



Information Technologies
Trends and Direction
for El Dorado County
For Board Presentation
February 27, 2007



I.T. Management Team



- Jackie Nilius – I.T. Director
- Steve Featherston – Assistant Director
- Renee Finelli – I.T. Manager, Application Support/Consulting Services
- Scott Cambridge – I.T. Manager, Technical Support/Security
- Tom Straling – Technology Officer



Table of Contents



- National Trends
- Roadmap for Success – Applications
 - Enterprise Content Management
 - Approach Information as a Service
- Roadmap for Success – Operations
 - Consolidation
 - Virtualization
 - Mobile and Wireless Computing
 - Standardization
 - Security governance
- I.T. Strategic Plan



Internet Nation



- **Growing Digital Majority**
 - 64%-75% of all American households are digitally connected to the Internet.
 - End of March 2006, 42% of Americans had high-speed at home, up 40% over 2005.
 - Hispanic American households now in broadband majority (52%).
 - Broadband adoption by African American households increased by 121% between 2005-2006.
 - Americans spend 11.4 hours online each week.
- **Internet – End to Isolation – A Community Thing**
- **E-Mail and the end to Being Out of Touch**
 - 72% of Americans check their e-mail while on vacation
 - 13% of the time is for business, 47% of the time is for pleasure.



The NET Generation is Here



- Defined as: “Grown Up Digital”. Using TV, cell phones and computers. Everything they do, they do digitally.
 - The eldest of this generation turned 27 in 2006.
 - This generation will form future society.
- Their digital experience has led to a growing disparity between their technology skills and expectations and what the marketplace and governments can deliver.
 - Currently they are not putting too many demands on county government.
- Municipal technology is five years behind the commercial world.
- Governments need to start building the foundation to get ready to embrace the NET generation.



How Americans Use Wireless



- Receive local weather/traffic alerts – 20%
- Make reservations and appointments – 16%
- Access local news, weather, sports – 13%
- Make small purchases (including public tolls) – 13%
- Watch TV or video clips – 23%
- Search – 25%
- National News/Politics – 13-24%
- Used personal e-mail – 37%
- Used work e-mail – 6%
- Used photo messaging – 10%



E-mail Trends



- E-mail is still the number 1 online activity.
- Performing searches is a close second.
- Internet users worldwide send an estimated 60 billion e-mails daily, many of which are spam or scam attempts.
 - US continues its reign as the top spam-relaying country.



E-mail Trends (cont.)



- El Dorado County
 - Over 494,000 External Attempted Messages
 - 462,500 were stopped by filtering with our Ironport Software
 - 25,000 Spam messages were detected
 - 14 Virus Messages were detected
 - 6,200 clean messages were left to and sent to recipient.

It is not a matter of if, but when.....



National Computer Crime Trends



- 2005 FBI computer crime survey reported 9 out of 10 organizations experienced computer security incidents and 20% said they suffered 20 or more attacks.
- Nearly 40% of respondents said identity theft is most likely to occur through online exchanges.
 - In reality, online exchanges represent only 9% of the crime.
 - Most fraud occurs through paper documents and stolen information.



National Computer Crime Trends (cont.)



<u>Date</u>	<u>Name</u>	<u>Type of Breach</u>	<u>Records</u>
<i>May 22</i>	<i>Veterans Affairs</i> <i>Two teenagers were arrested.</i>	<i>Stolen laptop</i>	<i>28,600,000</i>
<i>Dec 12</i>	<i>UCLA</i> <i>Contained SSNs, DOB, addresses, phone numbers.</i>	<i>Hackers gained access</i>	<i>800,000</i>
<i>Dec 13</i>	<i>Boeing</i> <i>Employee was fired.</i>	<i>Stolen laptop</i>	<i>382,000</i>

As of Dec 13, 2006 - 100,000,000 data breach victims since Feb 2005*

* Privacy Rights Clearing House
2/22/2012



Issues/Events That Drove Government IT in 2006



- IT Consolidation.
- Vital information became more open and mobile, but at the same time more secure.
 - Conflicting mix of requirements on tight public-sector budgets.
- 2006 Digital States Survey shows double-digit growth since 2005 using electronic channels to transact business.
- Citizens and Constituents appreciate the results.



National Spending Trends: Return on IT



- Since the beginning of 2004:
 - **Innovation spending** is up sharply by 43 percent
 - **IT efficiency** has increased 10 percent
 - **IT projects** remain risky
 - **More stakeholders** are involved in each IT decision, making it harder to gain approval and consensus
 - Focus has been on infrastructure optimization projects such as **consolidation, virtualization, standardization, security governance**, and automation tools which has led to continued IT efficiency gains.

QUESTIONS?



EDC I.T. Vision



“ACHIEVE A LEVEL OF AUTOMATION AND TECHNICAL ABILITY THAT ENABLES EFFECTIVE SEAMLESS GOVERNMENTAL SERVICES THAT ADD VALUE TO THE CITIZENS OF EL DORADO COUNTY, ENHANCING THE SERVICES IN THE MOST EFFICIENT, COST EFFECTIVE AND ACCESSIBLE MANNER POSSIBLE”



Roadmap for Success Applications



- Enterprise Content Management
- Approach Information as a Service



Enterprise Content Management Definition



- Enterprise Content Management (ECM) are the technologies used to capture, manage, store, preserve, and deliver content and documents related to organizational processes.
- ECM tools and strategies allow the management of an organization's unstructured information, wherever that information exists.



Enterprise Content Management



- Strategic Drivers for ECM
 - Productivity enhancement
 - Accelerates business processes
 - Regulatory compliance
 - HIPAA
 - State and Federal requirements for records retention
 - Limited filing space
 - Need for improved security
 - Eliminate unauthorized access
 - Reducing risk with improved disaster recovery



Enterprise Content Management (cont.)



- Records Management Costs
 - \$120 Cost to locate incorrectly filed documents.
 - \$750 Cost to reconstruct a lost file.
 - \$880 Cost to maintain a 5 drawer file cabinet for one year.
 - \$ 20 Cost to retrieve a single document from storage.

Source: International Records Management Council study



Enterprise Content Management (cont.)



- El Dorado County
 - Stores 2,355 new boxes of paper documents annually (2005 calendar yr),
 - Destroys 1,613 boxes of paper documents annually,
 - Receives requests for 2,501 document retrievals annually,
 - Retrieves and re-files 1,618 documents annually,
 - Currently stores over 14,000 boxes of paper documents.



How Enterprise Content Management Will Impact El Dorado County



- **Ease of document retrievals** – resulting from document indexing. Since documents will be stored electronically they can be served to the intranet and accessed by multiple users simultaneously.
- **Prevents loss of critical data** – avoiding time lost looking for mis-filed or lost documents. Prevents damage from multiple handlings.
- **Security of information** – reduces or eliminates unauthorized access to sensitive documents. Reduces risk of loss due to fire or water damage.
- **Improved productivity** – through streamlining of business processes and rapid document retrieval.



Roadmap for Success Enterprise Content Management Next Steps



- Identify and acquire the resources necessary to implement Workflow Analysis, Imaging, and Document Management services to County departments.
 - County Counsel Imaging Project – 1Q07
 - Additional departments – Begin 2Q07
 - Agriculture
 - Auditor
 - Treasurer/Tax Collector
 - Procurements

QUESTIONS?



Approach Information as a Service Definition



- Approaching 'Information as a Service' accepts the idea that data resides within many systems and repositories; moving away from the stove piping of data in various systems.
- The drivers for 'Information as a Service' are:
 - Web 2.0
 - Service Oriented Architecture (SOA)
 - Connectivity



Approach Information as a Service



- WEB 2.0 is a shift away from closed, inflexible, proprietary models to a more collaborative, participatory, open model for content providing a richer user experience. It includes a social dimension, greater openness and transparency in process.
- WEB 2.0 isn't tied to a specific technology or tool; it's a collection of advanced capabilities which allows users to participate without regard to geography. It's about providing services, not products.



Approach Information as a Service (cont.)



- WEB 2.0 includes:
 - The use of new technologies for data and content integration – RSS, WSDL and XML
 - The ability to combine content elements from multiple and disparate sources – Mash-ups, Example of eBay and Amazon.com
 - Collaboration and content repurposing, community thinking – Wiki and Blogs



Approach Information as a Service (cont.)



- **Service Oriented Architecture (SOA)**
is an enterprise-scale architecture (typically spanning multiple applications) where the primary element is a service (as opposed to modules, systems, applications or components).
- SOA allows the flexibility of business applications to be independent, but collaborative, while providing their services.



How Information as a Service Will Impact El Dorado County



- By approaching 'Information as a Service' El Dorado County government operations will be able to deliver business intelligence to a wide variety of applications and users, when they need it.
- In other words, rather than 10 or 20 percent of the County's employees being able to access the data, all of the employees will gain access to it easily, within their daily work and applications, rather than through a query or reporting tool.



Roadmap for Success Information as a Service Next Steps-Web



- Countywide e-mail subscription roll out. Begin 1Q07.
- Organize and facilitate a Countywide web task force to identify and prioritize web enhancements. Begin 1Q07.
- Evaluate and implement an enterprise web content solution. Begin 2Q07.
- Redesign the County's web portal to promote services. Begin 2Q07.
- Evaluate and implement appropriate web tools and services. Begin 2Q07.



Roadmap for Success Information as a Service Next Steps-Web (cont.)



- Audio-Visual Streaming
 - Audio Streaming
 - I.T. is investigating methods to stream the audio portion of Board Meetings to authorized staff members Countywide over the intranet. 2Q07
 - Audio/Visual Teleconferencing
 - I.T. working with Public Health on a teleconferencing solution that could serve as the basis for a Countywide solution. 3Q07

QUESTIONS?



Roadmap for Success Information as a Service Next Steps-Applications



- Evaluate aging applications to determine if they should be modernized or replaced.
 - Financial Systems
 - FAMIS
 - ADPICS
 - BPREP
 - HR/Payroll
 - Property
 - LMIS



Roadmap for Success Information as a Service Applications-Risks



- Do Nothing:
 - The majority of the County's business applications were developed or implemented in the late 1980's.
 - Current applications no longer support changing business requirements.
 - Vendors are promoting new product lines; limiting support and enhancements for these older applications.
 - Vendors are selling these old systems to new companies.
 - Older technologies are not flexible; it is difficult and expensive to modify applications to support business needs.
 - Resource availability knowledgeable in the older technologies is dwindling.



Roadmap for Success Information as a Service Applications-Risks



- Modernize or Replace:
 - Will be expensive
 - Acquisition Costs
 - Professional Services Fees
 - Will take time
 - Will require dedicated departmental and Countywide resources
 - Project team participation
 - Support of current and new application during roll out
 - Will require that County resources be trained on the new technologies and applications
 - Knowledge transfer to County staff from professional services critical for ongoing support and sustainability of application.
 - Wage Disparity between commercial and county



Roadmap for Success Information as a Service Next Steps-Applications



- Property Tax System
 - The Assessor has launched an initiative called “Data Integrity Enhancement Program” to be completed FY 06/07 and 07/08.
 - The Assessor is creating a Tax Estimator system to provide an on-line tool for the citizens - 2Q07.
 - Treasurer/Tax Collector is conducting an investigation of existing systems in order to create requirements needed by the T/TC for a property tax system - 2Q07.
 - Treasurer/Tax Collector is creating the ability to pay Property Taxes through an Electronic Payment program – 2Q07.
 - Treasurer/Tax Collector is Web enabling a Business License sub system to the Property Tax system, for use by citizens.

QUESTIONS?



Roadmap for Success Information as a Service Next Steps-Applications (cont.)



- Financial Systems:
 - Feasibility/Needs Assessment to evaluate ERP solution for FAMIS, BPREP, ADPICS, and HR/PAYROLL and includes mapping our requirements to available/feasible solutions/alternatives.
 - Procure Professional Services 2-3Q07.
- GIS and Land Management System:
 - The Surveyor to present the GIS/LMIS Strategic Plan – FY 07/08.

QUESTIONS?



Roadmap for Success - Operations



- **Enterprise**
 - Consolidation
 - Infrastructure
 - Server
 - Data Storage
 - Virtualization
 - Mobile and Wireless Computing
 - Standardization
 - Security Governance



Enterprise Consolidation Definition and Benefits



- Consolidation is ... Merging like services, applications, infrastructure or equipment to optimize Total Cost of Ownership (TCO).
- Benefits of consolidation
 - Reduce TCO by leveraging technology
 - Increased manageability & accountability
 - Fewer business interruptions
 - Enhance disaster recovery



How Enterprise Consolidation Will Impact El Dorado County



- **Communications Infrastructure**
- **Servers and Mainframe**
- **Data Storage**



Communications Infrastructure Consolidation Voice and Data



Current Environment

Either
Voice
Or
Data

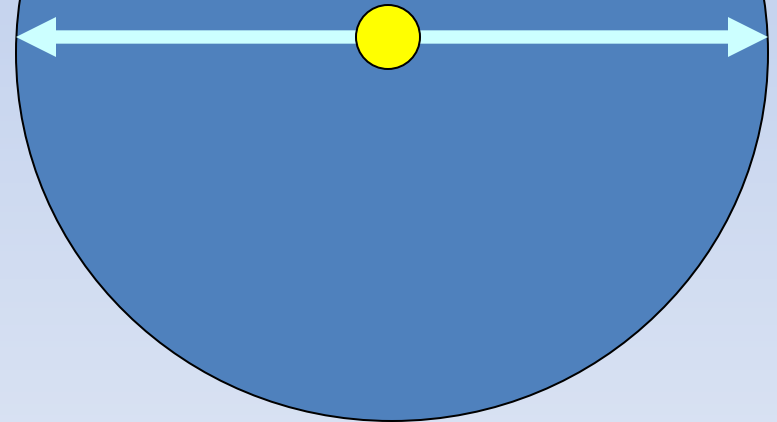


1.5 Mbps

UP TO

Future Environment - FY07/08

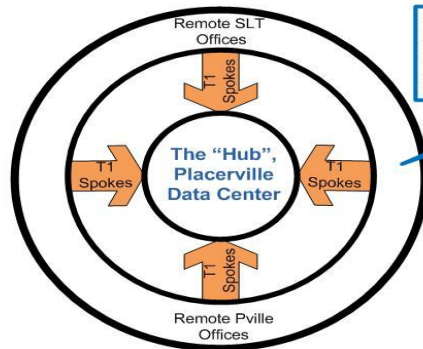
Both
Voice
and Data



100 Mbps



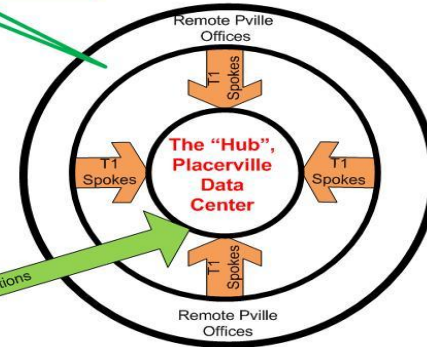
Communications Infrastructure Consolidation Voice and Data



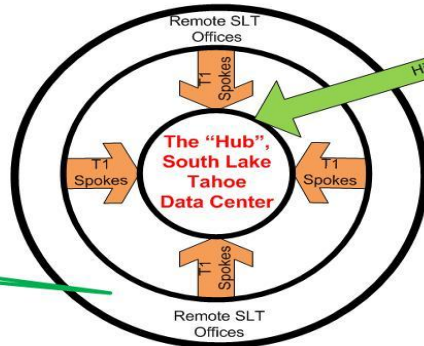
Outer ring represents remote offices connected to main hub via many T1 connections from Placerville and South Lake Tahoe. This is a single Hub and Spoke Network, with no redundancy.

Single Hub and Spoke Network, FY 06/07 Current Configuration

Outer ring represents remote Placerville offices connected to Placerville Data Center hub via multiple T1 connections, now part of a dual hub and spoke network. This design provides for redundant, survivable sites.



Outer ring represents remote South Lake Tahoe offices connected to Data Center hub via multiple T1 connections, now part of a dual hub and spoke network. This design provides for redundant, survivable sites.



Dual Hub and Spoke Network, FY 07/08 Future Configuration

High Speed DS3 Link Between Locations



Server Consolidation: Moves Many Stand-alone Servers into one Environment



PHYSICAL Consolidation utilizing
Virtualization technology



3 Blade Servers



How Data Storage Consolidation Benefits EDC



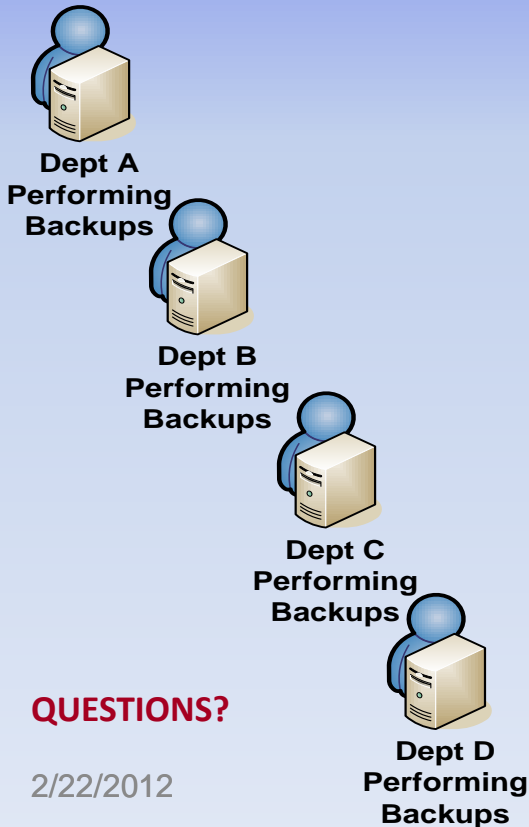
- Faster access to “misplaced” user data.
- Data backups are centralized.
- Data backed up to tape.
- Tape capacity expanded.
- Tapes sent off-site to storage vaults.
- Reduced need for additional storage servers.
- Fully utilize archiving technology Countywide.
- Reduced backup times.
- Dramatically improves disaster recovery ability.



Data Storage Consolidation



Current County Backup Configuration



Planned County Server Consolidation and Data Storage Configuration



QUESTIONS?



Enterprise Virtualization Definition



- **Virtualization**

- The practice of **LOGICALLY** partitioning a single server (blade or other) so that it appears as multiple servers. A virtual server operating under virtualization software in tandem with other virtual servers on one server utilizing software products VMWare and Virtual Machine (zVM).



How Enterprise Virtualization Will Impact El Dorado County



- Currently in the process of planning for Intel-based server migration 2Q07.
- Planning implementation of zVM (virtual machine) on the z9 3Q07.
- Potential to virtualize many servers Countywide – some on VMWare environment some on zVM.
- Free up data center space by consolidating servers into the virtual environment, consuming less floor and rack space, electrical power and air conditioning.
- Take advantage of real-time failover solutions.
- Reduce server deployment time.



Enterprise Virtualization

Failover Solution



~~HR Server~~

EM Server

BOS Server

TC Server

RC Server



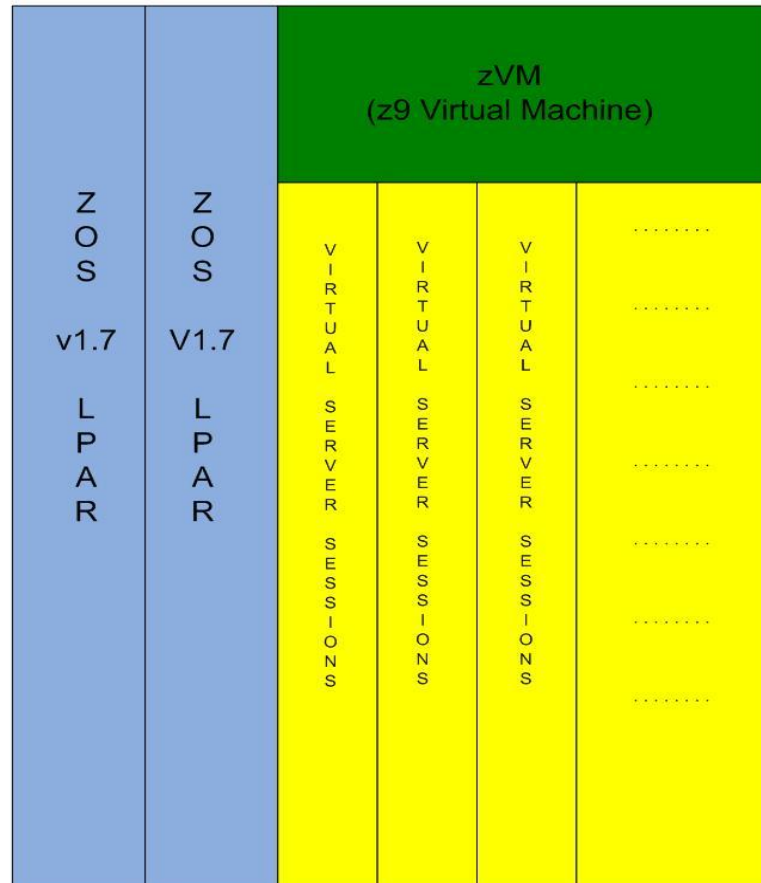
Failover happens in minutes.



Enterprise Virtualization - IBM z9 Mainframe



z9 Mainframe Server Partitions

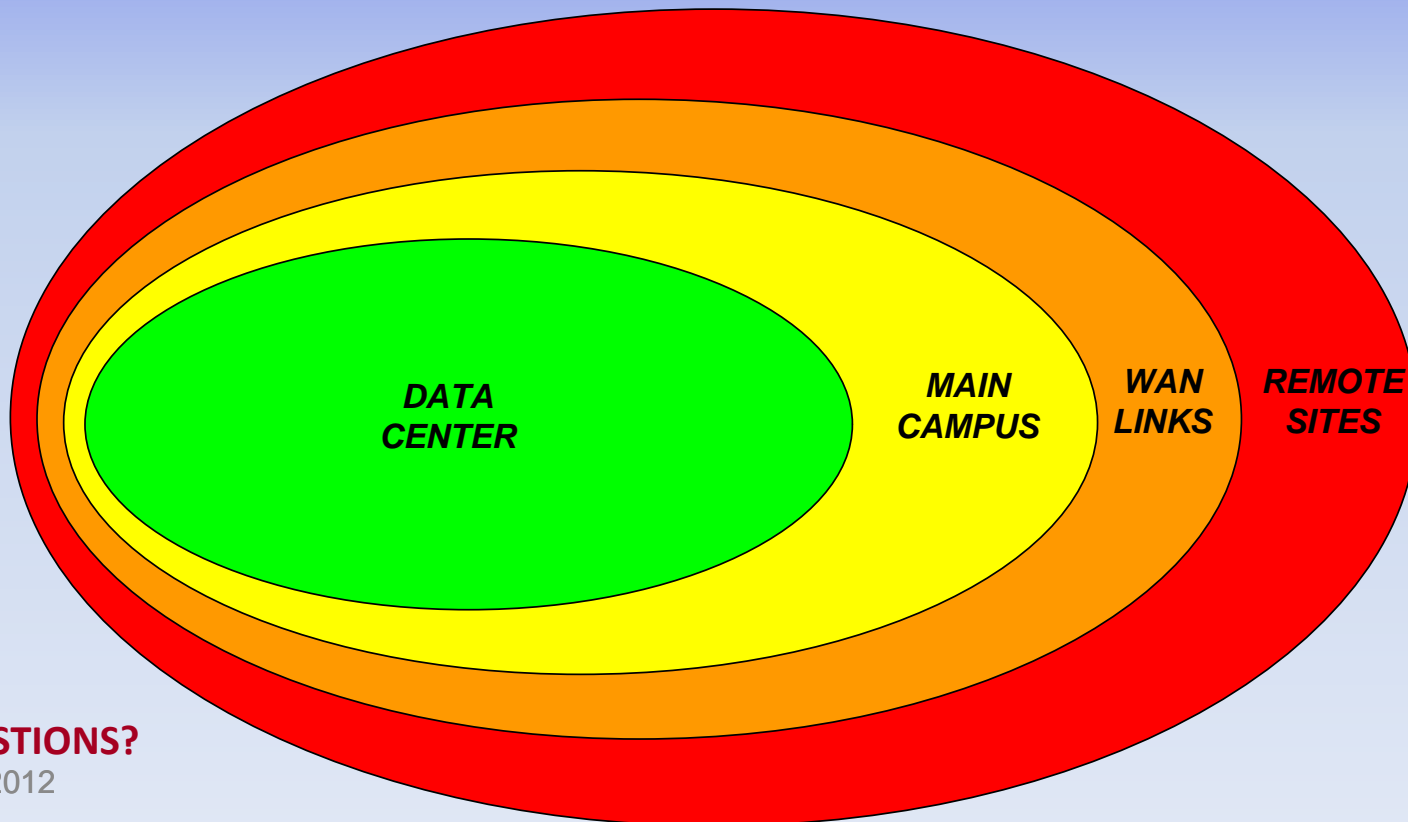




Enterprise Virtualization



Server Consolidation and Virtualization Planning



QUESTIONS?

2/22/2012



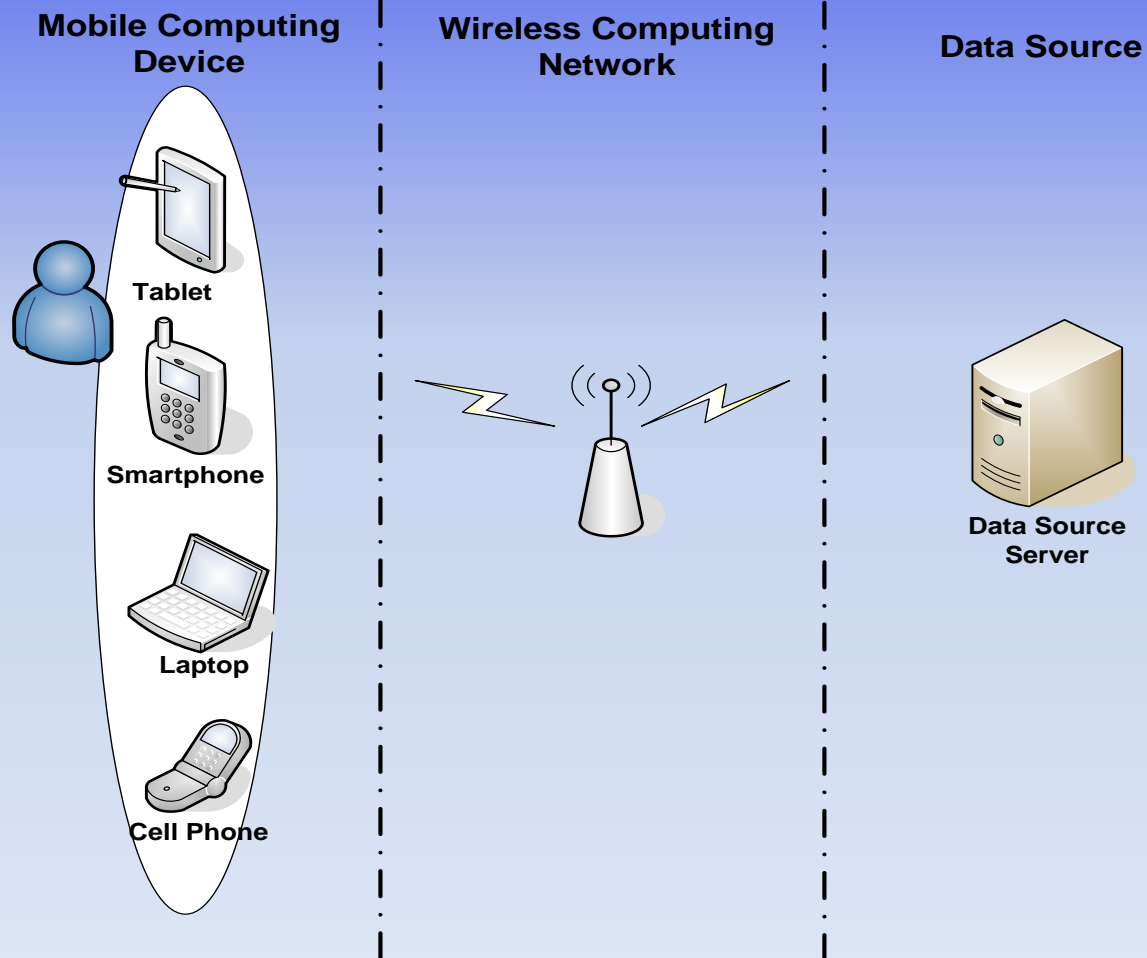
Mobile and Wireless Computing Definitions



- Mobile Computing simply describes a computing device that is not restricted to a desktop.
 - A mobile device may be a PDA, laptop, tablet, cell phone, or other device that is not restricted or physically tethered to a network.
- Wireless Computing describes the method of transferring information between a computing device and a data source – the network.



Mobile and Wireless Computing



QUESTIONS?



Enterprise Standardization Definition



- Standardization is the process of establishing technical standards and utilizing those standards consistently within an organization leading to enhanced operational effectiveness and TCO.
- BOS Policy *A-19* embodies the IT Computer and Network Resource Usage Policies and Standards Guide for the County.



Enterprise Standardization Benefits



- Consistency throughout the organization.
- Reduced TCO.
- Leveraged procurement.
- Improve IT operational effectiveness.
- Reduce security risks.
- Improve business agility.
- Reduce training costs.



How Enterprise Standardization Will Impact El Dorado County



- PC and Laptop Hardware Standards
- Operating System Standards
- Desktop Application Standards
- E-mail Standards
- Telephone Standards

QUESTIONS?



Security Governance Definition & Benefits



Security Governance consists of all the tools, personnel and business processes that ensure security is carried out to meet an organization's specific needs.

- Benefits

- Baseline of our business risks
- Compliance reduces liability
- Protection of County information technology assets
- Dependant on executive leadership buy-in



How Security Governance Will Impact El Dorado County



- El Dorado County Security Governance Resources
 - Tools
 - Virus Scanners, Firewalls, Anti-spam
 - Personnel
 - Physical Security, Countywide Security Awareness & Training
 - Business Processes
 - Security Policies, IT Governance, Security Program
 - Regulatory Compliance
 - HIPAA, Sarbanes-Oxley

QUESTIONS?



National Trends: IT Strategic Plans



- County size of 150,000 to 249,000, 50 % have an IT Strategic Plan.
- Phases in creation of digital information
 - Publish – Local Government gets stuck here
 - Interact
 - Transact
 - Integrate
 - Transform
- Technical challenges are mostly gone.
- Now, if you have the money, the will, and the need, you can do it.



EDC I.T. Strategic Plan



- Five Years
- Guide to decision making and evaluate the validity of strategic initiative by providing clear and consistent direction, goals, objectives and strategies
- Short and concise
- Contains measurable action items
- Reviewed and approved by the ITSC Steering Committee and by the I.T. Employees.



EDC I.T. Mission



“THE COMMITMENT OF THE INFORMATION TECHNOLOGIES STAFF IS TO DELIVER CREATIVE, ECONOMICAL AND PRACTICAL SOLUTIONS AND SERVICES IN SUPPORT OF THE CURRENT AND FUTURE TECHNOLOGICAL NEEDS OF EL DORADO COUNTY”



Core Values



- Integrity
- Accountability
- Innovation
- Customer Service
- Initiative
- Professionalism
- Leadership



Goals



- Improve the quality of products and services for our customers.
- Enhance value to the customer.
- Improve process efficiencies and effectiveness.
- Leverage technology to drive low-cost and high-performance innovative solutions.
- Invest in human and organizational capital.



Action Items



- Action items are included to measure success for each goal.
- Action items will be used to evaluate I.T. management personnel.

QUESTIONS?



Recommendation



- Adopt the Information Technologies Five Year Strategic Plan



Announcing 2007 I.T. Theme



- 2006 Word of the Week Results
 - **Integrity**, as in “Be the best person you can be through steadfast adherence to a strict moral or ethical code”, was voted the Word of the Year.
 - Runner-ups were: **Cooperation, Attitude, Balance, Respect, Loyalty**



C³ = SUCCESS



COMMUNICATION
COLLABORATION
COOPERATION
=
SUCCESS