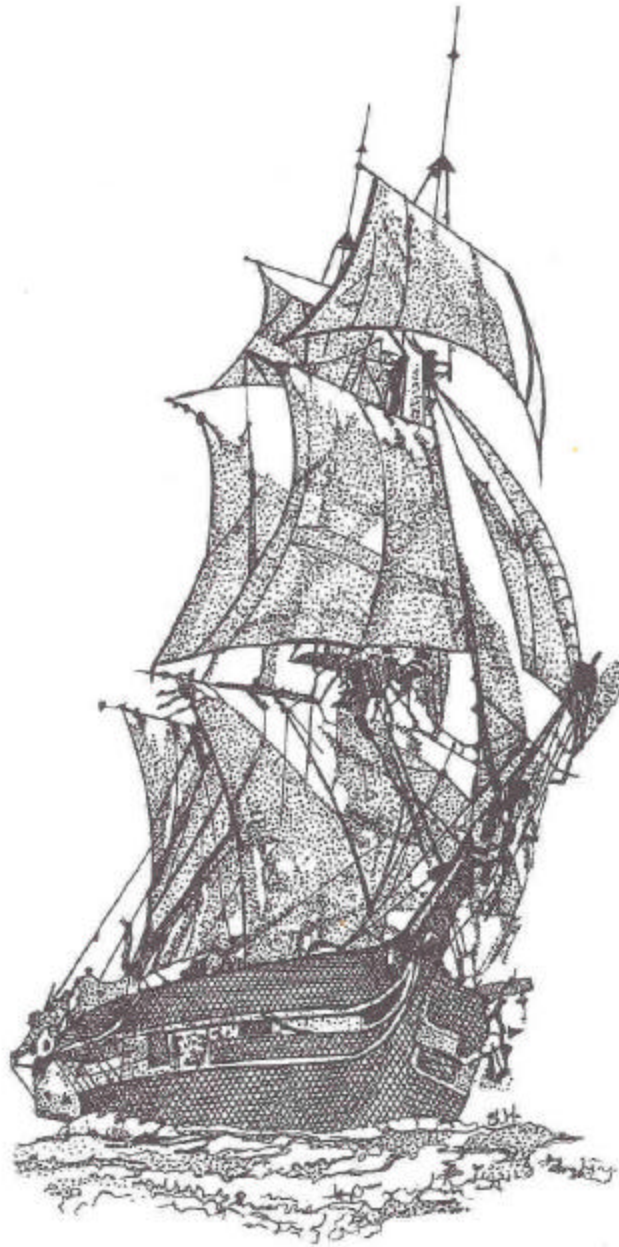


**ORANGE  
COUNTY  
GRAND  
JURY**



**The Pilgrim at Dana Point Harbor**

**FINAL  
REPORT  
2002-2003**

**Cost Saving Opportunities For  
County Information Technology  
APRIL 17, 2003**

# COST SAVING OPPORTUNITIES FOR COUNTY INFORMATION TECHNOLOGY

## Summary

The County Information Technology organizations are now at a critical juncture. Three of the five existing mainframe applications have been or will be moved away from the mainframe computer. Additionally, the County must upgrade software on the most commonly used mainframe application in order to continue receiving the vendor support. These recent events have made revising the County Information Technology (IT) strategy a priority.

The on-going costs to support a mainframe are extremely high since it requires many different pieces of software to make the computer run properly. Mainframe based software products are tier based; that is, the bigger a machine, the more expensive the software. In general, it is less expensive to run a server-based system.

The Data Center building on Grand Avenue was designed for 1980s technology that required large, raised floor space to accommodate bulky equipment, power cables, piping for the cooling system, air conditioning, and uninterrupted power systems. Only a fraction of these environmental related costs applies to a newer generation of computers and storage devices. This gives the Data Center the opportunity to pare down the expenses.

Each County department IT has its own Network Support, Help Desk and Network Security staff. Since the skill set to perform these support functions is essentially identical, this fragmented support structure in the County causes some overlap and inefficiency. With the presence of the management software and the County's advanced network, these support functions for all County departments could be better and more effectively managed from one location.

After examining the County Information Technology structure, the 2002-2003 Orange County Grand Jury has identified four potential areas where the County could reduce costs:

- I. The Mainframe to Server Transformation
- II. IT Financial Related Issues
- III. The Network and its Support Structure
- IV. Telecommunication Expenses

## **Introduction and Purpose**

Business began to use Information Technology as a strategic tool to outmaneuver their competitors in the 1990s and to demand more of the information systems with shorter lead-times. The traditional centralized IT organization did not fully anticipate this surge in demand and was not ready to take on the challenge. At the same time, personal computers (PC) and servers became more powerful, user friendly and affordable. People began to feel more comfortable with computers. They felt in control and were eager to use new technology. This change of attitude toward computers had a profound impact on the business world.

In a centralized IT environment, business units always complained that the development cycle was long and costly. They have also perceived that IT professionals were not business savvy. With readily available business software and affordable hardware coming to the market, business units began their own IT ventures. The decentralization of IT functions began to proliferate. Orange County accelerated its departmental IT strategy, or decentralization, after the bankruptcy in 1994.

Decentralized IT organizations inherited some cost inefficiencies due to the loss of economy of scale. During economic boom years, business people were less concerned about the costs when they deployed a new technology. Recent economic conditions have raised cost concerns.

Orange County is experiencing a budget crisis and an urgency to reduce expenses. The combined budgets of Office of Information Technology (OIT) and of the departmental ITs are far greater than the \$46,000,000 allocated to OIT. A team effort to find a more cost effective IT structure could result in substantial savings to the County without compromising the quality of services.

## **Method of Study**

- Interviewed the Executive Management at the County Executive Office/Office of Information Technology, Data Center managers, and six departmental IT managers.
- Reviewed the budget, software and hardware configurations, capacity planning reports, invoices, and current contracts.
- Examined relationship between OIT and departmental IT.

## **Background**

The County departments followed the industry trend towards a decentralized IT to accelerate the use of new technologies. Each County department created its own e-mail, word processing and imaging applications. At the same time, five major legacy applications remained on the mainframe at the Data Center.

The rapid deployment of technology greatly improved the productivity of workers. However, a decentralized IT created some cost inefficiencies at the same time. Some of

these cost inefficiencies were not addressed during the economic boom years due to the urgent need for new technology. With a slower economy and a budget crisis, the County could benefit from optimizing the decentralized IT environment.

**The Mainframe to Server Transformation**

The Court System, a mainframe application, was moved to a statewide system last year. Case Management System (CMS) used by the District Attorney’s Office requires Virtual Machine (VM), an old mainframe operating system. The District Attorney’s Office plans to move CMS to a server in August 2003. The Social Services Agency’s (SSA) Case Management System, another mainframe application, will be moved to a statewide system in 2005.

The most commonly used mainframe application is the County Accounting and Personnel System (CAPS). The software vendor for CAPS has recently warned the County that the current version cannot support the County’s new requirements. The County must upgrade the software to use the newly required functions. The software upgrade cost is estimated at \$1 million. The software vendor also offers outsourcing and server-based options. Only the Assessment/Tax System (ATS) will remain on the mainframe if the County chooses a server or outsourcing option for CAPS.

In FY 2001-02, the OIT budgeted approximately \$11,590,000 for mainframe related expenses. This spending is fixed under the existing hardware configuration regardless of the usage of the mainframe. This fixed cost could severely impact the County financially if no action is taken.

The Data Center contract administrator provided the Grand Jury a list of the mainframe contracts. Table A shows a partial list of the contracts.

**Table A  
A Partial List of the Existing Contracts**

	<b>Contract Number</b>	<b>Description</b>	<b>Annual Amount</b>	<b>Expiration Date</b>
<b>1</b>	N2000003672	The Mainframe & Software	\$598,094	6/30/2005
<b>2</b>	N1000004400	One-year lease on the 2 <sup>nd</sup> Mainframe	\$635,459	6/9/2003
<b>3</b>	Y1000000219	Software Term Agreement	\$491,569	3/22/2004
<b>4</b>	Y1000000403	Tape Cartridge Silos	\$372,723	11/30/2004
<b>5</b>	Y1000000535	Disk Storage	\$284,688	6/30/2004
<b>6</b>	Y1000000441	Software Maintenance	\$60,729	11/26/2004
<b>7</b>	Y1000000232	Software Term Agreement	\$40,083	4/30/2004
<b>8</b>	Y1000000282	Software Maintenance	\$36,269	Annual Renewal
<b>9</b>	Y1000000337	Software Maintenance	\$29,880	Annual Renewal
<b>10</b>	Y3000000336	Software Maintenance	\$26,764	Annual Renewal

This partial list shows the furthest expiration date on any contract is in June 2005. The displacement of the mainframe applications and the state of the contracts give the County a unique opportunity to revise its overall IT strategy now.

### ***Fresh Ideals and New Vision***

Unlike private companies, most County departments do not rely on Return On Investment (ROI) to make an investment decision. However, a department like IT could use a ROI model to maximize its investments in application developments and hardware acquisitions. Other business practices such as enterprise modeling, data modeling, data warehouse, and application development methodology have also proven to be important factors to the success of a new application development.

The Chief Information Officer at the County Executive Office and at least three departmental IT directors were hired by the County from private industries in the last three years. Their experience in these business practices from private sectors could factor into transforming the County IT organizations into a more modern and efficient setting.

### ***The Need for an Exit Strategy on the Mainframe***

The on-going support costs for a mainframe are extremely high since a mainframe requires many different pieces of software. In general, it is less expensive to run an application on a server than on a mainframe. Most of these software are tier based; that is, the bigger the machine, the more expensive the software.

As stated previously, the furthest expiration date on any Data Center contract is in June 2005, and only ATS must be run on a mainframe. This window gives the County IT Executives time to find a workable alternative for CAPS and ATS without involving a County mainframe.

### ***Another Opportunity After the Exit of a Mainframe***

An IT strategy without a mainframe gives the County the flexibility to move all critical servers and data storage devices to where they have the most usage. Several County offices such as Auditor-Controller, County Assessor, Treasurer-Tax Collector Office, and Clerk-Recorder are located adjacent to each other in a campus-like setting. Their intense use of imaging applications makes them heavy network users. The County could reduce a big portion of the expenses for the existing Asynchronous Transfer Mode network by deploying a high-speed fiber optic network there. The savings to the County would be substantial.

### ***IT Financial Related Issues***

With the current budget constraints, the County IT organizations have begun their mandated cost cutting. By June 2003 OIT will move the Data Center staff into a building just vacated by the Social Services Agency. The yearly lease payment of the vacated SSA building is \$350,000. The Data Center outsourcing contract stipulates that the outsourcer must lease the space vacated by the Data Center. The outsourcer will pay the County \$2,000,000 a year for the 18,000 square feet vacated by the Data Center. The outsourcer

will use the additional space to generate new external business. The contract with the outsourcer also stipulates that the County will receive 5% of any new revenues less than \$500,000 and 8% over this amount annually.

The decision to move the Data Center staff to a less costly building is the first step towards a cost cutting initiative. Other fiscal controls and cost cutting opportunities could further enhance these results.

### ***Bird's Eye View on IT Budget***

OIT has a yearly budget of \$46 million. Each County department has its own internal IT budget in addition to the OIT budget for the Data Center. To make the total IT spending more transparent, it is desirable to have an aggregated countywide IT budget. That way all County principals can better understand and better control IT expenditures.

### ***Charge Back***

In private industry profit centers treat internal IT services as expenses. They rely on a charge back to correctly calculate their fair share of expenses. An IT charge back includes the measurement of the many components such as voice lines, toll calls, data network, CPU, tape mounts, tape storage, disk storage, data transmitted, print lines, and overhead. The actual usage of voice lines and toll calls can easily be charged to the user department via carrier provided invoices. Proper charge back on other components imposes a significant challenge to almost any IT organization. A proper charge back requires a dedicated staff, software license fees, and other resources. All of these expenditures do not add much value to an enterprise if profit and loss are not involved.

Since a vast majority of the County departments does not generate outside revenue, the need to have a comprehensive charge back becomes irrelevant. To address the inequality concern, OIT should work with the departments to develop a simple but equitable way to fund OIT expenses. OIT could further enhance its credibility by publishing its cost cutting and productivity enhancement initiatives annually.

### ***Technology Related Procurements***

Currently, each County department has its own policy regarding technology related to procurement. County procedures require a review by OIT of all technology procurements exceeding \$10,000. Nevertheless, some departments make their own decisions without consulting OIT which causes technology proliferation. An OIT directed technology procurement could reduce overall costs by standardizing equipment and maintaining consistency in the countywide technology deployment.

### ***PC Configurations and Software Distributions***

The County is liable for all unlicensed software residing on County owned PCs. The current technology allows for central monitoring to systematically eliminate any illegal use of software.

In a decentralized environment, software upgrades for PCs are very labor intensive. With automated distribution software, the required software upgrades could be easily accomplished via the high speed Asynchronous Transfer Mode (ATM) network. This control capability would reduce labor cost and software incompatibility problems.

### ***Impact Printer and Reel Tape Drive***

The cost to the County for the annual maintenance of the rarely used reel tape drives and impact printers is \$23,286. Since the usage of a reel tape is insignificant, OIT could easily eliminate the reel tape drives.

An impact printer is used to print multi-part forms. The use of multi-part forms is extremely expensive, and printing them could be easily converted to a laser printer. OIT should identify what applications are still using the impact printer and convert them to a laser printer.

### **Network and the Support Structure**

Each departmental IT has its own Network Support, Help Desk and Network Security staff. Since the skill set to perform these support functions are essentially identical, a centralized support structure would reduce overlaps. However, the County departments are concerned that they may not get timely services if the Data Center is the service provider because of its location. Another concern is that the Data Center staff may not have enough business knowledge to effectively support them.

For example, the Social Services Agency (SSA) needs to have network connectivity to the state. A network connection beyond the County network automatically disqualified SSA from connecting to the advanced ATM network. In the mean time, SSA has been paying for service they were not allowed to use. This issue was not resolved until a new network management team joined the County about two years ago. The new team listened, understood SSA's needs and developed a solution that met both SSA connectivity needs and the County security requirements. SSA will be on this advanced network in April 2003.

The new management team at OIT is aware of the customer service related issues and has made customer satisfaction one of its top priorities. This new focus may pave the way for a broad-based inter-departmental support structure. Before full implementation OIT will have to earn the users' trust by successfully implementing several small-scale pilot projects. OIT must also recognize that an optimized IT support structure could fail unless it meets or exceeds a user's expectation in the areas of timeliness, level of expertise, and people skills.

### ***Network Operations***

For their own convenience some outside consultants leave a back door open on the departmental network by having a dial-up capability so that they can perform the network support function remotely. This practice without a proper security measure imposes a high risk to the network!

With the presence of an advanced ATM network and a sophisticated network management tool, the entire County network could easily be managed from one location. In the existing fragmented network support structure, the County commits more resources, but delivers an inferior result.

### ***Help Desk***

All systems users normally call the Help Desk when they encounter a computer related problem. The Help Desk function is important, and a broad based Help Desk can utilize technology such as a knowledge-based system to enrich the support personnel's skills continuously. All knowledge gained during any problem solving experience can be retained in the system. The County could also apply this methodology to other customer services related projects in the future.

### ***Network Security***

To ensure a high-level of network security, the responsible party has to diligently maintain security software at the current level and to apply emergency patches in a timely manner. To avoid running a risk of exposing itself for a hacker attack, the County will need either a network security expert in every department or the experts in only one location using the advanced network infrastructure to secure the entire County network. A centralized network security would definitely reduce the security risk its related costs.

### ***Telecommunication Expenses***

A local phone company has an exclusive contract to program and to maintain all phone switches, voice mail, and other voice related equipment in the County. The same company also sells phone lines to the County. The County needs to be assured that the vendor's service unit is independent from its sales organization.

In telecommunication terminology a T-1 Carrier (T-1) is equivalent to 24 regular phone lines. The initial investment and the monthly recurring charge for a T-1 are approximately \$4,000 and \$500, respectively.

### ***Right Sizing the Number of Telephone Lines***

The Data Center has provided a list of phone switch configurations on all County departments. Table B only lists the departments that may have saving opportunities. As shown in Table B, the number of configured T-1 (163) exceeds the required T-1 (98) by 65. The County could have avoided payments of \$260,000 in one time equipment and installation charges and \$32,500 monthly recurring charges if T-1 had been properly configured to meet the requirements.

A Digital Inward Direct trunk (DID) line is an inbound only phone line that allows a caller to reach the recipient without going through an operator. This is a productivity enhancement feature. The monthly cost of a DID line is approximately \$45. Table B shows that six departments have a ratio of digital stations to DID lines below 5.0. The



low ratio is an indication of excessive DID lines at these locations. A traffic study would confirm the finding.

**Table B**  
**Partial List of the Configurations of the Phone Switches**

Department/Location	Phone Lines	Config. T-1 Cards	Req'd T-1 Cards	Digital Stations	DID	Ratio
Civic Center	1,610	90	67	3,581	720	5.0
CSS	94	12	4	515	102	5.0
Data Center	94	10	4	291	42	6.9
SSA, City Dr.	120	10	5	971	16	60.7
SSA, Eckhoff	94	8	4	205	96	2.1
NJC, Fullerton	18	7	1	248	47	5.3
OCSD	70	6	3	512	48	10.7
SSA, Grand	94	6	4	101	48	2.1
Probation	46	4	2	126	48	2.6
SSA, La Palma	46	4	2	105	48	2.2
SSA, 888 Main	23	3	1	180	48	3.8
SSA/HCA, 1200 Main	23	3	1	129	48	2.7
<b>Total</b>	<b>2,332</b>	<b>163</b>	<b>98</b>	<b>6,964</b>	<b>1,311</b>	<b>5.3</b>

The local phone company provides free traffic study. OIT should take advantage of this offer whenever a capacity issue arises.

## Findings

Under California Penal Code 933 and 933.05, responses are required to all findings. The 2002-2003 Orange County Grand Jury has arrived at the following findings:

### The Mainframe to Server Transformation

1. The Chief Information Officer at County Executive Office and three departmental IT directors came from private industries.
2. Three options are available for the County Accounting and Personnel System (CAPS). The options are: 1. Upgrade CAPS software and continue to run as a mainframe application. 2. Change CAPS to a server-based application. 3. Outsource CAPS to the software vendor.
3. Assessment/Tax System will be the only mainframe application after year 2005 if no action is taken.
4. The District Attorney Office plans to move Case Management System to a server in August 2003.
5. The Court System was off the Data Center mainframe in 2002.
6. Social Service Agency's Case Management System will be moved to a statewide system in 2005.

7. The County is spending about \$11,590,000 a year in mainframe related expenses that include hardware depreciation, supporting staff, operating systems, monitoring tools, and software products.
8. The County has two mainframe based tape cartridge silos. The cartridge silo is not server compatible.
9. Auditor-Controller, County Assessor, Treasurer-Tax Collector Office, and Clerk-Recorder are located adjacent to each other on a campus-like setting. Their imaging systems require high speed Asynchronous Transfer Mode network to support.

### **IT Related Financial Issues**

10. Each County department has its own IT budget in addition to the inter-fund transfer allocated to the Data Center.
11. Some County departments and agencies have expressed dissatisfaction with the current IT charge back.
12. The County procedures require a review from OIT on all technology procurements exceeding \$10,000, but some departments do not follow the procedure.
13. The Data Center spends \$23,286 annually on maintaining rarely used equipment.

### **Network and Support Structure**

14. Each department has its own IT support structure that encompasses Network Operations, Help Desk, and Network Security.
15. Each department contracts its network support out. The contractors left the door open on some occasions and could have caused security breach.

### **Telecommunication Expenses**

16. The County departments in Table B require only 98 T-1 lines, but 163 lines were installed.
17. The digital station to Digital Inward Direct (DID) trunk line ratio is below 5 on six departments listed on Table B.
18. A local phone company has an exclusive contract to program and to maintain all voice related equipment in the County. The same company also sells phone lines to the County.

Responses to Findings 1-18 are requested from the Office of Information Technology.

### **Recommendations**

In accordance with California Penal Code 933 and 933.05, each recommendation requires a response from the government entity to which it is addressed. These responses are submitted to the Presiding Judge of the Superior Court. Based upon the findings, the 2002-2003 Orange County Grand Jury recommends that the Office of Information Technology:

### **The Mainframe to Server Transformation**

1. Consider forming a steering committee that includes recently hired IT executives who have experiences in private industry to transform the County IT organizations into a more modern and efficient setting. (Finding 1)
2. Conduct a cost analysis and feasibility study to determine if the server option is viable for the County Accounting and Personnel System (CAPS). (Finding 2)
3. Find an alternative so that the Assessment/Tax System does not need the County mainframe. (Finding 3)
4. Cancel VM related software after the District Attorney Office removes its Case Management System from the mainframe. (Finding 4)
5. Develop a plan to eliminate the Data Center mainframe if a server or outsourcing option is adopted on CAPS (Findings 5-8)
6. Issue a moratorium on granting new mainframe related contracts until OIT finalizes its future IT strategy. (Findings 5-8)
7. Consider using a high-speed fiber optic network on the Civic Center campus if a server or outsourcing option is adopted on CAPS. (Finding 9)

### **IT Related Financial Issues**

8. Consider consolidating countywide IT expenses so that County principals could better understand the cost efficiency in IT expenditures. (Finding 10)
9. Work with the various departments to develop a simple but equitable way to offset OIT expenses. (Finding 11)
10. Consider centralizing technology procurements to simplify support and to disseminate productivity enhancement tools faster. (Finding 12)
11. Develop a plan to eliminate the outdated Data Center equipment. (Finding 13)

### **Network and Support Structure**

12. Consider working with at least two departments to develop an optimized IT support structure as a pilot program. The outcome of the program will have a profound effect in regard to further consolidation. (Findings 14-15)

### **Telecommunication Expenses**

13. Develop a plan to de-install the over configured T-1 lines. (Finding 16)
14. Conduct a traffic study on the six departments listed in Table B with the lowest digital station to DID ratio and cancel the excessive DID lines. (Finding 17)
15. Ensure the vendor's service unit does not over configure the County's phone systems. (Finding 18)

Responses to Recommendations 1-15 are requested from the Office of Information Technology.