



APPLICATION

MIDDLEWARE

OPERATING
SYSTEM

OPERATING
SYSTEM

HARDWARE

HARDWARE

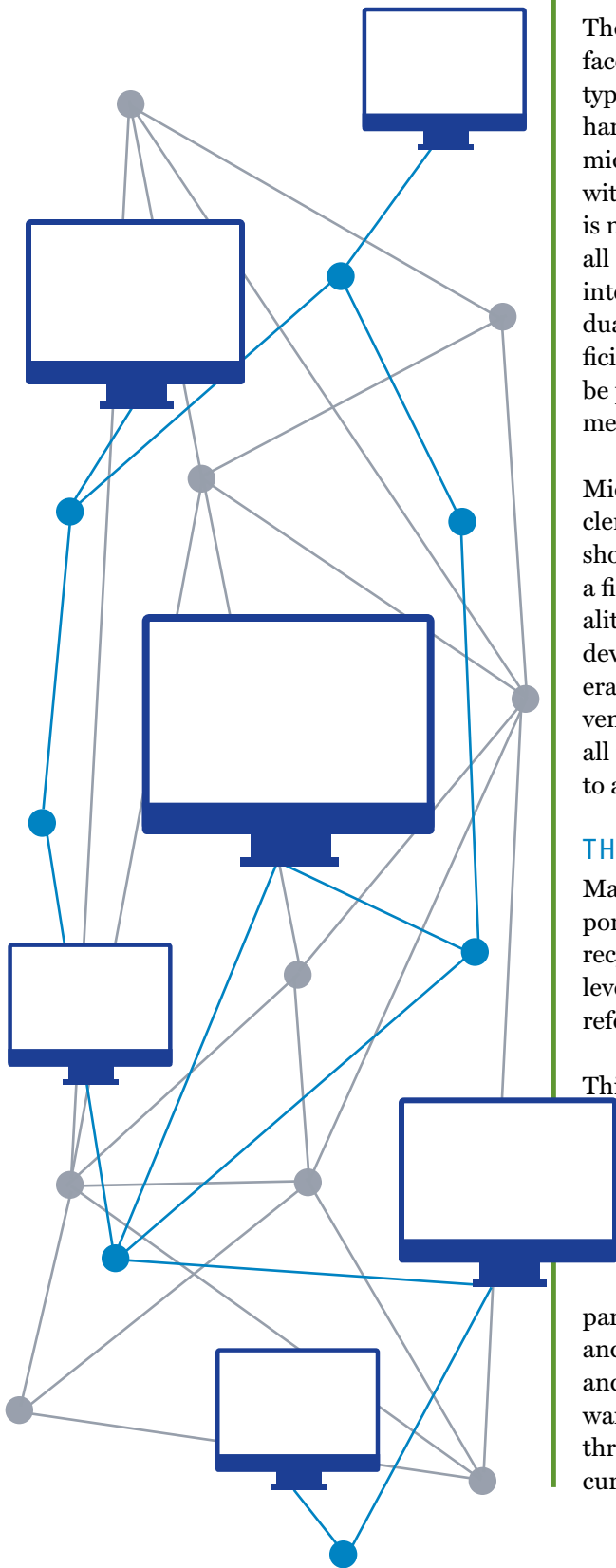
Software Integration for Teller-Assist Cash Recyclers

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OPTIONS FOR FINANCIAL INSTITUTIONS

Is direct (low level) integration between a teller software application and the device the best solution for a teller cash recycler implementation? At first glance many would say yes, but in fact this approach has financial and technical limitations.

The development of direct interfaces can indeed be both costly and time consuming. Assistance from a software house is an expensive venture. And many software houses have nominal experience writing cash recycler interfaces, thus development can be prolonged. What makes matters worse is that the outcome may be less than optimal. Custom interfaces may fail to leverage all hardware features and functionality, and they can be very slow in responding to the development of new features and improved functionalities brought to market by hardware providers. Lastly, if the integration is proprietary, the FI customer very well may be locked into one hardware provider going forward.



MIDDLEWARE IN PLACE OF DIRECT INTERFACE

The decision to work with a middleware solution in lieu of a direct interface can be a winning strategy for many cash recycler users. Middleware is typically a software program that serves as a bridge between the recycler hardware device and the teller software application. The major benefit of middleware is that it allows the cash recycler to be deployed immediately with full functionality and without a large development effort. Middleware is normally a highly specialized software application that takes advantage of all of the special features of recycler hardware and allows for a virtual direct interface experience for tellers. Middleware programs remove the need for dual entry of data and allow tellers to operate at the maximum level of efficiency. The main drawback of this type of solution is that balancing must be performed as a separate end-of-day transaction to account for the movement of cash in and out of the unit during the preceding shift.

Middleware is often the right choice for initial implementation of a recycler while waiting on a software house interface development. However, it should also be considered as a long-term, cost-effective option that enables a financial institution to gain the full advantage of cash recycler functionality. Banks may decide to stay with the middleware even after their host develops a direct integration, either due to a limited feature set or considerable additional cost. In addition, since middleware interfaces are multi-vendor hardware agnostic, they provide a common platform that supports all major vendors' cash dispensers and recyclers. This allows the customer to always choose 'best of breed' as their install base is increased or refreshed.

THIRD-PARTY APPLICATIONS FOR DIRECT INTERFACE

Many software houses have realized that the complexity of writing and supporting a proprietary driver for a cash recycler can be avoided by using a recycler software application from a third-party as the basis for a direct (low level) interface. Often supplied by the hardware manufacturer, these may be referred to as APIs, DLLs, device drivers or communication layers.

This type of software typically handles complicated issues as they relate to hardware communications, including error handling, auto-substitution of denominations, bundling of commands, etc. The main benefit of using a third-party supplied driver is that it is designed to be easily integrated into a teller application with expedience and requires fewer resources to support it in the longer term, even as technological improvements become available. Similar to middleware, third-party drivers are typically well-developed and address most of the features and benefits of the hardware. And the responsibility for ongoing updates and enhancements for this software driver does not fall on the teller software house. This makes it a more efficient process from the initial stages throughout the lifecycle of the application. The downside? Initial and recurring costs to license third-party drivers can be significant.

MULTI-VENDOR SOLUTIONS

Solutions that provide direct software drivers supporting more than one vendor's hardware allow software houses to develop a direct interface with existing cash dispensers in addition to all types of cash recyclers; all through a single piece of software and a single development effort. Teller software developers can use these universal solutions to support all current hardware as well as add emerging vendors to their list of supported devices without having to write a new interface each time a new product is introduced. The burden of upgrades, enhancements and ongoing support therefore become the primary responsibility of the third party software provider instead of the teller software provider. Ultimately, multi-vendor applications enable financial institutions to choose from the widest range of hardware options.

Once financial institutions can embrace a true multi-vendor landscape, their focus will appropriately shift to the features and functions of the products themselves. Decision-making will hinge on critical factors such as reliability, cost of ownership, functionality, ease of operation and service levels. But consideration must also be given to pricing structure and the teller software provider's position on supporting/certifying all the leading cash automation providers that are available. Why? Some US providers have put considerable roadblocks in place for certain vendors due to lucrative agreements with others.

PROPRIETARY VERSUS MULTI-VENDOR SOLUTIONS

In a perfect world, every teller package would support every cash recycler available. Both international manufacturers with large deployments of cash recyclers in Europe and Asia, and domestic manufacturers have introduced cash recycling products for the US market at a feverish rate in recent years. Each of these devices requires a distinct interface with a unique communication protocol. Under the previously limited view of direct interfaces, software houses would have been faced with the decision to either implement different drivers for each recycler or to ignore some brands and limit their customers' choices for hardware. Fortunately, there has been an uptick in development resources available to create and support drivers for multiple vendors, but much work remains to be done.

Interestingly, despite market trends, some software houses have still chosen to adopt a proprietary approach whereas their interface only supports one manufacturer's equipment. Financial institutions must ultimately question whether this scenario is in their best interest.

THE CALL FOR A COMMON INTERFACE

In the larger, more mature ATM market, the concept of proprietary interfaces has been fully replaced by an open, multi-vendor approach. Financial institutions quickly recognized that being tied to one hardware provider was not in their best interest, prompting software developers to develop a common protocol.

The shift that occurred in the ATM market will likely inspire quicker movement in the teller cash recycler market. The transition will be further supported by the fact that recyclers have witnessed more rapid deployment growth and technological evolution. Software houses will ultimately be seeking those solutions that can be implemented with the least amount of development time, and supported in the future with minimal resources. Competing initiatives such as CRM tools, online services, network security and the adoption of other technological advances, however, are pressuring software houses to limit the types of projects that they can address.





DIRECT INTERFACE LOCK-OUT

Multi-vendor interfaces exist today, but they have not been as widely publicized in the United States as they have been in the more mature European market. These third-party applications have the ability to support both dispensers and recyclers from all the major suppliers in the market. However, a quiet strategy to limit installations of competing hardware has been taking place for some time by the previously dominant supplier of cash dispensers in the US market. Their legacy of direct integrations to teller cash dispensers allowed them to limit competitive hardware by promoting a single provider, proprietary software interface. Many US banks and credit unions would be surprised to learn that the direct interface that they have recently paid for limits them to just one hardware vendor. Especially in light of the fact in Europe, most software houses use solutions that support all manufacturers of cash recyclers.

LESSONS LEARNED

Choices become limited for financial institutions when a teller software provider tackles the expensive and time-consuming process of writing a proprietary software interface for a cash recycler. While middleware presents a viable solution for many institutions, customers will benefit most by an industry-wide adoption of a more open, multi-vendor architecture.

The protracted struggle over ATM communication protocol ultimately lent strength to the position of FIs in vendor negotiation. Banks and credit unions must hold the recycler market to the same standards, and demand an open environment for all vendors. In doing so, they will force the market to establish multi-vendor cash recycler interfaces as the norm and ensure that end-users have the level of choice they demand. Cash recycling hardware has achieved a level of common acceptance and now the remaining challenge of software interfaces is ready to be met.

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