

Partner Bulletin

ISS45 and Windows Version 8 and WinPoS Platform Configuration

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StoreNext is pleased to provide information regarding ISS45 Version 8 and Windows PoS. ISS45 V8 marks is the first and only Third-Generation Windows PoS solution – significantly advancing the state of the PoS systems art and providing unprecedented speed, features, safety and transaction processing robustness to PoS architecture.

ISS45 is the only system to offer a migration plan where we protect 100% of the user's application software investment. That means that any user installing ISS45 Version 7 will have paid exactly the same total amount after their move to V8 as if they had installed ISS45 V8 from the start.

With V8 in the back room and Windows PoS in the front office, ISS45 was the first supermarket PoS systems to offer true Microsoft NT/2000/XP wall-to-wall. Furthermore, ISS45's Services Architecture is unique in that it allows mix/match flexibility for the use of operating systems throughout, with operating system independence for each PC resource. Going forward, Windows XP is supported on both the V8 and V7 Windows platforms, while the V8 and V7 offices support Windows 2000 Server and Professional respectively.

Windows 2003 support for V8 and V7 offices are in development.

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ISS45 WINDOWS PRODUCTS

- **ISS45 Version 7** can have its back office (Controller Service and Applications) installed on Windows 2000 Professional or Server. Server is not recommended unless Terminal Services

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are required for the configuration. StoreNext PCs designed to ship with ISS45 include Windows 2000 Professional.

- *ISS45 V8* is a software option for ISS45 that brings the power and capabilities of a Graphical User Interface (GUI) and the Microsoft SQL 2000 database to ISS45. V8 is sold as an option, and commercially V8 can be purchased to supplement a new or any installed ISS45 Controller Service software at any time without penalty. The current 8060/8080 V8 office is supported on Windows 2000 Server only.
- *ISS45 Windows PoS* (“WinPoS” available for either V7 or V8) gives users Microsoft Windows as the operating system for PoS as well as the office controllers and workstations. ISS45 Windows PoS for V7 over TeamPoS 2000 is validated only with Windows 2000 and Windows XP, and with Windows NT on TeamPoS 5000. V8 WinPoS is supported *only* on the TeamPoS 2000 over Windows 2000 and Windows XP. Windows 98 support has been withdrawn. There is no terminal software license pricing difference between V7 DOS, V7 WinPoS and V8 WinPoS installations.

PLATFORM REQUIREMENTS

As always with Microsoft Windows (any version), more memory, more disk space and faster processors will normally reward the user with enhanced performance. So, beyond the minimums, any extras you add will normally help. Additional RAM can provide a lot of performance enhancement for minimum dollars, and with prices at all-time lows, it makes some sense to invest a little in memory.

With Version 7 there are no advantages to using Microsoft NT Server instead of NT Workstation or Windows 2000 Server instead of Windows 2000 Professional.¹ With the server versions, operating system licenses are more expensive and the hardware platform requirements increase – this is especially true since Windows 2000 Professional is available pre-loaded on PCs at minimum cost. ISS45 V7 operates equally well on either version (Server, Workstation, Professional) however, so the choice of using the server version is up to the user.

With ISS45 V8, the situation is a little different due to the use of Microsoft SQL. SQL’s I/O practically requires the SQL Server version which requires Windows 2000 Server.

In the tables below, “Minimum” refers to the specification below which the application will not operate successfully, and “Optimal” suggests the point at which adding more has diminishing or no returns. The recommendations below do not account for performance, Disk or RAM requirements for any other applications that the user may want to operate on the ISS45 PCs.

¹ Unless Terminal Services (for mobile computing, for example) are required.

Version 7 Windows Platform Requirements:

Product	Minimum MHz	Optimal MHz	Minimum RAM	Optimal RAM	Minimum Disk (above O/S)	Optimal Disk (above O/S)
V7 MFS1 and MFS2 (Windows 2000)	Pentium II (All)	Pentium II 400MHz	128	256	1GB	20GB
V7 PoS (DOS)	'486 66MHz	Pentium 100MHz	16	16	500MB	1GB
V7 WinPoS (TeamPoS 2000 Windows 2000)	Pentium 166MHz ²	Pentium III 1GHzMHz	128	256	2GB	20GB
V7 WinPoS PoS (TeamPoS 5000 Windows NT)	'586 166MHz ²	'586 300MHz ²	32	64	2GB	4GB

Version 8060/8080 Platform Requirements:³

Product	Minimum MHz	Optimal MHz	Minimum RAM	Optimal RAM	Minimum Disk (above O/S)	Optimal Disk (above O/S)
V8 8060/8080 MFS1 (Windows 2000 Server)	Pentium 4 1.0GHz	Pentium 4 2.4 GHz	256	512	10GB	20GB
V8 8060/8080 MFS2 (Windows 2000 Pro)	Pentium II 266 MHz	Pentium 4 1.5 GHz	128	256	4GB	10GB
V8 8060/8080 WinPoS (TeamPoS 2000 Windows 2000 Pro)	Pentium 266 MHz ²	Pentium III 1.0 GHz	128	128/256 Error! Bookmark not defined.	2GB	4GB
V8 8060/8080 WinPoS (TeamPoS 5000 Windows NT)	'586 266MHz ²	'586 300MHz ²	64	64	2GB	4GB

In addition to the above-listed requirements, the use of an Uninterruptible Power Supply (UPS) is strongly recommended for all Windows controllers. A UPS unit also has benefits for PoS, and is even more strongly recommended if Fujitsu TeamPoS terminals are not used. ISS45 Windows PoS includes support for the TeamPoS battery backup feature, which provides battery

² This minimum is not a recommended configuration depending on productivity and performance requirements.

³ These estimated requirements are provided for reference and future planning only.

support of the TeamPoS boards, RAM and disk for a few minutes during short power outages. This eliminates Windows reboots during brief blackouts, or a controlled shut down.

RELEASE AND AVAILABILITY SCHEDULES

- ISS45 Version 7 Office is currently available in General Release, and supports NT and Windows 2000 installations for the back office and controller services of ISS45. Support for Windows 2003 in the office is in development for both V8 and V7.
- ISS45 V8 Office is currently available for General Release in version 8060, with 8080 shortly to be released as of this writing. This release of V8 is configured as a “biased” dual controller service with one Master File Server (MFS1) using V8 with SQL 2000 as the master system database, while MFS2 is configured as a SQL Desktop, a client to the SQL files on MFS1. Both MFS1 and MFS2 employ a GUI. Windows 2000 Server is the only operating system supported for the office machines of Version 8. At this writing, there is no server version of Windows XP, and therefore no plans for XP support on the V8 office. Support for Windows 2003 in the office is in development.
- ISS45 Windows PoS is currently available in General Release for both Version 7 and Version 8. Windows 2000 or XP is required for V8 or V7 WinPoS on TeamPoS 2000, while Windows NT is required for V7 WinPoS with the TeamPoS 5000 terminals. There is no support for V8 WinPoS on the TeamPoS 2000.

PURCHASING WINDOWS OPERATING SYSTEMS AND SQL

Windows for V8 or Version 7 Controllers: When buying Windows 2000 for controllers or servers, pre-loaded servers with Windows 2000 will offer the lowest prices for the operating system. This makes the purchase and configuration easy, while lowering the price for acquiring the license to the absolute minimum. All StoreNext PCs and servers are loaded with either Windows 2000 Professional (45DTPC, 45MTPC) or Windows 2000 Server (45TSVR1, 45TSVR2).

Windows for Bare Servers: If you need to source Windows 2000 for servers that don't bundle these operating systems, StoreNext offers these products at standard discounts. Note that the standard/required servers for ISS45 V8 (45TSVR1 and 45TSVR2) are now provided with operating systems.

If you are purchasing Windows 2000 Server, be aware that the ISS45 V8 (and Version 7) architectures do not use the built-in mirroring, networking, filing, verification or client control facilities provided by Windows. This is due to ISS45's “Services Architecture” where the different software modules and operating systems throughout the system are fully independent. In commercial terms, this independence translates into the fact that all ISS45 Windows installations are “single-user” – that is, regardless of the number of terminals in a system, the only Windows “user” in an ISS45 system is the particular box on which the Windows software is loaded. So client licenses are not required for PoS terminals (either V7 or V8). Because of the workings of SQL, however, Windows 2000 Client Access Licenses are required for MFS2 and additional workstations on V8 systems.

Buying SQL for V8: The lowest-cost method of obtaining V8's SQL 7 database platform is often to purchase the “embedded” version of the ISS45 PoS terminal software. This provides the SQL 2000 licenses *for the entire system*. No additional SQL licenses or CALs need to be purchased. In general this is the lowest-cost method for stores of 10 lanes or less.

For stores of 11 or more terminals,⁴ the alternate method of purchasing SQL “off-the-shelf” is recommended. **You do not have to purchase SQL Client Access Licenses for the PoS terminals** – ISS45 PoS terminals are **not** SQL Clients as agreed by Microsoft.

SQL is **never** required for Version 7 or Version 7/WinPoS. SQL is required for V8 only.

Pricing: no one but Microsoft can routinely make much margin on Microsoft operating systems and databases. The StoreNext list prices for these components are designed to be discounted by the standard 40% to Dealers, which is why they are artificially high, and are unlikely to reflect street pricing. After the 40% discount, Dealer **net** prices are designed to be competitive with the best discounted prices available on the market.

Netting it out, use the following table to determine what you need to buy to support ISS45. These are listed below by System Component so you can locate all the items you need in one place.

Version 7

System Component	Buy	PIN	Price
V7 MFS1 or MFS2	The StoreNext 45DTPC and 45MTPC PCs come with Windows 2000 preloaded. No other purchase is necessary.		
V7 WinPoS	Windows XP Embedded All TeamPoS terminals are supplied with embedded XP OEM		

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V8 MFS1	The Operating System: Windows 2000 Server Windows Server is supplied on StoreNext 45TSVR1 and 45TSVR2 pre-loaded. To order Windows 2000 Server separately from StoreNext, purchase W2S10C00L at a list price of \$1,395.		
	The Database: SQL 2000 For any store of 10 lanes and under, it is normally less expensive to use ISS45's “embedded” SQL option with the terminal software and you won't need to buy SQL separately — see the WinPoS option for Embedded SQL below. For stores of 11 lanes and above, ⁴ the lowest cost alternative is (often) to purchase the standard SQL 2000 License SQLS20C00L at \$1,315.	45455/001S and 45455/013S	745 and 445

⁴ It depends on how many workstations you have. If you just use MFS1 and MFS2, then with 11 lanes or more it's cheaper to license SQL separately. But if you use additional workstations that means you have to purchase more SQL 2000 Client Access Licenses (CALs), with the result that the embedded option is cheaper with an even bigger store. For example, if you have one extra workstation (LFS) then use the embedded option up to 12 lanes. With two extra workstations, embedded is cheaper up to 14 lanes. Three LFSs, embedded is cheaper up to 16 lanes, etc.

V8 MFS2	The Operating System: Windows 2000 Professional – use the PC Preload that comes with 45DTPC or 45MTPC If the PC does not have Windows 2000 Professional pre-loaded, then order Windows 2000 Professional.		
	The O/S Client: Windows 2000 Client Access License. You need this so MFS2 can get to Windows 2000 on MFS1.	W2SC10C01L	59
	The SQL Client: if you use Embedded SQL (see WinPoS requirements below) then you don't need this. All SQL clients are supplied as part of the Embedded SQL when you purchase 45455/001S. If you do not use the Embedded SQL option, then you'll need to purchase the SQL Client: SQL 2000 Client Access License SQLC20C01L at \$275 list.		
V8 WinPoS	Windows XP Embedded All TeamPoS terminals are supplied with embedded XP OEM		
	The Database — an option: If you're putting WinPoS on V8, with a store with 10 or fewer terminals, the lowest cost option is normally to order the "embedded" SQL version of the ISS45 Terminal Software. If you purchase this for each lane, you <i>never</i> have to buy any other SQL components in the store for ISS45. See the section describing this option below. For larger stores or if you used the separate SQL 2000 Server license (SQLS20C00L) above or have purchased SQL outside of StoreNext (e.g., Microsoft Select program, etc.) you do <i>not</i> need to order any SQL Client Access Licenses for the lanes. And If you really want to know why, the explanation is arcane. ⁵	45455/001S ⁶ or 45455/013S ⁷	745 445

⁵ Ok, here goes: StoreNext/Fujitsu's "embedded" SQL agreement with Microsoft requires that a license be purchased for every PoS terminal, but in so doing, all SQL licenses for the controllers (that is, SQL Server, Desktop or Client Access Licenses) are waived. This almost always lowers the total system bill for SQL significantly if the store has 10 terminals or less.

But from the *technical* standpoint the PoS terminals are really not SQL clients – they never touch SQL. In an embedded scheme, their SQL Client status is for just for scorekeeping since there are no SQL charges for the **V8** MFS1 and MFS2 controllers. If you're actually purchasing SQL for the controllers, however, you're not using the embedded scheme and therefore you don't need to buy any more CALs than you're technically liable for on the MFS2 and LFS/Workstation machines. The same goes for Windows 2000 Client Access – you don't need them for the terminals (the only Windows 2000 Server CALs needed in any circumstance are for the MFS2 or additional workstations in a V8 office.) [Footnote continued on next page.]

V8 Workstations (LFS) (Handle just like MFS2)	The Operating System: Windows 2000 Professional – use the PC Preload		
	The O/S Client: Windows 2000 Client Access License. You need this so MFS2 can get to Windows 2000 on MFS1.	W2SC10C01L	59
	The SQL Client: if you use Embedded SQL (see WinPoS requirements above) then you don't need this. All SQL clients are supplied as part of the Embedded SQL when you purchase 45455/001S. If you do not use the Embedded SQL option, then you'll need to purchase the SQL Client: SQL 2000 Client Access License SQLC20C01L at \$275 list.	SQLC20C01L	275

See the current version of [Marketing Bulletin 1047](#) for a complete list of all operating system platform options and prices.

PURCHASING THE V8 OPTION AND ISS45 TERMINAL LICENSES WITH EMBEDDED SQL

When ordering V8, purchase the ISS45 licenses for Controllers, Workstations and PoS just as you would for V7. There is no pricing or PIN difference between the terminal and LAN software components for V8 PoS and the V7 DOS versions of the terminal software (unless you choose to order a PoS license that includes the embedded SQL Client Access License). For the controller software, however, you will need to order the V8 option plus SQL licenses (SQL is not included in the V8 option):

From the technical side, in either ISS45 V7 or V8, terminals have no access to the Windows 2000 file system. There is no use of any MS networking, file sharing etc. The terminals connect to the controllers via raw UDP packets. These packets are handled by ISS45's native OLTP system server ("RSM") and the only access to the Windows 2000 file system is the local, native Windows 2000 controller. The ISS45 terminals are not "Windows clients" but rather are clients of ISS45's OLTP. These clients do not use any Microsoft code or protocol for accessing anything on the server. ISS45's OLTP system runs on Windows 2000 (MFS1 or MFS2) and uses only local file access. This is why you can connect more than 200 PoS terminals to an ISS45 Windows 2000 workstation installation (which would otherwise be limited by Microsoft to 10 "MS client connections" rule).

Note: only V8 workstations (not PoS terminals) use Microsoft networking, so if you have V8 MFS2 or V8 LFS (workstation) machines these *do* use the Microsoft database and Windows 2000 connections, and must have the Client Access Licenses for both Windows 2000 and SQL.

⁶ Includes ISS45 PoS license. See Page 4.

⁷ Includes ISS45 PoS license. See Page 4.

PIN	Item	Price	Inst	Maint
45180/050	ISS45 V8 Option	2,195	100	100
45455/001S	ISS45 PoS Software, V7 or Windows PoS with "embedded" SQL Client Access License. 1-12 terminals. Same as 45455/001 except for inclusion of CAL for terminals being attached to V8 systems.	745	60	75
45455/013S	ISS45 PoS Software, V7 or Windows PoS with "embedded" SQL Client Access License. 13+ terminals. Same as 45455/013 except for inclusion of CAL for terminals being attached to V8 systems.	445	60	75

MEDIA

StoreNext has CD-ROM media for Windows 2000 and SQL 2000 available at nominal prices. Make sure if you order the following CD-ROMs that there are licenses on the Sales Order for the same products – or Microsoft will not allow us to ship the Media.

Order:

PIN	Item	Price	Inst	Maint⁸
2000MWNP-UPD	OEM Windows 2000 Pro update media (net price) ⁹	\$ 25	N/A	N/A
XP-PRO-UPD	OEM Windows XP Pro update media (net price) ¹⁰	25	N/A	N/A
W2SM10C00M	Windows 2000 Server Media Only [C11-00049] Requires W2S10C00L on same order.	44	N/A	N/A
SQLM20C00M	SQL Server 2000 CD-ROM [228-00694] (Media Only) Requires SQLS20C00L on same order. ISS45 Embedded SQL Option cannot be used to qualify for this media.	44	N/A	N/A

Media prices are net/non-discountable.

CUSTOMIZATION

- ISS45 Version 7 with Windows 2000 uses the same customization tools as Version 7 with DOS.
- ISS45 Version 8 customization tools are different.
- Crystal Reports, a leading off-the-shelf report writer, can be used to create customized reports from the SQL database. This and other SQL-aware report writers effectively replace IQL (ISS45 Query Language) on V8 installations.

⁸ These prices represent StoreNext's standard pricing model for maintenance.

⁹ Can be used to update an existing ISS45 TeamPoS or Express package with embedded Windows 2000.

¹⁰ Can be used to update an existing ISS45 TeamPoS or Express package with embedded Windows XP Professional.

- Visual Basic has been used to create the screens for the back office, and these screen files can be modified and customized by the user also with Visual Basic.
- Regarding data Access/ Assign (that is, OOP-speak for Read/Write) there are three available tools, all of which will be available as of the V8 general release: ¹¹

1. The single best and technically sophisticated means is the set of ISS45 Active-X Business Objects. This solution operates in the “middle tier” of the architecture, making it straightforward and foolproof to write data in the V8/Windows 2000 /SQL environment and prevent “corrupting the system” without corrupting the data files themselves.

With the ISS45 Active-X V8 objects, users and developers can write data to these objects, which in turn will handle the system coordination and data choreography issues. For example the ISS45 Active-X objects perform the business rules – they are responsible for QDX updates, data replication, data audit and validity checks.

The Active-X objects also protect external applications from future changes in the database, packaging the database schemas so that the application doesn’t need to know the actual physical table structure – this provides backward compatibility in the future.¹² Active-X objects can be regarded as the new-technology replacement to the old API – in fact, the philosophy is the same regarding tier structure, but different implementation technology. V8 applications themselves use these Active-X objects internally. Accessing the Active-X objects is easily implemented in VB, Visual C++, Delphi and other modern languages.

2. ODBC (Open Data Base Connect) is an excellent tool for ad-hoc queries, data extraction and reporting. Keep in mind, however, that ODBC is an older “two-tier” technology that bypasses all the business rules (validity checks, updates to QDX, Audit, redundancy etc). Therefore, ODBC should not be used for writing data to the system. Also, the data is not “packaged” in objects for the 3rd party applications, so if certain types of changes are made to the database schemas the ODBC apps may no longer operate.¹³
3. The traditional ISS45 API is limited to V7 and is not designed for use with V8. StoreNext’s original intention was to support the traditional API on V8, but additional experience with the architecture and the advantages of a similar Active-X (see above) implementation has led the engineers to scrap this plan. Ultimately, performance and data reliability will be better served using the Active-X objects.
4. Windows PoS retains the screen definition files used with the DOS ISS45 terminal software. An ingenious process within Windows PoS converts these files to a true

¹¹ For more information regarding this area of the system, see Marketing Bulletin #1126, Questions and Answers about ISS45 V8.

¹² Active-X itself, of course, does not automatically protect against database changes – it does so only if the application’s middle tier maintains backwards compatibility and does not break the business rules of old methods after they are released. This requires effort from the middle tier owner, in the same way as V7 backwards-compatibility was maintained even back through RPS/Supermarket and PC-Master. StoreNext is similarly committed to providing the same kind of continuous backwards compatibility in our Active-X interface, making the Active-X objects the interface method of choice for developers who need to integrate ISS45 data into their applications.

¹³ ODBC is protected only against limited changes to the schema of the database. If the query is well written, the application with that query will be protected against added columns, for example, but the application with the query is not protected if column were to be deleted or if columns and tables had name or type changes.

pixel-based graphic screen. So, IPM (ISS45 Presentation Manager, a.k.a. "PPM") remains the screen modification tool for ISS45 Windows PoS.

ISS45 VERSION 7 OFFICE OVERVIEW

When loading ISS45 Version 7 on Windows XP or 2000, the installation is made directly from the ISS45 CD-ROM instead of the ISS45 LoadMaker™ previously used with DOS installations. This sequence installs a full 32-bit Windows NT native service instead of the 16-bit version that is installed over a DOS platform. This service boots with the system previous to an administrator logon so that ISS45 workstations and PoS terminals will have data access without an administrator signed on. This also means that an errant user cannot close the ISS45 Controller Service task. This "always up" low-level Windows service means that PoS will be able to access the server regardless of unrelated application-level failures within Windows 2000.

Feature/function and system capabilities of the DOS and the Windows office versions are different since the WinPoS PoS has outdistanced what the former DOS version could do, naturally affecting the office. The user interface for the ISS45 V7 office applications are character-based.

The current and same ISS45 customization tools for the office, including the API, CustomLink, IQL and IPM are supported with V7 Windows 2000.

For consistency of set-up and store operations, StoreNext recommends that users configure Version 7 Windows 2000 installations with both Windows 2000 controllers similarly configured running Windows 2000.

The various ISS45 office application modules will run in NT/2000's windows, and due to the performance enhancements in the 32-bit Transaction Processing system, the Controller Services run *faster* than the identical application running on the identical PC under DOS. Some benchmarks have shown subsystems running 2-3 times faster, which will further enhance the speed of applying large batches, item adds, store closes, etc. System integrity checking for example now takes only 1/15 of the time it used to under DOS.

ISS45 workstations on Windows 2000 are supported for additional applications or office functions. Applications can interface to V7/NT/2000 via the standard ISS45 V7 API. ODBC is not supported on V7 ISS45 products.

ISS45 VERSION 8 OFFICE OVERVIEW

ISS45 V8 provides a superset of the V7 features and functions, but has three primary differences:

1. V8 provides a full Microsoft Browser-style Graphical User Interface for the office application modules.
2. V8 uses Microsoft SQL as the ISS45 master system database. This makes the V8 data files more standard and open, but it also means that:
 - The data access and assign methods different than with Version 7 (see Customization above)
 - Due to the current lack of support for SQL replication in a true OLTP environment, the Replication/Resiliency/Recovery capabilities are currently different in V8 compared to Version 7.
3. V8 provides significant additional functional parameters, depth and system richness compared to Version 7.

For a complete description of V8 differences see Marketing Bulletins [1148](#) (original V8 release), [1171](#) (Version 8.3 Release), [1181](#) (8.4 Release) and the many Patch Tables provided on the [StoreNext Web site and Open RoadMap](#) Pages.

ISS45 V8 uses Microsoft SQL Server as the master system database. With the current configuration, only MFS1 has a copy of the SQL server database, with MFS2 running an identical application but without its own copy of the database. All file maintenance on MFS2, for example, modifies the data on MFS1 as a SQL client, although MFS2 carries a standard V7-like copy of the internal QDX files. Replication, Resiliency and Recovery of all Controller Service and Back Office features are therefore available via ISS45's transaction processing system, with the exception of any database fields, reports or features that exist only on the V8 SQL file system.

Additional Windows 2000 workstations are supported for additional applications or office functions.

ODBC support for the master SQL server file is available for ISS45 V8. A set of Version 8 Active-X Business Objects is available from StoreNext allows third-party applications to interface to the master SQL database. The ISS45 V7 API is not supported under V8.

ISS45 WINDOWS POS OVERVIEW

ISS45 Windows PoS can be a powerful sales contender when the customer wants the most "modern" operating system or has a strong tendency toward Windows installations.

Using ISS45's layered architecture, Retailix has designed Windows PoS by modifying the operating system layer to run the low-level PoS terminal software directly on Windows. Note that unlike other systems, ISS45 is runs in native mode on Windows, with the terminal version of the on-line-transaction-processing (OLTP) system running in full 32-bit mode. The application is *not* running in a Windows "DOS box" nor, like other products is it running in 16-bit mode in Windows 3.1 over DOS.

The terminal screen has a standard Windows graphic presentation, and is very impressive to view, work with and demonstrate.

Hardware compatibility and migration of an ISS45 TeamPoS installed base must be considered. Obviously, the performance, memory and storage questions must be dealt with; there would not be much point in attempting to run a Windows version of ISS45 on a 25MHz '486SX TeamPoS 5000 OPC unit, for example.

The question of hardware compatibility becomes more complex because of different terminal hardware requirements for Windows itself. Microsoft's minimum standard for Windows 2000 or NT, for example, is a Pentium-class processor. This means that to run ISS45 Windows PoS on Windows 2000 will require a TeamPoS Pentium-class version. The ISS45 WinPoS required configuration is the TeamCom version of the TeamPoS terminal, since OPC support of WinPoS has been withdrawn.

The chart below summarizes the ISS45 PoS designs and requirements. Please note that the columns for Version 8.3.1 represent the architecture as used with Windows installations. ISS45 Version 7 will continue to available for DOS platforms.

Terminal Software Architecture Area/Layer	Version 7 DOS PoS	Version 8 Windows PoS
User Interface	Character-based with graphical block characters	Graphical User Interface (GUI)
Middleware	Internal Links with ISS45 Presentation Manager files	Windows COM and DCOM objects with ISS45 Presentation Manager Files
Business Logic	ISS45 Business Rules with 16-bit logic and CustomLink	ISS45 Business Rules with 32-bit logic and CustomLink ¹⁴
Middleware	Internal Links	COM/DCOM
System Level	ISS45 RSM16 Transaction Processing	ISS45 RSM32 Transaction Processing
Operating System	DOS	Windows 2000 ¹⁵
Hardware	TeamPoS OPC or TeamCom, all '486 or Pentium-class	TeamPoS Pentium with TeamCom

ABOUT WINDOWS HARDWARE PLATFORMS

Operation requirements are more stringent for Windows – particularly for Windows Server – than for DOS. Microsoft provides a certification service where manufacturers can send new models of their PCs for Microsoft NT certification, but there is a cost involved and many manufacturers do not certify their PCs for Windows.

It is therefore essential that customers understand that in the Windows Server world, the old belief that “any PC is the same as another” is no longer true. Although just about any PC could run DOS, Windows Servers – especially with RAID disk configurations – are far more complex and requires hardware that is much more consistent and specific. A Microsoft-certified PC is a requirement for proper system operation and software reliability. Therefore, be aware of the following:

- StoreNext will not support systems or sites with ISS45 using Windows unless the ISS45 controllers are Microsoft certified for Windows 2000. All StoreNext PCs are Microsoft certified.
- At the present time, StoreNext requires ISS45 V8 Windows 2000 units to be the validated 45DTPC, 45MTPC, 45TSVR1 and 45TSVR2 units from StoreNext. This

¹⁴ CustomLink libraries will be released for WinPoS at a later date.

¹⁵ Windows 2000 for TeamPoS 2000, Windows NT for TeamPoS 5000. It is expected that Windows XP will be supported in future releases.

policy is to limit the amount of support time diagnosing system problems that are OS/hardware related so that we can provide good support and response to customers using validated hardware. Besides the fact that all StoreNext PCs are Windows 2000 -certified, StoreNext validates ISS45 for proper operation on these PCs and will continue to release technical support data regarding specific configuration and setup information on these PCs.

- A disadvantage of Microsoft-certified PCs is that they cost more. This is for several reasons, but the main ones are:
 - Engineering and pre-testing to ensure Windows certification, plus expenses to formally certify the units with Microsoft;
 - Manufacturers must keep these units in the product line longer, usually a minimum of about six months. Of course, six months in the PC world is a very long time, so this means that only the very top end of the line – those PCs that would have a long life anyway due to the newest technology – are certified;
 - Because of the relatively long product life cycle – once certified, the parts cannot change – manufacturers must lock in parts and spares, usually at higher prices since this must be done early in the technology cycle when these items are most expensive;
- “White-Box” PCs – that is, PCs assembled locally or purchased from lowest-cost mail order companies or industry co-op services – can represent excellent values since those manufacturers/integrators can assemble these units from the lowest-cost parts available on the “spot market,” and there are no constraints regarding consistency and supply. For example, motherboards could come from one supplier one week, and a different one the next, having a completely different BIOS. This makes for a PC at the lowest possible price, but no model stays in the line long enough to be certified and there is no economic sense in doing so. While these may be excellent values for users, they are virtually impossible to maintain and support in a Server/SQL business application and are not suitable for commercial platforms.

It is important that customers understand that their choice to run Windows brings with it additional hardware requirements and costs, including the necessity for Microsoft-certified platforms.

COMPETITIVE ADVANTAGES AND SUCCESS FACTORS

Just as ISS45 has proven to be the most open, installable and reliable PoS system in the open systems era, ISS45 V8 is the first system that brings PoS and Windows together in an architecture that lets you – and your customers – sleep at night. ISS45 V8 is advancing the state of the PoS systems art in several ways, outdistancing the first and second-generation Windows products. As proof, V8’s installed base exceeding in on 2,000 stores marks it as by far the most successful Windows PoS system (designed for Windows end-to-end) ever launched.

Here are some of the most important competitive advantages you’ll enjoy with ISS45 V8.

- **Migration:** A few other vendors out there are promising a “migration” – if they install the old software now, they’ll be able to “migrate” to the new Windows product when it gets done. But the new product will be completely different, with no relationship to the old product at all. This means entirely new reporting, training and operations. A migration from ISS45 V7 to V8, however, is obviously within the same product line, and a V7 user will understand 90% of V8 immediately with no learning curve.

That’s true migration – anything else is just a trade-in.

- **Migration Part 2:** We are protecting 100% of your customer's Version 7 application investment, no matter when they purchased or installed it. This is because StoreNext markets ISS45 V8 as a software option – it can be added to any ISS45 system at that option price, which is *the same price* charged for a new store.

This is an exclusive migration capability: no other vendor will protect 100%.

- **Migration Part 3:** Customers are able to install ISS45 Version 7 on a Windows XP platform *today* and move to the full ISS45 V8 system when they decide they are ready. (Of course, since V8 is generally released they don't have to wait if they're ready now.) This is exclusive too.

This way, they don't lose a penny of their operating system investment for their ISS45 controllers/workstations.

- **Migration Part 4:** Customers wanting Windows PoS but not ready for a full V8 SQL are able to go with a V7 office and WinPoS front end.

This is impossible for anyone else.

- **System Stability:** All ISS45 Windows versions, including Version 7 and the current V8 release use the same 32-bit services for the core On-Line-Transaction-Processing system. These functions include the famous 3Rs (Replication, Resilience and Recovery) remote operation, LAN, intra-system communications and interfaces into the master database. For these crucial functions, we've continued to enhance the ultra-reliable model from the original ISS45 system, not relying upon Windows 2000's office-type internal facilities. Then we cast it in full 32-bit code as a true Windows 2000 service, running at the lowest, most stable possible boot level where it loads previous to the Windows admin logon (so you don't need anyone logged onto the back office to run a terminal). It can't be disturbed by operator errors, deleted icons or problems with other applications.

As long as the terminal has electricity, ISS45 will check out your shoppers.

- **System Access:** One of the three legs of a true open system (for 5,000 extra points and a spot in the Championship Finals, what are the other two?¹⁶) ISS45's use of standards throughout give it great marks in the System Access area, but ISS45 V8 takes it a step further.
 - Windows XP is now available as a standard system platform, whether for use with the character-based Version 7 or the GUI ISS45 V8. Windows XP is the standard platform for Version 7 and Version 7 WinPoS.
 - With Microsoft SQL as the master system database for ISS45 V8, the accepted industry standard database platform with Active-X and ODBC support is now at the core of the ISS45 system.
- **Data Access:** ISS45 V8 expands the capabilities for read/write access to the ISS45 data:
 - The ISS45 V8 Active-X Business Objects provide full write-back capabilities throughout the system through the SQL master database table set.
 - ODBC is supported on the ISS45 V8 master Microsoft SQL database. As described in the Customization section on Page 4, ODBC is recommended for data reads/access only.
 - Microsoft SQL applications will of course be able to read the data directly from the master data files.

¹⁶ System Access (usually accomplished via the use of standard platforms) and Functional Access (availability of usable, practical customization tools that allow you to modify and enhance the transaction set). No System Access, Data Access or Functional Access, then no Open System.

- **Functional Access:** (since you asked...) Customization has been one of the main differentiators for ISS45 since the beginning, but look at the improvements with ISS45 V8:
 - First, let's not go downhill: the ISS45 Active-X objects support ISS45 systems, providing backwards-compatibility for the future.
 - Off-the-shelf Microsoft Visual Basic is used for the Presentation Layer customization in the GUI ISS45 V8 back office.
 - Crystal Reports and other report generators can be used for customized reports issuing from the ISS45 V8 back office master SQL files. IQL will remain useful for access to the traditional V7 file structure.

(ISS45 V8's combination of System Access, Data Access and Functional Access make it the only true Windows Open System. If your customers want real openness – not just PCs in the lane – then this is the product they need.)
- **Performance:** When ISS45 DOS was released, we pointed out how critical performance was, and that faster hardware would never make a slow, poorly engineered system run fast because necessary software enhancements would outrun any new hardware capability.

Sad to say, we were correct: performance has remained one of the biggest problems for second-generation Windows systems. Scanned items take forever to be rung, and if they have special taxes or promotions? In that case, bring lunch.

Long pauses after the tender force shoppers to wait while the server is updated and the next order can start. Price and file updates are only practical during after-hours due to terminal bandwidth and the necessity of communicating "fat packages" back and forth between overworked servers and overstressed Pentium PoS terminals. (There's even a new war movie for store managers: "The Longest End-of-Day," and don't even *think* about cashier monitoring.)

Those familiar with Windows system development know about the performance trade-off issues with the SQL database compared to some other less powerful and less robust engines. But having experimented in development with three other popular database engines for the ISS45 V8 product, we settled upon Microsoft SQL because

- The long-term development plan and resources to maintain this product are second to none,
- The high quantity of products that will interface with it, and
- The robustness of the data integrity mechanisms – in rough and tumble destructive testing, it was the only database that consistently maintained data integrity in the worst conditions, including data file updates during hardware failures.

For true transaction processing in a PoS environment, you need a Navigator, not a Ford Fiesta. The trick is to make this SQL truck run like a Formula-1 car. Here is where ISS45 V8 excels (again), with engineering sophistication put to work in order to optimize the possibilities of technology instead of just claim them as buzzwords. In short, ISS45 V8 will perform faster than any other Windows PoS system, *and do it with less hardware*.

- ISS45 V8 is cleverly engineered to offload database operations from SQL wherever possible, handling them instead with ISS45's lightning-fast OLTP logic. The terminals never need to speak directly to the master database, for example, to transmit either order or transaction data or to receive file updates. V8's OLTP handles all that, and writes to the master database with its moment-to-moment I/O optimized for SQL's performance characteristics.
- Torture tests of ISS45's V8 throughput capacity have benchmarked V8 at 200 items per second, and **600 items per second** in a RAID system in a 400MHz controller under NT. That's enough throughput for a 2,000-lane store. With a really old box!

- ISS45 V8 End-of-Day process times are the same or faster than V7 DOS systems, depending upon variables such as store volume and controller hardware. ISS45 Version 7 under the 32-bit system outpaces Version 7 over DOS.
- The ISS45 OLTP system uses LAN bandwidth to trickle-feed all necessary (clerk, check, promotion, PLU) file updates to the terminals in real time. Terminals process this information in background, and then perform burst updates on the terminal files in milliseconds between shopper orders. The Windows PoS version enhances this performance further.

(Performance has been an avoidance-point for your Windows competitors. Just watch their demos and see how they go out of their way to avoid showing how slow everything is. With ISS45 V8, you can make performance a *selling* point.)

- **Usability:** What's the point of a bunch of installing Windows if the application itself is unusable by the customers? ISS45 V8 not only delivers the features, but makes sure the grocer will have the full system available:
 - It would appear that some PoS software developers have concluded that grocery stores are staffed by under-employed network engineers who just happen to be working at the local market while they ride out a mythical recession.
 - Instead, ISS45 V8 is designed for the kind of real clerks and real store managers who actually run grocery stores. No detailed system knowledge is required. You don't have to be Microsoft LAN certified, or have a Novell Administrator plaque on your wall or have a Master's degree in UNIX. The LAN is plug-and-play; the Replication, Resiliency and Recovery are all automatic with no manager intervention required. No transactions, no routines no keystrokes.
 - With its sophisticated transaction processing and low-level Windows 2000 services, ISS45 V8 promises to be the most *available* system in the Windows arena. ISS45 V8 will boot automatically at the native service level, and PoS will even communicate perfectly with the servers before anyone's even logged on to Windows 2000 in the back office. ISS45 V8 protects the store from all manner of Windows user errors (stopping processes, faulty applications, deleting icons) and takes the "3 Rs" into Windows OLTP in a meaningful way for the first time.
 - Day one, ISS45 V8 had *more* than the ISS45 V7 feature set. No waiting years for the depth and richness of features you need to be in the supermarket business. And due to the industry acceptance of V8 as the new standard, the speed at which new features are developed for ISS45 V8 will be even greater than you've experienced with ISS45 Version 7; the gap between you and the also-rans will just get wider and wider and wider.

(You've made usability a powerful selling point with the DOS version of ISS45, but ISS45 V8 will stand out all the more compared to its Windows competitors.)

- **Pricing and Value:** ISS45 V8 will deliver more features, performance and sophistication for less money than any other system, either available or planned. Specifically:
 - Anytime you run Windows instead of DOS, the price tag for the platforms will increase. Only with ISS45 V8 can you choose to limit the Windows hardware investments to precisely those system elements – Controllers, Workstations, and PoS Terminals – where they really benefit the customer's operation.
 - ISS45 doesn't need SQL or SQL client licenses in every lane, saving even more money. Check out competitors, who either drive the users to a low-end desktop database like Access, or force the use of much more expensive SQL Server with one client license per lane.

Again, the competitive selling points:

- *Migration, Migration, Migration*
- *Windows Scalability and Configuration Options*
- *System Stability*
- *System Access, Data Access, Functional Access*
- *Performance*
- *Usability*
- *Pricing and Value*

To Your Success,

Tony

Antony van Schoenter