2 CA BH-EHR RFI FOR CERNER CORPORATION

D. Company Background

RR-D-01 Please provide the following information regarding the makeup of your company.

CORPORATE INFORMATION	
Company Name	Cerner Corporation
Company Type (C-Corp, S-Corp, LLC, LLP, Sole Proprietorship, Etc.)	Cerner is a Chapter C Corporation.
Location of Corporate Headquarters	Cerner Corporation's world headquarters are located in Kansas City, Missouri. To better serve U.S. clients, project management, sales, and implementation personnel live throughout the country to provide service to a group of clients within a specific geographical region. Cerner's mailing address is: 2800 Rockcreek Parkway Kansas City, MO 64117
Location of Field Support Offices	All Millennium support is based in Kansas City, Missouri. In addition, Cerner has the following support offices: Birmingham – PowerWorks Beverly Hill/Solana Beach – Gajema Denver – Multum Waltham – DHT – CoPathPlus Vienna – Apache
Location of Programming/Technical Support Personnel	Kansas City, Missouri
PRIMARY CONTACT INFORMATION FOR THIS RFI	
Name	Jodi Drury
Title	Senior Engagement Leader
Office/Location Address	2800 Rockcreek Parkway

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	Kansas City MO 64117
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Internet Home Page	www.cerner.com

RR-D-02 Provide an overview of your firm and its history. Describe the strength of your firm and its ability to meet the needs of California's behavioral health recipients and providers.

In the beginning, we focused on selling into the departments: laboratory, radiology, pharmacy and respiratory. Healthcare had many departments. We started and grew in that environment. However, we saw the much larger need for a common architecture to support the entire enterprise. Twenty years ago, in our 1986 IPO, we laid out our then- current vision for a common architecture for the healthcare enterprise. We called it Health Network Architecture (HNA®). Our growth as a company has paralleled the expansion of our vision and architecture over the past 20 years.

Mid-way through the 1990s, with our concept of HNA well accepted, it became apparent that the IT waves would continue to come. The healthcare enterprise was going through major changes. We also discovered the missing element in the design—everything needed to be designed around the person. The new enterprise became the community. There was a need to stop and rethink, redesign and rebuild everything we had done over the first 15 years. It was a frightening, daunting undertaking. Others questioned our logic, but we were committed to our vision. This commitment led to the creation of Cerner Millennium.

Today, we have a suite of more than 50 applications built on this integrated information architecture designed to serve the information needs of healthcare delivery. As the breadth of applications expanded, so did Cerner.

We have evolved from a single concept into a powerful platform. In the process of this evolution we generated organic growth that propelled Cerner from a starting point of

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zero to our first billion dollars of annual revenues. We implemented nearly 1,300 solutions during 2006 and ended the year with more than 6,000 Cerner Millennium solutions live at more than 1,000 client sites across the world. In total, our strategic client footprint now includes approximately 6,000 hospital, health system, physician practice, clinic, laboratory, pharmacy and employer clients.

The remainder of this decade, the first of the new millennium, we expect HIT to continue to be the right place at the right time, and we believe Cerner will continue to have the right stuff. The fundamental facts of healthcare, plus the forces exerted by demographic changes, new scientific advances and healthcare consumers' demands for improved services and customization will also make the next decade the right place and time. On a daily basis, we lay the plans to make sure Cerner has the right stuff.

We will continue to make significant investments in the Cerner Millennium platform and the core services we provide our clients. Each day our platform delivers value to thousands of clients and millions of healthcare consumers around the world, in venues from living rooms to physicians' offices to operating theaters, and supporting the needs of employers, state and federal governments. We see a tremendous amount of work to do in the next few years. We must continue to innovate, refine and improve our solutions.

Cerner has more than 650 clients, including many within the State of California. Several of our California clients use Cerner's revenue cycle applications, including the billing system and the registration and scheduling systems, for behavioral health patients. These systems have the flexibility to be configured and set up with custom rules and scripting so that they work correctly with MediCal billing. The Orange County Health Care Agency, in Santa Ana California, is using the Cerner system in approximately 50 clinics in the behavioral health space. They currently use the system for billing, registration and scheduling, but have limited documentation at this time in their behavioral health clinics. They do provide online documentation in their public

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health clinics. This client has published the list of their requirements and Cerner has been working with them over the last several months to evaluate their needs for clinical documentation. They have a complex care model for behavioral health with patients that they service weekly over a time period of months or even years. Cerner's documentation applications can accommodate creating the evaluations, assessments and treatment plans for these patients. Our applications also keep track of patients' records even though they are seen at multiple facilities, by many different providers and also by different services outside of behavioral health, like alcohol and drug services. Cerner's documentation systems can be designed with conditional logic that helps guide the clinician when documenting so that if certain symptoms are selected, other actions will occur. For instance, if suicide ideation is selected in a behavioral health assessment, additional screens will open and will prompt the clinician to document more information. Warning messages and alerts will also prompt the clinician to take additional actions. By setting up documentation this way, it will keep the treatment plan compliant.

The Los Angeles Sheriff's Department is also using Cerner's system for behavioral health patients. These patients are in their mental health unit at the Los Angeles County Jail. The jail is using clinical documentation, including behavioral health focused assessment forms, progress notes, orders and results processing, multi-patient task lists and the eMAR(electronic medical administration record) for psychiatric and other medications.

Cerner has a special interest group (SIG) for behavioral health. This is a group of clients that share information and ideas with other clients on their use of the Cerner system within the behavioral health space. There are several other clients in California that are part of the SIG. Sharp Healthcare and Loma Linda University are two examples of California clients that are members of the Behavioral Health SIG group.

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RR-D-03 List the number of employees (Full-time equivalents) in your organization by category for the last 3 years:

Category	2006	2007	2008 (As of 9/27/08)
Total Employees	7,419	7,874	7,693
Installation/Setup	2,559	2,485	2,572
Research and Development	1,572	1,687	1,608
Application/Technology Support	Please refer to the Support line for our total support headcount.	Please refer to the Support line for our total support headcount.	Please refer to the Support line for our total support headcount.
Customer Service/Helpdesk	Please refer to the Support line for our total support headcount.	Please refer to the Support line for our total support headcount.	Please refer to the Support line for our total support headcount.
Support	887	893	853
Other	N/A	N/A	N/A
Those with Clinical Backgrounds:			
— Physicians	53	50	41

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— Psychologists	N/A	N/A	N/A
— Psychiatrists	N/A	N/A	N/A
— Registered Nurses	372	366	387
— Other Clinicians	550	612	542

RR-D-04 Has your company acquired or merged with any other organizations in the past three years? If so, please list each organization and the purpose behind such activity.

Cerner's mission and focus is to transform healthcare by delivering solutions and services to our clients that increase the quality of care, enable greater efficiencies, and improve patient safety. In considering an acquisition, we assess only deals that would complement Cerner's core clinical, management and financial suite of integrated solutions and leverage our investments to new market segments.

Cerner understands that the "Best of Breed" approach has evolved with the increasing capabilities of technology and the need for sharing data in a timely, meaningful and appropriate way. In some cases, there are niche companies that could not survive in the marketplace on their own but had missions that aligned with Cerner's quest to transform healthcare through technology. By joining forces with Cerner, these companies provide our clients with access to world-class, integrated systems and service. These acquisitions allow us to better serve the consistently changing needs of current and future clients by enhancing our core Cerner Millennium solutions with very specific functionality, integrating content as executable knowledge, and increasing our market share within a given segment.

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Bridge Medical

In July, 2005 Cerner signed an agreement to acquire substantially all the assets of Bridge Medical, Inc., an AmerisourceBergen Corporation subsidiary and a leader in the point-of-care software market. The transaction expanded Cerner's presence in the bar-coding market, an area expected to increase considerably as the federal government continues its push to bring medical information to the point of care.

"Cerner is committed to providing solutions to our clients that improve health outcomes at the bedside, resulting in greater productivity and safety. This acquisition brings speed to safety in the healthcare market, and bolsters our already significant set of point-of-care technologies, as well as our client base," said Paul Black, Cerner chief operating officer. "As hospitals and health organizations strive to meet the Joint Commission on Accreditation of Healthcare Organizations standards, the growth of Cerner's point-of-care offerings positions the company well to help our clients remain fully compliant with industry requirements."

Named the Best in KLAS for medication administration in 2004, 2005, and 2006, Bridge Medical's barcode-enabled point-of-care system combines medication verification with laboratory specimen identification. The solution employs bar-code scanning, clinical knowledge bases, wireless networking and integration capabilities to alert clinicians of potential medication administration and collection errors at the bedside.

The acquisition complements Cerner's PowerPOC suite of solutions and Cerner Millennium PathNet Handheld Specimen Collections for laboratory. With Bridge Medical technologies among its offerings, Cerner will be able to bring new opportunities to longstanding Cerner Classic™ clients, and extend a greater reach into the growing point-of-care software market.

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"Since Bridge Medical formed in 1996, the company has maintained a single objective—ensuring the utmost safety and quality care for those in the healthcare system," said the president of Bridge Medical. "We are excited to become a vital part of Cerner's point-of-care strategy."

RR-D-05 How long has your company been in the business of developing and implementing your Electronic Health Record related products?

Since 1979, Cerner has focused exclusively on designing and deploying healthcare IT solutions that improve efficiency and quality of care. Our revolutionary person-centric Cerner Millennium architecture is designed to fundamentally transform healthcare delivery. Cerner solutions combine technology with knowledge to deliver vital data for effective, real-time decision-making across the enterprise. Healthcare has been our only focus from our inception—and our proven vision and results are a testament to our commitment to eliminate error, variance, waste, delay and friction for more efficient business management and better patient care.

Through the course of our history, another constant has been our executive leadership. Cerner's three original founders, Neal Patterson, Cliff Illig, and Paul Gorup, continue to lead our company and play integral roles in the creation and execution of our vision and strategies.

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RR-D-06 What were your firm's annual revenues for the last 3 fiscal years?

Category	2005	2006	2007
$1,000,000 to $5,000,000			
$5,000,000 to $25,000,000			
$25,000,000 to $100,000,000			
Greater than $100,000,000	$1,160,785,000	$1,378,038,000	$1,519,877,000

RR-D-07 What percentage of your firm's annual revenue directly resulted from behavioral health care solutions during the past 3 fiscal years?

Cerner does not break out research and development by product line. Please refer to RR-D-08 for our annual R&D investment information.

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Category	2005	2006	2007
Percentage of Annual Revenue Resulting from BH Solutions	N/A	N/A	N/A

RR-D-08 What percentage of annual revenue did your company expend for research and development (R&D) on your proposed products during the last 3 fiscal years?

Category	2005	2006	2007
Percentage of Annual Revenue Expended on R&D	18%	17%	17%

RR-D-09 What percentage is budgeted for R&D in the current and next fiscal year?

Category	2008	2009
Percentage of Annual Revenue Budgeted for R&D	16%	TBD

E. Partner and/or Reseller References

RR-E-01 Please list any partners and/or resellers in the areas of behavioral health: Strategic or tactical development, sales, support, delivery, consulting, or training.

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Cerner is not a reseller in this area as we develop, sell, support, deliver, consult and train for our own behavioral health content.

RR-E-02 For each partner or reseller listed above, please identify the following:

1. Functional areas.
2. Nature of partnership/relationship.
3. Length of the relationship.
4. Referencable customers for whom you have jointly provided services.

Not applicable. Cerner is not a reseller as identified above.

F. Behavioral Health Solutions Experience

Descriptions of the Functional Requirement Categories referenced in questions RR-F-01 through RR-F-05 of this section are in The Preface (Section A). In your responses to the questions in this section, emphasize your experience in the State of California.

In response to RR-F-01 through RR-F-05: The Cerner solution set is person-centric and designed around core clinical processes. The requirements that arise from the core clinical processes are translated into Cerner solutions MethodQ. MethodQ(uality) is a standardized and collaborative approach used by Intellectual Property (IP) development teams to develop high-quality Cerner Millennium® solutions. MethodQ defines how IP associates develop and implement software.

The software life cycle is a succession of iterations through which the software develops incrementally. Each release of software is accompanied by supporting artifacts: release descriptions, certification guidelines, implementation documentation, user documentation, and requirements and design artifacts used in Cerner software development.

The Release Organization's Process Management group is responsible for the identification and definition of software engineering processes used by the Cerner

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software engineering groups in the development of Cerner solutions. This group works with organizations across Cerner to design the best processes that align with the software being developed.

All of our processes are tightly controlled and monitored and have quality as the highest priority, as outlined in our Cerner Quality Statement, as follows: Cerner Corporation continually strives to meet our clients' needs by providing quality solutions and services that are delivered on time and are supported by qualified, competent resources.

Cerner Corporation is an ISO 9001:2000 certified organization, and our MethodQ approach to software development is a vital component of achieving that certification.

MethodQ Imperatives

- Provide guidelines for efficient development of quality software
- Reduce risk and increase predictability
- Promote a common vision and culture
- Capture and institutionalize best practices
- Ensure compliance with regulating bodies, such as FDA and ISO

Regulations

The MethodQ process fulfills the following ISO 9001:2000 and ISO 13485:2003 requirements.

Note: Many FDA regulations also are fulfilled with the MethodQ process.

- ISO: 7.3.1 Design and development planning and 7.3.7 Control of design and development changes
- ISO: 7.3.2 Design and development inputs
- ISO: 7.3.3 Design and development outputs
- ISO: 7.3.4 Design and development review

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- ISO: 7.3.5 Design and development verification
- ISO: 7.3.6 Design and development validation

Quality

MethodQ ensures quality through continuous improvement. This is achieved by:

- Setting goals
- Monitoring progress
- Implementing changes when needed
- Enhancing to remain current with technology changes
- Surveying and meeting with our stakeholders

For implementation, MethodM is Cerner's professional services methodology for engaging with clients to meet their clinical, financial, and operational outcomes through the use of Cerner Millennium. Cerner's proven methodology provides a clearly defined project scope that aligns with your project's clinical and operational imperatives, comprehensive education and training objectives, and a project management office function. MethodM provides a disciplined approach to implementation, system adoption and value realization. MethodM also incorporates Cerner's recommended practices in the management of crucial project milestones and detailed solution-level content to provide guidance and overall support throughout the project. The content has been designed to provide the correct information at the right point in the engagement to help you make sound decisions and guide you through every stage of your project. Additionally, the content provides a framework for the various processes required to manage and execute your project.

In California, Cerner has many clients, and several of these are utilizing the system in the behavioral health space. There are many more clients however that use the system for other types of specialty care and the same applications and tools are utilized for those patients. All of the clients whether in the Behavioral health, public

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health or private space, use a combination of applications to manage their practices and treat their patients. The items referenced below: CPOE, Clinical Data Management, Practice Management, and electronic and personal health records are being accomplished by California clients.

Cerner also serves many clients in the behavioral health space outside of California. Cerner has clients utilizing its applications to service these patients throughout the United States and in other countries. Cerner's clients use the system to help treat patients in inpatient, clinic, and physician office settings. In the behavioral health space, many of the processes and the way clinicians' document using Cerner applications are very similar. The workflow processes change between inpatient psychiatric and outpatient behavioral health. Where the differences come in is with each client's state compliance requirements. Workflow processes and documentation guidelines change slightly to accommodate Medicaid compliance in different states. Cerner's California clients are HIPAA compliant and many of them use Cerner's financial systems to bill to MediCal.

Cerner's revenue cycle applications have the flexibility to allow for building out custom rules to accommodate the differences that MediCal requires from clients that submit claims for behavioral health patients.

RR-F-01 Describe your firm's experience and qualifications in design, development, and implementation of Behavioral Health Practice Management systems.

Please see the response provided above in section F.

RR-F-02 Describe your firm's experience and qualifications in design, development, and implementation of Behavioral Health Clinical Data Management systems.

Please see the response provided above in section F.

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RR-F-03 Describe your firm's experience and qualifications in design, development, and implementation of Computerized Provider Order Entry (CPOE) systems.

Please see the response provided above in section F.

RR-F-04 Describe your firm's experience and qualifications in design, development, and implementation of interoperable Electronic Health Record (EHR) systems.

Please see the response provided above in section F.

RR-F-05 Describe your firm's experience and qualifications in design, development, and implementation of Personal Health Record (PHR) systems.

Please see the response provided above in section F.

RR-F-06 Describe your firm's experience and qualifications for Systems Integration.

Since 1979, Cerner has focused exclusively on designing and deploying healthcare IT solutions that improve efficiency and quality of care. Our revolutionary person-centric Cerner Millennium architecture is designed to fundamentally transform healthcare delivery. Cerner solutions combine technology with knowledge to deliver vital data for effective, real-time decision-making across the enterprise. Healthcare has been our only focus from our inception—and our proven vision and results are a testament to our commitment to eliminate error, variance, waste, delay and friction for more efficient business management and better patient care.

Cerner understands the use of the term integration to refer to a system application that has two or more components merged together into a single system. It is important to note that the Cerner Millennium system design goes beyond a merge of disparate components, and is a single system application. All departmental features and

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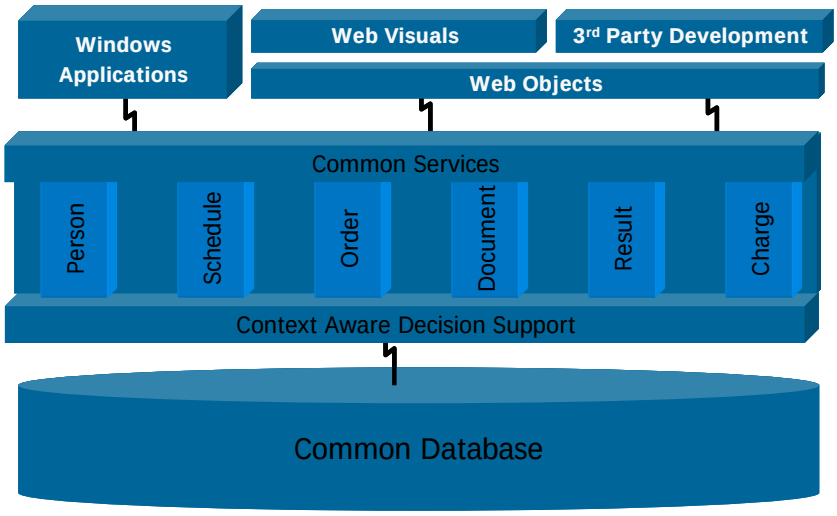
functions are supported via modules within this one system design. The system design supports a single, centralized data repository that provides appropriate access to data from all organizational parts of your care process.



Cerner does not utilize interfaces to link together the features and functions contained within our application offerings. Instead, information is made available to all departmental areas via the centralized data repository as appropriate, based on the end user's role and security authorizations.

With regard to external system integration, Cerner can accept HL7 standard or customized interfaces which support back-end integration. In addition, Millennium provides [for additional license fees] a web services API that allows professional developers to call Millennium services and thus safely read and write to the Millennium database.

RR-F-07 Describe your firm's experience and approach to the conversion of electronic behavioral health data.

Conversion depends on the data elements it contains and if they match up with data elements in the Cerner Millennium database.

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We have converted data from other databases. However, the data elements must pre-exist in the Cerner Millennium database. The data needs to exist in an HL7 or agreed upon format, and then is either sent via an interface. The data is then sent through the ESI server or a file goes straight to the database without going through any ESI verification.

The history upload process includes the following steps:

- Design
  - Identify what activity history is going to be loaded into Cerner Millennium.
  - Determine if it is possible to extract the data from the current system.
  - Participate in a Cerner Millennium spec meeting to review the Universal Interface specs and map data from the current system to Cerner Millennium Universal Interface data elements.
  - Determine if the information will go through a TCP/IP socket feed or if it will be provided in files.
  - Identify a process for doing catch-up data. This will involve either capturing triggers real-time for changes, or having the ability to run the extract and only pull new or updated information.
  - Decide how much history data needs to be brought forward. This will include identifying legal requirements for maintaining historical data, and may involve alternative solutions for data that is not going to be loaded into Cerner Millennium.
  - Document the outcomes from the spec meeting.
- Build
  - Contract for the extract of the data and mapping into the Universal Interface HL7 specifications.
  - Provide formatted sample transactions to the Cerner System Engineer for FSI. The System Engineer will review the transactions for appropriate formatting and report back on any changes that are needed.
  - Provide a list of the possible values for any coded data elements that are going to Cerner Millennium. Crosswalk information may also be required.
  - The crosswalk information will be built into the Cerner Millennium database.
- Test
  - The client will then run a sample extract from the foreign system and provide the data to the Cerner System Engineer for an upload test. This step is to ensure the data will post into the Cerner Millennium database.
  - Client should review the sample data in Cerner Millennium to validate that the information was posted correctly.
  - Integration testing should include using some of historical upload samples.

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  - A volume test will be performed after the first integration test to set expectations of total time needed, adjust the size of tablespaces used in the database, and to performance tune the system for the historical load.
- Convert
  - Depending on total volume, the history loads will be started 1-6 weeks prior to conversion.
  - Ideally, the included history data will be completed prior to conversion. In some instances, it may be necessary to continue feeding history after conversion.

RR-F-08 Describe your firm's experience and approach to the conversion of paper-based behavioral health data.

When Cerner first engages with a client, there are multiple design sessions that entail documenting a client's current state workflow processes. Part of this process is collecting the paper forms that the client is currently using. There are forms that clients use in registration, scheduling, intake and assessment, treatment plans, progress notes, medication administration, discharge instructions, prescriptions, court orders, probation documentation and more. The forms need to be collected and then the design team creates a future state workflow. In the future state workflow, most of the paper based documentation is then eliminated and the information entered directly into the system, creating the electronic health record. For information that the provider wants to keep with the patients chart, but may fall outside of the clinical realm, for instance court documentation, Cerner utilizes document imaging to capture these records and link them to a patients electronic record. Cerner utilizes electronic forms and electronic signatures for other types of documents like consent forms. By using a combination of online documentation, online forms with electronic signature and document imaging technology, Cerner provides a path to replace all the paper that constitutes a patients chart today, with documenting or scanning in the system as part of the electronic health record instead.

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G. Solution Product History

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RR-G-01 Please provide the following information about the solution product(s) that you propose.

#	Product Name and Primary Function	When First Developed	When/Where First Deployed	Number of Installations to Date
1	PowerNote (Physician Documentation)	1998	1998	163 live sites
2	Advanced Care Documentation (Documentation)	1998	1998	294 live sites
3	PowerChart CDR (Electronic Health Record/Clinical Data Repository)	1996	1996	473 live sites
4	MediSource (Drug Interaction Database)	1997	1997	372 live sites
5	PowerOrders (Order Management)	1997	1997	372 live sites
6	PowerTrials (Clinical Trials)	2007	2007	2 live sties
7	PowerPlan (Care plans and pathways)	2000	2000	41 live sites
8	IQ Health (Personal Health Record)	2002	2002	21 live sites

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RR-G-02 For each solution product listed in the above table, please provide:

1. **The history of the product including whether the product was internally developed or acquired from another source.**

The Cerner solutions listed above have all been self-developed.

2. **The specific Industry standards that the product was designed to, including any exceptions to those standards.**

Please refer to the response given in Section F, questions RR-F-01 through RR-F-05.

3. **Whether the product is CCHIT certified.**

a. **If the product is CCHIT certified, for which category and year is it certified? Examples would be "Ambulatory 2006", "Ambulatory 2007", etc.**

b. If the product is not CCHIT certified, do you plan to acquire CCHIT certification and if so, in which category and when?

Cerner has gone through the 2007 inpatient certification and was awarded compliance for the CCHIT's 2007 criteria.

RR-G-03 How are enhancement and new release priorities determined?

All identified and reported software issues are tracked and analyzed to determine their potential severity to system reliability at a client's organization. The severity must be assessed in order to determine the issue's priority. To assist in this prioritization, Cerner analyzes all issues against the following criteria:

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- **Is an interim solution (alternative) available?**
- **Does the issue impact patient care (data integrity)?**
- **Does the issue create financial hardship for the client?**
- **Does the issue take the client backwards in functionality?**

If an issue exists on a release that meets one of these criteria and no alternative is available, Cerner may create a correction to the release on which the issue was identified, and release that correction on a support package. If the issue is not deemed critical and can wait until a production release, it is included in the list of corrections for possible inclusion in the next production release.

RR-G-04 How are clients supported during the release of an enhancement?

Release Updates contain enhancements and corrections to base production release software. Release Updates do not contain the base software itself, but contain a cumulative compilation of enhancements and corrections released since the base software was released, in addition to many new enhancements and corrections.

The packages vary in size up to approximately 400 megabytes. Clients may download the packages from www.cerner.com as soon as they become available. If your firewall restricts the size of downloads, you can order the packages to be sent to you on a CD.

In addition, services are offered (to purchase) through the Solution Center/Experience Center to implement new functionality as a standalone implementation or in conjunction with a planned phase. Implementation of the new functionality is executed with a shorter duration than a typical phase project. Duration is dependent upon the functionality being implemented.

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RR-G-05 Describe the size of the installed base of your solution. Include the number of users and the number of sites where the product is installed.

Cerner systems are by design, able to scale from small institutions to large, multiple location environments. The proof point of this approach is evidenced by the fact that our systems are actively supporting client production environments ranging from smaller institutions or departments with 50 to 100 users, to complex, multi-site, multi-entity organizations. We currently have a client utilizing Cerner's design to connect 10,000 general practitioners and 6,000 service providers, while supporting 2,000+ concurrent users with 8,400 transactions in a peak hour. Cerner has proven its capability to scale its system offerings to meet a wide array of client needs.

As of June 30, 2008, Cerner has more than 650 unique clients spanning 3,040 sites and over 7,900 solutions live.

RR-G-06 Describe any regularly-held seminars or user group meetings available to users of your product and the time/place of the next gathering.

Cerner offers the following client community opportunities:

- The annual industry-leading CHC offers attendees the ultimate opportunity to learn, network and explore healthcare. Throughout the conference, CHC offers you the chance to learn and network with the entire Cerner community. CHC is unlike other conferences—we encourage our clients to share their stories so you can exchange knowledge and best practices with other organizations similar to your own. This event is held annually in October.

- Cerner RUGs serve as a resource grouping of client sites by geographical area. They provide an opportunity for networking, knowledge sharing, presentations, implementation best practice sharing, CEU credits and public relations with Cerner clients. The Regional User Groups are led by a client chairperson.

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These guidelines serve to standardize execution and approach across all geographical areas regarding the operation and expenditures of the Regional User Groups.

- The Special Interest Groups (SIGs) provides a venue for clients and Cerner associates who share a common interest or solution line to form a community. Special Interest Groups help members find solutions to common problems and challenges as well as make recommendations to Cerner for continued solution line development. Special Interest Groups also promote communications among Cerner clients as well as facilitating communication between Cerner and special interest users. Special Interest Group pages are maintained by Cerner associate contacts in conjunction with client Special Interest Group leadership. Pages contain information regarding the mission of each Special Interest Group, contacts, upcoming event information and agendas, as well as links to affiliated client communities.

H. Solution Product Technologies

Software Technologies

RR-H-01 Provide the technologies used for each solution product identified above.

Our architecture is a multi-tier client server system. Core processing (security, messaging, etc.) is separated from varied application servers, which are separate from client presentation devices. Cerner uses an multi-tier distributed client/server software architecture, comprised of Presentation Software – using Microsoft Windows, Millennium Application Software, and Data Management Software – using Oracle's relational database management system. Cerner developed our distributed transaction (client/server) architecture to provide higher levels of security, data integrity, greater reliability, load balancing, scalability, and better performance from distributed or clustered hardware.

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With Cerner's system design, instead of the Windows Client application directly accessing the database, the Windows Client application communicates with a Millennium application server, which in turn communicates with the database. Application server communications (sometimes referred to as middleware) is the key to the high performance processing needs of physicians, nurses and other providers in clinical care settings. Multi-tiered client/server systems can support thousands of concurrent users, and is therefore scalable to full enterprise or nation-wide roll out. Multi-tiered client/server architecture allows you to both distribute workload across multiple servers as well as better manage system-wide growth and performance. And, multi-tiered architecture is a critical component of adapting web services technology to the broader audience. Application solutions not based on an N-tiered model will have to be redesigned to take advantage of this latest advance in technology in a graceful and cost efficient manner.

Our solutions can be deployed on a variety of hardware and operating system platforms. The "client" component is deployed on a Microsoft Windows operating system, for example, Windows XP and/or Windows Terminal server with Citrix Presentation Server. The application servers and database engine are currently deployed on IBM AIX, and HP's UX operating systems.

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#	Product Name	Product Type (Client Server, Web, Etc.)	Operating System (Windows, Unix, Linux, Etc.)	Database (SQL Server, Oracle, DB2, Etc.)	Application Language (VB6, VB.Net, C, C++, C#, Java Etc.)
1	Cerner Millennium	Client Information	The "client" component is deployed on a Microsoft Windows operating system, for example, Windows XP and/or Windows Terminal server with Citrix Presentation Server. The application servers and database engine are currently deployed on IBM AIX, and HP's UX operating systems.	Oracle	The PC/Client is programmed in Visual Basic, Visual C and Java. These languages utilize many Microsoft Foundation classes, OLE and OCX objects. On the Host cluster where the database resides, Cerner programs in C++ and Discern Explorer scripting language. For our Internet Browser development, we use Dynamic HTML, Java Script, and Java.

Server Hardware Minimum Specifications

Cerner has provided a configuration based upon the information and specifications outlined in the proposal. For general information, the minimum requirements for the Cerner Millennium system, server component tool levels are as follows:

Minimum Requirements Table		
HP – Host / Backend	**Minimum**	**Recommended**
Operating System	HP-UX 11i V2 (11.23)	HP-UX 11i V2 (11.23)
Layered Products	Service Guard 11.17	Service Guard 11.17
RDBMS versions	Oracle 10.1.0.4	Oracle 10.1.0.4
Middleware		
IBM – Host / Back End	**Minimum**	**Recommended**

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Operating System	AIX 5.2 ML 06	AIX 5.3 ML 02
Layered Products	HACMP 5.2	HACMP 5.2
RDBMS versions	Oracle 9.2.0.5 for AIX	Oracle 9.2.0.5 for AIX or Oracle 10.1.0.5 for AIX
Middleware	WebSphere MQ 5.3 CSD 8 for AIX	WebSphere MQ 5.3 CSD 8 for AIX
Middle Tier	**Minimum**	**Recommended**
Operating Systems	Windows Server 2000 SP4	Windows Server 2003 SP1
Application Servers	WebSphere Application Server 6.0, Internet Information Server 6 (if using these components with Cerner Millennium solutions)	WebSphere Application Server 6.0, Internet Information Server 6 (if using these components with Cerner Millennium solutions)
	Oracle Application Server 10.1.3	Oracle Application Server 10.1.3
	Citrix MPS 3.0 (Metaframe Presentation Server)	Citrix PS 4.0 R01 (Citrix Presentation Server)
RDBMS versions	Microsoft SQL 2000 SP3a	Microsoft SQL 2000 SP3a
Office	Microsoft Office 2003 (if using this component with Cerner Millennium solutions)	Microsoft Office 2003 SP2 (if using this component with Cerner Millennium solutions)
Layered Products	EMC Documentum ApplicationXtender 5.2	EMC Documentum ApplicationXtender 5.3
	Informatica 7.1.1	Informatica 7.1.1
	Business Objects 6.516	Business Objects 6.516
	WebSphere MQ Client for Windows 5.3	WebSphere MQ Client for Windows 5.3
File Servers	We are ending support for Novell Netware	We are ending support for Novell Netware
LDAP Providers	Active Directory Novel eDirectory Oracle Internet Directory (OID)	Active Directory Novel eDirectory Oracle Internet Directory (OID)
Client / Front End	**Minimum**	**Recommended**
Operating Systems	Windows XP Pro SP2	Windows XP Pro SP2
Layered Products	WebSphere MQ Client for Windows 5.3	WebSphere MQ Client for Windows 5.3

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RR-H-02 In the following table, please provide the minimum server hardware technical specification levels for operation of your solution software products. Please consider all types of possible servers such as: database, fax, email, internet, backup, image management, etc.

#	Primary Server Purpose	Number of Processors Per Server	Processor Type/Speed (MHz)	Memory (Gig)	Storage (Gig)
1	Please refer to the Minimum Requirements Table above for these specifications.				

Client Hardware Minimum Specifications

RR-H-03 In the following table, please provide the minimum client hardware technical specification levels for operation of your solution software products. Please consider all types of client types including workstations, tablet PCs, PDAs, etc.

Cerner has provided two stationary PC alternatives for your consideration. The first is the minimum workstation specification required to adequately support the Cerner software. The second is the recommended workstation configuration. This is followed by thin client workstation and device configuration suggestions.

The minimum requirements provided in this response are intended for workstations performing a range of tasks, but these minimums do not account for the unique requirements of solutions such as intensive care, cardiology, and clinical imaging. Please consult your Technical Strategist for solutions that require additional resources and the

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relevant documentation. The recommended requirements should meet the needs for more hardware intensive solutions in the majority of cases.

The final system requirements of any single workstation varies depending on the resource requirements of any non-Cerner application present. These non-Cerner applications could include device emulators accessing other systems (IBM 3270, 5250, etc.), electronic mail systems, web browsers, and image viewers, for example. The client is responsible for determining the requirements of any non-Cerner application(s) in addition to the Cerner minimum requirements.

Please refer to Appendix A, Additional Reference Material, for the Minimum workstation requirements document.

#	Type of Hardware Clients	Operating System	Processor Type/Speed (MHz)	Memory (Gig)	Browser Level (If Applicable)	Required Disk Space (If Applicable)
1	Please refer to the client workstation minimum and recommended requirements above.					

Peripheral Hardware Minimum Specifications

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RR-H-04 Provide the minimum peripheral hardware technical specification levels for operation of your solution software products. Please consider all types of peripherals such as printers, scanners, card readers, notepads, etc.

#	Type of Peripheral Hardware	Operating System (If Applicable)	Specifications/Characteristics
1	Please refer to Appendix A, Additional Reference Material, for the Cerner Certified Peripherals List.		

Minimum Network/Communication Specifications

Note: The following information is being provided for informational purposes by Cerner Corporation and does not imply any level of certification by Cerner of the client's infrastructure. The client acknowledges responsibility for the planning, design, implementation, and support of the network infrastructure.

Networks that support the Cerner systems must possess, at a minimum, the attributes described in this section in order to obtain the functionality and performance required of Cerner client/server software. They do not take into consideration any additional requirements imposed by concurrent usage of other desktop, server, or network applications. For example, desktop publishing, office automation, video conferencing, image processing, and voice/data.

Clients should follow industry standards such as ANSI/IEEE 802.3 & 802.5, EIA/TIA 568A when designing, installing, and expanding network infrastructure components. These standards include:

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- ISO/IEC - International Standards Organization/International Electrotechnical Commission
- ANSI - American National Standard Institute
- IEEE - Institute of Electrical and Electronics Engineers
- EIA/TIA - Electronics Industry Association/Telecommunications Association
- CCITT - Consultative Committee for International Telephony and Telegraphy

In particular, networks should conform to the most recent revisions of the following standards:

  - ANSI/IEEE 802.2 - Logical Link Control
  - ANSI/IEEE 802.3 - Ethernet CSMA/CD Access Method & Physical Layer Specifications
  - ANSI/IEEE 802.5 - Access Method and Physical Layer Specifications
  - ANSI/IEEE 802.6 - Metropolitan Area Network Access Method and Physical Layer Specifications
  - ANSI/IEEE 802.7 - IEEE Recommended Practice for Broadband Local Area Networks
  - ANSI/IEEE 802.11 - IEEE Recommended Practice for Wireless Local Area Networks
  - ANSI X3T9.5 - FDDI Specifications
  - EIA/TIA 568A - Building Wiring Specifications

- Identify possible impeding business logistics (shift changes, chart runs) and understand their impact on the system/network
- Identify logical workgroups of PC and PC LAN servers and optimize the design for their role(s)
- Schedule system backups and general system maintenance during non-peak usage windows whenever possible
- Design the network to maximize available desktop and server resources and to minimize unnecessary network traffic

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- Idiosyncrasies in network infrastructures can be a source of undesired delays in information processing. Such delays can be caused by jabbering network interface cards (NIC), broadcast storms, electromagnetic interference, timing or synchronization problems, increased latency associated with routing, cable grounding faults, cell based network protocols, or just plain over-saturation of the network pipeline. Identifying possible usage peaks, data flow patterns, and other performance inhibitors can help alleviate system performance problems.
- Cerner recommends using a collapsed and switched Ethernet, Fast Ethernet, Gigabit Ethernet, FDDI, or ATM backbone network strategy

Bandwidth Formulas (for network planning purposes only):

- Medical Device Instruments:

  The formula listed below is the minimum requirement for instrument interfaces:

  Number of Instruments * 1.2 Kilobits/second

  Example: 14 instruments * 1.2 = 16.8 Kilobits/second

- Bar Code Printers:

  The formula listed below is the minimum requirement for bar code printers:

  Number of Bar Code Printers * 1.5 Kilobits/second

  Example: 10 Bar Code Printers * 1.5 = 15 Kilobits/second

- Laser Printers:

  The formula listed below is the minimum requirement for laser printers:

  Number of Postscript Pages/minute * 1.3 Kilobits/second

  Example: Four 17 page per minute laser printers

  Four * 17 pages/minute * 1.3 Kilobits/second = 88.4 Kilobits/second

- Microsoft Windows Devices for “fat” client PC deployments of Cerner Millennium**:**

  The formula listed below is the minimum requirement for PCs running Cerner Microsoft Windows applications:

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Number of Microsoft Windows devices * 32 Kilobits/second

Example: 40 Microsoft Windows devices * 32 = 1280 Kilobits/second

- Microsoft Windows Devices: for "thin" client PC deployments of Cerner Millennium using Citrix**:**

  The formula listed below is the minimum requirement for PCs running Cerner Microsoft Windows applications.

  Number of Microsoft Windows thin devices * 20 Kilobits/second

  Example: 40 Microsoft Windows devices * 32 = 800 Kilobits/second

The formulas above are averages that can be helpful in estimating individual network bandwidth requirements for any Cerner Millennium Microsoft Windows-based application. The client agrees to provide a minimum of 128 Kilobits/second bandwidth per circuit on any given segment end-to-end.

RR-H-05 Provide the minimum network/communication technologies employed by your solution software products.

#	Type of Network/Communication Technology	Operating System (If Applicable)	Specifications/Characteristics
1	Please refer to the minimum and recommended network specifications above.		

System Backup/Recovery Considerations

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RR-H-06 Describe the system backup process for your core product.

Cerner has selected both IBM and HP to provide solutions for enterprise backup and recovery. Our Cerner Millennium clients are currently operating on a variety of solutions that meet this specific criteria. Cerner offers Tivoli Storage Manager (TSM) for IBM solutions, and Archive Backup Server (ABS) for HP implementations. Either of these two products combined with the Oracle Backup and Recovery can provide a powerful and flexible solution to meet your data protection needs. Because the Cerner Millennium architecture is designed for continuous operation and our supported technology platforms have features that enable redundancy and high availability, we can design a system for your institution that is available for use virtually all the time.

RR-H-07 Can backup be completed in a dynamic mode so that the system can be operational 24 hours per day?

Yes. With Cerner Millennium, there is no downtime associated with backups; therefore your database can remain online while the backup is running.

RR-H-08 Describe any automated backup features that allow rapid and unattended backups of system and operational data on a user-scheduled basis.

Many of the activities that maintain the system are included in Cerner Millennium's system operations, which allows users to schedule jobs to run automatically and unattended at designated times. The operations jobs run in batch mode on the back-end nodes. No user interaction is necessary after setup unless there is a failure or the user wants a prompt in the stream, such as an operator message to load a particular tape. Jobs can be scheduled in a wide variety of ways, such as daily, weekly, monthly, or several times a year. Each job is defined in the database-building tool for operations and is then processed by a back-end server. Additionally, there is a monitoring function, which allows the operators to start and stop servers and jobs and to respond to any failures. Cerner provides assistance in setting up your operations schedules during the installation process, and also provides training and

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documentation for your operations coordinator so the operations jobs can be maintained by you as your system management requirements change.

RR-H-09 Can the system be configured to support improved fault tolerance and system recovery (e.g., mirrored disk drives/servers)?

Fault tolerance is dependent upon the configured platform (the operating system and hardware) capability to be fault tolerant. Cerner configurations are highly available. Our applications and databases are not fault tolerant. Our clients have a number of options available to them to implement a highly available clinical information system. These options relate not only to the hardware configuration but also to the ongoing administration of the RDBMS and software. They include:

- Competent/Proactive DBA
- Mirrored Disk Farm
- Clustering
- Oracle Real Application Clusters (RAC)
- Oracle Hot Standby Database

The ability to launch multiple instances of a server on multiple platforms by the underlying database provides server-level fault tolerance. The loss of a server instance or a node means the client workstation must reconnect to an available host service which is done automatically by Cerner's distributed application framework.

Data Archiving Considerations

RR-H-10 What are the capabilities for archiving data?

With Cerner Millennium Solutions there is no need to archive or purge data. Patient data is stored within the Cerner Millennium database. Users at your organization have

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immediate access to the entire patient record, including information from current and past visits.

RR-H-11 What are the capabilities for restoring archived data?

Please refer to the response given in RR-H-10 above.

RR-H-12 What tools/media are used for archiving data?

Please refer to the response given in RR-H-10 above.

System Interface Considerations

RR-H-13 Describe your overall approach to developing, testing, implementing, and upgrading system interfaces to other third-party systems. Describe the process you use to settle disputes over interfaces between your solution and others.

The Foreign System Interface (FSI) specification meeting is scheduled early in the implementation phase and lays the groundwork for the specification and design of all system interfaces and data uploads. The event will require input from the client (including the interface engine representative, if applicable) and Cerner project teams and possibly representatives from 3rd party suppliers with whom Cerner will interface.

The following people from the client team should be involved in the specification process: an application person (to provide knowledge of how the client is using the applications), an Interface person (responsible for the interfaces for the client to assist with the interface specific technical discussion), project management (scope control, staffing commitments), and client domain experts (for example, if it is a billing interface, someone from the billing system should be present).

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An Interface Architect is responsible for leading the meeting, providing the technical interface knowledge for Millennium, and for writing the specification document; a Solution Delivery person is responsible to provide detail product information/Core, a project management person is responsible to provide scope control and staffing requirements and commitments, and a Project Architect.

The main objective of the specification meeting is to create a specification document that can be used as a blue print by the FSI System Analyst (FSI-SA) and as a site-specific reference for our clients. It will detail configurable setting associated with each interface for the client. It is important to remember that the specifications are working documents and may need to be modified throughout the build and testing process. One person should be responsible for keeping track of updates to the document throughout the process of installing the interfaces.

For connectivity testing, it is the responsibility of the client to ensure the vendor is prepared for connectivity testing and available to work with the FSI-SA. It is the responsibility of the FSI_SA to ensure this step is complete and to engage the appropriate resource if there are connectivity issues.

It is the responsibility of the Cerner FSI-SA to do script development and building and the Open Port scripting. It is the responsibility of the client to actively participate and help with the scripting of Open Engine.

It is the responsibility of the client and Cerner to work together to unit test the interfaces, provide troubleshooting for the issues that arise during testing and validate the information is posting correctly in the receiving database.

Integration testing involves the execution, validation, review, and approval (or rejection) of the system test plans. An organized integration test will be required for all areas within the Cerner system. Adequate time should be allowed to execute each

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test plan in order to ensure that database adjustments can be made when necessary without adversely affecting other areas of the implementation process.

It is Cerner's responsibility to provide an FSI-SA to conduct the education or training event that includes ESI and ESO configurations, process names and IDs, process flows, identification of customized scripts and basic description of the script functionality, and basic troubleshooting tips. The training should include ways to monitor, maintain, and troubleshoot interfaces. The client is responsible for providing the appropriate people to be in attendance for the educational event. This includes a minimum of one main interface resource with a back-up person.

For conversion, it is the responsibility of everyone involved to have the appropriate staffing available for interface support. It is also everyone's responsibility to work together to get timely resolutions for any interface issues that result. It is Cerner's responsibility to provide the client with the appropriate support and documentation to be able to maintain the interfaces through and after conversion.

Sometimes, the most difficult interface problem we face is a language barrier between the companies and the client. We may have different terminology for the same issue, or similar terminology for different issues. The biggest tool we have to help resolve this situation is the specification meeting where we like to bring all three together for each interface, to ensure that we are all discussing the same issues.

Another challenge is often getting resources from the client to perform the testing required. We need to make sure we assist in forecasting the resources that they will need to assist in the implementation.

Another issue may be the timing of the implementation can be difficult and too many times we are asked to make the interfaces work before there is a sufficient build of the database on either side. Errors occur which relates to a perception that the interface is not stable.

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RR-H-14 With what version of HL7 is your product compliant?

Cerner supports the HL7 standard, version 2.3 with some fields and data types defined at version 2.3.1. We are evaluating versions 2.4 and 2.5. Our Universal Interface specifications are based on the individual chapters of the HL7 standard and on the directional flow of data.

We are currently working on our HL7 version 2.4 architecture, and in the next two development cycles, we will support version 2.4 for general lab results, both incoming and outgoing. ADT and order messages will soon follow.

Data Security Considerations

RR-H-15 Discuss your approach to data/information security, especially with regards to Internet technologies. What level of encryption and authentication is supported?

Authentication is the first step in Cerner Millennium security. To be authenticated means that the system knows who you are and that you are allowed access to the system. Authentication occurs at the time you log into the system and are required to enter information, your username and password, that effectively demonstrates that you are who you say you are. The authentication process is seamless to the end-user. This level of security is required for every Cerner Millennium application. Two pieces of information are necessary at the time of user login, the username and password. (You can define a default domain, otherwise you will also enter a domain.) The system locates the security server in the domain specified and determines whether the username is valid. If the username is located and is valid, the server creates a token containing an encrypted security ticket. The server returns this token to the PC. The password entered by you is then used to decrypt the token. If you entered an incorrect

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password, the token cannot be opened, an error message is displayed, and an unsuccessful attempt is logged. If you entered a correct password, authentication is successful and you are allowed to use your token to attempt access to the application and its servers via the authorization process.

Cerner Millennium currently utilizes password encryption during the authentication process using a proprietary algorithm. Across the LAN, only the user's password is encrypted. Across the WAN/Internet, all data is encrypted via Citrix. Cerner does not encrypt data at rest in the database. Cerner Millennium also has the ability to configure the use of SSL with supported (Lightweight Directory Access Protocol) LDAP directories when LDAP authentication is enabled. – Internal note: This is a network issue, not application. Cerner Millennium will work with and does not prevent the use of secure transmission protocols such as HTTPS, ICA encryption for Citrix and VPNs.

Scalability Considerations

RR-H-16 Describe your product's ability to expand to accommodate increasing numbers of users, servers, etc.

We developed our distributed transaction (client/server) architecture to provide higher levels of security, data integrity, greater reliability, load balancing, scalability, and better performance from distributed hardware.

With Cerner's system design, instead of the Windows Client application directly accessing the database, the Windows Client application communicates with an application server, which in turn communicates with the database. Application server communications, also referred to as middleware, is the key to the high performance processing needs of physicians, nurses and other providers in clinical care settings. N-tiered client/server architecture can support thousands of PCs, and is therefore

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scaleable to full enterprise or nation-wide roll out. N-tiered client/server architecture allows you to both distribute workload across more PCs as well as better manage system-wide growth and performance. N-tiered architecture is a critical component of adapting Internet technology to the corporate intranet. Application solutions not based on an N-tiered model will have to be redesigned to take advantage of this latest advance in technology.

Cerner systems are by design, able to scale from small institutions to large, multiple location environments. The proof point of this approach is evidenced by the fact that our systems are actively supporting client production environments ranging from smaller institutions or departments with 50 to 100 users, to complex, multi-site, multi-entity organizations. We currently have a client utilizing Cerner's design to connect 10,000 general practitioners and 6,000 service providers, while supporting 2,000+ concurrent users with 8,400 transactions in a peak hour. Cerner has proven its capability to scale its system offerings to meet a wide array of client needs.

RR-H-17 Provide any performance metrics that describe the maximum load(s) under which your system can continue to perform at an optimum level.

There are virtually no limits to the size of the tables, file structure, or database. The size will be dependent upon the number of facilities, workstations, transaction volumes and retention times. Cerner will work with each client to determine the computing requirements needed to support the applications purchased.

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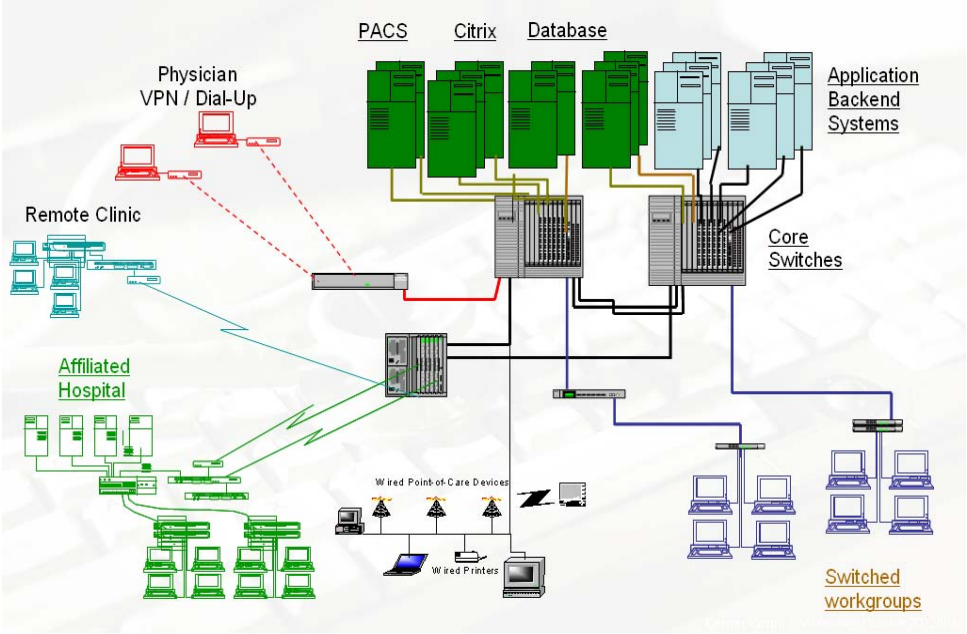
RR-H-18 It is possible that many counties will want to work with the same vendor. How would your company mitigate the impact from potentially high-volume purchases from multiple counties in California? Include in your answer the need to hire additional staff, increase locations and the possible impact to implementation and training schedules, and problem response times.

Cerner Millennium is a client/server application where the client is a Windows PC. The supported communications protocol between the client and the server is TCP/IP. Any LAN/WAN networking solution that supports this protocol can be used to support the Cerner Millennium application. A group of client workstations, (such as those in a physician's office) should be connected to the enterprise network first, which can be accomplished in several ways: ISDN, T-1, Frame Relay or ATM connection. The following graphic illustrates this type of connection.



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I. Behavioral Health EHR Functional Requirement Survey

RR-I-01 Please complete the CA BH-EHR Functional Requirements Survey (an Excel spreadsheet) that accompanies this RFI. The Functional Requirements Survey is part of this RFI and must be completed.

Please refer to section 3 of this proposal for the completed Excel spreadsheet for the Functional Requirements Survey.

J. Implementation Planning

RR-J-01 Describe your suggested best-practice approach to implementing your solution. Please include details regarding data conversion and training, and how these activities contribute to your suggested approach.

Please refer to Appendix A, Additional Reference Material, where we have included an example roadmap and high level implementation timeline. Cerner will work with your institution to finalize this implementation plan. MethodM is Cerner's professional services methodology for engaging with clients to meet their clinical, financial, and operational outcomes through the use of Cerner Millennium.

MethodM, enabled by 27 plus years of implementation experience, allows a fixed fee pricing model which provides our clients predictable cost of ownership. Cerner's methodology was established to support the execution of a standardized, event based implementation approach to deliver predictable results and to accelerate the speed at which value can be achieved from Cerner solutions; to reduce the variance that

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creeps into many implementations; and to ensure that the implementation design supports strategic goals.

The approach utilizes an event based methodology with prescribed design choices and improved resource leverage. Traditionally, the design phase of an implementation has been a continuous process over a flexible timeline. With the launch of accelerated implementation projects in 2000, a far more effective approach was established with structured, timed and discrete “milestones.” The design principles tried and tested in these implementations have proven to be very effective in attaining greater efficiency. Cerner continues to refine and drive all implementations of Cerner solutions in this manner. Through design standardization and a well-defined scope, the achievement of repeatability that ultimately lowers project costs can be accomplished.

More importantly, the event based implementation approach utilizes a disciplined methodology. The milestones have clear prerequisites and objectives, which result in homework deliverables. By isolating sources of project variance and by creating appropriate controls, the event based methodology ensures a predictable project experience. Predictability stems from a clearly defined project scope, which leverages standard content.

Rather than start with a “blank page,” as so many design projects do, Cerner takes a prescriptive, recommended practices approach that leverages a “starter” database of standard rules, workflows and order sets common to hospital settings.

Below are the Major Milestone Events of the MethodM Methodology:

Project Preparation

Implementation planning begins immediately after a contract signing. The first step is to transition project responsibilities to Cerner’s Professional Services organization. During the Sales Turnover meeting, the Sales Executive provides all pertinent historical information to the Engagement Management team. At that time, an

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Engagement Leader is assigned, and the project team is identified. The Engagement Leader identifies available session dates and milestone dates for the project and contacts the client Project Manager to review the entire client's planning options.

Client executives and project teams are prepared early in the project for their roles and responsibilities. Technical planning including the technical walk-through and multiple technical planning sessions for items such as device planning and hardware needs identify project requirements early in the timeline.

Two key milestones occur during Project Preparation, the Client Executive Session (CES) and the Project Preparation Session (PPS).

Project Kickoff

The Project Kickoff brings the client organization's onboard to the project ahead. All of these initial sessions prepare the client for the Design and Configure phases to follow. This is an opportunity for the Client Executive and Project Leadership Committees to create enthusiasm for the project and clarity as to the purpose of the project including the benefits to be gained. Presented topics typically include project goals, overview, timeline, project approach and project team roles.

The Current State Analysis sessions also happen within the Project Kickoff event. The session provides the Cerner project team resources an understanding of unique process flows and how it aligns with Cerner's recommended workflow practices. This can serve to identify both project risks and opportunities in preparation for future data collection and design conversations.

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The Scope Review session is the last portion of Project Kickoff. This session includes the contract scope review for each solution. Using a combination of PowerPoint slides as well as the contract scope document, your Cerner solution architect can walk you a through a detailed discussion regarding the scope of the workflow processes you can automate and/or improve.

Design Review

Following planning, the design review process relies on leveraging prescribed standards to make structured design decisions at the two milestones, System Review and Design Review. Standards allow improved predictability to influence decision-making and to ensure the completion of an executable design.

During the design, valuable client resources focus on the small percentage of design elements that are client-unique and require deep consideration rather than concentrating on uncontroversial decisions common to all projects. Likewise, the design process is structured as a series of guided choices instead of being created from scratch.

Configure and Test

To create the client's unique system, design data is manipulated and loaded into Cerner Millennium reference tables after planning and design takes place. This activity, called configure, requires build tool knowledge.

Depending on the model, Cerner or the client would complete all build tasks. If the client chooses to do the build themselves, education sessions can be provided onsite by the Cerner project team to train the client on the use of the necessary build tools.

After initial project phases, the client team validates their system against their clinical process. To support validation, the client team is led through a one-day System Validation Workshop to outline testing concepts and recommended testing practices.

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Following the workshop, each solution area receives application training for their testers and trainers where necessary. Sample test scripts that the client team can customize and modify to reflect unique system requirements can also be discussed. As the client team completes functional, unit, and system testing, the Cerner team assists the client with troubleshooting to resolve any outstanding issues.

Conversion Preparation

The Trainer and Conversion Preparation event lasts one week and has three focused areas - Solution Specific Sessions, Project Management Sessions, and Integration Testing.

Solution Specific Sessions are the time for both the Cerner and client project management teams to gauge how the individual solution teams are doing in preparation for conversion. The Project Management Session includes the Cerner and client project management and technical teams in the event. They can discuss with Project Management their plans for making sure all timelines and facilities, hardware, and peripheral devices are in place and ready to support Integration Testing and Conversion.

Integration Testing occurs as two one-week testing cycles on-site with support from the Cerner team for each solution area. During these cycles, the client team leads troubleshooting and issue resolution with comprehensive on-site support from the Cerner team. The Cerner team verifies the client's production readiness

Conversion and Turnover

Conversion is the process by which the Cerner system is made available for the first "production use". Production use is defined as when the information in the Cerner system is being used to care for patients. In other words, this is the time that users begin to enter data in the Cerner system for real – interfaces are activated, registration information is entered, orders are placed, results are entered, clinical reports are

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produced, system operations job are executed, and management reports are produced and utilized to manage patient care.

Post Conversion Activities

The Post Conversion Assessment occurs 4-6 weeks after conversion. The goal of the Post Conversion Assessment is to audit the client assessment for solution, workflow and technical effectiveness. After the assessment, the team will document both short and long-term action plans. The Cerner team will schedule a follow up call to review the action plans.

Additional Implementation support consists of:

Client Orientation Guide

The Client Orientation Guide is a project orientation manual for a client executive preparing for a MethodM project. This overview outlines the event-based methodology, staffing requirements, success factors, and initial set of client activities that prepare a client organization for a winning project.

Data Management Process

The Data Management Process, administered by a librarian, helps clients and Cerner associates to identify, complete, and submit deliverable documents for each solution within a project. Standardizing and improving version control and tracking of respective project deliverables, the process verifies quality and accurate delivery of Cerner solutions.

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Issue Management

All project issues are entered and tracked via Cerner's issue management system, eService. Each issue is entered into the system, followed by an issue management process.

The Cerner build approach utilizes a three-tier issue management and escalation approach. Once an issue is logged, the client and Solution Delivery Consultant review the issue and identify resolution options. This comprises the first tier. The second tier involves the Cerner management team in conjunction with the client management team, who work to reach a resolution. Nonetheless, if the issue is not resolved at this point, the Cerner Executive and client teams determine a final resolution.

Activities at each tier-level are recorded in eService and used to keep an accurate record of progress. The outcome of these steps can invoke the scope management process.

Scope Management Process

The Scope Management Process provides a structured process for tracking and managing project scope issues. When issues become scope expansion requests, the scope management process is used. Scope issues are assigned to appropriate owners throughout the process. Overall, the process provides visibility to the status of issue or scope expansion request.

The request can require the creation of an Arrangement Letter, which helps to track and link additional work effort.

Cerner.com

Cerner.com is a web-based knowledge management system for Cerner clients and associates. Cerner.com is a forum for sharing information, sparking communication,

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and establishing community for Cerner users. Cerner invites and encourages Cerner clients to become active participants and contributors to this resource. Client questions, recommendations, and opinions are critical to the Cerner's imperative of continuous improvement.

Communication Plan

Communication tools, including templates and checklists, facilitate information exchange between Cerner and client teams. By providing guidelines for the types, formats, and frequency of communication as well as key participants, these materials produce effective, productive interaction between team members. The Communication Plan covers items like Project Status Reports, Event Activity Reports (EARS), Solution builder/client communication calls, and project team calls.

Data Conversion

Planning and designing the data migrations start during the design phase with functional meetings held between all relevant parties. Data migration consists of referential data and activity data. Cerner provides for tools and processes to migrate much of this data and many of these tools include audits to identify any missing or incorrect data that exists in your data extracts. For activity data migration, such as MPI, Cerner will work with you to construct a process for getting this information into the Millennium database. Once a format and method for data upload has been agreed upon FSI resources will build the appropriate routines required to upload data into the Millennium domain. It is recommended that any cleanup of these files occur prior to migration and that this cleanup occur early in the project timeline.

RR-J-02 What is the typical implementation timeframe for your solution? Express your answer as a range (6 to 12 months, 1 to 2 years, etc.) qualified by a size-of-project; factor

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such as number of users, total project cost, etc. An example would "6 to 12 months for a total project cost not exceeding $500,000" etc. Please feel free to share any metrics that you typically use to estimate the timeframe for the implementation for your solution.

When client's follow Cerner's implementation methodology and a use Cerner associates to perform the build steps, the typical implementation timeline will vary between 12 and 18 months depending on the number of applications that the client implements. In reviewing the RFI, if a client did implement everything that is noted, including the billing system and CPOE system, the project implementation would longer, 15 months to 18 months.

K. Training and Documentation

Training

RR-K-01 Describe the types of training offered, i.e., end-user, systems administrator, installer, etc.

The following tables list the Learning Events that are a formal education event, informal knowledge transfer, or activity, as they relate to the implementation model and are included as part of the standard cost. Milestone Events are bolded.

Description	Cerner Build	Client Build

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Description	Cerner Build	Client Build
Client Executive Project Session	**K**	**K**
Project Prep Workshop		
Standard Technology-Based Learning tools for End-User Application Training	K	K
PC Basics	K	K
Program Management Workshop	K	K
Project Team Workshop	K	K
Solution & Tool Introduction	K	K
Cerner Millennium Fundamentals Course	F	F
Solution Design & Build	NA	F
Project Team Kickoff	K	K
System Review		
Recommended Design Review	K, CT	K
Design Review	K, CT	K
Learning Plan Development Session	F	F
System Validation Session		
System Validation Workshop	K	K
System Management Workshop	K	K
Peripheral Workshop	K	K
Application Review Session	K, CT	K
Trainer & Conversion Preparation		
Customizing Material Workshop	K	K
Effective Trainer Workshop	K	K
End-User Training	K (Client provided)	K (Client provided)
Maintenance Training		
Maintenance Training Course	F, CT	NA
Assessment	F	F

Formal Education (F): Knowledge transfer events and activities. Formal education events are conducted in a workshop or classroom setting by a member of the project team or a learning consultant.

Knowledge Transfer (K): Knowledge transfer events and activities that is not formal in nature. Knowledge is transferred through general consultation that occurs during the implementation or independent self-study. Activities are performed in order to enhance learning and knowledge.

Activity (A): Work or activities performed that result in Learning

Client Travel (CT)

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RR-K-02 How often is training offered (as needed, or on a set calendar schedule)?

Cerner training events are offered regularly at Cerner's world headquarters in Kansas City on a regular basis. All standard training events are calendared and posted on a location that can be easily viewed by the client. Additionally, most standard training events are offered for delivery at the client's location. As such, there is a great deal of flexibility concerning dates as the client can essentially choose any convenient timeframe (provided Cerner receives enough notice). If a client wishes to pay for customized training, there is flexibility around both content and duration. For standard courses however, content and duration will remain constant.

RR-K-03 Please give the duration of each class, the location of training and the recommended number of people that should attend training.

Cerner utilizes a blended learning approach. Blended learning combines a variety of learning delivery methodologies to minimize the time required for your end users to train on your new Cerner solutions while maximizing the learning return. The specific needs of end users and the organization drive the mix of components involved in this approach.

The Learning Plan Development Session, included with MethodM, occurs to ensure that all client personnel learn the pertinent Cerner applications within the time allotted. Careful and succinct planning is required. Such planning will maximize the use of current resources and facilities and identify shortages immediately, at which time supplementary resource can be identified and potential training issues resolved. The end result is a specific plan that will meet these identified needs. An initial step in the planning process is thorough assessment and analysis of learning needs, logistical implications, personnel adjustments, and managerial support that will play a part in achieving the desired results of your plan. Essential elements of your design include required materials, technical needs, logistical requirements, and potential managerial support. The delivery component of the plan details the sequence, timeline, and

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record management of the instructional events. We recommend participation in these events to be limited to 12 to maintain a consistent and reasonable training ratio.

An Education Course Catalog can be provided as we progress in the proposal process.

RR-K-04 Please describe if training is classroom style with an instructor, one-on-one, computer-based training, self-study, etc.

Blended learning combines a variety of learning delivery methodologies to minimize the time required for your end users to train on your new Cerner solutions while maximizing the learning return. The specific needs of end users and the organization drive the mix of components involved in this approach. Cerner Learning Services recommends the following components for the most effective and successful learning strategy. Blended learning is a flexible, effective solution with a proven history of success.

Minimize classroom time with Web-based training

Standard or customized Web-based training (WBT) delivers consistent, repeatable learning for your end users and provides a foundation of solution skills to build your end-user training. WBT delivery typically takes less time than the equivalent instructor-led training and includes a performance-based assessment to ensure end users have mastered critical competencies.

Personalized education with instructor-led training

Instructor-led training (ILT) is used to deliver end-user knowledge for Cerner solutions that do not have a standard WBT solution. ILT requires increased development time and a higher level of instructor solution knowledge than facilitating a WBT.

Hands-on practice with TRAIN domain activities

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TRAIN domain activities provide hands-on activities in a domain replicating your Cerner solution implementation. These activities reinforce end-user solution skills and allow end users to learn tasks not addressed in WBTs. To be most effective, these tasks are delivered in a role-based workflow that firmly anchors solution knowledge to day-to-day tasks.

Real-time support with job aids

Job aids provide a handy, real-time reference for essential tasks. At Cerner, we define a job aid as addressing a single task of up to ten steps. This allows task-focused job aids to be compiled in role-specific collections that meet the multiple-solution needs of your varied learning audiences. Job aids can also provide concise workflow reference information.

On-the-floor ACE end-user conversion support

The Advancing Conversion Excellence (ACE) end-user conversion support program provides one-on-one coaching for end users during the conversion event. This on-the-floor support provides immediate answers for end users during the conversion event and is designed to get them successfully engaged in using your Cerner solutions and delivering timely patient care.

RR-K-05 Who provides the training: employees of your company or sub-contractors?

All training is provided by Cerner Corporation. Cerner Learning Services seeks to partner with clients for all of their educational needs prior to, during, and after implementation.

Cerner Learning Services is comprised of seasoned learning consultants and client instructors who provide a full spectrum of learning solutions that integrate into a client's implementation and help ensure project team and end-user readiness. From

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web-based training tools, to new hire training, Cerner Learning Services can ensure a smooth, hassle-free implementation of your new Cerner Millennium® solutions.

Learning Services recommends a learning approach that incorporates Cerner's five basic learning principles:

- **Learn-by-doing**-- People learn by doing. Learning is active and involves constructing meaning based on prior knowledge. This means that skills and knowledge are best learned in the context of their use.

- **Performance-based**-- A key focus of learning is developing the ability to perform effectively. The learning strategy should include performance-based metrics that can be used to assess effectiveness.

- **Just-in-time**-- Job-related, task-oriented learning is most effective when it happens just in time and is relative to the learner's needs. Adults learn more readily if what they need to know is available when it is usable.

- **Real Time**-- Learning is more than an event; it is a continuous process. The learning strategy must also support the informal learning that takes place on the job, in real time.

- **Relevance**-- Learning is delivered in a manner that is related to the learner's actual day-to-day use of the knowledge in the performance of their role.

These five principles are integrated within every learning event to ensure that various learning styles are accommodated, and that everyone associated and impacted by the project receives the relevant knowledge required to successfully perform their duties.

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Education populations can be broken into two basic groups: project team and end users.

The project team consists of the core group implementing solution design decisions and helping develop policies and procedures for specific responsibilities. The learning needs of the project team can be divided into those that need in-depth application knowledge and those that need technical knowledge to support the implementation and provide ongoing maintenance of the solutions. The project team will often include executive sponsors, management, and key doctor and nursing representatives.

End-users are those directly impacted by the implementation of the Cerner Millennium solutions and will be interacting with the system on a daily basis; this group comprises the largest population of learners.

RR-K-06 Do you provide clinician-specific training?

Yes.

Experience has shown that one-on-one training or training in smaller group produces optimal acceptance and understanding of the system. Cerner's physician approach to learning provides a flexible, structured approach to physician training that is designed to successfully prepare your physicians to effectively use your Cerner solution.

Recognize key physician learning principles

To deliver successful training to your physician population, Cerner Learning Services works with your organization to determine an effective strategy based on these key principles:

- **Inform and engage** -- Provide a comprehensive communication program to build awareness of benefits among physicians and enlist a strong physician advocate to drive the change.
- **Respect physicians' time** -- Supply flexibility in timing and duration of training.

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- **Provide multiple solutions** — Physicians need flexibility in how training is delivered.
- **Give a human face to learning** — Emphasize the need for focused, one-on-one learning that answers specific questions.
- **Assess performance** -- Offer a performance-based competency assessment that respects physician privacy.
- **Conversion support** -- Dedicated on-site support for physicians at Go-Live.

In addition, modular learning components (for example, job aids, Web-learning modules, TRAIN domain activities, Web-based training) can be reused and maintained to provide a long term solution for your physicians and establish a consistent level of solution knowledge critical to their success. Based on these principles, our learning professionals can work with your organization to develop a flexible, effective, and highly accepted physician training solution customized to your unique requirements and objectives.

Workflows, solution mix and training time required will vary from organization to organization, and is difficult to determine during the RFP process. Cerner Learning Services can assist the client in determining physician training needs during the Learning Plan Development session described in this document. Generally, a Cerner learning consultant conducts a full end-user Learning Plan Development Session to analyze all of these factors. It is recommended that the end-user courses are proctored by an approved client facilitator, and a blended use of lecture, hands-on TRAIN domain activities, WBTs, and assessments are used.

RR-K-07 Do you provide fiscal-specific training related to billing Short-Doyle Medi-Cal in California?

Cerner plans to have complete billing for Short Doyle including VCR (void, correct, replace) included in a future release of our billing solution. At this time, we don't have training curriculam beyond gross billing. At the time that the rest of the functionality is developed, training curriculam will also be developed.

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Documentation

RR-K-07 Describe the documentation (both system and training) provided as part of standard installation approach including:

1. Manager and user reference manuals (applications).
2. User operator/system administrator manuals.
3. Hardware/OS manuals.
4. Network and Security.
5. Training manuals (initial and ongoing user self-training).

Clients receive user-reference, application support, and release note documentation for Cerner Millennium through three quality-controlled, documentation channels. User-reference documentation comes in the form of online Help files. Online Help files are attached to each Cerner Millennium application and reflect the application's functionality and common tasks performed therein. Online Help files can be customized with annotation functionality (you can add little comments to topics) or added to (you can add your own Help topics all together to Cerner Millennium Help systems).

Application Support documentation is delivered through the Cerner Millennium Support Guide (CMSG). The CMSG is a content-rich library of information, covering every process and topic from troubleshooting the system to database design and build through system validation. Electronically, the CMSG is a one-way street. Clients downloading documents or printing out and possibly adding sections in hard-copy manuals seem to be fairly common in the field.

Finally, clients receive release notes through www.cerner.com. Release notes are the functionality descriptions, known issues, certification guidelines, technical considerations, and special instructions. This text cannot be customized nor should it be from a practical and regulatory standpoint.

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RR-K-08 Is the documentation available:

1. In hardcopy?
2. On CD-ROM?
3. On the Local Area Network?
4. On the Internet?

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RR-K-09 How often is your documentation updated? How often are updates made available to the user? How is documentation updated (memo, revised manuals, on-line, CD, etc.)?

Cerner generates major production releases primarily in response to or in order to introduce architectural changes and technical upgrades required for all applications. Cerner's current release, Millennium 2007, will be our base platform for the next 2-3 years. Cerner will deliver both enhancements and corrections to our clients on this platform.

Cerner publishes details about new system capabilities available in the production release on www.cerner.com. Clients choose which capabilities to implement as part of the upgrade and which to implement afterward. Cerner engineers new capabilities in a "passive manner", so that only clients choosing to implement the new capabilities are affected.

When new functionality is released under an enhancement process, Cerner typically sends along testing and training scripts, which can then be incorporated in the client's current training materials. Optional services are available including learning consultant to be engaged on-site to review the new features and update end-user training materials. Additionally client representatives can attend the KnowledgeWorks in Kansas City to participate in on-campus training events, and then return to the client site to update their materials and courseware.

L. Contractual Support

RR-L-01 Do proposed acquisition and/or ongoing maintenance/support costs include:

1. Future enhancements to acquired/licensed application modules?
2. Operating system and related environmental software?
3. Interface maintenance?
4. Architectural changes such as migration to emerging technologies and new methods of systems deployment?

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If not, describe the conditions and terms under which enhancements/new releases are made available to existing customers.

Yes, these are covered through the purchase of Cerner licensed software and the payment of the licensed software support fees.

RR-L-02 What are your normal support hours (specify time zone)? Where is support staff located?

Cerner provides world-class service and support to all clients who have licensed Cerner solutions and services. There are four approaches to tapping into this world-class service and support.

Cerner.com offers self-service functions that allow our clients the freedom and flexibility to access valuable information about their business relationship with Cerner including complete business transactions, research solutions issues, track ongoing service records and connect with other clients and Cerner associates anytime.

The Client Care Contact Center serves as a key component for the long-term business and service relationship between each client and Cerner. The Client Care Contact Center is Cerner's first line of support to respond to clients' requests for general Cerner information, training, Cerner events, financial, quotes and technology maintenance. The Client Care Contact Center is staffed Monday through Friday, 7 a.m. – 7.p.m. (holidays excluded).

The SolutionWorks organization is Cerner's support organization responsible for receiving and resolving service records that are non-critical in nature. Support Analysts exist in each solution and technical area and are trained to assess any reported issue and to provide a complete resolution or alternative for the reported issue. The SolutionWorks organization is staffed Monday through Friday, 7 a.m. – 7 p.m. (holidays excluded).

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The Immediate Response Center (IRC) is located in Kansas City, Missouri, and is staffed 24 hours per day, 365 days per year by systems-trained Support Analysts. The IRC is committed to providing clients with the fastest possible solution or workaround to any critical issue that impairs the immediate operation of a Cerner production system. A critical issue is defined as an issue that impacts patient care, or causes financial or operational issues. The IRC team is supplemented by domain experts from other Cerner support groups who are available on an on-call basis to provide further expertise when needed.

All Cerner Millennium support staff is located at the world headquarters in Kansas City, Missouri.

RR-L-03 Which of the following support features are available? Check all that apply:

1. Toll-free hotline

Yes, Cerner supplies our clients with a toll-free number for support.

2. Remote monitoring

We are assuming this question is regarding how we access client sites in order to provide remote support.

IntelliNet, Cerner's client connectivity architecture, enables Cerner associates to provide remote support for Cerner applications and services while automating the process of managing a connection between Cerner and the client site. We work with our client's security and access policies and seek to implement connectivity that satisfies the client's and Cerner's security and access requirements. The entire connection session is managed and logged from start to finish, providing valuable information about enterprise-wide connection activity and change tracking.

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3. Remote diagnostics

Yes, this is included in the licensed support agreement.

4. Training tutorials

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Application Support documentation is delivered through the Cerner Millennium Support Guide (CMSG). The CMSG is a content-rich library of information, covering every process and topic from troubleshooting the system to database design and build through system validation. Electronically, the CMSG is a one-way street. Clients downloading documents or printing out and possibly adding sections in hard-copy manuals seem to be fairly common in the field.

Finally, clients receive release notes through www.cerner.com. Release notes are the functionality descriptions, known issues, certification guidelines, technical considerations, and special instructions. This text cannot be customized nor should it be from a practical and regulatory standpoint.

5. Web-based support tracking

Yes, through Cerner's online support tool, called eService, accessible through www.cerner.com, clients may have access to the following:

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- Access the Cerner Navigator eService Search Center
- Browse the Knowledge Base for solutions
- Browse all CRs or search for CRs by package or release number
- Enter new SRs
- View and modify your or your organization's SRs
- View your organization's CRs
- View CernerWorks' change requests
- View a list of your Cerner team members

6. 24x7 software support

Yes, Cerner offers 24x7x365 support.

7. 24x7 hardware support

Cerner offers a single point of contact for equipment maintenance service. This service is available on a 24 x 7 basis for the computer hardware, network electronics, printers, desktop devices, bar code equipment, peripheral devices, and handheld devices. As part of equipment maintenance services, Cerner provides the client with a single point of contact for all remedial hardware repairs.

RR-L-04 Provide the response time for problems reported during:

8. Regular business hours.

SolutionWorks has the following service-level objectives, based on the service record's assessed combination of priority and complexity:

- The SolutionWorks Organization will close or resolve 65% of Millennium Service Records within 24 hours.

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- The SolutionWorks Organization will close or resolve 80% of Millennium Service Records within 7 days.

9. Off-hours.

The Immediate Response Center (IRC) has a service goal to engage in an initial assessment of a service record within 5 minutes of the initial call. Where necessary, the IRC may elect to disengage from a service record to respond to additional incoming service records or to service records of higher priority. If this is necessary, the IRC will re-engage in the service record as quickly as possible.

- Investigation will continue as needed, with a service goal of providing a solution or work-around within **2 hours** of the prerequisites being met and the service record being opened.

- The IRC Millennium analysts strive to meet Service Goals for 85% of its service records. Some small percentage of requests will require longer resolution times due to unusual complexity or the total number of in-process service records.

RR-L-05 Describe your problem reporting software and tools. Are they available via the Internet? Can a list of outstanding problems and enhancements by client be viewed on-line and downloaded?

All questions and issues should be logged using eService on www.Cerner.com. This includes requests for application support, general business and financial support. Clients who call the Cerner Client Care Center will be asked to go to www.Cerner.com and log a Service Record (SR). If you are calling to check the status of a particular Service Record, you will be asked to provide the SR number to expedite the process.

Service record numbers are unique numbers assigned to each service record in Cerner Navigator, Cerner's internal activity tracking system. Cerner records all service activity against the service record number assigned to a request.

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Through Cerner's online support tool, called eService, accessible through www.cerner.com, clients may have access to the following:

- Access the Cerner Navigator eService Search Center
- Browse the Knowledge Base for solutions
- Browse all CRs or search for CRs by package or release number
- Enter new SRs
- View and modify your or your organization's SRs
- View your organization's CRs
- View CernerWorks' change requests
- View a list of your Cerner team members

RR-L-06 Describe your firm's approach to software maintenance agreements. Include how, and at what frequency, your firm provides maintenance and upgrade services in support of your system products.

The following are the service entitlements obtained through the purchase of Cerner licensed software and the payment of the licensed software support fees. These entitlements begin with first productive use of your system.

Please note: Any services outside of the non-billable services listed in the catalog should be considered as fee-for-services. However, we recommend you contact Cerner to validate whether a service is billable.

Benefits Of Support Services for Cerner Licensed Software		
	Service	**Description/Benefits**
1	Cerner.com (Internet access)	Internet access to solution documentation, communities of interest, announcements, online service record entry, and the ability to review service activity
2	Toll free 800 number	Single point of contact for all service, support, and general fulfillment needs

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Benefits Of Support Services for Cerner Licensed Software		
	Service	**Description/Benefits**
3	Access To Immediate Response Center (7 x 24)	Mission critical problem determination, resolution, or work-around delivering a continuous set of benefits
4	Access To SolutionWorks Application Support (Service Center) (5 x 12)	Non-critical problem determination, resolution, or alternative identification through consultative assistance on solution functionality
5	Access to Client Care Contact Center	Cerner's first line of support to respond to clients' requests for additional services or solutions, information and other general administrative issues
6	Intellinet/Secured Access Mechanism when applicable	Maintained data communications mechanism to facilitate problem resolution at the client site (secure and efficient method for service and support)
7	License for New Releases to Licensed Software	All new releases for the licensed software that are made generally available by Cerner
8	Knowledge Transfer During Service Events	Education provided during problem resolution leading to greater self-sufficiency
9	Service Escalation	Defined process for any client to escalate whenever they feel a request is not being addressed (receive executive management focus on client service and support issues)
10	Periodic Software Distribution	Periodic availability of enhanced functionality and software corrections to supported releases of licensed software
11	OnLine Demographic Profile (Solution/Technical Attributes)	Knowledge of Client technical environment: SW/HDW supporting an efficient and effective problem resolution process (assumes hardware and sublicensed software maintenance through Cerner)
12	Catalog Of Services	Online access to Cerner's Catalog of Services referencing all of Cerner's services via Cerner.com.
13	Service Available Via Phone, E-mail, LiveAssist (Chat), cerner.com	Multiple avenues of support for the convenience of the client
14	Proactive Communication Flashes	Advance information concerning new solutions, upcoming corrections, patches, add-ons, and so on
15	Access To Cerner Direct	Access to a direct channel for ordering technology with 24-hour turnaround with discounted / competitive pricing through Cerner.com or the Cerner Direct Order Desk
16	Solution Availability Information	Advance information on availability of packages, software releases, new versions, and so on allowing the client to

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Benefits Of Support Services for Cerner Licensed Software		
	Service	Description/Benefits
		plan for new features of the system
17	Access to Cerner Learning Services	Information about Cerner solution and technology education via Cerner's Virtual University made available
18	Quarterly vs. Annual Billing	Client can pay quarterly or annually in advance
19	Regulatory Affairs Services	Consultative service on regulatory affairs and accreditation issues
20	Client Satisfaction Surveys	Client satisfaction survey process providing a client feedback mechanism

Cerner generates major production releases primarily in response to or in order to introduce architectural changes and technical upgrades required for all applications. Cerner's current release, Millennium 2007, will be our base platform for the next 2-3 years. Cerner will deliver both enhancements and corrections to our clients on this platform.

Cerner publishes details about new system capabilities available in the production release on www.cerner.com. Clients choose which capabilities to implement as part of the upgrade and which to implement afterward. Cerner engineers new capabilities in a "passive manner", so that only clients choosing to implement the new capabilities are affected.

Some clients choose to upgrade their system using their own staff and processes. Others choose to utilize Cerner's Upgrade Center, a team of associates focused completely on upgrades. With this approach, Cerner centralizes the planning and tracking of all upgrade activities, and can even provide services for build, validation and testing. Most clients utilizing the Upgrade Center complete their upgrade within a 120-day time period. On average, by using Cerner's Upgrade Center, our clients can reduce their upgrade durations by 38% and reduce the client's responsibilities by 89%.

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M. Cost and Licensing

RR-M-01 Describe your pricing and/or licensing models based on the various product functionalities listed above. Do not provide specific pricing in your response, but information on how pricing is derived is pertinent. Examples of pricing models may be: module-based pricing, package or suite pricing, single price package, subscription based, package plus maintenance, etc.

Cerner bases licensed software costs on various metrics to include users, beds, admissions, out- patient visits, emergency room visits, annual procedures etc. Data Center Equipment and associated sub licensed software required to support the proposed solution(s) is configured based on the number of named or concurrent users. Cerner's prices are based on the value received by the entity for the solution functionality delivered. Extending the use of an application derives additional benefits and creates additional value; therefore the extension is priced based on the relative value of these benefits.

RR-M-02 List any programs your corporation currently participates in, in which you provide a single pricing and licensing model for a large customer with decentralized purchasing (public or private sector), and functional descriptions of that model. Examples of this type of licensing/procurement program may be the State of California Software License Program (SLP), or the California Strategic Sourcing Initiative.

Currently, Cerner does not participate in any pricing models, such as those defined below, however we do work with each client to determine the best solution mix and most cost effective pricing methodology available based on your organizations current and future states. All our Licensed Software, Licensed Software Monthly Support, Professional License Fees, and Professional License Monthly Support Fees are based on a pre-determined metric per solution family. Some of these metrics cover multiple solutions and almost all are based on publically available organization statistics, typically gathered in the American Hospital Associations Guide.

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In our continued effort to work with each client, Cerner does provide some alternative financing options. To do so, Cerner has established relationships with several financing partners to provide alternative payment solutions for Clients acquiring Cerner Solutions who desire longer payment term mechanisms. These seamless financing programs provide viable alternatives for capital expenditures as well as a mechanism to conserve cash by financing elements that would have been internally funded. Capital and operating lease (off-balance sheet) structures are available. The off-balance sheet structure provides an option for the management of balance sheet ratios and debt capacity.

Cerner can assist your organization in creating a structure that addresses your particular financial needs and would appreciate the opportunity for our representatives to present a proposal detailing the different financial solutions available. It is important to note that this program is not solely limited to Cerner projects and can be extended to other Capital purchases your organization may be considering.

N. Risks and Issues

RR-N-01 It is fully expected that Counties will encounter risks/issues that they must manage and mitigate. Please identify the risks/issues that a County is most likely to encounter when implementing your solution. Please include examples from prior implementations of your solution.

Success Factors and Risks

Critical Success Factors

Several factors are deemed critical to overall project success. It is imperative that Cerner and the client organization concur about many ideas as they engage their best management and communication skills.

There are many components inherent to project success.

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Project Management

Cerner and the client organization must share the task of responsible project management. This includes project definition, schedules, and scope confirmation. Issue management—including early identification and rapid resolution or escalation—is critical. Adherence to established timelines and follow-through on critical path items must be consistent and timely.

MethodM is Cerner's standard practice to delivering implementations with reduced work effort and complexity, lowering the total cost of ownership. Clinical experience and knowledge of Cerner solutions enable Cerner's 1800-plus consultants to provide skilled support. Clients leverage Cerner's expertise to optimize resource use and increase efficiency for greater implementation discipline, quality and predictability.

Cerner's process provides a clearly defined project scope aligned with your clinical and business strategies and identified goals. Cerner Bedrock™, an innovative, wizard-like technology, automates the process of designing and building. Comprehensive education and training, a strong Project Management Office function and a post-conversion assessment are also key components of MethodM.

Scope Management

Understanding the contracted scope, communicating, and enforcing it with the project team, are essential to keeping the team involved and to efficient project progress. The client organization must understand and be supportive of the scope as defined in the contract.

If scope issues arise during the sessions held in Kansas City, it is the responsibility of the Cerner Project Management team to intervene and manage these issues with the client Project Management team. If this occurs, it is also important that the entire client team understand that the implementation is not the end for functionality. The delivery

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strategy takes into account that the system will grow with the organization over time. It is likely that scope items will be addressed and implemented lat

Agreed Methodology and Approach

Cerner's event based implementation approach is a proven and efficient method of system implementation. This approach to implementing foundation functions across multiple solutions uses prescribed practices and design choices. For this reason, the approach must be conveyed clearly and agreed to by all. In addition, team members must comply with the disciplined methods.

The approach utilizes a just in time materials approach; the Cerner team provides key documents at the pertinent time. The client should understand that with the key milestone focus comes a requirement for specific deliverables to be completed before moving to the next.

Open Communication

The project timeline is too short to hide difficult messages. Good and open communication plan is established and signed off on by Cerner and the client in the early stages of the project planning.

Software Enhancements Avoided

Cerner projects are planned to convert on the most current code commercially available at the time of project kickoff. Requests for enhancements and new functionality only introduce complexity and unknowns into the project, thus, increasing risks and potential delays.

Cooperative Success Factors

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Additionally, very specific factors, or responsibilities are required by the client organization and by Cerner.

Client Success Factors	Cerner Success Factors
Establishing Organizational Support and Buy-in—In order for the project to succeed, there must be strong support for the initiative and the approach. Organizational support includes executive, physician, clinician, and administrative.	**Providing Resources**—It is crucial that Cerner staffs adequate resources for the project. Some resources transition throughout the project; however, continuity is maintained via the PE/PA. Session Leaders must conduct a smooth and thorough transition.
Understanding Clear Expectations—The client team must clearly understand what is expected for each event. Clear expectations facilitate delivery completion and quality. The client must ask questions and know the assignment, including participation in specific "expectation setting" forums.	**Leveraging Best Practices**—The Cerner team utilizes their expertise and experience to understand client processes. Rather than presenting multiple options, the team strives to present the optimal solution. These solutions/practices must be presented with an understanding of the impact of recommended changes.
Providing Qualified Resources—It is crucial that the client provide adequate resources to staff the project. If the recommended resources are not provided, then the success of the project is at risk. Resources attending events are expected to have a thorough understanding of the workflow for their area of expertise. They must be empowered to make design decisions and be available to work with the Cerner team to complete project assignments.	**Avoiding Software Enhancements**—Do not allow scope "enhancements" to become software development projects. Cerner Engagement Management is responsible for ensuring scope and functionality is managed per the contracted standard scope. Client requests for enhancements or scope changes must be routed through the Scope Management Process where the change request can be assessed and an AL created, if necessary.
Adhering to the Timeline—Cerner build projects follow an accelerated timeline. In order to stay on track, the entire project team must be committed to meeting project deadlines. The success of the project and continuity of implementation phases is dependent on meeting the dates and completing deliverables according to the event schedule. Failure to complete deliverables for any event can certainly	**Identifying Integration Impacts Early**—The power of the system is in the integration, and it is essential to understand how different clients are impacted by an integrated system. Cerner resources are responsible for communicating dependencies for interfaces and integrated data, leading the client to the same understanding of dependencies between departments.

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have a downstream affect on future events, build status, and possibly Conversion.
Understanding Discrete Focus—There is discipline in having the project segmented into mini-projects, each with a discrete focus; these are the project key events. Focusing on the task at hand, the client must engage completely in these events. Diversions can create delays and confusion.

Project Risks

The following risk factors should be discussed and evaluated with the client at every project as early as possible. Developing a plan to mitigate issues and project risk is fundamental.

Compressed Timeline

Cerner projects work under a compressed timeline; projects are intense, large, and rapid. The Client Project Management team should manage vacations and realize the impacts to staffing. Contingency plans to cover project team departmental responsibilities are recommended.

End-user Preparation

Per Gartner, lack of end-user participation is the single reason that IT projects fail. Cerner recommends that the client assign an Education Coordinator to plan and manage the organization's end-user education and training.

Foreign System Interfaces and History Upload

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By their nature and dependencies, foreign system interfaces and history uploads are critical to the project from the point of kickoff. Connectivity to all systems must be established early. Usually, this requires coordination with other vendors. Furthermore, FSI should be included in every test plan according to the organization testing strategy.

Resource Allocation

Cerner recommends that at least one person per solution be assigned to the project for the success of resource allocation. Failure to staff the project with the right numbers or skill set results in missed dates and frustrated team members. Solution specific resource requirements are identified later in this guide.

Peripheral Devices

Making sure label and report printers, label stock, desktops, bar code readers and wands are appropriately selected, properly placed, correctly configured, installed on time, and testing is the key to a successful implementation. Cerner recommends that the client assign a Peripherals Coordinator to plan and manage this important area of the implementation strategy.

Technology Management

The technology platform, whether Cerner or client hosted, is a critical path item. If hardware, software, or required domains are not available at the required time, project progress halts. In addition, systems and connectivity, including third party systems must be established early in the project. A domain strategy must be in place at project initiation as well.

County Clients

In Cerner's experience working with county clients the biggest risks that need to be managed are insuring that adequate resources are assigned to the project. Even

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when utilizing Cerner's Solution Center and consulting resources, there will always be staff needed on the county side. It is important that clinicians that already work for the county and understand the workflow processes, including physicians, nurses and ancillary staff, have time available to participate throughout the project especially in the critical design phase. Likewise, when dealing with change in processes like CPOE, it is essential that the county have a strong physician leader to champion the system. Training is smoother and adoption of the system by other physicians is more successful when a physician from within the county is the advocate for the system.

O. Project References

RR-O-01 Provide a minimum of three (3) previous implementations of your solution that most closely approximate a CA County Behavioral Health setting. Include a California reference if available. Provide names and contact information of individuals who have sufficient experience to speak knowledgeably concerning:

1. The implementation process.
2. System functionality.
3. Vendor support.
4. Documentation.
5. Training.
6. Overall customer satisfaction.

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