

## Executive Summary

January 2004

### What is MedCommons?

The MedCommons Network is a secure Internet system specifically created to enable immediate and long-term access to medical diagnostic information. A MedCommons gateway installed on the network near every medical imaging system and diagnostic device will allow fast, inexpensive access to essential medical information to support market-driven applications including Second Opinions, Drug Trials, Patient Portals and Archival Storage.

MedCommons runs and services the MedCommons Network, providing a FDA/HIPAA compliant platform for the development and implementation of new services as demanded by the \$5 billion diagnostic information management market.

### Why MedCommons?

The 21<sup>st</sup> century world runs on the rapid exchange of digital information. Healthcare is thus far the exception: hospitals and laboratories remain walled-off islands, unable to communicate quickly and efficiently with the outside world of information-hungry physicians, patients, researchers, managed care organizations, public policymakers, and industry. The recent development and consolidation of technology standards for medical information interchange now makes possible the MedCommons Network—the next evolution in medical information management.

MedCommons will create a national medical network for the rapid exchange of digital diagnostic data in a standard, secure, FDA/HIPAA compliant manner. MedCommons will control the network, and own services provided to a customer base that will initially consist of potentially every hospital and laboratory in the US. In order to accelerate acceptance and adoption, MedCommons is committed to the use of non-proprietary Open-Source Software<sup>1</sup> to create true partnerships with the academic and medical communities.



<sup>1</sup> The major OSS components utilized by MedCommons are: Linux, Eclipse, Subversion, JBoss, and Apache. Medical OSS projects include DCM4CHE and ITK. There is a long history of sharing software in medical informatics to refine standards and to test for interoperability (the Mallinckrodt and UC Davis DICOM toolkits, schemas for HL7 3.0). An important recent initiative is Dave Clunie's work on the new MR multiframe sample images, source code, test suite, and validator (<http://www.dclunie.com>) One innovation of MedCommons is the process to make the Open Source version of its software of clinical quality with FDA registration and ISO certification.

## Market Potential for the MedCommons Network

**The appetite for healthcare information is enormous—and growing.** The US diagnostic and screening tests market includes both imaging and laboratory procedures, and exceeds \$100 billion annually. Diagnostic imaging spending is growing faster than overall healthcare and is approaching 10% of total dollars spent on healthcare. Acquisition, storage and distribution of diagnostic information represent approximately 20% of the \$25 billion spent on health care information technology each year.<sup>2</sup>

Diagnostic, Screening, and Treatment Planning Tests	Number of Tests (Annual, US)	Diagnostic Information Management Market	Projected MedCommons Diagnostic Results Communication Services (End user value accessed through both direct and license sales)		
			2004	2005	2007
Radiology	400,000,000	\$ 2 Billion	Negligible	\$ 20 MM	\$ 200 MM
Cardiology	50,000,000	\$ 1 Billion	Negligible	\$ 10 MM	\$ 100 MM
Laboratory	2,000,000,000	\$ 2 Billion	Negligible	\$ 20 MM	\$ 200 MM
		<b>\$ 5 Billion</b>	<b>-</b>	<b>\$ 50 MM</b>	<b>\$500 MM</b>

**Standardization and consolidation is inevitable.** Physicians, institutions, and industry must currently attempt to meet their health care information needs from among hundreds of software and services vendors. With few exceptions, these vendors are focused on the needs of individual hospitals and hospital chains *and make no provision for the routine interchange of information between the institutional systems of different providers*. This problem has triggered recent federal government initiatives directed specifically at national standards for electronic medical records.<sup>3,4</sup> Standardization and consolidation, driven by both market need and public policy, is inevitable. The MedCommons Network is specifically designed to satisfy these needs, now and in the future.

**Existing ASP providers are not up to the task.** Internet-based health care application services providers (ASPs) are relatively rare today since most information systems are physically on-site. The overall 2003 health care ASP market is estimated at \$4-\$500 MM (Frost and Sullivan; Gartner). These ASPs make no provision for routine information interchange. The National Digital Mammography Archive is one recent exception<sup>5</sup>.

<sup>2</sup> Sources include CDC, Tibor Group, and the Health Information Management Systems Society (HIMSS).

<sup>3</sup> [Getting serious on electronic infrastructure](#); BBI Newsletter, August 2003

<sup>4</sup> The National Library of Medicine (NLM) has licensed the SNOMED clinical nomenclature system to permit cost-effective patient record interoperability. See <http://www.snomed.org/>.

<sup>5</sup> [National Digital Mammography Archive](#); RT Image, August 2003

## Initial MedCommons Network Offerings

The initial MedCommons products and services have been designed to produce immediate value directly to individual participants; usefulness does not rely on a critical mass of customers. Increasing participation will enable further broad-based services that will take advantage of 1) the growing aggregation of data, and 2) the increasing participation of open-source medical software providers.

**3D Workflow Accelerator**—This is a specific configuration of the MedCommons Medical Router that integrates standards-compliant radiology workstations with medical information systems using standard IHE<sup>6</sup> integration profiles. The 3-D Workflow Accelerator provides immediate value to hospital radiology and cardiology departments that need to enhance their legacy PACS<sup>7</sup> with on-site 3D workstations<sup>8</sup> and off-site advanced image analysis service labs. End-user pricing is \$40,000 per facility installed plus support fees of \$8,000 per year.

**Archival Service**—Off-site image archiving uses the MedCommons device as a gateway to backup storage and disaster recovery services for hospitals. This, too, provides immediate value to hospitals and imaging centers during the MedCommons launch phase, when the fraction of networked facilities is still small. End-user pricing is \$3/imaging study per 5 year contract if MedCommons provides storage, or \$40,000 per facility (plus support) if a third-party storage services provider is used.

**The MedCommons Network has no application limits.** MedCommons is a national service business and a growing subset of the health care information management market. Unlike the current ASP outsourcing model, MedCommons is designed to be a component of both on-site *and* outsourced health care information systems. Like the cable TV industry, which provides the infrastructure for unlimited content and transactional opportunities, MedCommons revenues derive from the support of a secure medical router to create a network of hospitals, laboratories and diagnostic imaging centers that can use the evolving Internet-based network to satisfy their individual needs for information acquisition and management.

The MedCommons product development roadmap includes advanced, high-interest applications such as Patient Portal, Patient Follow up, Drug Trials<sup>9</sup>, Image Analysis<sup>10</sup>, Night Radiology, and Second Opinions.

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<sup>6</sup> Integrating the Healthcare Enterprise (IHE) is an industry-wide initiative for software interoperability. See <http://www.rsna.org/IHE>.

<sup>7</sup> Picture Archiving and Communications Systems (PACS) manage the images and the imaging workflow in a radiology department or hospital.

<sup>8</sup> 3D workstations provide radiologists and cardiologists with a range of digital image analysis tools.

<sup>9</sup> The Radiology Society of North America (RSNA) has sponsored several software projects promoting image and workflow interoperability. At the November 2003 annual meeting it was announced that the Medical Image Resource Center (MIRC) was being extended in early 2004 to encompass software and protocols for clinical trials management. While the reference application may not be suitable for clinical use the protocol is one that MedCommons will support in its clinical appliances. See <http://www.rsna.org/mirc.index.html>.

<sup>10</sup> The NLM is also sponsoring the Insight Tool Kit (ITK) image processing tools as an open source substrate for image processing. Additional software for managing the quality process of distributed development (such as DART) has been funded by the NLM and built as an open source framework by General Electric. See <http://www.itk.org/>.

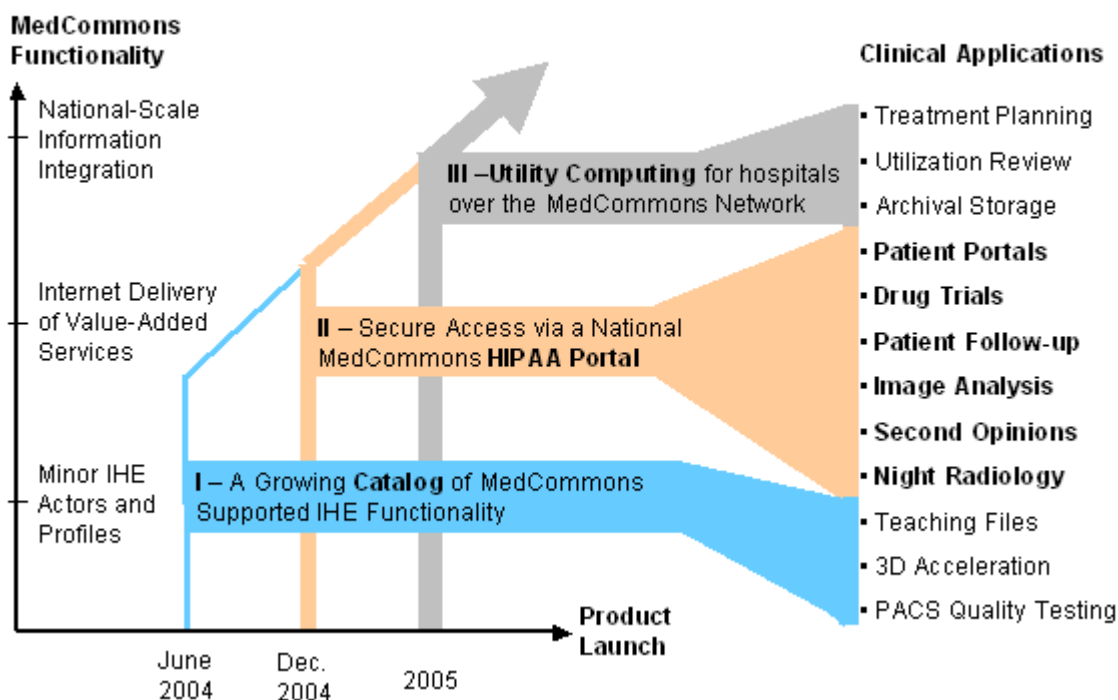
## Milestones

- a. March 2004: Deploy FDA / ISO compliant Open Source Software development and certification methodology
- b. May 2004: Install Medical Router at first beta site
- c. May 2004: Introduce Medical Router at SCAR<sup>11</sup>
- d. December 2004: MedCommons Service and Router FDA 510[k] and ISO 9001 Certification
- e. February 2005: Initial Product Revenues

## Phase II MedCommons Offerings

It is the goal of MedCommons to provide the industry's most secure and cost effective platform for integration of diagnostic information, no matter what institution actually performs the scan or which clinical application is required. This goal will be realized by the provision of secure access via a **national HIPAA portal**.

### MedCommons Product Evolution



<sup>11</sup> Society for Computer Applications in Radiology (SCAR) is the premier conference for radiology information technologies.

## The national MedCommons HIPAA portal

The most exciting applications of the MedCommons technology will be the Internet delivery of value added services through the MedCommons HIPAA-compliant portal, which will bring a new level of convenience and simplicity to cumbersome and frustrating tasks:

<b>Patient portal</b>	As MedCommons capability and participation expands, the network will be able to support a true patient portal. In the same way Web browsers made the Internet simple and easy to use for everyone, the MedCommons patient portal will allow secure access to medical images and diagnostic results by both consumers and physicians.
<b>Drug trials</b>	The estimated industry expense for data transfers alone (CRO, EDC, Lab) are greater than \$156 million annually. It is believed that a standard model for EDC transfer—such as MedCommons—could reduce costs by approximately 35%. <sup>12</sup>
<b>Patient follow-up</b>	The pressing need to keep patients from "falling through the cracks" is already being heavily promoted by NCQA. <sup>13</sup> The MedCommons Patient Portal has the potential to nearly eliminate this problem, which results in 57,000 deaths and costs the nation billions annually.
<b>Image analysis</b>	Open Source solutions that will provide objective, digital image analysis are in development by various academic and research groups. MedCommons will make these solutions available free of charge to physicians. Outcomes analyses on MedCommons-enabled "anonymized" analyses made available to academic researchers will facilitate standardization of treatment for certain diseases. In other cases, third parties can charge for image analysis; MedCommons will simply manage the transaction.
<b>Second opinions</b>	The MedCommons Patient Portal will make it fast, simple, and inexpensive to obtain second opinions, resulting in savings to managed care organizations, providing a substantial income stream to centers of excellence, and potentially reducing unnecessary treatment.
<b>Night radiology</b>	Secure access to patient images will make it easier and less expensive to perform night radiology, cutting radiologists' ties to the in-hospital PACS.

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<sup>12</sup> Kush, RD. The Cost of Clinical Data Interchange in Clinical Trials; CDISC White Paper, 2001; [www.cdisc.org](http://www.cdisc.org)

<sup>13</sup> [The State of Health Care Quality 2003; Report](#), National Committee for Quality Assurance, Sept. 2003;

## The MedCommons Open Source Medical Router

The MedCommons Router is a standard server computer running a combination of proprietary and Open Source software, with security and quality under the control of MedCommons.

Open Source software provides significant cost benefits to MedCommons and value to our customers:

- **Process** Open Source software is more acceptable to health care customers because it is auditable and subject to peer review in risky or security-conscious applications.
- **Quality** By integrating and industrializing best-of-breed Open Source software into a “shrink-wrapped” appliance, MedCommons adds significant value to a market that is under heavy pressure to adopt national standards.
- **Adoption** Open Source software provides MedCommons with a clear advantage over proprietary alternatives in achieving national-scale adoption by competing interests that would otherwise be concerned about vendor lock-in or loss of market differentiation.
- **Innovation** Open Source software is more likely to be the foundation for federally funded research<sup>14</sup> in computer aided diagnostics, genomics and proteomics, as well as novel and/or more invasive therapies.

Proprietary commercial software can also provide significant benefits and will be utilized where its inclusion reduces time to market and facilitates the creation of a network that is secure, well monitored, efficient, and fault-tolerant.

### In summary...

The US healthcare system is in dire need of first aid. The MedCommons Network addresses many, if not most, of the problems plaguing the current system. It provides a secure, FDA/HIPAA compliant infrastructure upon which medical professionals, patients, research, and industry can accelerate the delivery of higher quality, less expensive care. MedCommons' revenues will derive initially from supporting the MedCommons Medical Router. As participation increases and Network capabilities expand, the larger revenue source will be the small fees attached to the tens of millions of transactions managed annually.

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<sup>14</sup> The NIH Roadmap initiative seeks to integrate scientific research into clinical practice via public-private partnerships. See <http://nihroadmap.nih.gov/index.asp>.

## Principals

The MedCommons team is an assembly of experienced professionals in the medical, technology, marketing, and operations areas with a track record of delivering FDA approved products and complex networking software to the marketplace.

**Bill Donner**, Chief Operating Officer and acting CEO has been delivering complex networked applications in the financial, trading, and supply chain industries.

**Adrian Gropper, MD**, EVP and Chief Medical Officer has successfully designed and delivered several medical devices and was the founder and chairman of AMICAS, one of the leading PACS vendors.

**Sean Doyle**, Chief Technical Officer, and also formerly of AMICAS, is a noted expert in the field of medical device internetworking and open standards and serves as our primary liaison and evangelist within the healthcare open source software community.

**Hugh Cottingham**, Chief Strategy Officer, is our resident Intellectual Property expert.

**Susan Belanich**, Regulatory Officer, is in charge of FDA / HIPAA compliance and process development.

**Michael Quigley**, Director of Technical Systems is responsible for the development and administration of core components of the MedCommons development environment and production delivery systems.

**Edie Pargh** is our Pharmaceutical Relationship Liaison.

## Financing

MedCommons generates revenue from two primary sources: transaction fees for offered services and use of the MedCommons Network by other third party service providers, and through the sale of medical routers and/or router software support. We anticipate hardware appliance sales to be a steadily decreasing portion of our revenue stream as we shift to utilizing partners' distribution channels.

MedCommons intends to seek funding to complete development of MedCommons' FDA/ISO Compliant Open Source Software Development Process, the Medical Router, to provide capital equipment for the MedCommons Network, and to support MedCommons presence at industry and trade shows during 2004. As of this point, MedCommons has been solely financed by its founders, who own all of the outstanding common shares.