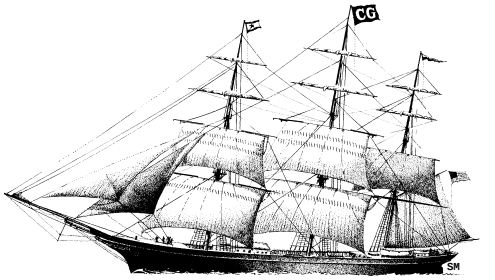
THE CLIPPER GROUP
Observer™



Navigating Information Technology Horizons℠

Published Since 1996 Report #TCG2005054 September 8, 2005

Cancer Therapy and Research Center Chooses Archivas for Its Archive

Analyst: Anne MacFarland

Management Summary

When we move, we move lots of stuff that we don't use day-to-day, because we want it at hand, should the need for it arise. These artifacts are the resources we need to be confidently capable. As full functionality is based on adequate resources, good decisions are based on adequate documentation. When the decision is a medical one, *adequate* means *complete*. Knowledge of reactions to particular drugs and past evidence of the systemic weakness to which we all are prone plays a key role in creating drug and radiation therapies that will be effective yet safe.

When a patient comes to the Cancer Therapy and Research Center in San Antonio, Texas,, there are different things that can happen. The patient may be coming for radiation therapy or to visit a medical oncologist. In some cases, the patient may benefit from participation in Phase 1 clinical trials of new therapy. But in all cases, what happens to the patient is going to produce a lot of data – data that is crucially important to protect, and crucially important to share among the appropriate clinicians. Treating cancer takes time, and is followed by follow-up monitoring. It is important that the entire litany of documentation be available as a coherent whole over a period of years. Government plans for developing a federation of oncology research organizations hold out the promise of new opportunities to derive value from properly-protected medical records. **The idea of having a *unified archive of data* is a key strategy for organizing, protecting, and using highly-sensitive data over a long period of time.**

The Cancer Therapy and Research Center surveyed the landscape. They are a Cisco and EMC shop, and have used iSCSI to connect the servers on their two campuses. In business for thirty years, they are technology veterans who knew what they wanted. Of course, they wanted a good solution. Furthermore, they were looking for a company that would go beyond the traditional customer-vendor relationships to participate fully in the joint venture of solution deployment. They wanted a company where archiving was the business, not an accessory application. They chose a relatively young, relatively small company named Archivas[1], based in Waltham, MA. For more details the Center's interesting journey with Archivas, please read on.

IN THIS ISSUE

[1] For more information in Archivas' *ArC* Solution, see The **Clipper Group Navigator**, *Archivas Liberates Fixed Data for Use by Multiple Applications* (November 10, 2004), available at http://www.clipper.com/research/TCG2004091.pdf.

Parameters and Requirements

The Cancer Therapy and Research Center draws patients from across South Texas, and around the world for its Phase 1 clinical trials. It has treated over a million patients. The facilities had 140,000 patient visits in 2004, and the number grows annually. Many patients revisit the center over hears as cancer treatment, particularly that practiced in decades past, has some long term side effects.

In recent years, magnetic resonance images (MRIs), computed tomography scans (CTs), and positron emission tomography scans (PETs) have produced images that form a foundation for diagnosis and treatment plans. All of these technologies now produce digital output – and all those files are growing much larger, as more granularity gives more clarity to the images, and more slices enable more knowledge about the three-dimensional tumor that must be addressed. So the medical data storage is already becoming very large and will grow truly massive over time.

Over period of months and years, a patient may experience different kinds of treatments, and see different physicians and specialists. The relationship of the Center with patients is by its nature episodic and unpredictable. A stove-piped approach to the organization of data would be very counterproductive. If, as seems likely, patient information, properly protected, is used more widely far beyond the lifespan of the patient relationship with the Center, a *data object* approach would seem to be sensible. Archivas' data objects include metadata policies for retention, authentication, migration, and protection of the data. Precipitating these policies at an object level allows different doctors to access all the necessary records and images over the course of a treatment that often comes in discontinuous episodes. Attributes to the objects can be augmented over time, do the object policies can be updated to meet future treatment parameters.

The Center has always used many kinds of data, ranging from the proprietary, application dependent formats of their dosimetry data to the DICOM-standard compliant data produced by their patient records (PACS) system. The Cancer Treatment and Research Center needed an archive that could accept all the different kinds of data that the Center produced, as well as the new kinds of data that future cancer diagnostics and therapies will require.

The Strengths of Archivas

Because of all of these parameters, the Cancer Therapy and Research Center appreciated the scalability and vendor independence of the Archivas solution. They are satisfied with the IBM hardware on which Archivas is running now, but they also realize that the practice of medicine, particularly in the field of oncology, where a patient can be a patient for years or decades, may wish to deploy new technologies as they become available. Therefore, the open (hardware-neutral) nature of the Archivas solution was very important. They felt that Archivas' full-time focus on *archiving* will guarantee an active evolution of the repository to meet the Research Center's future needs.

The first application they put on the Archivas systems has been their radiation data. Patients go through four-to-six weeks of daily treatment, producing a large amount of data. Then they go home for three months, come back, are scanned again, and another treatment regime may be administered.

The *Fusion PACS*[2] software used by CT&RC has the ability to migrate the large files to secondary storage when a watermark of primary storage capacity has been reached. At the Center, PACS information is imported in to Archivas' *ArC* within two hours of its creation, ensuring its preservation. This data is compressed by the Fusion software, achieving a reduction, in bulk, from 2:1 to 3:1. The data can then be can be promptly retrieved whenever it is needed by any authorized physician. Mike

[2] Picture Archiving and Communications Systems.

Luter, CTO of the Cancer Therapy and Research Center, is pleased that compression has kept the response time to retrieve a standard 120-slice three dimensional set of images (MRI, CT or PET) at a match to the retrieval time afforded by primary storage. He appreciates ArC's ability to store multiple copies of data for parallel streaming to facilitate more rapid retrieval for the future, when the standard set of three-dimensional images will comprise many hundreds of slices, and new forms of imaging will be used.

Phase-one clinical trials are using Archivas' *ArC* for their data as well. They are inherently more filmless than radiology operations, which makes ingestion of data straightforward. The ability to house this information in the same repository makes CT&RC cross-organization strategies easier to implement.

In addition to their medical and radiation practices, CT&RC offers a one-year training course in Medical Dosimetry, along with undergraduate and professional fellowship programs. These people at the Dosimetry School also have access to Archivas records, since most of them are participating in either medical oncology or radiation oncology operations.

Future Plans

In the first 5 months, 400 GB of data has been pushed into ArC; and Luter estimates that they will reach a Terabyte of data within the first year. CT&RC has worked through alpha and beta testing, and expect full deployment to be straightforward – but of course, the scope of the archives project, and the rate of ingestion of new kinds of data has continued to grow. The Archivas system does not yet archive research materials, but the long-term intention is to use Archivas *ArC* for all of CT&RC's long term retention Luter plans in the future to further migrate very inactive files to tape, probably stored at Iron Mountain, which they already use for remote backup of their IT systems.

Luter sees the future as full of data challenges. Once issues of patient privacy are addressed, he feels that the current talk of a national federation of oncology archives will turn to action, and become a reality in a year or two. At that point, an archive with the strong inherent data management provided by the Fixed Content File System and the ArC Cluster relational databases will allow the Cancer Therapy and Research Center to participate fully and safely in the large-scale research that such a federation would support.

Luter feels that his relationship with Archivas will serve him well going forward. He puts it this way: "Archivas will work with you. They don't blame other parts of your environment, they just make it work."

About The Clipper Group, Inc.

The Clipper Group, Inc., is an independent consulting firm specializing in acquisition decisions and strategic advice regarding complex, enterprise-class information technologies. Our team of industry professionals averages more than 25 years of real-world experience. A team of staff consultants augments our capabilities, with significant experience across a broad spectrum of applications and environments.

- ***The Clipper Group can be reached at 781-235-0085 and found on the web at www.clipper.com.***

About the Author

Anne MacFarland **is Director of Infrastructure Architectures and Solutions for The Clipper Group.** Ms. MacFarland specializes in strategic business solutions offered by enterprise systems, software, and storage vendors, in trends in enterprise systems and networks, and in explaining these trends and the underlying technologies in simple business terms. She joined The Clipper Group after a long career in library systems, business archives, consulting, research, and freelance writing. Ms. MacFarland earned a Bachelor of Arts degree from Cornell University, where she was a College Scholar, and a Masters of Library Science from Southern Connecticut State University.

- ***Reach Anne MacFarland via e-mail at Anne.MacFarland@clipper.com or at 781-235-0085 Ext. 128. (Please dial "128" when you hear the automated attendant.)***

Regarding Trademarks and Service Marks

The Clipper Group Navigator, **The Clipper Group Explorer**, **The Clipper Group Observer**, **The Clipper Group** *Captain's Log*, **The Clipper Group Voyager**, and *"clipper.com"* are trademarks of The Clipper Group, Inc., and the clipper ship drawings, *"Navigating Information Technology Horizons"*, and *"teraproductivity"* are service marks of The Clipper Group, Inc. The Clipper Group, Inc., reserves all rights regarding its trademarks and service marks. All other trademarks, etc., belong to their respective owners.

Disclosure

Officers and/or employees of The Clipper Group may own as individuals, directly or indirectly, shares in one or more companies discussed in this bulletin. Company policy prohibits any officer or employee from holding more than one percent of the outstanding shares of any company covered by The Clipper Group. The Clipper Group, Inc., has no such equity holdings.

Regarding the Information in this Issue

The Clipper Group believes the information included in this report to be accurate. Data has been received from a variety of sources, which we believe to be reliable, including manufacturers, distributors, or users of the products discussed herein. The Clipper Group, Inc., cannot be held responsible for any consequential damages resulting from the application of information or opinions contained in this report.