

VIRTUALIZING THE FUTURE OF THE FINANCIAL INSTITUTION



Simplifying network requirements while delivering cost, performance, maintenance and disaster recovery benefits

Diebold Takes a BOLD Approach at TechMecca 2012

Diebold takes innovation seriously. That's why we are taking a **BOLD** approach to 2012, and we're encouraging you to do the same.

Part of a long tradition of "firsts," this year we are showcasing the world's first virtualized automated teller machine (ATM) prototype at TechMecca. By consolidating data on centralized servers instead of on internal ATM computers, the virtualized ATM prototype could potentially make transactions more secure, minimize fraud risk, make ATM network operations more efficient, reduce the need for on-site maintenance and make new service offerings much simpler to deploy. It's a simple idea with far-reaching benefits, and it's explained in more detail below.

To learn more about how "Bold Innovation Changes All" and how your financial institution (FI) can also make a **BOLD** statement this year, talk to a Diebold representative at TechMecca or email requests@diebold.com.

When considering the global business landscape, virtualization is not a new concept. It has led to operational efficiencies, cost savings and enhanced data security in a variety of markets and business-use cases, including email applications and remote data storage. It has even been used by financial organizations to better manage endpoint devices such as desktops and servers. But when it comes to the FI itself – from back-office systems to the self-service channel and a variety of endpoints in between – virtualization is still a largely untapped resource. And it is a game changer for today's banks and credit unions.

At its core, virtualization is an enabler for the sharing of resources. It allows organizations to trade internal information technology (IT) assets for shared hardware and storage. This sharing simplifies network requirements while delivering cost, performance, maintenance and disaster recovery benefits.

Many endpoints within the FI – such as the automated teller machine (ATM) – are driven by onboard computers. In a virtualized model, those computers are removed and endpoints are tied instead to a shared, centralized computing resource. That resource can then be accessed via multiple secure portals to manage many "virtual" endpoints. For collections of endpoints – such as

ATMs within a network – that means a single resource to update, a single source for access to critical data, a single interface for disaster management and much more.

Starting with the self-service channel

Diebold leveraged the virtualization concept when it introduced a prototype for the world's first virtualized ATM in August 2011. After years of utilizing virtualization to streamline internal operations, the company developed a technological approach that would enable FIs to also realize the benefits of virtualization. Diebold's vision for virtualization technology is that it will enable FIs to address their most critical business priorities: enhancing security and mitigating fraud; improving operational efficiency; delivering an optimal consumer experience; and growing and retaining their customer base.

In Diebold's prototype ATM application, the physical components of a centralized server – or servers – are used to provide resources to many "virtual" ATMs. In this implementation, the computing resources, such as a processor and hard disk drive, are no longer required within the ATM itself due to Diebold's innovative use of zero-client technology. The result is not only the consolidation and sharing of resources throughout a self-service network, but also across delivery channels. Through better server utilization and unification of ATM management, virtualization boosts operational efficiency, enables faster failure recovery and facilitates more rapid software upgrades and services deployment.

By harnessing virtualization technology, the ATM becomes more available, reliable and secure, and management of the self-service channel is greatly simplified. FIs could also shave dollars from their total cost of ownership.

Realizing benefits across the FI

The promise of virtualization for the FI does not end with the ATM. It could also change the way FIs implement and manage a variety of endpoints across delivery channels. As banks and credit unions continue to seek new ways to remain viable in a challenging economic environment, virtualization could deliver efficiencies and cost savings that could help bolster their profitability in the long term.

Virtualization holds potential benefits for any FI endpoint with an onboard computer: individual workstations, ATMs and kiosks, bank teller automation systems, security systems and more.

While the benefits virtualization could offer for the management of such endpoints are many, the most notable are:

- **Greater availability** of endpoint devices, such as ATMs
- **More reliable endpoint operations**, enabled by more options for remote diagnostics and preventative maintenance
- **More resilient endpoints** through improved disaster management capabilities and faster detection and response of faults and malware
- **Fewer computers** to manage and consolidation of workload to a more secure, manageable location
- **Better utilization** of server hardware and storage capacity and at a reduced cost
- **Access to more meaningful data** relative to endpoint performance and operation
- **Enhanced security**, including improved protection against fraud and viruses
- **More rapid adoption** of service offerings without the need for individual site visits for software and hardware installation and upgrades

Quite simply, the benefits offered by virtualization may make it integral to the future of the FI. This value proposition can be applied to multiple endpoints across all delivery channels.

Taking virtualization to the next level

Virtualization is an important milestone on the road map to leveraging cloud computing technology in the retail financial space. Cloud computing involves obtaining IT services using Web-based tools and applications. This innovative technology approach requires little to no involvement with an organization's

For collections of endpoints – such as ATMs within a network – virtualization means a single resource to update, a single source for access to critical data, a single interface for disaster management and much more.

infrastructure. A provider offers a service delivered via the Internet, and organizations pay only for what they need. Such applications are referred to as Software as a Service (SaaS) solutions.

In the financial environment, one of the most promising advantages offered by cloud computing is its ability to enable FIs to more quickly support the vast landscape of new consumer devices. FIs could develop single applications that could be applied over and over across collections of endpoints. They could also enhance and add value to their software without having to invest in complete redevelopment.

From an infrastructure perspective, there are two primary reasons cloud computing is a viable approach for FIs. First, banks and credit unions can leverage computing resources – such as data access and storage – from a virtual data center. Rather than owning a physical server to run software, an

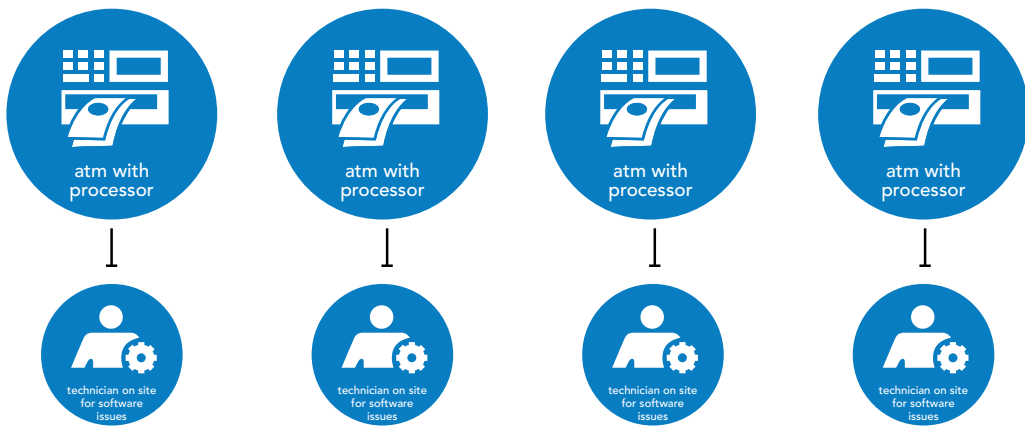
organization can rent a portion of a huge cloud of computing capacity hosted by a data center, paying for the processor time and memory it needs without building the infrastructure. This model is known as Infrastructure as a Service (IaaS).

Second, cloud computing could help FIs access software applications through a Web browser, without installing programs locally on individual computers. Organizations subscribe to seats, with software and data stored on servers at a remote location managed by the provider. Software providers take on the management of equipment, software installations, configurations, upgrades and updates. It is also less costly to implement new technologies because there are no capital costs upfront – just monthly service fees.

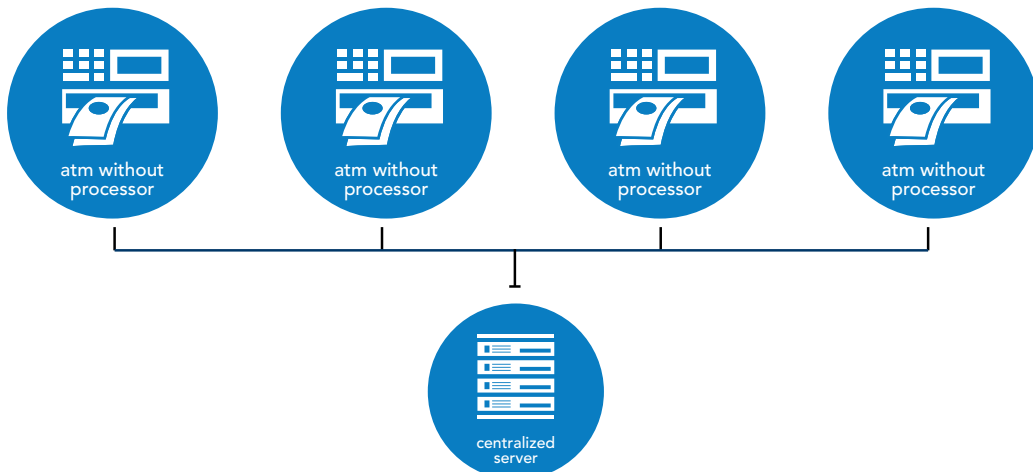
Overall, cloud computing moves virtualization a giant leap forward. Leveraging services through the cloud promises to be more efficient and less costly at the onset – and it can provide access to advanced technologies FIs could not otherwise afford.

VIRTUALIZATION IS AN ENABLER FOR THE SHARING OF RESOURCES

NON-VIRTUALIZED ATM ENVIRONMENT



VIRTUALIZED ATM ENVIRONMENT



Virtualizing the future

There is a significant and growing trend toward virtualization and cloud computing within organizations today. These concepts will fundamentally change the way Diebold – and its FI customers – manage assets and deploy solutions to the marketplace.

Currently, Diebold is engaging with leading FIs to determine how to best implement this virtualization – whether it is incorporating it into existing systems or using it in the development of new ones. As the world becomes more familiar with cloud computing, Diebold is exploring other ways to utilize this technology as well.

When applied in the financial environment, virtualization can deliver unmatched technology enablement and reliability; service delivery; cost efficiencies; data security; endpoint availability; speed to market; and disaster recovery. FIs have already made investments in virtualization for their IT operations. Now, they have the opportunity to leverage those investments to apply virtualization to other elements of their enterprise.

By incorporating outside-in thinking to learn from what other industries have already discovered through virtualization and cloud computing, FIs can truly redefine their future. And with its innovation in virtualization, depth of expertise in the financial market and best-in-breed technology partnerships, Diebold is the leader to help take them there.

*Authored by Kumar Pavithran
Vice President
Integrated Services and Software Development*

Call on Diebold for the latest in product, service and security solutions.
Since 1859, Diebold has put the customer first.

Contact Information:
Diebold, Incorporated
P.O. Box 3077
North Canton, Ohio
44720-8077

800.999.3600 USA
330.490.4000 International
email: productinfo@diebold.com
www.diebold.com

© Diebold, Incorporated, 2011.
File No. 98-190.


INNOVATION DELIVERED®