems occurred or if remedial end-user training was needed.

StayLinked’s success since its introduction nearly two years ago validates the importance of the two major goals we kept in mind when we created the Client2Host architecture:

1. Implement “host-based” session persistence, using the reliability of the host computer to keep sessions alive by running the sessions there, not on the device or on a gateway

PC server (only a thin client resides on the device to provide remote control of the Telnet client and server session running on the host).

2. Take advantage of the session running on the host at all times as a central point of contact that both the device user and support staff can access simultaneously to provide centralized session management functions.

Using wireless terminal devices for the purpose of gathering real-time data is not new. However, until recently the main focus has been on emulating the proper terminal interface (IBM 5250/3270, VT100/220, etc.) based on the host application platform and creating a solution to maintain a reliable, persistent host connection. StayLinked’s Client2Host architecture meets the challenge of providing reliable, persistent wireless connectivity by keeping the Telnet Client and Server session on the host.

Very valuable on its own, reliable wireless session persistence with the Client2Host architecture is just the beginning of the StayLinked story. It is also the foundation for an additional set of much-needed help desk/centralized management functionality that is simply not possible with other terminal emulation architectures.

Beyond Emulation: The NEED for Terminal Session Management

StayLinked’s Client2Host architecture enables the most reliable method for wireless terminal connectivity. It also brings with it the ability to provide centralized help desk/support staff with a means of effectively managing Telnet user sessions. This is especially valuable when supporting remote users who are connecting to host systems with a wireless terminal device to gather data in real time (e.g. scanning barcode labels in a warehouse, distribution center or retail location). Disruptions in connectivity, abnormal device functionality, or unexpected application behavior could result in a loss of productivity for the user and frequent calls to the help desk for support.

The staff being asked to provide wireless terminal users with support is typically not geographically local to them. They are usually deployed centrally at corporate headquarters locations, along with the other IT support resources for critical host-based applications and systems. Typically, once a remote wireless terminal user loses their host connection, they also lose all information related to where they were in their transaction sequence and data entry process. This leaves the user and the support staff with very little data to go on. Not so with StayLinked. Its Client2Host architecture allows both the end user and support staff to view and control the user’s Telnet session running on the host, even if the user’s device is disconnected or powered off.

The Telnet client runs on the host and is controlled “remotely” by either the StayLinked thin client running on the user’s device or from the StayLinked Administrator GUI console’s “Manage Connections” function running on a support staff member’s PC. In short, both the

end user and the support staff member are accessing and viewing the same Telnet session running on the host in real time, but from two different sources.

Even if the end user's device goes bad (dead battery, etc.), or if they are out of wireless access range, the support staff member will see the user's session (current screen with cursor blinking waiting for next transaction/key stroke/scan) running on the host system. It is unaffected by device or coverage issues.

This is a very valuable piece of information for the support staff to have when a user may be thousands of miles away from them in a remote warehouse, distribution center or retail location. It confirms for both parties the last transaction to be successfully completed on the host. It also displays precisely where processing will resume (screen and exact field/cursor location) when StayLinked automatically reconnects the user to their session after the disruption in access or device issue is resolved. This type of information and functionality is not possible if the Telnet client is running on the device.

Centrally managing the Wireless "Network" and the "Device" is not enough

When being asked to support users in a wireless terminal environment, the help desk/support staff needs "management" solutions that give them "centralized" definition/configuration of the software technologies involved. They need real-time console applications that give them centralized visibility and control of the entire network of users they support, no matter how distant those users may be physically. Many quality solutions exist that provide support staff with this type of capability in the areas of Wireless "Network" and "Device" Management. These solutions can offer complete functionality provided the wireless devices are running client/server "fat applications" that feature device-resident databases and application programs.

However, if the wireless devices are being used as wireless "terminals" accessing a host-based application through a Telnet Client and Server session, then there is additional information and functionality required. None of the existing Wireless "Network" Management or Wireless "Device" Management solutions available today provides the specific "centralized" visibility and control needed to effectively manage wireless terminal users and their sessions.

Therefore, Terminal Session Management is defined by the set of information and functionality required specifically for effectively managing wireless "terminal" user environments, which is not provided by any other centralized management scheme. It is important to note that Terminal Session Management supplements network and device management information and functionality, and is not a replacement for either.

The information and functionality provided by Terminal Session Management

Centrally-deployed help desk/support staff members need an intuitive GUI console application that gives them the ability to not only monitor the status of a remote wireless terminal user's session in real time, but to also see exactly what the user is seeing and experiencing on their end. Ideally, they should also be able to take immediate remedial action through the same centralized interface to assist the user with resolving any productivity-hindering application behavior or end-user training issues.

StayLinked's centralized Administrator GUI console application provides this powerful set of capabilities. Wireless terminal Telnet sessions running on the application host are completely visible and controllable with the StayLinked Administrator GUI console at all times. This eliminates the previously described "black hole" scenario for all wireless terminal devices where the StayLinked thin client software is installed to remotely "drive" host Telnet sessions, as opposed to "running" the sessions locally on the device.

The StayLinked Administrator GUI console application can be installed on any non-dedicated Windows PC that has network access to the host system where the StayLinked Server software is running. It is through this single, intuitive interface that the help desk/support staff can configure, view, and manage all aspects of the StayLinked environment.

With StayLinked, licensing, active user sessions, and all device terminal emulation configuration and desired behavior is managed centrally. Changes can be made centrally and applied to specific devices or groups of devices, as opposed to the need to "touch" every device for desired changes to take effect. Additionally, there is no need to modify any device-resident software for changes in desired behavior to take effect, eliminating the need to re-transmit new/updated copies of device-resident software over the network.

The StayLinked Administrator uniquely provides a wide-range of information and functionality that takes advantage of the Client2Host architecture:

Category 1: Centralized Definition/Configuration of Session Behavior

Important note: Centralized Definition/Configuration of Session Behavior is applied to the user's session when a connection is made between the StayLinked thin client software and the StayLinked server software (does not require pushing configuration files to the devices).

- Types of barcodes to support/allow as valid scanned input
- Keyboard map definitions (and alternate keyboard map definitions)

- Handling of messages and alerts (where to display, sounds, etc.)
- Tap spot data entry mnemonics for “touch” enabled devices (PocketPC, etc.)
- Color, backlight settings and other terminal display characteristics

Category 2:

Centralized Visibility and Control of Terminal User Sessions

- Monitor application screens and user input in real time
- Take over user sessions when devices fail (complete unfinished transactions)
- Collaboratively “share” sessions between the user and the help desk
- Transfer control of a session to a new device if the user’s device fails
- Establish “session partnerships” for more than one device to share a session
- Terminate sessions
- Reboot devices
- Execute a remote program on the user’s device
- Send text messages to devices

In addition to the capabilities listed above, StayLinked features a comprehensive set of tools and server and device log files that can be used for diagnostic and troubleshooting purposes. Having a background facility that captures critical event data with time stamp information, and an easy interface to access it, is extremely valuable for quickly determining exactly when and why unexpected issues occur.

Summary

The purpose of this white paper is to raise awareness of the fact that a different approach to terminal emulation is needed when implementing wireless terminal devices. It is needed to maximize host connection reliability, as well as to provide an architecture that facilitates much-needed centralized management capabilities.

Wireless terminal users and IT support staff no longer have to defer to the time consuming and disruptive process of “re-booting” devices as the only solution when a user experiences issues with accessing host-based applications. StayLinked’s Client2Host architecture, combined with the StayLinked Administrator GUI console application, enables help desk/support staff to take immediate, informed action to assist a remote user when issues occur.

StayLinked also provides a platform that can proactively be used for providing training to remote end-users to familiarize them with new or modified application screens. The ability to have a support staff member act as an interactive co-pilot in real time with host application users, without having to physically be there, maximizes the effectiveness of centrally deployed IT and support resources.

If your organization has deployed wireless terminal devices and you are experiencing the issues raised in this white paper, or if you are planning on using wireless terminal devices, we strongly encourage you to consider the functionality offered by StayLinked. StayLinked is licensed according to the number of simultaneous host connections required as opposed to licensing each device. There is no charge for the StayLinked thin client software. This allows customers to migrate from older terminal devices to ones that offer newer technology or expanded feature sets, without the need to re-purchase terminal emulation software for the new devices when they are placed into production.

StayLinked server software installs and runs natively on a wide range of highly-reliable host computing platforms (no gateway hardware or complicated proxy processes need), including the IBM AS/400-iSeries (OS/400) and RS/6000-pSeries (AIX), HP9000 (HP-UX), Sun Solaris, as well as various Linux and Windows-based server offerings. StayLinked thin client software is available for most popular wireless terminal devices from manufacturers such as AML, HHP, Symbol, Intermec, PSC, LXE, Citadel, Psion-Teklogix and others, as well as any Windows, Windows CE/CE.net/PocketPC based PDAs, Tablet PCs, laptops, desktop computers and even Windows Mobile Smart Phone devices for Wide-Area wireless terminal emulation applications.

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