

Cicero XM™

An Enterprise IT Software Solution

Your company does not have the luxury of time when it comes to increasing productivity, reducing costs, and improving the customer experience. Customers expect seamless service now and employees have to be more efficient and more effective in order to deliver high-quality service during each customer interaction. From intra-company back-office applications to servicing applications, your company needs to maximize each customer interaction while leveraging existing investments in best-of-breed applications.

A software solution, Cicero XM, is positioned to streamline the business processes that inform your business users from the back office to the contact center. It can be deployed quickly, economically, and iteratively (no “rip and replace”) and allows customer service representatives to simultaneously tap into disparate applications from a single, unified desktop. Cicero XM also addresses the immediate needs of IT executives, sales executives, contact center managers, and anyone who needs access to the critical information and streamlined processes that will elevate the customer experience. Cicero XM handles major IT and business requirements including:

Saving time and money: Cicero XM allows companies to do more with less. It streamlines workflow, shortens and improves training and reduces call times. Implemented in 7-10 weeks with an ROI in a few months, Cicero XM also reduces the need to replace existing applications, develop in house solutions or begin a lengthy enterprise application integration project.

Connecting technology to customer advocacy: More employees get more effective access to customer information with Cicero XM. This wealth of information presented when it is needed, enables enterprise and contact center employees to make faster decisions based on timely information. The contact center employees become empowered to deliver an experience based on the customer’s needs and value.

Ease of Configuration and Change Control: Composite screens, workflows, scripts, alerts and other notifications can be easily built and maintained by business analysts or IT without the risk of negatively impacting the underlying applications. Cicero XM’s United Data Model™ keeps data secure and pure, eliminating up to 90% of change control cost and time.

Eliminating silos: Cicero XM is an automatic silo killer. Compliance, consistency of customer information and other best practices are available through a mouse click, not a long chain of process-based commands. In this way, companies can take a customer-oriented view of business rather than a process-oriented view.

Getting the most out of your technology requires speed, flexibility, and a firm focus on the customer as the beneficiary. Cicero XM gives executives and customer-facing employees new ways to achieve that. The enterprise challenges of delivering integration, automation, unified desktops, and a complete interaction management solution are not insurmountable. They are faster and more efficient than ever.

What is Cicero XM?

Cicero XM is a Customer Experience Management (CEM) solution for contact centers and the enterprise. Cicero XM simplifies workflow, automates tasks, and automatically shares data between any applications from back office to desktop servicing solutions. Cicero XM is the only truly non-invasive solution. It differs from competitors’ various unified desktop concepts in that Cicero XM does not require taking away or hiding users’ access to existing applications but rather simplifies, extends, and automates processes using those applications while allowing new applications to be simply and rapidly integrated. In addition, Cicero XM features tools to create a modular, customizable interface, scripting or user guidance, screen pops, new composite applications, and a powerful toolbar. The result is a highly efficient, intelligent desktop that not only improves business user productivity but can also be quickly and easily changed to address ongoing business challenges. There are three core products in the Cicero XM Suite:



Surface/desktop integration, the United Data Model™, call flow, and web service consumer and provider with no visual components



Cicero XM Integrator plus prompting, scripting, composites, toolbars, dashboards, soft-phone console, a flexible workspace



Includes the features of Cicero XM Integrator or Cicero XM Desktop; An enterprise solution for managing interactions including workflow, call scripting, analytics, computer telephony integration, single sign on Cicero XM Enterprise includes a powerful database that not only provides data storage for transactional data about each interaction, but also provides the information that controls all of the behavior and states of each workstation and the entire system.

Each Cicero XM product includes a configuration toolset called Cicero XM Studio that consists of a unique set of designers that both IT and business groups can use to integrate, design, automate and present information across applications.



A visual toolkit used to integrate applications and configure Cicero XM products. Cicero XM Studio allows business analysts and IT to make changes to end user scripts, call flows, and composite screens without risk to underlying applications or business logic.

The following table summarizes the key features of the three Cicero XM products.

Feature	Description	XM Integrator	XM Desktop	XM Enterprise
United Data Model (UDM)	United Data Model™ provides a single view of the customer interaction data regardless of the source of that data. Supports full abstraction and binding of Data Providers to the rest of the desktop.	✓	✓	✓
Non-Invasive Integration	High level of object-oriented integration that eliminates the need for source code modification	✓	✓	✓
SOA Consumer	A Web Services consumer that allows for the retrieval of data that can be used with other integrated applications	✓	✓	✓
Single Sign-on (Static)	Manage application logins at the desktop by providing a secure location to enter and modify user information	✓	✓	✓
Business user Guidance	Provides the ability to add context sensitive prompts and/or complete scripts for the user to follow at each step of the process		✓	✓
Composites	Create new composite applications based on any desktop applications. Each composite can be configured to change based on workflow type		✓	✓
Workspace	Create a single interface with separate and/or composite applications		✓	✓
Integrated Soft Phone Controller	Provide TAPI or CTI server-based support with an integrated interface as part of the workspace		✓	✓
Single Sign-on (Dynamic)	Securely manage credentials in a central location			✓
Multi-Channel Presence	Provide a non-intrusive, integrated snapshot of other available users by skills, groups, and other enterprise data			✓
Messaging	Fully integrated intra-office messaging including email and chat for business user, supervisors, etc.			✓
End user Scorecard	End user customizable snapshot of the number of interactions handled, sales made or other data			✓
Customer Transfer	Transfer the state of all applications of a customer			✓

Feature	Description	XM Integrator	XM Desktop	XM Enterprise
(Representational State Transfer)	interaction from desktop to desktop			
Server-based CTI	Use server-based CTI to pre-fetch data for a given interaction			✓
Business Analytics	Create dashboards and reports from blended telephony and desktop application data			✓
Automatic Failover and Redundancy	Persist data and update applications when they become available again to avoid service interruptions			✓

Cicero XM Core Technology

All three Cicero XM products use the United Data Model, Desktop Integration, and the Cicero XM Studio configuration toolset.

United Data Model™

The United Data Model (UDM) is at the core of all three Cicero XM products. The UDM uses a unique abstraction layer that isolates the source(s) of data from the use of that data in scripting, reporting, form composition, workflows and other interaction components. The UDM can include data that is sourced from any other enterprise application or data that exists solely within Cicero XM. Data elements are easily defined using the UDM Designer in Cicero XM Studio. No programming or database manipulation is necessary to add new data elements or to bind them to existing data sources.

The United Data Model allows companies to:

- Provide scripting, workflow, composite screens, enterprise reporting, data validation from multiple enterprise applications without knowledge of, or impacting, legacy systems.
- Provide a single view of the customer interaction data regardless of the source of that data.
- Add new data elements to the UDM without an external data source. (Cicero XM Enterprise)
These elements may be used to gather any data that may not be available in any of the legacy applications but can be reported together with that data to present a more complete holistic view of the interaction or the customer.
- Create your own UDM and add it to an existing UDM.
- Allow business analysts to manage and maintain scripts and data elements without impacting the integrity or security of the underlying applications.
- Make changes to the underlying data sources without impacting the objects (scripts, composites, etc.) built with the UDM.
- Use the contents of the UDM for any given interaction to pre-fetch data for a future call and support business intelligence and analytics. (Cicero XM Enterprise)

Desktop or Surface Integration

Cicero XM, the original desktop integration framework, is a unique solution because it allows you to non-invasively exploit the interaction between the applications and the platform on which they run. Using Cicero XM Studio, integrators interrogate or examine the interface exposed by an application and to selectively access specific information at a meta-level without requiring a deep knowledge of that application's internal implementation. Once the integrator has selected the information of interest, Cicero XM Studio translates the integration specifications into application Data Providers that are bound to elements of the UDM.

Cicero XM Studio

Cicero XM Studio is an integrated studio environment that consists of six designers: UDM, Activity, Workflow, Script/Guidance, Composite Screen, and Reports/Dashboard. The designers can be deployed in any combination within the studio to meet the needs of the organization. For instance, an organization can configure a deployable version of Cicero XM Studio to only contain the Script/Guidance designer. This studio could then be given to a training department to convert training materials into live interaction specific prompting and guidance to be presented at the precise moment of impact during an interaction. Another configured studio may contain just the presentation designers. A third studio may contain the Workflow designer and data

modeling tool. While yet another could be configured to provide the technologists with the Activity designer and United Data Model Binding and assignment designers.

The Cicero XM Design and Build Process

The Cicero XM Studio design and build environment is both flexible and intuitive. Using the six designers in Cicero XM Studio you can easily:

- Separate the design and build responsibilities
- Target the correct implementation skill set
- Enable team development
- Control and provide a rapid turnaround for operations
- Control and ensure the security of enterprise integrations points for IT
- Support Model View Controller (MVC) architecture
- Enable offsite development

Once an organization has defined your project requirements, you can begin using the Cicero XM Studio Designers to:

- Interrogate legacy applications to create Data Providers.
- Design a United Data Model (UDM) and bind to the Providers. Auto-generate the Data Model and Surface Model.
- Develop domain specific language activities in .NET using the Surface Model and Data Model.
- Build call/work flows using Activities and Rules with the UDM.
- Develop Scripts with dynamic content and workflow control.
- Layout composite screens and toolbars using content from the UDM and mash-up content.
- Design Reports and dashboards using interaction data.

Cicero XM Architecture

As mentioned previously, Cicero XM is offered as three separate but related products: Cicero XM Integrator, Cicero XM Desktop and Cicero XM Enterprise. Cicero XM Integrator and Cicero XM Desktop are both client applications that can be standalone solutions or clients for Cicero XM Enterprise.

Client Applications

Cicero XM Integrator has no visual components, runs as a Windows service, and provides integration and automation services for existing desktop applications in both 32 and 64-bit environments. It is capable of moving data between applications and controlling process flows across applications without having to modify the existing applications in any way. Cicero XM Integrator works with most applications types including Windows, web, Java, and mainframe applications such as 3270 or console applications.

Cicero XM Desktop adds a series of visual components to Cicero XM Integrator. In addition to the Cicero XM Integrator's Windows service, Cicero XM Desktop includes a Windows application that provides the ability to display a context sensitive toolbar, present "composite" displays and organize the user's desktop by providing a docking interface for all applications required for a given interaction while only presenting those applications needed for the current application. It also provides a "command center" that allows access to scripting, a telephony control panel if a TAPI-compliant phone client is available, and other key functions. Like Cicero XM Integrator, Cicero XM Desktop is fully compatible with Windows XP (SP3) and Windows 7 32 and 64-bit editions.

As indicated previously, both clients support the core abstraction features of the United Data Model, providing the ability to build and modify workflows and (with Cicero XM Desktop) scripts and composite forms without having to have specific knowledge of where the data is coming from. Both clients also support secure single sign-on using the maximum available encryption processes. Single sign-on may be configured to be linked to the user's account for all future use, or it may be restricted to a single session based on security requirements of the enterprise.

Both clients utilize industry standard architectures based on Microsoft .NET 3.5 utilizing Windows Presentation Foundation (WPF) for all visual components, Windows Workflow Foundation (WF) for workflow management and the docx open XML format for storing and managing scripts. In fact scripts can be created in Microsoft Word or other docx compatible editor and then transferred into Cicero XM Studio complete with all graphics, charts and other formatting intact. Both clients are fully capable of consuming web-services and acting as database clients as well.

Cicero XM Enterprise

Cicero XM Enterprise uses an n-tier architecture to add enterprise Customer Interaction Management capabilities to the Customer Experience Management capabilities that exist within the Cicero XM client applications. Cicero XM Enterprise utilizes highly efficient and secure network communications based on standard Windows Communications Foundation (WCF) architecture.

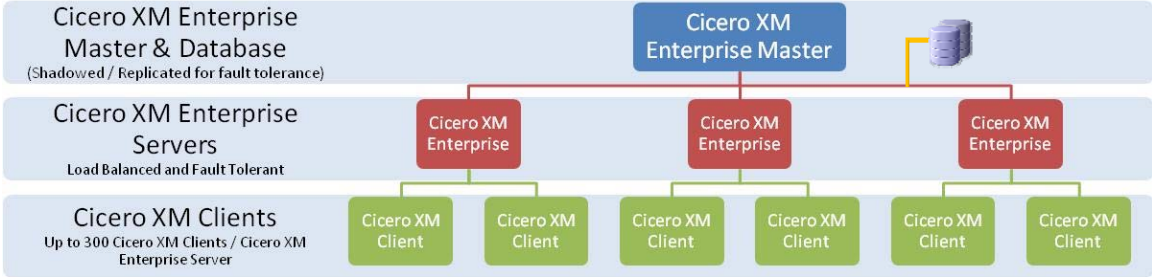


Figure 2 – Cicero XM Enterprise Architecture

Cicero XM Enterprise consists of a series of small servers and a Microsoft SQL Server database. The Cicero XM Enterprise servers are deployed using an n+1 scheme to allow for redundancy using as a base configuration a maximum load of 300 Cicero XM clients (either Integrator or Desktop) per Enterprise server. One of the Cicero XM Enterprise servers is designated to act as the “Master”. This server has the responsibility for maintaining load balance among the other servers. If an enterprise CTI service is available, or Cicero XM Enterprise is configured to talk directly to an ACD, the Master server will also execute a “pre-fetch” on call arrival against the Cicero XM Database to retrieve any data that may be available from previous contacts with the caller. Lastly, in smaller implementations (under 500 positions) the Master server also acts as the web server for the real-time dashboards and reporting.

Although not explicitly represented in the diagram in Figure 2, any Cicero XM Enterprise server is capable of acting as the Master. Cicero XM Enterprise is designed for maximum reliability: if a Cicero XM Enterprise server should fail for any reason, the Master will automatically redirect the clients that were working with that server to other servers seamlessly. If the Master should fail, one of the other servers will automatically “promote” itself to the Master and will reallocate its clients to other servers.

The Cicero XM database is built on Microsoft SQL-Server (2005 or 2008) and can be deployed in an existing data environment or as a separate server. Cicero strongly recommends utilizing standard Microsoft replication, redundancy and backup procedures to ensure the level of reliability necessary for successful operations.

Cicero XM Enterprise RESTful Interaction Transfer

Cicero XM Enterprise supports complete Representational State Transfer (REST) of any interaction from one Customer Service Representative (CSR) to another so that when the receiving CSR gets the interaction it is in the same state as when it left the sending CSR’s desktop. This includes the complete UDM state, all scripts, composites, and workflows at the same state and all pre-existing applications navigated to the same checkpoint. This eliminates the need for the receiving agent to lookup the information and navigates manually through everything that has already been done.

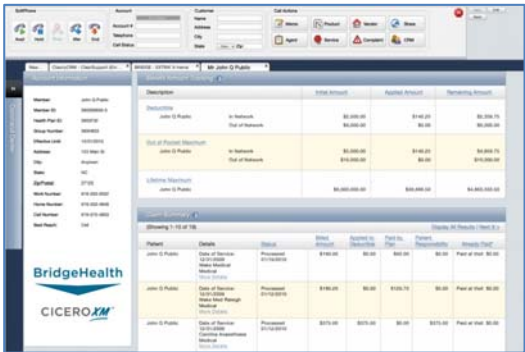


Figure 1 – Example of a Cicero XM Desktop

Cicero XM Enterprise Client Deployment and Maintenance

Cicero XM Enterprise supports full automatic deployment of Cicero XM solutions and runtimes with full version control and roll-forward/roll-back capabilities.¹ There is no need to go to each workstation to install software whether it is a solution update created by Cicero XM Studio or an update of the product itself. Updates may be scheduled to deploy upon CSR login or immediately (between interactions). Only those portions of a solution that have changed will be deployed and are fully compressed to minimize network load. Updates may be targeted to certain CSR groups for testing. Deployments are automatically targeted solely to those CSRs who will be affected by the change. When a CSR logs in, the client software automatically checks to confirm that it has the appropriate version of all solution components that may be required for that CSR's tasks.

Other Cicero XM Enterprise Capabilities

Cicero XM Enterprise provides the ability for supervisors to send messages to CSRs, collectively or individually, and for CSRs to chat with Supervisors or other designated users without interfering with the ongoing interaction. It further allows CSRs and Supervisors to see the "presence" state of appropriate other CSRs and Supervisors for purposes of determining availability to handle a transfer or chat inquiry.

Other capabilities provided by Cicero XM Enterprise include:

- CSR, Supervisor, Manager and other stakeholder dashboards
- Dynamic, centralized Single Sign-on capabilities
- Blended reporting and analytics consisting not only of interaction statistics but full business data
- "Cradle to Grave" CTI management
- Support for multi-interaction, multi-user workflows
- Enterprise web-service provider with full load balancing and object brokering capabilities
- Multi-site support
- Work at Home Agent support
- Kiosks and Web self-service support²
- Built in case management support²

About Cicero

Cicero, Inc. provides solutions that enable business transformation of enterprise interactions across companies and government organizations. Cicero's XM technology delivers this capability via an innovative combination of desktop integration, automation, presentation and analytics capabilities, built to transform customer interaction into the most powerful marketing and branding asset a company can own. Cicero stands out among other software solutions for its ease of configuration and change control eliminating up to 90% of the change control costs and time, providing the ability to deliver actionable intelligence through efficient combination of telephony and interaction data, and delivering immediate benefits with an ROI in less than 6 months.

Cicero Contact Information

Learn more at www.ciceroinc.com

Headquarters • Cary, NC USA
US 1-866-538-3588
International 1-919-380-5000
E-mail: info@ciceroinc.com

Cicero, Cicero Integrator, and Cicero XM are trademarks or registered trademarks of Cicero Inc. and/or its affiliates. Other company names and/or products are for identification purposes and are the property of, and may be trademarks of, their respective owners.

¹ This feature will also be available for non-Enterprise implementations with the forthcoming Cicero XM Studio Team Edition planned for release in Q3 of 2010.

² Planned for release in Q3 of 2010.