MAY 2013

SAGINAW COUNTY

INFORMATION SYSTEMS & SERVICES
MAINFRAME MIGRATION NEWSLETTER

THE MIGRATION PROJECT

As many of you are already aware, Information Systems and Services is in the process of migrating our legacy mainframe applications into a web based environment. I say migrating and not converting, because the applications will remain the same. The look and feel of the applications will remain the same; the data entered into these systems for the last 30-40 years will remain the same.

MIGRATION -VS- CONVERSION

Our migration involves moving all of the software and data from our IBM mainframe environment to a server based environment. The same programs that currently exist in the mainframe environment will be available in the server environment. The data will be moved from the mainframe to the servers. Basically, the way the system works now is how it will work when we finish the migration.

A conversion would require us to either create a software package, or purchase one that would replace what we currently have on the mainframe. THIS DOES NOT EXIST. The County has worked for 30 plus years to develop the systems we have. They are uniquely designed for Saginaw County and most systems work and share information with other systems seamlessly. Any conversion to an existing software package would result in a huge loss of functionality. Even then, once a package is in place, we would then convert our data to the data structure of the new software package, and spend large amounts of time training, and customizing code to create interfaces that do what we already have.

THE MIGRATION PROJECT

What we are doing is MOVING the software and data from the mainframe environment to a server based environment. By taking this path, all the functions, data, reports, and processes of the current applications are put in a newer environment. This allows training to be minimal, which can be a huge cost savings alone. The end users (YOU) will be able to keep all of the data you've worked so hard to enter. The systems that you've been working with for so many years will remain the same. You should be able to "Hit the ground running."

WHY ARE WE DOING THIS?

There are many reasons for moving the system from the mainframe to a server. The cost of maintaining the mainframe computer is a major reason, but not the only one. As the industry moves to a server environment, technology and education are focused in that arena.

As companies move away from a mainframe environment, fewer companies are now available to support this technology. When this occurs two things happen, companies stop supporting that environment, and costs for the remaining support escalate. The mainframe environment will be around for a long time; however, the cost to the County to keep this type of technology will continue to increase, while the supporting hardware and software we use to maintain it will continue to diminish.

All computers are NOT the same. Although all computers are designed to work with the user to give them what they want, mainframe and server based computers do this in different ways. College courses are not being offered to teach students to use a mainframe system, which has been an issue from many years. The obvious result of this is that sometime, in the near future, as the mainframe support leaves the industry, there will be no one left that is available to step in to replace them.

We are going where the technology leads us. The server based system is where the industry is focusing technology, it's where colleges are educating the next generation of computer support specialists, and it's

where we need to go in order to offer you what you will need in the future.

WHAT'S IN IT FOR YOU?

When this process is finished, we will be able to offer more options for you. We will be able to customize reports with charts and graphs. We will be able to include color into the reports. We will be able to add fields to a table and a screen with much more quickly, without reviewing and potentially changing every program of the application, as is done now. We will be able to work with software developed for the pc environment; like Microsoft Office (Word, Excel, etc.). In short we will be able to incorporate other technology into your work to automate functions for you.

WHAT'S THE CATCH?

Does this sound too good to be true? Well… Once we get finished with this migration, we believe you will be provided with an environment that gives you the same functionality, with minimum training necessary. Between now and then we have a lot of work to do. We are working closely with our migration partner, Datatek, to provide this solution. We currently have over 20 applications to migrate. The total of these include several thousand batch programs, online programs, online screens, JCL (job control language to run your programs) and files. We are aware that there will be problems. We will work through them as quickly as possible. We ask for your continued patience as we work to get you what you need.

HOW LONG WILL THIS TAKE?

The short answer here is "It takes as long as it takes." We plan on moving very quickly to get this accomplished, but, we will not compromise our daily processing and commitment to our customers. We require the new solution to be scrutinized by both ISS and our customers. We need your blessings to proceed. We plan on completing migration in 4 steps. The first step is well underway. We are converting the Easytrieve programs to COBOL. Easytrieve is a programming language that was used to quickly develop reports for you. This language is not supported in the server environment. We are currently very close to completion of this step.

The second step is where we move to the server environment. In this step, we are migrating our COBOL programs to Microfocus COBOL which is the version of COBOL that is supported in the server environment. Once this migration is complete, we will perform the actual platform migration, moving from the mainframe environment to the server environment. Datatek is taking all of our programs and making the necessary changes for them to work in the server environment. In this step, the program screens, reports, and file structures will remain the same. We will still be using the current passport sessions. This limits the area of potential problems. This is a major step in the process. It is very important to limit the problem potential. Once we complete this step, there is no going back… We will be "Off" the mainframe and "On" server environment. The mainframe will be removed.

The third step in the process involves changing the file structure: The file structure we currently use is called "VSAM" (Virtual Storage Access Method), and is a flat file data storage solution. Picture record strings of data lined up one after another in a HUGE string. Accessing the information from these record strings requires the use of keys or alternate record keys. Each key has to be pre-defined, and in very specific formats. Each record is accessed one at a time. As needs change, accessing the data in different ways is very cumbersome, and time consuming. We will be moving away from this environment, converting our VSAM data structure to a Microsoft SQL (Sequential Query Language), which is a relational database environment. This is the most common record management system used on a server. It will allow us to access data in an almost unlimited

manner; it will also allow us to select and update only those records we need for the process we want to accomplish, reducing our database search and update times. We will be able to filter the data, so our processing should run much faster.

The Fourth step will take us from Microfocus COBOL, and off our dependence on Passport and Mocha mainframe connection software. Here is where it gets fun. In this step, we will move to a web based environment. We will remove the emulator software (passport and mocha), and will be accessing the software using a Web application.

WHAT IS SQL?

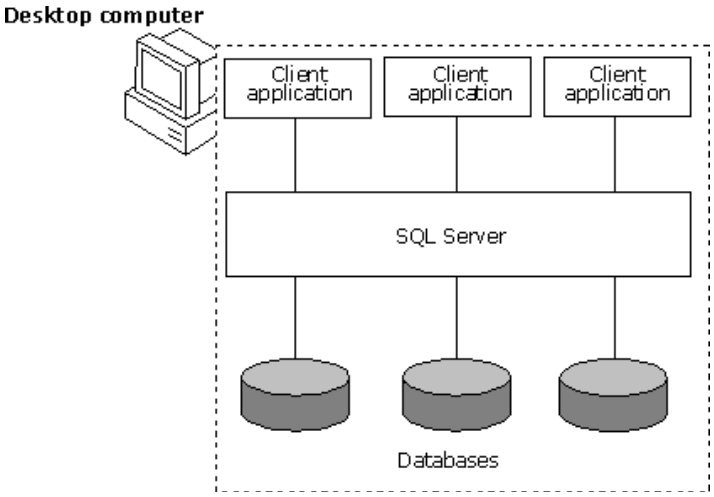
SQL Server is a database management system (DBMS) published by Microsoft. It is software for creating and maintaining relational databases, which are simply a method for storing large amounts of data. The Microsoft Management Studio for SQL is a tool that database administrators and developers use to access and manipulate databases. From this point forward I will refer to Microsoft SQL as SQL.

SQL will grow as Saginaw County's demands and applications grow. SQL Server is quick and can handle the new volume of database requests up to millions of records and transactions.

A database server is a computer that stores the data and serves information to a user's computer when they request it. There are several types of database server systems, but we have chosen to use Microsoft's SQL Server to manage Saginaw County's collection of data.

A benefit of SQL server is the ease of use, maintenance, reliability and its ability to handle many users. SQL Server also includes a variety of security features that allow administrators to implement an in-depth defense that is optimized for our security risks.

The County will continue to work towards migration of the current mainframe file structure to the new SQL Server/web-based environment. This migration will help us improve organization of our data storage, retrieval and security. This will help establish Saginaw County as a leader in Data Management Systems.



INTRO TO COMPUTERS-CS-101

Our goal continues to be providing you with the functionality and navigation you currently have, and just provide it without the mainframe. Well, some things will change. Most notably, the way data is displayed will be a little different. Computers don't use letters and numbers, they use 1's and 0's, and that's it. Everything that happens on a computer has to do with how those 1's and 0's are arranged. A single 1 or 0 is called a bit. A group of 8 bits is called a byte. Mainframe and Server based computers interpret these bytes differently. The mainframe uses an interpretation system called EBCIDIC, and the server's interpreter is called ASCII.

EBCIDIC and ASCII both work basically the same way, they take the character input and convert it to a byte. The difference is what it is converted to. Each

computer takes the input from the user; let's say they enter a letter "C". Both would take that input and convert it to the specific string of 1's and 0's. The mainframe would convert it to "11000100", while the server converts it to "01000011". Now, let's say on another record that same field, the user enters a "3". The mainframe saves that as "11110011" and the server saves it as '00110011'.

All computer functions are based off from these strings of 1's and 0's. So let's say you wanted to display these records in ascending order. The mainframe would display the "C" first and the "3" second, while the server would display the "3" first.

WHAT SHOULD YOU EXPECT?

The one obvious difference you will see when we migrate to the server is that the way information is displayed will change. Normally this won't be an issue because a name would not have a number in it, and an account would not necessarily have a letter I it. But, for those records that use both numbers and letters, you will find the order they appear to be different. That is the way the computer works, and we can do little about it.

The order the information is displayed is the major visual change in how things will look in the short term. But, down the road, we have the potential to make the systems look more like desktop application forms. We will eventually eliminate the terminal emulator products (passport and mocha). At this point we can modify the pages to the more visually appealing form look (see below).

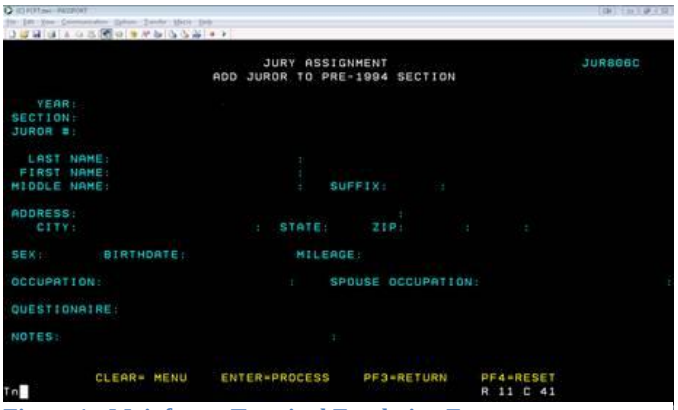


Figure 1: Mainframe Terminal Emulation Format

Figure 2: Web Application Page Format

WHAT CAN I DO TO HELP?

Be patient. This is a complicated process that will have problems. We will work through the problems as fast as we can. We are currently converting the Easytrieve to COBOL, and testing the server on-line systems that Datatek has available. We are finding problems, and they are fixing them as fast as they can. The good news is that as we find a problem on one system, many times the fixes they make apply to many other areas. This means that as we test more and more systems, we should find fewer and fewer problems.

At some point, we will be asking some of you to test too. We can test and test and test, but we test how WE think you do your work. YOU will be able to test how the systems will actually be used. That may sound like a little thing, but, it is actually a big difference. If the system doesn't work for you, it doesn't work. Your testing is vital to making this migration process as clean as possible. We will need your help.