

Carl Bulger presided.

Visitors:

Gus Sears is interested in creating a webpage to market his self-published book.

Janice Holland is interested in learning how to make a PowerPoint presentation of her pictures.

Margie Hill was interested in the presentation. She worked at the Census Bureau as a Mathematician and Statistician in the 1970's.

Presentation:



(Photo courtesy of Dennis Edgington)

Our speaker was David M. Koehler (pronounced "Caylor"), Chief, Facilities Service Branch, Computer Services Division, at the Census Bureau's Bowie Computer Center located in Melford. He originally worked for Unisys Corporation of Sperry Rand which was a manufacturer of large computers and also provided computational services. He later worked at the Census Bureau's Charlotte Computer Center in North Carolina. There was another in Suitland. When the two were consolidated in Bowie, he moved here.

The Bowie Computer Center was the second tenant in Melford, after the NSA facility. The Bowie City Council didn't like the utilitarian design planned for the building and insisted on something fancier to

attract further tenants. The Census Bureau added lots of glass to the front of the building and received an award for Design Excellence.

The IT Directorate Data Center Facilities boasts impressive stats:

4 petabytes (PB) of data storage (1 petabyte equals 1024 terabytes (TB); 1 TB = 1024 GB)  
2000 servers (56% virtualized); 3000 devices  
150 employees: 60 civil service, 90 contractors, but ONLY 80 parking spaces for those 150 people!  
1660 kW of conditioned and redundant power – It never goes off. Server virtualization has reduced this power requirement to 1500 kW.

They also support the computer rooms at the Headquarters in Suitland.

The Bowie Computer Center is a consolidation of the Charlotte and Suitland Computer Centers. *"Federal agencies are under pressure to cut back on their use of traditional data centers. In 2010, then-Federal Chief Information Officer Vivek Kundra directed agencies throughout the government to lose 800 data centers by 2015."* Mohana Ravindranath, *"Vying for a Chance to Upgrade the Federal Government"*, On I.T., *The Washington Post*, March 24, 2014. The Social Security data center in Frederick is three times as large as the Bowie Computer Center. NOAA has a supercomputer data center at the University of Maryland to develop better weather forecast models. And, of course, NSA has not only the data center in Melford but probably a supermassive data center at Fort Meade and at least one in Hawaii at which Edward Snowden stole data.

System management of the Bowie Computer Center uses both UNIX (Red Hat) and Windows operating systems. A new contract for system management was issued today (March 20<sup>th</sup>) to IBM. A majority of their desktop computers use the XP operating system. Even though it will not be supported by Microsoft for ordinary consumers after April 8<sup>th</sup>, commercial and government licenses will be supported for another year, at which time the Census Bureau will probably transition to Windows 7.

Data is stored on 5 TB encrypted tape cassettes which are loaded and unloaded from the servers by StorageTec robots.

Currently 56% of their 2000 servers are virtualized. Advantages include reduced power requirements, reduced cooling requirements, reduced equipment costs (they hardly ever buy any new equipment), reduced license costs, 80% utilization vs. 20% utilization before, and workstations have become essentially "dumb" terminals (monitor, keyboard, and mouse).

Servers are IBM Blade technology ([http://en.wikipedia.org/wiki/Blade\\_server](http://en.wikipedia.org/wiki/Blade_server)). The Blade technology is analogous to RAID technology for hard drives. If one Blade server is "lost", another is instantaneously loaded automatically. The remote user is normally unaware of any interruption.

Bob Blum asked why they are still using tapes for data storage and backup rather than optical readers. Apparently it has been a gradual incremental updating of tape technology from the old Unisys 200MB paper tape spools to the present much smaller, denser 5TB encrypted magnetic tape cassettes. They can be loaded and unloaded by robots and can be transported to Iron Mountain for longer term redundant storage.

BCC power is protected and redundant. Uninterruptible battery power supplies provide about 5 minutes of power until emergency generators powered by diesel engines come online. EPA recently mandated increased filtration of diesel exhaust, especially for CO2 emissions. The Bowie Computer Center commissioned a \$250K study to determine the best way to meet the new emission limitations. The recommendation was to install a urea filtration system. The urea would be obtained from cow urine which contains ammonia which, apparently, is a good CO2 absorbent. (Cows will, thus, partially compensate us for their over-abundant emissions of a much more serious greenhouse gas – methane.)

One of the services the Bowie Computer Center offers is their Fact Finder Service. An internet user anywhere in the world (the Chinese are major users) can query this data base for facts related to past censuses. Some data sets are restricted, e.g., unemployment statistics and housing starts (until released); and GPS mapping of sensitive sites. See the incredible array of information available on the Census Bureau's website supported by the Bowie Computer Center: <https://www.census.gov/#>

Bill Long asked if this is what genealogy researchers use. Yes, in part. Many of the vendors of genealogy data have copied the Census Bureau's files over to their own servers and software. Major releases of bulk and personal census data are stored in the National Archives. The last release was in 2010 of the 1940 census. If you're less than 74.3 years old, your birth data won't be public until 2020.

Mr. Koehler queried the data base to find what the most common occupations were in 1940's. One of them was "nylon striper". Because nylons stockings were hard to get during WWII, many women colored their legs with the color of nylons. But nylons at that time had a seam down the back. The "nylon striper" would paint a stripe on the back of women's legs to simulate the seam.

If you appreciated David Koehler's presentation, tell him: [david.michael.Koehler@census.gov](mailto:david.michael.Koehler@census.gov)

#### Computer Problems:

Lois Darr reported that Xubuntu Linux (see the March 6 minutes [home.comcast.net/~bscclub/meetings.htm](http://home.comcast.net/~bscclub/meetings.htm)) helped her get back into her computer and restore the missing hal.dll file.