NCEdCloud IAM

Service Management Plan

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IAM Service Management Overview

Preface

The *Service Management Plan* provides details on the supporting role of service management for the NCEdCloud IAM Service as it is planned, developed, and deployed for the K-12 Stakeholders of North Carolina. It is important to note that the K-12 Education System includes user groups from Pre-Kindergarten (Pre-K) to Early College High Schools (Grade 13). The target audience for this document includes the NCEdCloud IAM Service Core Team and Identity Automation (*IdAuto*). However, content from this document will be used to develop other external documents. As such, this will be a living document and Service Management responsibilities will change and update accordingly.

Intended Purpose of This Document

- To provide a single document that addresses the key responsibilities of the IAM Service Manager and best practices for accomplishing them
- To describe the relationships and responsibilities between the IAM Service Manager and each of the participant groups or organizations that comprise the NCEdCloud IAM Service

Relationship Management

The primary work of Service Management leadership is to coordinate and facilitate the various participants' responsibilities and deliverables as part of the NCEdCloud IAM Service. The Service Manager will ensure those participants are provided the necessary support and information to make the IAM Service successful. Before describing each of the working partnerships the Service Manager has with the other NCEdCloud participants, it is appropriate to finish this overview with a specific description of the Service Management Role.

Service Management

The NCEdCloud IAM Service Management organization serves as an intermediary between all the NCEdCloud IAM Service Participants. With the number of different participants, each having different responsibilities for this service, this organization will bridge any gaps that exist between those participants to enable a more complete and seamless user experience.

> *The current organizations performing Service Management functions are: Friday Institute, MCNC, and Identity Automation.*

The IAM Service Manager will be *provided*:

- Requirements from Policy and Governance
- Policy rules/decisions/endorsements from Policy and Governance
- Documentation and appropriate knowledge transfer/training from the NCEdCloud NCEdCloud IAM Service Provider
- Payment/Funding for the delivery of the IAM Service Management functions

The IAM Service Manager will be *responsible* for:

- Establishing and fostering relationship management with all participants and stakeholders using, supporting, or delivering the statewide NCEdCloud IAM Service
- Providing coordination of IAM Service Help Desk for matters related to the IAM Service
- Ensuring the *effective* implementation and support of policies defined by the Policy and Governance bodies
- Providing technical and strategic guidance to the Policy and Governance bodies about any necessary policies that are needed to help the IAM Service Manager deliver and support the NCEdCloud IAM Service
- Coordinating with the NCEdCloud IAM Service Provider to translate the K-12 User Community and/or Policy and Governance requirements into enhancements or fixes for the NCEdCloud IAM Service
- Coordinating with the NCEdCloud IAM Service Provider and Target Application vendors to onboard/integrate/maintain Target Cloud Applications, Resources, and Services
- Coordinating with the NCEdCloud IAM Service Provider and Source data system providers to onboard/integrate/maintain System of Record and source data feeds
- Working with Policy and Governance and the K-12 User Community to identify and select new Target Systems using selection criteria and ranking methodology
- Providing IAM Service reporting and audit information to the Policy and Governance bodies and K-12 User Community as needed
- Ensuring the availability of training and documentation materials for the K-12 User Community as its users onboard and use the resources/services provided by Target Application providers
- Tracking IAM Service users' suggestions for improvements, features, etc. and developing the

methodology for IAM service enhancements

- Developing surveys to capture the impact of the NCEdCloud IAM Service on the K-12 User Community and providing results/feedback/reports to LEAs and Policy and Governance
- Developing appropriate Communication Plans for each Participant Partnership to provide information and status updates for any scheduled change management, unplanned outages, scheduled downtime, service enhancements, etc.
- Managing acceptance criteria for each Phase of the Identity Automation contract(s)
- Facilitating the Identity Automation Contract Renewal Process and Sustainability
  - Facilitate negotiations for renewal at the end of year 2 - March 31, 2015
  - Establish ongoing funding from DPI for the Service Manager organization for all services provided to the NCEdCloud Users
- Managing the purchase, deployment, maintenance, utilization, and disposal of software applications/licenses/services acquired to support the IAM Service
- Tracking and documenting all LEAs/Charter Schools subscribing to the IAM Service (e.g. CRM)

NCEdCloud IAM Service Partnerships
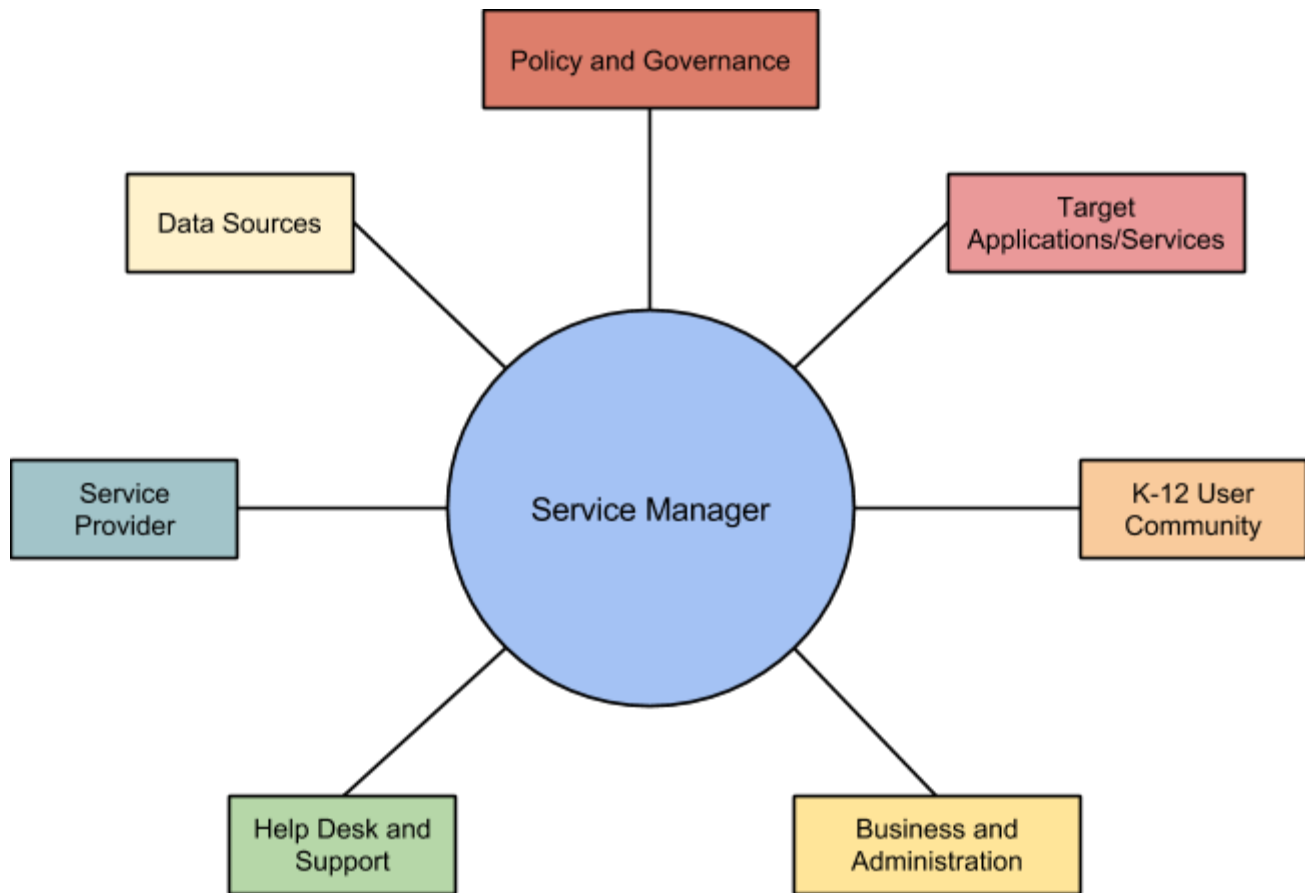
The NCEdCloud IAM Service Management organization serves as an intermediary between all the NCEdCloud IAM Service Participants.

IAM Service Current Deployment Schedule and Timelines

This table shows the high level project schedule for year one of the NCEdCloud IAM service implementation.

Phase	Start Date	End Date
Assessment	4/1/2013	4/30/2013 [Completed]
Design	5/1/2013	6/30/2013 [Completed]
Build	7/1/2013	7/31/2013 [Completed]
Test	8/1/2013	11/08/2013 [In progress]
Deploy	11/11/2013	3/31/2014 [Upcoming]

General IAM Service Deliverables and Milestones

Assessment Phase (April 1, 2013 - April 30, 2013). This phase will be focused on defining many aspects of the project such as business processes (e.g. Incident Management, Change Management, and Communication Plans), in-scope source and target services, stakeholders, reporting requirements to NCDPI, etc. The result of this phase will be an **assessment document** which details the results of this phase. The assessment document(s) will be verification and augmentation of the current set of requirements/definitions outlined in Part II of the IAM Plan and also outlined in the RFP. (~4 weeks from contract start date) **COMPLETED**

Design Phase - Technical Implementation Plan (May 1, 2013 - June 30, 2013). This phase will detail all technical aspects of the NCEdCloud IAM service including, but not limited to, security architecture, system architecture, network architecture, monitoring and testing details, identity management mappings and rules, role definitions, etc. The result of this phase will be a design document and detailed technical implementation plan. The design document and **technical implementation plan** will provide the solution user interface designs for the NCEdCloud IAM service's user facing components. Also included will be an outline of the software products that compose the IAM service such as ARMS, DSS, FIMS, AD, AWS RDS, AWS ELB, etc. as described in the RFP response. (~8 weeks from acceptance of Assessment Phase) **COMPLETED**

Build Phase (July 1, 2013 - July 31, 2013). This phase will involve the creation of the technical solution as detailed in the design document. This will include business rule development, environment readiness, instance builds, product enhancements, etc. This phase includes the integration work for all source and target services in scope. The results of this phase will be a unit tested, small scale implementation of the NCEdCloud IAM service. (~8 weeks from acceptance of Design Phase)

Deliverables of Build Phase: Updated versions of the Technical Implementation Plan with bulleted summary of changes, Demonstration of the Environment (Live and Videos), 3 to 5 page narrative summary of Build phase.

COMPLETED

Test Phase (August 1, 2013 - September 30, 2013. Now extended through November 8, 2013). This phase will include migrating the solution to an infrastructure that matches or closely matches the planned production infrastructure. At this point, several levels of testing will occur including System Testing, Use Case Testing, Load Testing and User Acceptance Testing. During this phase, we also perform training to the technical staff that will be performing support to end users. (~4 weeks from acceptance of Build Phase)

Deliverables of Test Phase:
- Updated TIP 3.0 (Including update recommendations)
- Training Videos for End User, LEA Admin, and Support (TIP Document - Central Directory - Section 6)
- Wiki Site for Training
- Updated Test Phase Task Document:
  - Summary of Testing Phase
  - Attachment B Test Phase Deliverable (Language and Mapping)
  - Summary of Each Tables:
    - Including any outstanding or uncompleted testing task
- Description of summary results for each type of testing:
  - Description and summary results, including performance metrics as appropriate, for each type of testing completed in this phase (System testing, Use Case Testing, Load Testing, User Acceptance Testing);
  - Use/Test Cases Completed for Priority 1
- Environment for NC Team to create and run Test Scripts (User Acceptance Testing)
  - IdAuto will demonstrate that the Test Environment has been established by the NC team creating and testing scripts. (4 Hour Maximum)

IN PROGRESS

Deployment Phase (October 1, 2013 - March 31, 2014. Now begins November 11, 2013).
This phase includes prep-work to ready the production environment(s) for the solution, migration of the solution the production environment, testing to validate the migration, a pilot deployment and finally the full deployment. This phase could be cyclical since we will continue to add more cloud services for more districts. (~4 weeks from acceptance of Test Phase to complete non-cyclical portion)

October 1, 2013 - December 31, 2013 - Pre-deployment planning with early adopters
January 1, 2014 - March 31, 2014 - Technical deployment with early adopters
UPCOMING

This table shows the high level project schedule for year 2-5 of the NCEdCloud IAM service implementation.

Phase	Start Date	End Date
Continual Deployment Year 2	4/1/2014	3/31/2015
Continual Deployment Year 3 (current end date for IAM contract)	4/1/2015	3/31/2016
Tentative Deployment Year 4 (pending NCITS CIO approval)	4/1/2016	3/31/2017
Tentative Deployment Year 5 (pending NCITS CIO approval)	4/1/2017	3/31/2018

Communications

Messaging, notifications, and alerts are all communication components of the NCEdCloud IAM Service. The IAM Service manager has a responsibility to effectively and accurately communicate information inside its own organization as well as to and from other associated partners for all aspects of the IAM Service. While the specifics of the who, what, when, why, how, and by whom are captured throughout the plan, all communications follow these principles:

Consistency
Our communications will always be consistent with our plans, documentation, and prior correspondences. If our messaging needs to change, our documentation will be updated accordingly.

Accessibility
Access to information about the IAM Service will always be accessible to partners of the service in an open and consumable manner.

Timeliness
Communications regarding the IAM Service will be delivered in a timely manner to the correct parties at the right time by the right person.

Efficiency
Our communications shall be effective, giving the recipient the appropriate amount of information, at the right time, and clearly outline outcomes of the communication.

Synchronization
Communication should be two-way between the IAM Service and its partners. The IAM Service shall provide mechanisms to send and receive communications. Any received correspondence will be documented and processed accordingly.

These guiding principles of communication will be an important tool for continuously improving the IAM Service, Support, and Management.

Strategic Principles for IAM Service Sustainability and Value

The service management plan defines strategies of the IAM Service Manager that will enable it to provide long-term sustainable and continuously valuable Cloud Services to the K-12 User Community of North Carolina. Throughout the service management plan we will be describing the different aspects of supporting an IAM Service. There are some common principles applicable to each component.

Sustainability
It is very important that the IAM Service be designed, built, deployed, and managed in such a way that it is functionally and economically sustainable for many years to come. The original IAM Service Plan discussed details around minimal dependencies, modular design, and redundant systems. This theme will carry over into the Service Model. Looking at each component of the service model individually as well as holistically (even outside of the IAM Service) will allow us to create a sustainable system and service.

Value
In addition to being sustainable, it is important that the IAM Service continuously bring value to the stakeholders and partners.

Purpose
All planning for this project ultimately connects back to the purpose/vision of the IAM Service and the NC Education Cloud. From the beginning, the project has set out to solve three challenges faced by the K-12 community: too many local accounts to applications, standard access to user identity data, and IAM is required for a solid foundation to other cloud services. The Service Model will continue to support efforts to address those challenges.

Community
A service of this scale and scope requires an enormous amount of planning to be successful. Most of the planning work includes countless interactions with the variety of organizations that will ultimately play a role in the NCEdCloud IAM Service. Getting the community involved in the planning process has increased the accuracy of requirements and specifications, and aligned the service with business processes while bringing new value to the community. This involvement also confers ownership of the IAM Service to the communities that it serves.

Policy and Governance
There are many different components and organizations that contribute to the NCEdCloud IAM Service. It is important that a well-defined policy and governance model be in place that clearly defines how those components and organizations work together to effectively deliver a sustainable and valuable service.

Measures of Success

Each step of the Service Model will clearly define measurable points, priorities, and acceptance criteria. By defining these criteria we have success indicators and deliverables built in, to identify when each step has been completed.

Scope

The IAM Service has a well-defined scope that is achievable within the timeframe of the contract and provides measurable value to the stakeholders. The limited scope lays a good foundation to enable later phases to build upon with new and additional features around identity management.

Relationship Management of the NCEdCloud IAM Service Participants

The NCEdCloud IAM Service will be implemented and deployed to the LEA and Charter School communities as well as other consumers. The NCEdCloud IAM Service has eight key participant groups (including the IAM Service Manager). Each Participant is an organization or a group of organizations that has a unique purpose in the NCEdCloud IAM Service. These organizations will work collaboratively, but have distinct responsibilities in deploying, supporting, and managing the IAM Service. This section will describe each of the Participants' roles, expectations, and general responsibilities.

In addition to the IAM Service Manager, the NCEdCloud Participants are categorized as follows:

- Policy and Governance
- Data Sources
- NCEdCloud IAM Service Provider (Identity Automation)
- K-12 User Community (All LEAs and Charter Schools)
- Help Desk and Support
- Target Applications (Cloud-based Applications and Resources)
- Business and Administration

While the partners in these relationships or collaborations each have specific expectations and deliverables, these will change as the IAM Service matures.   Over time, there will be an evolutionary shift in workload and responsibilities between the different participant groups.

Policy and Governance

IAM Policy and Governance (a subset of the eventual NCEdCloud Policy and Governance group) is a collection of heterogeneous, cross-functional advisory bodies that oversee, support and create or endorse policies to ensure an effective and efficient IAM service. In the future, these advisory bodies and individuals may change as the NCEdCloud IAM Service evolves.

> *The current bodies/individuals are the NCEdCloud IAM Working Group, NCEdCloud Team, Friday Institute and NCDPI.*

The IAM Policy and Governance bodies will be *provided*:

- Periodic reports about the IAM Service by the IAM Service Manager that describe service progress, issues, successes, funding status, future plans, and recommendations

   Current reports as of September 1, 2013

IAM Working Group	● Biweekly Updates from IAM Service Manager via email and/or conference call ● Communications as needed for general questions/feedback via email list
NCEdCloud Team	● Biweekly Updates from IAM Service Manager via email and/or in-person team meetings ● F2F updates via NCEdCloud team meetings ● Updates at the beginning and end of each project phase
NCDPI Executive Sponsor	● Project phase completion notifications and Ad-hoc notifications from NCEdCloud Program Director

- Technical and Strategic guidance about necessary policies needed for the *effective* delivery and support of the IAM Service
- Results, feedback and reports from surveys that capture the impact of the IAM Service on the K-12 User Community
- Other reporting and audit information related to the IAM Service as needed

The IAM Policy and Governance group(s) will be *responsible* for:

- Developing, updating, and maintaining a Policy and Governance structure for the IAM Service that serves the needs of the K-12 User Community
- Developing and defining policies, rules, decisions and endorsements needed for IAM Service
- Defining and refining the IAM Service partnerships
- Providing the IAM Service Manager requirements for enhancements or fixes to the IAM Service
- Providing input and review of NCEdCloud IAM Service Contracts
- Working with IAM Service Manager to identify and select new Target Systems using selection criteria and ranking methodology
- Serving as a configuration control board for the IAM Service components
- Serving as an IAM Vision Group for shared decision-making and priority setting
- Diplomatically working with different constituents to achieve end goals and keep the project/service moving forward

As mentioned earlier, each of the partnership organizations will work collaboratively but have distinct responsibilities. The IAM Policy and Governance members are the authoritative bodies that give direction to the IAM Data Sources, IAM Service Manager, and IAM Service consumers. This direction will come in different forms depending on the originating body and nature of the communication. *It is important to note that the LEAs and Charter Schools will have representatives in the various Policy and Governance groups.* The IAM Service provider will take its direction from the IAM Service Manager as granted by the IAM Policy and Governance bodies.

Data Sources

The IAM Data Sources are the organizations that manage the authoritative systems (Systems of Record) containing K-12 user data. The IAM Service Manager will coordinate with NCDPI and the IAM Service Provider to ensure the accurate and timely exchange of required user data from the source systems to the IAM Service based on business requirements provided. The IAM Service relies on data from authoritative systems. These systems house certain attributes about users that provide information on how to properly provision those users with accounts in the appropriate target system, at the appropriate time, with the appropriate permissions.

> *The current organizations involved with Data Sources are: NCDPI, SAS and the LEAs/Charter Schools.*
>
> Currently, these source systems include:
> - HRMS, Payroll, UID and EDDIE
>   Employee File - Generated by SAS and accessed via NCDPI MFTS System
> - North Carolina Student Information System (NCSIS), Pearson PowerSchool,
>   Student File - Generated by SAS and accessed via NCDPI MFTS System

The IAM Data Sources will be *provided*:

- Notices and messaging about IAM Service Maintenance
- Business requirements outlining the necessary data sets and fields needed in accordance with NCDPI data source policies
- Feedback regarding data source feeds including any data irregularities and/or transport issues
- Formal requests for file data attributes and format changes, source system or transport mechanism changes
- Periodic reports about the IAM Service by the IAM Service Manager that describe service progress, issues, successes, funding status, future plans, and recommendations

The IAM Data Sources will be *responsible for*:

- Ensuring accurate and complete data sets are delivered in a reliable and consistent manner
- Utilizing standardized data integration interfaces and methods
- Providing products/services with documented APIs for data extraction as appropriate
- Supplying required user data sets and attributes at the specified frequencies to the IAM Service
- Supplying support for user identity data, authoritative source systems, and transport systems
- Communicating and documenting change management of identity source systems, identity data structures, or formatting standards
- Providing periodic reports about the Authoritative Source Systems by the Technical and Business Owners that describe service progress, issues, successes, funding status, future plans, and recommendations

NCEdCloud IAM Service Provider

The NCEdCloud IAM Service Provider is the organization that provides the necessary technology components that compose the IAM Service and technical support for managing the components. These could be software vendors, technical product architects, systems integrators, and/or infrastructure hosting providers. All of these components together will be presented as a single managed service from a single vendor organization.

> The current organization acting as the IAM Service Provider is:
> *Identity Automation (IdAuto)* from Houston, Texas.

The NCEdCloud IAM Service Provider will be provided:

- Requirements and Specifications from the IAM Service Manager - for development, configuration and enhancements
- Expectations, Rules, and Policy surrounding the IAM Service's user information

The NCEdCloud IAM Service Provider will be responsible for:

- Providing the IAM Service to the State of NC as outlined in contract documentation and plans
- Providing the necessary cloud-hosted infrastructure required by the IAM Service software components
- Providing the service, maintenance, and operational support for the software and infrastructure components
- Performing the initial design and implementation of the IAM service as specified by the IAM Service Manager and IAM Policy and Governance bodies
- Providing the initial IAM application administration and configuration, with the possible transfer of this responsibility over time, to the IAM Service Manager, as the system matures
- Knowledge transfer and documentation about IAM Service components to the IAM Service Manager
- Providing recommendations on the numbers and skill sets of staff to support the IAM Service through implementation and ongoing production
- Performing data profiling and transformations of source systems data extracts, as appropriate
- Performing onboarding and integration of target applications to the IAM Service
- Providing communications around all aspects of the service provided
  - Outlined in Identity Automation Assessment document, Communications Plan
- Providing escalated support for IAM Service

K-12 User Community (LEAs and Charter Schools)

The IAM K-12 User Community includes any person who has an account in the IAM Service or accesses a resource that utilizes the IAM Service for authentication or authorization needs. Initially, the IAM User Community will consist of *students, employees and guests of LEAs and Charter Schools, with Parents to follow*. Other state agencies may have staff members that utilize the IAM service to access education resources. Users will interact differently with the IAM service depending on their roles. For example, students will interact with a different set of identity attributes than a teacher would, and delegated administrators will have more identity management responsibilities than teachers.

The K-12 User Community (LEAs and Charter Schools) will be *provided*:

- A single account (username and password) that grants access to cloud applications, resources, and services, if possible
- A self-service user interface that allows authorized individuals to manage their identity information, reset passwords, and make/grant requests for cloud services
- Training and documentation that illustrate how each user role interacts with its respective areas of the IAM service
- Assurance that all user identity information is managed in the most secure and compliant manner possible

The K-12 User Community (LEAs and Charter Schools) will be *responsible for*:

- Ensuring the accuracy and completeness of its user identity information including:
    - Reviewing current LEA/Charter user data
    - Correcting inaccurate or missing data by updating the appropriate source system
- Communicating service requirements to the IAM Service Manager and to IAM Policy and Governance entities
- Providing Level 1-2 technical support for its constituents
- Providing general feedback to the IAM Service Manager about the quality of the IAM Service, including support

Help Desk and Support

The IAM Help Desk Service shall provide a supporting knowledge base and help ticket system for the IAM Service. The help desk service will bridge the gap between local LEA help desk functions and the support provided by the IAM Service provider.

The current organizations providing Help Desk and Support services is: MCNC.

The IAM Service Manager *will provide* the Help Desk Service:
- Training and documentation about the IAM Service
- Requirements and expectations about support needs for IAM Service
- Notification about major service releases, function additions, changes, and bug fixes
- Notification about new Target Applications
- Notification about new data sources
- Notification about major outages / emergency maintenance
- Periodic reviews (~monthly) with IAM Help Desk team lead

The Help Desk Service will be *responsible for*:
- Involvement in IAM Service Planning
- Providing a Help Ticket System
    - The IAM help ticket system will provide a mechanism to manage, organize, and archive support requests and responses in one place while providing customers with accountability and responsiveness
    - Support tickets can be created by a user via email, online web forms, or by a designated staff member (LEA/Charter Delegated Administrator) over the phone
    - An automatic reply will be sent out when a new ticket is opened or a message is received
    - Internal notes will be added to tickets for staff
    - Staff and clients will be kept up to date with email alerts
    - All support requests and responses will be archived
- Providing a Knowledge Base
    - Provide help desk analysts with a knowledge base of easy-to-find solutions and give users self-service search options to help them resolve issues on their own
    - Access third-party knowledge bases through integration and indexing of content (e.g. connect to local LEA knowledge bases or relevant Cloud Service Provider content)
- Awareness of and interfacing with help desks of other organizations, services, and affiliates of the IAM Service

Target Applications

Target Applications are the cloud-based *applications, resources, and services* that IAM K-12 Community Users will be accessing for their education needs. Target Applications will be using the IAM Service to authenticate and authorize these users.

> Target Applications for Year 1 are:

1. *Google Apps for Education*
2. *MCNC Zscaler Web Security*
3. *CDLR (Central Directory Local Replica - Microsoft Active Directory instance)*
4. *Follett Destiny*
5. *Discovery Education*

(The IAM Service expects to integrate 10 additional target applications each year following Year 1.)

The IAM Target Applications will be *provided*:

- Requirements for integrating their cloud service with the IAM Service
- Policy and Governance requirements related to the IAM Service and K-12 User Community
- Contact information and IAM Service documentation to assist with their integration

The IAM Target Applications/Services will be *responsible for*:

- Providing SMEs to assist planning efforts of the IAM ServiceEnsuring the security of user identity data based on State and Federal regulations
- Adhering and abiding to the rules set by the IAM Policy and Governance bodies regardless of the type of cloud service
- Any contract requirements regarding the protection, use, reuse, and disposal of identity data
- Providing notification/communication to the IAM Service Manager about cloud service general changes, maintenance, and outages
- Providing a dependable, responsive and available service, to ensure a successful and consistent user experience
- Providing a level of technical and business support to NC for integrations and ongoing change management related to the IAM Service

Business and Administration

The Business and Administration partners are the various individuals or groups that will manage the administrative processes behind the scenes around financial, legal, and procurement processes.

> *The current organizations performing Business and Administrative functions are: NCDPI, Friday Institute, and NCITS.*

The Business and Administration partners will be *provided*:

- PPM Documentations
- Status updates/reports of project - Monthly ARRA Project reports
- Deliverables as outlined in the IAM Service contract - Attachment B

The Business and Administration partners will be *responsible for*:

- Maintaining confidentiality of deliverables submitted when requested ("marked" confidential)
- Review, acceptance, and sign-off of project deliverables per contract
- Providing guidance of funding and contract status to appropriate parties
- Coordinating legal consultations as needed for contract and regulatory issues

Project Portfolio Management

The IAM team will be coordinating with the State Enterprise Project Management Office (EPMO) throughout the lifecycle of the IAM project for project management requirements and procurement needs.

"The Enterprise Project Management Office (EPMO) was established in 2004 to assist the State CIO (SCIO) in his/her legislated responsibility to improve the management of IT projects in state government. The EPMO is one component of this legislation; NC General Statutes - Chapter 147 Article 3D.

The State CIO has legislative oversight authority to review and approve State agency IT projects; develop standards and accountability measures for IT projects (including criteria for adequate project management); to require status reporting; to assign a project management advisor (PMA); and, if necessary, to suspend projects. The purpose of this legislation is to help ensure that quality IT projects are delivered in a cost effective and timely manner.

By law, agencies must provide for a project manager who meets the applicable quality assurance standards for each IT project. The agency project manager is responsible for managing the project and providing periodic reports which shall include information regarding projects costs; issues related to hardware, software or training; projected and actual completion dates and any other information related to the implementation of the IT project.

The EPMO provides professional oversight to facilitate successful IT projects through assessing projects and facilitating resolution of issues, risks and roadblocks and by providing early warnings if a project is likely to fail. The EPMO does this through applying professional experience and best practices and by providing full and complete information to the State CIO (SCIO) to ensure the SCIO can respond appropriately.

The EPMO also engages agencies in understanding and applying IT portfolio management concepts to IT projects, applications and IT investments (plans and budgets). This is done through IT Portfolio Management services, which provides financial, technical, and management personnel with a knowledge and understanding of the theories, concepts, and disciplines of portfolio management. The service also includes training and support for the use of the Portfolio Management software tool to improve the planning, budgeting, and management of IT, especially IT investments."[1]

The following State of North Carolina PPM Workflow will guide the IAM Service project.

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[1] http://www.epmo.scio.nc.gov/

State of North Carolina PPM Workflow for Projects >= $500,000

Investment Cost = Project Cost (Initiation thru Closeout Phase) + 5 years Operations & Maintenance

Phase 1: Project Initiation	Phase 2: Planning & Design	Phase 3: Execution & Build	Phase 4: Implementation	Phase 5: Closeout

Gate 1
Planning & Design Approval
SCIO, OSBM, OSC, EPMO, EA

Gate 2
Execution & Build Approval
SCIO, OSBM, OSC, EPMO, EA

Gate 3
Implementation Approval
SCIO, OSBM, OSC, EPMO, EA

Closeout Approval
EPMO QA Signoff

Project Initiation Review & Approval
Agency Reviewers & Approvers

P & D Review & Approval
Agency Reviewers & Approvers

E & B / Pilot Review & Approval
Agency Reviewers & Approvers

Implementation Review & Approval
Agency Reviewers & Approvers

Project Initiation Signoff
Agency Contributors

P & D Signoff
Agency Contributors

E & B / Pilot Signoff
Agency Contributors

Implementation Signoff
Agency Contributors

Closeout Signoff
Agency Contributors

Initiation Exit Criteria and Planning & Design Entrance Criteria
REQUIRED

Project Information Tab
- Project Charter (Business Issues, Business Goals, Project Goals, Project Deliverables, Items Out of Scope, Proposed Strategy, High Level Assumptions / Constraints, Key Dependencies external to the project, Project Organization and Roles)
- Initiation Phase Budget
- Planning & Design Phase Budget
- Budget Information Section
- Enterprise Architecture Questionnaire
- Security Questions

Budget Cost Tab
- Proposed Budget Level 1

Benefits Tab
- Financial Benefits Level 1

Schedule Tab
- P & D Phase Milestones and Key Deliverables
- P & D Schedule

Risk Tab
- Answer all questions

Strategic Impact Tab
- Answer all questions

Document Management Tab
- Project Manager Interview (Completed by EPMO)
- Alternative Analysis if **over $10M** investment cost
- Planning and Design Phase Staffing Plan
- Procurement Plan **
- *Documents checked on the Project Info tab will be required for future phases*

Planning & Design Exit Criteria and Execution & Build Entrance Criteria
REQUIRED

Project Information Tab
- Updated Project Charter
- Updated Budget Information Section
- Update Enterprise Architecture Questionnaire
- Updated Security Questions

Budget Cost Tab
- Budget Cost – must be entered at Level 4

Benefits Tab
- Financial Benefits – must be entered at Level 2

Schedule Tab
- Project Schedule / Milestones & Key Deliverables

Status Tab
- Monthly Status Reports Current

Cost Tracking Tab & Cost Forecast Tab
- Plan vs. Actual

Issues & Risks Tab
- Update Issues & Risks that are open

Strategic Impact Tab & Risk Tab
- Update any answers that may have changed

Document Management Tab
- Updated Staffing Plan
- Updated Procurement Plan **
- Approved Business Requirements Document
- Technical Architecture System Design Doc**
- Sponsor's Approval of User Acceptance Criteria
- *Documents checked on the Project Info tab are required. Load documents in the Document Mgt Tab or identify where the document is stored.*
- **Budget, Scope and Schedule are Baselined at Gate 2**

AGENCY DOCUMENT CHECKLIST
- Project Mgmt Plan
- Communication Plan
- Change Mgmt Plan
- Configuration Mgmt Plan
- Acceptance Criteria
- Quality Assurance Plan
- Project Test Plan
- Statement of Work (SOW)
- Project Schedule
- Training Plan
- Deployment/Rollout Plan
- Risk Mgmt Plan

Execution & Build Exit Criteria and Implementation Entrance Criteria
REQUIRED

Project Information Tab
- Updated Project Charter
- Updated Budget Information Section
- Update Enterprise Architecture Questionnaire
- Updated Security Questions

Benefits Tab
- Financial Benefits must be entered at Level 2

Schedule Tab
- Project Schedule / Milestones & Key Deliverables

Status Tab
- Monthly Status Reports Current

Cost Tracking Tab & Cost Forecast Tab
- Plan vs. Actual

Issues & Risks Tab
- Update open Issues & Risks

Risk Tab
- Update any answers that may have changed

Document Management Tab
- Updated Staffing Plan
- Updated Procurement Plan **
- Updated Technical Architecture System Design Doc**
- Sponsor's Approval of GO/NO GO Implementation Decision
- *Documents checked on the Project Info tab are required. Load documents in the Doc Mgt Tab or identify where the document is stored.*

AGENCY DOCUMENT CHECKLIST
- Disaster Recovery/Business Continuity Plan
- Test and Acceptance Results
- Pilot Results
- Operations & Maintenance Transition Plan

Implementation Exit Criteria & Closeout Entrance Criteria
REQUIRED

Project Information Tab
- Updated Project Charter
- Updated Budget Information Section
- Update Enterprise Architecture Questionnaire
- Updated Security Questions

Schedule Tab
- Project Schedule / Milestones & Key Deliverables

Status Tab
- Monthly Status Reports Current

Cost Tracking Tab & Cost Forecast Tab
- Final project costs need to be entered

Issues & Risks Tab
- Update open Issues & Risks

Document Management Tab
- *Documents checked on the Project Info tab are required. Load documents in the Doc Mgt Tab or identify where the document is stored.*

AGENCY DOCUMENT CHECKLIST
- Updated Agency Applications Portfolio as required (APM)

Closeout Exit Criteria and Project Moved to Complete Status
REQUIRED

Document Management Tab
- Project Closeout **
- Lessons Learned

Schedule Tab
- All % complete must be 100% complete

Issues & Risks Tab
- Update & close all open Issues & Risks

Cost Tracking Tab
- Final project costs need to be entered
- Load historical records into the Document Management Tab or Agency Document Tool

Project Closeout Review
- EPMO QA approves project to advance to Complete or rejects the project reverting it back to Project Closeout

NOTES
1. ** Template provided in the PPM Tool NC HELP section and on EPMO website WWW.EPMO.SCIO.NC.GOV/ is required for these documents.
2. All projects >= $500K are required to submit monthly status reports.

Version 4.4   06/28/2011

# Target Applications Lifecycle for the IAM Service

Target Applications (also referred to as Target Services, Target Resources, etc.) are any applications that use the NCEdCloud IAM Service for authentication and/or authorization. Moving forward, they will be referred to as "target applications" or "applications." They can be viewed as a consumer of the IAM Service. One of the major benefits of the IAM Service is the automated provisioning of the identity information to LEA/Charter School educational resources (e.g. Discovery Education or Follett Destiny). The IAM Service supports a variety of protocols and standards for integrating the applications. The following sections will describe the Target Application Lifecycle from Selection to Decommissioning in more detail.

There are four general steps to the target application lifecycle:

Target Application Selection	Target Application Integration	Target Application Change Management	Target Application Decommission

The selection and integration of new target applications will be an ongoing process for the NCEdCloud IAM Service. As previously mentioned, it is a collaborative effort among the Policy and Governance, Service Provider, Service Manager, Target Application providers, and K-12 User Community participants. If at any stage in the process it is determined the target application will not be successful, it will be postponed for later consideration. During the lifecycle of an application, both minor and major product changes will likely occur. These changes are discussed in the change management section. Eventually, applications will be decommissioned as they are replaced by services from other vendors, possibly merged, or an LEA/Charter School may decide it no longer needs an application. The decommissioning of an application will include its de-selection, which will trigger the deprovisioning of users and if appropriate, the deprovisioning of user accounts at the service. There may also be some target applications that need to have their data migrated to a new or replacement service.

Target Application Selection
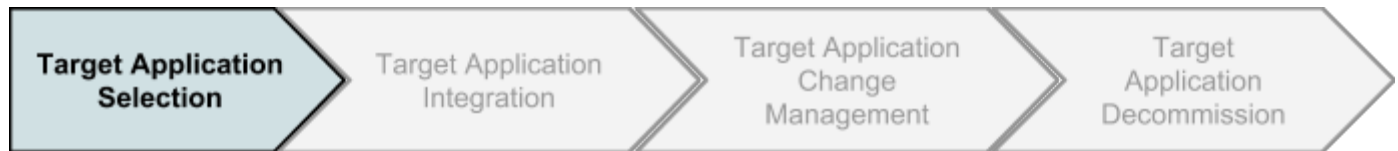
The challenges when selecting target applications for all North Carolina LEAs/Charter Schools are identification, organization, and prioritization. Each LEA/Charter School has a variety of applications that provide educational instruction or support for students, staff, and/or parents. The applications have different priorities due to the different needs, initiatives, and goals of the LEA/Charter School. The IAM Service RFP and contract specify that 5 target applications will be integrated in Year 1 and 10 applications each year thereafter. It is expected that the applications selected will adhere to certain standards and processes.

To mitigate these challenges, we have developed an evaluation and scoring methodology to help determine the viability and priority of target applications for the IAM Service. This methodology is modeled after the IAM RFP evaluation guide and uses a points-based ranking scheme. Each potential application will be evaluated against the six criteria outlined below. The higher the score for an application, the higher its priority for integration with the IAM Service.

The following steps are used in the selection, scoring, and prioritization of target applications for the IAM Service:

1. **General selection of candidate applications based on feedback from LEAs/Charter Schools about their needs**
   The IAM Working Group is polled to provide input on desired applications. A tentative list is generated and preliminary research begins for each.

2. **Research each application and identify Subject Matter Experts (SMEs)**
   The applications that receive the most interest are researched to determine candidate viability based on IAM Service selection and integration requirements. Application technical contacts (Subject Matter Experts, or SMEs) and business contacts, are identified to assist the NCEdCloud IAM Service team with understanding the application usage from technical and organizational/business points of view. The SMEs can provide technical configuration information about how the NCEdCloud IAM Service can provision accounts and authenticate users to the application. A business contact can provide information about which LEAs/Charter Schools would be suitable early adopters. The contact can also facilitate business approvals to allow the NCEdCloud IAM Service access to the application.

3. **Complete evaluation and scoring for each candidate**
Based on research completed, each viable candidate is then documented and scored against the evaluation criteria.

4. **Present recommendations for next set of target applications to Policy and Governance committee for approval**
A final set of recommended target applications along with alternates is presented to the Policy and Governance group(s) for approval. Once approved, the target applications will be the next set to be integrated with the IAM Service for the upcoming IAM Service contract year.

5. **Establish Early Adopters for each new target application**
Early adopters will be selected to integrate with the new target applications before other LEA/Charter Schools. Below are important notes for any school district interested in becoming an early adopter.

Desirable characteristics of Early Adopters
- Representatives from each LEA size category (based on number of students):
  - Extra Small (<3000)
  - Small (3,000 - 10,000)
  - Medium (10,000 - 30,000)
  - Large (30,000 - 100,000)
  - Extra Large (>100,000)
- Representatives from multiple Charter Schools
- Each target application would have up to 6 LEA/Charter early adopters
- Willingness to adopt at least 2 target applications/services
- Active participants in IAM Working Group

Benefits for Early Adopters
- Ability to influence definitions of standards, policies, and processes
- Solve an immediate local challenge/pain point for the LEA/Charter
- More available directed support than for later adopters

Challenges and Considerations for Early Adopters
- Integration process may not be as smooth as later integrations
  - *Mitigation: Will have more directed support*
- Slower integration times as teams update/fine tune integration processes for later adopters
  - *Mitigation: Continuous communications and detailed planning with expectation to maximize awareness for LEA/Charter School*
- Rollout/Integration time may not be optimal for LEA/Charter School calendar schedule
  - *Mitigation: Coordination and planning with LEA/Charter School to minimize the impact*

Target Application Integrations
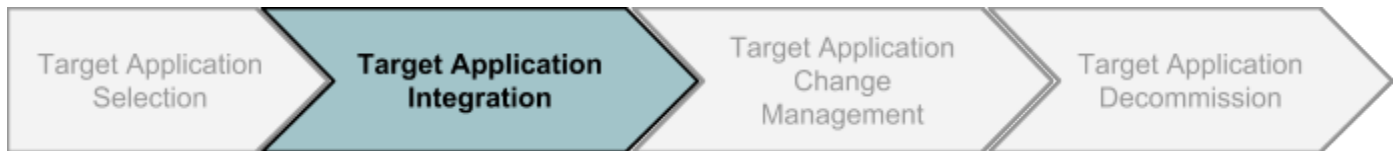
1. **Engage target application business and technical Subject Matter Experts (SME)**
   Target application technical SMEs and business contacts are needed to assist the NCEdCloud IAM team with understanding the target application usage, both from technical and organizational/business points of view. The SME can provide technical configuration information on how the IAM Service can provision accounts and authenticate to the application. A business contact can provide information on which LEAs and Charter Schools would be suitable early adopters. The contact can also facilitate business approvals between the NCEdCloud IAM Service and the target application. Meetings will be arranged among the IAM Service Provider, Target Application Provider's technical and business contacts, and the Service Manager to facilitate a thorough understanding of the logistics required to provision accounts and authenticate users.

2. **Integration plans, standards, and processes will be documented for each target application**
   During the meetings with SMEs, a Technical Implementation Plan (TIP) will be developed for each target application. The TIP will contain early adopters, contact information, provisioning mechanism, authentication mechanism, required attributes, and other necessary details for integration. As needed, the IAM Service Manager will facilitate discussions between the IAM Service Provider and the Target Application Provider to ensure sufficient information is captured to develop the TIP.

3. **Establish testing instances and perform integration with IAM Service**
   For each target application integrated with the NCEdCloud IAM Service, a separate instance must be established and maintained for testing until the application is decommissioned. The IAM Service Manager will work with each application provider to ensure their test environment is available and prepared to be integrated with the IAM Service test (and/or development) environment as detailed in the TIP document. This includes the creation of any adaptor that might be needed.   While this step is primarily the responsibility of the IAM Service Provider, the IAM Service Manager will assist as needed by facilitating communications between the IAM Service and Target Application providers.

4. **Testing the target application**

   When the test environments are ready, the IAM Service Provider will perform several levels of target application/IAM Service integration testing, including System Testing and Use Case Testing. The results of this phase will be a tested, small scale integration of the target application with the IAM Service.

5. **Develop and Maintain Documentation for LEA/Charter School Integrations**

   The IAM Service Manager will develop or obtain documentation to be made available to LEAs and Charter Schools who wish to use the target application. The documentation will include at least the following:
   ● Description of the target application
   ● The benefits of the Target Application to the overall NCEdCloud initiative
   ● Helpful integration feedback from early adopters of the application
   ● A target application integration checklist

6. **Deploy target service for early adopters group**

   The target applications will initially be deployed for the early adopters before moving to full production mode. Early adopters of an application will use the documented process described above, including the specific checklist developed for that service. They will also contribute any integration feedback, suggestions, etc. to the Target Application TIP document.

7. **Communicate general availability of target service to LEAs**

   After sufficiently vetting the target application deployment process with the early adopters, the general availability of the target service will be communicated to LEAs through a variety of channels such as:
   ● Updates on the NCEdCloud IAM Web Site
   ● Email announcement to LEA Administrators
   ● Possible communications to the tech directors email list
   ● Announcement at conferences and workshops

Target Application Change Management

Target Application Selection → Target Application Integration → **Target Application Change Management** → Target Application Decommission
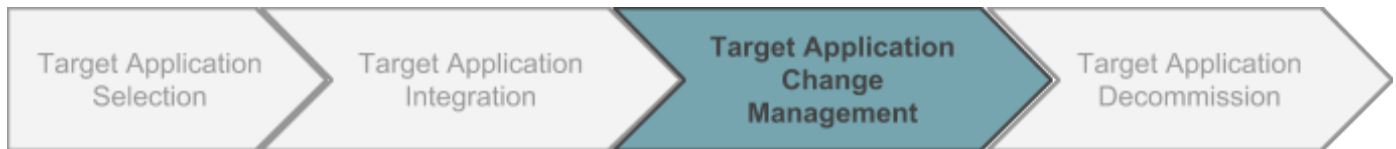
As with any software, target applications will likely be updated. Expected changes include improved integration or authentication methods (e.g. LDAP to SAML). As application provider's release updates for products and services over time, it is expected the integration may need to be adapted accordingly. New releases may require additional attributes about users as well as updates to documentation and processes.

Target Application Decommissioning

Target Application Selection	Target Application Integration	Target Application Change Management	**Target Application Decommission**
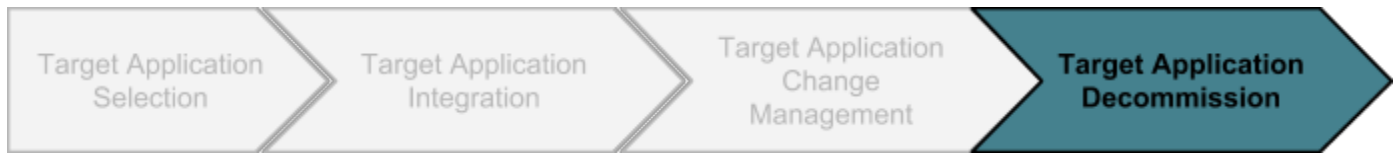
Eventually, target applications will be decommissioned as they are replaced by services from other vendors, possibly merged, or LEAs and Charter Schools may decide they no longer need an application. The decommissioning of an applications will include its deselection by the LEA/Charter School, which will trigger the deprovisioning of user entitlements and if appropriate the deprovisioning of user accounts at the target application. In some cases, data from the decommissioned application will need to be converted or migrated to a new (replacement) application.

K-12 User Community - Lifecycle for the IAM Service

Similar to the Target Application Lifecycle, LEA/Charter participants of the IAM K-12 User Community will have a lifecycle within the NCEdCloud IAM Service. The IAM K-12 User Community includes any person who has an account in the IAM Service and accesses a Target Application that utilizes IAM for authentication or authorization needs. As proposed, the IAM User Community would consist of *students, employees, parents, and guests of LEAs and Charter Schools*.

K-12 User Community - Expectations

- Training and documentation will be made available by the IAM Service vendor (Identity Automation)
- While submitting this form initiates the Onboarding Process, it does not commit or obligate your LEA or Charter School in any way to the IAM Service
- If during the onboarding process it is determined that the IAM Service is a not a good fit for your LEA or Charter School, we would stop the process and re-engage at a more appropriate time
- Our processes and documentation are subject to refinement as we move through the Early Adopter phase and beyond

There are four major steps in the LEA/Charter lifecycle for the IAM Service:

In order for an LEA/Charter to take advantage of the NCEdCloud IAM Service, it must first be onboarded. This step introduces the locally designated delegated administrators to the IAM Service and encompasses the initial planning and preparation to move on to the next step. LEA/Charter Integrations includes the subscription to selected target applications of the IAM Service and the provisioning and issuing of user accounts and entitlements. Over time, the LEAs'/Charter Schools' users, environments, and needs will evolve and the change management subsection describes a process for managing that change. At some point it is possible that an LEA/Charter may have no further need for the IAM Service and then an offboarding process would take place to remove its accounts appropriately.

The following sections describe the details of each step in the LEA/Charter lifecycle of the IAM Service.

K-12 User Community - Onboarding (Users and Delegated Administrators)

While user identity data for all LEAs and Charter Schools will be present in the production environment, not all LEAs/Charter Schools will necessarily begin using their NCEdCloud accounts to access target applications at the same time. The process of onboarding LEAs/Charter Schools begins with an evaluation of their readiness to use the NCEdCloud IAM Service. This consists of a self-review of user data for accuracy and completeness, and the selection of target applications they are licensed to use. Additionally, obtaining the authorization to release data to target applications and the identification of who will fill key roles must be completed. Training for users and delegated administrators will need to be provided, as well as capturing LEA/Charter business practices related to issuing accounts, escalation of help desk calls, email naming conventions, etc. The LEA/Charter onboarding process is a one-time effort.

1. **LEA/Charter initiates request to use the IAM Service**

   An LEA/Charter can initially request to use the IAM Service by having the Technology Director (or other key IT person) email the IAM Service Manager.
   Note: Other methods may follow (e.g. online request).

2. **LEA/Charter Onboarding Checklist**

   The LEA/Charter will receive a response from the IAM Service Manager along with a readiness checklist. LEAs/Charter Schools that wish to begin using the NCEdCloud IAM Service will need to prepare for this transition by ensuring that each step of the Onboarding Checklist has been completed. The checklist serves many purposes, from providing a readiness assessment that allows districts to evaluate prerequisites against their own situations, to identifying key personnel and setting expectations for the planning session. This pertains to early adopters as well as those joining later.

   Tentative Checklist Items:
   - Evaluation of readiness
     - Understanding that authorization and acknowledgment of data release to Target Applications must be provided
     - Acknowledgement that a thorough review of user data must take place, as well as any needed updates to correct user data in source systems
       - Source Data fields to be verified
         - Object and Purpose codes for employees

- Active vs Inactive employees
- Student IDs
- Identification of key LEA/Charter personnel in the following roles:
  - Delegated Administrators
  - Data Managers
  - HR Coordinators
  - Finance Coordinators
  - Support Personnel

Information collected from the onboarding checklist with be reviewed and discussed at the planning session.

3. IAM Service Manager and LEA/Charter Planning Session(s)
The IAM Service Manager will schedule an onboarding planning session with the LEA/Charter team to discuss the checklist and plan out the next steps for the process. This meeting will also further describe expectations and responsibilities. A more detailed onboarding document will be provided that outlines all the steps and pertinent information for the LEA/Charter.

- *Overview and Review of the IAM Service*
  Give the LEA/Charter an introduction or review of the IAM Service features and functionality

- *Overview and Review of LEA/Charter IAM needs*
  Review of the current LEA/Charter environments and IAM needs to establish a baseline for planning

- *Identify and document key LEA/Charter personnel*
  Key personnel in each LEA/Charter need to be identified in order to set up delegated administrators and appropriate workflows for applications/services or authorization requests/approvals:
  - Delegated Administrators (Minimum of 2)
    - Technology Director
    - Other/Backup Delegated Administrator
  - Local Helpdesk Support (LEA/Charter - Tier 1)
  - Authorized Approvers
    - Superintendent
    - Technology Director
    - Backup for Approvals

- *Source Data Review for Completeness and Accuracy*
  Source data is the heart of the IAM Service. Its success depends on the completeness and accuracy of an LEA's/Charter's user data

- Review and identify any issues with source data and identify actions to correct in the authoritative sources
- Review with the LEAs/Charter Schools the process for them to change inaccurate or out-of-date identity data in source systems and document where appropriate

- *Explain standards needed for the IAM Service*
  Discuss standards in IAM Service configurations and target applications

- *Review LEA/Charter Business Practices and new NCEdCloud Procedures*
  - Current process for issuing accounts to:
    - Teachers, Staff, Students (both Primary and Secondary)
    - Parents, Guardians (if one exists)
      - Account creation process
      - Account issuing process
      - Identity-Proofing at time of account issue
  - Proposed process for issuing NCEdCloud IAM Service accounts to:
    - Teachers, Staff, Students (both Primary and Secondary)
      - Employees, Secondary – Claim Account (PII Questions)
      - Primary Students – Passwords, PIN list to teacher
    - Parents, Guardians
      - Account creation process
      - Account issuing process
      - Identity-Proofing at time of account issue
      - Capturing Identity-proofing documents (e.g. license, birth certificate, passport, etc. + USPS delivered key)
        - Tying Parent/Guardian accounts to students in PowerSchool?
  - Challenge Response Questions
    - Employees – questions
    - Secondary Students – questions
    - Primary Students – non-COPPA questions (required?)
  - How do users currently access LEA/Charter applications:
    - LEA Portal
    - LEA/School Web Page
    - Will NCEdCloud Services being accessed in the same way (via LEA Portal/Web Site)
    - Would NCEdCloud Self-Service be linked to from this Portal/Web Site?
  - Helpdesk issue-escalation process
    - LEA/Charter Users - local escalation (user -> school -> district)
    - Escalation to NCEdCloud IAM Helpdesk
    - Escalation to Identity Automation

- *Discover any dependencies with other applications or business processes*
  Are there any local or cloud based application or business process dependencies that need to be documented before integrations of target services?

- *Discuss Data Release and Approval process*
  - Applications/Services - vendor license in place?
    - Request/Approval process?
  - Data Release to vendors
    - Request/Approval process?
    - Vendor contract specifies policies around data management?

- *Training Plan*
  Discuss training plan for LEA/Charter Schools end users

- *Target Applications*
  What Year x applications are you interested in?

K-12 User Community - Target Application Integrations

LEA/Charter Integration includes the subscription to selected target applications of the IAM Service, the provisioning of entitlements and the issuing/claiming of user accounts. LEA/Charter integrations are an ongoing effort as target applications are added, changed or removed.

1. **LEA/Charter Target Application Checklist**
    The LEA/Charter will receive a response from the IAM Service Manager along with a checklist to assess readiness for the requested application(s). The checklist will allow districts to evaluate their own situations, understand prerequisites, and be prepared to answer any questions that arise during the planning and target application integration process.

    Items for Checklist:
    - Contract exists with the Target Application vendor
        - LEA/Charter and Vendor
        - DPI and Vendor
    - Standards and configuration of Target Application
    - Specific requirements (e.g. user data) of Target Application
    - Need to authorize the release of data to the Target Application vendor

Information collected from the checklist will be used to establish the integration between the LEA/Charter and the Target Application vendor.

2. **LEA/Charter requests new Target Application through IAM Service Catalog (via IAM Support Portal)**

(During the request, the LEA/Charter will accept the authorization and/or acknowledgement of user data to be released for that target application.)

3. LEA/Charter target applications integrations

Once all prerequisites for the selected Target Application have been met, the entitlement for that application will be provisioned to all appropriate LEA/Charter user accounts and application accounts will be automatically created if that is part of the Target Application integration agreement.

- Service is requested from Service Catalog
- All requirements are acknowledged by LEA/Charter
- Integrity/quality of source user data is reviewed if necessary
- Any support or training requirements are reviewed and implemented
- Target Application integration date is scheduled
- Service is added to Service-LEA/Charter Table
- Entitlement provisioning for LEA/Charter users is triggered by update to Service-LEA/Charter table or takes place as scheduled (regularly scheduled process within IAM Service?)
- Target Application account provisioning takes place (either through automated IAM Service or via an out-of-band manual process - eg. file upload)
- LEA/Charter users can begin accessing Target Application

K-12 User Community - Change Management

Change Management for LEA/Charter participants can refer to many different things. A few examples of "changes" to the NCEdCloud IAM Service for districts are:

- Students, Employees, Parents, and Guests will come and go and change over time
  - Roles will change
  - Students will graduate
  - Employees may leave or change schools or districts
  - People move or change phone numbers, personal email address
  - People's names will change through marriage, divorce or adoption
- LEAs/Charter Schools will subscribe and unsubscribe to IAM Target Applications
  - New applications
  - Better products replace existing ones
  - Functionality is merged into a single product
- Requirements will change and new needs will be identified
  - This is wide open
    - Some DPI applications may change
    - New state or federal regulations may require new reporting
    - New Security concerns will require updates or new applications
- General continuous improvement on processes
  - Productivity or efficiency improvements through new applications or changes to existing ones
  - New versions of existing products are released and need to be upgraded

It is very difficult to describe exactly how change management will be handled given the extent of possible changes. Many of the changes mentioned above will be handled by normal operation of the IAM Service and its dependencies on Source Data. Needless to say, any of the above changes that will impact the normal operation of the NCEdCloud IAM Service will need to be approved and prioritized by the appropriate NCEdCloud Governance group, and scheduled and communicated to all users (either directly or through a chain of notifications).

K-12 User Community - Offboarding

Complete Offboarding (deprovisioning) of an LEA/Charter from the NCEdCloud IAM Service is mentioned here, only to describe the steps to perform this process "cleanly." There is currently no use case that would describe the need for an individual LEA/Charter to go through this, however, possibly the closing of an existing Charter School.

If this were to occur, the following steps would need to happen:

1. Delegated Administrator initiates Help Desk ticket to remove LEA/Charter from NCEdCloud IAM Service
2. Request is validated through appropriate channels with LEA/Charter Administration (and possibly DPI)
3. Date for Offboarding is selected, confirmed and communicated to those that will be impacted
4. Charter/LEA - Services table is cleared to trigger deprovisioning of user data from target applications and removal of account entitlements
5. All Target Applications provisioned by the NCEdCloud IAM Service are deprovisioned (accounts removed or disabled, depending on circumstances)
6. If needed, additional data extracts for LEA/Charter are provided to assist in migrations to local/future/other platforms
7. All user accounts are disabled
8. LEA/Charter is provided copies of deprovisioning logs

The user data for this LEA/Charter would likely still exist in the Student and Employee source systems. If so, it would then continue to update the Person Registry in the NCEdCloud IAM Service, as well as updating Central Directory accounts. However, until the user data showed up in another LEA or Charter School's data, the accounts would (likely) remain disabled.

APPENDICES

Appendix A - Funding Model

The current funding model for the IAM Service is as follows:

- The IAM Service Contract was signed on March 27, 2013 between NCDPI and Identity Automation, LP with the following terms:
  - $10,000,000 for 3 years ($7M Year 1 + $1.5M Year 2 + $1.5M Year 3) paid with one-time RttT funds
  - Initial contract period is April 1, 2013 – March 31, 2016

- In Year 4+, the IAM Service will have a $1.5M recurring cost from Identity Automation plus an IAM Service Management fee (~$500K) for a total annual service cost of approximately $2,000,000 for the Statewide IAM Service for K-12
  - **Annual costs are slated to be paid from NC School Connectivity appropriation based on 3 million accounts**

From the IAM RFP, the intent is for a five-year arrangement: a three-year commitment with two one-year extensions. However, each one year extension requires approval by the NC Office of Information Technology Services State CIO.

Appendix B - Personnel Requirements

Below are the estimated personnel requirements to effectively manage the NCEdCloud IAM Service initially. The personnel requirements include Service Manager and Help Desk requirements.

- IAM Service Management (~$500K)
    - IAM Service Manager (1 FTE)
    - IAM Service Manager Backup (1 FTE)
    - IAM Help Desk Personnel (~3 FTE + Tools)

Appendix C - Glossary

Term	Definition
IdAuto	Identity Automation
NCITS	North Carolina Information Technology Services
NCDPI	North Carolina Department of Public Instruction

Appendix D - Contacts

NCEdCloud IAM Service Management Team

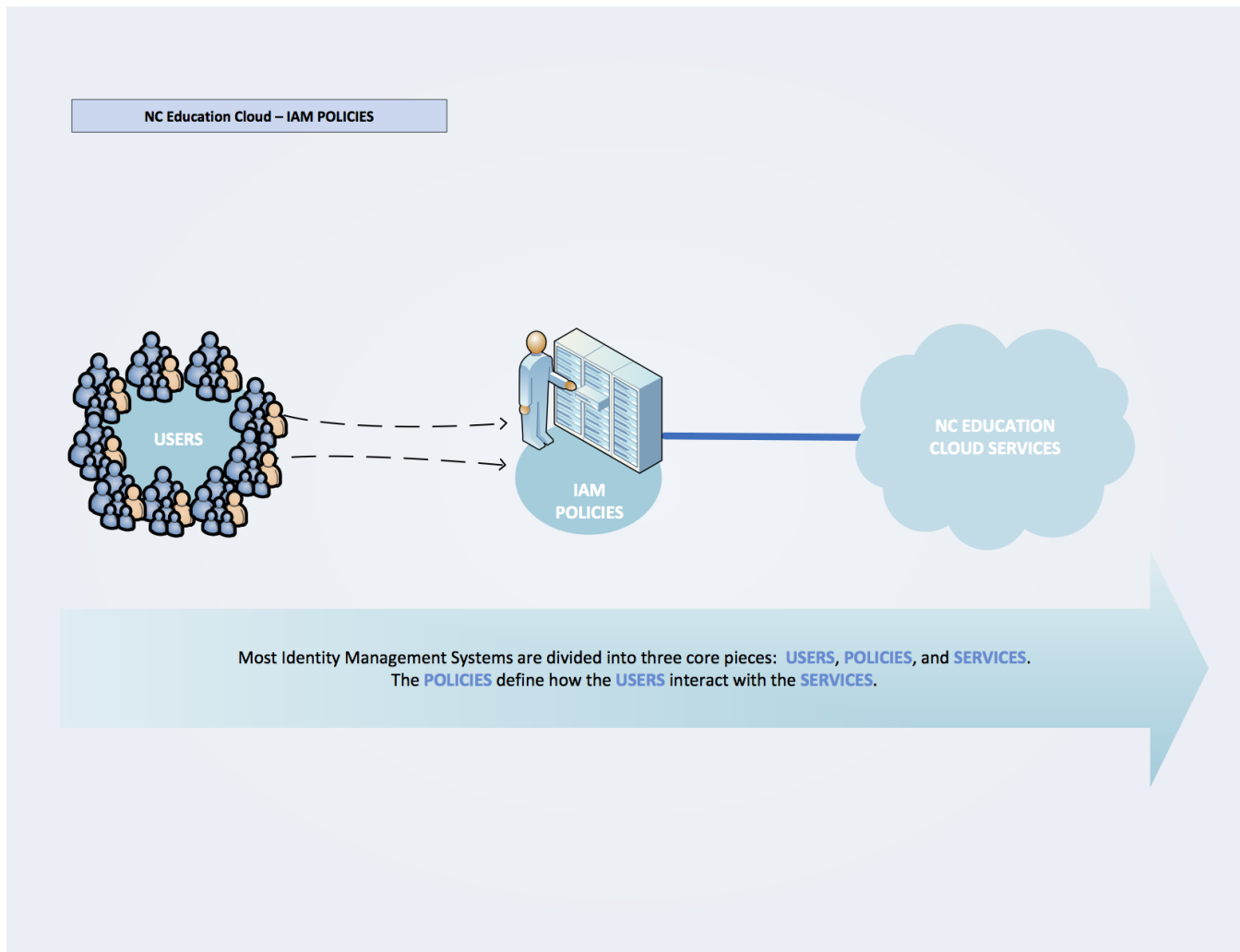|		
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Eli Zalc	SAS	
Raj Desai	SAS	

Business and Administration

Jerry Bunn	NCDPI	jerry.bunn@dpi.nc.gov

Appendix E - Policies, Rules, and Regulations [under development]

In the NCEdCloud IAM Service, a major portion of the project is the work required to develop the policies, rules, and regulations that outline the service operations. Identity management systems are simply the middleware between users and the services the users access. Policies define how the users interact with the services.

NC Education Cloud – IAM POLICIES

USERS

IAM POLICIES

NC EDUCATION CLOUD SERVICES

Most Identity Management Systems are divided into three core pieces: USERS, POLICIES, and SERVICES. The POLICIES define how the USERS interact with the SERVICES.

Policies, Regulations, and Rules (PRRs) that support and define aspects of the IAM Service will be created and revised as the project moves forward. The heterogeneous, cross-functional teams like IAM architects, K-12 stakeholders, and other advisory bodies will inform the development of the PRRs. The original IAM Service Plan, will also help inform Policy and Governance. These PRRs will, however, be the responsibility of the Policy and Governance teams/committees to communicate and enforce. Each of these areas loosely aligns with the Requirements and Specifications and Service Model described in the IAM Plan. These PRRs will eventually become more formalized with structure and process in the large NC Education Cloud context. In the beginning, however, we will be proposing PRRs in response to simple questions that need to be answered in order to make provisioning and workflow decisions.

These questions will eventually become more formalized PRRs with structure and process in the larger NC Education Cloud context. We will be proposing PRRs in response to these simple questions that need to be answered in order to make provisioning and workflow decisions.

1 Policy and Governance

1.0.1   What are the default groups that user identities will be provisioned into (e.g. student, teacher, staff, parent, guest, etc.)?

1.0.2   Who decides on what data elements are released (e.g. specific attributes)?

1.0.3   How are accounts generated? (Triggers? what data is populated? what services are provisioned?)

1.0.4   How do users authenticate (e.g. Accessing a portal, using one of many web apps, etc.)

1.0.5   Can Social Identities (e.g. GoogleID, Facebook Connect, etc.) be used by parents or guests to authenticate? If so, what identity data is required/supplied?
A: Not in the initial phases of the IAM project. These could be added as part of future work.

1.0.6   What identity proofing and vetting is required in order to issue an account?
A: Since these are central accounts that are used for cloud services, the identity proofing and vetting processes should be standardized across all LEAs. While there may be some flexibility or options with respect to what is acceptable, the overall process and documentation requirements will need to be approved by the IAM Governance group(s) and followed by all participants. This is particularly important when using federated identity management, as the service providers must trust that appropriate processes are used to ensure that their rightful

owners are using accounts.

1.0.7   Who issues accounts? (e.g. School, LEA, etc.)

A: This is also an IAM Governance issue, although multiple processes or options may be defined for use by LEAs.

1.0.8   What identifiers are used for individuals? (SIS id, HR id, parents – email address?)

1.0.9 Who can request reports from the log-reporting tool?
A: LEAs will have access to their own log data, but not to any log data from other LEAs. Within an LEA, high-level administrator(s) will be able to delegate access privileges to other users from that LEA.

1.0.10 Do periodic reports need to be run for Regulatory and Compliance violations?
A: Reports would be created for audit purposes. Regulatory violations would be focused on individuals and would most likely be generated by ad hoc queries.

2 Data Sources

2.0.1. What is the process for getting access to the authoritative data sources for students, employees/staff and service providers?

2.0.2. What Regulatory and Compliance Rules impact or apply to the IAM Service?

2.0.3. Who owns the user data? (LEA, DPI, Parent, Staff member)
A: LEAs "own" the user data on students and staff members. They also approve, or "sponsor" the data on guest members such as parents, volunteers, etc., so in a sense the LEAs own that data as well. The IAM service does not own any of the data; it simply has custody of it on behalf of the LEAs.

2.0.4. What data (elements, attributes) will be made available to the Central Registry?

2.0.5. Will parent data be self-asserted (captured via some other mechanism), or only provided via NCWISE?

A: Parent data in NCWISE will likely not be used until it becomes a more reliable source. Instead a self-registration (guest) system combined with LEA-approval will probably be used.

2.0.6. What data is authoritative for Parents that are also Staff (the Guest or HR System)?

2.0.7. Once the data is transferred to the "Cloud", does the ownership change?
A: No, however, the custodian may change, e.g. from the IAM service to a vendor application provider. External service providers will be mandated to adhere to strict safeguards to protect the privacy of any such transferred data.

3.0.1 What are the approval workflows or processes for the IAM Service Roles?   Example: If an LEA wants feature X in the IAM service, how does that get reviewed, approved, or denied? Who funds it?

3.0.2 How much decision-making responsibility does the Service Manager have versus what do they need permission/approval for from the policy/governance bodies?

3.0.3 When is it appropriate for the Service Consumer to make requests of the Service Manager directly, versus needing to go through the Policy/Governance bodies?

3.0.4 If a law enforcement officer wants access to a user's information, whom do they make this request to? What paperwork is required?

3.0.5 While each of the IAM Service roles has designated responsibilities, what is the authoritative "chain of command" when decisions must be made or policy and procedures enforced.

3.0.6 Will there be steering committees formed? A configuration control board?

3.0.7 Should there be a Center of Excellence formed?

3.0.8 Who will review submitted requests for purpose, benefit, value, cost savings, longevity, and risk? These reviews could be approved, denied, or delayed on consensus.

3.0.9 Will there be an IAM Visioning Group that does not perform governance per se, but has more of shared decision making and priority setting role?

4 K-12 User Community (All LEAs and Charter Schools)

5 Help Desk and Support

6 Target Applications (Cloud-based Applications and Resources)

6.0.1 Who has access to Central Repository and Central Directory data? (only systemic access, ad hoc reporting, etc.)
A: Each LEA will have access to its own data, but not to any data from other LEAs. Within an LEA, high-level administrator(s) will be able to delegate access privileges to other users from that LEA. Cloud applications will also have access to certain parts of this data, subject to policies approved by the IAM governance body and to approval by each LEA that would participate.

6.0.2 Who determines what applications can consume user (student, staff, parent) data?
A: The IAM governance body, which will include advisory input from the LEAs, will approve any applications that will interact with the IAM service and what data will be provided. LEAs will be welcomed to submit requests to the IAM governance body, to have additional applications added to the approved list, however, review of the application vendor, their data requirements, and the security of their environment will determine whether they can participate as a Cloud Service.

6.0.3 What are the Policies around managing federated access (Federated Identity Management)?

7 Business and Administration

7.0.1   Who is involved in contracts (outside of DPI written or purchased applications)?

7.0.2 Can LEAs enter into their own agreements with vendors, and if so – can they also authorize the release of student/staff data?

A: LEAs can certainly enter into their own agreements with vendors, however it would not be guaranteed the IAM service would release any data to those external vendor applications. The IAM governance body, in collaboration with the IAM technical team, would need to approve and then implement releasing data from the IAM service. If this approval and implementation does not occur, the LEA would need to interact directly with the vendor to provide any necessary data to that service.

7.0.3 What happens to the IAM service (service) after the NC Education Cloud program is over? (How is the IAM project sustained to continue providing value to stakeholders?)

7.0.4 Who oversees the IAM project after the Cloud Project is completed?

7.0.5 What are the procedures for how an LEA interacts with the IAM Service? How do they request information, access, and resources?