

The Importance of Data in Digital Transformation

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North Carolinians Expect Great Experiences with Gov

Citizens, businesses, and other constituents **expect great experiences** when engaging with state government.

In fact, “85% of citizens expect government digital experiences to be **equal to or higher** than digital services from the private sector.”

Source: Accenture

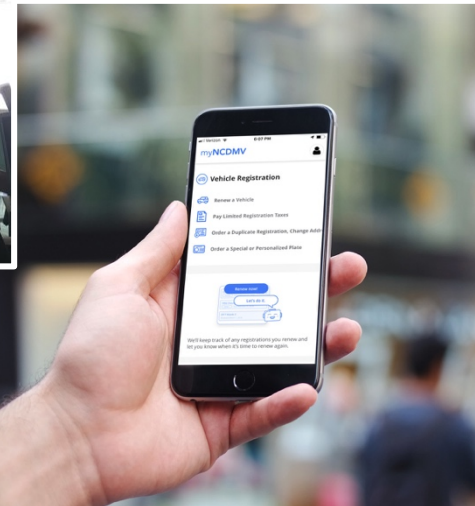


Our Vision: A Digital-age Government

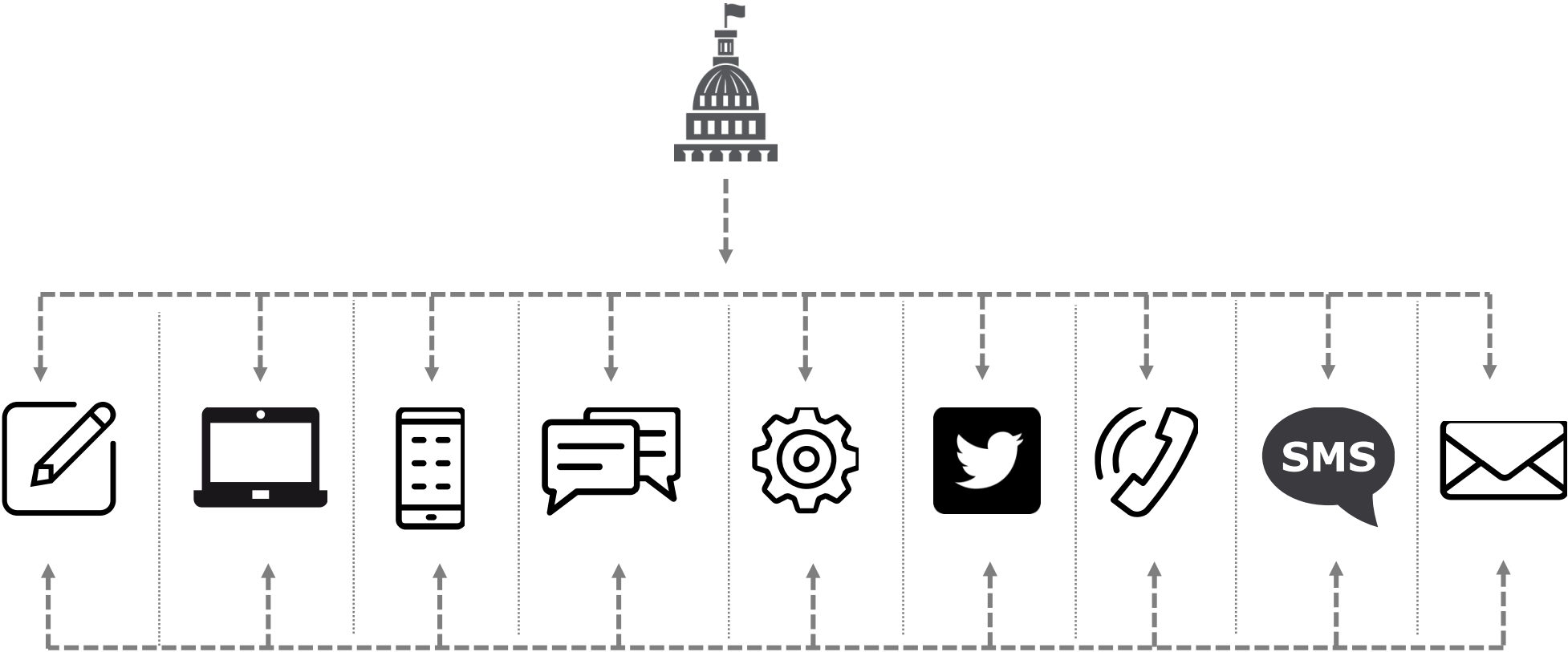
The state must deliver well-designed services, resources, and information anytime, anywhere, and on any platform or device.

A successful digital strategy must extend beyond IT and include people, process, technology, and culture change with strong collaboration with all our partners.

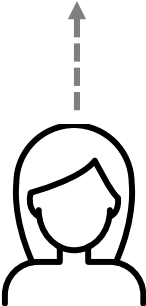
It requires teamwork!



Consistent, Simplified Gov Interactions



We must remove government “siloes” for citizens so that services are delivered in a streamlined, simplified manner across multiple channels (web, mobile, social, in-person visits, etc.).



Enabling Digital Transformation



People

Digital workforce training
Culture of cross-org collaboration
Enabling our talent
Mindset



Processes

Agile, nimble, iterative
Data
Governance + standards
Right KPIs
Procurement



Technology

Broadband
Modern platforms + Cloud
Analytics
New channels (i.e. chatbots, Alexa)
Security
Integration (API LCM, IPaaS)

Benefits for Citizens

- Simpler, faster, more intuitive experiences with state government.
- Transparent, open, accessible government
- Security and privacy

Benefits for State Government

- Cost savings and efficiencies
- Decreased call center volume, fewer office visits
- Engaged, productive staff
- Better position for workforce of the future

Learn more: DIT IT Plan:
<https://it.nc.gov/roadmap>

Digital Transformation in Action

NC 360

Digital Commons

MyNC DMV

**NC Virtual
Public Schools**

Digital Wallet

Cloud Brokerage

We Are NC Gov

Chatbots

**Info Sharing &
Analysis Center**

DEQ Drones Pilot

**API Warehouse
Service**
**Data Asset Catalog
Service**

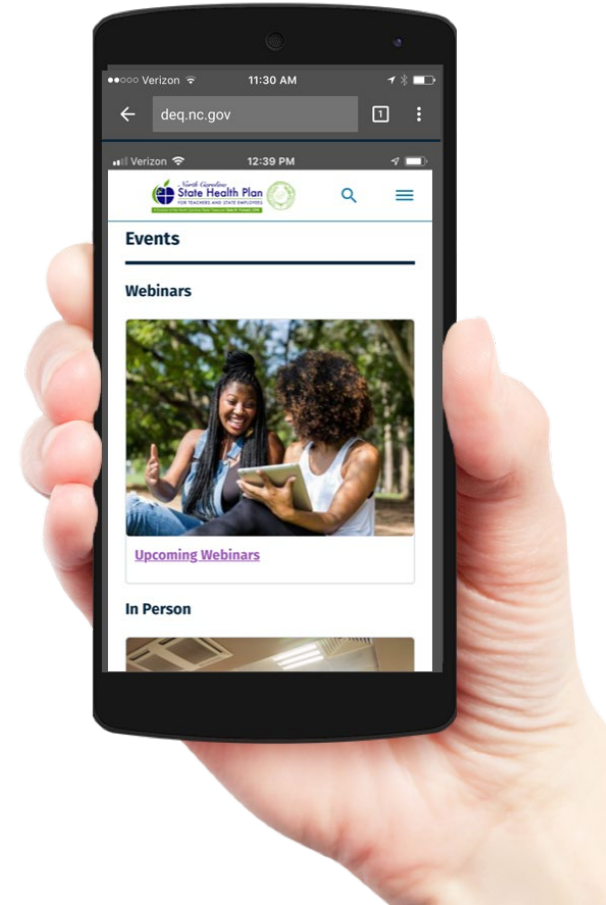
NC eWIC

Digital Transformation in Action

NC 360



Digital Commons & NC.Gov



We Are NC Gov



MyNC DMV



Data Sharing Defined

When one party has a compelling need or desire to utilize data assets that are controlled or managed by another party...

- Citizen/business interaction
- Scientific research/academic studies
- Law enforcement/public safety
- Healthcare/Electronic Health Records (EHR)
- Humanitarian/disaster relief
- Education/longitudinal
- Fraud/compliance
- Open data/transparency
- Transaction processing/decision support
- Business intelligence/analytics



Data Sharing Challenges

- Lack of trust and confidence between the data-sharing parties
- Politics/cultural barriers
- Conflicting organizational objectives
- Financial/cost issues
- Legalities – data-sharing agreements
- Data privacy and security
- Compliance and regulations
- Business and technical metadata
- Data availability and quality
- Data governance
- Technical incompatibilities



Do not underestimate the challenges associated with efficient and effective data sharing

Key Terms and Definitions

Enterprise Data Management (Wikipedia)

- *The development, execution, and supervision of plans, policies, programs, and practices that control, protect, deliver, and enhance the value of data and information assets*
- *EDM is focused on the creation of accurate, consistent, and transparent content while emphasizing data precision, granularity, and meaning. EDM is concerned with how the content is integrated into business applications, as well as how it is passed along from one business process to another.*
- *Data does not manage itself – there needs to be a process.*

Data Governance (Wikipedia)

- *A set of processes that ensures that important data assets are formally managed throughout the enterprise*
- *Key focus areas of data governance include availability, usability, consistency, data integrity, and data security.*



- DAMA-DMBOK2 Guide – Knowledge Area Wheel
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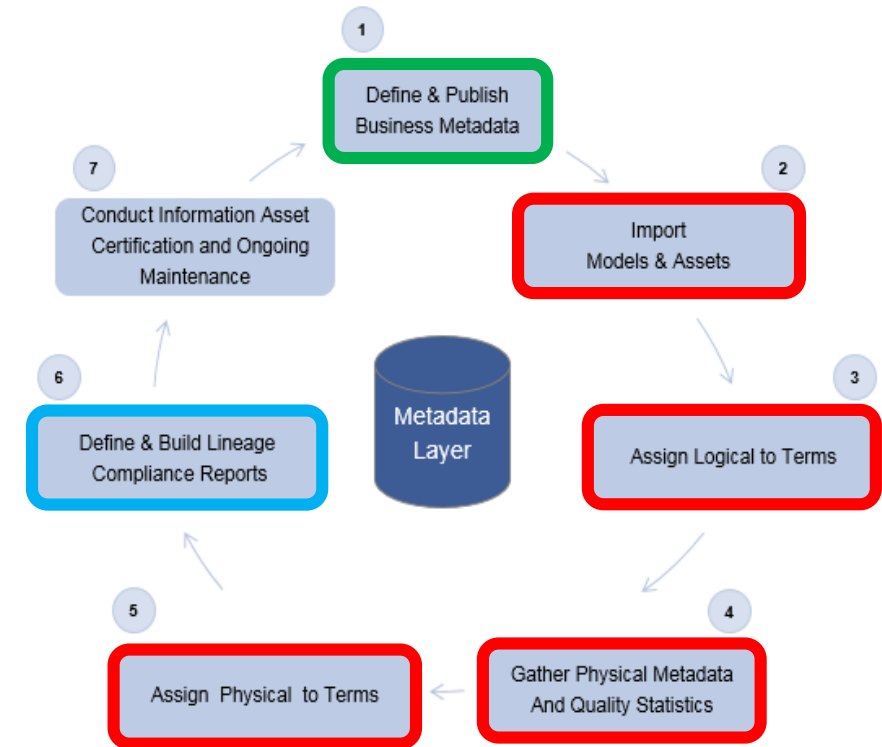
Key Terms and Definitions

Metadata (National Information Standards Organization-NISO)

- *Structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource. In simplest terms, metadata is “data about data” including the who, what, when, where, how, and why attributes.*

Metadata Management (Gartner)

- *The business discipline for managing the metadata about the data assets of the organization*
- *Many different types of metadata can be managed in a variety of ways with business and technical metadata typically being the most important.*
- *Metadata management is critical for the efficient and effective reuse of data assets for business-led data analytics and data integration needs.*
- *A critical capability underpinning any data management program/strategy*



Graphic courtesy of IBM

Data (content)	+	Metadata (context)	=	Information
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Key Terms and Definitions

Application Programming Interface (API) (Wikipedia)

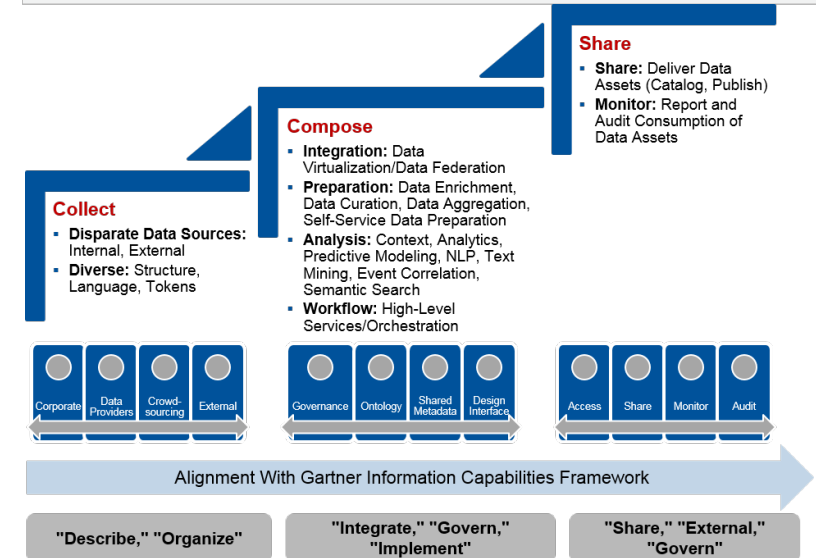
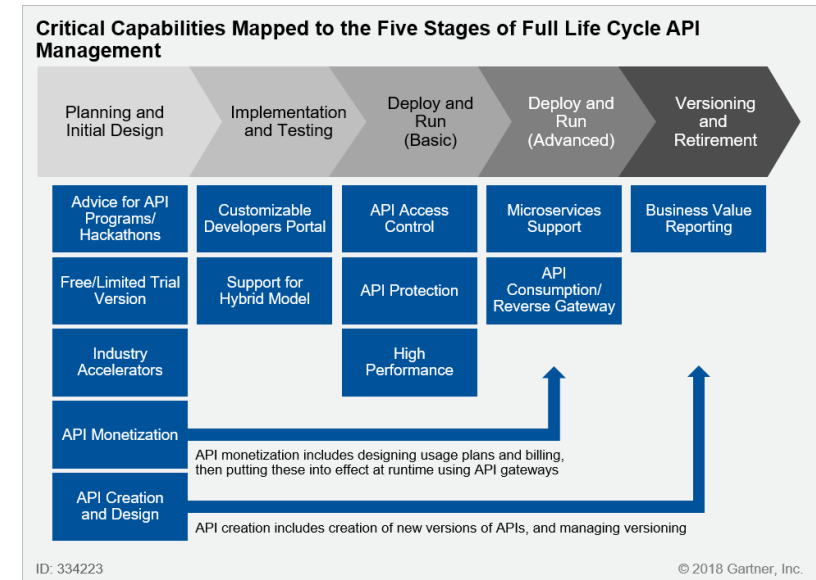
- A set of clearly defined methods of communication between various software components

API Full-Life Cycle Management (Gartner)

- Full-life cycle application programming interface (API) management is about the planning, design, implementation, testing, publication, operation, consumption, maintenance, versioning, and retirement of APIs. It involves using developers' portals to target, market to, and govern communities of developers who embed the APIs in their applications as well as runtime management and estimation of API value and analytics.

Data-as-a-Service (DaaS) (Gartner)

- A design approach or a style of information architecture geared toward transformation of raw data into meaningful data assets for agile/timely data provisioning and the delivery of these data assets on demand via consistent, prebuilt access, with the aid of standard processing and connectivity protocols



Enablement Strategies for Data Sharing

Organize Your Data



Data must be complete, applicable and accessible everywhere

Govern Your Data



Data must be secure, clean, and easy to find to encourage trusted self-service access

Drive Intelligence from Data



Ability to drive self-service discovery and automate decision making to evolve the business

Graphic courtesy of IBM

- Establish a data governance process for all involved parties and associated data
- Nurture a culture of trust and collaboration with data-sharing partners
- Standardized, pre-approved data-sharing agreements
- Metadata management platform and process
- Full-life cycle API Management
- Data hub architecture for data sharing
- Identify Master Data Management (MDM) opportunities and supporting platform
- Legislative/statutory change options

Data Asset Catalog Service (DACCS) Problem Statement

- Many vertical/siloed applications across the agency/state enterprise
- No single/centralized metadata repository for agency/state data assets
- Lots of data assets in many different places and in many different forms
- Lack of SMEs familiar with all available data assets
- No standardized taxonomy for collecting and organizing agency/state data assets
- Slow responsiveness to urgent data-related analytical needs/challenges
- Limited business/technical documentation and/or metadata are available in many cases for agency/state data assets.
- Some data assets are being leveraged across multiple applications, but this is the exception.
- Some data assets are very well understood and are being managed or leveraged well, while many others are not.
- Data duplication, data quality, data usage, and other inefficiencies can result from these problems.



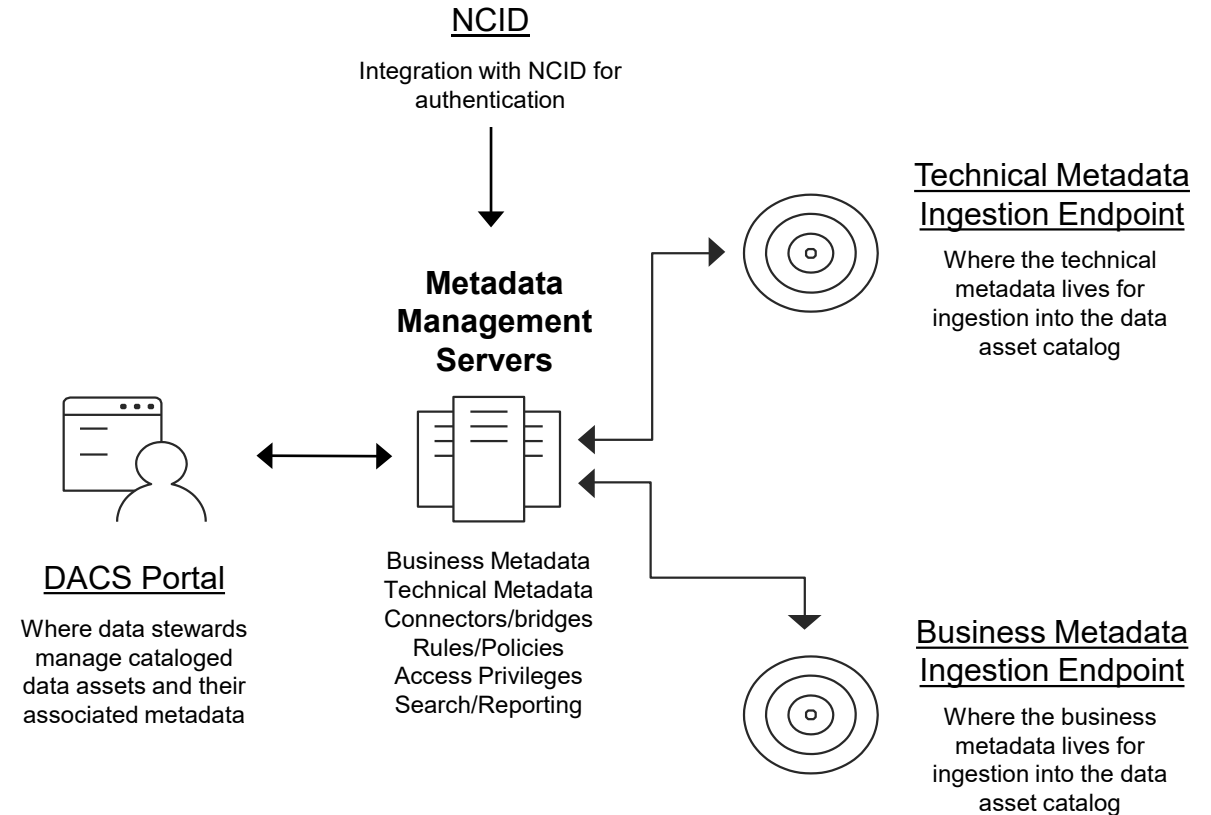
*DAMA-DMBOK2 Guide – Knowledge Area Wheel
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A very typical set of conditions and circumstances for a large state enterprise

DACS Service Overview

Value Propositions

- A centralized metadata repository for state data assets
- Ability to mechanically ingest existing business and technical metadata from any database or data source
- Facilitates holistic viewing and reuse of state data assets
- Standardized/shared vocabulary for data across the state enterprise
- Extensive search and reporting capabilities on cataloged data assets
- Decentralized/federated management of data assets by data owners
- Less dependency on specific SME personnel for data-related decision making/reuse
- A key foundation that is needed to support enterprise data governance/management and Data-as-a-Service (DaaS)
- Rapid on-boarding/ramp-up using an existing multi-tenant, shared service type platform
- No cost to state agencies for use of the DACS



A best-in-class platform from IBM for capturing and managing business and technical metadata for the state's data assets at an enterprise level

API Warehouse (AWHS) Problem Statement

Many years of autonomous and siloed development of data-integration software across numerous state agencies has produced the following issues:

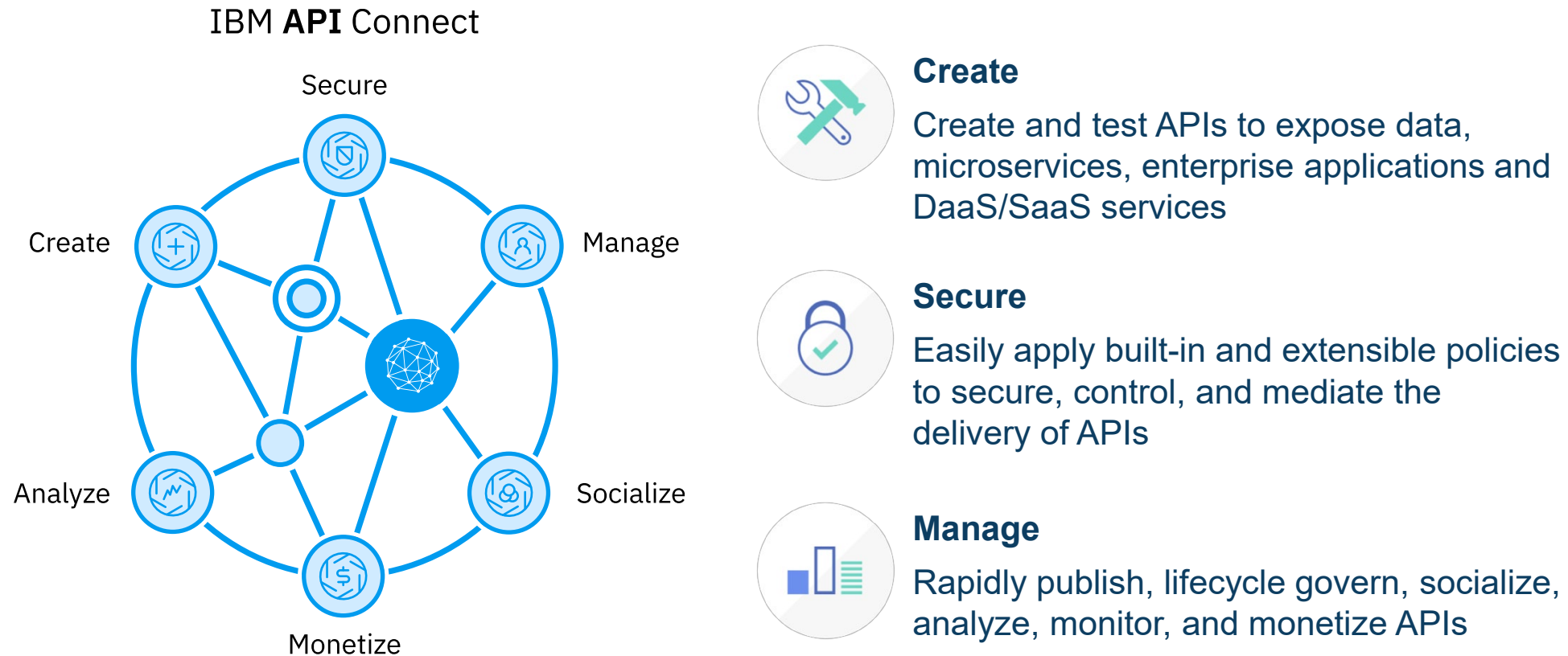
- Many point-to-point integrations that can be difficult and expensive to maintain over the long haul
- Limited, if any, reusability due to a lack of awareness of the software's existence, technical incompatibility, and/or a willingness to share this software between parties; this increases duplication and costs.
- Little or no “standardization” for these integrations
- Staffers/contractors leveraging their institutional knowledge for these integrations
- No “one-stop shopping” for data integration/data sharing needs
- Complicated by the need to support mobile computing and access to data assets being hosted in third-party clouds (e.g. SAS)
- Poor/slow responsiveness to new business needs or challenges
- Not getting maximum leverage out of existing data assets

These challenges require a different approach to our cross-agency, cross-platform data integration and data-sharing needs.

AWHS Service Overview

What is IBM API Connect?

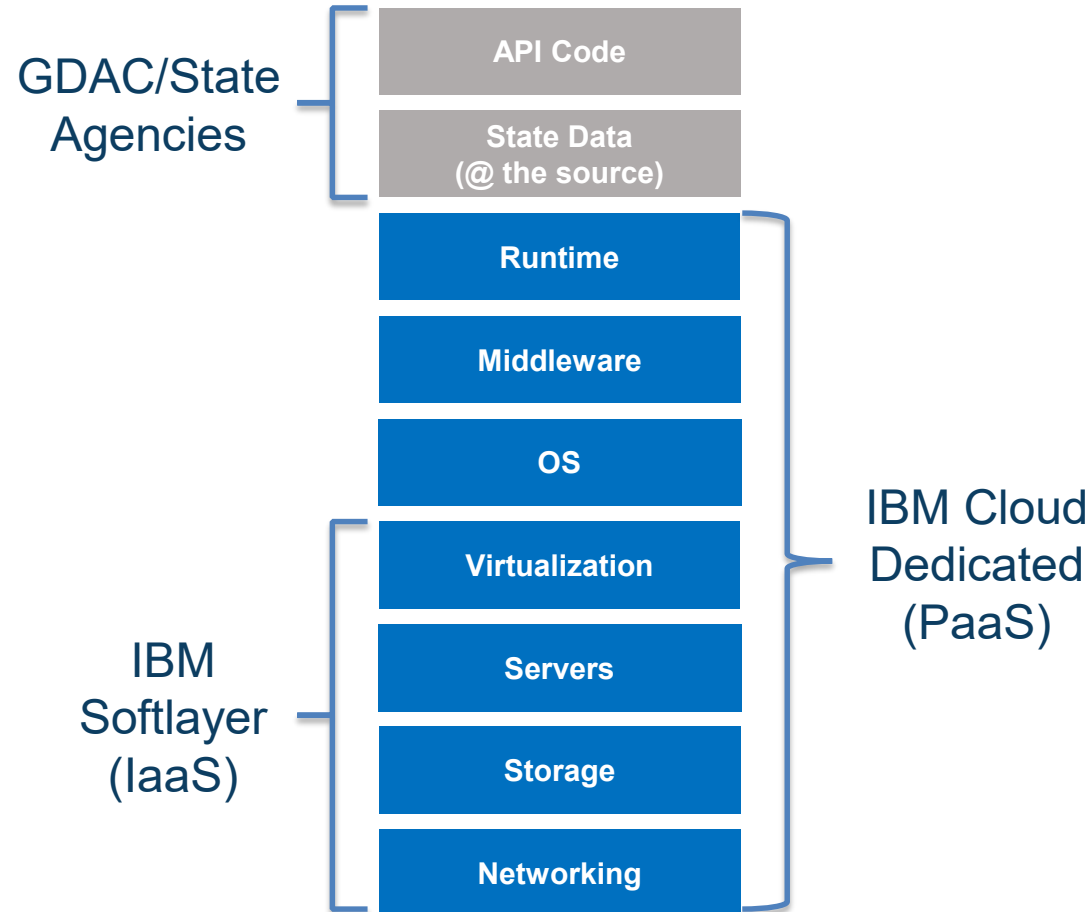
A full-life cycle API management platform for enterprise grade APIs and microservices that power modern digital applications



Graphic courtesy of IBM

“One-stop shopping” for agency application developers to discover and consume reusable APIs from within their own applications

AWHS Service Overview



Graphic courtesy of IBM



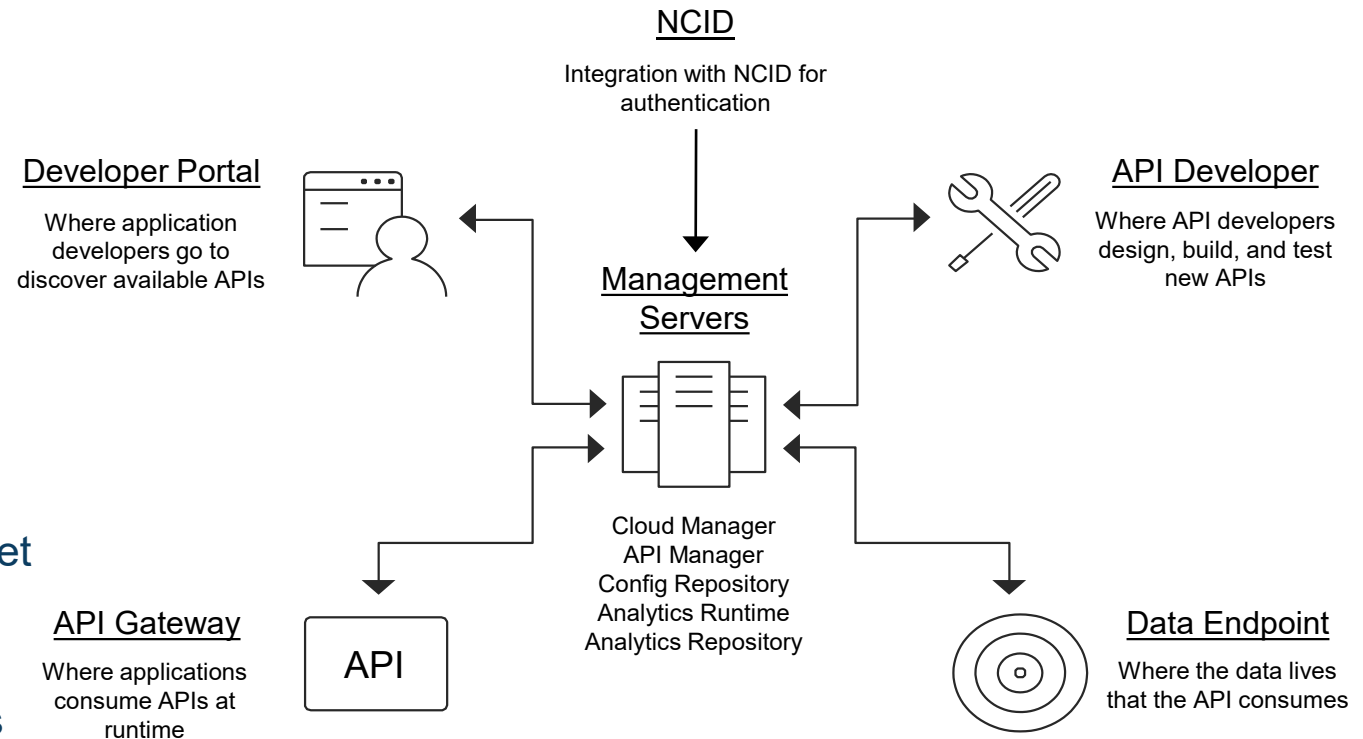
IBM Cloud Dedicated

- Built on SoftLayer Infrastructure-as-a-Service (IaaS)
- Dedicated (Private) Cloud Platform-as-a-Service environment for NC, non-shared infrastructure (PaaS)
- API Connect software subscription running within the IBM Cloud Dedicated environment
- Meets or exceeds defined DIT cloud-hosting security requirements for third-party providers
- Data is trafficked from the source to the consuming application, but the data is not retained/stored in the AWHS Cloud environment

AWHS Service Overview

Value Propositions

- One-stop shopping – build new APIs once, and allow them to be consumed by those who need them
- Existing APIs can be made available via the same platform.
- Inter/intra state agency or GDAC consumption of available APIs
- Standardization and consistency of interfaces and naming conventions
- Does not require an intimate understanding of the target data source
- Cost avoidance for not having to build, maintain, and support agency centric, point-to-point data integrations
- Technology agnostic with respect to the API language/interface (Java, Python, Node.js, C#, REST, SOAP, etc.)
- Supports the strategic Data-as-a-Service (DaaS) objectives for the GDAC/State
- No cost to state agencies for use of the AWHS



A win-win scenario for the GDAC and state agencies that have a need to consume/share data assets on demand

Questions?

Let's Connect!



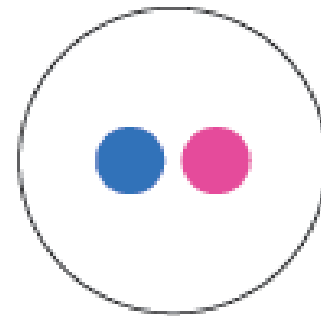
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