

Why MCL-Collection

Visualize...a mobilized workforce

Realize...MCL-Collection





Your Success is Our Success

Dear Customer,

As a recognized leader in delivering enterprise-ready, high-productivity software development tools for multimodal, mobile workforce application development, deployment, and management, MCL Technologies is proud to bring you the latest MCL-Collection.

Our ultimate goal is to help you mobilize your workforce to improve productivity, reduce costs, and achieve competitive advantage. We strive to do this while minimizing your total cost of ownership.

This document shows some of the reasons why MCL-Collection is the development and deployment environment of choice for enterprises throughout the world. Whether you are a Business Decision Maker, an IT Decision Maker, an IT Manager, or a Developer, this document provides perspectives on why people in your position in other enterprises have standardized on MCL-Collection. We trust you will agree.

MCL's commitment to you, your success, and minimizing your cost of ownership, plus MCL's dedication to providing the most advanced products on the market, make MCL-Collection of strategic importance to your mobile workforce deployments.

Partner with MCL to focus your efforts on solving business problems, not implementation problems.

To Our New Customers

Welcome! Your selection of MCL-Collection is a decision you will be glad you made.

To Our Long-Standing, Valued Customers

Thank you! MCL remains dedicated to your continued success.

Sincerely,

Jean-Francois Jacques Managing Director MCL Technologies





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Why MCL-Collection

Mobilizing Your Workforce?

Where to Begin

Before you start, choose a development and deployment environment that satisfies your answers to the following questions:

1. Is this a completely integrated development and deployment environment?

If not, what do I need to do to integrate, manage, and deploy the application I create?

2. Is this a high-productivity development environment?

If not, how long will it to take to create, integrate and deploy my application?

3. Is this environment open standards-based?

If not, will it serve my business needs over the long term?

4. Is this deployment environment scalable, extensible?

Will it support my deployment today? Will it support my deployment as it grows?

5. Does this environment integrate my mobile worker applications with my host systems?

If not, what do I need to do to integrate with my hosts?

6. What are my mobile communications needs? Does this deployment environment support them? What if my needs change? Will the environment support them too?

Wired and/or wireless network communications?

Real-time, on-demand, or batch communications?

Continuously connected, casually connected, or occasionally connected users?

7. Is the development environment extensible? Can I create extensible applications?

If not, how can I benefit from new technologies?

8. Does this environment create multimodal applications?

If not, must I choose one technology over all others? And if so, will I be able to fulfill my long term business needs with this one technology?

9. Is this environment cross-platform compatible?

10. Does this environment provide forward migration paths for my applications?

11. Does this environment future-proof my mobile workforce applications?

I am developing now for Windows Mobile 2003 (WM2003). Will my application seamlessly port to Windows Mobile 2005 (WM2005)? What is coming after WM2005? Will my application seamlessly port to that platform?

- 12. Does this environment preserve my investments?
- 13. Does this environment minimize my total cost of ownership (TCO)?
- 14. What is the history of this environment? Does it understand my mobile workforce requirements?
- 15. What are the inherent risks of this environment?
- 16. What are my long term goals? Will this environment sustain them?













Realize MCL-Collection

Here are MCL-Collection's answers to your questions:

1. Is this a completely integrated development and deployment environment?

Yes. MCL-Collection is a completely integrated environment to create, integrate, manage and deploy enterprise mobile worker applications.

2. Is this a high-productivity development environment?

Yes. MCL-Collection's high-productivity development environment allows you to create powerful enterprise mobile worker applications in days or weeks instead of the weeks and months it would take you using traditional development languages.

3. Is this environment open standards-based?

Yes. The applications created by MCL-Collection run on standard mobile computing platforms. Chart 1 shows MCL's timeline for supporting evolving mobile computing operating systems.

4. Is this deployment environment extensible, scalable?

Yes. MCL-Collection is scalable to support both small localized deployments and large distributed deployments. Its modular architecture provides exceptional deployment flexibility and extensibility.

5. Does this environment integrate my mobile worker applications with my host systems?

Yes. MCL-Collection includes MCL-Bridges to integrate your mobile worker applications with multiple hosts, concurrently—back office applications, ODBC compliant databases, warehouse management systems (WMS) and enterprise resource planning (ERP) systems.

6. What are my mobile communications needs? Does this deployment environment support them? What if my needs change? Will the environment support them too?

Yes. MCL-Collection handles your serial point-to-point data communications, and your wired and wireless concurrent LAN, WLAN and WWAN mobile data communications. It seamlessly transitions between batch and real-time communications. It also provides seamless transitions for continuously connected, casually connected, and occasionally connected users.

7. Is the development environment extensible? Can I create extensible applications?

Yes. MCL is continually integrating the latest technologies into MCL-Collection (see Chart 3). Today, easily add voice control to your traditional MCL data capture applications. Tomorrow, add radio frequency identification (RFID) to the same applications.

8. Does this environment create multimodal applications?

Yes. MCL-Collection creates multimodal applications that combine technologies such as barcode scanners, touch screens, keyboards, signature capture, imagers, RFID, displays, printers, and voice recognition. Using MCL-Collection:

- All data capture methods are handled as complementary technologies.
- You do not have to choose one technology, like voice, for example, over other data capture technologies.
- Mobile workers use whichever data capture method is most efficient and convenient to perform the task at hand.













9. Is this environment cross-platform compatible?

Yes. MCL-Collection is cross-manufacturer, cross-platform compatible. Mix and match mobile computer populations and form factors to maximize worker productivity.

Here is how MCL defines Cross-Platform Compatibility:

- Interoperability. Platform independence. Platform neutrality. The ability to move an application back and forth between devices with different operating systems and/or different form factors.
 - For example, using the current version of MCL-Collection, an MCL application developed for a mobile computer with a Palm operating system will also run on a mobile computer with a mobile Windows operating system and vice versa.
- Think of this as a two-way street.

10. Does this environment provide forward migration paths for my applications?

Yes. For example, MCL-Collection's Migrate Wizard forward migrates DR-DOS MCL applications to WM2003 MCL applications. This feature is evidence of our commitment to provide our customers with forward migration capabilities.

Here is how MCL defines Forward Migration:

- The upgrade of software from an older version to a newer version. In an MCL environment, forward migration refers to the:
 - Upgrading of an MCL mobile worker application.
 - Upgrading of the MCL-Collection deployment environment components.
- Take an MCL application created using an older version of MCL-Collection, regenerate it using the current version of MCL-Collection, and then run it in the latest MCL-Collection environment. This is MCL forward migration.
- Think of this as a one-way street.

11. Does this environment future-proof my mobile workforce applications?

Yes. MCL is already planning to seamlessly port your WM2003 MCL applications to run on WM2005 and beyond. We are committed to this mission.

12. Does this environment preserve my investments?

Yes. MCL-Collection's multimodal approach, cross-platform compatibilities, and forward migration paths are designed to preserve your investments.

13. Does this environment minimize my total cost of ownership (TCO)?

Yes. MCL-Collection minimizes your TCO on several levels:

- Application TCO
 - Minimized by MCL-Collection's high-productivity development environment.
 - Minimized by multimodal approach.
 - Minimized by application development, integration, and management efforts.
 - Minimized by nominal on-going maintenance efforts.
- Capital TCO
 - Minimized by our commitment to provide cross-platform compatibilities and forward migration paths to preserve your investments.
- Deployment TCO
 - Minimized by MCL's modular architecture and flexibility.
 - Easily adapt your deployment to support your evolving business needs.

14. What is the history of this environment? Does it understand my mobile workforce requirements?

Yes. MCL's core competency is in development tools for data capture, mobile workforce application development, integration, deployment, and management. Initially introduced to the market in 1992, MCL-Collection is used throughout the world by enterprises large and small to mobilize their workforces.











15. What are the inherent risks of this environment?

MCL-Collection minimizes all your mobile workforce deployment risks:

- Suitability risks.
- Development risks.
- Deployment risks.
- Adaptability risks.
- Financial risks.
- TCO risks.

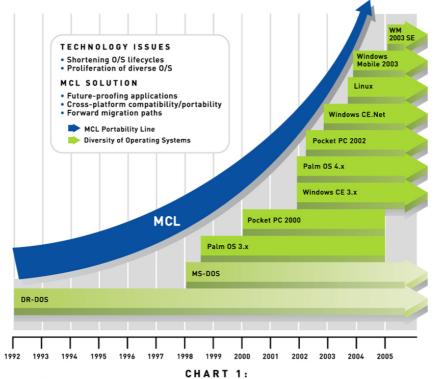
Charts 1, 2 and 3 illustrate MCL's competence to minimize your risks.

16. What are my long term goals? Will this environment sustain them?

Yes. MCL-Collection is an open standards-based, horizontal environment. MCL is continually integrating the latest mobile computing operating systems, latest wireless infrastructures, and latest data capture technologies into the MCL-Collection. MCL-Collection's modular and flexible architecture allows you to adapt your deployment to suit your changing business needs as your company grows and evolves.

Charts – Technology Adoption Timelines

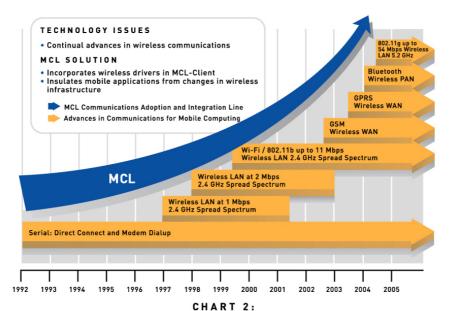
Charts 1, 2, and 3 show MCL's continuity timelines for integrating evolving mobile computing operating systems, wireless infrastructures, and data capture technologies. These charts alone show MCL's suitability, depth, and versatility to support your mobile worker deployments.



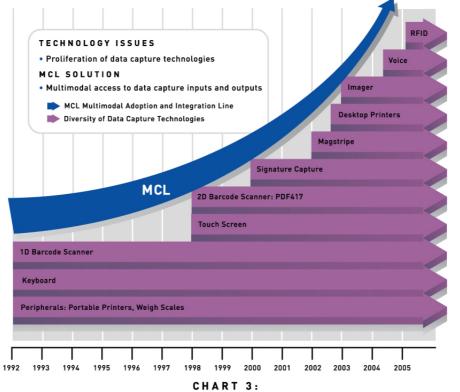
MCL Technologies continuity timeline for evolving operating systems on portable terminals and mobile computers







MCL Technologies continuity timeline for adoption of communications mediums for mobile computing



MCL Technologies continuity timeline for data capture technologies on portable terminals and mobile computers



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Business Decision Maker's Perspective

MCL-Collection is developed and optimized for mobile computers and mobile workforce deployments; and since its inception, MCL has minimized customers' total cost of ownership by providing:

- High-productivity development environment.
- Multimodal approach.
- Modular, flexible architecture.
- Easy application deployment and management.
- Low on-going maintenance effort.
- Cross-platform compatibilities.
- Forward migration paths.
- Future-proofed applications.
- Investment preservation.

What Does This Mean to You?

This means that you can develop, integrate and deploy your mobile worker application in days or weeks instead of the weeks and months it would take you using traditional development languages.

This means that you can enjoy the benefits of today's technologies today, and tomorrow's technologies tomorrow. For example, develop and deploy a traditional barcode data capture, mobile worker application today. Tomorrow add voice input and output control. After tomorrow add radio frequency identification (RFID) to the same MCL application.

It means that you can use MCL-Collection's modular architecture to adapt and expand your deployment over time to meet your evolving business needs.

It means that you do not have to be concerned with on-going application maintenance to handle operating system upgrades, system software upgrades, and wireless infrastructure upgrades. MCL does it for you (see Charts 1 and 2).

It means you do not have to be concerned with how to implement new data capture technologies. MCL does it for you (see Chart 3). MCL's recent addition of voice recognition into the MCL-Collection is an excellent example of this.

It means you can deploy mixed terminal populations to provide each operator with the form factor most suitable to maximize mobile worker productivity.

It means you can benefit immediately from an investment in new mobile computers. MCL-Collection expedites the deployment of existing applications on new mobile computers. It also minimizes workforce training on your new mobile computers.

- Mobile workers see a user interface they already know.
- Mobile workers are immediately productive.









It means that you maximize the benefits of your mobile computer investments over both the short term and the long term:

- Prolong the life of your existing applications.
 - Run older applications on a new generation of mobile computers.
 - Add new capabilities to your old applications.
- Create and deploy new applications.

It means that by providing cross-platform compatibilities and forward migration paths, MCL future-proofs your applications, preserves your investments, and minimizes your total cost of ownership.

It means that MCL is focused on minimizing your total cost of ownership—total cost of application ownership, and total cost of capital ownership. MCL remains dedicated to this mission and to this commitment to you.





IT Decision Maker's Perspective

Today's mobile computers are orders of magnitude more powerful than their predecessors. Organizations investing in this new generation of mobile computers want to gain the most benefit from their investment and take advantage of the capabilities of these new devices with their superior operating systems, powerful processors, crisp color displays, extensive memory capacities, barcode scanners, radio frequency identification (RFID), imagers, voice capabilities, and high-performance wireless communications.

However, as technology advances, it is changing more rapidly than ever before. For instance, the lifecycle of operating systems is becoming shorter all the time. Consequently the concurrent existence of diverse operating systems is proliferating. This is very evident in the mobile computing world. Chart 1 depicts these shortening lifecycles and proliferation of diverse operating systems for mobile computers.

Given the rapid changes in technology, how do companies realize the potential of the new generation of mobile computers yet:

- Assure themselves of cross-platform compatibility?
- Assure themselves of forward migration paths?
- Future-proof their applications?
- Protect their investments?
- Minimize their total cost of application ownership?

The answer is MCL-Collection.

MCL is dedicated towards, and optimized for, mobile computers, data capture technologies, diverse operating systems, and cross-platform portability of mobile workforce applications.

MCL is designed from the bottom up for platform independence—platform neutrality—for mobile computers. Chart 1 depicts MCL's cross-platform continuity timeline against the proliferation of diverse mobile computer operating systems.

Its platform independence provides the framework for MCL to future-proof your mobile worker applications. To validate MCL's ability to future-proof your investments, consider that an MCL application created for DR-DOS can be migrated to run today on a mobile computer running a mobile windows operating system! The same assertion can not be made for an application written in a low-level 'C' like language.

Total Cost of Ownership

MCL is focused on minimizing your total cost of application ownership. Application cost does not start and end with the initial development and deployment of an application. Total cost of application ownership involves the cost of the application over the entire life of the application, including maintenance resource time and effort to keep an application current.









Think about the cost of application ownership to keep an application current with respect to advances in:

- Operating systems as depicted in Chart 1.
- Wireless communications as depicted in Chart 2.
- Data capture technologies as depicted in Chart 3.

Now consider the effort required to keep an application developed in a low-level 'C' like language or VB current with regard to these technological advances. Applications developed in a 'C' like language or VB must be:

- Rewritten for each new operating system.
- Maintained whenever new system software, such as a driver, is released.
- Maintained whenever a wireless infrastructure is upgraded.
- Modified whenever a new technology is introduced, such as voice capability or RFID.

Each time you have to modify your 'C' like language, VB, or Java application, your total cost of application ownership increases.

This is not the case with MCL.

Charts 1, 2 and 3 depict MCL's timelines for adopting and integrating technological advances into MCL-Collection. The fact that MCL stays current with the latest technologies means you do not have to. MCL does it for you.

MCL's cross-platform compatibility allows you to port your mobile worker application to a mobile computer running a new operating system without the effort of rewriting your application.

MCL handles changes to operating systems, system software, and wireless infrastructure. All you need to do is keep the most current version of MCL-Client on your mobile computers. MCL-Client transparently provides the necessary updates to your mobile computing environment.

As shown in Chart 3, MCL is also continually integrating new data capture technologies into MCL-Collection. For example, MCL has invested two years in the integration of Vocollect VoiceTM (voice recognition and voice synthesis) into MCL-Collection to provide seamless integration of voice control into your mobile worker applications. Enabling your mobile worker applications with voice capability using a 'C' like language, VB, or Java, would require a considerable time and money investment in specification, development, test, documentation, and deployment. By contrast, using MCL, voice enabling your mobile worker applications is achieved using a few clicks in a dialogue box associated with your MCL objects/data fields.

MCL's approach has proven itself over the years. MCL remains committed to future-proofing your mobile workforce applications and minimizing your total cost of application ownership.









IT Manager's Perspective

MCL-Collection's intuitive, high-productivity development environment allows you to create powerful enterprise mobile worker applications in days or weeks instead of the weeks and months it would take you using traditional development languages. Use MCL-Collection to simplify application creation, integration, deployment and management without compromising functionality or sophistication.

MCL-Collection is comprised of several components that work together to create the integrated development and deployment environment:

- MCL-Client is an intelligent software component that resides on the mobile computer and executes the mobile worker applications you create.
- MCL-Collection includes two communications servers:
 - MCL-Net for networked, concurrent IP-based communications sessions.
 - MCL-Link for point-to-point, sequential, serial communications sessions.
- MCL-Bridges provide the mobile worker application interfaces to:
 - Host applications.
 - Back office applications.
 - ODBC compliant databases.
 - Warehouse management systems (WMS).
 - Enterprise resource planning (ERP) systems.

The implementation of MCL-Collection is a layered approach. This means that MCL-Net or MCL-Link can use multiple bridges concurrently enabling the MCL mobile worker application to communicate with, for example, a host application, SAP, and Oracle all at the same time.

- MCL-Designer is the high-productivity development environment to:
 - Create the intelligent mobile worker applications that run on your mobile computers.
 - Create scripts to customize your MCL communications servers.
 - Create scripts for the MCL-Bridges that interact with your host systems.

What Are the Benefits to You?

Benefit from MCL-Collection's modular, flexible, scalable architecture. In the short term, it allows you to deploy your mobile workforce applications quickly and easily. Over the long term, it allows you to manage and adapt your deployment to support your changing needs as your business evolves over time.

Benefit from MCL-Bridges to integrate your mobile worker applications to multiple host systems without the need for expensive middleware.

Benefit from MCL-Designer's high-productivity features, such as:

- Graphical user interface (GUI) for quick and intuitive application and script development.
- Report Generator for instant application documentation:
 - How often do your final documents reflect the actual deployed applications?
 - How often do you modify your applications and not update your documents accordingly?











How much of your resources do you expend making sure your documents always do reflect your deployed applications?

This unique, productivity boosting, quality assurance feature alleviates the resource consuming task of keeping your documentation in-sync with your applications. With the click of a button, MCL-Designer automatically generates comprehensive application documentation.

Benefit from our efforts:

No need for you to expend valuable resources to research and integrate new technologies. MCL does it for you. For example, MCL researched voice recognition engines and invested two years integrating Vocollect VoiceTM into MCL-Collection.

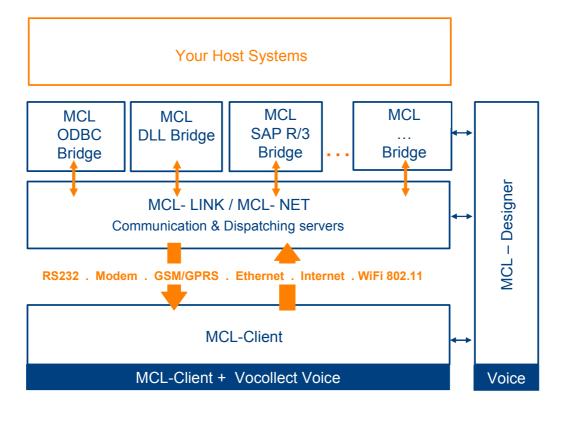
Benefit from our experience. MCL's core competency is in development tools for data capture, mobile workforce applications development, deployment, and management.

No need for you to reinvent the wheel ever time you want to add a new capability. MCL does it for you.

Use MCL-Collection to maximize your limited resources' productivity so they can move onto other projects.

Visualize the ease of implementing powerful mobile worker applications so you may focus your efforts on solving business problems, not implementation problems.

Figure 1 - MCL Architecture





Developer's Perspective

MCL-Collection is designed with you in mind. It is a high-productivity development, integration, and deployment environment for mobile worker applications. It is enterprise-ready and open standards-based.

Here is a brief overview of the features designed to make your job easier:

- High-productivity development environment. Quickly create sophisticated, enterprise-ready, mobile workforce, data capture applications with cross-platform portability.
- Multimodal applications. Create applications that combine technologies such as barcode scanners, touch screens, keyboards, signature capture, imagers, radio frequency identification, displays, printers, and voice recognition in one application.
- Graphical User Interface. Use graphical, high productivity features such as dialogue boxes, radio buttons, drag-and drop, cut-and-paste, screen viewer, screen copy, screen insert, and screen delete.
- Processes. Implement complex application logic quickly via MCL-Designer's built-in "processes". These processes facilitate host access, file manipulation, mathematical computations, communications, and more.
- Custom Library. Accelerate development by creating a library of your own frequently used MCL objects for reuse in numerous projects and applications.
- Thick client/server architecture. Create device resident applications that control and take advantage of all the unique features of each mobile computer.
- Simulator and Advanced Debugger. Simulate your application during development. Debug your application with line-by-line control. MCL-Designer's Simulator, Debugger, and Verifier are unsurpassed in the industry for application development, testing, and on-going maintenance.
- Report Generator. Use this function to boost productivity and quality assurance. How often do your final documents reflect the actual deployed applications? MCL-Designer unburdens you from the tedious, yet critical, task of keeping your documentation in-sync with your applications.
- Communications. Create mobile applications that transition seamlessly back and forth between:
 - Real-time communications and batch communications.
 - Continuously connected and occasionally connected states.
 - Wireless LAN, wireless WAN, and wired communications environments.

Visualize applying your creativity on application and integration design, and not on line-by-line code generation.











Top Reasons to Use MCL-Collection

- Core competency in development tools for data capture, mobile workforce applications development, deployment, and management.
- High productivity development environment to create applications that integrate data capture technologies, wireless communications, and mobile computing.
- Development environment to create multimodal applications combining technologies such as barcode scanners, touch screens, keyboards, signature capture, imagers, radio frequency identification, displays, printers, and voice recognition.
- Flexible, modular deployment architecture:
 - Building blocks to customize host access, network size, and communications modes.
 - Easy concurrent access to host applications, ODBC compliant databases, warehouse management systems (WMS), and enterprise resource planning (ERP) systems.
 - Scalable deployments from 1 to 62,500 concurrent mobile terminals per server.
 - Efficient for small system deployments.
 - Powerful and optimized for large distributed system deployments.
 - Real-time, on-demand, or batch data communications.
 - Seamless, transparent transitions back and forth between these modes of communication.
 - Continuously, casually, or occasionally connected users.
 - Seamless, transparent transitions back and forth between states of connection.
- Framework so you can focus on functional business issues, and not on implementation issues and constantly changing low-level technologies such as operating systems, wireless infrastructures, and data capture methods.
- A focus on minimizing your total cost of application ownership:
 - High-productivity development environment.
 - Multimodal implementation of data capture technologies.
 - Low on-going maintenance effort.
 - Modular, flexible architecture.
 - Easy application deployment and management.
 - Cross-platform compatibilities.
 - Forward migration paths.
 - Future-proofed applications.
 - Investment preservation.
- Benefits to your organization from data capture, mobile worker applications created using MCL-Collection:
 - A mobilized workforce.
 - Workforce productivity improvements.
 - Cost reductions.
 - Competitive advantages











MCL-Designer

High-productivity, horizontal development environment to create enterprise-ready, multimodal, data capture applications.

MCL-Link

Batch/ Point-to-Point, Serial:

- Direct Connect RS-232
- Modem

MCL-Net

Real-Time/ Concurrent Users: Wireless

- WLAN: WiFi, 802.11
- WWAN: GSM, GPRS, Wired Ethernet

MCL-Bridges

- Host Applications
- Back Office Applications
- ERP: SAP
- Warehouse Management (WMS)
- ODBC: Oracle, Access, FoxPro, DB2, Excel, Sybase, SQL
- MCL-Collection with Vocollect Voice™ Voice Recognition, Voice Synthesis

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About MCL Technologies

MCL Technologies is a recognized leader in delivering high-productivity software development tools for mobile workforce application development, deployment, and management. Its enterprise-ready, standards-based software suite, MCL-Collection, seamlessly integrates the latest technologies with mobile computer, multi-manufacturer, cross-platform compatibility. Through the integration of mobile computing, wireless infrastructures, and data capture technologies like barcode scanners, radio frequency identification, and voice recognition, MCL-Collection helps organizations deploy mission critical and on-demand multimodal applications to improve workforce productivity, reduce costs, and achieve competitive advantage. Since 1992, MCL-Collection has been implemented in thousands of locations around the world by large and small organizations with sectors of activities as varied as retail, banking, healthcare, government, transportation and logistics, warehousing, field service, and manufacturing. More information is available at http://www.mcl-collection.com.







