

Information Services Department Stagnation or Migration?

Summary

Santa Cruz County Information Services Department (ISD) provides centralized information technology services, telephone, printing and other support services to county departments. In the area of information technology, the department manages the county's wide-area network. It also operates and supports a broad range of data processing applications for county departments including public safety applications, which require reliability twenty-four hours a day, seven days per week.

One of the major costs of ISD, and other county departments, is software development and maintenance. In years past ISD directors focused on in-house development to maintain control and customize applications to county needs. Much of this software was based on using a mainframe computer system popular in the 1980s and 1990s. With the advent of server-based computer systems in the late 1990s it was determined that newer "commercial off the shelf" (COTS) programs operating on modern information technology architecture would be more efficient for the individual departments. These new systems are also cheaper for ISD to maintain and much easier to backup for data integrity and disaster recovery.

The 2002/2003 Grand Jury examined the way ISD used software and hardware and recommended, "migrating to current hardware and software technology" and off the obsolete mainframe. The Board of Supervisors agreed. Shortly after the report was published the County committed to an ambitious timeline of four years to transition all applications and retire the mainframe.

This Grand Jury revisited ISD to see what progress had been made towards the stated goal to end county dependence on obsolete technology and found that years passed without any significant progress towards eliminating the old mainframe system. In particular, much time and energy was spent unsuccessfully attempting to implement the Planning Department's new Hansen® software. However, recent managerial changes in ISD appear to have broken the logjam and restored interdepartmental cooperation and customer satisfaction.

Within the last few months the County has approved, and ISD has begun, numerous major migration projects with another very ambitious timeline. The County appears committed to finally retiring the mainframe that is the backbone of many critical county functions. The Grand Jury commends the current progress and hopes the aggressive timeline represents recognition of the danger to the integrity of county operations posed by reliance on obsolete technology. However, the Grand Jury has concerns about whether the County is truly committed to providing ISD with the resources necessary to successfully complete this critical mission in an era of budget crisis.

Scope

This report examines Information Services Department issues that can have a substantial impact on the County and its residents. Specifically whether ISD has made progress

towards converting to newer hardware and software technologies, and whether the current ISD service level is resulting in satisfied customers.

Definitions

Mainframe: Computer hardware most often used by large organizations for critical applications, typically bulk data processing such as census, industry and consumer statistics, enterprise resource planning, and financial transaction processing. The term usually refers to computers compatible with the IBM System/360 line, first introduced in 1965.

Migration: A change from one hardware or software technology to another or moving data from one storage system to another (data migration).

Application: In computer science, an application is a computer program designed to help people perform a certain type of work. Depending on the work for which it was designed, an application can manipulate text, numbers, graphics, or a combination of these elements. Some application packages offer considerable computing power by focusing on a single task, such as word processing; others, called integrated software, offer somewhat less power but include several functions.

Findings

1. The 2002-2003 Grand Jury made several findings regarding the expense, practicality, and obsolescence of the county's mainframe system. The County agreed in substance with this assessment. These findings from 2002-2003 included:
 - ISD uses mainframe computer hardware first introduced in the 1990s, which was an upgrade from an earlier version.
 - Mainframe architectures are expensive to sustain and difficult to evolve to current industry best practices such as web access.
 - The County continues to use a mainframe internal billing structure to allocate ISD expenses across county operations. This requires administrative personnel involved in determining and allocating costs of mainframe usage for the purpose of interdepartmental billing.
 - ISD understands the ultimate need to eliminate the mainframe computer operations by migrating to less expensive current technology, but does not have a formal plan or time line for accomplishing this.
2. On more than one occasion prior Grand Juries have found that outdated software applications are impacting the performance of county departments, such as the Sheriff's Office and Planning. The County has agreed that the systems need updating.
3. In 2009 the County relies on substantially the same hardware, although software upgrades and revisions have been implemented in the intervening years.
4. Currently only two ISD employees are thoroughly trained and familiar with operating and supporting the mainframe. Both employees are eligible for retirement.
5. On April 1, 2007, IBM stopped offering support for mainframes such as the County's 7060-H50.

6. In the fiscal 2008 year-end report submitted to the Board of Supervisors, the county's independent auditors, Caporicci & Larson, noted that: "The County's Disaster Recovery Plan was developed 25 years ago and was not updated to address the new technologies. The Disaster Recovery Plan details the actions required should a disaster occur that affects the computer operations of the County."
7. In 2002, ISD began a project to transition the Planning Department's code enforcement system from the mainframe-based Automated Land Use System (ALUS) to a non-mainframe Hansen® system. As of today Planning is still relying on ALUS for permits and land use planning, while running certain code enforcement processes on a dual-entry basis (entering information into both ALUS and Hansen®).
8. In 2009 the following county departments still rely on applications running on the mainframe: County Administrative Office, Treasurer/Tax Collector, Assessors Office, Auditor Controller, Purchasing, Payroll/Personnel, Planning Department, Probation Department, Recorder's Office, Sheriff's Office and the District Attorney's Office.
9. Within the last year, the County has approved projects that will move the following operations off the mainframe:
 - Tax system (\$2,530,000 contract awarded August 5, 2008)
 - Sheriff's records management system and jail management system (\$475,505 jail management and \$478,370 record's management contracts awarded January 13, 2009)
 - Probation case management system (\$474,988 contract awarded January 13, 2009)
 - Recorder's system (\$246,843 contract awarded March 3, 2009)
10. As applications are shifted off, the cost of maintaining the mainframe has been allocated among departments still using it. The number of users has decreased, so charges to each remaining department have increased, although in the 2009-2010 department budget enough cost reduction has been achieved so that there is no need to increase charges to users.
11. ISD is working toward being mainframe-independent within four years.
12. A new ISD Director was appointed in 2007. Prior to his appointment, the department operated with a mindset of internally developing and supporting custom applications based on the mainframe architecture.
13. All the county employees this Grand Jury met with thought that ISD communication and responsiveness had improved over the last couple of years.

Conclusions

1. The County has made inadequate progress towards migrating departmental applications off the mainframe in the more-than-five years since the 2002-2003 Grand Jury report.
2. The age of the mainframe, the lack of manufacturer support, and the limited number and status of qualified personnel, pose real risks of catastrophic interruption of service and/or loss of critical data.

3. The appointment of a new ISD Director in 2007 has proven to be a positive step toward elimination of both internal software development and mainframe reliance.
4. The shift in ISD culture, combined with apparent progress after a period of stagnation has resulted in higher levels of customer satisfaction among the departments utilizing ISD services.

Recommendations

1. The Board of Supervisors should provide the resources necessary to allow Information Services Department to complete migration off the mainframe on schedule.
2. The Board of Supervisors should monitor ISD progress to ensure adherence to the migration schedule.

Commendation

The Grand Jury commends the Information Services Department and director Kevin Bowling for changing the focus and the culture of the department over the past two years. The changes have improved user confidence and resulted in considerable progress towards the goal of eliminating reliance on the mainframe.

Responses Required

Respondent	Findings	Recommendations	Respond Within / Respond By
County of Santa Cruz Board of Supervisors	2, 3, 6-11	1 – 2	60 Days September 1, 2009
County of Santa Cruz Information Services	2-4, 6-11	1 – 2	90 Days October 1, 2009

Sources

Interviews

- Officials from Santa Cruz County Departments
- Information Services
- Planning
- Probation
- Child Support Services
- County Administrative Office
- Site Inspection
- Information Services Department Server Room, 701 Ocean St., Santa Cruz, CA

Publications

Santa Cruz County Board of Supervisors Minutes: August 5, 2008; January 13, 2009; March 3, 2009

Santa Cruz County's Technology Strategic Directions and Consolidation Plan, Cuong Nguyen, March 10, 2004

County of Santa Cruz Planning Department, Planning News, Spring Issues, April 2006

County of Santa Cruz, Information Services Quarterly Reports

First Quarter 2003-2004 through First Quarter 2008-2009

Santa Cruz County Grand Jury Reports

Review of the Santa Cruz County Planning Department, 2000-2001

Operations of the Santa Cruz County Information Services Department, 2002-2003

Santa Cruz County Jails Review, 2003-2004

Code Compliance Enforcement - Does it pass inspection?, 2007-2008

The end of the IBM System/390, Isham Research, 2003

Who'll mind the mainframes? Few students are learning to run the decidedly unsexy, but vital, systems, Hiawatha Gray, Boston Globe, August 26, 2005

When to Murder Your Mainframe, Peter Nulty, CNN Money.com, November 1, 1993

IBM Ends 31-bit z/OS Mainframe Support, Mark Fontecchio, Data Center News, April 11, 2007

Web Sites

<http://www.wikipedia.org/>

<http://www.co.santa-cruz.ca.us/>

<http://www.pcmag.com/encyclopedia/>

