

**The Commonwealth Office of Technology  
Leading the Way**



**Strategic Information Technology Plan  
2010-2012**

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## Message from the CIO

The Commonwealth Office of Technology is pleased to present its 2010-2012 Strategic Plan. This plan outlines key strategic initiatives that have been selected as the focus of Information Technology efforts for the Commonwealth for the next biennium.



It is essential that we have a clear direction in these trying economic times. Technology has become the lifeblood of Kentucky state government services and we must continue to provide the quality, cost-effective IT services agencies depend upon to help improve the lives of all our citizens and businesses. We must do this while assuring that every dollar spent is spent wisely, for the greatest good, with the greatest return on the collective investment. More than ever before, we must be exceptional stewards of the public trust.

This plan is a collaborative effort of our entire management team who strongly believe it serves the best interest of the Commonwealth by setting an attainable vision that will allow us to meet our biennium objectives. I would like to acknowledge the dedication of the Commonwealth's IT professionals for their continued work to keep Kentucky a recognized national IT leader. Together, we will continue transforming state government to best serve the entire Commonwealth, today and tomorrow. We wish to thank all of the elected officials, citizens, partners, businesses, and agencies that have supported the Commonwealth Office of Technology as we 'lead the way' for Kentucky.

Sincerely,

Phil Baughn

Chief Information Officer

Commonwealth of Kentucky

# Executive Summary

## The Commonwealth's Strategic Initiatives

Governor Beshear lists the following items as essential to 'Putting Kentucky First':

- Affordable Health Care - affordable accessible health care to all Kentuckians, especially our children.
- Energy Independence - Kentucky must work toward energy independence not only for the security of our state and nation, but also that the energy sector offers tremendous economic opportunities for the state.
- Clean and Ethical State Government - bringing integrity and accountability to state government.
- Transportation - ensuring continued excellence and safety in highway design and construction while stretching limited transportation funds.
- Quality Education - ensuring every child in Kentucky has access to quality care from early childhood education through higher education.
- A 21<sup>st</sup> Century Economy - working hard to bring high-wage jobs to all parts of Kentucky, while focusing on Kentucky's strengths.

These six initiatives are largely dependent upon technology in order to succeed. Technology has the ability to supplement human capacity allowing state employees to work more efficiently and effectively while also providing a better quality of life and opening new doors of opportunity for our citizens. The Commonwealth Office of Technology's Strategic Plan provides the IT support state agencies will need to achieve each of the Governor's initiatives while working to decrease overall IT expenses throughout State Government.

Kentucky is a recognized leader in many areas of information technology but there is always room for improvement because technology never stands still. This 2010 - 2012 strategic plan builds upon past successes but also sets clear new direction toward a more customer-centric and transparent organization that is fully aware of its role as a steward of the state's vast volumes of data and understands it has the responsibility to assure its citizens and business entities that their data is safe and secure with the Commonwealth.

We believe we must focus on three major strategic objectives during the coming biennium. These objectives and the supporting goals outlined within this plan align COT with the Governor's goals for the Commonwealth. To do this, COT must:

1. Improve COT's Leadership Position in the Delivery of Innovative IT Enabled Business Solutions

COT has the legislatively mandated responsibility for Information technology in the Commonwealth. COT must demonstrate substantive leadership in the role that IT serves in support of state government services as an example to other IT organizations, within government and with which COT interacts regularly. Improved technology leadership also serves to improve business process and programs, positions the Commonwealth for improved customer service to all, and continually reduces the cost of government.

2. Continually Plan For and Reduce Technology-Related Risk

For all the positive benefits that technology has brought to mankind, it has also brought its share of negative consequences. For those that choose to walk on the darker side of society, technology has brought new ways to gather personally identifiable data (PID) and utilize it for the purposes of identity theft and/or the sale of the information to others for similar nefarious goals. Similarly, the more agencies depend on wires, circuits and other electronic components, the larger the possible risk.

3. Reduce Technology-Related Costs

Total Cost of Ownership is a common phrase in the world of business but many times pieces of the equation are overlooked or ignored because of a lack of understanding of everything that is needed 'behind the curtain' to make technology successful. Additionally, in these times of diminishing budgets, state government agencies must look beyond their own walls to see if existing capacity may already exist elsewhere or if desired purchases can be delayed or combined with other agencies to assure the economies of scale that allow for discounted pricing.

The current economic situation offers unique opportunities. IT expenditures must be viewed horizontally across the enterprise. Opportunities to reach out and break down agency silos for greater economies of scale are prevalent. Opportunities to share agency data for new cross-agency collaborations exist. Opportunities to be good stewards of the Earth by decreasing utility needs, limiting our Carbon footprint, and reusing or recycling end of life electronics abound. Adversity brings out the best in Kentuckians and COT is constantly seeking opportunities to decrease costs while improving services for the greater good. COT is continuously searching for ways to improve internally to better serve state agencies, and hence, the citizens of Kentucky. COT is constantly striving to 'lead the way'.

# Information Technology in Kentucky Government

Since 1973 when the Bureau of Computer Services was created, Kentucky has been very innovative in its strategy about information technology. Kentucky was a thought leader of the nation with a single, centralized data center in 1978, a state-wide emergency warning system in 1979, a centralized Office of Geographic Information in 1992, and a centralized email system for state government in 1998.



While many services are provided from a centralized, or “shared services” perspective, some agencies still provide IT development and support services within their organization. Other agencies have worked with the state’s centralized information technology organization, to consolidate their IT staff within COT to take advantage of ‘consolidated agency’ cost benefits.

Kentucky has suffered similar economic hardships as the rest of the country and declining revenues have caused state government to ‘tighten the belt’ a few more notches. As a result, COT staffing numbers have declined by more than 60 staff and 50 contractors over the last two years, yet our necessity to assure that the Commonwealth is open for business, and secure, 24/7/365, has increased as more services are provided by both COT and other state agencies. Diminishing numbers of state employees continue to support mission critical applications and systems, assuring citizens receive their appropriate, and in many cases, life-supporting, goods and services.



## COT Fast Facts:

- Centralized email supporting 38,000 users, 200,000 outbound messages/day and 300,000 inbound messages/day (post anti-spam filter )
- Support for nearly 800 virtual and physical servers within the Commonwealth Data Center and strategic locations across Kentucky
- Storage Capacity exceeding 2 Petabytes
- A wide-area network providing over 3,000 interconnected sites across the state including state agencies, libraries, local government, health departments and 174 school districts with over 1,243 schools.
- Phone service capability to 350,000 instruments
- Nearly 8,000 calls per month through centralized service desk
- Support for 8,600 desktops/laptops from Pikeville to Paducah

- Enterprise print services to more than 250 agencies resulting in 15 million black & white digital copies, 2 million digital color copies, and over 9 million impressions on offset presses
- Development and management of more than 250 of the state's most essential applications
- The Office of the CISO monitors approximately 1000+ potentially malicious network scans and 20 brute force attacks against hosts on our network every 30 days
- 10,500 accounts audited annually for password compliance
- Installed and maintains the Kentucky Emergency Warning System (KEWS) which is a statewide microwave radio network. KEWS provides communications for: the Commonwealth's Public Safety/First Responders; radio communications for Kentucky State Police, Department of Military Affairs, Fish & Wildlife Commission, FBI, Transportation Cabinet, Kentucky Vehicle Enforcement, Forestry and others; video transmissions for KET programs; the National Weather Service weather alert services, Integrated Flood Observing and Warning System (IFLOWS) and the Chemical Stockpile Emergency Preparedness Program (CSEPP)
- Kentucky was one of only a few states capable of submitting city boundary information in electronic format to the US 2010 Census as a result of the efforts of the Division of Geographic Information
- Contracted web services support 4.8 Million web pages and nearly 1 Million unique visitors/ month

## The Commonwealth Office of Technology

### Our Mission

Provide high quality, cost effective, timely, innovative, secure and reliable information management and technological solutions that focus on supporting the business strategies and operations of the Commonwealth.

### Our Vision

COT will be the standard by which other entities and our customers will desire to measure themselves in the delivery and support of information resources and the technology products and services which enable them. We will assume responsibility for leadership and governance in tailoring technology solutions to advance the capabilities of our customers and of the Commonwealth and continually exceed our customer needs.

## Our Guiding Principles

COT's vision frames the guiding principles for IT leadership in the Commonwealth:

- Quality Service and Solutions – As the Commonwealth's non-profit IT provider, our only goal is to serve the business needs of our agencies
- Strategic in Thought and Action – COT's focus will always be the advancement of technology for the betterment of all agencies.
- Consolidate where possible to reduce costs, mitigate risks and enhance effectiveness – Value comes from an intense economy of scale and critical mass.
- Transparency, Understanding & Marketing – We strive to clearly define and illustrate what we do so there is no "techno-mystery".

## COT Staff Values

There are certain expectations that we have of each other as members of the organization. These obligations and commitments apply to all COT employees.

- Strong Ethical Values in Word and Deed
- A Commitment to Long-term Value Creation
- A Commitment to Horizontal, Enterprise-wide, Value Creation
- Outstanding Creativity, Innovative Spirit and Execution Competence
- Enterprise-wide Impact and Thought in All Matters
- Active Commitment to Taking on the Most Critical Challenges of Our Time

# The Strategic Plan 2010 - 2012

## Goal 1: Improve COT's Leadership Position in the Delivery of Innovative IT Enabled Business Solutions

### Objective 1.1 Align Offerings For Increased Mobile Accessibility

- The Further Enhancement of Infrastructure, Platform and Software as Services within the Commonwealth's Private 'Kentucky Cloud'

### Objective 1.2 Provide Leadership in IT Environmental Stewardship

- Establish a Green IT Lifecycle Policy for the Enterprise
- Increase % of Virtualization of Commonwealth Data Center Physical Servers
- Procure EPEAT Gold Products Whenever Cost-Effective
- Begin the Virtualization of Appropriate Commonwealth Desktops
- Establish Managed/Staged Print Services

### Objective 1.3 Meet or Exceed IT Industry Metrics and Best Practices

- Establish Quantitative Baselines
- Monthly Reporting of Metrics on COT Public Portal

### Objective 1.4 Facilitate a Collaborative Workforce Within and Across Agencies

- Establishment of Enterprise Communities of Practice
- Identify Opportunities to Implement Shared Services

### Objective 1.5 Facilitate Increased Data Standardization and Sharing Across the Commonwealth

- Review and Revise the Kentucky Enterprise Data Architecture
- Develop a State-wide Information Exchange Framework
- Increase Utilization of GIS Infrastructure for Visualization of Data Throughout the Enterprise

### Objective 1.6 Retain and Recruit Quality Staff

- Decrease % Employee Annual Turnover Rate
- Increase % of New Employees Receiving 4 of 5 Overall on First Yearly Performance Evaluation
- Increase % 'Very Satisfied' Overall on Employee Survey

### Objective 1.7 Evaluate and Improve Training Resources to Meet Management and Employee's Development Needs

- Utilization Statistics of Enterprise Training Contracts
- 100% of Staff Completing COT University Training

### Objective 1.8 Lobby for the Correction of Current Personnel "Information Management Systems" Classification Track

- Align Compensation More Closely with Industry Standards
- Additional Classification Titles to Align with Operational Function

### Objective 1.9 Ongoing Reviews of Enterprise Capital IT Projects

- Reestablish Internal and External IT Project Reviews

## Goal 2: Continually Plan For and Reduce Technology-Related Risk

### Objective 2.1 Enhance and Continually Improve IT Security

- Decrease % Penetration of Illegal and/or Unauthorized System Intrusion Attempts
- Decrease # of Penetrations as a % of Attempts
- Decrease # of Electronic Data Breaches
- Decrease # of Websites Compromised

### Objective 2.2 Ensure Data Privacy of Citizens and Entities Doing Business with the Commonwealth

- Assure Security Measures are in Place to Limit Access to Appropriate Uses of the State's Data Stores

### Objective 2.3 Assure Availability of Mission Critical/Mission Dependent Information

- Provide Highest Levels of Network Availability
- Monitor and Report on Network Core
- Monitor and Report on Connections to POP sites
- Monitor and Report on Connections to Internet
- Monitor and Report on Multiprotocol Label Switching (MPLS)
- Monitor and Report Server, Application and Database Availability
- Movement from Disaster Recovery to Business Continuity Model with Development of Alternate Data Center

#### Objective 2.4 Raise Awareness of Risk Management

- Establish a Risk Management Framework in Accordance with NIST Standards
- Conduct a Semi-Annual Risk Briefing

#### Objective 2.5 Plan For and Effectively Manage Change

- Increase Process Compliance to Insure Proper Change Management
- Decrease in Number of Emergency Change Requests Submitted Monthly

#### Objective 2.6 Improve COT Operations, Methods and Processes

- No Audit Exceptions Received as Result of External Audits
- Document all Repeatable Functions within Each COT Business Unit to Expedite Mentorship, Cross-Training and New Employee Ramp-up.
- Continuous Improvement Through Ongoing Business Process Review
- Establish a Structured, Customer-Focused Alignment Plan

#### Objective 2.7 Improve COT Service Delivery

- Increase % Customer Satisfaction Ratings of at least '4 out of 5' for Commonwealth Service Desk
- Increase % Customer Satisfaction Ratings of at least '4 out of 5' for Office of Application Development project engagements

#### Objective 2.8 Improve Agency IT Operations

- Increased Communication of IT Policies, Standards and Best Practices
- Collaborative Evaluation

### Goal 3: Reduce Technology-Related Costs

#### Objective 3.1. Eliminate Unnecessary Redundancies to Save on IT Expenditures

- Establish Baseline Data on Infrastructure, Applications and Staffing
  - Creation of an Enterprise Systems Inventory
  - Implementation of a Configuration Management Database
  - Automation of Staffing Capacity Management
- Identify Total Cost of IT Ownership (Goods/Services + Personnel + Overhead) Within and Outside of COT
  - Establish Processes to Make Better Internal Go/No Go Decisions
- Create Process for Horizontal View of Expenditures
  - Increase Units Sold across Enterprise
- More Proactive Involvement in IT Procurement
  - Consultative Role in the Design & Preparation of Agency's IT Direction
- Establish Enterprise IT Contracts for Economies of Scale Savings
  - Increase % of IT Spending Covered by Enterprise Contracts
  - Establish TCO of Goods/Service Items Not Covered by Enterprise Contracts
- Stricter Contract Management
  - Work Collaboratively with Finance Office of Procurement Services
- Utilization of Portfolio Management Techniques to Improve Project Success Rate
  - Increase % of Capital IT Projects Completed On-time, On-budget
- Encourage Utilization of New Rate Structure to the Benefit of All Agencies
  - Market Comparison of Rates to Government IT Industry Standards
  - Monitor Agency Spend Across Each Rated Service
- Rapid Development of Reusable, Modular Technical Solutions
  - Decrease Development Time and Cost
  - Central Repository of Reusable Components

### Objective 3.2 Establish Non-Financial ROI and Quality of Life Factors within Capital IT Projects

- Review/Revise Planning and Evaluation Criteria
- Work to Increase Availability of Broadband Services to the Commonwealth
  - Monitor % Coverage on Broadband Data Map

### Objective 3.3 Evaluate TCO and ROI When Considering Solutions as Enterprise Standards

- Monitor # of EA Addition Requests Received/Approved Monthly containing TCO/ROI information
- Monitor # of EA Exception Requests Received/Approved Monthly containing TCO/ROI information

# Recent Accomplishments

## Metropolitan Area Network Completed

During the last biennium, we have designed and implemented a Metropolitan Area Network (MAN) providing high speed, high availability connectivity (99.995%) for users in the Frankfort area utilizing a geographically diverse, redundant fiber optic ring technology for the transmission of voice, video and data for mission and business critical systems. This communications infrastructure is built to mitigate the risk of data/server inaccessibility eliminating disruptions caused by the failure of any single connection or core network device. Eliminating the risk of communications disruptions to business critical systems enables an agency's workforce to remain productive. The new Geographically Diverse Core (GDC) and MAN allow agencies to reap the benefits associated with the reduced costs of technical personnel, hardware components, and maintenance and support contracts.

## Data Quality Services Established

For the last two years, COT has invested heavily in data services methodology, tool sets and associated training. Data is one of the Commonwealth's most valuable assets and these services are providing the capabilities to profile, cleanse and convert data as well as to also allow the data to be integrated across operational database platforms providing a seamless, common meta-data model of the Enterprise. Such services provide a common view of entities such as a Citizen that various Government services support. This capability allows us to move towards maintaining a common Customer record along with Customer-related attributes such as various types of contact information: physical address, mailing, email, phone, website, etc.

## Enterprise IT Contracts Benefit All

Enterprise Contracts have been established that provide a variety of services to the Executive Branch of State Government, K-12 schools and Postsecondary Institutions across Kentucky including:

- An end-of-life electronic scrap (eScrap) contract that has prevented 1,890 net tons from entering Kentucky landfills while generating more than \$75,000 in revenue for scrap submitting agencies.
- Information Technology training contracts for 'shrink wrap' software products as well as specialized training for project management, business analysis, and change management.
- A Software 'clearinghouse' that support purchases for a large percentage of the applications agencies need to support their business from the Office Suite to detailed technical development and support tools.

- Zero-cost telecommunications auditing services. All savings identified during the audit will be shared between the auditor and the Commonwealth.

### 'Sensitive' Data Detection

COT has upgraded the Commonwealth's network intrusion detection system to proactively monitor for the 'leakage' of sensitive data leaving state government's network. Kentucky is now able to detect when state agencies inadvertently or intentionally transmit unencrypted social security numbers or other sensitive information outside the state's network. This allows COT to notify the agency and take steps to avoid similar incidents in the future. This helps ensure that state agencies are protecting the privacy and security of Kentucky citizens.

### Enterprise Architectural Standards Updated

COT worked with the members of the reinstated Enterprise Architecture and Standards Committee to complete an update of the 10 standards domains, 125 sub-domains and more than 300 products listed as approved for use within the Commonwealth IT environment.

### Enterprise Data Security Policy Established

The Office of the CIO implemented an enterprise IT policy banning the placement of sensitive data on unencrypted portable storage devices. In support of this policy, COT encrypted all Data Center backup tapes to provide additional protection in case of loss or theft. COT also deployed data encryption software on all 'consolidated agency' laptop computers, at no charge to the agencies, to further prevent the loss of sensitive data in the event the device is ever lost or stolen.

### Program Based Pricing Established

The Office of Application Development (OAD) initiated a new Program Based Pricing Service with the Department of Revenue (DOR). The new service was based on a detailed Service Level Agreement (SLA). Starting with FY11 the SLA is effective through the biennium. The SLA articulated Software Development Life Cycle related application development and maintenance services for all identified Revenue Systems. This service also included infrastructure related consulting and installation services.

This service was not based on pre-existing hourly based application development rated services but included a fixed price level of effort based methodology. This new program-based service allowed the Department of Revenue to budget and appropriate their application development and maintenance related total spend for the fiscal year and biennium. A governance process allows DOR and OAD to monitor the program and manage the SLA.

OAD anticipates establishing similar SLAs with other state agencies that depend largely upon COT staff to manage their application development.

### Increased Mainframe Processing

COT doubled the processing power on the Commonwealth's mission-critical enterprise server environment – thereby reducing the cost per unit borne by the customers by 50%.

### Discounted Workstations Provided

COT provided more than 300 “gently used”, off-lease workstations to nine state agencies that could not afford to buy new devices. The used PCs were recently replaced during the routine desktop refresh cycle that occurs every three years. The workstations will be an asset to agencies who otherwise couldn't afford them during tough economic times. One agency reported that employees were using computers nearing 10 years in age before this program began. This effort continues to grow and more agencies are taking advantage of the offering each month.

## Ongoing Initiatives

### Legacy System Replacement

COT staff continue to support ongoing projects for the replacement of enterprise legacy systems in the areas of Revenue (Comprehensive Tax System) and Personnel (Kentucky Human Resource Information System). Ongoing support for the existing 30+ year old systems is a continuing problem because of the turnover of knowledge as staff retires as well as the limitations for platform upgrades that are limited by antiquated technology. Newer applications that allow much more flexibility through configuration rather than software modifications allow more opportunities for knowledgeable high-end system users to perform more routine tasks freeing IT staff to perform more technical functions.

### World Equestrian Games

Preparation for the World Equestrian Games (WEG) through upgrades of infrastructure, communications capacity and other technology initiatives at the Kentucky Horse Park will further confirm the Commonwealth as a premiere venue for international events. The WEG will be the second largest sporting event in the world in 2010 with more than 600,000 individuals expected to attend this sixteen day world championships for eight equestrian events. This is the first time the WEG will be held outside of Europe as well as the first time that all events are being held at a single venue.

### Alternate Data Center

COT recognizes that it would be extremely difficult to recover from a major disaster given today's contract and procedures. For this reason, COT is actively pursuing a near real time recovery capability for key systems by the establishment of an alternate data center (ADC), outside of a 50 mile radius from Frankfort, that would have the ability to support a fully redundant set of common equipment types; Mainframe, UNIX and Virtualized Servers. This ADC would mirror systems data to like storage devices so that recovery could occur in hours instead of days. Initially, however; our intent would be to maintain all existing processes and begin data mirroring (either periodic or real time) to become familiar with and allow for the building of new processes for recovery plans. Once fully implemented, we expect to achieve a recovery capability of less than 8 hours.

### Kentucky Early Warning System Upgrade

A major digital upgrade to the KEWS network is in underway this year, and the improvements enabled the KEWS network to stand up to the effects of the deadly winter ice storm that wreaked havoc across Kentucky in January 2010. It proved to be a test of wills for more than a dozen engineers and technicians who oversee the Kentucky Emergency Warning System. KEWS remained available throughout the crisis due to the tireless efforts and dedication of those workers in the field. The KEWS network plays a vital role in state government because it carries data, video, and voice traffic for a large number of agencies including the National Weather Service, Kentucky Educational Television, Kentucky State Police, military affairs, environmental protection agencies, emergency management, and state and local first responders.

### Virtualization

COT continues an extensive migration to a virtualized server environment and has successfully implemented several hundred in the Commonwealth Data Center. As a result of this effort, 125 first generation virtual servers have been modernized, 66 physical servers have been decommissioned, and the Commonwealth has avoided buying 75 new physical servers. Ongoing efforts for further server virtualization are expected to save the Commonwealth in excess of \$3.5 million in electrical, HVAC, and support costs over the next three years. This effort also reduces the Commonwealth's carbon footprint by several thousand metric tons.

COT has also initiated a proof of concept to evaluate moving to a virtualized desktop environment. By moving processing power from the desktop to the server environment, Kentucky plans to show considerable savings by extending the desktop refresh cycle by several years.

### Agency Application Support

COT maintains more than 250 applications that provide essential services to citizens and businesses across the Commonwealth. These efforts allow involved state agencies to continue

to deliver services to their constituents at a reduced cost for maintenance and operation, to meet new or revised state and federal legislative mandates, or improve operational efficiency, without the need for internal staffing not directly supporting the agencies primary mission.

### Cell Phones for Soldiers

More than 5,000 20-minute phone cards have been distributed to soldiers at home and abroad as a result of Commonwealth Office of Technology's participation in Cell Phones for Soldiers. COT began collecting old cell phones and Blackberries more than two years ago. The phones are sent to ReCellular, who in turn pays Cell Phones for Soldiers one hour of talk time for each donated phone.

## The Future

These are trying time for state government but also exciting times. New leadership brings opportunity for new vision. The Commonwealth's information technology direction has been set and we intend to hold ourselves accountable to assure we reach our goals.

"Greatness is not in where we stand, but in what direction we are moving" - Oliver Wendell Holmes. The Commonwealth Office of Technology is moving to lead the way for Kentucky.