

SITAC Meeting

Wednesday, March 21, 2018

Pioneer Room, State Capitol



NORTH DAKOTA
INFORMATION
TECHNOLOGY
DEPARTMENT

Agenda

Welcome/Opening Comments	Shawn Riley
Cloud Update	Shawn Riley
Unification/Shared Service	Shawn Riley
Cybersecurity Update	Shawn Riley
Statewide Productivity Suite	Dan Sipes
Upcoming IT Rates	Dan Sipes
Open Discussion/Closing Comments	Shawn Riley

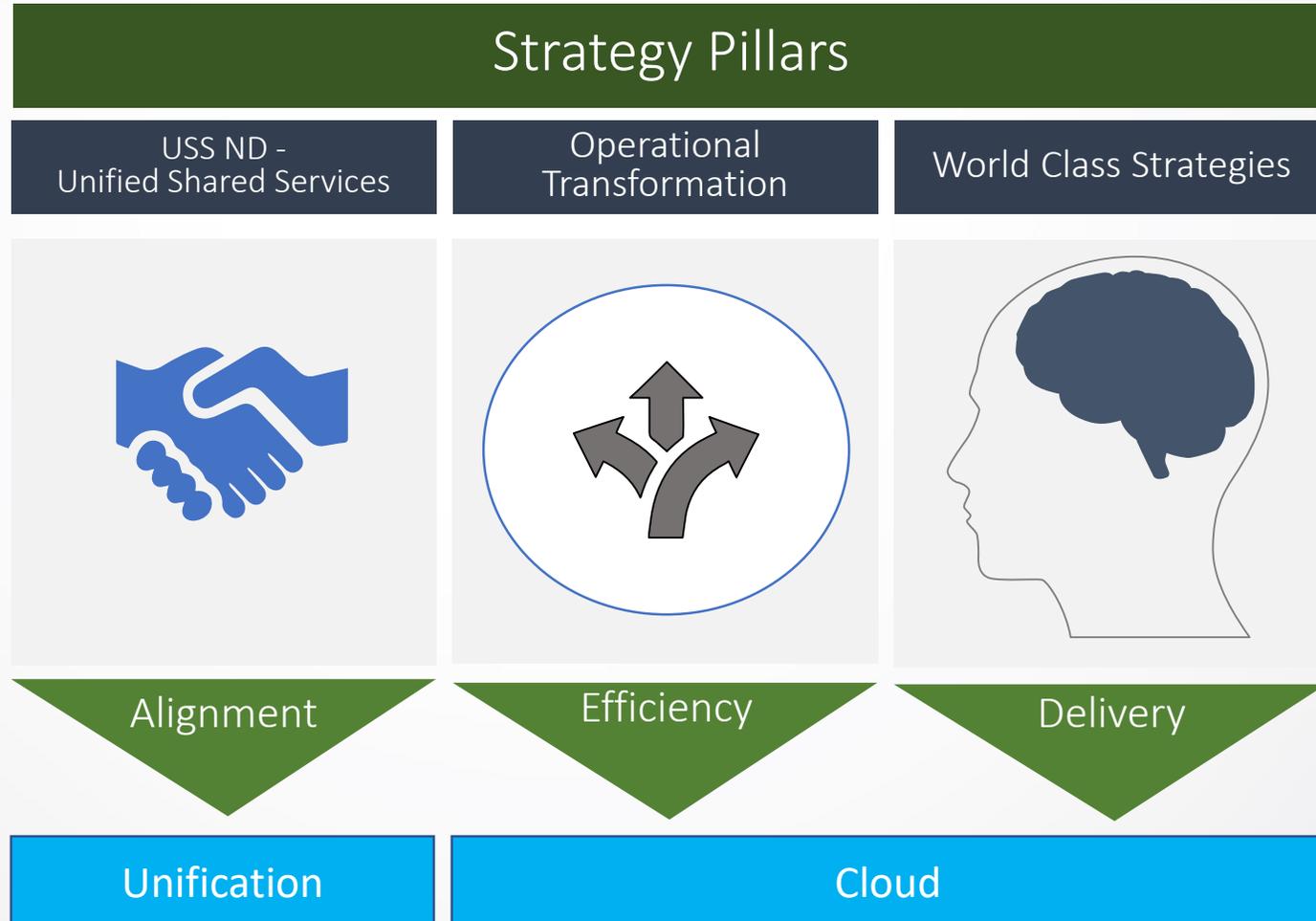


Shawn Riley

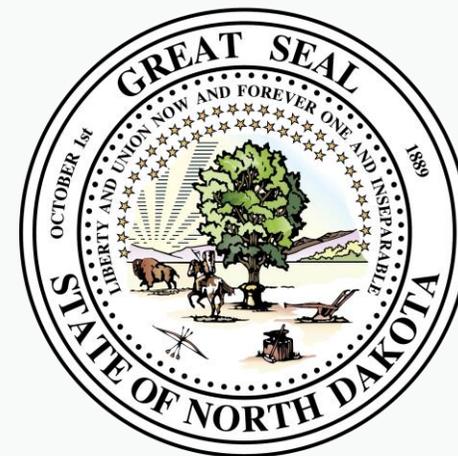
CIO

Strategies Realigned

- Strategies focus on:
- Alignment
 - Efficiency
 - Delivery



Cloud



Empower People



Improve Lives



Inspire Success

Why move to the cloud now?

Rationale

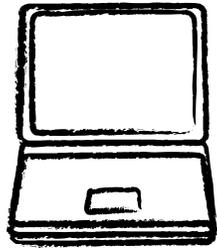
- Cloud has been the technology direction for the IT industry for ~15 years
 - Many on-premise technologies are going away
 - New systems are nearly all cloud
 - New innovation is based in the cloud
- Cloud has security, operational, and cost advantages over the long term
- Our customers are asking for cloud
 - Bank of North Dakota (Cloud First Strategy)
 - Department of Transportation
 - Department of Human Services
 - Higher Ed
 - Etc.
- IT needs to enable open, transparent, fast moving, agile culture



Moving to the cloud is a journey with many parts

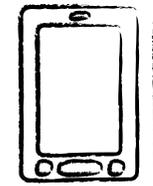
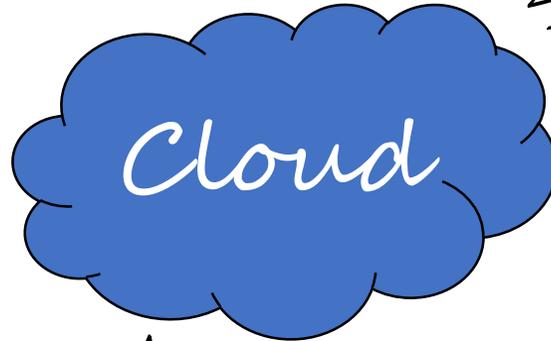
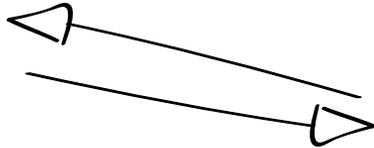
What is “Cloud Computing”

Cloud services are the delivery of computer services over the Internet



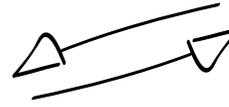
Data Storage

Enables huge data storage capabilities at significantly cheaper costs than on-premise data centers



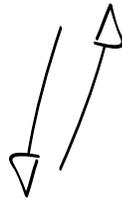
Mobility

Allows for delivery of data and compute power to any platform any location



Compute

Significantly increases the capabilities to deploy new systems and only deploy what you need



- Significant economies of scale benefits
- Allows vastly better experience delivery
- Eliminates guessing for capacity
- Can enable vastly better uptimes and backups across geographies
- Creates flexibility in deployment
- Enables some future-proofing (helps to avoid issues like being stuck on mainframes)

Cloud Adoption

Other state & government organizations



26 States use cloud on the NASPO contracts



93%

Organizations currently using **cloud services.**



In North Dakota (76 apps)

- Amber Alert System
- ND Response
- Blue Alert System
- ND Health Information Network
- Office 365
- Email for:
 - ITD
 - Governor's Office
 - State Auditor
- JobsND.com
- Bank of ND FISERV
- Veterans Home

- *On Hold:*
 - Medical Marijuana
 - Future waivers
 - Infrastructure systems

NASCIO



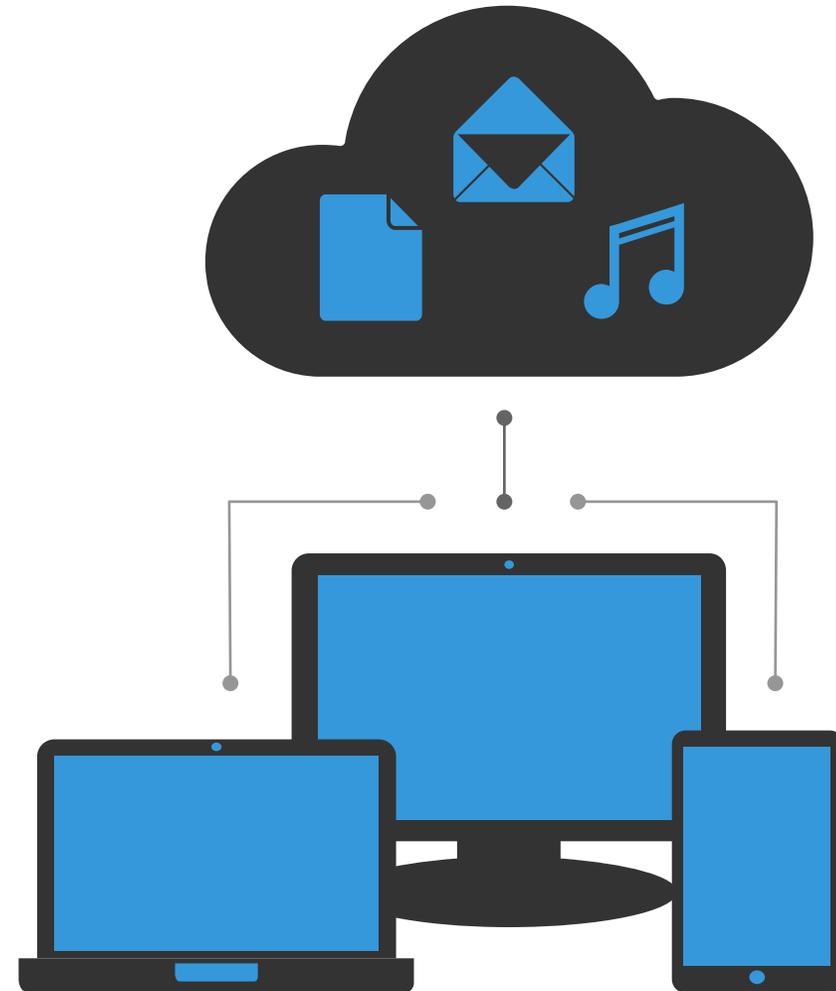
Representing Chief Information Officers of the states

“Cloud First” Strategy

Directional Strategy

The Information Technology Department has adopted a “Cloud First” strategy.

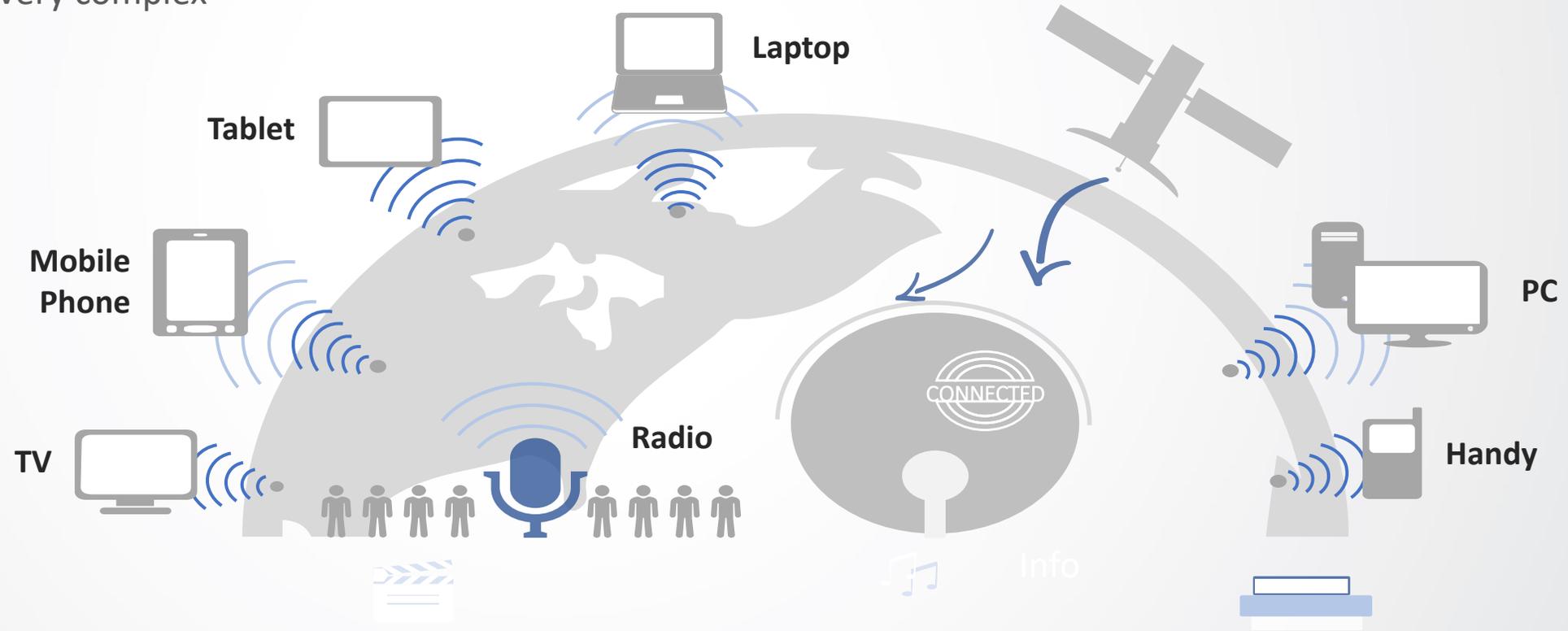
- What this means
 - New systems will be evaluated for deployment in the cloud as the first option
 - Will the system function as expected
 - What are any cost differentials
 - Are there any specific security concerns
 - Legacy systems will be evaluated for the cloud as appropriate
 - Backout strategies are still available if necessary
- What this does NOT mean
 - All systems automatically go to the cloud
 - **Any systems would be moved without involving the owner – must be a collaborative move**



Must be a collaborative move

Cloud is the direction, but is very complex

The move to cloud is the right one, but this change is complex and must be done in collaboration with our customers



Security, Identity and Compliance

Network and Content Delivery

Storage

Compute

Database

Messaging

Cloud Security

Security is the #1 priority when moving to the cloud



Adopting the cloud does not automatically make you more secure, but does position an organization very well to increase the security posture overall

Cloud can offer significantly better security controls (both physical and virtual) at a lower cost than the State of North Dakota would be capable to procure for on-premise data centers

Cloud Capabilities (Provided by Amazon and Microsoft)

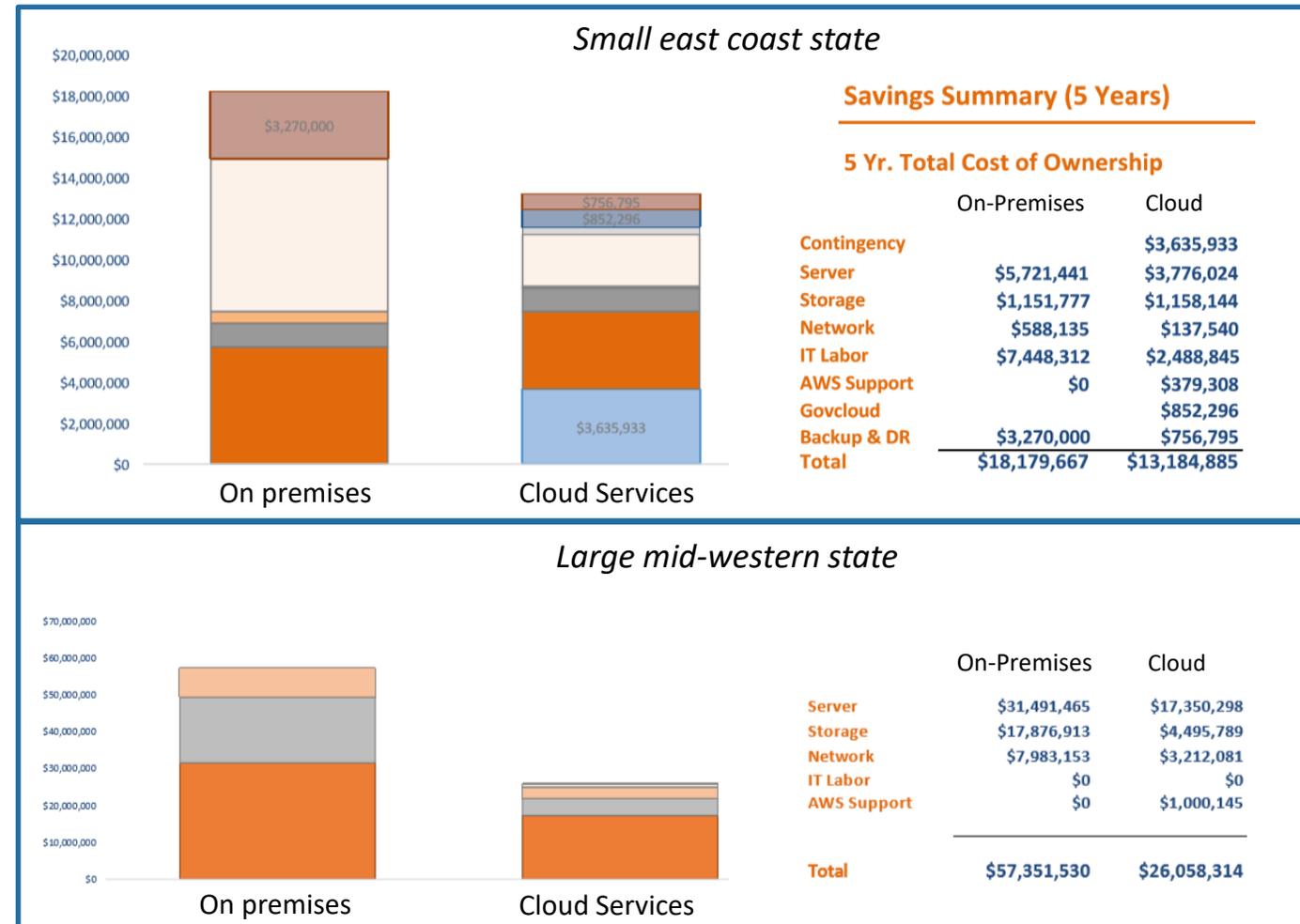
- **Complies with open records laws – still managed by state of ND**
- Background checks in all 50 states for authorized workers in cloud centers
- TSA type scanners for anyone entering cloud center grounds
- Metal detector sweeps for anyone entering a cloud center
- Full camera record of staff within the cloud center
- Full audit record of staff within the cloud center
- Automated data governance
- Complete data and access logging options
- Denial of Service (cyber attack) resiliency
- Compliant with: HIPAA, Federal Information Security Management Act, FERPA, FedRAMP, FIPS, CJIS, FERC etc.
- Data sovereignty guaranteed within the US borders
- Geographic separation for high availability
- Data containment and auditing (manages stolen/lost laptops, etc)
- Zero trust infrastructure segmentation
- Automated Service Level Agreements
- Standardization enforcement
- Automatic patching enforcement
- Automated data risk analysis
- Data encryption at rest and in motion enforced
- Network boundary protections
- Threat analysis and detection
- Systems are audited before and after cloud migrations

Cloud Costs

On-premise vs. Cloud costs

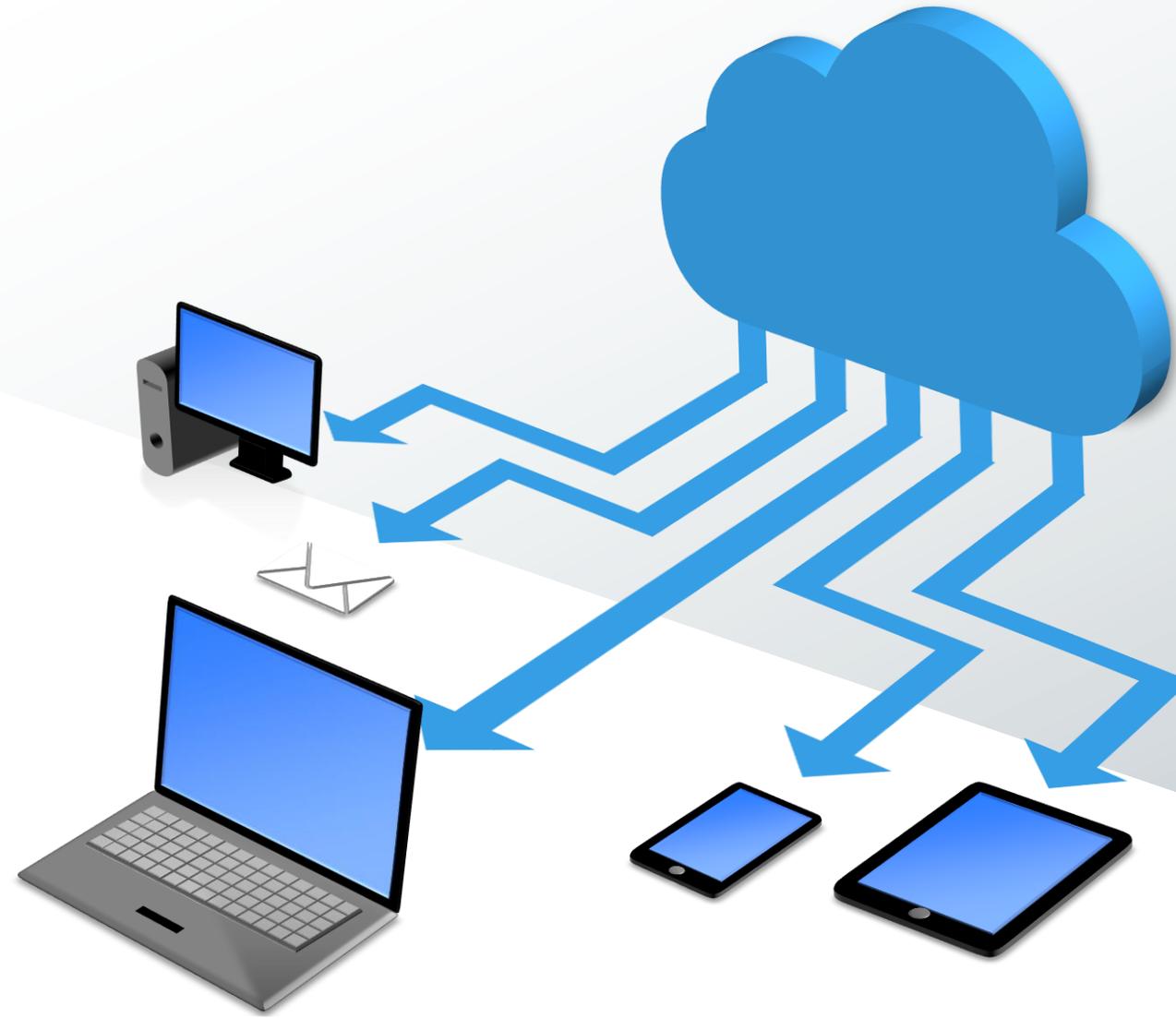
- Costs in the short term are ~equal to today's on-premise costs, but will be cheaper over the long term (5yr)
 - Attempting to manage within the current rate structure
 - Cloud is a strategic cost investment
- Cloud continues to push costs down over time
 - Amazon has lowered prices 64 times in 10 years – other vendors are similar
 - Gives opportunities to restructure FTEs

5-year strategic savings



Cloud / Services Contracts

- The State of North Dakota currently has contracts that allow the purchase of cloud services from:
 - Amazon (Amazon Web Services)
 - IBM (zCloud)
 - Microsoft (Azure)
 - Oracle Cloud
- These contracts have been in place for several years.
 - The latest change was in regards to the Microsoft contract in May 2017 and Amazon in July 2017
 - Both contracts were renewals and did not significantly change terms
- Each contract
 - Ensures ND data is only used by and for North Dakota
 - takes into account privacy and security
 - Complies with NDCC 44-04
 - Complies with ND public record laws
 - Was reviewed by legal counsel from the Attorney General's office prior to signing
 - New purchases will need to be RFP as appropriate
- ND ITD is in negotiations with Microsoft to:
 - consolidate the 60+ contracts for the State of ND at a more favorable price point
 - Determine if standardizing Office365 (a cloud based product) across all of state government is fiscally viable – this is within the current contracts



Cloud Summary

Overarching view

- Cloud is the industry technology standard today
- Cloud is as secure, or more secure than today's on-premise environments
- Cloud costs are at least comparable, most often advantageous, to on-premise
- Our customers are looking to adopt cloud to further their business
- Our current contracts cover cloud deployments for the state of ND
- Cloud services aid us in delivering on our core outcomes:
 - Reduce Costs
 - Improve Citizen Experience
 - Improve People & Process Effectiveness
 - Alignment to ND Strategy



Unification



Empower People



Improve Lives



Inspire Success



Why Unify?

• Opportunities

- Empower economies of scale for procurement, data hosting/storage and data archiving;
- Reduce and eliminate redundancies that have occurred within executive branch agencies;
- Ensure singular strategies and tactics are undertaken across the state to improve mission execution and team member productivity;
- Leverage Lean/six sigma methodologies to project manage large scale transformations to decrease enterprise risk and improve IT investment success;
- Maximize cyber defense by ensuring a singular approach to training and systems/data protection;

- Maximize utilization of IT resources as a shared service (e.g. desktop support/help desk, etc.) and enterprise resource thus enabling agencies to focus on their core missions;
- Maximize resource delivery of grow and transform activities (as opposed to day-to-day run activities dominating workload);
- Improve the citizen experience across state government through common systems and interfaces;
- Improve team member productivity through establishment of common systems and processes for communication and collaboration.
- Provide access to robust data analytics tools, reporting platforms and other requisite infrastructure requirements



15-22 %

Efficiency gains in FTE within the Information Technology areas expected 4 years post unification

- Strategic Realignment (primary method)
- Deferred rehires (attrition or retirements)
- Enables Run / Grow / Transform

Examples already exist: open IT Director and Senior Manager in DHS that would not need to be refilled

Agencies can focus on core business

Focus resources to the core missions instead of trying to manage IT systems

Efficiencies in IT translate directly to decreased FTE costs across the state

Efficient technology decreases the need for operational staff through automation and workflow / process improvements



Examples

Service Management Systems

Unified **1**
Today **7+**

% of State Gov under single Cyber approach

Unified **78%**
Today **22%**

Application Development Models

Unified **1**
Today **4+**

% of staff time spent in "run" activities

Unified **50%**
Today **91%**

What are we Unifying?

The Executive Branch Cabinet has unanimously agreed to work towards the creation of shared services that focus specialties together and allow the cabinets to focus on their core missions



Information Technology (IT)

IT is the first shared service to kickoff

Information Technology (IT)

An Information technology shared service aligns the work efforts of any staff performing IT work together

This alignment must follow a specific plan (study of the staff) which would then be presented to the legislature for consideration in the 2019 session

Workforce Transition Plan

Workforce Transition Plan



Principles

- It is the #1 priority of the IT leadership to positively impact day to day operations of the cabinets and agencies while transitioning to Unified IT
- Use a defined, data driven methodology to assess and build Unified IT
- All changes are agreed upon, and approved by, the cabinet directors and legislature as appropriate



Guidelines

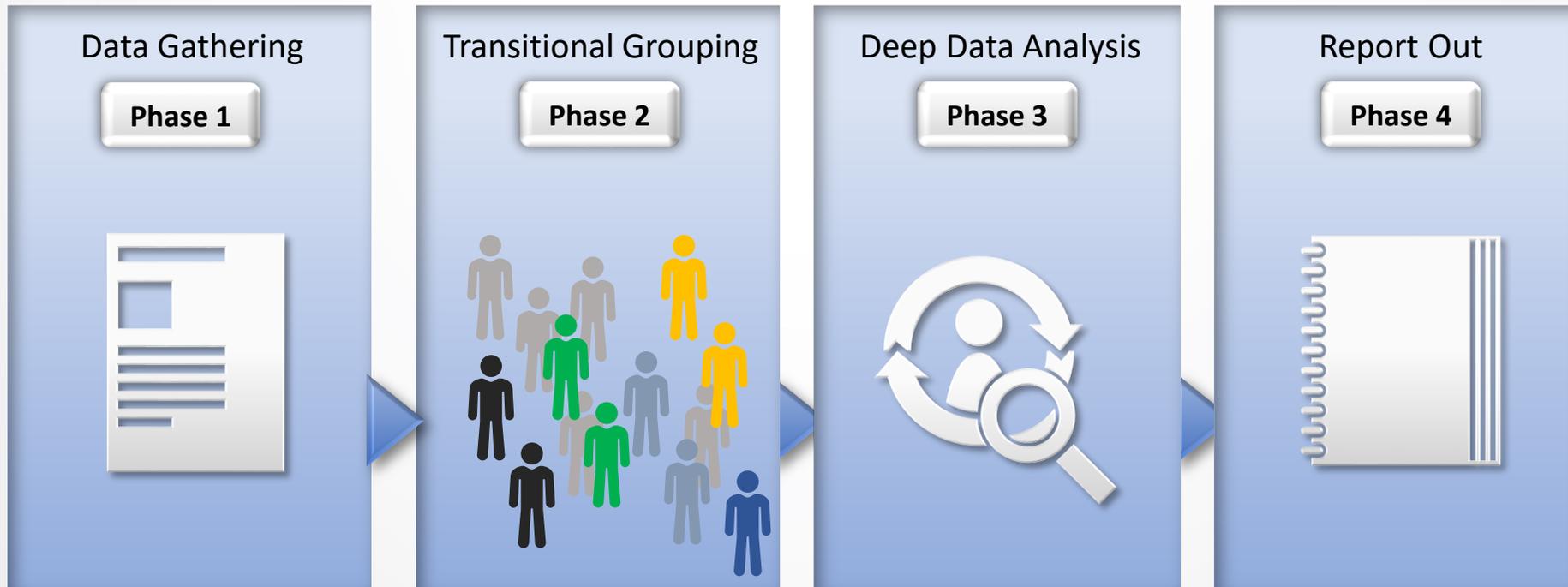
- **All FTEs and dollar allocations stay in their current agency (HR homes) until approved via legislative action**
- Work direction for Information Technology staff will come from the shared service once the studies are completed
- Workforce Transition completed with the input of cabinet leadership, HR, and Finance representatives



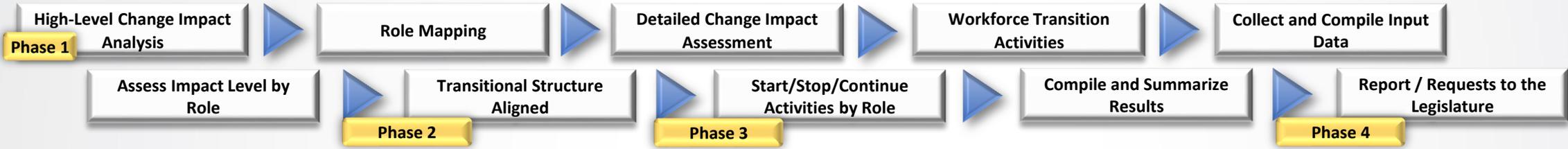
Assessment & Study

- Assessment takes into account skills, needs, strategies, objectives, costs, and impactors across all in-scope areas
- This assessment & study is being completed internally to the state of ND and does not require any additional dollars to complete

Workforce Transition Process



Workforce Transition Process



Data Gathering

Phase 1

High-Level Change Impact Analysis

Role Mapping

Detailed Change Impact Assessment

Key Change	Description	Significance Impact	Positive	Neutral	Negative
Operational Collaboration with State, Medicaid and Finance	• Available to use additional funding of shared state resources and services (Medicaid) • Increase in funding to support selected initiatives (included in the budget)	✓	✓	✓	✓
Operational Change (Data Management)	• Migration of financial and data through establishment of data entry and processing procedures and development of data management systems	✓	✓	✓	✓
Adoption of an Information Management Model	• Build a data lake with all IT financial data & reporting • Build a shared data platform through data sharing across state agencies	✓	✓	✓	✓
Central Acquisition (Procurement and Key Data)	• Acquisition of shared information systems and services	✓	✓	✓	✓
Operational Change (Human Resources)	• Streamline and improve HR processes	✓	✓	✓	✓
Operational Change (Information Technology)	• Streamline and improve IT processes	✓	✓	✓	✓
Operational Change (Legal Services)	• Streamline and improve legal services	✓	✓	✓	✓
Operational Change (Public Safety)	• Streamline and improve public safety services	✓	✓	✓	✓
Operational Change (Health Services)	• Streamline and improve health services	✓	✓	✓	✓
Operational Change (Education)	• Streamline and improve education services	✓	✓	✓	✓
Operational Change (Agriculture)	• Streamline and improve agriculture services	✓	✓	✓	✓
Operational Change (Energy)	• Streamline and improve energy services	✓	✓	✓	✓
Operational Change (Transportation)	• Streamline and improve transportation services	✓	✓	✓	✓
Operational Change (Other)	• Streamline and improve other services	✓	✓	✓	✓



The following table summarizes the key elements and benefits of the process:

Element	Benefit
Key Impact data collection	Provides a summary of the expected changes
Impact category and change management activity assignment	Determines the type of change and the support opportunities available
Action plan development, including workforce transition activities	Clearly defined scope of audience
Role Mapping input data collection	Assignment of new roles, responsibilities, processes, and technologies to current state jobs
Role Mapping activities	Responsibility map
Role Mapping results and validation	Input into workforce transition materials and activities
Change Impact level determination for each role identified	Detailed understanding of impact levels to roles and employee groups
Assignment of Start/Continue/Stop activities	Concise, detailed explanation of specific changes to a role

Key Elements	Benefits
<ul style="list-style-type: none"> Key Impact data collection Impact category and change management activity assignment Action plan development, including workforce transition activities 	<ul style="list-style-type: none"> Provides a summary of the expected changes Determines the type of change and the support opportunities available
<ul style="list-style-type: none"> Role Mapping input data collection Role Mapping activities Role Mapping results and validation 	<ul style="list-style-type: none"> Clearly defined scope of audience Assignment of new roles, responsibilities, processes, and technologies to current state jobs Responsibility map Input into workforce transition materials and activities
<ul style="list-style-type: none"> Change Impact level determination for each role identified Assignment of Start/Continue/Stop activities 	<ul style="list-style-type: none"> Detailed understanding of impact levels to roles and employee groups Concise, detailed explanation of specific changes to a role

A dedicated team has been assembled to deliver phase 1 work

- Finance
- HR
- Communications
- Analysts

This team has been directly working with the CIO, IT leadership, and cabinet leaders

Workforce Transition Process



Data Gathering

Phase 1

Workforce Transition Activities

Collect and Compile Input Data

Assess Impact Level by Role



Job Category	Impact Assessment	Assess Impact of the Key Change Areas on Other Key Elements	Implementation Action Plan of the Key Change Areas
Administrative Support	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Client Support	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
HR Shared Services	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Finance	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
IT	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Legal	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Marketing	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Operations	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Procurement	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Quality Assurance	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Recruitment	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Security	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Training	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Union Relations	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.
Workforce Planning	Low Impact	Impact of Operational Requirements will be minimal as the role is not directly involved in the key change areas.	Change of job processes with new responsibilities will be minimal.

Impact Level	Low	Medium	High
Low Impact	<ul style="list-style-type: none"> Minimal change to the role. Minimal change to the role's responsibilities. Minimal change to the role's reporting line. Minimal change to the role's title. Minimal change to the role's location. Minimal change to the role's pay grade. Minimal change to the role's classification. Minimal change to the role's job description. Minimal change to the role's key performance indicators. Minimal change to the role's training requirements. Minimal change to the role's recruitment requirements. Minimal change to the role's exit requirements. 	<ul style="list-style-type: none"> Some change to the role's responsibilities. Some change to the role's reporting line. Some change to the role's title. Some change to the role's location. Some change to the role's pay grade. Some change to the role's classification. Some change to the role's job description. Some change to the role's key performance indicators. Some change to the role's training requirements. Some change to the role's recruitment requirements. Some change to the role's exit requirements. 	<ul style="list-style-type: none"> Significant change to the role's responsibilities. Significant change to the role's reporting line. Significant change to the role's title. Significant change to the role's location. Significant change to the role's pay grade. Significant change to the role's classification. Significant change to the role's job description. Significant change to the role's key performance indicators. Significant change to the role's training requirements. Significant change to the role's recruitment requirements. Significant change to the role's exit requirements.

Key Elements

Benefits

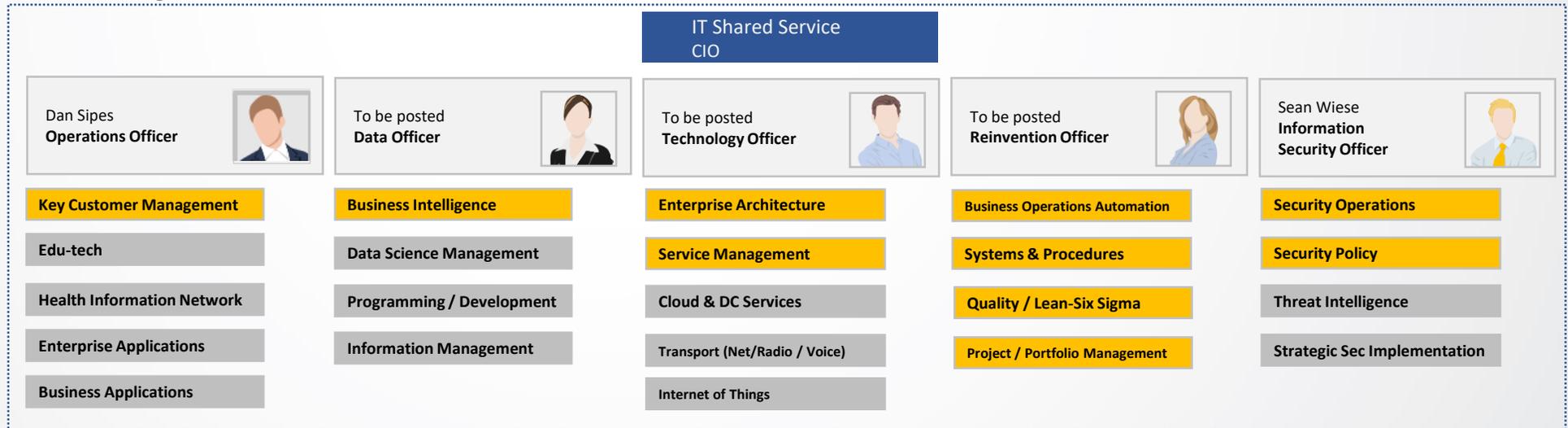
- Development and support of Workforce Transition Guides
- Development and use of teaming/ responsibility workshops
- Dashboard and data triangulation
- Overview profile for individuals and teams
- Individual baseline
- Operational business impacts identified
- Effective, structured materials to support transition
- Responsibilities defined for critical convergence transition/ collaboration points
- Expanded breadth to engage end users
- Obtain role mapping results and review roles, responsibilities, processes and technologies
- Team Members and SMEs analyze role mapping results and assign levels of impact using numerical values and a Low, Medium, High color scale

An executive advisory team was assembled to review progress and discuss issues and questions. The members included each agency as they progressed through the processes.

Workforce Transition Process



Functional Alignments



- Functional alignments and the Transitional Groupings are critical to the process
 - Aligns staff with like functions together to ensure documentation can be completed
- Structured around 5 key areas of technology – necessary with or without Unification
 - Working through the Personnel Board process for the top level roles
- This does NOT move any FTE or dollars across agencies

Workforce Transition Process



Deep Data Analysis

Phase 3



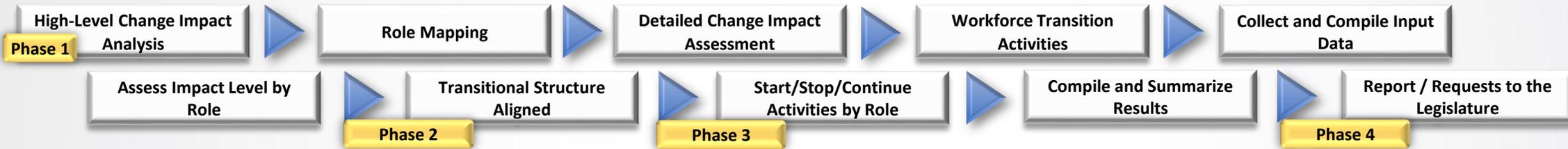
The Start/Stop/Continue (SSC) gives us deep data on each individual FTE

- SSC is a documentation methodology that breaks down job descriptions, skill set surveys, manager inputs, and staff inputs to give a comprehensive roles and responsibilities list
- SSC is dependent on the Transitional Structure to ensure accurate information
 - All managers, supervisors, etc. are part of the documentation process

Outputs

- Complete picture of information technology FTEs
 - What work do they do
 - How do they do it
 - What opportunities exist
- Exclude non-IT FTEs from the process

Workforce Transition Process



Report Out

Phase 4

To be completed: Dec '18 in time for 2019 Legislative session:

Financial Plan

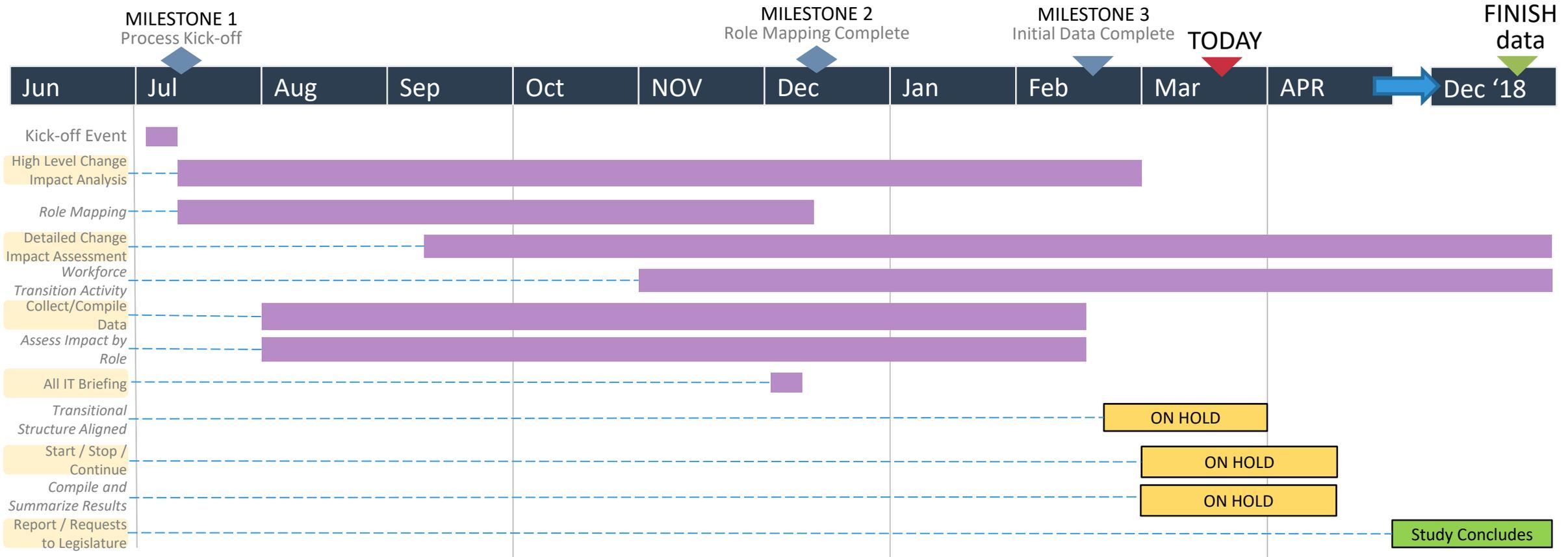
Structural and models for moving to a fully unified organization. Will include cost savings and long term projections

Staffing Plan

Complete staffing plan to solidify the transitional structure into an operational organizational chart

UNIFICATION TIMELINE

Workforce Transition



- Started the process on 10 July
- ~700 people initially considered to be "IT" or to be delivering "IT functions"

- 577 FTE have gone through Phase 1 to date
- 513 FTE have been confirmed to have IT job duties to date

PROJECT STATUS:
On Hold – Per Legislative Request

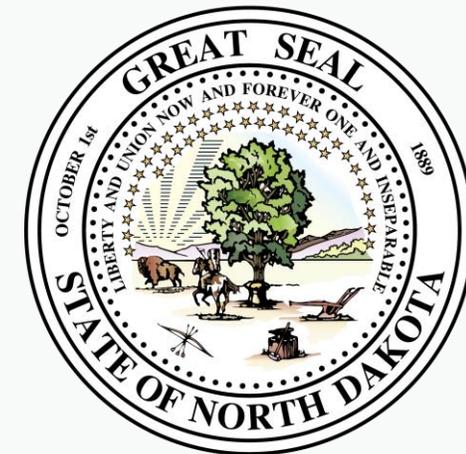
Summary

Overarching Views

- Unification
 - Focuses on cost reduction and operational efficiency opportunities over the long term
 - Follows a defined, long term process that ensures continuity of the approach
 - Requires considerable data to bring the right information forward to the legislature
 - Requires legislative approval to complete



Cybersecurity



Empower People



Improve Lives



Inspire Success

North Dakota is a target



Bad actors are targeting North Dakota for many reasons

- #2 State in the US for Energy production
- Leader in UAS research
- Nuclear and conventional Military bases
- Election systems
- 252,000 users on the network daily (Courts, Counties, K-12, Political Subs, etc.)
- Significant amounts of decentralized citizen data



Social “hacktivism” with events like Dakota Access Pipeline

Average # of Scanning attempts per month (last 6 months)

454,259

Average # of DoS attempts per month (last 6 months)

562,276

Average # of Vulnerability attempts per month (last 6 months)

5,642,013

Average # of 0-day attempts per month (last 6 months)

217

Average # of Virus/Spyware attempts per month (last 6 months)

5,924

Average # of Spam Messages Blocked per month (last 6 months)

14,674,484

DNS Threat Detection - Blocked Events (month of August)

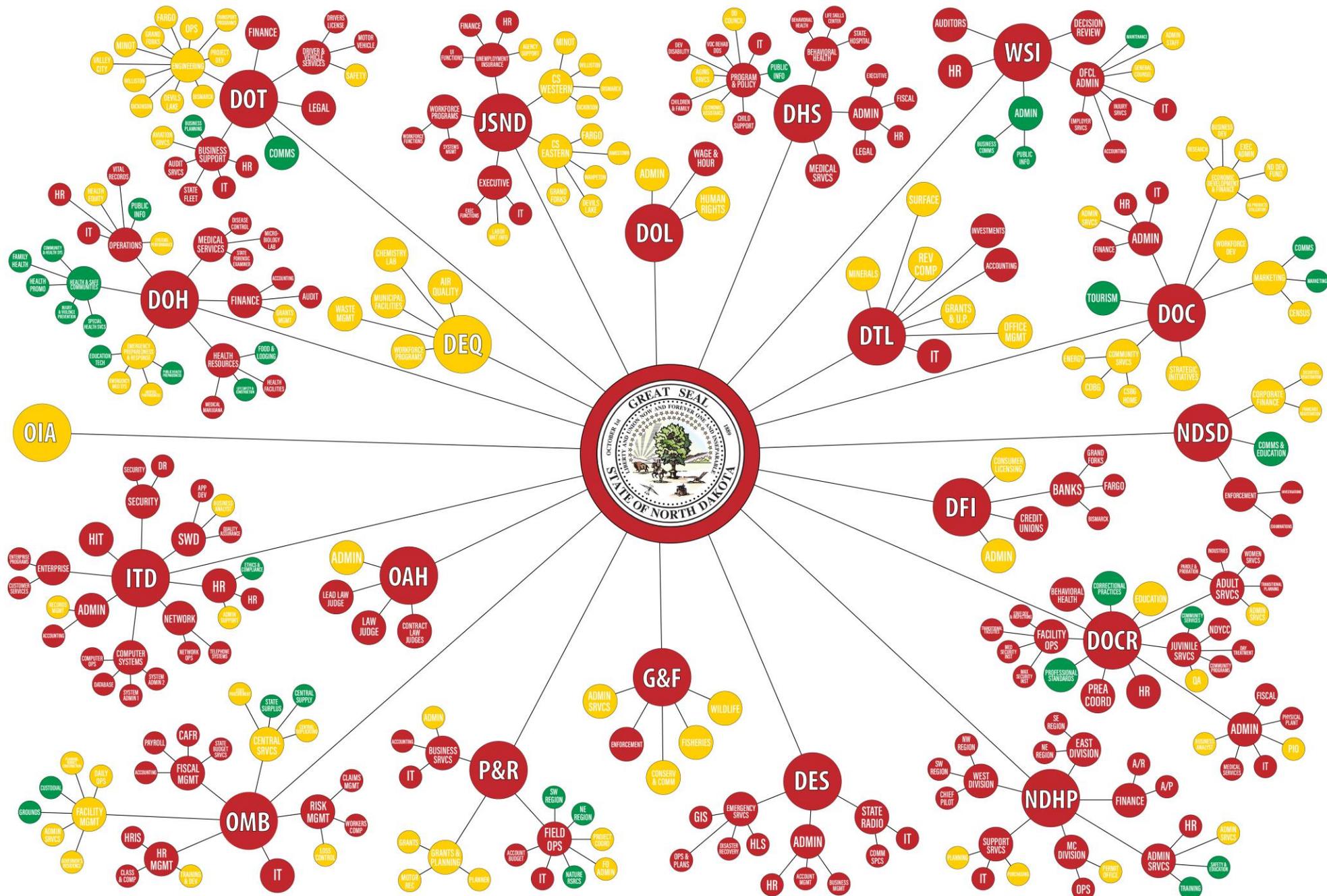
972,974

State-sponsored

Hacktivist

Criminal

Complexity of Data in North Dakota



AGENCY LEGEND

- OIA Office of Indian Affairs
- DOH Department of Health
- DEQ Department of Environmental Quality
- DOT Department of Transportation
- JSND Job Service North Dakota
- DOL Department of Labor
- DHS Department of Human Services
- WSI Workforce Safety Insurance
- DTL Department of Trust Lands
- DOC Department of Commerce
- NSD ND Securities Department
- DFI Department of Financial Institutions
- DOCR Department of Corrections & Rehabilitation
- NDHP ND Highway Patrol
- G&F Game & Fish
- OMB Office of Management & Budget
- P&R Parks & Recreation
- DES Department of Emergency Services
- OAH Office of Administrative Hearings
- ITD Information Technology Department

CHARACTERIZATION INFORMATION:

- Utilizes Sensitive Data
- May Utilize Sensitive Data
- Utilizes Non-Sensitive Data

*Data sensitivity ranking based on type of data user will utilize, not associated risk
 **Data utilization does not imply that user has access to data, rather the specific data used for job functions

The background is a dark grey circuit board pattern. A series of glowing white lines, resembling a stylized circuit or data path, flows from the right side towards the center. The lines are composed of straight segments and right-angle turns, with some ending in small circles. The overall aesthetic is technical and modern.

Dan Sipes

Deputy CIO

Microsoft Productivity Suite

- Evaluating a Single Agreement for all of State Government
- Microsoft M365 E3 + some additional security components
 - Windows
 - Office 365 with OneDrive
 - Exchange Online
 - SharePoint Online
 - Skype for Business with full collaboration features
 - SCCM
 - Azure Active Directory
 - Provides MFA and advanced threat analytics for protection of identities
 - Mobile Device Management

2019-21 Biennium Rates

- Overall looking to hold rates even for existing services
- Software Development hourly rates
 - Evaluating migrating to including software stack upgrades in the hosting fee rather than having agencies try to budget for this as a development effort
- Desktop Support
 - May look to include more Office 365 in the rate
- Telecom fees
 - May look to consolidate some rates
- Fees based on FTE or budget will vary due to changes in metrics
 - Technology Fee
 - ConnectND Fee



THANK YOU

Visit us at [*www.ND.gov/ITD*](http://www.ND.gov/ITD)