NORTH CAROLINA
ADMINISTRATIVE OFFICE
of the COURTS

Report on Court Information Technology

Presented to the LRC Committee on Judicial Efficiency

January 23, 2014

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Agenda

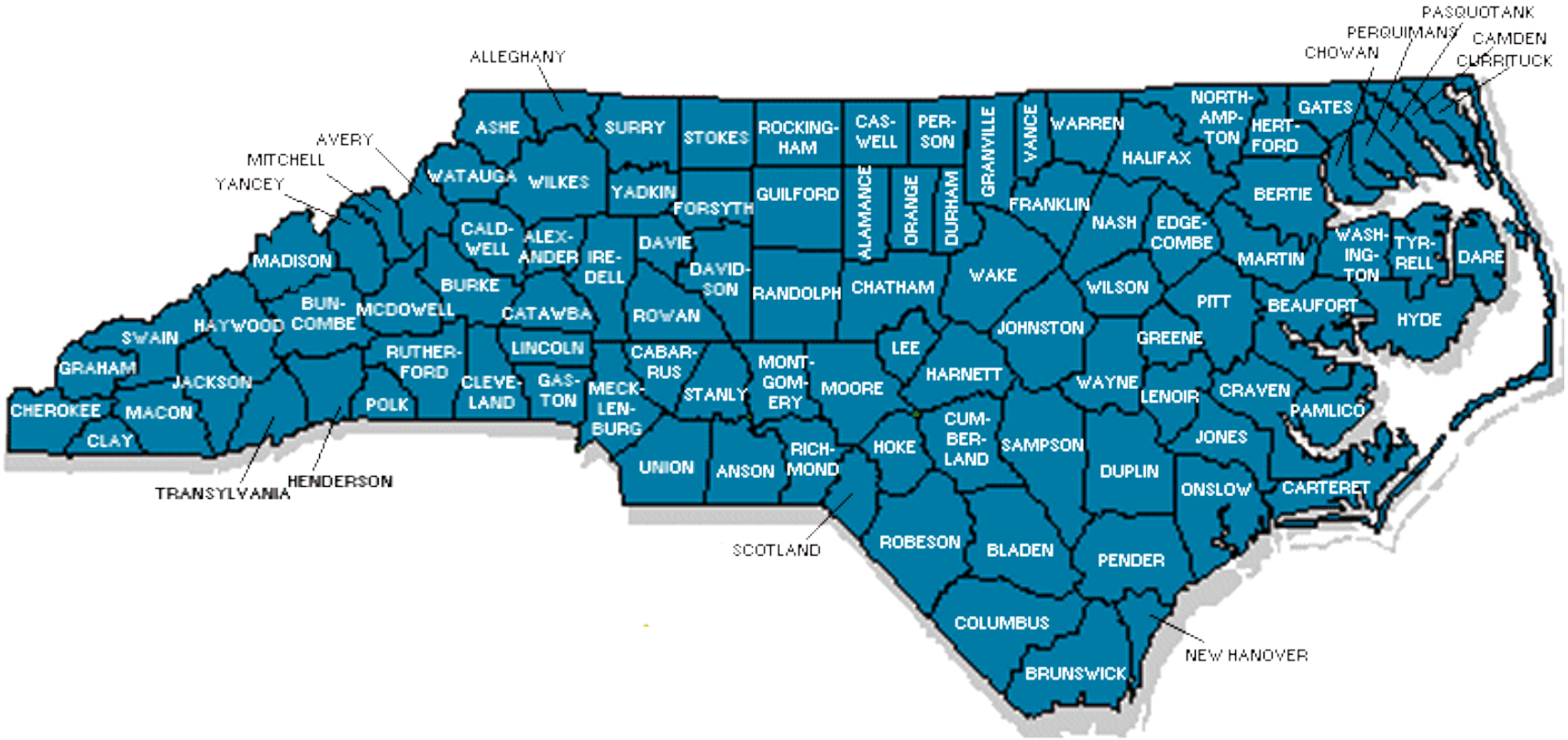
- Inherent challenges of court IT
- Current technology, external interfaces
- NCAOC IT challenges over the past decade
- Operational costs, use of Tech Fund
- What about other states, federal courts?
- 2014 and beyond

Items Incorporated (from FRD)

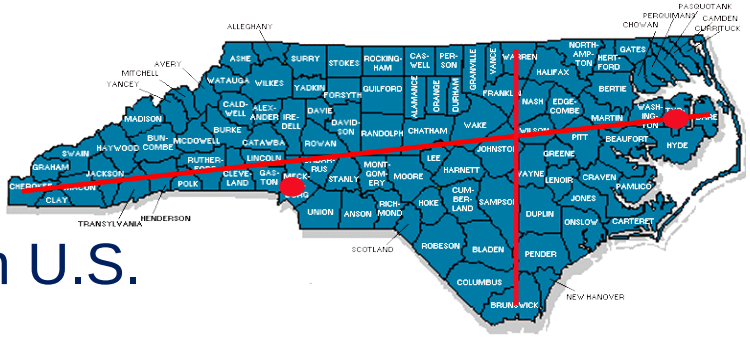
- IT challenges over the past decade
- Current architecture and external interfaces
- Ongoing database transition from ACIS to CCIS
- Use of the Court Information Technology Fund

Inherent Challenges of Court IT

North Carolina Geographic and Demographic Characteristics Relevant to This Discussion



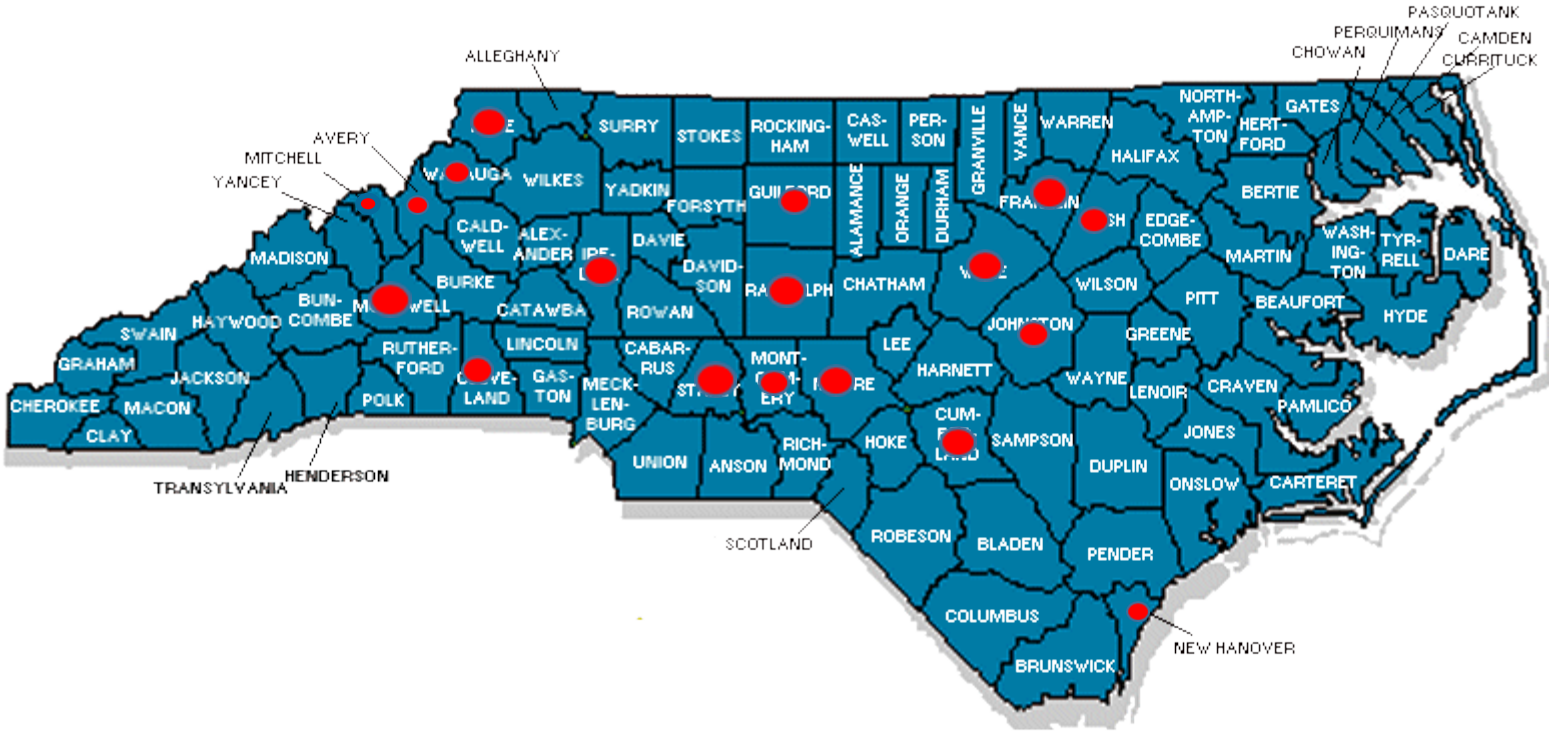
North Carolina Geography and Demographics



- 100 counties – seventh most in U.S.
- ~10 million population – tenth largest in U.S.
- Wide range of populations in counties:
  - Mecklenburg has ~960,000 population
  - Tyrrell has ~4,200 population
- Travel time from Murphy to Manteo by car is ~10 hours
- Travel time from Warrenton to Bolivia is ~4 hours
- Nearly 49,000 square miles in area

A unified judicial system is challenged by time, size, and distance

Counties Represented by This Committee

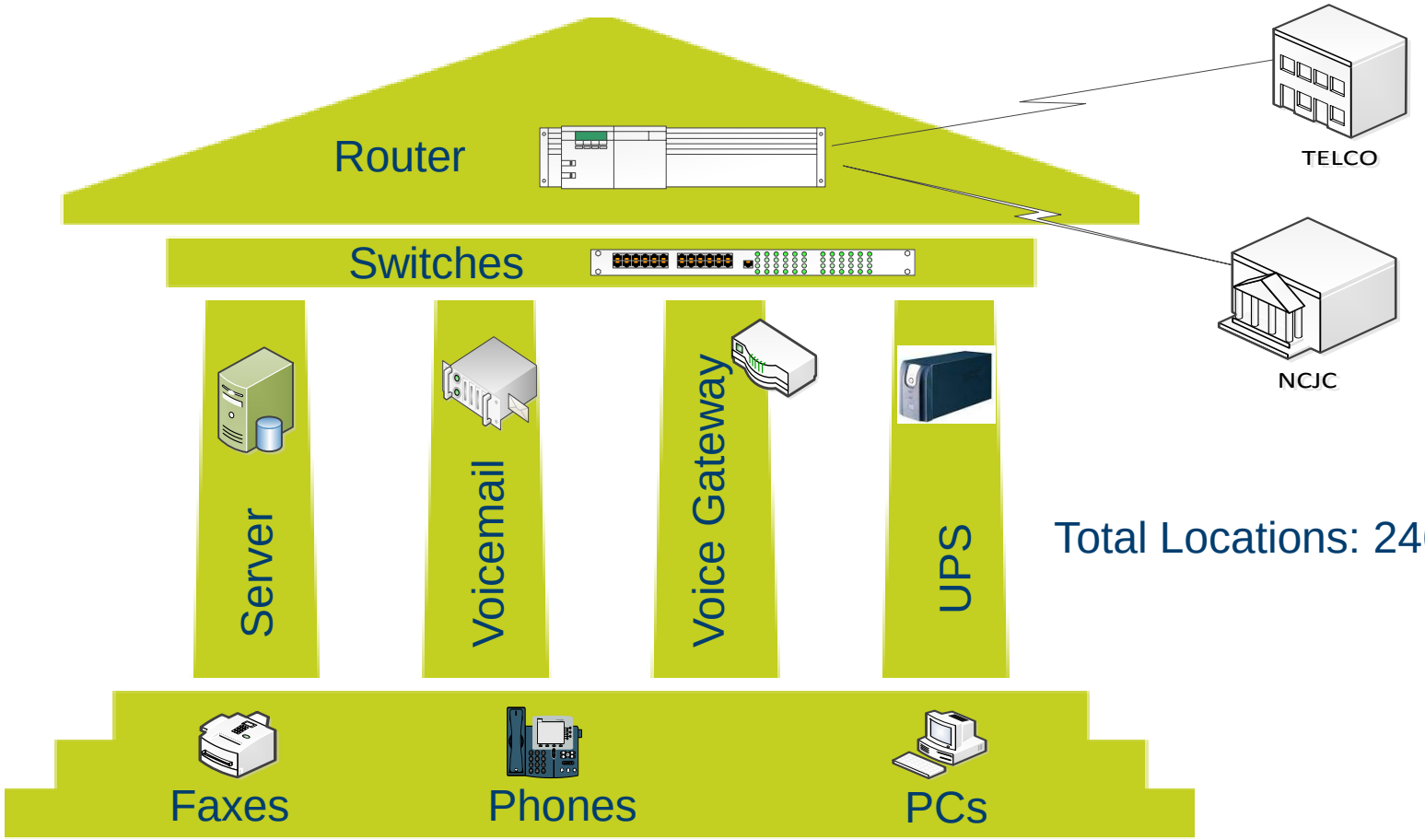


N.C. Administrative Office of the Courts

Technology Services Division
Networks and Infrastructure

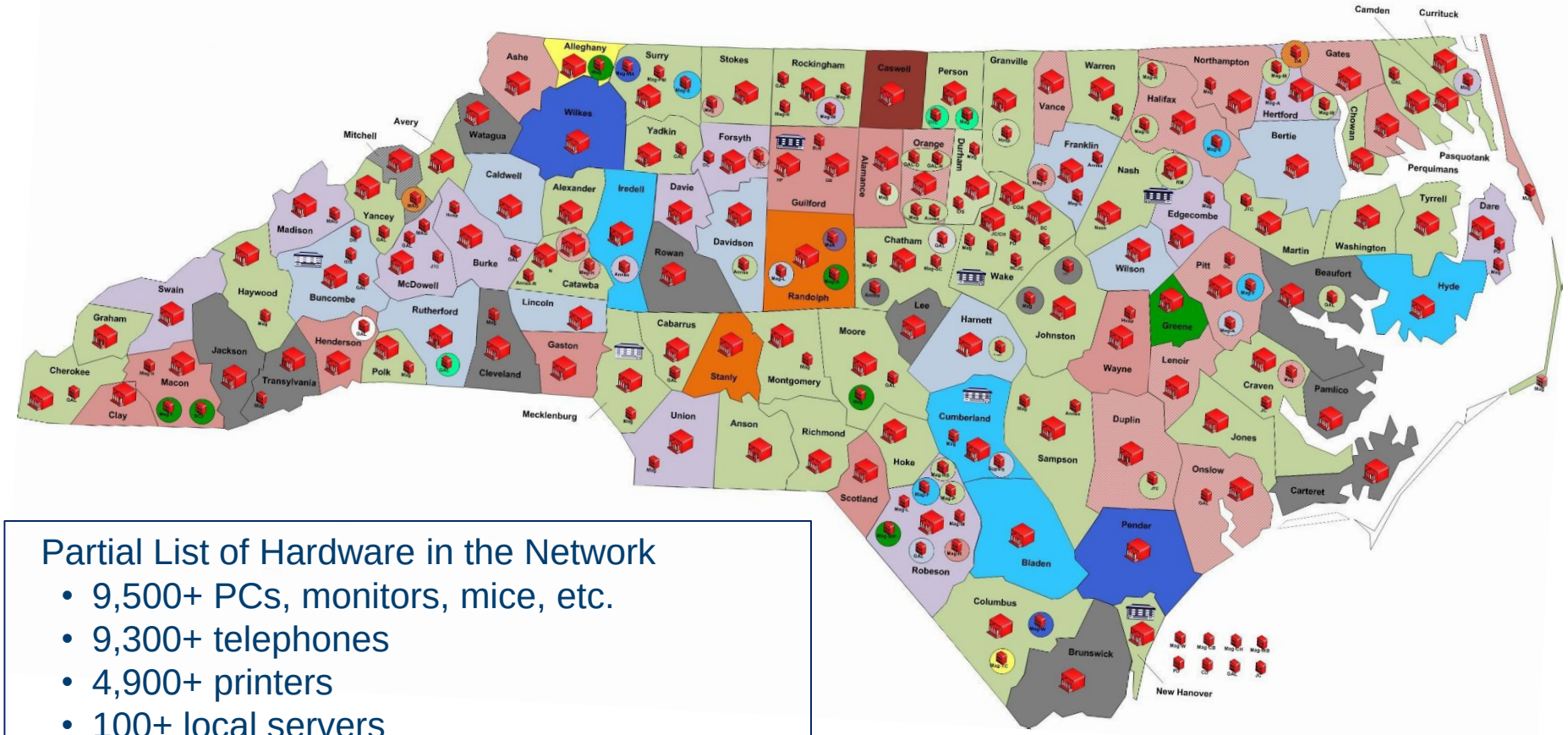
Connecting People Using Technology

The Anatomy of a Courthouse



Total Locations: 246

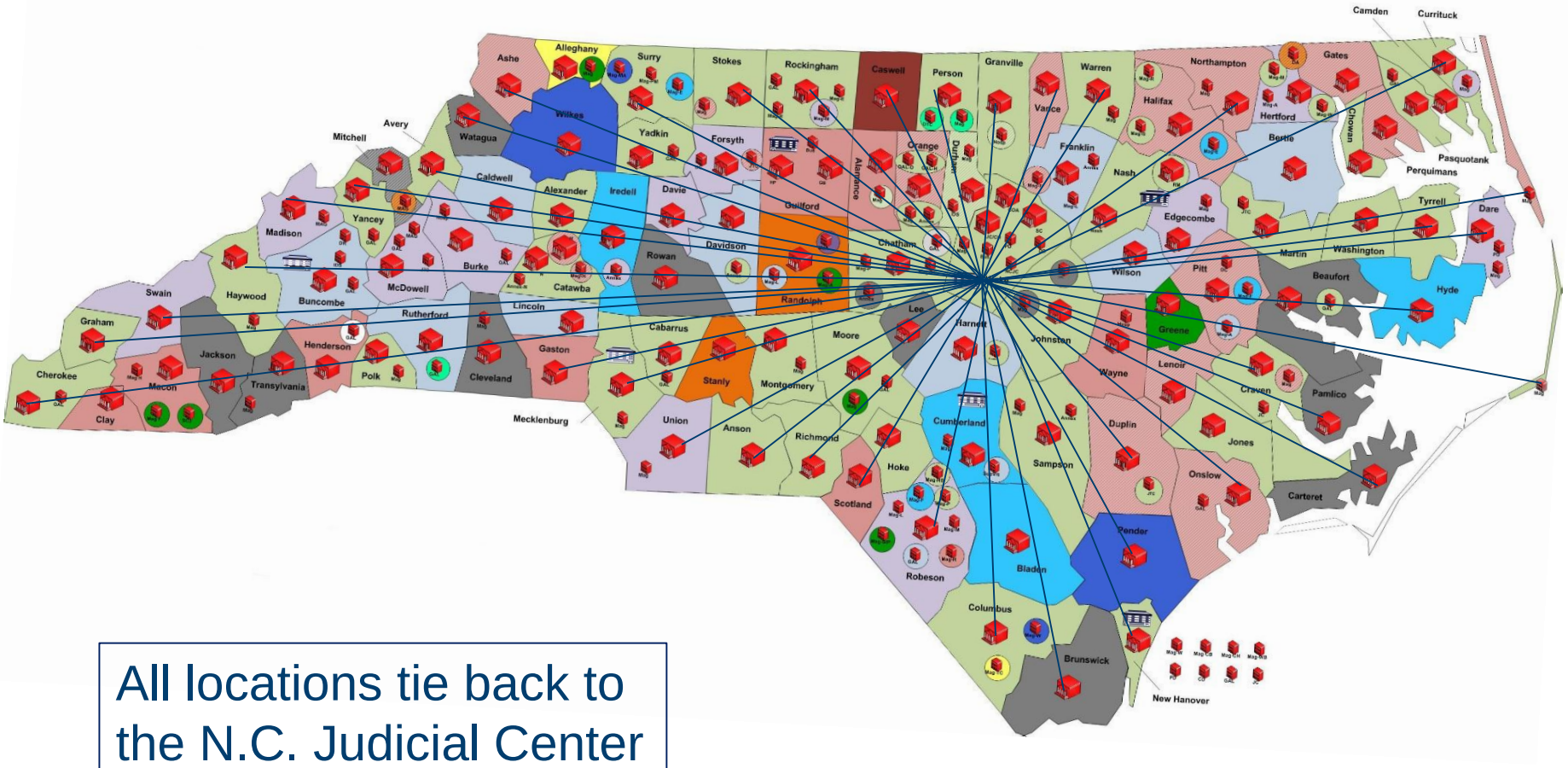
Distribution of NCAOC's Networked Locations



Partial List of Hardware in the Network

- 9,500+ PCs, monitors, mice, etc.
- 9,300+ telephones
- 4,900+ printers
- 100+ local servers
- 246+ network circuits
- 420+ public access terminals
- Many faxes, routers, switches, copiers, etc.

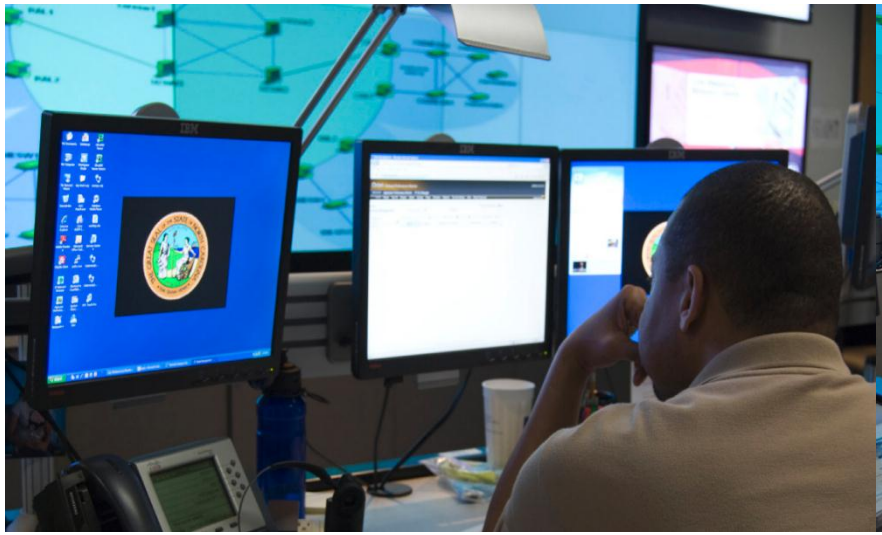
Distribution of NCAOC's Networked Locations

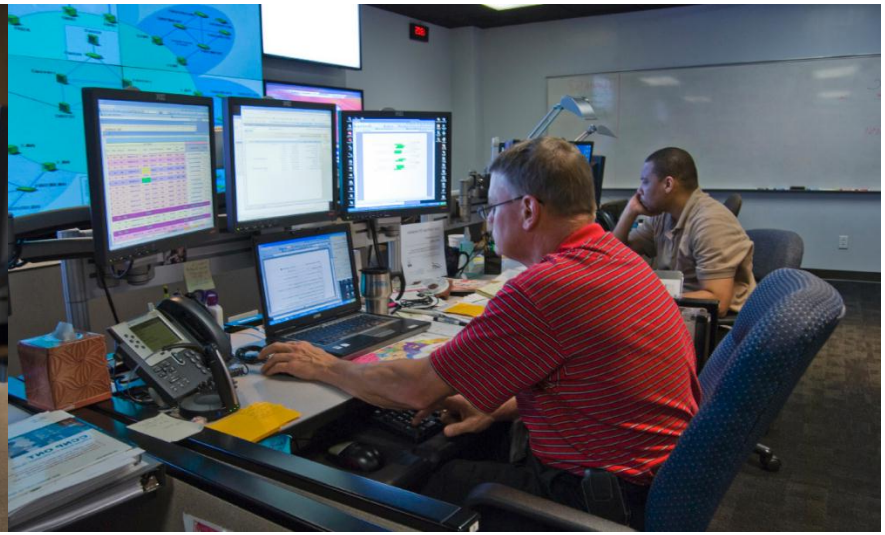


All locations tie back to the N.C. Judicial Center

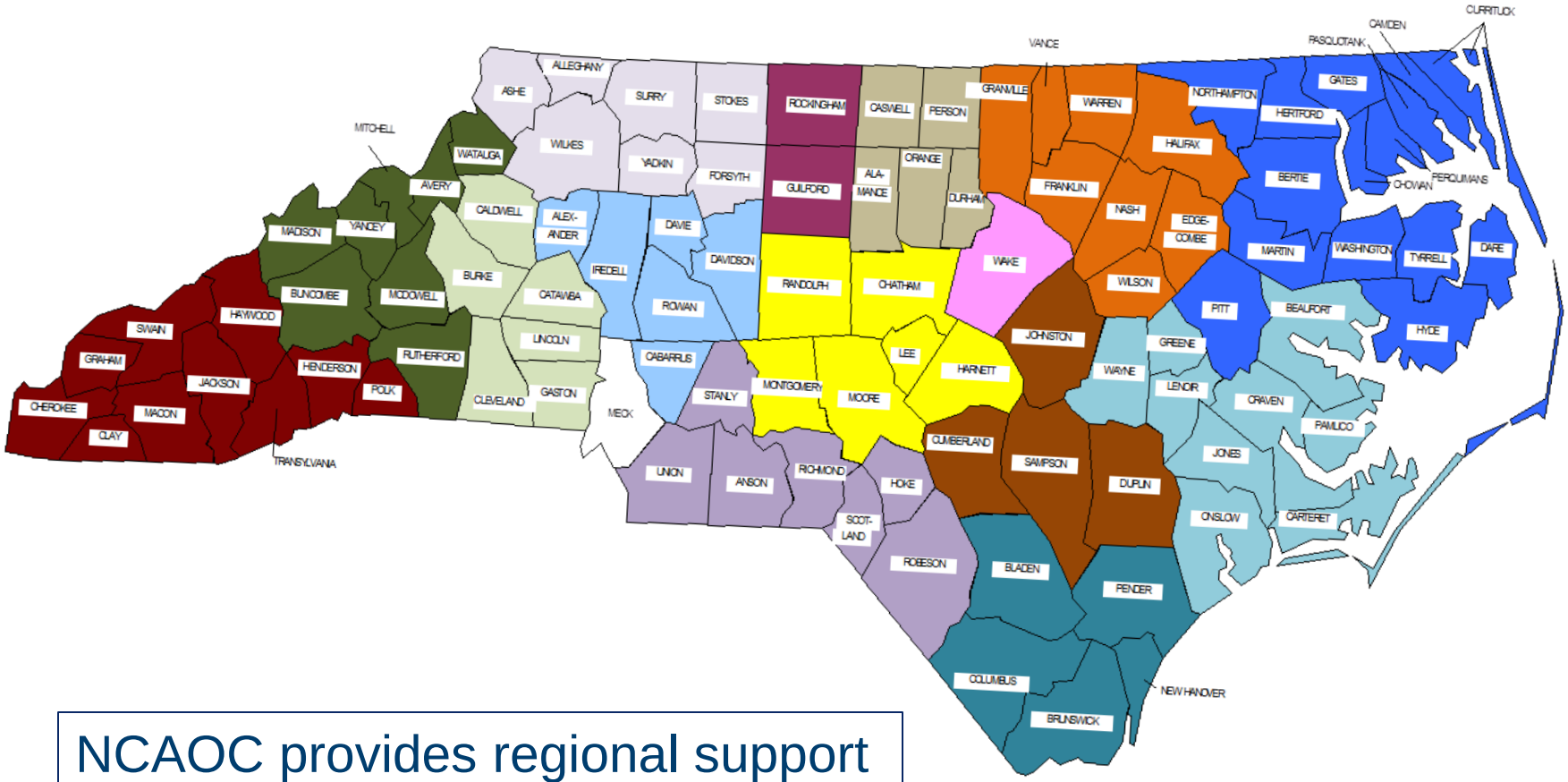
North Carolina Judicial Center
Network Operations Center

Provides 24 x 7 x 365 network monitoring





Distributed Computing Services Support Map



NCAOC provides regional support teams for all 100 counties

North Carolina Judicial Center
Data Center – Partial Equipment List

- 2 mainframe computers
- 575 data center servers
- 3 storage area networks (~1.4 PB)
- Data replication system (DR)
- Tape backup systems (DR/Archiving)
- Uninterruptible power supplies
- Backup power generator
- High availability/redundant architecture

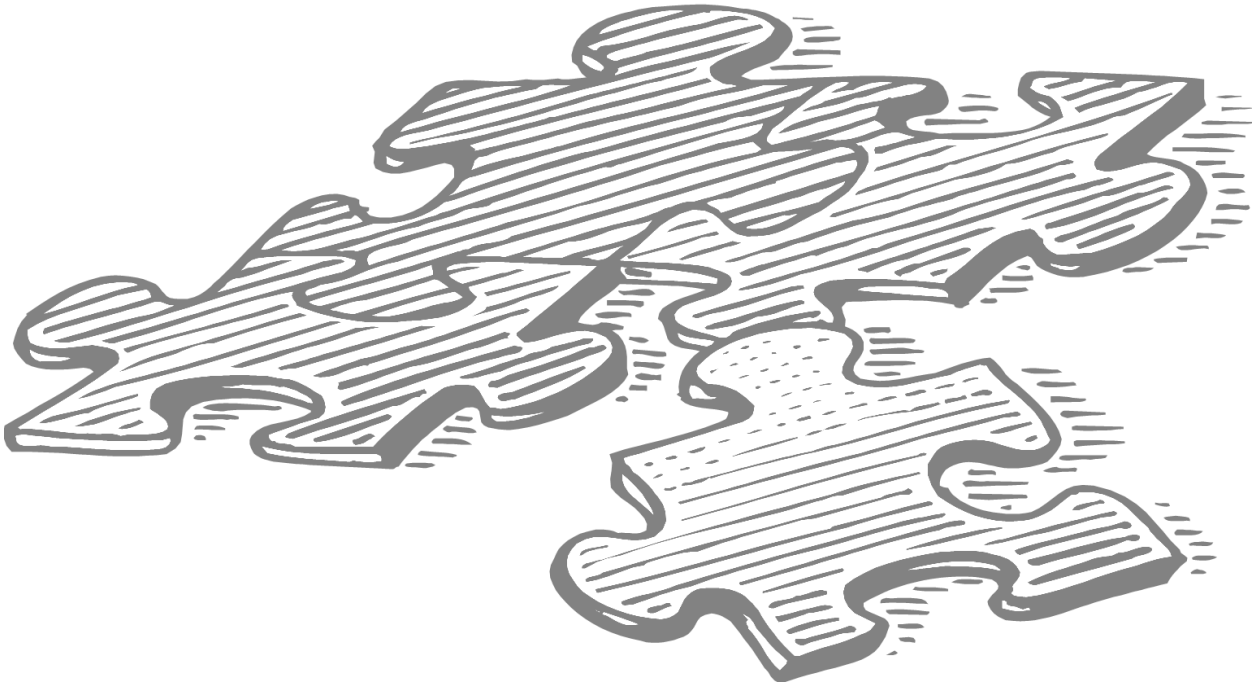
How Big Is a Petabyte Anyway?

- Data analysts at Deloitte Analytics estimate: if you counted one byte per second, it would take 35.7 million years.
- Michael Chui, principal at McKinsey, says that the U.S. Library of Congress "had collected 235 terabytes of data by April 2011 and a petabyte is ***more than four times that***."
- Wes Biggs, chief technology officer at Adfonic, estimates: if the average MP3 encoding (music file) is around 1MB per minute, and the average song lasts about four minutes, then a petabyte of songs would last over 2,000 years playing continuously.
- It's been estimated that a single-spaced typed sheet of paper contains 2,000 bytes of data. 1 PB is equal to 500,000,000,000 (500 billion) sheets of paper.

N.C. Administrative Office of the Courts

Technology Services Division
Applications and Interfaces

Connecting Processes Using Technology



NCAOC Serves Diverse User Interests

- 533 elected officials
  - 15 Court of Appeals Judges
  - 97 Superior Court Judges
  - 270 District Court Judges
  - 44 District Attorneys
  - 100 Clerks of the Court
- 696 appointed officials
  - 15 Special Superior Court Judges
  - 681 Magistrates

- ~6,600 Judicial Branch employees in total
- 33,000+ law enforcement officers
- Nearly 10 million citizens

Selected NCAOC-Developed Judicial Applications

- **North Carolina Warrant Repository (NCAWARE)**
  Real-time, automated warrant issuance and tracking repository. Available 24 hours a day to magistrates, district attorneys, judges, clerks of court, law enforcement, and probation officers.
- **Automated Criminal/Infractions System (ACIS)**
  Statewide automated case processing system that tracks criminal cases for clerks, district attorneys, judges, law enforcement, magistrates, probation officers, and public defenders.
- **eCITATION®**
  Statewide wireless system that allows entry, printing, and tracking of non-arrestable citations from the officer's car. Used by State Highway Patrol, clerks, and local law enforcement.
- **Criminal Case Information System – DA Component (CCIS-DA)**
  Web-based case management system for district attorneys, with expanded functionality on an enterprise-level platform. Data are secure and non-public.
- **Discovery Automation System (DAS)**
  Provides electronic access to open discovery of all evidence in felony cases and tracks its disclosure to the defense.
- **payNCticket®**
  A system to allow citizens to pay waivable traffic violations online.
- **Remote Public Access**
  Public information for criminal and civil court proceedings is provided to private companies via data extracts and online access.

Selected NCAOC-Developed Judicial Applications
Partial Rollouts

- **Criminal Case Information System – Clerk Component (CCIS-CC)**
  Web-based component that will incrementally replace functions in ACIS. Includes increased exchange of data with DMV and expansion of data capture, especially for DWI tracking and reporting. Used by clerks, district attorneys, judges, law enforcement, magistrates, probation officers, public defenders, and the public.
- **eFiling**
  A system to allow attorneys to file cases and pay associated fees online for civil superior and special proceedings foreclosure cases. ***Implemented in only three counties***.
- **Magistrate Video Project (MVP)**
  Provides video communication services to law enforcement and magistrates to enable timely initial appearances and warrants while reducing travel time to magistrates' offices. ***Implemented in 22 counties***.
- **Credit Card Payments**
  A system to allow case fines and fees to be paid by credit card at courthouses. Implemented in six pilot counties. Being rolled out to the remaining 94 counties in the first half of 2014.

Selected NCAOC Administrative Applications

- Enterprise Messaging System
- Voice over IP (telephones)
- Salary Administration System
- Warehouse Repair Tracking
- Asset Lifecycle Manager
- CPI-Security – tracks access to judicial systems
- CPI-RPI – tracks Remote Public Access requests
- Judicial Directory
- Judge Commissioning System
- Software License Tracking System
- NCAOC intranet
- NCAOC public website
- Offense Code Administration Module
- Service Desk Ticket Tracking System

Information technology is vital to our judicial system

Transactions Flowing through NCAOC Systems

- **eCitation®**
  - ~8 million ecitations processed since inception (1999)
  - 86.3% of all non-arrestable citations statewide
  - 3,365 ecitations created each day
  - Used by over 17,000 officers in over 400 law enforcement agencies
- **payNCticket®**
  - 420,000 citations paid
  - $91.3 million collected
- **NCAWARE**
  - Total of 9,965,049 processes (served and unserved)
  - 1 million+ processes/year
  - 40,000+ court and law enforcement users
- **Financial Management System (FMS)**
  - $770 million in disbursements/554,000 disbursements
  - $180 million held in investments
  - 2.7 million receipts

Transactions Flowing through NCAOC Systems

- **Discovery Automation System (DAS)**
  - Over 500,000 documents under management
  - Over 63 million pages
  - Over 4,500 DAS users
- **Criminal Court Information System – District Attorney (CCIS-DA)**
  - Over 6.5 million cases tracked
  - 1,300 users
- **Criminal Court Information System – Clerk Component (CCIS-CC)**
  - ~2 million cases processed/year (2012-2013)
  - ~25,000 automatic record corrections fed to DMV systems
- **Web-based Court Calendars**
  - 150,000+ hits/day on web calendars
- **Automated Criminal/Infractions System (ACIS)**
  - ~2.3 million cases filed
  - ~2.4 million case dispositions
  - ~1 million transactions/day
  - 25,000 users

Transactions Flowing through NCAOC Systems

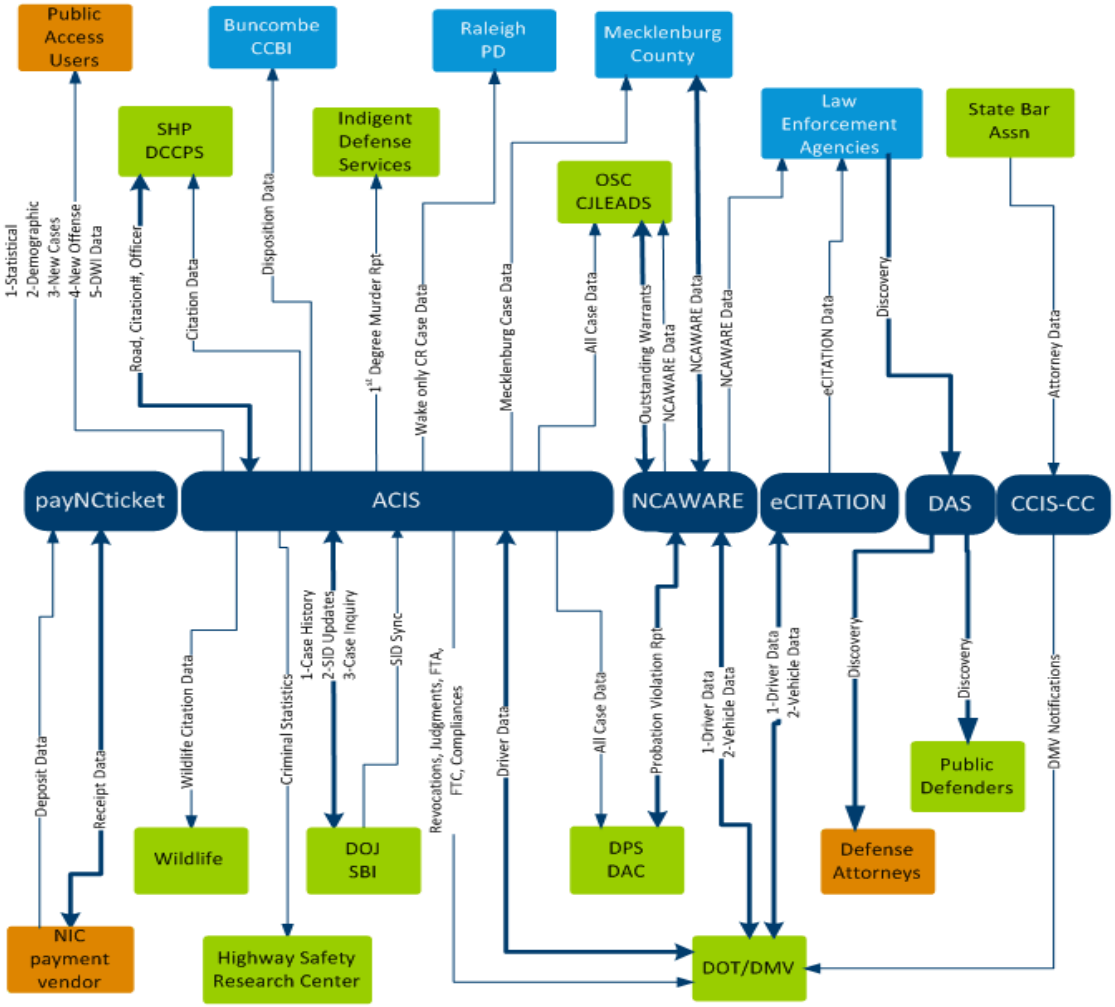
- Over 1,900 offense codes tracked in multiple systems
- ~72,000 service desk/help desk tickets processed in 2013
- 86,700 system/application security requests
- Email transactions
  - Over 145 million messages processed in 2013
  - About 3.5 million malware messages and malware blocked per month

The Judicial Branch, law enforcement, and citizens *depend* on technology

Application Interfaces

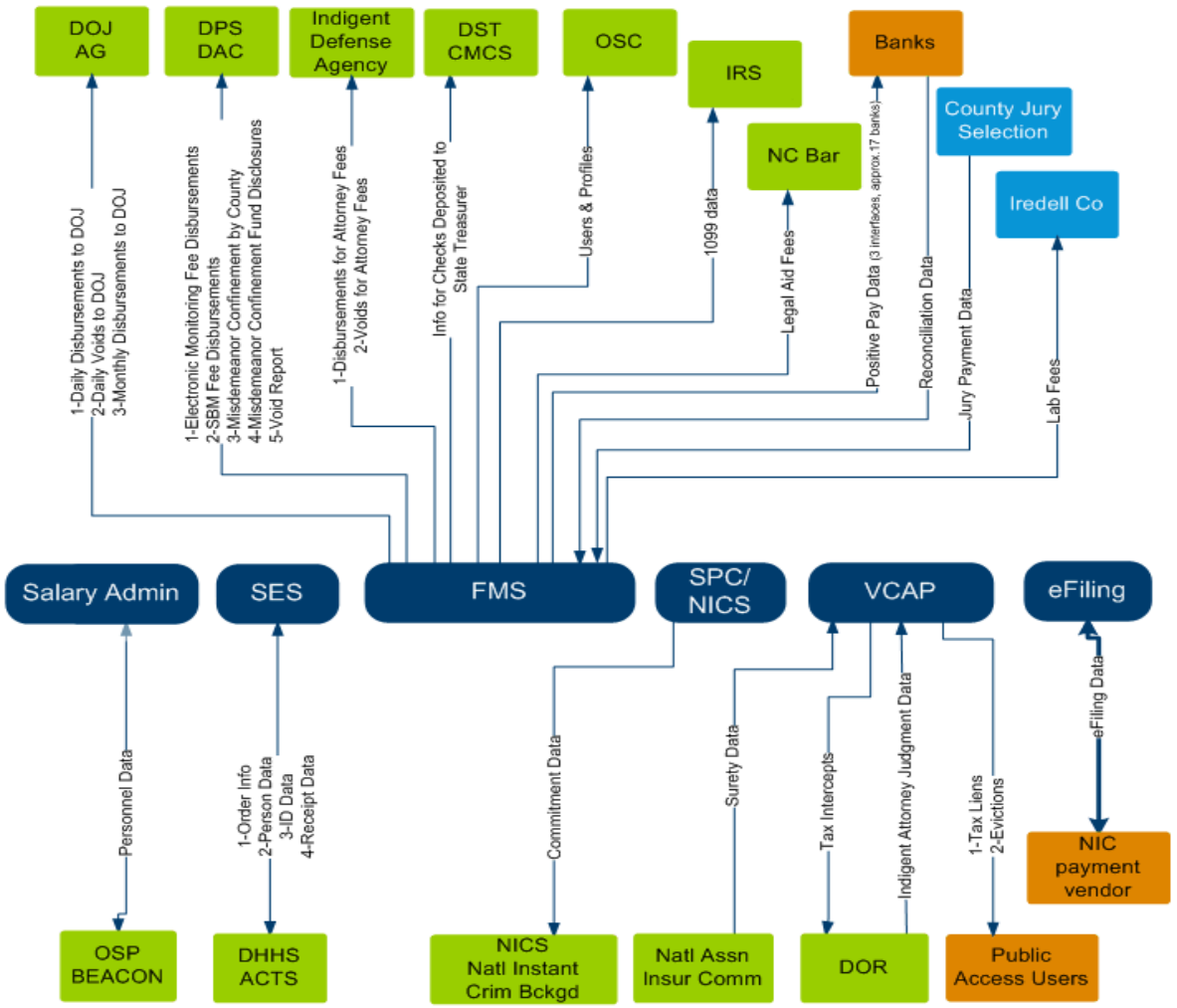
Interfaces To and From Criminal Court Systems

- 12 real time interfaces
- 17 batch interfaces
- 14 government agencies, vendors, private entities



Interfaces To and From Non-Criminal Court Systems

- 1 real time interface
- 18 batch Interfaces
- 14 government agencies, vendors, private entities



Application Interfaces

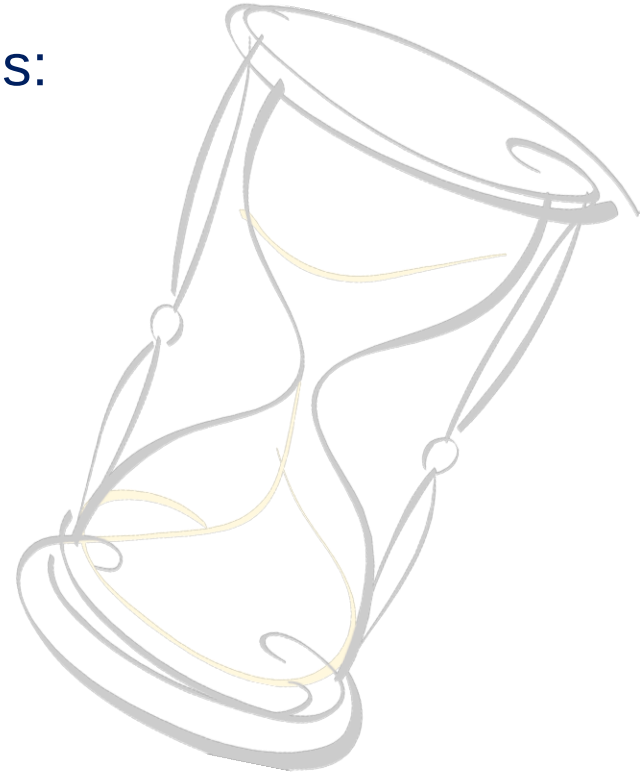
NCAOC application interfaces support critical processes in many other agencies and organizations.

NCAOC Judicial Branch Applications

NCAOC maintains over 50 Judicial Branch applications

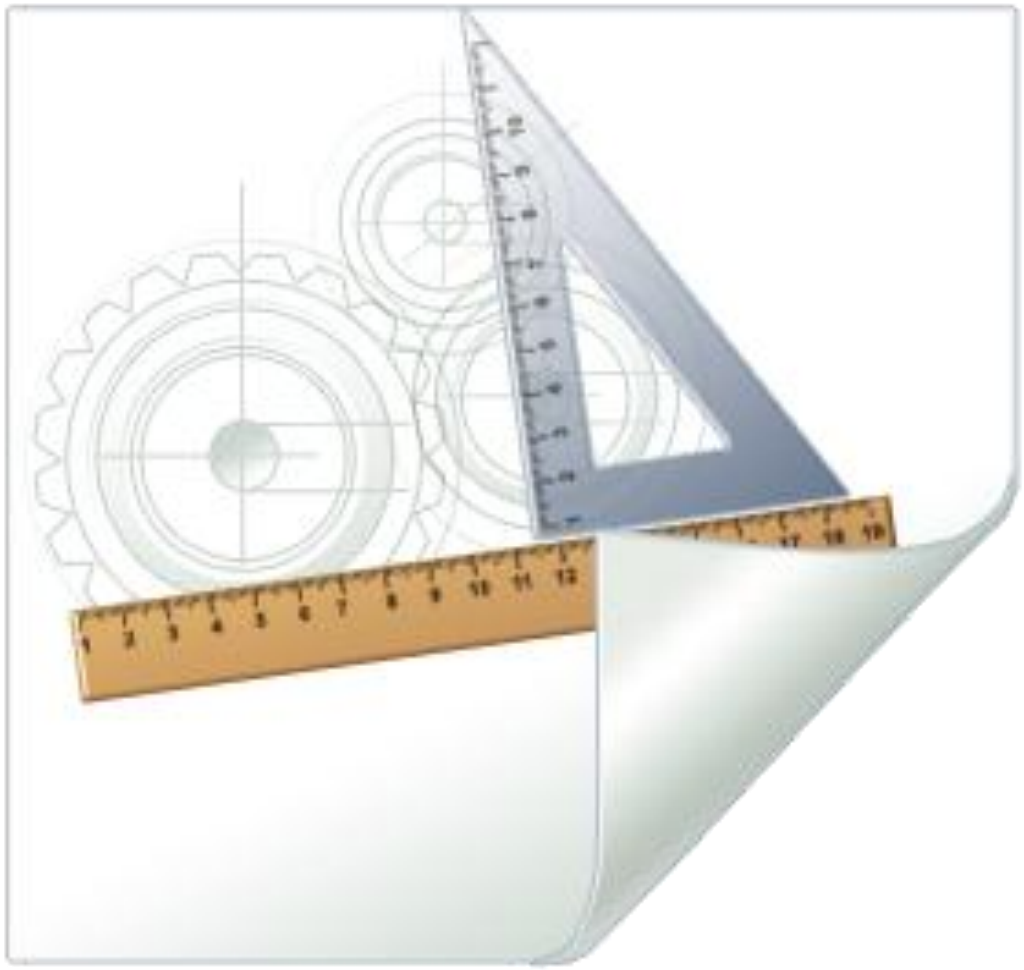
- Age of existing enterprise applications:

– Less than 5 years	11
– 5 – 10 years old	21
– 11 – 15 years old	10
– 16 – 20 years old	2
– More than 20 years old	9



Old technology is costly and increasingly hard to maintain

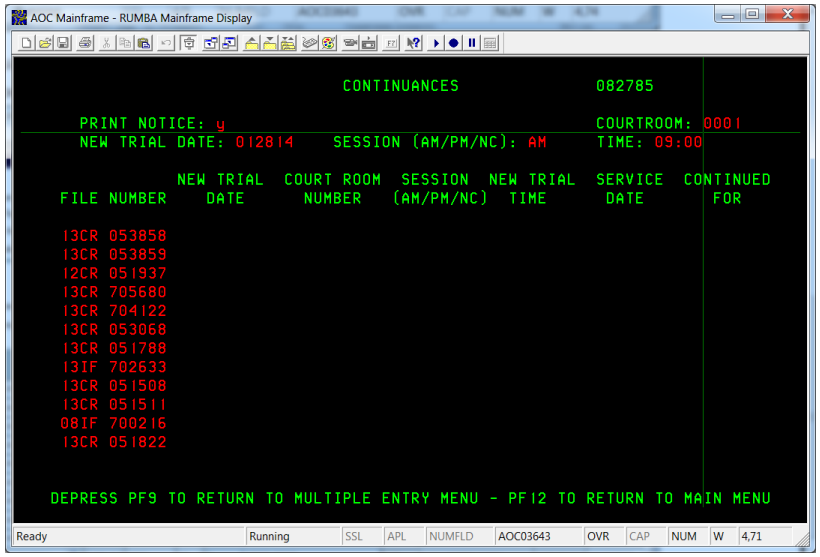
Application Architecture



Architecture Goals and Principles

- Improve user experience and productivity through technology
- Centralize information technology assets to lower costs
- Maximize reuse, reduce cycle time, improve quality, reduce complexity, and reduce training costs
- Standardize development practices
- Improve interoperability and integration using methods such as Service Oriented Architecture (SOA) and web services
- Continuously improve security, performance, availability, and reliability
- Migrate legacy applications to new architecture to reduce costs and modernize application portfolio
- Utilize Open Source tools to lower costs where feasible

Legacy Applications



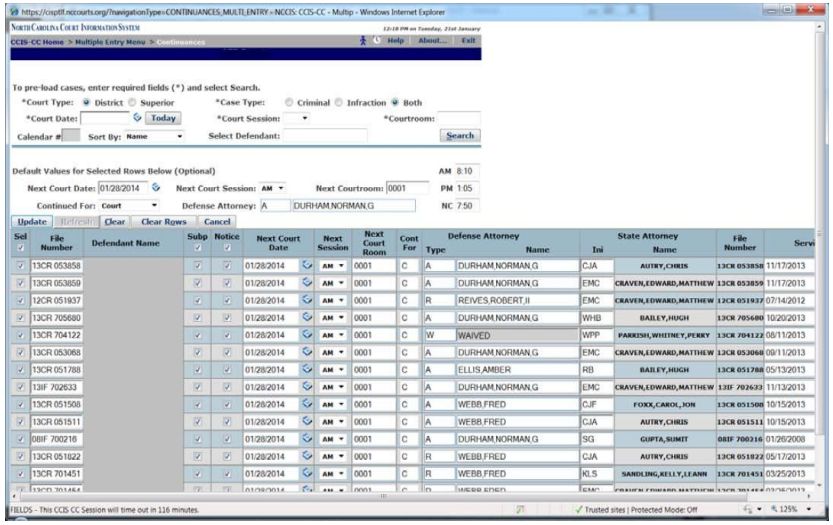
Legacy Platform/Architecture

- **Technology:** COBOL, CICS, IMS, VSAM
- **NCAOC Apps:** ACIS, CMS-PD, SES, VCAP, CCIS, parts of eCITATION, FMS, ALI, Remote Public Access, and others

Concerns and Issues with Legacy Applications

- Underlying technology is becoming less supported
- Skills to maintain systems are becoming scarce
- Access to data and integration with other systems are more difficult
- Maintaining multiple platforms and technologies is costly
- Adds complexity to technical environment: hardware, software, training, etc.

Modern Web Applications



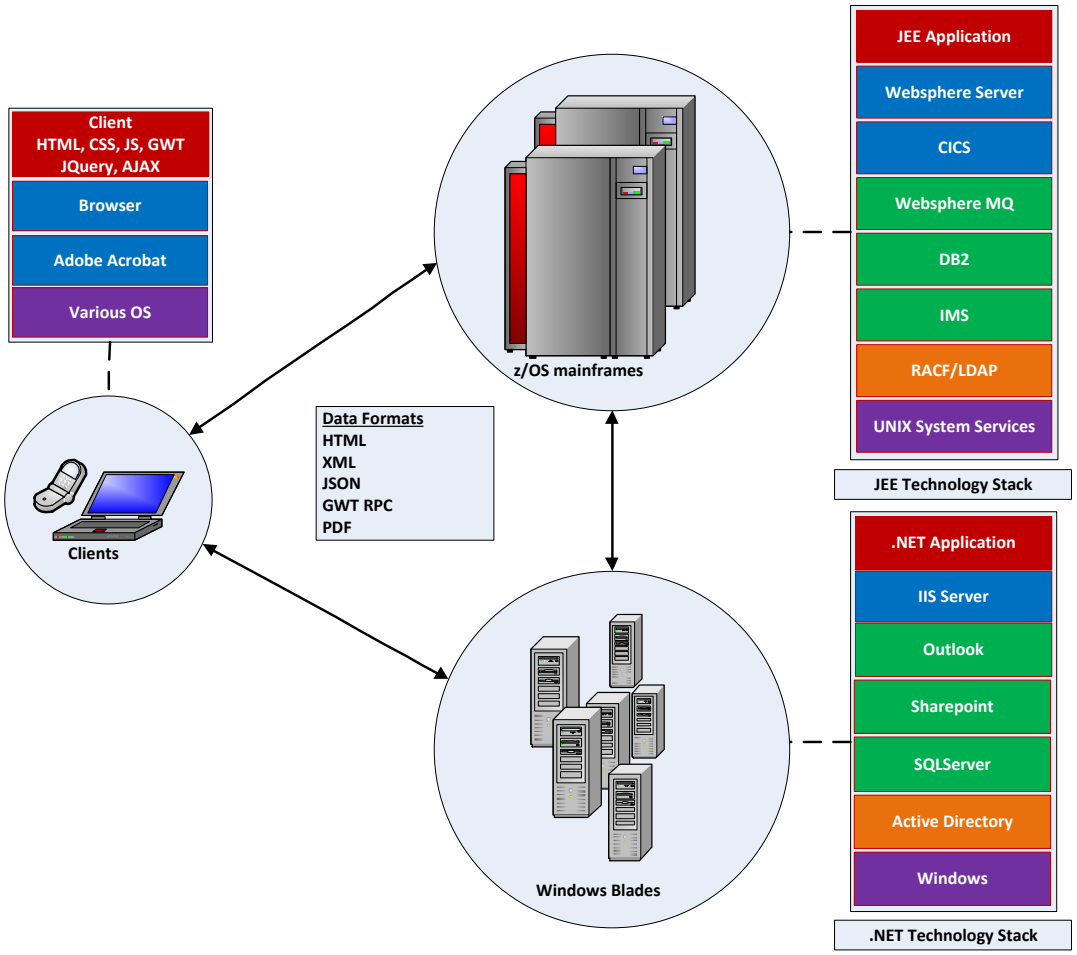
Web Platform/Architecture

- **Technology:** Java, SQL, DB2, WebSphere, IIS, AJAX, JSON, JSP, HTML, XML
- **NCAOC Apps:** NCAWARE, CaseWise, CCIS-CC/DA, eFiling, Judge Commissioning System, JWise, payNCticket, Warrant Search, and others.

Advantages to Using a Web-based, Service Oriented Architecture

- More effective user interfaces
- Application code is more readily reusable
- Data access and integration are easier
- Eliminates risks associated with outdated technology
- Simplifies technical environment: hardware, software, training, etc.
- Open Source tools are less costly

The Way “Techies” Think about This



NCAOC's IT Challenges over the Last Decade

Chief Justice Burley Mitchell, 1999:

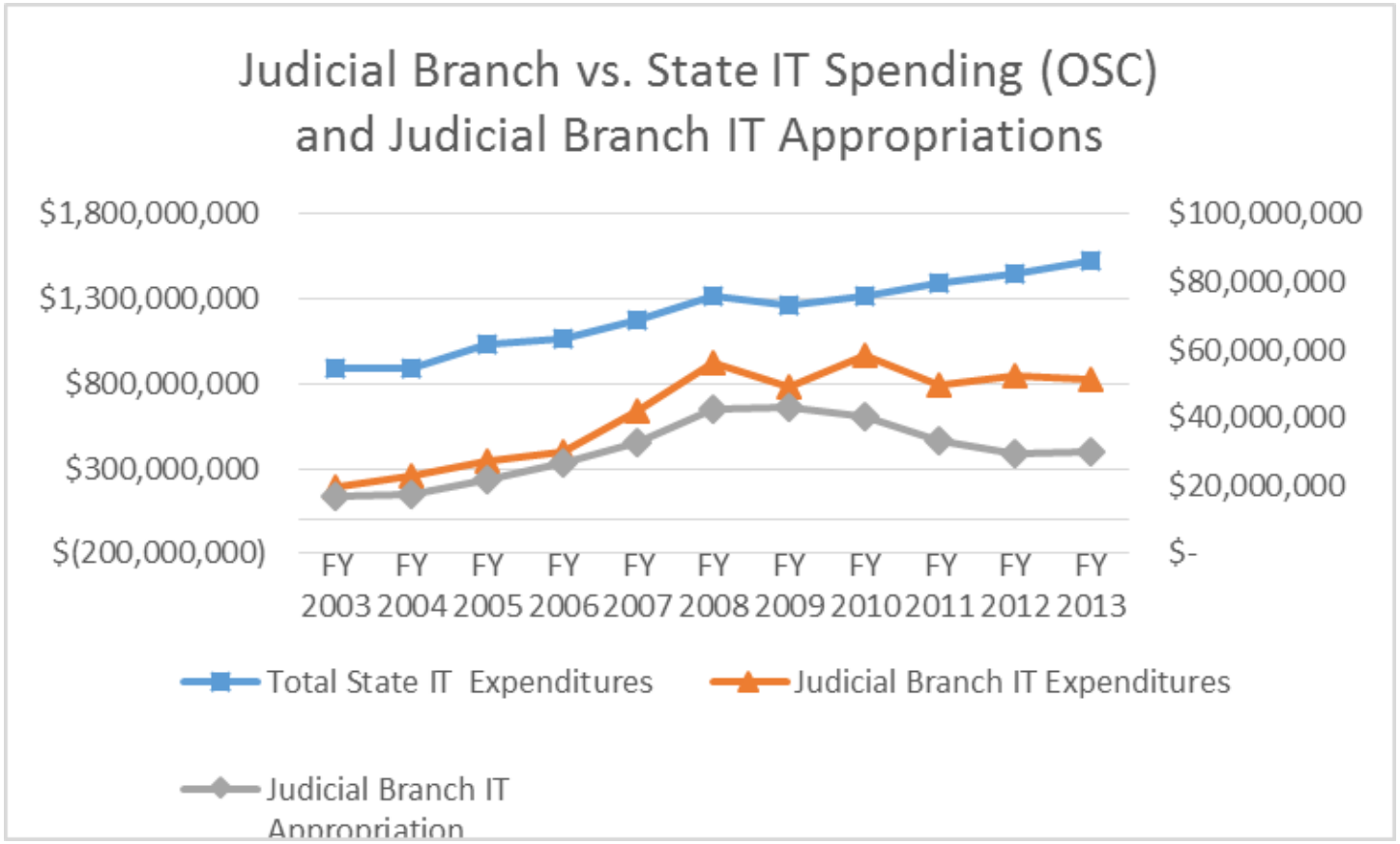
"Many elements of the existing equipment, software and communication vehicles are so old and outdated that we cannot begin to meet the needs of the various users across the state."

Chief Justice I. Beverly Lake, Jr., 2001:

"Your initial funding has already been used to begin a number of urgently needed and cost-effective programs. I emphasize 'to begin' because without additional or at least continuation funding, these programs will falter and fail, thus wasting the investment made to date."

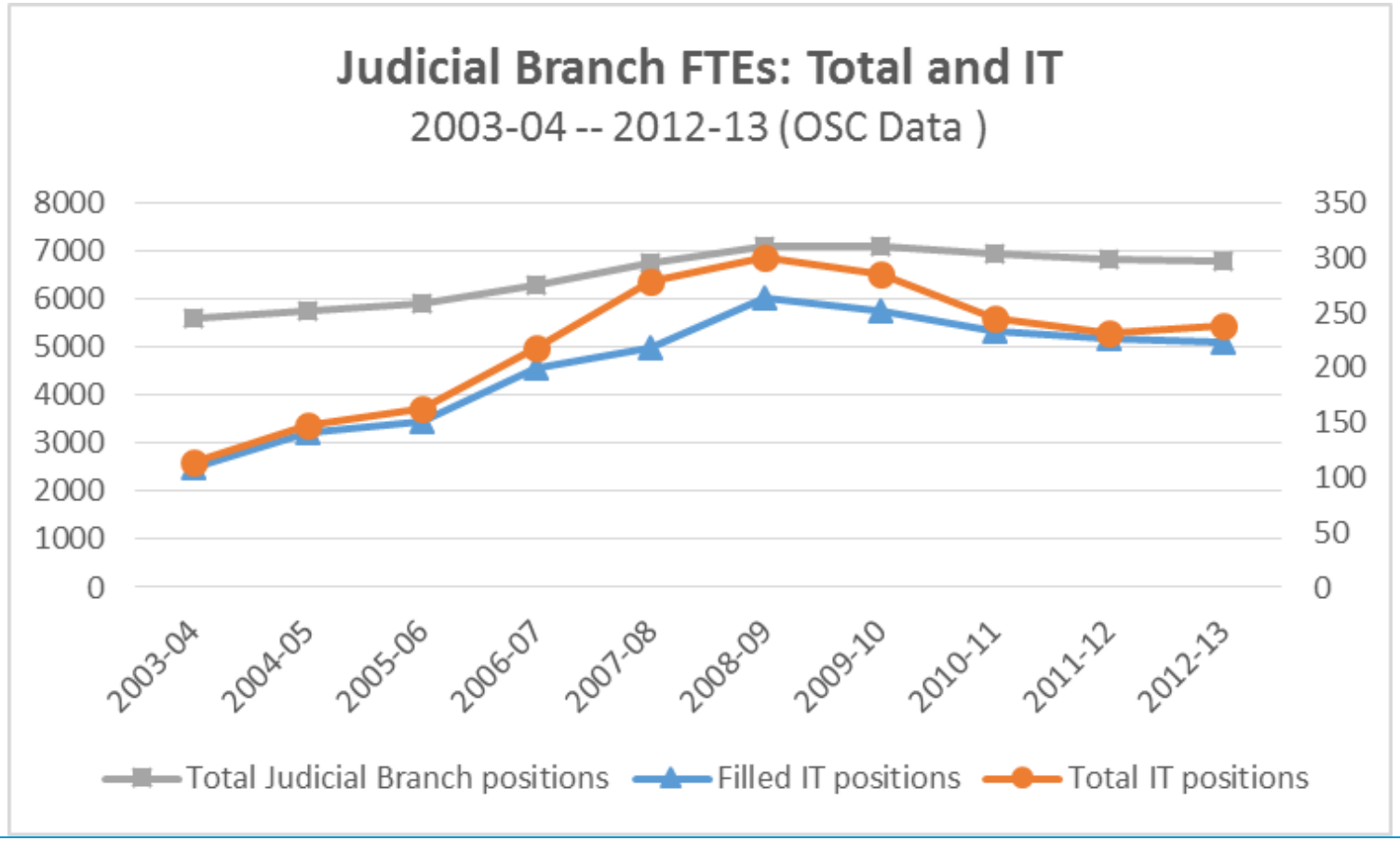
NCAOC's IT Challenges over the Last Decade
Continued

Amount and stability of IT funding



NCAOC's IT Challenges over the Last Decade
Continued

Recruitment and retention for specific skills (old and new)



NCAOC's IT Challenges over the Last Decade
Continued

Always adding priorities to long-term projects (responding to stakeholders, technology change, leadership in courts and legislature)

- Windows 7/ Office 2013
- Magistrate Video Project
- e-Filing
- Obsolete Microfilm Reader/Printers
- CJLEADS
- Credit Card Project
- Alamance DV Victim e-Filing
- Discovery Automation for DAs

While producing 177 new applications/enhancements 2002-2012 & increasing network reliability to 99.7%

Operational Costs, Use of Tech Fund

1767 Old Chowan County Courthouse

Cost Analysis Objectives

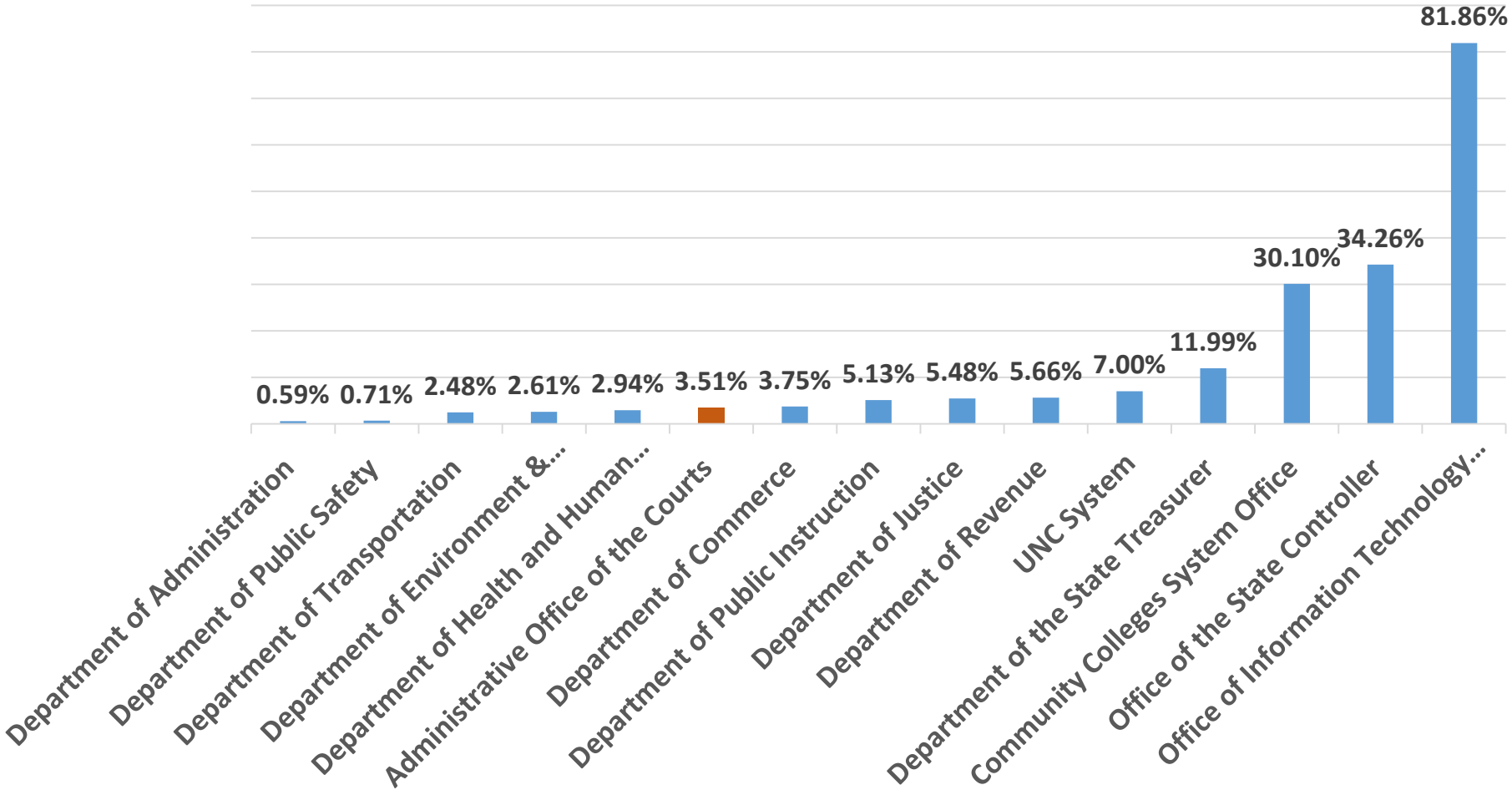
- Examine all NCAOC technology spending using OSC Annual IT Expenditures report (appropriations, Tech Fund, grants, other)
- Present technology spending (TSD +) as allocated to the benefiting groups for FY 2012-2013
- Facilitate future discussions about priorities and cost

OSC Data: All Technology Spending (Technical Services Division +)

Includes, for example:

- Copiers, ink
- Telephones
- Video
- Fiber network access
- Technology-related positions not in TSD
- CSD (Micrographics staff and equipment)
- Communications Office (Web/intranet)

Compared to Exec. Branch Agencies & Colleges: IT Staff vs. Total Staff (FTEs)



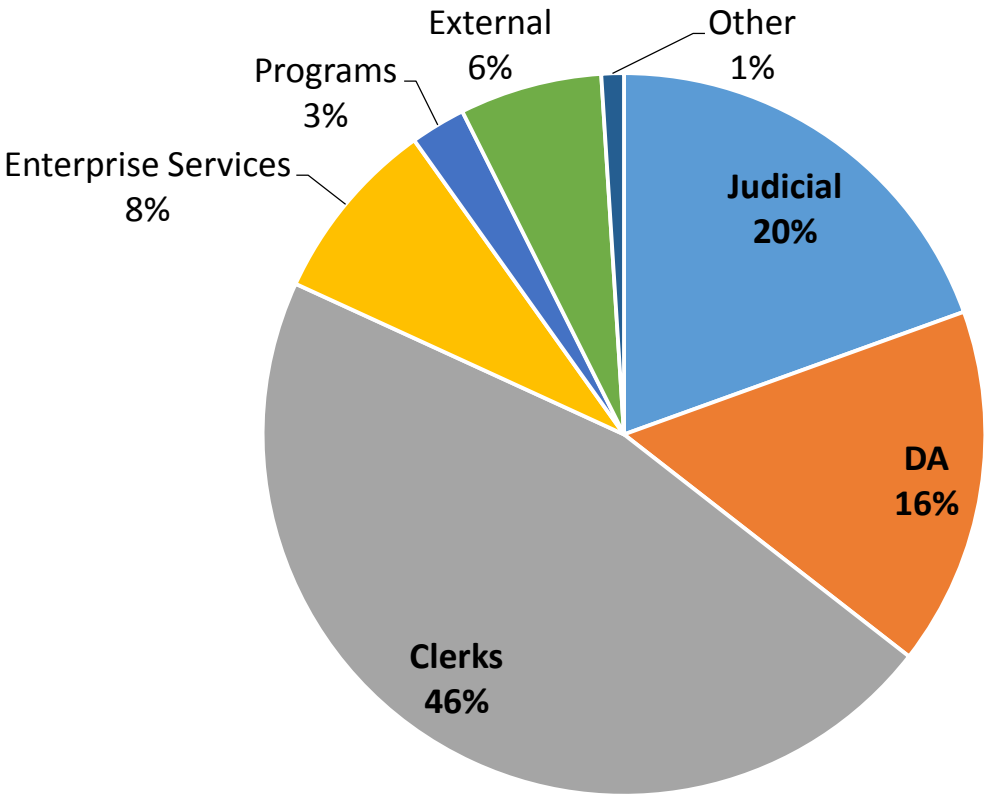
Spending per User Group: Methodology

- Applications and application development staff were allocated to user groups based on primary and secondary user benefit.
- Infrastructure staff, field support, help desk, and other staff were prorated across user groups based on FTEs.
- Infrastructure technology was prorated across user groups based on FTEs.

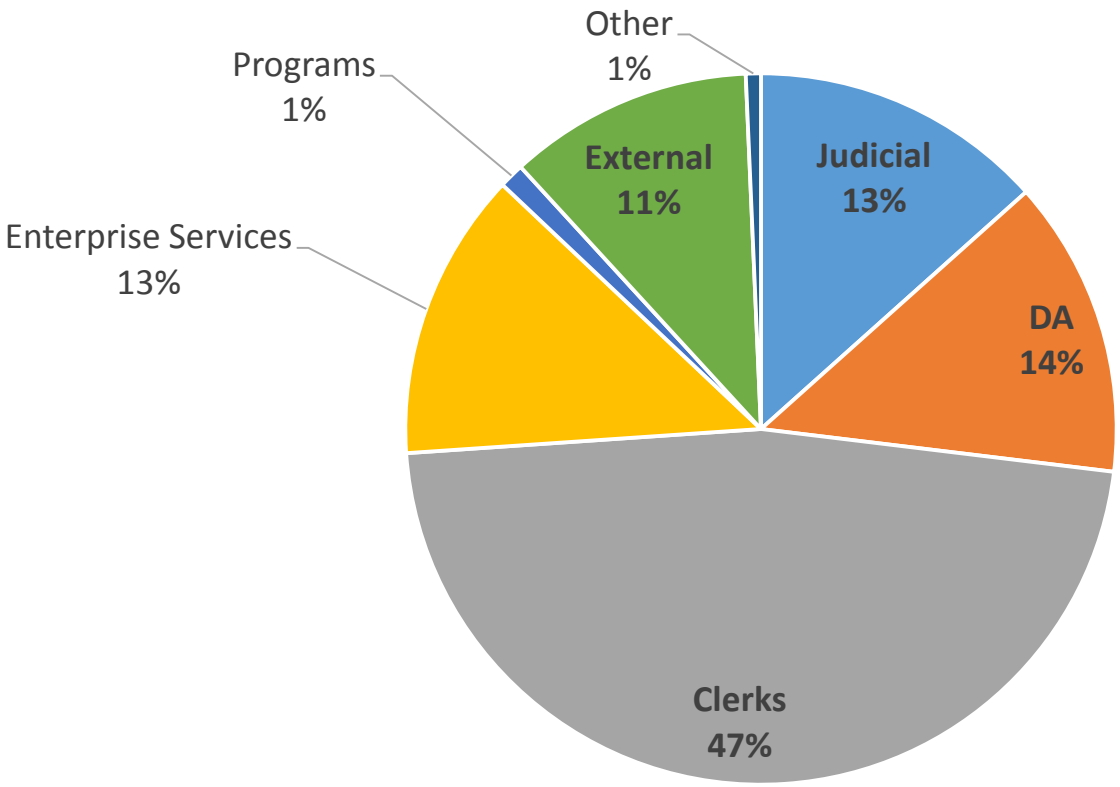
User Groups

Judicial	District Attorney	Clerk of Superior Court	Admin-istrative services	Programs	Other	External users
• Supreme Court • Court of Appeals • Superior Court • District Court • Business Court • Interpreters • Court Reporters • Magistrates	• District Attorney staff • Conference of District Attorneys	• Clerk of Superior Court staff • Conference of Clerks of Superior Court	• Admini-strative staff	• Family Court • Guardian ad Litem • Child Custody and Visitation Mediation	• Judicial Standards Commission • Innocence Inquiry Commission • Sentencing and Policy Advisory Commission • Office of Indigent Defense Services	• External users

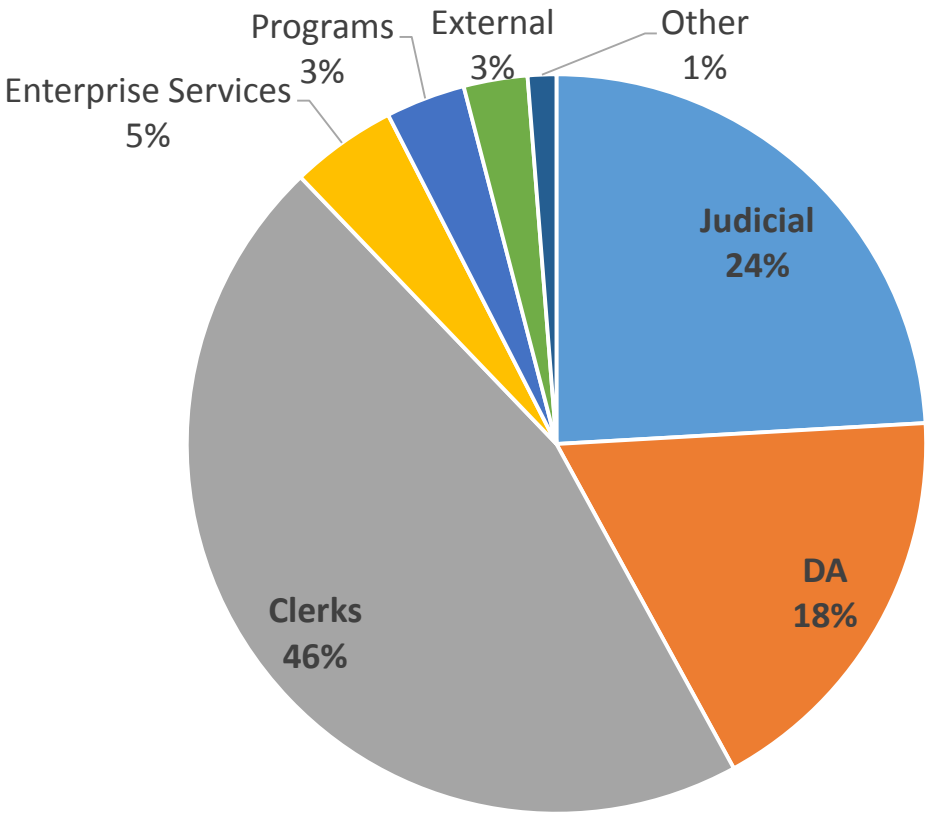
FY 2012 – 2013 Technology Spending by Groups



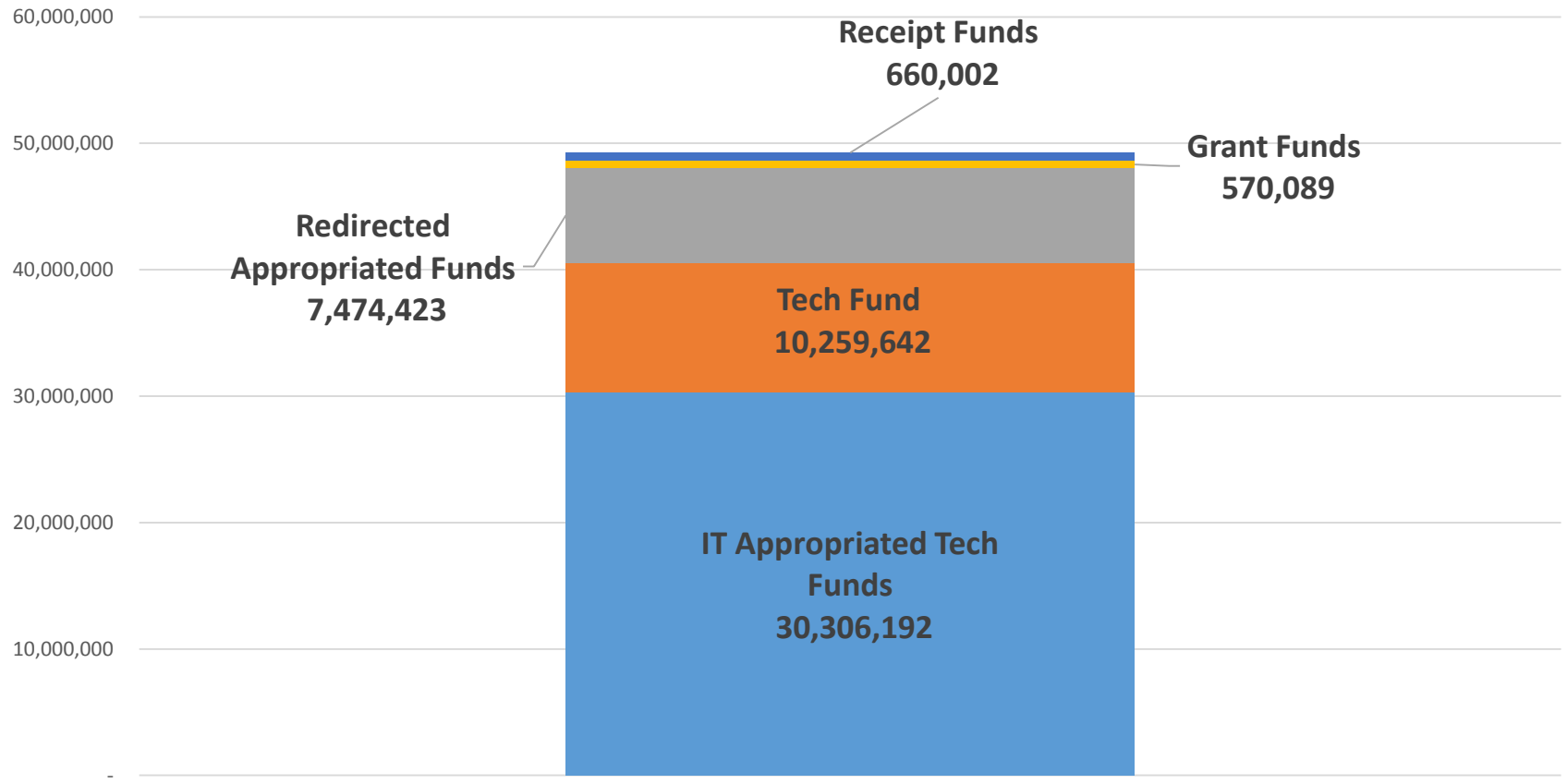
FY 2012 – 2013 Total Personnel Cost by Groups



FY 2012 – 2013 Total Infrastructure + Costs

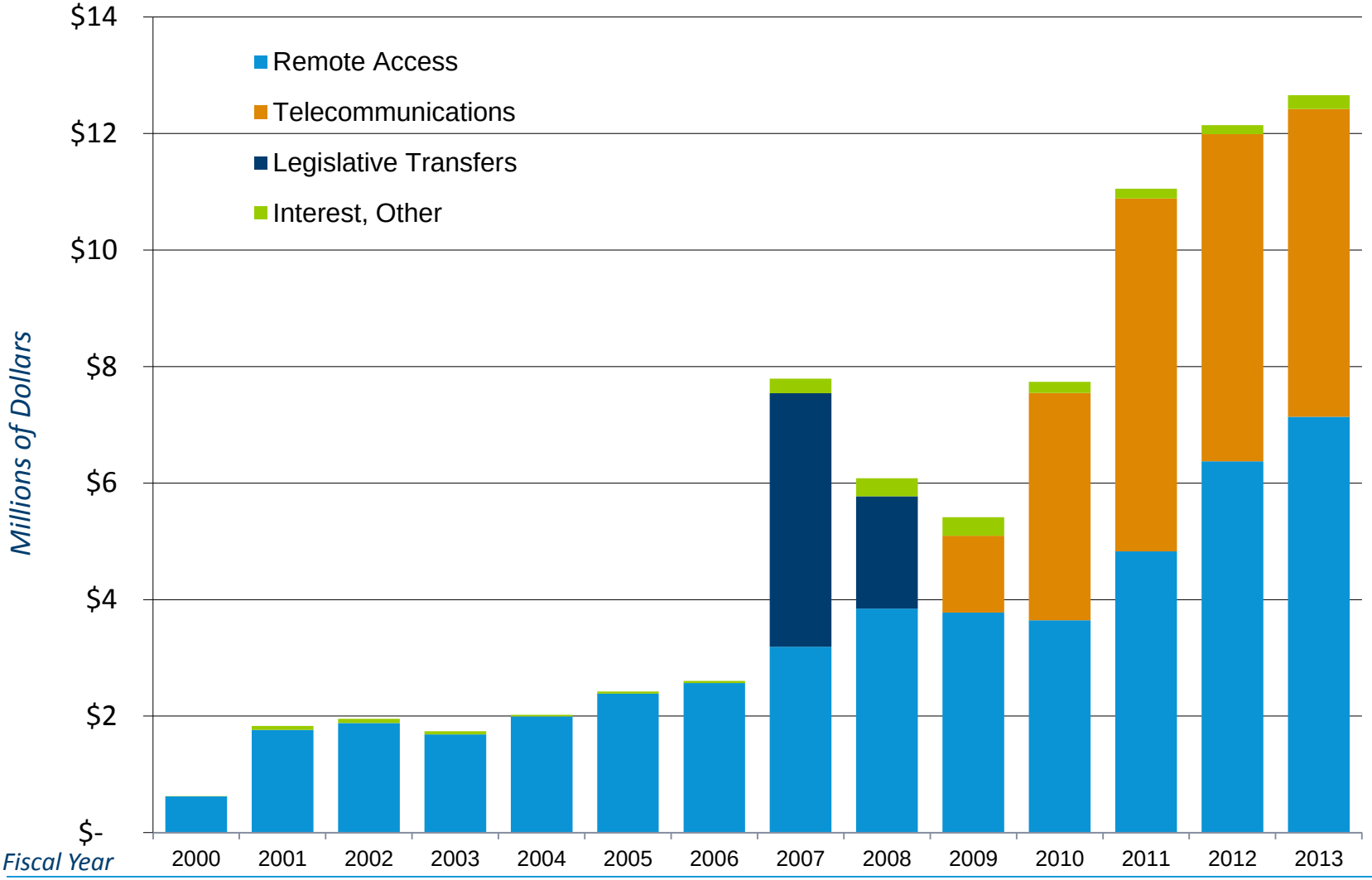


FY 2012 – 2013 IT Spending by Source

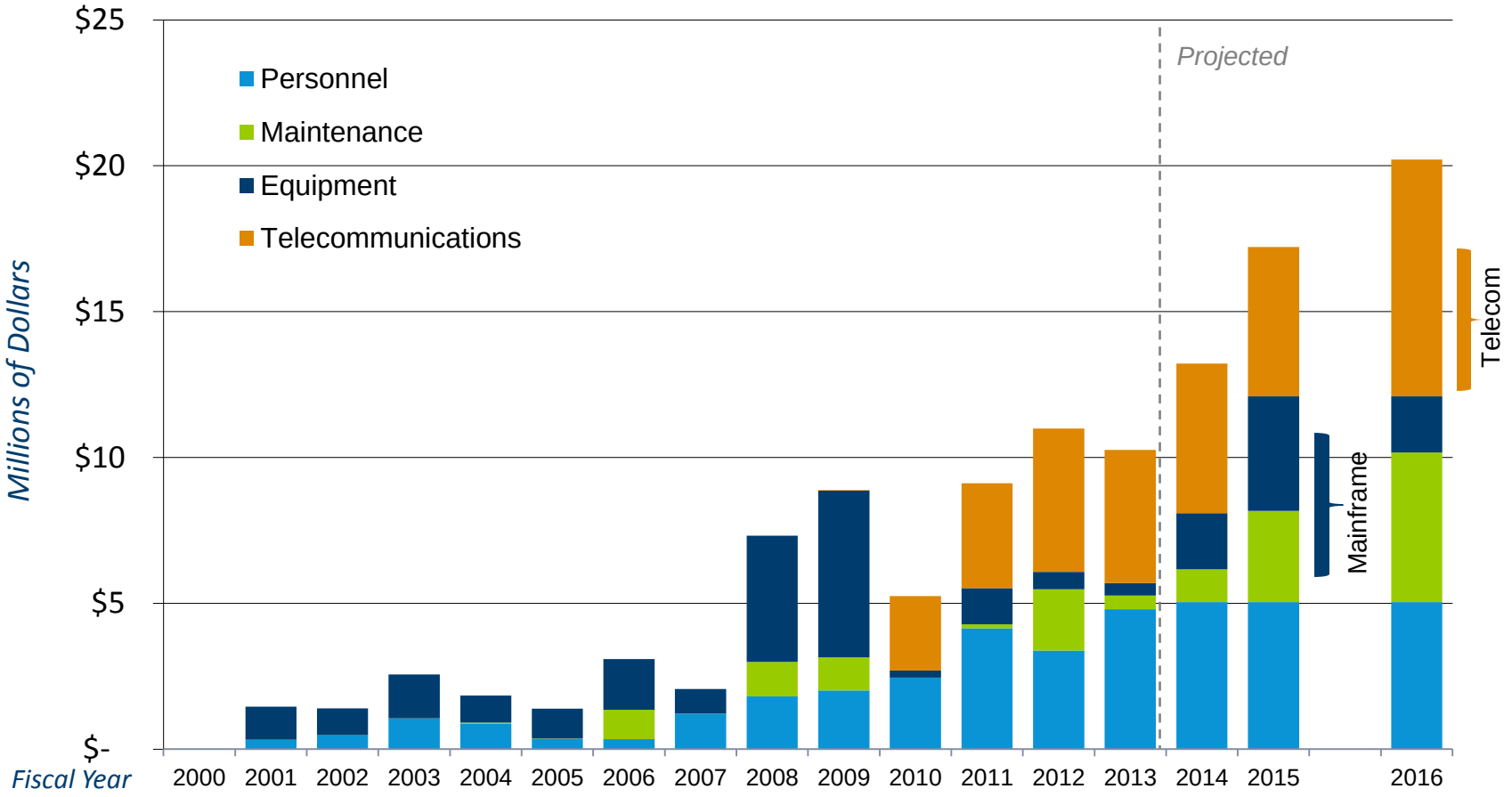


Court Information Technology Fund

Revenue Sources by Fiscal Year



Court Information Technology Fund
Fiscal Year Expenditures and Projections

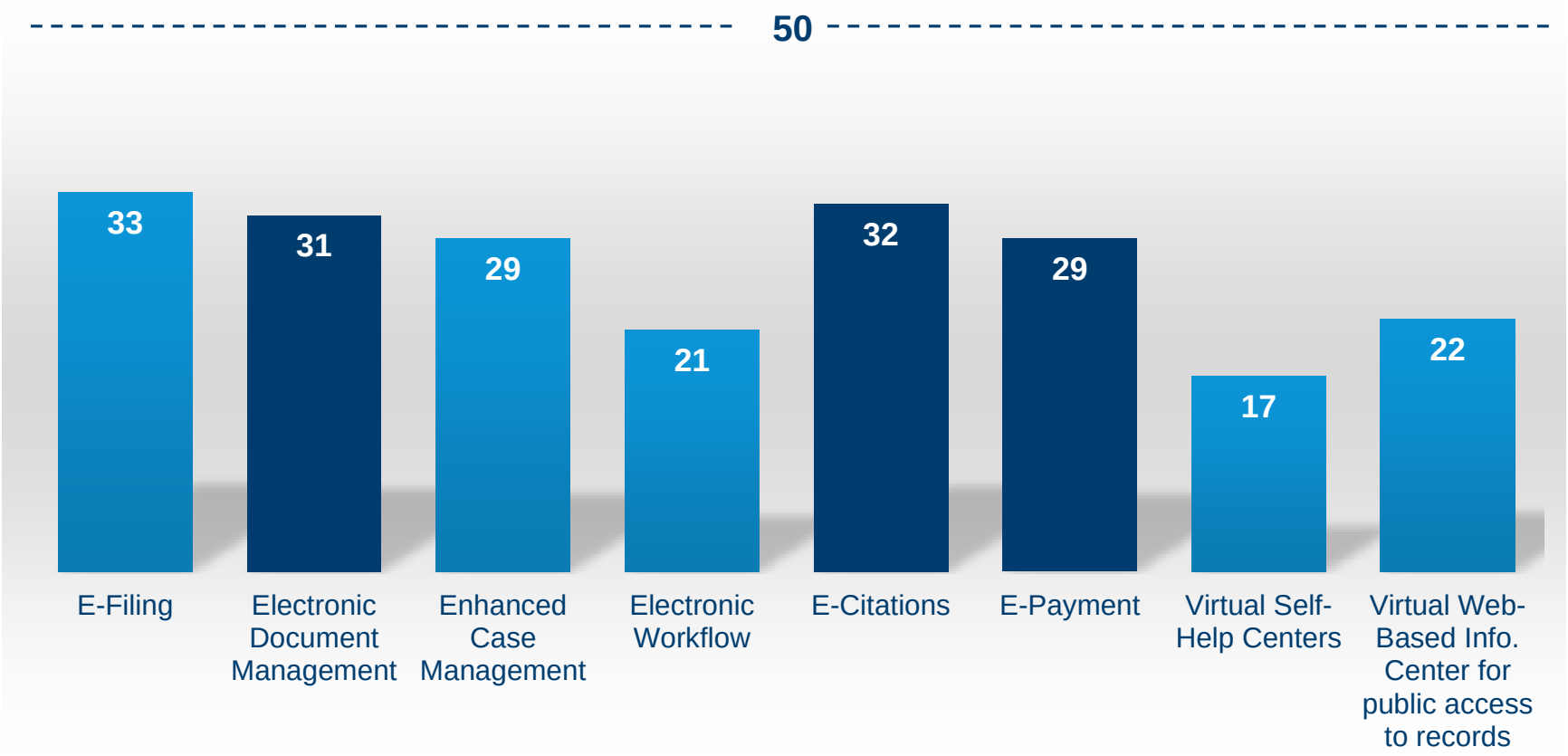


What about other states, federal courts?

+ 246 years: 2013 New Wake County Justice Center

National Perspective for Select Technologies

States' self reported data collected by
the National Center for State Courts (October 2012)



The View from Our Neighboring States

	Sample of technology features*	Extent of state's usage of technology features	Example(s) of future plans
Georgia	EF, CMS, ECit	EF in the Supreme Court and certain local jurisdictions (not supported by AOC). AOC hopes to create a centralized portal for EF in the next year where users can access the local systems that are in place. AOC expects about one third of the state to participate. About 30% of courts use one of the 5 CMS. EC currently used in a limited number of jurisdictions by some law enforcement.	Would like to explore data integration across jurisdictions to have the ability to generate statewide statistics
South Carolina	EF, CMS, ECit, EDM, EW, EP, VSH, VPA	Features are rolled out for different levels of court and/or case type. For example, EDM and EW is at appellate level, CMS uses the same software statewide with 46 applications and some hosted on local servers, EF will pilot in 2014 for common pleas.	• Continue EF rollout to other case types through 2019 • Examine how use of iPads and EW might be expanded from appellate courts to lower courts
Virginia	EF, CMS, ECit, EDM, EP, VPA	Civil EF started in 2008 and was available for jurisdictions to elect participation in Circuit Court during 2013. ECit is currently used in about 12 jurisdictions of General District Court and only by local law enforcement. EDM is available, but not utilized, at all levels of court. Each level of court uses a unique CMS, specific to their court, developed by AOC. Three individual Circuit Courts use a different CMS product.	• Consider expansion of remote interpreting through iPads • Look at ways EF could be expanded to criminal cases and how other agencies might be able to interface
Tennessee	EF, EDM, CMS, ECit, EP, VPA	AOC implemented enhanced CMS in August 2013 for appellate court. VPA is also for appellate court. EF can be implemented by local jurisdictions if they use a provider authorized by AOC. The AOC will also create standards for EF, but they are not required to implement a statewide EF system. VSH launched to public in 2011.	After completing additional phases of existing projects may look at EDM and EF for appellate courts

*Abbreviations Defined: (EF) eFiling, (EDM) electronic document management, (CMS) case management system, (ECit) eCitations, (EW) electronic workflow, (EP) ePayment, (VSH) virtual self-help, (VPA) virtual public access

Information Technology in the Federal Judiciary

IT strategic priorities for the next three to five years:

- Enhanced services to stakeholders (*e.g.,* public access, courtroom technology, case management, *pro se* help)
- Maintaining a robust technical infrastructure (*e.g.,* security, hosting, networks)

Resource requirements:

- Total anticipated Judicial Information Technology Fund (JITF) request in FY 2014 is $523.7 million
- FY 2014 funds required for infrastructure are $65.2 million, and $192.8 million are needed for electronic public access

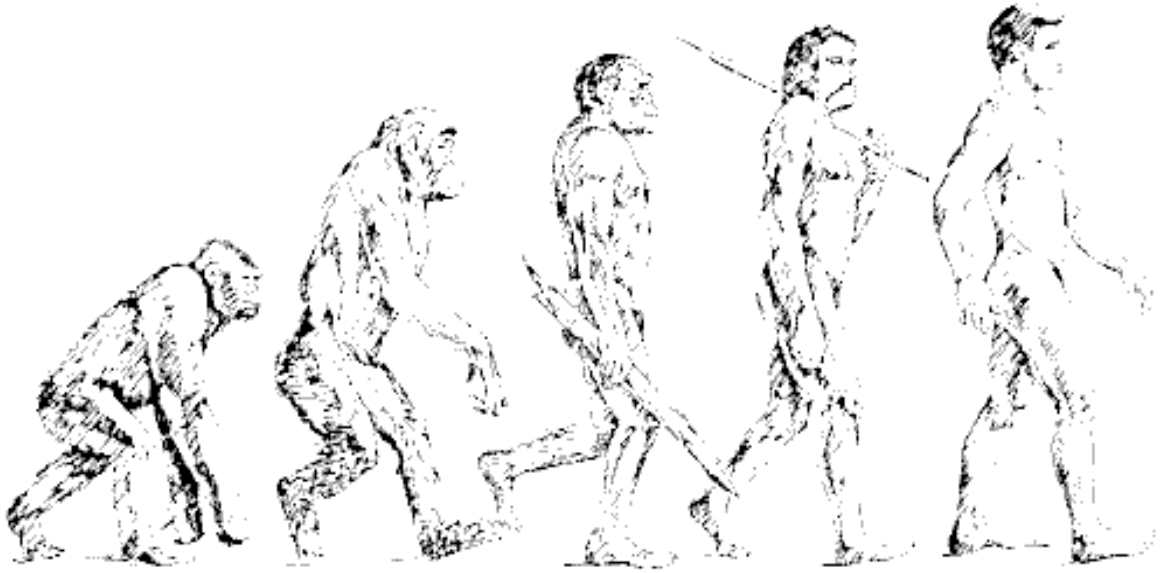
Total federal court filings FY 2012-2013: 1.6 million; total N.C. court filings FY 2012-2013: 2.8 million

Next Steps in Our Evolution

Governance

Simplification

Strategic Planning



The Case for IT Governance

- Many stakeholders with diverse needs and requirements
- Large user base with similar, but not the same, processes
- Shared or centralized technology
- Growing reliance on technology
- Limited and variable resources
- Competing priorities
- Need for comprehensive solutions

IT Governance is a top priority for the State Judicial Council in 2014

The Imperative to Be Simple

Complexity and too much variety crush efficiency

- Too much technology can be costly and inefficient
- Skill sets are difficult to acquire and maintain
- No one can be an expert in everything

Focus, speed, and investment are required to simplify

Strategic Planning for the Future

- Establish governance structure
- Engage court technology user groups
- Establish principles for making technology investments
- Identify high-value opportunities for business process and technology improvement
- Evaluate current NCAOC technology and architecture
- Let business ***and*** technology viewpoints determine priorities
- Develop short- and long-range plans
- Execute with focus, speed, and commitment

Strategic planning and execution are the keys to success

North Carolina
Administrative Office
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Questions and Comments

Thank You

NORTH CAROLINA
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