HITACHI
DATA SYSTEMS

Wireless Thin Client Tablet or Tablet PC:

What's the difference?

Mobilize Your World

Introduction

With the introduction of the Microsoft® Tablet PC, tablet computers have received a tremendous amount of press, and as a result, they are making their way into the mainstream market. However, it should be noted that all tablets are not equal, as there are several existing tablet architectures, including Microsoft smart displays, web appliances, Wireless Thin Client Tablets, pen computers, and tablet PCs; each with their own specific usage scenario. For the purpose of this paper only the tablet PC and the Wireless Thin Client Tablet will be considered; specifically, what they are, their environment, features and benefits, the advantages and disadvantages of each technology, and the return on investment (ROI) they offer.

What is a Tablet PC Vs a Wireless Thin Client Tablet?

Tablet PC—A tablet PC is an intelligent computing device with an active digitized touch screen and slate form factor that relies on an electromagnetic stylus-based pen for input. The tablet PC runs Microsoft XP tablet edition Operating System and has a hardware and software feature set specific to the Windows environment. These notebook-like devices feature active, digitizer touch screens, dynamic screen rotation, suspend and resume, and handwriting recognition. In order to support these functions, however, they require higher speed processors and large internal hard disk drives.

This computing model or architecture, also called *client-based computing*, is not terribly cost effective, but it offers end users a great deal of computing power, increased productivity, and mobility.

Wireless Thin Client Tablet—A wireless thin client tablet is an integral component of a server-centric architecture; an environment where the processing power, data, and application is resident on a networked corporate or centralized server, rather than on the client itself. This architecture is complementary to the mobile field professional requiring access to dedicated mission-critical applications.

The wireless thin client tablet can run various operating systems, including Microsoft CE, embedded Windows XP, UNIX, and various flavors of Linux. The Wireless Thin Client Tablet also has a touch sensitive screen, which accepts pen and finger touch input. It also accepts USB keyboard and mouse forms of input. Since, the Wireless Thin Client Tablet is not dependent on a stylus pen for input, it remains operable even if the stylus is misplaced or lost.

This computing model, also called *server-based computing*, is efficient and cost effective, reducing the Total Cost of Ownership (TCO) by simplifying delivery, distribution, maintenance, and overall system management requirements. The architecturally sleek, thin client design of the wireless tablet doesn't diminish its capabilities in the least; offering access to the same powerful, multi-session, media-rich applications as the tablet PC, but with the added choice of embedded open source Linux or Windows XP.

Wireless Technology and Network Topologies

Wireless Technology—The tablet PC and the Wireless Thin Client Tablet share the same form factor, sometimes referred to as a slate or clipboard. This design is engineered specifically to provide the user of either device with the flexibility to access or input information in either stationary or fixed locations or while in the field; that is, in local, campus, or remote environments via wireless technology. Examples of such applications include mobile force field data acquisition and reporting, inventory monitoring and tracking, electronic medical clipboards, and remote machinery control. These applications require little or no keyboard or mouse input and are usually pull down menu and simple finger touch user interfaces.

Wireless technologies are communication protocols, common to both the tablet PC and the wireless thin client tablet, that afford the tablets their flexibility and mobility. While some technologies have been available for several years, it is only until recently that they have received much attention. Higher access speeds, better infrastructure, usable applications, overall lower implementation costs, and commodity pricing have all contributed towards the increased adoption of wireless technology.

Available wireless technologies include close proximity technologies such as infrared, site or campus level technologies such as 802.11a, 802.11b, and 802.11g that enable wireless local area networks (WLAN), and regional or global wireless technologies, such as CDMA and CSM/GPRS that enable wireless wide area networks (WWAN). These technologies and their characteristics are summarized in Figure 1.0 below.
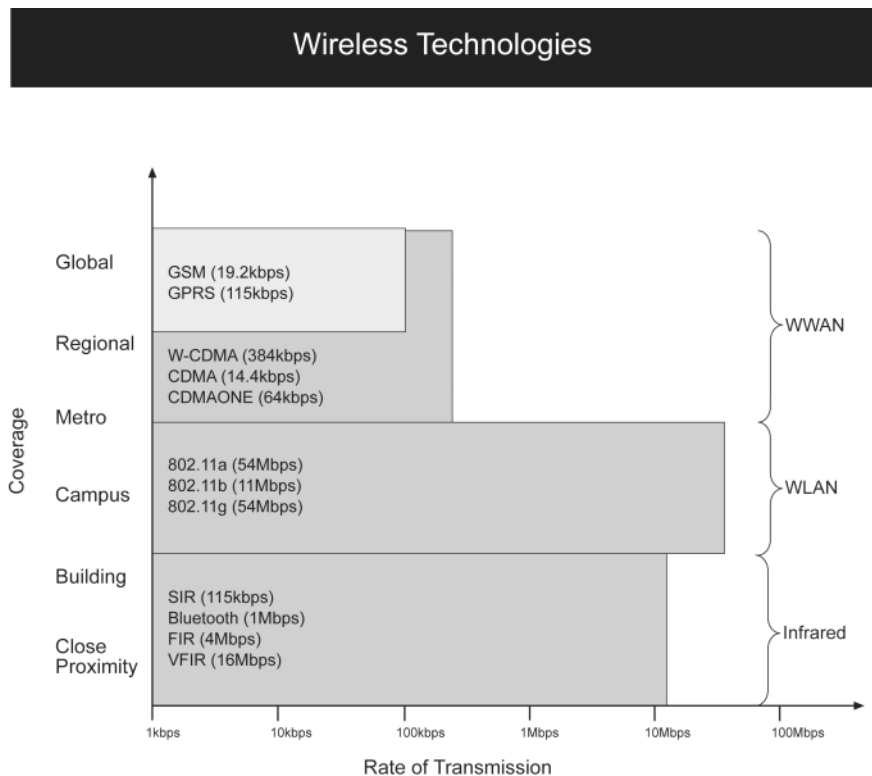

Figure 1.0

Network Topologies—Wireless network infrastructures or topologies that support mobile force applications are highly distributed; from corporate environments to public facilities—airports, hospitals, and franchise bookstores and coffee houses. And, most recently they are being deployed in fast food restaurant facilities.

With the proliferation of such environments, wireless technologies are being used to create a seamless integration between one wireless environment and another. In fact, not only is it conceivable, but in the near future it will become common place to transfer application sessions from a local environment (WLAN) to a regional or global environment (WWAN) without loss of session, data, or degradation of service. Figure 1.1 below provides an example of a wireless network topology that supports both WLAN using 802.1x wireless technology and WWAN utilizing CDMA, GSM, and GPRS cellular technologies.
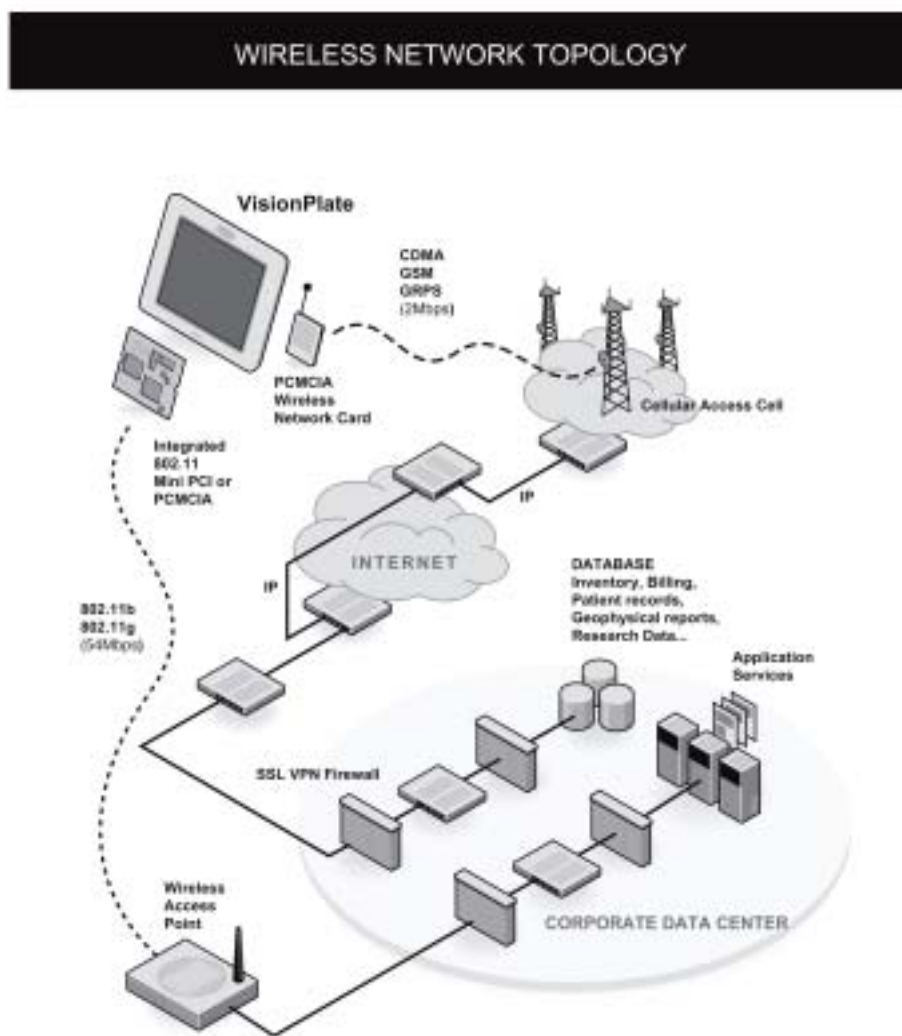

Figure 1.1

In such scenarios, through the tight coupling of the software, the hardware, and the network, applications can be designed to take advantage of the high speeds available through WLAN and the long distances attainable through WWAN. Unfortunately, this can present a myriad of security and system management issues (disparate configurations, resource intense deployments, system updates, and maintenance), which can quickly translate into costly administrative headaches for enterprise IT departments. One way of addressing these issues, from a hardware perspective, is to implement a server-centric architecture utilizing a wireless, thin client tablet device. An example of such a device is Hitachi's **VisionPlate** Wireless Thin Client Tablet. This architecture is able to provide IT with the necessary centralized control, reliability, and lower administrative costs it requires, as well as the flexibility and versatility for such application scenarios.

Features and Benefits

The key to understanding whether a client- or server-based computing model is a better fit for a solution should be based on a proper understanding of the benefits and tradeoffs associated with each architecture. From a features and benefits point of view, the Wireless Thin Client Tablet model (represented here by Hitachi's **VisionPlate**) provides measurable benefits to a server-based model, as shown in Table 1.0 below.

Features/Benefits	Tablet PC w/Tablet PC OS, HDD	VisionPlate Wireless Thin Client Tablet w/Embedded OS
Wireless Access	Yes	Yes
802.11x capable	Yes	Yes
Complete record privacy and protection	**No**	Yes
Immune to HDD failure and subsequent data loss	**No**	Yes
Easy field force software application updates or roll–outs	**No**	Yes
Centralized management	**No**	Yes
Operation without dedicated pen	**No**	Yes
Handwriting Recognition	Yes	Yes
Wall Mountable	**No**	Yes
Key board and mouse accommodation	Yes	Yes
Low management costs	**No**	Yes
Easy deployment	**No**	Yes

Table 1.0

Advantages - Wireless Thin Client Tablet Vs Tablet PC

Best usage scenarios
As previously noted, Wireless Thin Client Tablets (**VisionPlate**) and tablet PCs share various features, including wireless capabilities, handwriting recognition, soft keyboards, and docking stations. However, the HDD-based tablets have a best usage scenario fundamentally different from compact flash-based Wireless Thin Client Tablets—such as **VisionPlate**—which store data on a centralized

server instead of locally on the tablet itself. This method provides advantages that include better privacy protection of data, no degradation in OS functionality resulting from individual customization, and lower Total Cost of Ownership (TCO) due to better software control. Such a computing paradigm belongs to an exclusive category of technology having clear value propositions, both in terms of cost savings and increased end-user productivity. The *VisionPlate* Wireless Thin Client Tablet is designed to take advantage of the server-based computing architecture, and provides the accompanying benefits.

Tablet PCs, on the other hand, store data locally on a hard disk drive, providing advantages such as better individual control of data, faster access to data, and stand-alone usage with no network access requirement. And, while these features make the tablet PC a potential threat to wireless thin client tablets (*VisionPlate*), tablet PCs do not provide the flexibility, scalability, lower weight, and operational cost efficiencies inherent in server-based, Wireless Thin Client Tablet technology.

Disadvantages of the tablet PC include potential susceptibility to theft, system security breach, information compromise, loss of data resulting from system or hard disk shock, system degradation due to individual software load, heavier weight, mechanical breakage points resulting from multiple moving parts, and radiological interference. These disadvantages can present some significant issues in vertical markets, such as healthcare, banking, government, and any other market that requires a high degree of security and privacy of records.

Return on Investment (ROI) Benefits

ROI

Server-based computing (Wireless Thin Client Tablets) allows companies to run any application with lower initial investment, reduced maintenance costs, and greater security than with a tablet PC, thus providing clear ROI benefits as depicted in Figure 2.0 and the summary below.
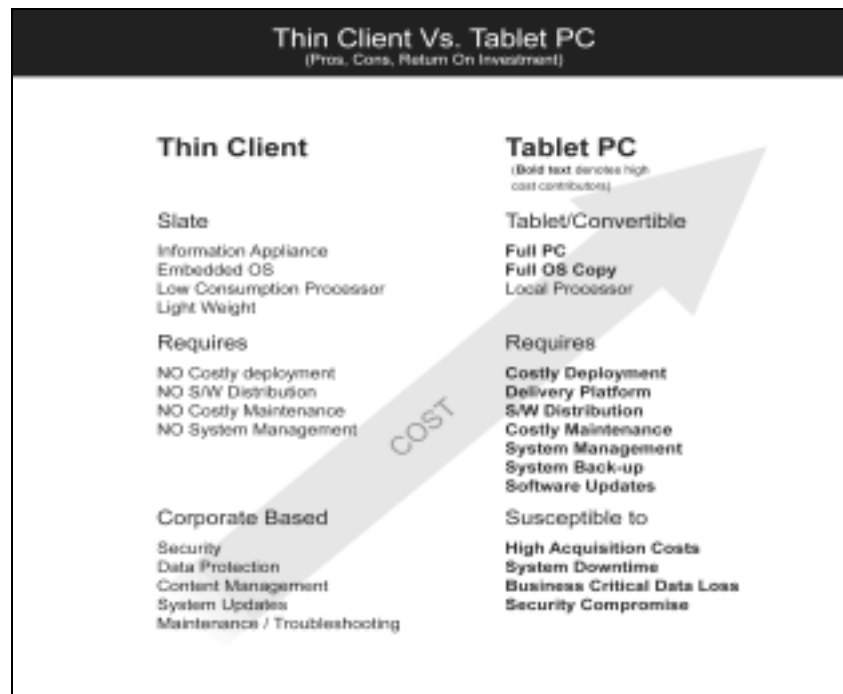

Figure 2.0

- **Lower up-front cost**—because wireless thin client tablets have no moving parts (floppy or hard disk drives or CDROMs)

- **Lower ongoing capital expenditures**—because applications are server based—not rather than desktop based—thin client appliances last longer, reducing ongoing capital expenditures compared to tablet PCs

- **Lower administrative costs**—thousands of wireless thin client tablets can be managed easily, dramatically lowering administrative costs and freeing staff from dealing with tablet PC problems, including software and configuration incompatibilities, roll-out/deployment efforts, maintenance, and upgrades.

- **Lower maintenance or service costs**—personalized or changed hardware or software configurations, personalized applications, or virus-infected personal data are not issues with a wireless thin client tablet

- **Faster application deployment**—because software is server based rather than desktop based, new applications or upgrades can be rolled out to thousands of users in minutes, not months, at a fraction of the cost

- **Use all of your existing software**—thin client appliances have the ability to run any OS—Windows, Linux, UNIX, mainframe, midrange, Java or the Internet—so there is no need to upgrade the infrastructure to realize all the benefits

- **Access/input your data from anywhere**—with thin client appliances, your files and applications are stored on servers—not the desktop—so you can access them from any device, anywhere, at any time

- **Greater security**—thin client appliances are much more secure than PCs, and are not susceptible to desktop viruses, questionable data protection, and desktop backup requirements

- **Greater reliability**—with no moving parts, a thin client appliance is more reliable than a tablet PC, saving significant cost over the life of the device

- **Greater leveragability**—because access is secure and centrally managed, multi-shift personnel can utilize the same wireless tablet for different applications without experiencing data loss, compromising security, or system disruption

- **Silent operation**—with no hard drive, fan, or other moving parts, a thin client appliance is completely silent, enhancing workplace productivity

- **Environmentally safe**—Wireless Thin Client Tablet technology poses no risk in hazardous environments (UL 1604 compliant)

Conclusion

Industry analysts are extremely optimistic about the long-term outlook for mobile and wireless products. And, with literally hundreds of innovative technologies being developed every year, the use of mobile data applications and sophisticated devices is expected to surge. This, in turn, will further stimulate the rapid innovation in the mobile and wireless industry for the next five to 10 years.

So, which technology will play the most significant role in the emerging markets of tomorrow? The answer is the technology that allows companies to further develop and extend their enterprise-scale applications, improve company communications, and enable new business process efficiency for their customers and their mobile field forces, lowering costs and increasing productivity. *VisionPlate* Wireless Thin Client Tablet is such a technology. Not only does it meet today's demand for mobility and wireless functionality, but also provides the flexibility, scalability, and cost efficiency requirements of the future.

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For more information on the Hitachi *VisionPlate* Wireless Thin Client Tablet call 1-800-340-7549 or visit the *VisionPlate* web site at www.visionplate.com.