
Centre for Health Evidence

VIVIDESK™

Integrated Information Environments



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Introduction

Overview

VIVIDESK offers an immediate solution to multi-sector demand for information management and integration.

VIVIDESK™ is an Internet desktop-management technology that facilitates integration of multiple information sources, networks and technologies in a simple, customized, centrally managed and comprehensive information environment. Although widely adopted in the healthcare sector, the VIVIDESK client-server technology is ready-to-use in any information-intensive domain, in any language.

The VIVIDESK “Integrated Information Environment” provides enterprises with powerful information tools in 6 functional areas:

1. Distributed Desktop Portal
2. Single Sign-On/Single Sign-Off
3. Application Integration
4. Knowledge Management
5. Learning Management
6. Audit and Feedback

VIVIDESK technology offers a pragmatic solution to the integration and interoperability problems faced by knowledge-intensive enterprises worldwide. It is a proven productivity tool that saves learner, practitioner and policy-maker time while helping all to make better clinical decisions.

VIVIDESK systems are used to display, organize and integrate multiple best-of-breed information technologies. These can include Windows, Internet (HTML, XML, ActiveX, Java, RSS, etc.), Legacy (VT100, 3270, etc.), Remote Desktop Protocol (Terminal Server, Citrix), Conferencing, Messaging, Desktop Sharing, Streaming video, and other technologies. VIVIDESK takes care of user authentication, context-checks, security, single sign-on (SSO), and information sharing between different software applications using standards-compliant application-to-application (A2A) messaging. Its unique capabilities greatly exceed what can be accomplished with internet browser technologies. The VIVIDESK technology is scalable and can support distributed data networks.

VIVIDESK includes capabilities not found in other SSO or portal solutions. Current clients use VIVIDESK to:

- configure, deploy and manage secure, private, authenticated online information environments that are customized for different groups;
- streamline access to multiple protected resources via comprehensive SSO capabilities;
- integrate internal and external information resources with enterprise information systems using client-side integration tools;

- use knowledge management tools to manage intellectual assets and connect evidence with workflow;
- empower virtual communities with integrated email, telephony, conferencing, messaging and collaborative problem-solving tools;
- promote multi-disciplinary learning and training through “Virtual Learning Communities”, “Virtual Practice Communities” and/or “Virtual Research Communities”;
- monitor resource use and information behaviors to facilitate automated credentialing, cost-containment, quality improvement, audit and feedback.

Current VIVIDESK users have access to customized packages of resources optimized for particular domains (e.g., pharmacy, acute care, primary care), professions (e.g., nursing, dietetics), and practice locations (e.g., community-based, hospital-based, region-based). The VIVIDESK environment can be further customized for different levels of users and interests to improve use of:

- External Evidence, including electronic references, drug information and clinical decision support (pathways, decision-rules, algorithms) licensed by the healthcare enterprise;
- Internal Evidence, including locally developed forms, handouts, policies, guidelines and datasets.

VIVIDESK services improve the workflow of busy clinicians by enabling a seamless integration of the entire health information experience.

VIVI Technologies

VIVIDESK is one member of the VIVI Technology family. Other components are optimized for browser-based access to the VIVI server and database systems. All components work from a central repository of users, applications and properties that can be managed from any Internet-enabled computer. With the exception of VIVIDESK (requires Windows, VMWare, Citrix client, RDP client, BootCamp, Parallels or Fusion), all VIVI Technologies are tested on Linux, Macintosh and Windows operating systems using most popular browsers (Internet Explorer, FireFox, Safari, Chrome).

- **VIVIGATE**
VIVIGATE uses VIVI authentication and single-sign-on capabilities to provide selective access to any web page or internet application. Users can be passed through to open sites or can be authenticated to determine levels of access to protected sites; while auditing who gains access, from where, using which internet technologies.
- **VIVISPACE**
VIVISPACE adds collaborative workspace capabilities to VIVIGATE authentication and access controls. Various template (and customizable) workspaces are currently available, and many more under development. Virtual committee rooms, small group learning areas, course management, e-manuals, event-management calendars and information clearinghouses are popular VIVISPACES.

- **VIVIWEB**
VIVIWEB includes all features of VIVIGATE and VIVISPACE, while adding the ability to integrate multiple applications in a group and user configurable browser-based information environment. This supports additional virtual community features, SSO, application integration, knowledge management and learning management.
- **iVIVIWEB**
iVIVIWEB has most of the features and functions of VIVIWEB, optimized for the smaller screens of handheld computing devices (e.g. iTouch, iPhone).
- **VIVIDESK**
VIVIDESK is a full featured browser-replacement for Windows operating systems (or emulated Windows sessions) that includes fully secured inter-application communications and robust information behavior audit tools.

Most of the capabilities described for VIVIDESK are available through other VIVI user interfaces, all running from the same server systems. Hereafter, “VIVIDESK” is used to refer to the VIVI Technology suite.

Development

VIVIDESK has evolved through several iterations over the past decade, benefiting from research and development initiatives at Johns Hopkins University, McMaster University and the University of Alberta. Originally invented for Microsoft Windows 2.0 workstations, the product helped bring 16-bit Windows workstations into healthcare in the mid 1990s, secure Internet environments for health in the late 1990s, and enterprise Internet integration technology in the 2000s. A hybrid open-source model was developed in the mid 2000s, allowing core encryption systems to be protected while the user interface layers are open to multi-institutional collaborative development. Most VIVI-ready components are shared among all users, greatly extending the access of any one user to new innovations.

While the core authentication engine is protected, most VIVI technology can be extended under open-source licensing. Five levels of intellectual property rights are defined. These encourage a community of template, interface and component developers and facilitate sharing of innovations among all users of VIVI Systems.

Component architecture, modular design, and templated user-interfaces all support marketing as stand-alone product or

VIVIDESK technology has been designed, developed and deployed over a period of 15 years. Built using industry standard tools (C++, .Net and other Internet component technologies), VIVIDESK is fully compliant with health care industry standards for SSO, security, and information exchange (e.g., Shibboleth, HL7, CCOW, XML). Currently in its 6th series, VIVIDESK has been thoroughly tested in complex multi-site healthcare enterprises.

VIVIDESK design is currently directed by Dr. Robert Hayward, a health informatician, specialist in internal medicine, professor of medicine and expert in clinical decision support. Core VIVI technologies are developed and supported at the University of Alberta Health Informatics Program and its Centre for Health Evidence (CHE, <http://www.cche.net>), which studies evidence-based decision-support, promotes “practice-based evidence”, provides consultative services to health organizations world-wide, and provides research and development services for virtual communities.

The technology continues to benefit from innovative development while responding to the evolving needs of information-intensive organizations. With over 10 years of development and over 6 years in production, VIVIDESK is used by high profile healthcare organizations in 5 continents.

Significance

*Suffering information hunger in the midst of plenty, **decision-makers want** a streamlined health information experience that is ubiquitous, accessible, dependable and credible.*

*Pressured for IT investment dividends, **enterprises seek** integration environments that optimize the existing information ecology.*

*VIVIDESK helps organizations deliver information **convenience, discrimination and integration** for their users.*

VIVIDESK effectively addresses fundamental problems faced by knowledge-based enterprises worldwide:

1. How to bridge the gap between available digital information and better decision-making.
2. How to improve return on IT investments through better integration of existing systems.

Healthcare workers are swamped with information from disparate and unconnected information sources and systems. Private, institutional and regional electronic health records (EHR), electronic medical records (EMR), diagnostic imaging, enterprise administration, communication technologies, electronic references, decision support tools, professional portals, continuing education and financial systems all have different interfaces, navigation methods, and sign-on or sign-off procedures. Users are frustrated with lack of interoperability. Time is wasted finding, accessing and using disconnected information from dissonant systems.

After a decade of investment in large scale health information systems, health organizations are sobered to appreciate that digitization of information, in itself, is not sufficient for improved decision-making. The emerging priority is to find ways to integrate highly filtered information, knowledge, communication and problem-solving aids so that better information begets better choices. Healthcare enterprises must prove that information services support quality improvement and patient safety. Lacking time, money or capacity to design from scratch, their best hope is to better integrate and target their existing best-of-breed systems.

VIVIDESK brings order to the health information chaos. Integrated information environments facilitate simple, secure and fast access to all the information needed at the point of decision-making. This allows health organizations to streamline the users' experience by synchronizing and contextualizing information from disparate systems, all while continuously monitoring how information management affects front-line information behaviors. Benefits of VIVIDESK accrue to both decision-makers who use the systems and to the enterprises that deploy the systems.

User Benefits:

- Comprehensive access to information when needed
- Simple/intuitive access to information
- Consistency/uniformity of access to information
- Contextualized information leads to better clinical decisions
- Reduced clinician time spent signing on
- Portability of information – clinician desktop available at hospital, clinic, home...
- Personalization of views and workflow preferences
- Ease of use and user satisfaction

- Improved patient outcomes

Enterprise Benefits:

- Reduced complexity of desktop management
- Reduced cost of desktop support - fewer lost password calls
- Centralized control of security
- Leveraged investment in existing technology
- Enabled HIPAA and JCAHO compliance
- Improved patient outcomes

Product Description

Overview

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The VIVIDESK “Complete Information Environment” provides enterprises with powerful information tools in 6 functional areas:

1. Distributed Desktop Portal
2. Single Sign-On/Single Sign-Off
3. Application Integration
4. Knowledge Management
5. Virtual Learning
6. Audit and Feedback

These functions support information services that:

- provide secure, private, authenticated online information environments that are customized for different groups;
- facilitate access to multiple protected resources via a single sign-on;
- integrate knowledge resources with learning and clinical tools using client-side messaging techniques;
- provide knowledge management tools that allow organizations to manage corporate assets and internal evidence;
- promote multi-disciplinary practice, learning and training opportunities;
- monitor resource use, integrating quality-improvement activities and facilitating cost-containment.

The following is a list of VIVIDESK features which make VIVIDESK uniquely able to support such services at the lowest possible total cost of ownership:

Highlighted Features	Description
Auto-Registration	When using VIVIDESK authentication, a built-in registration page allows users to sign-up for a VIVIDESK account using a customized forms or to obtain HIPPA-compliant password reminders. Registration screening, batch registration, LDAP, Active-directory integration and roles management offer systems administrators cost effective strategies for quickly deploying to large groups.
Installation	Multiple client installation strategies and customizations are administrator-selectable options with VIVIDESK contracts; including automated installation, automated-update distribution and, VIVIDESK facilitated updates of non-VIVIDESK software.
Multi-Language	VIVIDESK is multi-language enabled – currently supporting English, French and Dutch – with unlimited numbers of language tables configurable to accommodate user-selected language of preference.
Inventory	Corporate assets, resources, and knowledge can be centrally managed and integrated with VIVIDESK clinical and knowledge management information systems.
Surveyor	Automated surveys, assessments, and user feedback solicitations can be deployed for feedback, evaluation or quality improvement; targettable by group, interest or information behaviour profile.
Messaging, alerts and reminders	Messages and/or activities can be sent out to specific users or groups of users – either global or targeted based on usage patterns.
Grouping	Desktop users can be organized into different groups - each group can have different properties and resources.
Help System and Change Management	Built-in help system allows users to easily contact Help Desk, record problems and track system enhancements.
Desktop Administration	Desktop administration and data review is centralized and can be accessed from any location.

Distributed Desktop Portal

Distributed Desktop Portal technology provides a common interface to diverse information tools.

***Benefit:** Distributed Desktop Portals support efficient and unique information environments for specific user groups.*

VIVIDESK is a personal, mobile, distributed Desktop environment that provides users with access to applications and resources residing on the Internet, intranet, or local workstations. VIVIDESK pioneered Distributed Desktop Portal technology, an Internet-based and vendor-neutral approach to the centralized management of remote desktops in complex enterprises.

VIVIDESK Desktops share conventional portals' ability to aggregate different information for a common purpose. In addition, VIVIDESK facilitates synchronized searching across diverse sites and technologies, linking one or more communication tools, and highly customizable user experiences. Busy information workers need much more than the usual portal approach can offer. They need an information environment – a single point of access to best of breed applications and services. VIVIDESK acts like a “portal of

portals” organizing and integrating information at the level of the users’ desktop, not a potentially bottle-necked internet server.

<i>Distributed Desktop Portal Highlights</i>	<i>Description</i>
Simplified Interface	VIVIDESK provides a consistent look, feel and navigation across resources, applications and services from multiple sources.
Customization and Filtering	Resources can be optimized for particular domains (e.g.: family practice, pediatrics, radiology, long-term care), professions (nursing, dietitians) and practice locations (community-based, hospital-based, office-based).
Interest-Responsive	Users can personalize their information environment by selecting from a series of pre-determined content areas or interests.
Personal Workspace	Users can further personalize their workspace with favourite applications, bookmarks, personal resource collections and diaries.
Ubiquitous Access	VIVIDESK desktops can be downloaded to multiple locations (hospital, home, office, laptop), always with the same customization and personal information collections. All features are available from any location and all client components are auto-updating.

Single Sign-On

Single Sign On ensures information convenience while optimizing information security.

Benefit: *Single sign-on saves a clinician’s time, creates efficiencies in workflow, and reduces help desk costs.*

VIVIDESK adds to the Distributed Desktop Portal by providing robust and flexible Single sign-on (SSO) services. VIVIDESK goes beyond most SSO products by facilitating controlled access and automated procedures (macros) not only for local area network applications, but also for any application running on the client computer or any Internet, Telnet or Terminal emulator application initiated by the client computer.

VIVIDESK has many features that facilitate automated logon to multiple software applications. In addition, the VIVIDESK integration experts can work with organizations and software vendors to produce customized sign-on modules, using VIVIDESK’s extensive macro and scripting language, for logging on to particular products and providing users with a wide range of custom shortcuts and productivity aids.

SSO is available for local Windows applications (software running on the client computer) remote Windows applications (Citrix, Remote Desktop Protocol), TELNET/VT100/VT220 sessions, Internet applications, XML and Java applications. NT challenge, query string, form element, command line, CCOW and other SSO protocols are supported. Additionally, VIVIDESK can reproduce combinations of keyboard and mouse events to support SSO scripting of legacy or other products that do not support SSO protocols. The desktop can automate log-on to Citrix MetaFrame, Microsoft Terminal Server and Remote Desktop Protocol sessions and so can perform SSO and integration functions for remote Windows software run over and Intranet or Internet.

VIVIDESK can register multiple logon identifiers, passwords and parameters for each user. Application start-up and scripting options allow these parameters to be used in a variety of ways to gain access to multiple secure applications.

VIVIDESK has a full-featured macro language that can emulate any combination of keyboard, mouse or special key combinations for controlling any type of software that can be launched from the VIVIDESK interface.

SSO Highlights	Description
Flexible Authentication	Users can be authenticated using VIVIDESK authentication, LDAP/Active Directory, or a customized third-party authentication procedure.
Tokens	VIVIDESK supports a variety of "tokens" that can be used to send information from VIVIDESK user databases to applications during their initiation. This means that VIVIDESK can combine information provided dynamically by the user with any information known to VIVIDESK in its databases. Tokens are also used to prevent any recorded or viewable instance of a user identifier or password.
Encryption	All SSO procedures are encrypted so that there is no representation of either the logon technique or content on the client computer.
Single Sign Off	Single Sign Off forces application specific logoff protocols, even though the user may forget to do so. In this way VIVIDESK can free up subscription licenses and erase Internet cookies or session variables that could be pried by a malicious user.
Timeout	VIVIDESK can be set to timeout after a specified period of inactivity. Timeout will automatically sign users off from all applications.
Sleep Mode	Users can choose to put their desktop to "sleep", in which case all applications will be logged off, but stored. At next logon, applications are automatically re-launched using single sign-on and, in some cases, returning users to the exact page where they were working at logoff.
Conditional Sign On	Rules can be set for SSO enabled applications that will activate upon sign on and conditionally redirect users if necessary.
Password Management	VIVIDESK can be set to enforce password changes for both desktop and SSO enabled applications.
Password Rules	Administrators can set strong password rules for both desktop and SSO enabled applications.
Password Retrieval	If desired, password retrieval can be enabled, allowing users to automatically retrieve their desktop or SSO enabled application passwords.

Integration

Application Integration is achieved with standards-based application-to-application messaging.

Benefit: *Client-side integration allows seamless connections between disparate applications.*

VIVIDESK goes beyond conventional systems integration by adding flexible and powerful client-side integration tools to its portal and SSO technologies.

There are two complementary approaches to integrating health information systems. Both involve the exchange of data between one or more health information applications, facilitating this either by "server-side" or "client-side" technologies.

Server-side information exchanges typically occur between clinical data repositories and Electronic Medical Record (EMR) systems, usually through batched data requests using Health Language-7 (HL-7) syntax. These exchanges are “server-side” because information is exchanged between databases without the necessary participation of end-users. The exchanges use “system-to-system” (S2S) security and messaging protocols.

Client-side integration occurs when two or more information system user-interfaces are open and in use by a “client” decision-maker. For example, a physician may have an EMR open while a diagnostic imaging system is open in a separate application on the same computer. If one application can initiate an information event and that event results in an information display change in another application, then a client-side exchange has occurred. No data need pass between applications. Client-side messaging is also subject to standards, the current approved North American standard being the Clinical Software Application Context Management Standard (CMS, previously CCOW), a sub-set of HL-7. These exemplify “application-to-application” (A2A) messaging protocols.

Decision-makers are greatly helped if they can view all the information they need, when they need it, while solving problems. VIVIDESK supports and promotes client-side integration. It does this using standards-based messaging for those applications currently supporting protocols like CCOW. More importantly, VIVIDESK offers its own “CCOW-NOW” messaging and scripting technologies. These work with all software applications opened through a VIVIDESK information environment, even if those software applications are not standards-compliant. Multiple applications can be integrated into a common decision-making context where clinical and decision-support information events are all synchronized... a powerful “quick-win” for clinicians and institutions working with prevalent health information systems.

Integration of information environments can occur at a number of levels:

- **Combined** systems unite one or more components under a common interface. A combined drug prescription system, for example, may include menus that allow the clinician to search for patient handouts.
- **Clustered** systems use information about the user to pre-determine which information tools to present. A relevant drug database, for example, may open whenever a particular clinician-type is logged on.
- **Coupled** systems automatically link knowledge to observations. A coupled drug prescription system, for example, would alert the clinician to alternative, potentially cheaper, interventions.
- **Context-sensitive** systems are “aware” of and share the decision-making context. A context-sensitive drug prescription support system, for example, would allow the user to view a laboratory result in one software application, then immediately switch to a tool where dosing modifications can be suggested based on shared awareness of the patient’s medical problems.
- **Cognizant** systems use artificial intelligence to respond to clinical events, detect patterns, and determine which knowledge resources are most appropriate for problem solving.

VIVIDESK currently supports 4 levels of integration – combined, clustered, coupled and context-sensitive; with the first cognizant features appearing in series 6, slated for release in 2008.

Integration Highlights	Description
Quick-Search	Users can highlight words or phrases within any application, and then launch an automated search in a separate application. They do not need to know which resource is best for their query or even how to search the resource – VIVIDESK does this for them.
Context-Search	VIVIDESK maintains 5 context clipboards (patient, provider, problem, procedure, policy) and can share clipboard information among applications opened in VIVIDESK, supporting context-sensitive automated searches.
CCOW Light	VIVIDESK's scripting language can access and use information in the context clipboards as well, allowing the desktop to respond to context-triggered changes in any of the shared channels. Information switches in one software application (e.g., a patient identifier), can trigger a change in another application. In this way, multiple software applications, based on different core technologies, can be "aware" of and use information from a shared decision-making context.
CCOW Full	VIVIDESK is fully Context Management Architecture (CMA) compliant, as defined in HL7 Context Management Standards from the Clinical Context Object Working Group (CCOW). VIVIDESK includes a CMA administrator that can be used to register multiple applications and the exact identifiers that each will respond to in a changing information context.

Knowledge Management

Knowledge Management tools allow internet, intranet, document and diverse information resources to be gathered, organized, displayed, promoted, integrated and monitored without exposing intellectual capital to the open Internet.

***Benefit:** Knowledge management supports evidence-based practice by promoting effective use of internal and external evidence.*

For optimal decision making, health care decision-makers must attend to at least four major sources of information. These are:

- health care research about the effects of health interventions,
- health services research about the costs of interventions and their effects on the health care system,
- results of health assessments, laboratory tests and other clinical measurements, and
- each patient's unique risks, circumstances and preferences.

The first two sources constitute **external evidence**, derived from the study of defined populations elsewhere. The second two constitute **internal evidence**, derived from observations about the population for whom decisions are being made. VIVIDESK goes beyond other portal, SSO, and integration technologies by providing built-in capability for managing internal and external evidence in a secure and integratable way.

Knowledge Management Highlights	Description
Tabbed Interface	Resources can be organized on tabs based on their properties and the needs of the client or user group.
Inventory	Corporate assets, resources, and knowledge can be centrally managed and integrated with clinical and management information systems. Designated desktop users can be assigned rights to manage these resources.
Virtual Committees and Workgroups	Designated groups of users can be set up as virtual committees or workgroups. Members will have collaborative access to a contact list, communications tools (discussions, bulletins, built in email links, agendas, minutes), and file management tools.
Built in Email	Email is built into all desktop templates so that any file, object, or contact record can be emailed to another user within the desktop – no need for a mail program to be installed on the computer workstation. Similarly, discussion properties can be assigned to any information object.
My Workspace	Users can collect, organize, and index their own personal list of contacts, bookmarks, desktop applications, documents, and notes. Personal collections can be shared with other desktop users and groups.

Virtual Learning

eLearning tools allow organizations to promote and validate workplace education, credentialing and shared problem solving, empowering communities of practice.

Benefit: *Virtual learning supports just-in-time access to educational and training materials, and leads to improved decision making, quality control and credentialing.*

VIVIDESK can also support best practice by integrating existing virtual learning systems or by using its built-in toolkit to manage curriculum, training materials, and other educational services.

VIVIDESK virtual learning tools are ideal for organizations that support communities of practice. Learning and practice communities share communication, productivity, practice-management, clinical and knowledge resources; together with collaborative problem-solving tools. VIVIDESK supports the dynamic needs of communities of practice, including the ability to cycle in and out of different communities depending on an individual's interest and/or need.

VIVIDESK technology can also address the needs of instructors and students who learn online. Instructors are able to easily post curricular material, link to readings and presentations, post surveys and conduct live sessions online. Learners are able to access material at any time, including "learning as you work". Unlike other virtual learning systems, VIVIDESK allows facilitators and learners to fully integrate curricular materials with workplace information resources, and to use detailed monitoring of online information behaviors in student assessments or educational research.

<i>Virtual Learning Highlights</i>	<i>Description</i>
Communications Tools	Built-in email, discussion boards, bulletin board, community boards, voice over internet programs, and conferencing systems allow users to connect and share information in a timely way.
Contact Lists	Contact lists provide demographic information about users, their research/practice interests, and other information that they would like to share with fellow community of practice members. List can be fully indexed and searchable.
Interactive Exercises	Interactive exercises can be built for education or training purposes. VIVIDESK includes multiple templates for different types of questions including multiple choice, text area, slide rule, and numerical data entry and all can interact with other VIVIDESK-managed information resources.
Curriculum Management Tools	Data entry templates have been developed to organize key curricular material into learning units. Learning units include options to attach a range of learning objects such as presentations (including audio/video), readings, discussion forums, interactive exercises, feedback links, and evaluation surveys. Instructors have access to a marking system that allows them to administer quizzes/examinations and automatically mark them online through VIVIDESK. VIVIDESK also automatically records use of information resources in support of "accreditation as you work".
Custom Project Tools	Customized tools can be developed for specific educational programs and projects.

Audit and Feedback

Audit and feedback allow information use to be monitored and managed.

Benefit: *Audit and feedback monitors resource use, integrates quality-improvement activities and facilitates cost-containment.*

VIVIDESK provides multiple methods for monitoring usage and acquiring user feedback. Different levels of application data collection can be turned on, including the ability to log web pages, SSL pages, and even key strokes.

Data collection begins the moment a user launches the desktop and ends when they close the desktop or when the desktop times out. VIVIDESK tracks which applications have the user's focus and allocates usage times accordingly. Unlike conventional web server logs, VIVIDESK is able to track exactly what is done, for how long, in what sequence and context, for all information resources and tools irrespective of software vendor, server location, or software application intrinsic audit capabilities. VIVIDESK usage data can be turned on or off for individual users and/or applications.

VIVIDESK usage data is stored in databases that can be housed on different computers or in different areas of particular server computers; given the special privacy and confidentiality considerations associated with such data. VIVIDESK usage data is exportable either in Microsoft SQL Server databases or in Microsoft Access 2000 databases, with alternative data formats available upon request.

Audit & Feedback Highlights	Description
Surveyor	The built-in Surveyor system can deploy surveys both within and outside of VIVIDESK. Administrators have access to multiple data entry templates and style sheets, including results reporting system to view individual and/or collated responses.
Event Manager	An event management system allows VIVIDESK administrators to push any object managed by VIVIDESK to a user or group of users based on their usage data and/or information behaviours. Objects may include URL links, documents, messages, surveys, etc.
Dataview	Dataview is a simple data reporting tool that presents statistics and graphical renderings of the data collected in the VIVIDESK databases. Data is presented in real time and reports include number of logons; amount of time spent on the desktop; and time spent using each application or resource.
Data Warehouse	The data warehouse is a historical copy of VIVIDESK transaction data, specifically structured for data query and research analysis.

Component Design

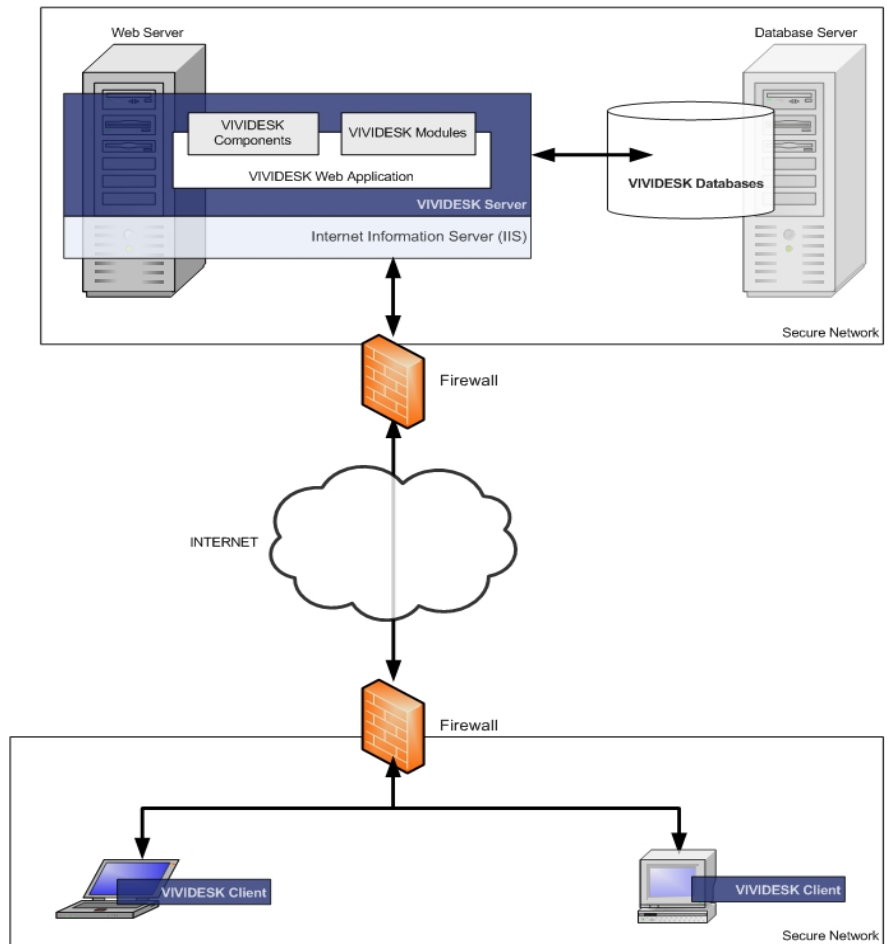
Architecture

VIVIDESK technology has been built utilizing standards compliant tools. VIVIDESK complies with HL7 and CCOW standards. The software has been written in XML, C++, Visual Basic and DHTML in a .NET development environment.

Below is a schematic overview of VIVIDESK architecture.

VIVIDESK
Overview of System Architecture

Purpose:
 To provide a general overview of the VIVIDESK System architecture.



Technical Information

General information about VIVIDESK technology, features, benefits and information services can be found at:

- <http://www.vividesk.com>

Technical information about VIVIDESK technologies can be found at:

- http://www.vividesk.com/help/vividesk_faq.asp

A short demonstration of an active desktop can be found at:

- <http://media.cche.net/chedesk>

A longer demonstration of SSO and Integration can be found at:

- <http://media.cche.net/cds>