

Department of Information Technology Overview

May 9, 2017



Board IT Committee Presentation to the Board of Supervisors



Overview of County Technology

- 1. Core IT Capabilities
- 2. Key Metrics
- 3. Budget and Investments
- 4. Challenges and Trends





Who County IT Serves

- The Public through Web and Other Channels
- All agencies within Fairfax County Government
- Various IT capabilities for Fairfax County Public Schools
- Locality partners within the County geo-print
- National Capital Region (NCR)





In a Nutshell....

Agencies

DIT

- Develops County IT Strategy, Policies and Standards
- Manages County-wide IT governance
- Steward for IT Security policy and enforcement, incident response, investigations, data/records search
- Develops and maintains enterprise-wide IT Infrastructure, enterprise-wide and major agencies' applications, and data architecture
- Provides enterprise data center disaster recovery
- Manages software licenses, IT tools, replacement programs, and IT projects

Agencies

- Adheres to County IT standards and policies
- Determining business requirements for agency IT solutions.
- Provides justification for technology investments and ROI
- Serves as Business Project Lead managing scope and compliance with associated regulatory requirements related to the agency business
- Determines & manages agency's users access rights and conduct monthly reviews
- Responsible for knowledge and decisions about the agency's data and develop basic reports



County IT Service Model – *Good Value*

Average for Local Government (Similar Scope and Scale)						
	Peer Jurisdictions	Fairfax County	% Difference			
IT spend per employee	\$8,823	\$6,027	(32%)			
IT spent as % of Operating Expenditures (GF)	5.1%	4.75%	(.07)			
IT FTEs as % of County user base	2.9%	2.1%	(.28)			

Source: IT Industry Research

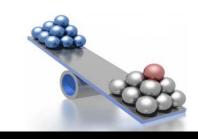
DIT Research for Select Local Government (Similar Scope and Size)					
County	IT Staff: Total FTE				
Fairfax County, Virginia	0.014				
Maricopa County, Arizona	0.015				
King County, Washington	0.026				

Source: Peer Review Research



Cost Efficiency Strategies DIT Cost Cutting Discipline

- Centralized Infrastructure
- IT Standards compliance vigilance
- Cyber Security program and risk management discipline
- Opportunities for **common apps solutions** serving multiple agencies
- Enterprise Software license management leverage economies of scale
- Virtualized data center and shared services (*Private Cloud*)
- Automated IT operations
- Support is **mobile** covering 24 x 7 with one shift
- Leverage all County Network assets
- Expanded use of networked multi-function (print, scan, fax) device fleet
- 'PC' replacement program flexibility
- 'Green' Data Center practices
- Tough Competitive negotiations: some pricing better than State
- Annual DIT-wide organization and resource allocation review
- Low overhead: significant reduction in program admin support for divisions



Fully Leveraged



Examples: IT Infrastructure Efficiencies – Value

- Infrastructure initiatives result in savings that would otherwise require additional staff
- County's private-owned fiber network (I-NET) achieves significant annual savings in telecommunications expense while significantly increasing capacity and quality
- The average cost of conducting a service online is significantly less than in person transaction costs
- Numerous "Green" initiatives in IT Infrastructure achieved savings
- Multi-Functional Digital Devices (MFDs) have increased agencies on demand print and document digitizing options at a lower total cost

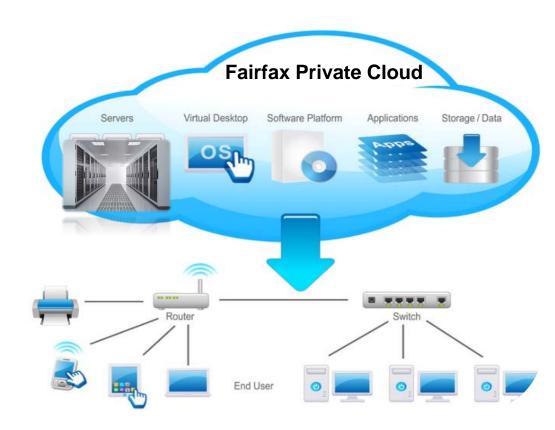
Centralized IT Environment

IT Infrastructure

- Servers, Networks, Data Storage
- Enterprise Platforms: (Document Management, Exchange E-Mail, ERP, CRM, GIS, Web, mobile, etc.)

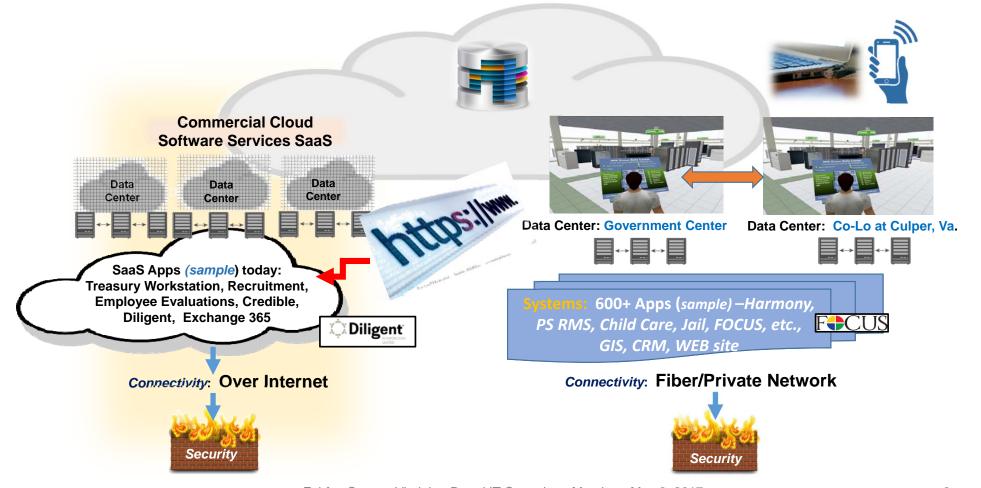
Applications (600+)

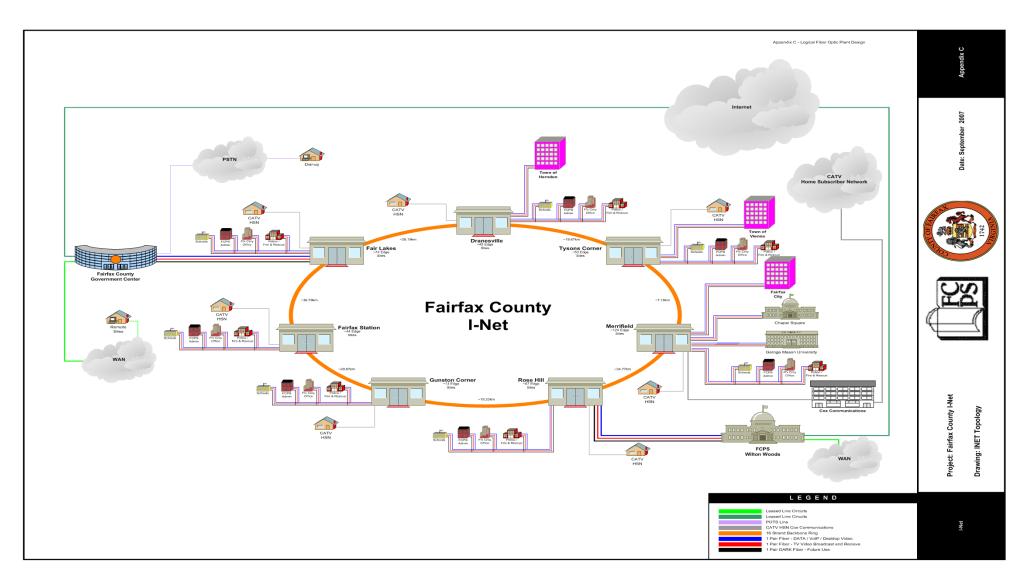
Cybersecurity



FAIRFAXCOUNTY

County IT Infrastructure – Hybrid Cloud Environment





Fairfax County, Virginia - Board IT Committee Meeting - May 9, 2017























Sample County Applications:

Tax and Revenue Systems

Land Development Systems



Child Care Management System

CSB Infant Toddlers Connections

Fairfax County Unified System

F+CUS

General District & Circuit Courts

Juvenile and Domestic Relations Court

Health & Human Services' programs

Public Safety Applications

Sheriff's Jail Management System (SIMS)

Emergency Management (EDGR)

Software App Source

- Commercial on premise
- Commercial Softwareas-a-Service "Cloud"
- In-house developed
- Open source



IT Growth & Support Efficiency Metrics

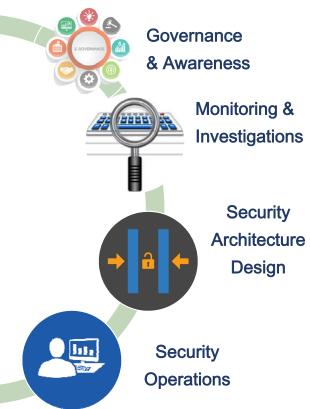
Growth Efficiency

	2001	2015	% Increase	Fairfax County IT Staff Ratio	Industry Standard IT Staff Ratio
E-Mail Boxes	11,000	21,200	92.7%	1 to 10,500	1 to 2,000
Weekly E-Mail Messages	300,000	3,975,000	1,325.0%	1 to 10,500	1 to 2,000
Data Storage In terabytes (TB) 1 TB = 20,000 file cabinets	8	3,899 (4 petabytes) 1 Petabyte = 20 million file cabinets	48,637.5%	1 to 648	1 to 344
Servers	100	1,302	1,202.0%	1 to 81	1 to 69
Databases	100	1,531	1,431.0%	1 to 255	1 to 150

Cyber Security Cyber Security



Information Security Office



CURRENT INITIATIVES

- Log Consolidation for Security Continuous Monitoring – Splunk Enterprise Security
- Expanding Joint PCI-DSS Assessment and Compliance Initiatives with Department of Finance and other County agencies
- Data Loss Prevention and Discovery in Microsoft O365, Azure, and other Cloud Services (SkyHigh, Palo Alto)
- Continued phasing of SANS Institute's "Securing the Human" online cyber security training to County employees and preparation has begin for the 12th annual Security Awareness Day (October 2017)



CLOUD

Increased growth in Cloud platforms whether SaaS, PaaS, IaaS and other hybrid services. DIT and agencies are exploring opportunities for cost-savings as well as operational efficiency.

Gartner predicts the worldwide public #cloud services market will grow 18% in 2017 to \$246.8B up from \$209.2B in 2016.



MOBILITY

Increased growth in mobile devices (smartphones, laptops, tablets) as the demand for workplace mobility, telework, and industry hardware platform development continues to evolve.

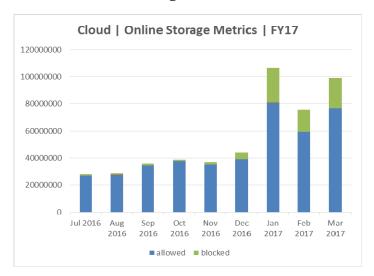
Symantec observed 18.4 million mobile malware detections in total in 2016, an increase of 105 percent on 2015.

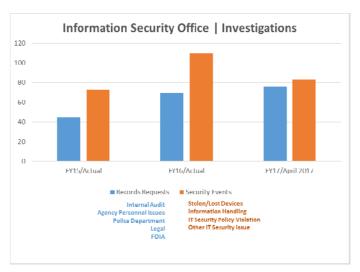
INTERNET OF THINGS (IoT)



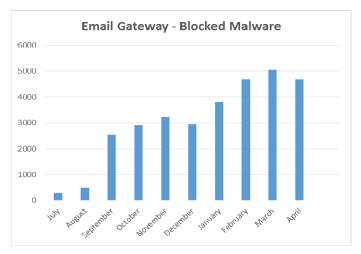
Increased number of network-enabled devices beyond traditional computers – examples include building control systems, sensors, appliances, vehicle monitoring and control and medical monitoring systems

Cyber Security Metrics











Geographic Information Systems (GIS) is platform for foundational data analysis, visualization and interpretation, and provides online maps, spatial data and is integrated with agencies applications.

- Over 1,000 data layers and over 1,300 county staff using it. Over 13TB of data in the GIS data warehouse
- Spatial technologies deliver enhanced data critical to decision making

GIS

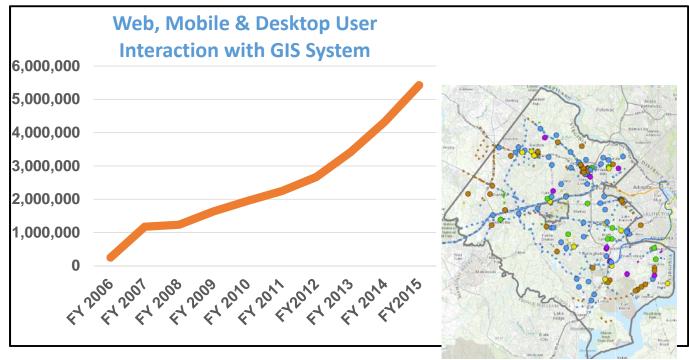
GIS enables faster response 911/CAD calls since the closest vehicles are mapped and dispatched.

On voting day the Office of Elections has response staff (Rovers) across the county to respond to system and procedural issues.

GIS tracks and optimizes the dispatch of rovers to speed response.

GIS is essential to voters locating polling places with addresses.





GIS usage growth is due to significant increase in Web and Mobile GIS

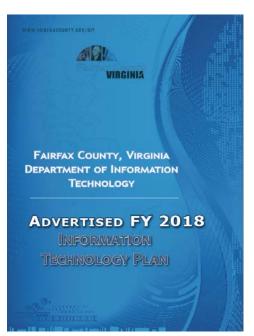


County IT Life Cycle Experience

- IT Infrastructure Refresh Cycle
- 3-5 Years

- Application Refresh Cycle
- 10-23 Years



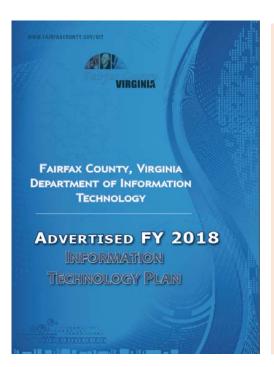


Investments in IT projects for Agencies, BOS Priorities and Initiatives

- 44 active IT projects, in the current IT Plan supporting goals for IT, including:
 - Transformation of agency business processes to promote efficiencies
 - Enhanced 24x7 access to County information and services web and mobile platforms
 - Transition of legacy systems to modern technologies
 - Providing an agile, secure, and stable IT Infrastructure
- Governance: leveraging external and internal advisory committees:
 - Information Technology Policy Advisory Committee (ITPAC) & Senior IT Steering Committee
 - Executive Sponsor Steering Committees for projects



IT Investment Portfolio - Budget Constraints Impact

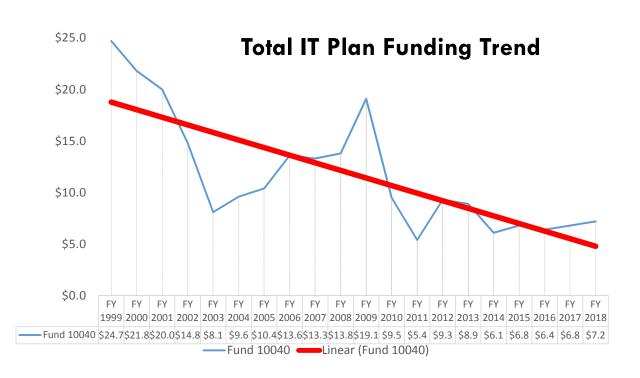


Over the past five years for example (FY 2014 – FY 2018), of 123 total IT project proposal requests submitted, 70 or 57% were approved for funding

- The demand for technology continues to grow as funding availability has declined
- Best practices are to keep up with IT investments which support services operation efficiencies especially in the face of fiscal challenge for long-term gain



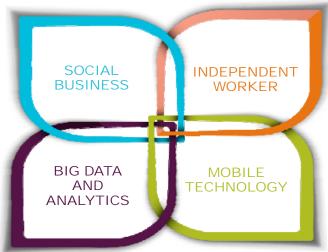
IT Investment Budget History (in millions)



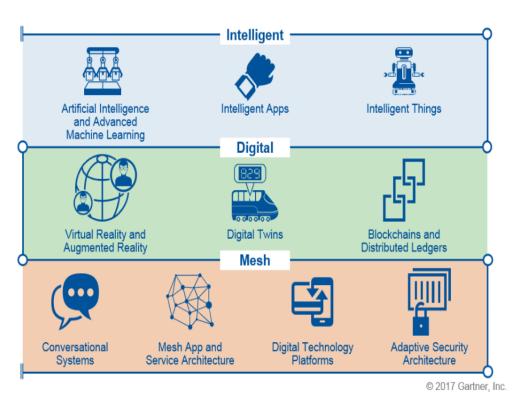


IT TRENDS: Where It's Headed

- Nexus of cloud, social media, mobile, and information
- Mobility Meet the needs of employees working remotely
- Open Government citizen engagement and access to information and services
- Big Data cross-cutting strategy to harness county data



Top Strategic Technology Trends



Digital Workplace

Multichannel Citizen Engagement

Open Any Data

Citizen e-ID

Analytics Everywhere

Smart Machines

Internet of Things

Digital Government Platforms

Software-Defined Architecture

Risk-Based Security

FAIRFAXCOUNTY



DIT: Looking Ahead

- Implement new Website re-design
- Establish cross-cutting data strategy to harness county data
 Big Data
- Look for opportunities to further partner with other governments to further leverage common IT solutions and lower costs of IT commodities
- Update policies related to solution lifecycles
- Establish 3 to 5 year plan for IT
- Adopt clouds with caution
- Modernize and consolidate audio/visual teleconferencing capabilities countywide
- Modernize IT positions and better leverage IT positions countywide
- Develop and implement apps for "Smart" city initiatives
- Continued focus on Cyber Security







Challenges

Rapid Expansion:

- Growth and use of data including expansion of video services and video storage
- Digitization of records and information
- Open Data
- Costs associated with data expansion and required retention schedules
- IT demand out-pacing resources
 - Money
 - Availability of IT expert talent
- ,

Regulatory requirements: federal and state policy changes







