

Questions

Answers

1. Vendor Information	
<p>1.1 How long has your company been in business?</p>	<p>VIVIDESK technology has been developed, deployed and enhanced over a period of 10 years and has been thoroughly tested in sophisticated multi-site healthcare enterprises. Honed through millions of dollars of research grants held at Johns Hopkins University, McMaster University and the University of Alberta, the VIVIDESK technology, wholly owned by VIVIDESK Global Ltd, has been successfully transferred from academia to industry. VIVIDESK has been in commercial production for 5 years and continues to benefit from diverse research initiatives. VIVIDESK technology is licensed to select corporations and can be contracted through the Centre for Health Evidence and/or another corporate partner if preferred. VIVIDESK corporate partners have been in business for over 20 years.</p>
<p>1.2 How many end users are using your product?</p>	<p>VIVIDESK is currently used by several high-profile healthcare organizations, including the Capital Health (multiple networked inpatient and outpatient care facilities in the largest integrated health region in Canada), Memorial Care (health facility network, West coast USA), American Medical Association, College of Family Physicians of Canada, Royal Australian College of General Practitioners, and others. Over 4,500 healthcare professionals presently are registered to use VIVIDESK in a variety of environments, with commitments swelling to exceed 35,000 users in 2006.</p>
<p>1.3 Please provide 3 customer references.</p>	<p>(specific contact names and addresses will be provided, pending results of preliminary RFP response review)</p> <p><b>Capital Health Region</b> (inpatient and outpatient: 6 million person catchment area, 4 tertiary hospitals, multiple primary and secondary hospitals, clinics, offices) Edmonton, Alberta, Canada</p> <p><b>Memorial Care Group</b> (Inpatient tertiary care setting) Long Beach Memorial Care Hospital Long Beach, California</p> <p><b>SEARCH Canada</b> (Network of non-urban health regions, inpatient and continuing care) Alberta, Saskatchewan, British Columbia</p>

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<p>1.4 What differentiates you as a company from your competitors?</p>	<p>VIVIDESK is widely used to facilitate fast and efficient use of diverse information resources by busy decision-makers. It remains a unique product that includes capabilities not found in other SSO or portal solutions. Current clients use VIVIDESK to:</p> <ul style="list-style-type: none"> <li>• configure, deploy and manage secure, private, authenticated online information environments that are customized for different groups;</li> <li>• streamline access to multiple protected resources via comprehensive SSO capabilities;</li> <li>• integrate internal and external information resources with enterprise information systems using powerful client-side integration capabilities;</li> <li>• use knowledge management tools to manage corporate assets and connect internal evidence with workflow;</li> <li>• empower Communities of Practice with integrated email, telephony, conferencing, messaging and collaborative problem-solving tools;</li> <li>• promote multi-disciplinary learning and training through VIVIDESK “Virtual Learning Communities”, “Virtual Practice Communities” and/or “Virtual Research Communities”;</li> <li>• monitor resource use and information behaviors to facilitate automated professional credentialing, cost-containment, quality-improvement, audit and feedback.</li> </ul> <p>VIVIDESK users have access to customized packages of relevant 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:</p> <ul style="list-style-type: none"> <li>• External Evidence, including electronic references, drug information and clinical decision support (pathways, decision-rules, algorithms) licensed by the healthcare enterprise;</li> <li>• Internal Evidence, including locally developed forms, handouts, policies, guidelines and datasets.</li> <li>• Personal Evidence including personal collections of handouts, clinical tools and productivity tools</li> </ul>

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	VIVIDESK integrated information environments improve the workflow of busy clinicians by enabling a seamless integration of the entire health information experience.
1.5 What is the total number of successful implementations you have in the market as of today?	<p>VIVIDESK has been successfully implemented in service of hundreds of health information research initiatives in many institutions and countries over a 10 year period. Current active health care implementations fall into three categories:</p> <ul style="list-style-type: none"> <li>• <b>Health Institutions</b> Capital Health Region, Peace Country Health Region, Aspen Health Region, Continuing Care Alberta, Memorial Care, Dupont Hospital, Cross Cancer Institute</li> <li>• <b>Health Professionals Organizations</b> American Medical Association, American College of Physicians, North American Spine Society, Canadian Cancer Society, national primary care (Canada, Australia), specialist (Canada), dietician, health manager and executive networks.</li> <li>• <b>Health Education Institutions</b> Wake Forest, McGill, Ottawa, Alberta, Calgary, BC, Victoria Universities</li> </ul>
1.6 What is your company’s approach to software customization?	The VIVIDESK system is not a single product. Rather, it is a set of integrated information toolkits that can serve any or all of sign on, integration, knowledge management, education and tracking needs. Each VIVIDESK implementation is unique, reflecting the culture, approaches, goals and capacities of a given health care organization. The Center for Health Evidence brings a decade of front line experience, reliable methods and protocols, and large collections pre-configured applications to service health care clients. Our approach to customization is iterative. We start with a draft “Desktop” based on a careful needs analysis and then make modifications and extensions based on user feedback and, more importantly, recorded information behaviors.
1.7 What is your target market?	<p><b>Large Multi-institution Health Enterprises Promoting Best Practices</b></p> <p>The Center for Health Evidence is a registered VIVIDESK distributor. We specifically target very large health care enterprises (multi-hospital, multi-clinic, multi-disciplinary, regional or national) interested in promoting evidence-based health policies and practices. We invest in our clients by treating them as partners in a shared journey towards more effective and efficient health care.</p>

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<p>2.1 Describe any self-service password tools, including Windows, UNIX, web and other non-network solutions?</p>	<p><b>VIVIDESK provides customized, application specific, password management.</b></p> <p>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, VT220, Telnet, UNIX, VAX, 3270, etc.), Remote Desktop Protocol (Terminal Server Client, Citrix Client), Conferencing, Messaging, Desktop Sharing, Streaming video, and other technologies. A VIVIDESK “Desktop” serves as the common access and integration point for all applications and technologies, taking care of user authentication, context-checks, security, single sign-on (SSO), single sign-off (SSO<sup>2</sup>) and information sharing between different software applications using standards-compliant application-to-application (A2A) messaging.</p> <p>User-managed and administrator-managed credentials for all applications and all technologies are serviced through a common SSO manager. SSO management tools are available only to appropriately authenticated users via VIVIDESK desktops. VIVIDESK is an Internet component technology (.Net) and all VIVIDESK SSO user interfaces are VIVIDESK components.</p> <p>Administrator password management tools allow authorized individuals to configure and manage SSO properties and interfaces for desktops, groups, applications and workstations. Multiple SSO “profiles” can be defined and applied to multiple applications. Each profile defines such things as password complexity rules, longevity, threat response and user rights.</p> <p>User password management tools are found in the “My Settings” area of the VIVIDESK Desktop. These offer simple, consistent, graphical user interfaces to credential entry, credential storage, expiration alerts, password strength indicators and password reminders. If enabled, the password reminder system can be optionally accessed via a secure website outside VIVIDESK.</p>
<p>2.2 Does product allow multiple users to one account and handle password changes of the one account?</p>	<p><b>YES.</b></p> <p>VIVIDESK supports individual and group Desktop accounts.</p> <ul style="list-style-type: none"> <li>• <b>Individual</b> accounts are restricted to a single person, although multiple self-selectable “interests” support multiple roles per person. Interests determine which applications, in which settings, an individual may access over and above the properties assigned to their group.</li> <li>• <b>Group</b> accounts have special SSO properties, appropriate to situations where multiple users use the same account. Group accounts can be configured for automatic authentication, conditional upon specific network conditions being met. In</li> </ul>

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	<p>this way, a group account for all medical students, for example, can be available at an intranet subnet for streamlined access to protected or licensed resources at that location. Group accounts keep designated applications and SSO credentials private from users, while other designated applications are opened with individual password prompts.</p>
<p>2.3 Does the product allow users to roam from one workstation to another?</p>	<p><b>YES. Users can access VIVIDESK from any computer location.</b></p> <p>VIVIDESK is an Internet client-server appliance. Its client can be installed on as many workstations as desired. Access is controlled by unique logon credentials. Unlike browser-based applications, VIVIDESK maintains a secure connection with its server. All VIVIDESK desktop sessions, therefore, are known to the server and can be allowed/disallowed based on project configuration rules. The following constraints on roaming can be customized:</p> <ul style="list-style-type: none"> <li>• <b>Simultaneous session limits</b> The number of simultaneous sessions allowed can be set for both individual and group accounts. If exceeded, the user is prevented from logging on while one or more other sessions are active.</li> <li>• <b>Kill orphaned sessions</b> If a user is logged on at one workstation, leaves and attempts logon at another workstation, this optional setting will cause the user to be alerted and the prior (orphaned) session to be closed (including single sign-off of all applications that were opened with VIVIDESK SSO).</li> <li>• <b>Sleep mode</b> If activated, this setting allows users to put VIVIDESK to “sleep” at one workstation, roam to another workstation, log on to VIVIDESK and have the Desktop and all opened applications restored to their last known state (and even specific page or screen). If an account is configured for but one simultaneous session with ‘Kill orphaned’ and ‘sleep mode’ turned on, then users automatically retain state as they roam from one location to another. VIVIDESK automatically opens, authenticates and resets each SSO application to the last path-step from the previous workstation.</li> <li>• <b>Auto-start</b> Users can select one or more VIVIDESK-controlled applications to ‘auto-start’ at logon. In this way, a handful of most frequently used applications will immediately complete SSO and activate at each workstation that the user roams to.</li> <li>• <b>Time-out</b> VIVIDESK supports automatic time-out settings for Desktop sessions and for</li> </ul>

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	<p>applications within sessions (SSO and non-SSO). If no keyboard or mouse activity occurs within the allowed time interval, then the desktop closes itself along with all open applications (irrespective of whether these are internet, Windows, Telnet, or other technologies). Time-out settings are configurable through workstation profiles that allow, for example, physician offices to have one allowed inactivity interval and public workstations to have another. This feature helps conserve licenses for applications limited to fixed numbers of simultaneous users.</p> <ul style="list-style-type: none"> <li> <b>Lock-out</b>                      VIVIDESK sessions must “check-in” for background key revalidation and configurable intervals. If a client fails to check-in as expected, the server cancels the session key and the client, unable to validate against the server, automatically closes itself and all open applications.                 </li> </ul>
<p>2.4 How can reporting and maintenance tasks be automated?</p>	<p><b>Default Standard Reports</b></p> <p>A Centralized web administration module allows VIVIDESK administrators to make application changes, manage VIVIDESK user accounts, and generate usage reports.</p> <p>VIVIDESK master administrators have access to a number of standard reports, with dynamically generated summaries, analyses and frequencies of usage, installations, application access, and security events. These reports can be configured for automatic rendering and saving to web archive (mht) files attached to automated email notifications to designated administrators and pre-defined intervals.</p> <p>Many account maintenances tasks (e.g. archiving, expiring student accounts, cleaning usage datasets) are streamlined with tools available to administrators.</p>
<p>2.5 How can the product manage account information for systems outside our company?</p>	<p><b>VIVIDESK supports flexible SSO access to external systems.</b></p> <p>VIVIDESK “Distributed Desktop Portal” technology acts like a “portal of portals”, providing users with single-sign-on to both local (health institution) and external applications. Users can use the Desktop to manage access credentials for professional association, private office, ASP, special interest or other external systems. Additionally, VIVIDESK can implement specific network access and communications protocols for linking to external systems. These can include automated VPN connections, proxy or reverse proxy authentications, Remote Desktop Protocol, Citrix client, NT Challenge, VPN over SSL, and other tunneling methods. Moreover, VIVIDESK can conditionally implement protocols (e.g. SSL, VPN) depending upon the network context (intranet, extranet, WAN, etc.) of the workstation where the user accesses VIVIDESK. If the VIVIDESK does not have complete credentials for an external system, it will automatically route the user to the external system logon interface.</p>

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<p>2.6 How does the product support a manual login override when necessary?</p>	<p><b>Manual login overrides are supported.</b></p> <p>VIVIDESK supports different types of manual login override:</p> <ul style="list-style-type: none"> <li>• <b>Macrobutton</b> When an application is opened, VIVIDESK can present the user with application-specific macro buttons, which can jump to specific application functions or SSO scripts. Where manual login override is desired, a macrobutton takes the user to the application login interface, bypassing SSO. If so configured, this is always available.</li> <li>• <b>SSO settings</b> The user SSO manager includes an optional login button that functions like manual login override for applications where it is activated. Users are also presented with a button that clears their credentials from VIVIDESK SSO, causing VIVIDESK to direct the user to the specified manual login application interface.</li> <li>• <b>SSO scripts</b> Application SSO scripts support redirection to a fail-over location or interface if the SSO script detects a login failure or cannot find sufficient SSO credentials.</li> </ul>
<p>2.7 How long in time can we expect the overhead of the product to add to the login process?</p>	<p><b>Little, none or negative overhead.</b></p> <p>VIVIDESK presents users with visual metaphors or desktop buttons that they click on to access applications. Because SSO is usually invisible to the user, users see applications appear more quickly than if accessed outside the Desktop. Not only is the application initiation more direct, but VIVIDESK can often avail itself of optimized login methods (e.g. active directory or direct NT authentication) not used outside the Desktop. Even when VIVIDESK emulates user keyboard and mouse input in a SSO script, the logon process is faster than can be achieved by any other means.</p> <p>The VIVIDESK client acquires all SSO methods, scripts and credentials at desktop logon, which takes 1-5 seconds. Client-server communications are fast and efficient, containing desktop configuration specifications but no graphics or text. SSO credentials are then retrieved from memory, without need for additional server calls, making for a very fast SSO user experience.</p>
<p>2.8 Is your system capable of producing custom reports against any field or combination of fields?</p>	<p><b>Yes.</b></p> <p>VIVIDESK administrators can access a data display manager where basic, built-in, data reports and frequency displays can be selected for immediate review of real-time information about:</p>

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	<ul style="list-style-type: none"> <li>• <b>Installs and updates</b> Record of all locations, users, network contexts where the Desktop (SSO client) is manually installed, auto-installed, or web-installed; or manually or automatically updated.</li> <li>• <b>Usage</b> Information about who, when, where, in what network context and for how long desktops are accessed, applications are used and SSO occurs.</li> <li>• <b>Surveys</b> VIVIDESK “Surveyor” supports automated distribution of user surveys, which can be triggered by specific applications or usage “events”. Survey results are collated with summary data and frequency reports.</li> </ul> <p>The VIVIDESK reporting uses DHTML templates, allowing custom reports to be prepared against any field or combination of fields, without need for coding. Crystal Reports can be used to support more sophisticated custom reports. In addition, VIVIDESK supports selective export and downloading of data to CSY format for import to statistical analysis packages. Exports include a data key/guide to facilitate interpretation of analysis results.</p> <p>VIVIDESK records detailed information about every Desktop session, each application used (including how long it has focus) and every SSO management “event”. User SSO events (e.g. password change, past passwords, setting change, autostart, sleep) are permanently recorded. Administrator SSO actions (e.g. configuration change) are also recorded. In addition, applications can be configured for keystroke/mouse tracking, web logging, and even SSL logging.</p>
2.9 Product can allow users to access business partner applications?	<p><b>Yes</b></p> <p>We have experience with hundreds of applications, including administrative, business management and “internal evidence” databases for diverse organizations. The identity and nature of business partner applications is determined during a SSO needs analysis at the start of an enterprise implementation. VIVIDESK is pre-enabled for most common Windows, communications, decision-support and clinical applications.</p>
2.10 Product handles users in multiple locations and time zones?	<p><b>Yes</b></p> <p>VIVIDESK is currently used by a number of national initiatives (USA, Australia, Canada) where very large numbers of users are supported in multiple locations and time zones. All event logs are recorded at the server using the time zone in force where the server is installed. In this way, password expiration intervals are centrally recorded with a common time denominator. Similarly, password change logs are server-side time-stamped. All transactions</p>

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	<p>are also stamped with the location of the client, allowing retrospective determination of time zone offsets, if required.</p> <p>Standard data displays aggregate event frequencies by day. Custom reports can use the combination of server time and client location to display diurnal application usage patterns accurate to the time as perceived by the user.</p>
2.11 Products has option to allows users to view passwords?	<p><b>Yes, configurable</b></p> <p>Users never see actual passwords in the VIVIDESK SSO manager. Double password entry is used to verify passwords.</p> <p>VIVIDESK has a full-featured password-reminder system which can be optionally activated for specific Desktops. When active, this system allows users to record a special question and answer. The reminder system can be launched from the VIVIDESK logon panel or from within VIVIDESK, with the following options:</p> <ul style="list-style-type: none"> <li>• <b>VIVIDESK password reminder</b> If activated, this feature allows users to enter their userid, special question and special answer. If correct, the password is sent to the users registered email account without accompanying information about the userid, question or answer.</li> <li>• <b>Application userid/password/parameter reminder</b> If allowed, VIVIDESK can also remind users of application passwords, after users enter their VIVIDESK userid, password, special question and special answer (4-point).</li> <li>• <b>Active Directory/LDAP mode</b> If in LDAP mode, application userids and passwords are released only if valid Active Directory credentials are entered for the desktop account.</li> <li>• <b>Active Directory password reminder</b> VIVIDESK can interface with and generate AD password reminders after 3-point identity verification. We do not recommend using this feature in clinical environments.</li> </ul> <p>Although administrators can reset user passwords, the actual passwords are hidden, encrypted and masked such that password characters can never be seen. Therefore, setting new passwords or changing existing passwords are the only ways for administrators to influence the password-allocation process.</p>
2.12 What methods does your product use to	<b>Diverse Custom Tools and SSO&amp;A2A Script Language</b>

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<p>build enablers?</p>	<p>VIVIDESK has multiple methods of achieving SSO functionality. It can automatically respond to a NT user authentication challenge, can automate access to restricted web sites, initiate a CCOW communication, interpose within Telnet and other internet client-server communications, communicate directly with Windows applications, and can directly interact with Windows Terminal Servers to initiate and control Windows applications running in an Application Service Provider (ASP) environment.</p> <p>The most versatile SSO method in VIVIDESK is its ability to emulate mouse, keyboard and function key events. This allows VIVIDESK to manage SSO capabilities for a wide range of legacy and current software products because VIVIDESK does not require the software applications to adhere to a SSO protocol.</p> <p>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 any of its databases. These include records of how individuals use specific applications.</p> <p>VIVIDESK has a powerful SSO and application integration scripting language, with a wizard and language toolset easily useable by non-programmers. Our more advanced SSO enablers are produced with this scripting language. The language can control interactions with Windows applications, Internet applications, RDP (Terminal Server Client and Citrix), and legacy Telnet/VT100/3270/etc applications. These enablers include the following groups:</p> <ul style="list-style-type: none"> <li>• <b>Sign On Enablers</b> Include a number of commands and conditional operators for managing sign-on events.</li> <li>• <b>Sing Off Enablers</b> Detect application or desktop sign-off and execute an orderly exit from applications, possibly triggered by an application specific time-out interval.</li> <li>• <b>Password Change Enablers</b> Interact with applications to initiate and confirm password changes that are managed by VIVIDESK.</li> <li>• <b>Authentication Event Detectors</b> Monitor for password changes that may have occurred within applications and require propagation to the VIVIDESK password vault.</li> </ul>
<p>2.13 What options can users change on their own profile?</p>	<p><b>Users can change parameters for which they have privileges</b></p> <p>If allowed by administrators when setting up Desktop and application SSO properties, users</p>

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	<p>can control the following parameters:</p> <ul style="list-style-type: none"> <li>• <b>Application SSO</b> User name, password, special parameters (e.g. domain) or no SSO (manual override)</li> <li>• <b>SSO propagation</b> Whether to change the credentials in the VIVIDESK password vault alone or to also propagate the password change to the application.</li> <li>• <b>Auto-start</b> Whether to automatically start and SSO into applications at Desktop login.</li> <li>• <b>Interests</b> In a multi-role context, this allows users to determine which role-specific applications and SSO methods they wish to add to their default group profile.</li> <li>• <b>Favorites</b> Personal favorite applications and/or application locations to SSO to and pre-load from user's custom dashboard ("my workspace").</li> </ul>
2.14 What other types of SSO solutions can the product integrate with?	<p><b>VIVIDESK accepts SSO requests from other products</b></p> <p>Although VIVIDESK is built to serve as an SSO manager, it can also act as servant to an external SSO manager. In this way, VIVIDESK can take care of SSO needs for decision-support, knowledge management, and other functions while another SSO manager takes care of directory or clinical or administrative systems. The VIVIDESK client has startup switches, command line parameters, and protocol-based monitors that allow SSO to VIVIDESK from:</p> <ul style="list-style-type: none"> <li>• <b>Windows</b> In Windows mode, VIVIDESK checks to see that a valid Windows session is in force, then logs on using the current Windows user credentials.</li> <li>• <b>Active Directory</b> In AD/LDAP mode, VIVIDESK accepts a logon from a user with credentials validated by a server-registered Active Directory domain.</li> <li>• <b>CCOW</b> VIVIDESK can be configured for SSO from CCOW managers like Sentillion Vergence and CareFx Fusion products.</li> <li>• <b>VPN</b> VIVIDESK has been tested with virtual private network products that authenticate the user then automatically log on to VIVIDESK.</li> </ul>

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	<ul style="list-style-type: none"> <li>• <b>SSL Application VPN</b> Products like Aventail have been configured to SSO to VIVIDESK.</li> <li>• <b>Remote Desktop Protocol</b> Both Terminal Server Client and Citrix variants of VIVIDESK automated logins are supported.</li> </ul> <p>VIVIDESK can work with secure identification technologies like fingerprint scanners and RSA SecureID fobs. VIVIDESK can also interact with SSO-only solutions, extending these with its CCOW, Knowledge Management, eLearning and Audit capabilities.</p>
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<p>3.1 Briefly describe the products ability to manage accounts on operating systems.</p>	<p><b>Active Directory/LDAP password management</b></p> <p>VIVIDESK works with the Microsoft Windows operating system. Macintosh and Linux users are supported through remote desktop protocol access to a Windows 2003 terminal server, either by itself or with Citrix Metaframe.</p> <p>Within the Windows operating system, VIVIDESK is able to manage the following Active Directory (and other LDAP products with some customization) functions:</p> <ul style="list-style-type: none"> <li>• <b>LDAP Event Recognition</b> Detects and responds to password expiration, account lockout, new account, credential failure events.</li> <li>• <b>LDAP Password Change</b> VIVIDESK SSO can change and manage Active Directory user passwords.</li> </ul> <p>Future VIVIDESK releases will additionally be able to create, edit and inactivate Active Directory accounts and account properties.</p>
<p>3.2 Briefly describe the products ability to manage accounts on applications.</p>	<p><b>Application password rules, password change, change detection</b></p> <p>VIVIDESK can impose userid, parameter and password management policies and procedures on applications that may not have these capabilities inherently:</p> <ul style="list-style-type: none"> <li>• <b>Complexity Rules</b> Minimum and maximum length, case mix, alpha-numeric mix, special characters, disallowed words, etc.</li> <li>• <b>Recurrence Rules</b></li> </ul>

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	<p>Prevent reuse of passwords within last X number of changes.</p> <ul style="list-style-type: none"> <li>• <b>Threat tolerance</b> Number of failed login attempts allowed, allowed retry interval, account lockout rules, threat reporting rules.</li> <li>• <b>Expiration Rules</b> Password renewal intervals, reminder intervals, alert method, optional or compulsory password changes.</li> </ul> <p>For applications that have any kind of password change capability, VIVIDESK provides the following consolidated password management functions:</p> <ul style="list-style-type: none"> <li>• <b>Detect login failure</b> Conditionally direct user to VIVIDESK SSO manager.</li> <li>• <b>Detect expiration alert</b> Conditionally remind or direct user to SSO manager.</li> <li>• <b>Change password</b> And record in both VIVIDESK and application.</li> <li>• <b>Detect password change</b> And update VIVIDESK records.</li> </ul>
3.3 Briefly describe any other important functions of your product.	<p>VIVIDESK is an internet desktop management technology that integrates multiple information sources, networks, and technologies in a customized, centrally managed and comprehensive information environment. VIVIDESK brings information convenience, discrimination and integration to information-intensive enterprises:</p> <ul style="list-style-type: none"> <li>• <b>Convenience</b> because all the right information is available in the right place at the right time,</li> <li>• <b>Discrimination</b> because relevant and important information is filtered by community, group and individual,</li> <li>• <b>Integration</b> because disparate applications from diverse vendors behave consistently and share a common context.</li> </ul> <p>Five 'Distributed Desktop' technologies bring order to the health information workspace:</p>

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	<ul style="list-style-type: none"> <li>• <b>Single Sign-On</b> ensures secure, private, and consistent access to diverse products and services;</li> <li>• <b>Application Integration</b> uses client-side messaging to simplify, streamline and synchronize information use;</li> <li>• <b>Knowledge Management</b> links internal with external evidence for dynamic decision-support;</li> <li>• <b>Embedded Learning</b> enables multi-disciplinary collaboration, practice, and research communities;</li> <li>• <b>Audit &amp; Feedback</b> monitors resource use for quality improvement, cost-containment and credentialing.</li> </ul>
3.4 Can the product work with IBM TSM backup?	<p><b>Yes</b></p> <p>The Tivoli Storage Manager has API capabilities which VIVIDESK could further exploit with a custom module.</p>
3.5 Describe how your product is patched on the client and server side.	<p><b>Client updates fully automated</b>  <b>Server updates semi-automated</b></p> <p>VIVIDESK includes a powerful update distribution and management system. This is centrally configured and can be used to selectively distribute and install three classes of updates:</p> <ul style="list-style-type: none"> <li>• Graphical user interface updates</li> <li>• VIVIDESK client component updates</li> <li>• Other (third party) software application components or updates</li> </ul> <p>Each Desktop hosted by a VIVIDESK server can have its own auto-update settings. Update “events” and any associated files, components or update packs are registered to the VIVIDESK server by authorized VIVIDESK administrators. At every VIVIDESK logon, the client checks with the server to see if any of the above update types are due, are indicated for the client location, or are designated optional or mandatory. If client component update(s) are required, the auto-update component automatically retrieves and registers the components before proceeding with VIVIDESK logon. If other application updates are so distributed, VIVIDESK may proceed with logon while initiating the application update as separate processes.</p> <p>VIVIDESK server updates are provided to system administrators as an update package. The server update system automatically performs any required database changes.</p>

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	VIVIDESK servers are backwards-compatible, supporting at least two full VIVIDESK client series (at least 2 years) prior to the current release.
3.6 Does the product require any custom programming for an application?	<p><b>Rarely</b></p> <p>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. These do not require custom programming.</p> <p>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, querystring, form element, command line, CCOW and other SSO protocols are supported. Additionally, VIVIDESK can support SSO scripting of legacy or other products that do not support SSO protocols. The desktop can automate log-on to Terminal Server sessions and can manage software applications run on remote computers via terminal server sessions.</p> <p>VIVIDESK can register multiple logon identifiers, passwords and parameters for each user. Application startup and scripting options allow these parameters to be used in a variety of ways to gain access to multiple secure applications. Tokens are used to prevent any recorded or viewable instance of a user identifier or password.</p> <p>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. All SSO procedures are encrypted, with no representation of either the logon technique or content on the client computer.</p>
3.7 Does the server utilize a centralized or distributed database to store information?	<p><b>Both</b></p> <p>VIVIDESK servers can be installed in configurations appropriate to small organizations with modest security and redundancy requirements. In these low-cost implementations, Microsoft Access databases can be used on the VIVIDESK server.</p> <p>Typical clinical implementations use SQL databases, often on servers separate from the VIVIDESK server(s).</p> <p>Failsafe enterprise installations will employ VIVIDESK's fault-tolerant mode where primary and secondary VIVIDESK servers refer to the same single SQL server location or SQL server farm.</p>

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<p>3.8 Have you changed your programming language since the inception of your system? Do you have plans to change the language in the future?</p>	<p><b>No</b></p> <p>VIVIDESK server and client components are programmed in Visual C++. However, we keep up to date with the latest development environments, moving from VC++ version 5 to 6 and currently to version 8 with C#.</p> <p>VIVIDESK active server pages consist of HTML, DHTML, and XML visual interfaces that call functions in compiled server-side VIVIDESK server components. These have migrated from Visual Basic to VB.Net and ASP.Net.</p> <p>Our plans are to continue VIVIDESK's positioning within the .Net framework, using VC++, C# and VB.Net improvements as they become available. We remain committed to XML. We do plan to make the Server compatible with Linux based internet servers. Should market conditions merit it, we will revisit development of a Macintosh-specific version.</p>
<p>3.9 How does the product handle application upgrades and multiple versions of the same software?</p>	<p><b>Multiple application software variants can be managed</b></p> <p>Software applications managed by VIVIDESK may exhibit different types of volatility:</p> <ul style="list-style-type: none"> <li>• <b>Application changes</b> Both client-side (application or its client is installed on local workstation) and server-side application components may be updated in ways that affect single sign on, single sign off or application integration methods.</li> <li>• <b>Application variants</b> Different software components or versions (e.g. user vs. administrator interface) for the same application may be used on the same or different workstations.</li> <li>• <b>Application instances</b> It may be desirable to access the same application on the same workstation with multiple instances of the software or client or with different clients for different purposes, as is common with telnet-type interfaces to VMS or Unix servers.</li> </ul> <p>The Center for Health Evidence maintains relationships with clinical decision support product vendors and pre-tests new versions of server-based programs. The CHE also follows logon interfaces, application integration methods and SSO rules for common clinical applications. Because of the number, diversity and age of clinical information systems, the CHE may rely upon clients for alerts about upcoming new versions. Where an application change affects an SSO interface, we find that VIVIDESK adjustments can be made quickly, since VIVIDESK coding is not required.</p> <p>VIVIDESK is designed to deal with multiple variants of the same or similar software, as often occurs with terminal emulation interfaces to legacy clinical systems. VIVIDESK will present</p>

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	users with access buttons only for those client applications actually present in the expected format on the local workstation. If multiple instances of a software application are allowed, then VIVIDESK shows multiple access buttons and “sessions” for that application.
3.10 How does the product handle windows WAN password sync lag?	<p><b>VIVIDESK has a single-point, server-side, Windows Active Directory interface</b></p> <p>Changes to an organization’s LDAP (e.g. Active Directory) may take time to propagate to other servers and workstations throughout a wide area network. When configured in Active Directory mode, the VIVIDESK client does not check user credentials locally. Instead, the client securely communicates with its VIVIDESK server and the server verifies user Windows credentials centrally. As long as the VIVIDESK server and the Active Directory server have no communication delays, then VIVIDESK is instantly aware of Active Directory changes.</p>
3.11 If any, what types of modifications can we expect to make on our own applications?	<p><b>None</b></p> <p>In general, VIVIDESK does not require application modifications to support SSO or client-side integration. The existing VIVIDESK login and SSO scripting language covers virtually all SSO contingencies. On rare occasions, the VIVIDESK macro language is extended to support a particular legacy application and its SSO requirements. To date, the only time an application has been extended to serve VIVIDESK SSO has involved creating a server-side log to allow VIVIDESK to determine whether password change requests succeed.</p>
3.12 What happens in the case of a communication failure between the SSO client and the SSO authentication server?	<p><b>Nothing</b></p> <p>VIVIDESK loads all needed SSO scripts and credentials into memory at login time, with no further need between VIVIDESK client and server for completing application SSO. If the client-server link is broken, the VIVIDESK client continues to work although some password change functions may be temporarily disabled.</p> <p>VIVIDESK supports a secondary or backup system in the event of a selective network failure. If the VIVIDESK client cannot connect to its primary server for any reason, it attempts to connect to a designated backup server. This happens even if VIVIDESK has already started. As long as the backup server connects to the same SQL database server, the primary and backup connections will work seamlessly without the user being aware of the failure.</p> <p>VIVIDESK will continue to work even if there is a complete network failure and all contact is lost to both primary and backup servers. The user will periodically receive a message that there appears to be a network failure.</p> <p>If an application is not found (application failure) at VIVIDESK logon, then VIVIDESK will not present that application’s SSO interface to the user.</p>

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3.13 List system requirements for servers including processor, registry, hard drive and memory.

**Microsoft Windows 2000, 2003 or VISTA server, 1GB RAM, 1GHx CPU, 100GB HD**

VIVIDESK server functions can all be performed on a single Internet server computer configured with Microsoft Internet Information Server, version 3.0 or more recent. It is also possible to distribute VIVIDESK server functions over multiple server computers, and so balance server loads for high-volume VIVIDESK implementations. The VIVIDESK server has a single registry key in the HKEY\_LOCAL\_MACHINE area.

The following VIVIDESK server functions can reside on one server or on multiple linked server computers:

- **REQUIRED:**  
**Primary VIVIDESK server.** (user authentication, security, single-sign-on capabilities)  
 Multiple primary servers can be set up to serve different VIVIDESK desktops or all desktops can be served from the same primary server. VIVIDESK server technology also works with load-balancing server clusters.  
*Because VIVIDESK is a single-sign-on manager, the computer running a VIVIDESK server must have a valid certificate for secure socket layer (SSL, https) communications.*
- **OPTIONAL:**  
**Secondary (backup) VIVIDESK server.**  
 A VIVIDESK client switches over to this server if it cannot connect to its primary server in a timely fashion.  
 The same computer can serve as both primary and secondary VIVIDESK server.  
 Primary and secondary servers use the same data and communications stores.  
*Because VIVIDESK is a single-sign-on manager, the computer running a VIVIDESK server must have a valid certificate for secure socket layer (SSL, https) communications.*
- **OPTIONAL:**  
**Installation and update server.**  
 A distinct machine can be designated to manage client installations, automated updates, and version monitoring. This may be important in high-volume VIVIDESK environments where frequent file uploads and downloads can be disk-intensive.
- **OPTIONAL:**  
**World-Wide-Web server.**  
 Desktops may link to a variety of conventional Web pages (html, xml, aspx, etc.) which can be stored on the same server as the VIVIDESK server or, in high use situations, on

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one or more separate servers.

- **OPTIONAL:**  
**Electronic Mail server.**  
 Desktops can integrate electronic mail communications and discussion lists with other information services. A VIVIDESK email server can be used and installed on the same server as the VIVIDESK server software. A separate machine can also be used and other email software can be substituted for the VIVIDESK email service.
  
- **OPTIONAL:**  
**Data server.**  
 A VIVIDESK server can be configured to use Microsoft Access 2000 or Access XP databases. This is most economical. A VIVIDESK server can also be configured to use most SQL database products. The primary and secondary VIVIDESK servers can share the same data server and the data server can be installed on the same machine as the VIVIDESK server. In general, projects expecting up to 200 simultaneous logins (usually this corresponds to 20,000 or more users) will perform well with a combined VIVIDESK/data server using an Access database. Busier projects will notice performance improvements with an SQL database engine.
  
- **OPTIONAL:**  
**Remote Desktop Protocol or Citrix Metaframe server.**  
 VIVIDESK supports Microsoft's remote desktop protocol (RDP) for running Windows applications over the Internet. The Microsoft Advanced Terminal Server client is built-in to VIVIDESK. The Citrix ICA client is also supported. Because terminal server activities can tax the processing and storage resources of a server, it is desirable to designate one or more separate servers for supporting RDP applications if these will be used by a project.
  
- **OPTIONAL:**  
**Internet Conference server.**  
 VIVIDESK can be configured in "virtual community" modes to include integrated support for Internet conferencing where users are able to chat, share files, work on a joint white-board and share desktop applications with other users at different locations. The VIVIDESK conferencing client works on Microsoft Internet Information servers, with VIVIDESK taking care of user authentication, conference scheduling and other administrative functions. If this feature is to be commonly used within desktops, then it is best to designate a separate communications server (possibly shared with a web or media server).

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	<ul style="list-style-type: none"> <li>OPTIONAL: <b>Streaming Media server.</b> VIVIDESK can be configured in "virtual classroom" mode which may make extensive use of streaming video and media services for demonstration and teaching purposes. Because these services can place a heavy load on an Internet server, it is best to dedicate a machine as a media server when usage exceeds 10 simultaneous video downloads.</li> </ul>
3.14 List system requirements for workstations including processor, registry, hard drive and memory.	<p><b>Microsoft Windows 98 or more recent, 500 MHz CPU, 256MB Memory, 20 GB HD</b></p> <p>The VIVIDESK system is an Internet technology that uses a thin Internet client to manage secure communications with multiple local and networked applications. In general, workstation hardware requirements are determined by software applications, not VIVIDESK. The VIVIDESK client component is installed from the Internet and is then available for making connections to any number of Web servers, other Internet servers, local software on the computer workstation and one or more VIVIDESK servers. The VIVIDESK client uses a single registry key in the HKEY_LOCAL_MACHINE area.</p> <p>Essentially, if a computer can run Internet Explorer 4.0 or more recent, then it will be able to run VIVIDESK. This usually translates into the following minimum hardware requirements:</p> <ul style="list-style-type: none"> <li>500 MHz central processor, or better</li> <li>256MB memory</li> <li>Windows 98, Windows 2000, Windows XP, Windows 2003, or Windows NT (version 3.51 and higher)</li> <li>3 MB of hard drive space</li> <li>Monitor resolution of 1024*768 pixels or better</li> <li>Internet Explorer 4.0 or higher (it is recommended that Internet Explorer 5.0+ be installed with 128 bit encryption compatibility)</li> <li>An Internet connection (48 kilo baud or faster modem; fast Internet connection using DSL, Cable or better recommended)</li> </ul> <p>Macintosh support is usually provided via remote desktop protocol or a Citrix client.</p>

<b>3. Technical</b>	
<p>3.15 Please describe the technical requirements for your product for Databases.</p>	<p><b>MS Access or SQL Database (recommended)</b></p> <p>The VIVIDESK server uses a multi-threaded database interface optimized for high-performance data transfer.</p> <p>VIVIDESK servers can be configured to use Microsoft Access 2000, XP, 2003 databases. Alternately, the server can be set to communicate with SQL databases. Microsoft SQL Server is recommended (version 2000 through 2005). However, VIVIDESK does not depend on proprietary SQL extensions and is scaleable to other RDBMS solutions. One server can use different database products (and multiple SQL products) to store information for different VIVIDESK desktops. This hybrid design allows organizations to start small, with the free Access interface, and then migrate to independently licensed SQL products as user demand merits. The migration can be incremental, moving the high-volume desktops first while keeping some prototype desktops in Access format for ease of testing.</p>
<p>3.16 Please describe the technical requirements for your product for Network communications.</p>	<p><b>Port 80 and 443 (SSL)</b></p> <p>VIVIDESK communicates with its server exclusively over http and https Internet channels (TCP/IP). There are no netbios, drive-mapping or other network disk access requirements and no proxy, webcache or packet scheduling requirements. When not used for SSO, VIVIDESK requires only that firewall port 80 be open between client and server. When used for SSO, VIVIDESK forces all client-server communications over port 443.</p> <p>If embedded remote desktop services are enabled, then VIVIDESK can optionally use port 80, although port 3389 is the default.</p>
<p>3.17 Please describe the technical requirements for your product for Operating Systems.</p>	<p><b>Windows 32-bit or 64-bit Operating System</b></p> <p>VIVIDESK client components require Windows 98 or more recent. Non-windows platforms are supported through remote desktop (RDP) using Microsoft terminal services. The VIVIDESK server requires a properly installed and configured Microsoft Internet Information Server version 3 or more recent on a Windows server with NT or more recent operating system. An optional separate VIVIDESK database server can be on any operating system compatible with a Windows network.</p>
<p>3.18 Please describe the technical requirements for your product for Servers.</p>	<p><b>Windows NT, 2000, 2003 or VISTA Server</b></p> <p>The server should meet the technical requirements specified in item 3.13 above.</p> <p>Technical recommendations for the VIVIDESK server(s) are determined by the network size, anticipated number of simultaneous users, and anticipated interval between archiving of VIVIDESK usage data. It is possible to install and configure VIVIDESK servers on relatively</p>

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	<p>simple personal computers, on sophisticated high-volume Internet servers and on just about any hardware configuration in-between. A VIVIDESK server can be configured on a stand-alone computer (without an Internet connection) such that the VIVIDESK client communicates with a server on the same computer. This configuration is useful for testing.</p> <p>For a <b>low volume</b> VIVIDESK server setup, with up to 100 simultaneous logins at any instant, a single server (Pentium 133MHz or better, 128MB RAM, 2GB hard drive) running Internet Information Server version 3.0 or Personal Web Server version 3.0, using Microsoft Access 2000 databases, is adequate.</p> <p>For a <b>medium volume</b> VIVIDESK server setup, with up to 250 simultaneous logins occurring at any instant, a single server (Dual processor Pentium V 1GHz or better with high-performance hard drive) running Internet Information Server version 5.0 or better on Windows 2000 Server or better, using Microsoft SQL Server databases, should be more than adequate. An active project with 50,000 or more users could be served with such hardware.</p> <p>For <b>higher-volume</b> configurations, it is suggested that the project needs be discussed with VIVIDESK technical experts. Depending upon particular requirements for web, conferencing, media and other Internet services, it is likely that multiple servers with differentiated functions will be recommended. It is likely that both primary and secondary VIVIDESK servers, and a load-balanced server cluster, will optimize performance when used in conjunction with a dedicated SQL database server.</p>
3.19 Please describe the technical requirements for your product for Web Browsers.	<p><b>None</b></p> <p>VIVIDESK does not require a particular Web browser. Browser functions are built in. All approved VIVIDESK client operating systems support VIVIDESK web page parsing requirements. VIVIDESK minimal browser requirements are met by the approved Microsoft Windows operating systems.</p>
3.20 What auditing features are built into your product?	<p><b>Many</b></p> <p>VIVIDESK records all events in log databases that are accessible to the administrator. Usage logs keep track of which applications were accessed, when, by whom, for how long. It is also possible to track web request logs within individual applications. Event logs cover password changes, login failures, enrollment, timeouts, and more.</p> <p>VIVIDESK can be optionally configured to capture detailed information about how software applications are used, right down to the mouse-click and keyboard input level. Auditing can be turned on or off at the level of users and software applications.</p>

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With all auditing features enabled, the state of any change to server database contents (user information, applications information, inventory, discussions and notes) is recorded by capturing the state of the record before and after the change. All changes are linked to specific individuals, workstations, desktops, and clusters of software applications. This auditing data is kept in a distinct database that can be physically separated from user and application databases.

Currently available audit trails include:

- Records of all online help requests and feedback to administrators.
- Optional logon and logoff queries that can ask different questions of different user groups.
- Full featured, automated, multimedia survey tools that can record users' needs and preferences at baseline and at pre-defined intervals.
- Database logs of where and when any system access occurs.
- Automatic recording to databases, real time, of detailed information about user information behaviors including which software is used when, where, by whom and for how long.
- VIVIDESK allows many software programs to be open simultaneously but it records use only of those that have "focus". The records indicate what software was opened, when, where and in what informational context. Keyboard and mouse events can be captured and recorded, allowing deductions about exact uses of particular software packages.
- Automatic recording of all Internet activity triggered by one or more applications, including all Internet sites visited and any keyboard input, even over SSL connections.
- Logs of all automated workstation updates and any workstation configuration changes.
- Logs of SSO security events, including password change attempts

Usage monitoring, automated surveys and Internet logs can be turned on or off for entire user groups. Within a group, particular individuals can be excluded from data collection.

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	One or more applications can be excluded from usage monitoring. Within applications, monitoring of keyboard and mouse events can be turned on or off, as can monitoring of application-triggered Internet activity or even specific web-site indicators.
3.21 What clients can your system run on?	<p><b>32-bit Windows Workstation, Terminal Server Client, Citrix Client</b></p> <p>VIVIDESK works on all Microsoft operating systems from Windows 98 forward. The VIVIDESK Client also supports a terminal server mode optimized for remote desktop protocol access, Advanced Terminal Server Client, and Citrix client implementations.</p>
3.22 What functionality does the product have to allow different passwords on each system?	<p><b>None</b></p> <p>But one userid/password combination can be used to log on to VIVIDESK, irrespective of the system the VIVIDESK client appears on. In active directory mode, only one userid/password/domain combination will allow a specific user access to a specific desktop.</p> <p>There is but one set of logon credentials and parameters for a specific application for a specific user on a specific desktop.</p>
3.23 What happens to the client and server when the network fails?	<p>At least two types of failures are possible:</p> <ul style="list-style-type: none"> <li>• <b>Selective</b> network communications failure between VIVIDESK client and server, while other (networked) SSO applications continue to work.</li> <li>• <b>General</b> network communications failure affecting VIVIDESK and all (network dependent) SSO applications managed by VIVIDESK.</li> </ul> <p>Network failures can occur at two times:</p> <ul style="list-style-type: none"> <li>• <b>Before</b> the user logs on to VIVIDESK</li> <li>• <b>After</b> the user logs on to VIVIDESK.</li> </ul> <p>If the VIVIDESK client cannot establish a network connection with its server, it will attempt connection to the designated secondary server. If this too fails, VIVIDESK will alert the user to the network failure and halt the logon process.</p> <p>If occurring before Desktop logon, both selective and general failures will prevent the VIVIDESK client from gathering user profile, SSO credential and macro information from the VIVIDESK server. VIVIDESK will neither open nor provide access to the applications it manages.</p> <p>If occurring after Desktop logon, selective network failures will not affect SSO performance. As long as local and networked software applications can be reached, VIVIDESK will continue</p>

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	<p>to perform SSO and integration functions. It will repeatedly check for network re-connection, sparing the user from interruption, and “report in” once either primary or secondary VIVIDESK server is found.</p> <p>If occurring after Desktop logon, general network failures will not affect SSO performance for software local to the workstation. All networked applications, however, will not work. VIVIDESK SSO scripts can detect connection failures and post relevant feedback messages to users.</p> <p>The server does not have client dependencies. Administrator-defined rules are used to determine when to kill server sessions if the client fails to check in.</p>
3.24 What is the impact to a user when a workstation fails?	<p><b>No VIVIDESK-specific impact</b></p> <p>The VIVIDESK client is “zero footprint”, storing no data, cookies or other records on the local workstation. If a workstation fails, the user can move to a second workstation and resume work. Of course, the user may have been working on software applications (e.g. electronic medical record) where screen content was not saved and, work could be lost within those applications.</p> <p>If a workstation fails during a VIVIDESK-initiated password change, in most cases there is no impact. VIVIDESK does not record a new password in its vault without software application acknowledgement that the password change event succeeded. It is theoretically possible for a workstation to fail in the microseconds between when an application accepts a VIVIDESK password change and VIVIDESK detecting success. In this case, a single application may have a password mismatch and the user will need to update the VIVIDESK password using manual override.</p>
3.25 What is the impact to the user when the SSO authentication server fails?	<p>If the VIVIDESK primary and backup servers both fail or there is a general network failure such that the VIVIDESK client cannot communicate with its server to authenticate users and procure SSO credentials and methods, then the Desktop will not launch and SSO functionality is lost. If the network failure is selective, users can still connect to individual applications without the benefit of SSO.</p>
3.26 What language is your product developed in?	<p><b>Visual C++, VB.Net, ASP.Net</b></p> <p>VIVIDESK server and client components are programmed in Visual C++. VIVIDESK active server pages consist of HTML, DHTML, and XML visual interfaces that call functions in compiled server-side VIVIDESK server components programmed with VB.Net and ASP.Net.</p>
3.27 What platforms does your product support?	<p><b>Windows</b></p> <p>Macintosh and Linux users are supported via remote desktop protocol solutions, which have</p>

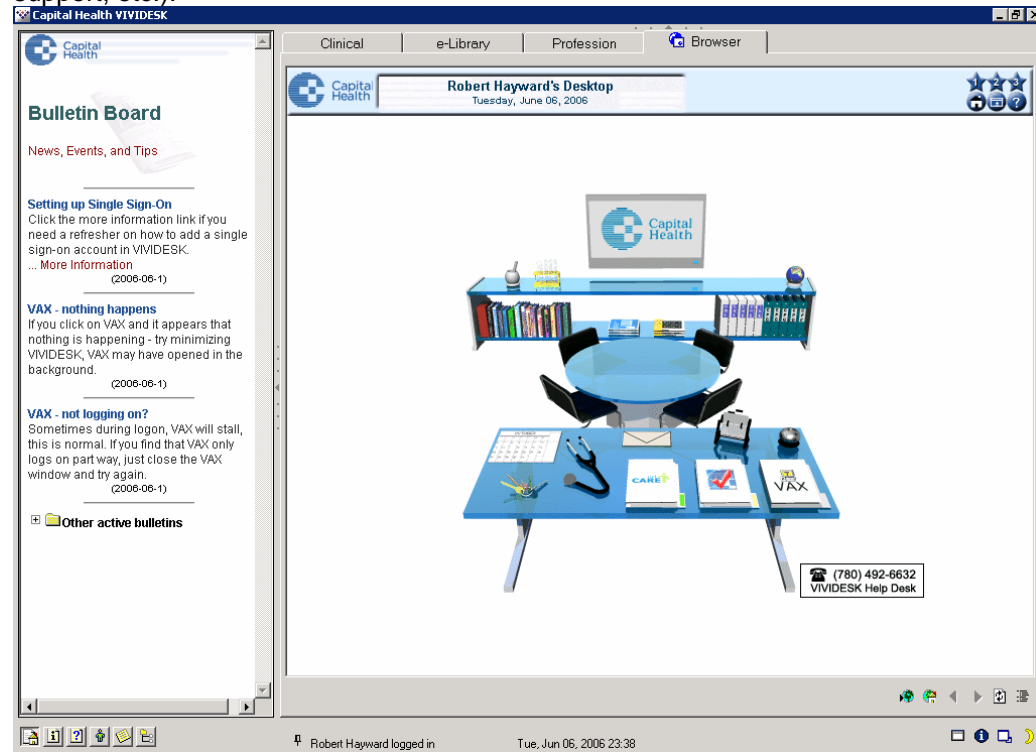
3. Technical	
	been optimized for VIVIDESK. An emulator support package is available for Windows 2000 and 2003 Terminal Server computers.
3.28 What user credential information is stored on local clients and how is it protected?	<p><b>None</b></p> <p>VIVIDESK is “zero-footprint”. It stores no user credential information on local clients. Nor does it use cookies or other credential caching methods. VIVIDESK clears any http AND https records that may be related to VIVIDESK sessions from the client computer. There is no “history” of VIVIDESK activities.</p>
3.29 What versions of LDAP do you support?	<p><b>NT 4 Domain, AD 2000, AD 2003</b></p> <p>VIVIDESK SSO was first developed for NT domain systems. VIVIDESK is optimized for AD LDAP versions 2 and 3 as expected by: Windows Server 2000; Windows Server 2003 including SP1, Itanium-based Systems, Datacenter Edition, Small Business Edition, Standard version, Enterprise Edition and x64 bit versions.</p> <p>VIVIDESK is Novell and IBM LDAP API-ready.</p>
3.30 How does the product handle instances when it is necessary to restore one application and its passwords?	<p><b>Backups and Archives</b></p> <p>VIVIDESK can automatically back up and archive its databases at pre-defined intervals. In this way, there can be a trail of SSO credential records that can be recovered from previous days. With more work, we can recover the state of an application to the passwords that were in effect on a particular day. This can help if, for example, an application suffered a failure and had to be recovered to a state X days previously and the VIVIDESK credentials for that application also have to be restored to that date.</p>
3.31 Where does the product store configuration information and user credentials?	<p><b>Entirely server-side</b></p> <p>Configuration information and user credentials are managed by the VIVIDESK server and stored in server-side databases.</p>

4. Support	
4.1 Describe how the administration of the product can be delegated.	<p><b>4-level Administrator Hierarchy</b></p> <p>There are 5 classes of VIVIDESK administrators:</p> <ul style="list-style-type: none"> <li>• <b>Knowledge Management</b> administrators can have selective editing rights for Desktop content collections, including virtual board rooms, best practices committees and document repositories.</li> </ul>

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	<ul style="list-style-type: none"> <li>• <b>Communications</b> administrators have access to tools for managing Desktop bulletins, alerts, conferences, and email communications.</li> <li>• <b>User</b> administrators are able to approve registrations, monitor batch registrations, set up, disable and delete accounts.</li> <li>• <b>Application</b> administrators are able to configure how, when and where applications are launched and made available to users.</li> <li>• <b>Master</b> administrators have all the rights of all other administrator types plus the ability to set password policies, configure SSO, and set Desktop and server properties.</li> </ul> <p>VIVIDESK desktops often provide access to knowledge management databases, contact registries, guideline repositories and other information resources that use the VIVIDESK database services. Items and groups of items within these registries can be assigned to one or more individuals for low-level administrative powers. This ability to delegate responsibility for a specific collection of references, for example, can be extremely useful in distributing the work of maintaining a rich information space.</p> <p>All product administration is done through the Desktop. Relevant administrative tools appear to persons entitled to use them. Consequently, all administration is audited using the same technologies that monitor user information behaviors.</p>
4.2 Is training required for support staff? If so what are the options?	<p><b>Multiple Options</b></p> <p>Some, all or no VIVIDESK services can be outsourced to the Center for Health Evidence or to other VIVIDESK distributors and value-added service providers. The common practice is to outsource SSO setup and SSO pilot deployments, while training client support staff to perform tasks that they will take over with full roll-out.</p> <p>The VIVIDESK system has 5 major functions: SSO, Application Integration, Knowledge Management, Embedded Learning and Audit &amp; Feedback. Where VIVIDESK is already used for decision-support, professional development and knowledge management, some staff training may be supported through sister projects.</p>
4.3 Provide screen shots of the user and administrative interface.	

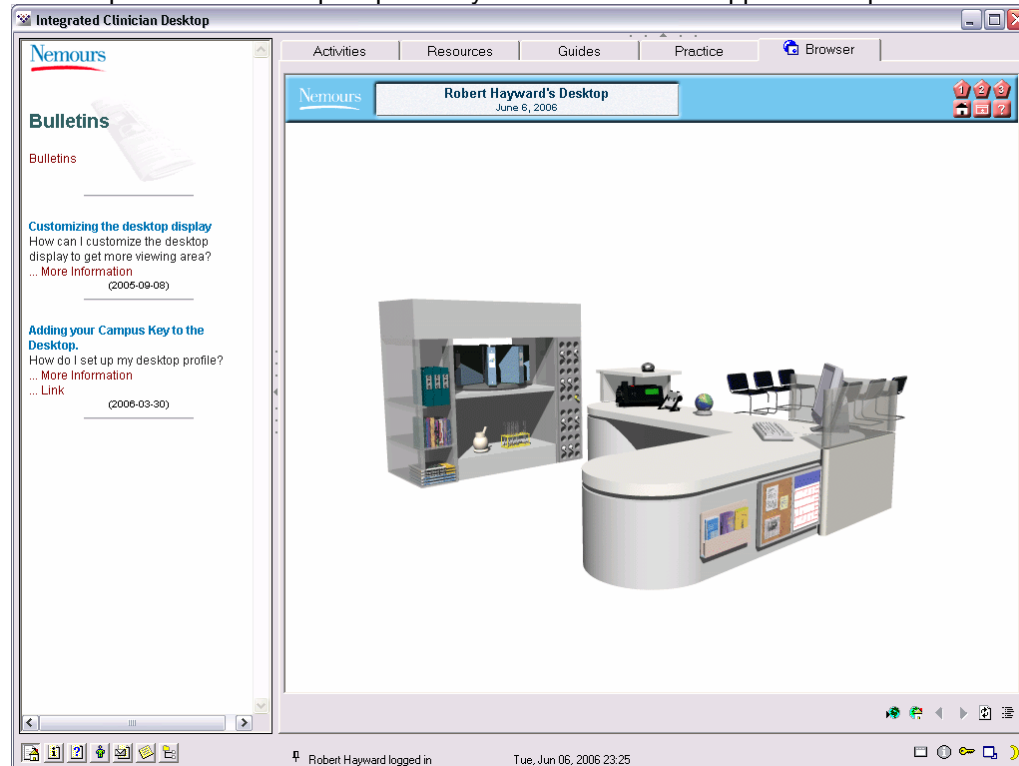
## 4. Support

1. Example clinical desktop for physicians, with visual metaphor (clickable images for rapid SSO access to medical records, clinical information systems, SSO manager [keys], decision support, etc.).



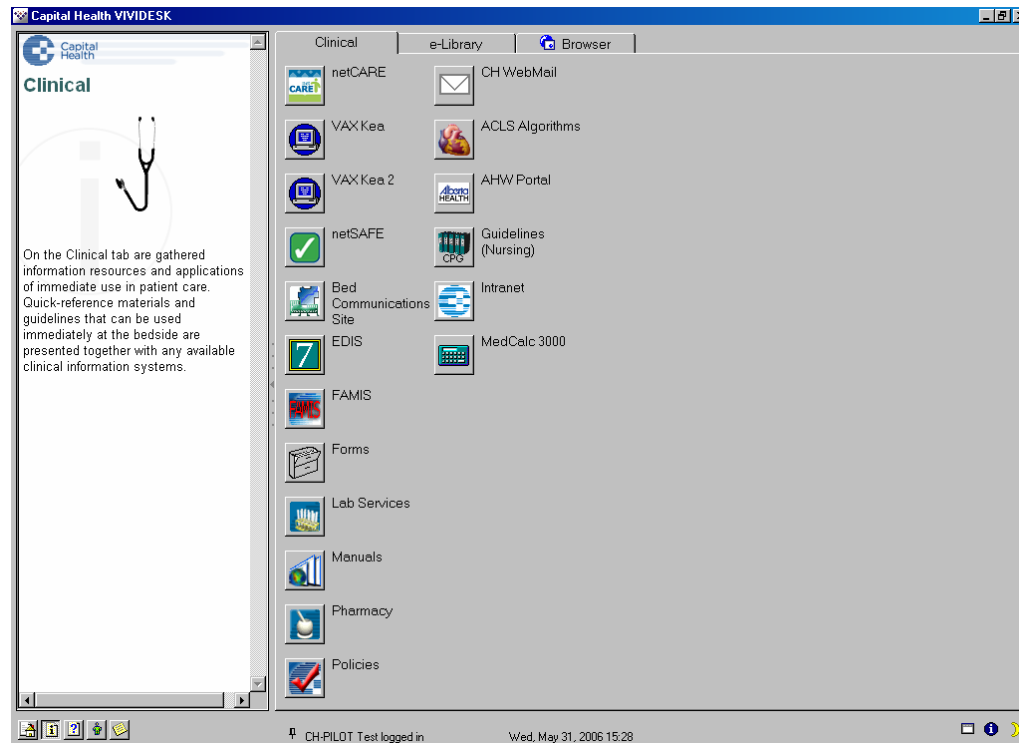
## 4. Support

### 2. Example clinical desktop as presently used for decision support in hospitals.



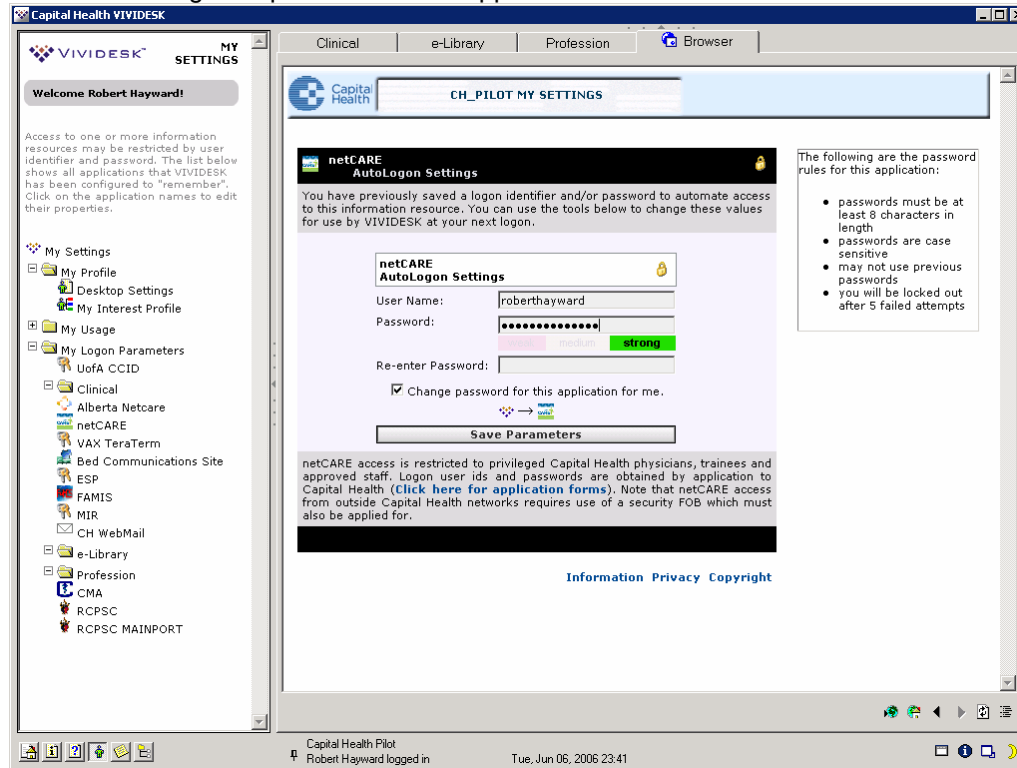
## 4. Support

3. Example of application buttons (non-visual metaphor access) for multiple clinical tools seamlessly integrated with single sign on, sign off, and application-to-application messaging:



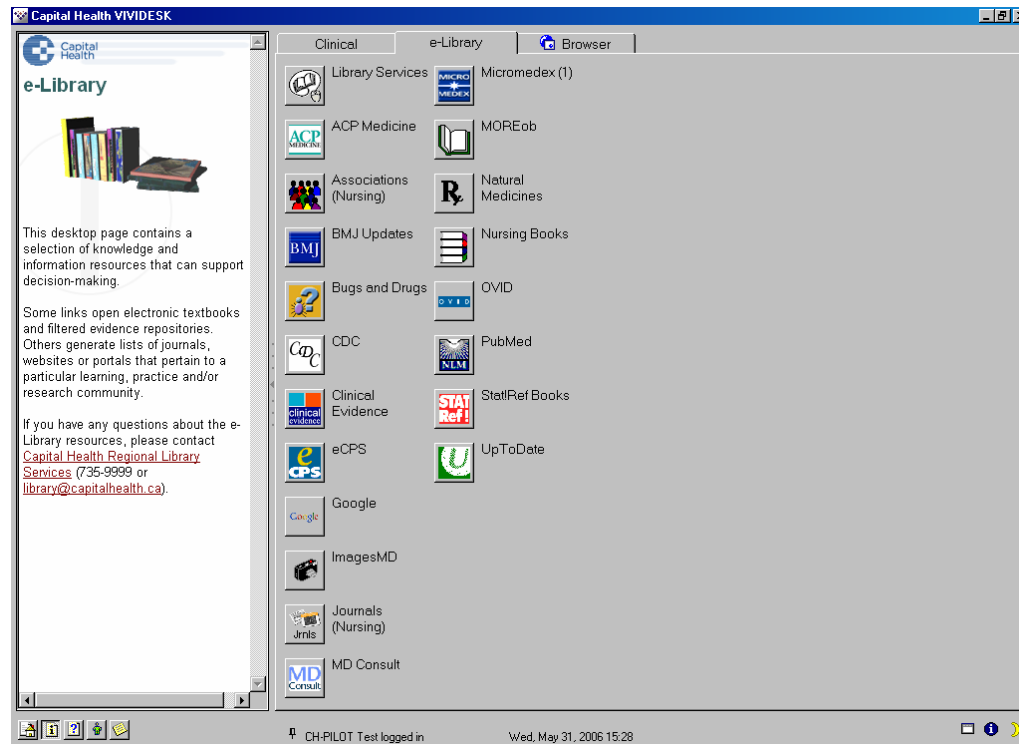
## 4. Support

4. Example screen from user SSO manager, where the password rules for an application are explained and users get visual feedback about the new password entered and VIVIDESK actions to change the password in the application:



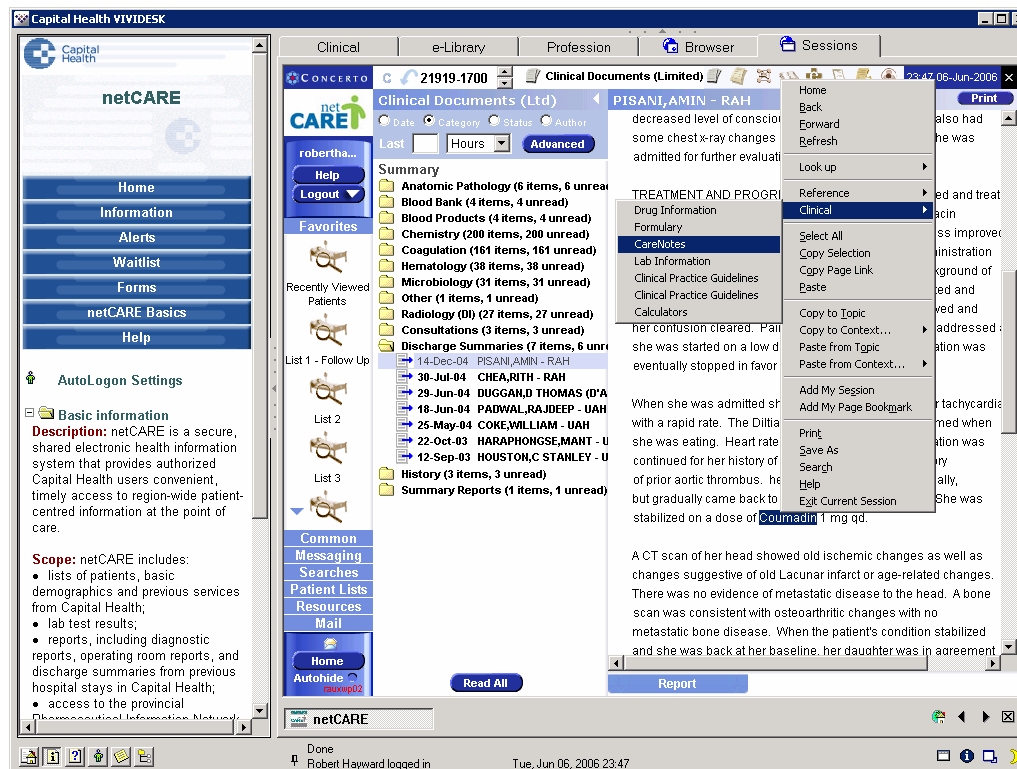
## 4. Support

5. Example screen showing a typical range of decision support products for which SSO and application integration (CCOW and VIVIDESK) are provided to nurses:



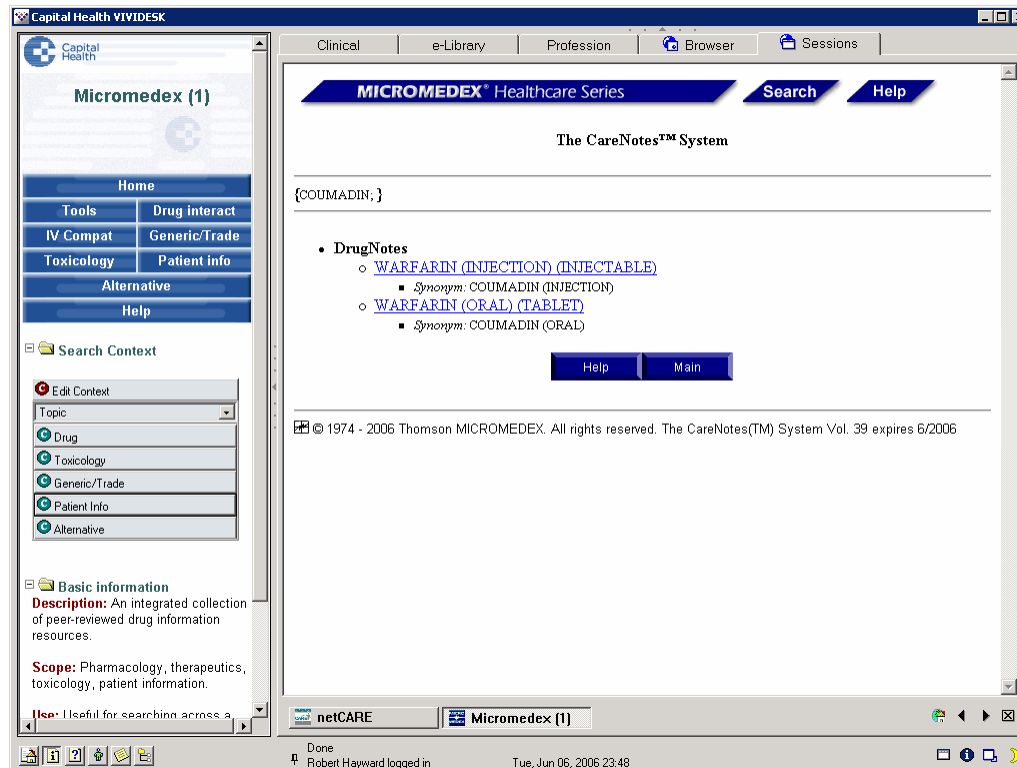
## 4. Support

6. Example of VIVIDESK-mediated direct link from a drug name appearing in a medical record to decision-support from a drug information database from a separate vendor, both accessed via VIVIDESK SSO:



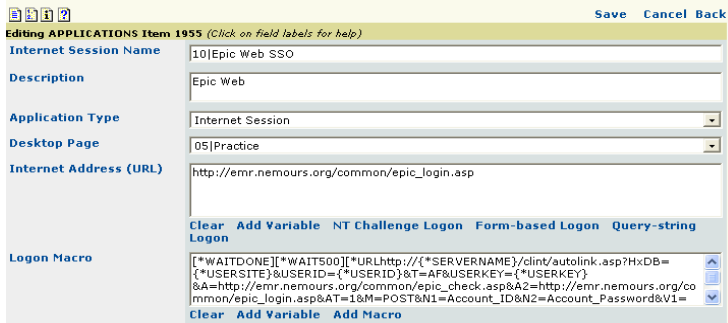
## 4. Support

7. Search automatically performed, with SSO, by VIVIDESK from the medical record:



8. VIVIDESK Logon screen



4. Support	
	<p>9. Example screen from administrator interface where application scripting language can be managed:</p> 
<p>4.4 What is included in your maintenance contract? Please attach your standard maintenance contract.</p>	<p>This varies according to whether VIVIDESK Global, the Centre for Health Evidence or the client hosts the VIVIDESK server. Most large-scale implementations involve client ownership and maintenance of VIVIDESK servers, where the client is trained to provide tier 1 support and optional tier 2 support. The cost of training and tier 2 support is covered in the VIVIDESK contract, installation phase.</p> <p>A VIVIDESK contract includes yearly server maintenance fees. These cover tier 3 support and all updates and upgrades. The maintenance license ensures that the VIVIDESK implementation remains current to the latest production release, irrespective of the size or feature payload of upgrades. Additional fees may be charged depending upon which non-SSO (application integration, knowledge management, embedded learning, audit and feedback services are requested).</p>
<p>4.5 What support options does your company provide and what is the cost?</p>	<p>There are a number of options for support in addition to VIVIDESK's complete online manuals, Internet support files, mailing lists and electronic bulletin boards.</p> <p>VIVIDESK provides direct user support during installation and initial implementation of VIVIDESK systems. The goal is to train client support staff so that they have full control over user, application, workstation and data management. At the conclusion of training (usual requirement is 1/2 day), VIVIDESK can provide customized auto-installation, backup and data management routines.</p> <p>Costs are covered in the VIVIDESK site license, as detailed in 7 below.</p>
<p>4.6 What tools are available in the product to build custom enablers?</p>	<p><b>Complete, token-based, scripting language</b></p> <p>There are a number of proprietary VIVIDESK tools which VIVIDESK SSO specialists can use to speed the production of enablers. Many of these can be provided to clients and it is</p>

4. Support	
	<p>possible to train client IT staff to prepare their own enablers using the VIVIDESK SSO scripting language and one or more of the SSO diagnostic tools. Commonly used tools include:</p> <ul style="list-style-type: none"> <li>• http/https in/out monitoring with request/response mapping</li> <li>• API detectors and function monitors</li> <li>• VIVIDESK token and variable testers</li> </ul> <p>The VIVIDESK developer toolkit includes all documentation and instructions required to support clients to create, modify and update enablers. The VIVIDESK scripting language can be used by most clients to make their own adjustments to single sign on and sign off enablers. The VIVIDESK administrator interface includes tools that allow clients to engineer many of their own application-to-application integration links.</p>
4.7 What type of on-going support do you provide?	<p>In most cases, institutions prefer to be trained to provide Tier I support through their own help desk.</p> <p>Tier II support can be taught to the client, obtained from VIVIDESK, or outsourced to a VIVIDESK distributor or Systems Integration partner.</p> <p>Tier III support (any malfunction of VIVIDESK software) is provided directly by VIVIDESK.</p> <p>Electronic mail and telephone help lines are serviced together with Internet electronic mail lists and newsgroup support that is connected to other VIVIDESK installation centers.</p>

5. Scalability	
5.1 How is your system scaled to meet increased volumes and or users?	<p><b>VIVIDESK is scaled through server-side database improvements</b></p> <p>There are general efficiencies associated with the “distributed desktop portal” technology used by VIVIDESK. VIVIDESK client-server communications are direct (bypassing proxy servers and other possible delays) and highly efficient. User configuration and credential information is sent from server to a client that manages the graphical user interface, application integration, knowledge management and audit activities; all client-side. Consequently key client-server communications are low band-width, do not interfere with workflow, and are relatively independent of network and server capacity. There are a number of failover options, including the client automatically seeking its backup server if the primary server does not respond, load balancing, separation of application and data servers, etc.</p> <p>Increasing numbers of users and increasing activity per-user are only felt at the precise</p>

5. Scalability	
	<p>moment of VIVIDESK client logon, when the server must retrieve configuration and credential information from its linked databases. Therefore, VIVIDESK affected by “simultaneous logons” (number of persons submitting VIVIDESK logon credentials at precisely the same moment), not by “simultaneous users”. Experience in clinical environments suggests a 50:1 to 100:1 simultaneous user: login ratio. Accordingly, up about 2000 simultaneous desktop users put the system at risk for 20-40 simultaneous VIVIDESK database access requests. Given this yardstick for scalability:</p> <ul style="list-style-type: none"> <li>• <b>Up to 5,000</b> users can be easily accommodated with a single VIVIDESK server running on an economy Windows 2000 server (single Pentium processor at 1-2 GHz with 512MB RAM ATA or SATA hard drive) and a royalty-free Microsoft Access database on the same server.</li> <li>• <b>Up to 15,000</b> users can be reliably serviced with a single VIVIDESK server running on a modest Windows 2000 or 2003 server (hyperthreaded or dual-processor P5 at 2 GHz with 1GB RAM and SCSI hard drive) and a Microsoft SQL server database installed on the same server.</li> <li>• <b>&gt; 25,000</b> users should be serviced with a primary + secondary VIVIDESK Windows 2003 enterprise server or a VIVIDESK server cluster linked to an independent SQL data server or clustered SQL data server farm.</li> </ul> <p>Access databases can be converted to SQL at any time and both VIVIDESK server and database extensions can be added without any requirement for database architecture or content modifications.</p>
<p>5.2 In the event we outgrow the suggested product, what is the upgrade path?</p>	<p>VIVIDESK can grow from pilot project Access database implementations to national enterprise implementations simply by changing database management systems (MS SQL Server or other SQL databases) without need to upgrade to different VIVIDESK server or client components. Stored procedures are available for performing automated database upgrades.</p>
<p>5.3 Product can be migrated to which platforms?</p>	<p>Currently, VIVIDESK series 5 (current production) and series 6 (release 4<sup>th</sup> quarter 2006) is supported on Microsoft Windows servers, as detailed above. Future VIVIDESK series 7 servers will be compatible with other platforms, particularly Linux.</p> <p>Because VIVIDESK supports integrated clinician information environments with SSO, application integration, knowledge management, embedded learning and audit &amp; feedback, there are no directly comparable products to migrate to. VIVIDESK SSO credentials for applications using standardized authentication methods (e.g. NT Challenge, CCOW, Form-based) can be ported to other SSO products.</p>

<b>5. Scalability</b>	
5.4 Product is scalable to how many systems?	<p>VIVIDESK is licensed by server, number and type of desktops and number of group and individual accounts. There is no limit to the number of workstations or client implementations.</p> <p>The VIVIDESK server can be installed in a load-balanced environment with multiple VIVIDESK servers sharing access to a cluster of SQL databases. Technical details are available from our network administrator.</p>
5.5 Product is scalable to how many users?	<p>As above, we know of no practical limit to the number of users. Scalability is driven not by the number of users as much as the administrative work that can be associated with too much complexity resulting from excessive numbers of applications, user groups, interests, workstation profiles, password profiles to maintain etc. The knowledge management, eLearning and audit and feedback Desktop administration activities will grow more than the SSO administrative burden. Therefore, if VIVIDESK implementations are kept to a moderate number of well-maintained user groups and a focused set of clinical and decision-support resources, the system can easily scale to very large numbers of users. The Australian national implementation, for example, supports &gt;19,000 user accounts using a single VIVIDESK server and single SQL server.</p>

<b>6. Product Profile</b>	
6.1 How long can customers expect that your company will provide support for this product?	<p>VIVIDESK and its distributors support all VIVIDESK versions within the current release series (e.g. series 5) and all versions within the previous release series (e.g. series 4). VIVIDESK contracts include a yearly maintenance fee that entitles the client to remain current with the latest server and client releases. All releases within a series (e.g. 5.630) are distributed automatically by the VIVIDESK update system.</p> <p>If the maintenance contract is not sustained for any reason, then the client can continue to expect support as long as it's latest licensed version is within the current or just-past series.</p>
6.2 Provide a revision history for your product.	<p>VIVIDESK has evolved through several iterations over more than a decade, benefiting from research and development initiatives at Johns Hopkins University, McMaster University and the University of Alberta. Originally invented by Dr Robert Hayward for Microsoft Windows 2.0 workstations, the product helped bring 16-bit Windows workstations into healthcare in the mid 1990s, secure Internet environments in the late 1990s, and enterprise integration technology in the 2000s.</p> <p>The first iteration of VIVIDESK's predecessor (CLINT, Clinical Integrator) was used in research studies from 1990-1992. CLINT was further developed at McMaster University from 1992-1995 before being transferred to the private sector through InfoWard Inc in 1996, when</p>

6. Product Profile	
	<p>the technology was re-branded as VIVIDESK. InfoWard ultimately spun-off its Clinical Integrator activities through VIVIDESK Global Ltd.</p> <p><b>VIVIDESK Series 1</b> (1996-1998) was a 16-bit Windows client-server application for hospital local area networks.</p> <p><b>VIVIDESK Series 2</b> (1998-1999) was a 32-bit Windows client-server application focused on Single Sign On to Windows and Internet applications.</p> <p><b>VIVIDESK Series 3</b> (1999-2003) was fully re-engineered as an internet component technology expanding its scope to include application integration and audit &amp; feedback.</p> <p><b>VIVIDESK Series 4</b> (2003-2005) was acquired powerful knowledge management and embedded learning capabilities.</p> <p><b>VIVIDESK Series 5</b> (2005-present) enjoyed a complete server-side overhaul for increased scalability and significantly enhanced SSO and security features optimized for wide-area health networks.</p> <p><b>VIVIDESK Series 6</b> (4<sup>th</sup> quarter 2006 release) involves relatively little server-side change but major enhancements to the client graphical user interface, with powerful personal information management and portable data management capabilities.</p> <p>A list of point releases is available, subject to non-disclosure agreements, via the VIVIDESK online research and development (RANDD) databook.</p>
6.3 What market share does your product have?	The integrated clinical information environment market (combined SSO, client-side integration, knowledge management, embedded learning and audit & feedback) is just emerging. Specific products compete in each of the VIVIDESK functional domains but we are unaware of a competitive close fit to the comprehensive, distributed desktop portal, technology empowering VIVIDESK.
6.4 What parts of your product are not developed in house?	<b>None</b> All parts of the VIVIDESK product suite are developed in-house.
6.5 When was your product entered into the marketplace?	As outlined above, VIVIDESK has been in continuous use by informatics research initiatives (VIVIDESK selective application deployment and information behavior monitoring capabilities make it an unequalled point-of-care distributed informatics laboratory) since 1991 and has been in commercial development since 1996 and in commercial production since 1999.

7. Pricing	
7.1 Please provide complete pricing including license fees, maintenance and professional services.	VIVIDESK is already licensed by many health institutions for use by physicians, nurses and select administrators. Please see the attached pricing grid, which would apply to a full implementation including clinical and comprehensive administrative SSO.
7.2 What is the upgrade cost of the product?	Ditto.
7.3 What maintenance is included at purchase and what are the ongoing maintenance costs?	Ditto.
7.4 Describe the licensing models and the cost per model.	Ditto.

8. Maintenance	
8.1 How are the upgrades performed?	<p><b>Client updates are automated; Server updates are semi-automated</b></p> <p>VIVIDESK includes a powerful update distribution and management system. This is centrally configured and can be used to selectively distribute and install three classes of updates:</p> <ul style="list-style-type: none"> <li>• Graphical user interface updates</li> <li>• VIVIDESK client component updates</li> <li>• Other (third party) software application components or updates</li> </ul> <p>Each Desktop hosted by a VIVIDESK server can have its own auto-update settings. Update “events” and any associated files, components or update packs are registered to the VIVIDESK server by authorized VIVIDESK administrators. At every VIVIDESK logon, the client checks with the server to see if any of the above update types are due, are indicated for the client location, or are designated optional or mandatory. If client component update(s) are required, the auto-update component automatically retrieves and registers the components before proceeding with VIVIDESK logon. If other application updates are so distributed, VIVIDESK may proceed with logon while initiating the application update as separate processes.</p> <p>VIVIDESK server updates are provided to system administrators as an update package. The server update system automatically performs any required database changes.</p> <p>VIVIDESK servers are backwards-compatible, supporting at least two full VIVIDESK client series (at least 2 years) prior to the current release.</p>

9. Implementation	
<p>9.1 Describe methods to populate user account information into your product.</p>	<p><b>Administrator-mediated, User-mediated, LDAP-mediated or Batch process</b></p> <p>A variety of methods are supported for initiating VIVIDESK desktop accounts for users:</p> <ul style="list-style-type: none"> <li> <p>• <b>Administrator Registration</b>                      VIVIDESK administrators (User administrators and Master administrators) have access to user registration tools. These allow initiation, editing, suspending and terminating of user accounts. Administrators have precise control over which groups and interests users are assigned to. User rights, audit protocols and password profile policies are set through the same interface. The user registration system includes tools for automated email notification of account status, usage reporting and other functions.</p> </li> <li> <p>• <b>User Registration</b>                      VIVIDESK includes a user registration system and Internet “gateway” configurable by administrators logged on to VIVIDESK. The gateway settings include rules about what information must be provided by registrants, whether they can self-select their group and interests, and whether VIVIDESK or LDAP directory services are used. Upon user registration, the account “request” is queued and the designated administrator is notified by email of the pending request, when approved, the user is automatically sent a confirmatory email with instructions for logging on.</p> </li> <li> <p>• <b>LDAP Registration</b>                      This is an extension of user registration where users can request an account and provide any mandated personal details or preferences. If the credentials provided match those in the Desktop registered LDAP (Active Directory), then the account is automatically approved and created with default settings as pre-defined by a VIVIDESK administrator. The user is able to log on immediately.</p> </li> <li> <p>• <b>Batch Registration</b>                      VIVIDESK includes a batch-import utility, available to administrators. This works from a membership data extract. VIVIDESK reads the import file (mdb, csv, mdf), requests verification of field mapping, then automates the creation of thousands of accounts at a time.</p> </li> </ul>
<p>9.2 Does the end-user require a training session? If yes, how long is the session?</p>	<p><b>Maybe</b></p> <p>A formal training session is likely not required and is not our usual practice. Online shockwave demonstrations, interactivities, bulletins and handouts describe how to use key desktop features, including single sign on. VIVIDESK has a radically simplified user interface</p>

<b>9. Implementation</b>	
	<p>which is “guessable” by clinical users. We do recommend training champions in the organization so that they can promote more advanced uses of the product among colleagues.</p> <p>VIVIDESK includes an “information event” manager. First logon can be one such event, which can be set to trigger one-time online self-directed training.</p> <p>Each application with an SSO interface can be set to redirect to brief instructions about SSO for that application on first engagement.</p>
9.3 How is your system initially distributed to end-users?	<p><b>Internet distribution and installation</b></p> <p>VIVIDESK can be automatically installed and launched from a web page. This distribution mode is appropriate for organizations with internet portal “desktops”. Required updates are performed automatically by VIVIDESK.</p> <p>VIVIDESK can also be distributed through standard installation packages. Currently InstallShield is used. Silent installs are supported.</p> <p>Each Desktop includes a web “gateway” with links to installation packages.</p>
9.4 How many people are required to conduct a typical 4000 users implementation?	<p>This depends upon the level of customization, level of the VIVIDESK desktop, and use of staff already committed to the VIVIDESK evidence-based practice initiatives. A very rough estimate would be in the range of 3 persons (integration specialist, project manager, help desk trainer).</p>
9.5 Please describe client deployment methods.	<p><b>Windows Desktop Icon, Web Page Link, Windows Shell, RDP Application</b></p> <p>The VIVIDESK client is most commonly launched from a Windows desktop icon, start menu, or logon script. The client can be distributed and deployed by means of SMS, standard hard drive builds, or on-demand install packs. This works well for organizations that attempt to standardize the Microsoft Windows desktop appearance and shortcuts.</p> <p>More efficient for organizations with intranet portals, the VIVIDESK client can be accessed and initiated from a link on an internet web page. This link uses a VIVIDESK ActiveX component to see if the client components need to be installed or updated, actions performed silently if needed.</p> <p>For organizations seeking a tightly “locked-down” workstation, Windows can boot directly into VIVIDESK, which is an approved Windows shell replacement. The VIVIDESK logon panel appears at computer startup, VIVIDESK prevents access to all non-authorized windows components, and the computer returns to the login shell upon desktop logoff. In this case, the VIVIDESK client components must be included in workstation hard drive builds.</p> <p>Finally, VIVIDESK can be installed to Windows Terminal Server computers in a configuration optimized for Citrix or Terminal Server Client access to VIVIDESK. Upon Remote Desktop Protocol connection, VIVIDESK automatically launches to its login screen.</p>

9. Implementation	
<p>9.6 Please provide a list of all of the products prebuilt enablers.</p>	<p>Many pre-built enablers are available:</p> <ul style="list-style-type: none"> <li>• MS Exchange (2000, 2003)</li> <li>• MS SharePoint</li> <li>• MS Office, Explorer, Mapped Network drives and other LAN tools</li> <li>• Internet conferencing software (e.g. Elluminate, WebEx, EPOP, Web4M)</li> <li>• Digital libraries, texts and decision support products from Elsevier, Thomson Healthcare, Walters-Kluwers, McGraw-Hill, Teton Data Systems, Wiley, etc.</li> <li>• Practice Guidelines, Quality Improvement and Patient Safety resources</li> <li>• Wide range of internet applications and health care resources</li> <li>• VAX, VMS, Tandem, 3270, Teraterm, KIA, Oracle, Agfa and other clinical and administrative legacy systems.</li> </ul> <p>Throughout its various projects over a 10 year period, the Center for Health Evidence has built over 2000 SSO and Client-Side Integration interfaces to health care relevant information resources.</p>
<p>9.7 Product has been implemented with what Cerner applications?</p>	<p>Pharmacy (we do not anticipate problems with other Cerner applications)</p>
<p>9.8 Product has been implemented with what EPIC applications?</p>	<p>VIVIDESK is currently used by 3 multi-institutional EPIC EMR (outpatient) clients.</p>
<p>9.9 Product has been implemented with what Lawson applications?</p>	<p>None to date. (see answer to 2.9)</p>
<p>9.10 What are your recommended implementation steps?</p>	<p>Implementation processes are adjusted to suit specific target user populations, organizational needs and the VIVIDESK functions delivered through the organization's VIVIDESK client.</p>
<p>9.11 What is the approximate length of the training sessions?</p>	<p>A train-the-trainer model works best for end users. The length of user training sessions depends on the range of VIVIDESK features implemented. For typical end users who are accessing clinical and knowledge applications, the training can be completed in about 15-30 minutes. For administrators and others who will be supporting the product, more in-depth training is provided; a half-day or more depending on which product features they are supporting.</p>

9. Implementation	
9.12 What training packages do you offer?	<p>We provide a wide range of training methods and interventions to suit different types of users and different user engagement strategies. Currently available training interventions include:</p> <ul style="list-style-type: none"> <li>• Online and print-ready QuickStart guide (essentials for getting started)</li> <li>• Online shockwave animated tour and guide (1-2 minutes to get started)</li> <li>• Online desktop video guides and tours (each installment is 1-4 minutes; covering a full range of Desktop and SSO skills)</li> <li>• Series of online “Interactivities” that guide users through core VIVIDESK functions while providing just-in-time demonstrations and feedback.</li> <li>• Online user guides and manuals for installation, desktop, SSO, etc.</li> <li>• One hour orientation/in-service with slides, notes and demonstrations (suitable for hands-on training session).</li> <li>• Half day skills-building workshop for clinical champions</li> <li>• Paper-based instruction</li> </ul>
9.13 What types of resources can you provide if our own technical resources are not available?	<p>VIVIDESK information specialists, desktop managers, technical specialists, developers and network specialists have extensive experience with a wide range of health organizations and institutions and can provide technical resources in support of a VIVIDESK and the applications that it provides access to.</p>

10. Assurance	
10.1 How are brute force attacks handled on your product?	<p>A brute force attack (BFA) uses a large number of possible credentials to attempt defeat of a cryptographic access control scheme, as might occur if an internet automaton were to exhaustively work through all possible keys in order to decrypt a message.</p> <p>VIVIDESK offers multiple BFA shields:</p> <ul style="list-style-type: none"> <li>• <b>Proprietary Client-Server TCP/IP communications</b>                      The VIVIDESK server only recognizes information requests from its client. The server has no means of acknowledging or responding to conventional http or https requests. The VIVIDESK client formats communications with non-standard http headers, converts all communications to a purely numeric format, and establishes trust with a unique key. The VIVIDESK server ignores requests that do not meet the exact fingerprint of a VIVIDESK client query.</li> </ul>

10. Assurance	
	<ul style="list-style-type: none"> <li>• <b>Strong Encryption</b> Passwords are encrypted with a unique 128-bit proprietary VIVIDESK key. They are then converted to a meaningless numeric series with extensive padding “noise” before being transmitted over a 128-bit secure socket layer channel to the server.</li> <li>• <b>Lockout</b> The VIVIDESK server locks out accounts after 3 failed logon attempts, with a configurable lockout interval.</li> <li>• <b>Audit</b> All logon attempts are recorded. Because the VIVIDESK client has reporting capabilities beyond internet browsers, all logon attempts are stamped with local and external IPs, MAC addresses, Windows account particulars and information about the originating workstation hardware and operating system. This data can help track down and report hacking attempts.</li> </ul> <p>In addition, enterprise implementations should use industry-standard hardware firewalls capable of detecting and preventing BFA and DoS. The Center for Health Evidence runs a multi-server VIVIDESK farm behind state-of-the-art firewalls. We also use “SiteScope” server and firewall monitors which instantly report possible attacks to support personnel.</p>
10.2 Does product allow predetermined expiration date?	<p><b>Yes</b></p> <p>These can be set for VIVIDESK directory accounts, LDAP accounts, and any software application or for application groups through VIVIDESK password “profiles”.</p>
10.3 Does the product support banners at authentication and each application?	<p><b>Possibly</b></p> <p>VIVIDESK can interpose graphical or text messages/alerts/waits to users during authentication to SSO applications. VIVIDESK also alerts users when a delay may be imposed while VIVIDESK opens and changes passwords in a SSO application.</p>
10.4 Does your product support 2 factor authentication?	<p><b>Yes</b></p> <p>Whether to require 2 factor authentication or not can be context sensitive in that VIVIDESK can require such when the user seeks access to a protected application from outside a secure (intranet) environment; but not require such when logon occurs on an intranet, specific subnet or even specific workstation.</p>
10.5 How can the product ensure a secure backup and restore?	<p>VIVIDESK includes manual and automated backup, archive (single point in time) and restores for Microsoft Access databases. Backups and restores for SQL implementations are usually configured at the level of the RDBMS since different products (MS, Oracle) have different</p>

<b>10. Assurance</b>	
	proprietary extensions for performing these tasks. VIVIDESK series 6 includes supplemental SQL archive functions for additional data backups, exports and extracts.
10.6 How can your product assure that passwords are not reused?	A record is kept of all previously used passwords; whether for active directory, VIVIDESK or SSO applications. Password policy profiles include a setting for the number of past passwords to check when checking for duplicates.
10.7 How can your product ensure security of an application that requires plain text passwords?	<p>VIVIDESK can often bypass the application's standard login interface, especially if the application supports SSO standards. However, if a legacy application requires client-side login and then the application client sends a plain-text password to its server, we are constrained to the application's behavior.</p> <p>All SSO credentials are passed from the VIVIDESK server to its client over SSL connections in a VIVIDESK proprietary encrypted format. The passwords are never written to disk, in any format, and are only decrypted at the moment that they are used for application SSO.</p>
10.8 How does the product handle a DOS attack?	<p>The VIVIDESK server will only recognize and respond to requests received via an appropriate port in an allowed format with encryption unique to VIVIDESK.</p> <p>The proprietary VIVIDESK https packet has a unique, non-html, fingerprint.</p> <p>The VIVIDESK server ignores all server requests that do not include a valid VIVIDESK session key in the https header. Such keys are complex, generated only once per session, and accepted only from the internet location where the VIVIDESK login session was validated.</p>
10.9 How does your product assure high availability to process login requests?	<p>Please see scalability considerations, described above.</p> <p>The VIVIDESK server technology has been optimized for high-volume health settings over many years. There are a number of fail-over protocols. Most importantly, VIVIDESK supports primary and secondary servers, where the client automatically selects the most responsive.</p>
10.10 How does your product protect user names and passwords from being sniffed or reverse engineered?	<p>A VIVIDESK project can be configured to only allow client-server communications over a secure socket layer (SSL, 128 bit encryption). This is the default mode for any desktop using single-sign-on capabilities. If in force, then the server will only listen for and accept client communications over the secured channel.</p> <p>Over and above communications protocol security, VIVIDESK encrypts all application logon information before sending data to its client. The client uses a proprietary VIVIDESK decryption module to decode this information before use client-side. The information is never recorded to disk, cookie, or any other form of temporary data storage.</p> <p>With VIVIDESK series 5, yet another layer of encryption was added. All communications between client and server (not just logon information) are converted to a unique digital format,</p>

10. Assurance	
	<p>padding with noise to arbitrary packet lengths, and encrypted with a complex unique encryption key. The client decodes this information before using the contents and proceeding with further decryption.</p> <p>Sniffing VIVIDESK client-server communications only yields a meaningless numeric stream in which multiple layers of encryption and an arbitrary password location further prevent reverse engineering.</p>
10.11 How does your product work with systems that have various account name and password policies?	VIVIDESK supports an infinite number of password policies that can be assigned to one or more user groups and/or applications.
10.12 How long does it take to terminate a SSO user and disallow access to allow configured applications associated to the user?	<p><b>Virtually instantaneous</b></p> <p>VIVIDESK user or master administrators have the following powers, all executed live through a validated VIVIDESK Desktop session:</p> <ul style="list-style-type: none"> <li>• <b>Suspend user</b> If suspended, the user account cannot be used for VIVIDESK, SSO, or reminders access, no matter what password is entered by the user. The account can be reactivated at any point.</li> <li>• <b>Terminate user</b> This is permanent and completely retires the specified account and all SSO application access rights.</li> <li>• <b>Terminate session</b> Administrators can “see” all users presently logged on, anywhere, and can terminate any session any time. If an active user session is terminated, then the VIVIDESK client can automatically close, together with all SSO application access. The VIVIDESK client session will automatically log off all software applications that it opened. The user has no control.</li> <li>• <b>Suspend application</b> If abuse of a specific application is suspected, that application can instantly be taken “off line” by the VIVIDESK administrator, and restored later.</li> <li>• <b>Auto Timeout</b> VIVIDESK can be configured to automatically initiate a logout protocol if there is no mouse or keyboard user activity within a configurable time period. If, for example, timeout is set to 4 minutes, then absence of user activity in 4 minutes will result in a brief warning after which VIVIDESK will force closure of every application that it</li> </ul>

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	opened. Since these applications could contain sensitive information, this is a powerfully protective "reverse SSO" capability.
10.13 Is it possible to disable self service password reset feature per user account?	VIVIDESK currently allows self-service SSO and desktop password retrieval. This is controlled at the "desktop level" and is configurable. Currently, only master and user administrators can reset VIVIDESK user account passwords.
10.14 Is your product code certified by any certification bodies like ITSEC or TCSEC?	Although VIVIDESK code, coding protocol and development processes have passed a number of due-diligence reviews, it is not certified externally.
10.15 On termination, does the SSO client end current sessions?	<p><b>Yes</b></p> <p>Client log off is instantaneous. Orderly logging off of all SSO applications occurs in the background. Applications can be logged off with application-specific logoff scripts (Single-Sign-Off). Current sessions are terminated server-side.</p> <p>The Desktop can be configured to automatically log a user out after a set period of no keyboard (screen) or mouse (pointer) activity. This is part of a workstation profile settings that can be location-specific.</p>
10.16 Product can force a password change for all accounts on an application or all applications for one user?	<p><b>Yes</b></p> <p>Administrators can force password changes for individuals, user groups or for entire Desktop populations, whenever and as often as needed.</p>
10.17 What features do you have to ensure strong passwords?	<p><b>Configurable password complexity profiles</b></p> <p>VIVIDESK administrators can set different levels of strong authentication VIVIDESK desktops. The following password management rules can be enforced, in part or in whole, for all users of a desktop. The rules can also be enforced for logon identifiers and passwords that may be used by applications that authenticate via VIVIDESK.</p> <ul style="list-style-type: none"> <li>• <b>Force Password Change</b> Administrators can force password changes for individuals, user groups, or entire Desktop populations, whenever and as often as needed.</li> <li>• <b>Password Longevity</b> Administrators can optionally set an interval after which a user must change a password in order to maintain access. The interval starts from the date of first</li> </ul>

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	<p>sign-on or last password change.</p> <ul style="list-style-type: none"> <li>• <b>Password Uniqueness</b> Users can be prevented from re-using passwords within a configurable number of successful password changes.</li> <li>• <b>Password Length</b> An optional minimum and maximum password length can be enforced. This can, for example, force all passwords to be 10 characters or longer.</li> <li>• <b>Case Sensitivity</b> Passwords must be entered in the correct case in order to be accepted.</li> <li>• <b>Alphanumeric Content</b> This rule forces passwords to include both letters and a specified number of numerals in order to be accepted.</li> <li>• <b>Special Characters</b> This rule forces passwords to include a specified number of non-letter, non-number, special characters.</li> </ul>
10.18 What is your security model?	<p>VIVIDESK has been carefully designed to meet the privacy, confidentiality and security concerns of complex organizations.</p> <p>If privacy is about an individual's right to control access to information about himself or herself, and confidentiality is about the responsibility of others to protect privacy rights, then security is about the methods by which privacy is declared and confidentiality is enforced.</p> <p>There are five categories of VIVIDESK security functions:</p> <ul style="list-style-type: none"> <li>• <b>Authentication</b> is the ability to reliably identify the source of information, the recipient of information, and any agents that may have viewed or changed the information in transit from source to recipient.</li> <li>• <b>Authorization</b> is the ability to grant different persons or groups different rights to find, view, change or delete information.</li> </ul>

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	<ul style="list-style-type: none"> <li>• <b>Encryption</b> is the ability to prevent recognition and interpretation of information while in transit from source to recipient and back again.</li> <li>• <b>Integrity</b> is the ability to warrant that information has not been changed or damaged in transit from source to destination and back again.</li> <li>• <b>Non-repudiation</b> is the ability to record all changes to information so that its prior state can be known and individual changes cannot be revoked without generating a traceable audit trail.</li> </ul> <p>The VIVIDESK collection of integration tools include security features uniquely suited to the protection of sensitive information from multiple sources delivered via diverse technologies. Examples of VIVIDESK security capabilities include:</p> <ul style="list-style-type: none"> <li>○ <b>Secure Single Sign On</b></li> <li>○ <b>Strong Authentication</b></li> <li>○ <b>Authentication Vault</b></li> <li>○ <b>Secure Context Management</b></li> <li>○ <b>Cookie-free Zero-footprint Information Sessions</b></li> <li>○ <b>High-fidelity Audit Trails</b></li> <li>○ <b>Location-sensitive Security Levels</b></li> </ul>
10.19 What kind of tools are included to handle compromised accounts?	User accounts can be locked at any time. Detailed data logs can be used to investigate who has used accounts and from what locations.
10.20 What types of password authentication do you support?	<b>Password, strong password, ID tokens.</b> Many forms of authentication are supported out of the box while others are supported with custom uses of the VIVIDESK SSO toolkit. We do not expect custom work or adaptations

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	from application or authentication (e.g. biometrics) vendors.