

# **Cicero<sup>®</sup> Technology**

*Integration at the Speed of Change.<sup>™</sup>*



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## Introduction

Companies purchase and develop different applications to address varied business needs with the end goal of making users productive, customers satisfied and their business more profitable. At first, an organization's business systems and applications typically meet these needs well, but as time goes on, they no longer fully meet their purpose. The business changes, new processes and procedures are identified, and new, more complex, compliance rules and requirements have to be implemented. On top of this, new applications and technology are purchased and installed in one or more areas of the company. The result is a complex environment with an ever increasing number of applications. This has a negative impact on business agility, user productivity, customers and ultimately, the bottom line. The challenge is how to make existing and new applications work for your organization without having to rewrite code, replace systems, or invest significant amounts of money and time.

What if you could...?

- Automate workflows and business processes
- Integrate diverse applications regardless of their platform or when they were created
- Add new functionality and features without writing code
- Modernize and integrate legacy systems with web services
- Create mash-ups, web services, new and composite applications
- Consume or produce web services at the desktop
- Present a new desktop, which provides the information that end users need when they need it
- Complete a project in 6-10 weeks and achieve an ROI in 3-6 months

The Cicero Platform can allow you to do these and more. Cicero technology provides a framework for rapidly integrating and enabling applications, allowing you to focus on meeting business goals. Whether you are looking to resolve a simple integration challenge such as sharing data between an On Demand application such as Salesforce.com and a legacy mainframe system or create a unified desktop for your contact center, the Cicero Platform provides a scalable, flexible, and cohesive solution in a fraction of the time and cost required compared with other approaches.

## What is Cicero?

The Cicero Platform is a framework for organizing, integrating, and enabling an organization's enterprise software applications. Cicero, the original desktop integration framework, goes beyond the more typical server-based solutions by non-invasively exploiting the interaction between the applications and the platform on which they run. Using Cicero, you can quickly provide three types of integration:

- Process Integration – Streamline workflow and business processes by simplifying navigation, eliminating searching for information, and reducing steps in business tasks without writing or altering application code.
- Data Integration – Share data between applications and systems, reducing the need to copy/cut and paste or otherwise enter information in one or more applications.
- Visual Integration – Provide a logical organization of the information on the end user desktop using *pass-through* integration where applications are displayed and organized in their native user interface such as in a book and tab metaphor or using *overlay* integration where a new application such as a composite, mash-up, or dashboard is placed over existing applications. Cicero also allows you to create a combination of both pass-through and overlay integration.

Cicero includes a comprehensive toolset called Cicero Studio and a Runtime environment, which is installed where the applications are used. Both Cicero Runtime and Cicero Studio are highly modular and can accommodate new technologies and business functions as they change.

### Cicero Studio



Cicero Studio is an integrator toolset, which enables you to examine the desktop 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 code. You can also specify the events generated or used by the interface and the data to be used across applications. This activity is more similar to a configuration than a programming exercise. In addition to examining applications, you can also gather information from other sources such as Web Services and databases. Once you have selected the information of interest and created your automated workflow definitions, Cicero Studio writes the specifications into an XML repository, called a *Cicero Project*, which fully describes the behavior of the integrated applications' workflow. Cicero Studio allows you to modify, share, and create different Cicero Projects to support various business requirements.

#### Wizards

Cicero Studio consists of a number of Wizards that walk the integrator through particular tasks step by step. Specifically, Cicero Wizards enable the integrator to describe the interface to an application in terms of a collection of event processes - known as Tasks - and user interface elements or objects. This allows the integrator to identify controls with common names to be used over and over again within an existing or other integration projects.

#### Action Libraries

A set of robust, reusable Action Libraries are provided with Cicero Studio to perform common functions, such as reading from and writing to data sets between various application types such as 3270 emulators, Siebel, Microsoft Office, Lotus Notes, etc., as well as interfacing with application elements and manipulating data. The Action Libraries are continually expanded and updated for Cicero users. In addition to the supplied set of Actions, the integrator can create custom Actions. Cicero provides actions for all functions commonly available in most 4GL languages such as if statements, string parsing functions, looping constructs, etc.

#### Skin Configurator

Cicero Studio contains a graphical layout editor to rapidly create a customized user interface. Whether the need is to organize information using a book and tab metaphor, a dashboard, menu bar or a button bar, the Skin Configurator creates a user interface with the look and feel that

meets individual business needs. Using Cicero Studio you can also create different composite desktops for the needs of different user groups. For example, an inbound call center may have access to one set of screens whereas an outbound call center might have those same screens but also have other applications.

### **Consume and Produce Web Services**

Using Cicero Studio, any information or business process that is available in an integration project can be made available as a web service and can also include services provided by a human operator. In this sense, Cicero can include a human operator in the business process of responding to a web service request. For example, one web service method may perform a lookup of a customer's personal information based on a supplied account number. This method would invoke the same Cicero Task as would a GUI-based user request for the same information. Another web service method might format the supplied data into an XML or EDI exchange format without any user interaction.

Cicero Studio enables the production of complex and feature-rich web services immediately, allowing an organization to quickly adopt emerging industry standards (e.g., Business Process Execution Language – BPEL) as they are finalized and disseminated.

In addition to acting as a web services provider, Cicero can act as a web services consumer retrieving data and using it within the Cicero integration. If a Cicero integrator would like to use a web service within their integration project, they simply point the Cicero wizards at the web service's WSDL and Cicero generates all the action libraries for the web service automatically. This completely eliminates the need for the Cicero Integrator to know anything about web services. Cicero's unique ability to make truly efficient web services from legacy, client server, Web, and Windows applications means that the architect does not have to wait for future budgets, standards, tools and business requirements to become available.

### **Integrated Debugger**

Cicero Studio provides a fully integrated debugger, which allows integrators to check their configurations and applications and move them through an integration project's implementation in small steps while maintaining a complete overview of the state of the integration. The Cicero Integrated Debugger is particularly useful, because it uses the abstractions provided by Cicero Studio, such as Project/Application/Task/Step or abstractions of GUI objects across dissimilar platforms. As a result, integrators quickly feel comfortable using the Cicero Integrated Debugger and unit testing is faster and more efficient.

### **Productivity Packs**

Cicero Productivity Packs, which are bundled with Cicero Studio, are pre-packaged tools that extend existing application functionality, automate business processes, support integration best practices, and add new features to address specific business requirements. There are two types of Productivity Packs: Desktop and Best Practice. Desktop Productivity Packs provide additional functionality such as single sign-on or context-specific help across applications to the existing Cicero integrated desktop for knowledge workers. Best Practice Productivity Packs include templates and other tools for the integrator to use with Cicero Studio.

Productivity Packs include:

- Workflow Helper – allows a contact center administrator or business manager to define specific information, which can be displayed for any application screen or field. Organizations can include call scripting, procedural information or shortcuts to knowledge base information. Workflow Helper can also be configured so that knowledge workers can create notes about an application screen or field.
- Workflow Assistant – allows knowledge workers and administrators to create best practices and routines within a Cicero desktop. Once a workflow or routine is defined, Cicero walks the knowledge worker through the procedure step by step with instructions

in the context of the current caller, automatically navigating them through application screens.

- Dashboard – displays information from multiple applications in a desired format within a single screen. Dashboard applications can be used to create a single application interface or to simply display information from multiple applications in one screen.
- Shortcuts – allows a knowledge worker to type a few predefined characters to navigate to specific application screens or desktop views.
- Calculator – provides additional functionality not included with the standard Windows calculator including the ability to see a visual audit of your transactions and the ability to “pin” the calculator on top of other desktop applications.
- Favorites – provides navigation shortcuts to any application screen on a Cicero integrated desktop.

## Cicero Runtime



Cicero Runtime processes the Cicero Project generated by Cicero Studio to control the interactions between applications and how they are displayed. In addition, the Runtime contains several managers that monitor application status, data, processes, and the user interface as part of the integration.

### **Cicero Service-Oriented Architecture**

A Service-Oriented Architecture (SOA) encourages the creation of loosely coupled business services through the integration of disparate applications, regardless of underlying technologies. This leads to greater systems flexibility, quicker time-to-market of new business functions, lower costs, and ultimately, a real competitive advantage.

Cicero helps build and deploy SOAs in a fraction of the time and at a fraction of the cost. Instead of spending years rewriting applications to conform to a new architecture, Cicero enables an enterprise to start receiving the full benefits of an SOA without a change to the existing core systems.

Web Services is a core component of an SOA and with Cicero these systems can become full participants in the modern world of loosely-coupled, distributed service providers and consumers. More importantly, Cicero delivers this power with a set of comprehensive integration tools that are as easy as “point-and-click.”

### **Historical and Real-Time Data Collection**

Cicero can generate data about a user’s activities, both in real-time and archived for later analysis. Real-time data is particularly useful for data center environments, where users performing certain actions in large numbers can indicate emerging business problems. Problems can be addressed before users realize there is one, or users can be alerted on how to handle a particular situation. Data analyzed after-the-fact can provide indications of business issues such as compliance, software bottlenecks as well as trends and potential optimizations. Cicero can capture user data across all integrated applications, which is very useful for analyzing trends and user productivity.

## How Cicero Works

Cicero technology leverages the relationship and communication that exists between applications and the underlying Microsoft Windows operating system. Using Cicero Studio, a single, comprehensive integration environment, you create a logical model or *map* of each application's elements or objects (such as entry fields and push-buttons) and events (such as mouse clicks) regardless of when the application was created or the programming language that was used. This logical model is created without having to modify or access the source code of any application. After mapping each application, you describe the business processes in terms of event-driven workflows using wizards and high-level commands, *plugging in* the application objects as needed and adding event-driven logic and workflow.

The integrator can create a task-oriented skin using the graphical layout editor or create a new composite application. At run-time, Cicero Runtime listens for events between the applications and operating system and inserts the integration logic between the application objects (within a single application and across multiple applications) creating the integrated desktop.

### It Doesn't Take a Rocket Scientist: The Integrator Experience

During a Cicero integration project, the integrator spends most of their time using Cicero Studio to configure the integrated environment as opposed to writing code. While the Cicero Platform can be extended with the addition of programmed components (scripting and compiled code), it is rarely necessary due to the rich environment of the Cicero Platform.

The Cicero configuration is maintained in a set of configuration files in the Cicero Project, and ultimately, the function of the Cicero Studio is to create and maintain these configuration documents. The primary design strategy is to make the configuration task as easy and error-free as possible for the integrator. To this end, the following strategies are noteworthy:

- The Cicero integrator never needs to manipulate the configuration documents. For example, during training, the trainers do not discuss the document structure, because knowing the document structure is not needed for integration purposes.
- Cicero abstracts various platforms and makes them appear similar to the integrator, even though the internal implementations are substantially different. This is particularly true when specifying the parameters of the visual objects. The integrator uses a graphic tool to discover an object's (such as a textbox) properties and select which properties Cicero should use at runtime to discover the object.

### The Unified Desktop: The End User Experience

The user experience is determined by an organization's business requirements. This can vary from displaying applications with no visible changes, using Cicero to provide behind-the-scenes integration and no visual footprint, to using Cicero to guide users visually through complex workflows. In the latter instances, Cicero provides a lightweight but powerful HTML-based GUI that is also configured within Cicero Studio and can easily be tailored for the end user group using the same set of configuration components.

Cicero can perform navigation across applications on the users' behalf. This not only optimizes user productivity (fewer keystrokes, no skipped steps in a workflow), but also can reduce training requirements by automating navigation across difficult to navigate applications (such as a series of 3270 screens). The user sees the relevant data at all times instead of navigating to find that data.

The Cicero unified desktop also significantly impacts end user training. Training shifts more toward the business process and soft skills and less about navigation between applications. In contact centers, the unified desktop improves agent productivity and allows agents to focus on providing quality customer service.

## Other Integration Approaches

There are two basic approaches to integrating applications. The first is to “rip and replace” applications. In this approach companies will identify one or more existing applications and will begin to build a new application that addresses their integration needs. Unfortunately, these projects are often expensive, take too long to implement, and become out of date as new requirements and technologies come along even before the new application is put into production.

The second approach is to implement an application server. This server-side integration approach integrates applications using a combination of API's, web services, custom coding and other Enterprise Application Integration (EAI) solutions. Applications that need to be integrated become “back-end” systems and oftentimes a new middle-tier system is introduced. The middle-tier system is connected to and accessed the “back-end” systems. The middle-tier system then presents an appropriate interface to clients as a composite application, portal, or mash-up.

Server-side integration presents a number of challenges including:

- The software and programming can be complicated to set up, program, and maintain.
- The project(s) need a large amount of manpower and specialized skills to bring them into production.
- Replacing the interface on the client with a new interface on the client can impact the end user.
- They often take a long time to implement and are costly.
- Server-side integration requires additional bandwidth, servers, and other infrastructure in order to ensure proper performance, scalability, and availability.

## Cicero in Action: How is Cicero Used?

Cicero is used in a variety of industries and is addressing a variety of business and technical challenges. Once you have used Cicero Studio, you will begin to think of other ways that you can improve application functionality and overall productivity. In general, you can use Cicero to:

- Automate workflow and business processes
- Eliminate copy/cut and paste of data
- Provide information from disparate systems when and where it is needed
- Integrate workflow and data across platforms
- Enforce compliance and other business rules
- Consume and generate web services at the desktop
- Provide role-based unified desktops without writing application code
- Use pass through or overlay integration such as composite, mash-up and other applications
- Application sign-on and re-sign on automation

A few examples of how Cicero is being used to date include: in contact centers to increase agent productivity, in financial services to streamline workflow and consolidate information and in government to extract information from legacy systems without access to backend systems.

### Contact Centers

Cicero is particularly useful in contact center environments, where large numbers of users perform repetitive tasks with a lot of copying and pasting and navigation between application screens. One motivation for deploying Cicero is to reduce average call duration. Cicero makes that possible by reducing keystrokes resulting in fewer errors, automatically sharing information between applications, simplifying application navigation, and eliminating copy/cut and paste.

Cicero also significantly shortens and improves agent training, provides cross and up sell opportunities, enforces business rules and compliance requirements, and streamlines overall agent workflow. More importantly, a Cicero unified desktop elevates the customer experience by providing agents with the information and tools that they need to focus on the customer.

#### Optimize Agent Productivity

- Automate workflow processes
- Data is shared between applications and silos
- 360° view of the customer
- Reduce redundant data entry and errors
- Shorten and improve training

#### Elevate the Customer Experience

- Shorten Calls
- Enforce rules and compliance
- Ensure Consistency and Enforce Best Practices
- Eliminate Redundancy
- Increase First Call Resolution

### Financial Services

One of Cicero's initial uses was to assist financial consultants who use a number of applications to perform repetitive tasks. Cicero simplifies many of these tasks, allowing the financial consultants to focus on their customers instead of the software they are using. Due to the simplification and rationalization offered by Cicero, the consultants have a much improved breadth of information for their clients. As a result, customers have more elevated interactions with the financial consultants. Finally, financial consultants can focus on what they perceived as their actual work, which improves their satisfaction.

## **Business Process Outsourcers**

The integration of applications and data has always been the most formidable challenge for outsourcers. Each time a new client comes aboard, or an existing client modifies their systems, you have to integrate those technologies with your applications and telephony systems often without the assistance from the client's IT staff. Until now, the traditional approaches to address these challenges have fallen way short of success. Integration approaches like message brokering, application reengineering, portals and conversions to web-based applications are often tried and fail in outsourcing projects because they take too much time, cost too much and do not address the immediate problems such as improving workflow.

Cicero's unique integration technology overcomes these failings in outsourced contact centers by making it possible to simplify navigation, share applications and data in the context of the customer, and simplify workflows--all without programming or relying on the direct access to your client's IT resources.

## **Government**

Government knowledge workers are faced with mounting responsibilities and new challenges in providing support services, homeland security, timely intelligence, emergency response and other public safety services. On a daily basis, these dedicated public employees must manage and analyze massive amounts of information from various data sources and make rapid, accurate assessments affecting the citizen, public safety and national security. Cicero is being used to:

- Define government processes that span multiple applications or agencies to ensure the efficient flow of information
- Rapidly develop task-oriented, consolidated views of existing applications
- Minimize user training through the reuse of familiar applications
- Extend the life of existing technology investments without modification to existing application source code
- Share information through non-invasive integration of external data sources
- Capture usage data to improve workflow
- Realize true cost reduction by dramatically shorting the development and delivery time usually associated with large scale integration projects

Cicero enables the government knowledge worker to become more efficient and accurate by enabling information sharing and streamlining processes at the desktop, with no impact on existing systems.

## **Other Uses of Cicero**

Cicero is also addressing other business and IT challenges including:

- Rapidly integrate applications for mergers and acquisitions
- Enable and augment applications such as legacy systems (3270, AS400, DOS, etc.)
- Automate sales force software by integrating Software as a Service (SaaS) such as Salesforce.com and Siebel on Demand
- Monitor and enforce business rules and compliance requirements
- Provide single sign-on capabilities, event-driven workflow help, and new applications
- Automate procedures to process paperwork in law enforcement
- Enforce business processes and workflow for troubleshooting and cross sell opportunities
- Integrate applications running in a desktop virtualization software such as Citrix and VMware

## Summary

Cicero is the original desktop integration platform that provides a framework for rapidly integrating and enabling applications allowing companies to automate workflow and streamline business processes. Cicero provides a cost-effective way to organize diverse business applications within a consistent, task-oriented unified desktop.

Using Cicero, organizations can quickly integrate and enable business applications such as CRM, Web, Windows, and legacy. Cicero can also be used to create new composite applications from the existing applications, create and consume web services, integrate virtualization solutions such as VMWare and Citrix, and extend the functionality of legacy systems in support of a Service-Oriented Architecture. Additionally, Cicero allows you to consolidate data, streamline business processes, enforce rules and compliance, and add additional functionality such as single sign-on without having to purchase new applications.

Cicero is typically deployed in 7-10 weeks and has an ROI of 3-6 months. Cicero's technology serves more than 50,000 knowledge workers at Merrill Lynch, IBM, Nationwide Financial, and other companies large and small. In one recent implementation, Cicero integrated eight applications for twelve hundred agents in just seven weeks and reduced average call times by approximately 40 seconds. The results include improved customer service and a \$1+ million per year operating cost reduction. For more information about Cicero, please visit [www.ciceroinc.com](http://www.ciceroinc.com).

## About Cicero, Inc.

Cicero Inc. provides software integration solutions for contact centers and other complex information environments. Cicero solutions align underlying technology with business processes, streamline user interactions, improve total productivity, assure completeness and compliance, reduce turnover, and raise knowledge-worker morale and effectiveness.

Patented Cicero technology quickly and non-invasively integrates disparate applications on the desktop. Cicero integration produces results in weeks, and ROI can be achieved in months. Cicero commits to results which are impossible for invasive, server-side strategies and technologies.

Cicero's technology serves thousands knowledge workers at Merrill Lynch, Nationwide Financial, and others, large and small. In one recent implementation, Cicero integrated eight applications for nine hundred agents' desktops in just seven weeks and reduced average call times by approximately 40 seconds. The results include improved customer service and a \$1+ million per year operating cost reduction. For more information about Cicero, please visit [www.ciceroinc.com](http://www.ciceroinc.com).