Now on Now: Our data integration strategy

We give our business users the data they need to make the decisions that matter. See how we do it using ServiceNow and third-party applications.
Contents

Introduction ........................................................................................................... 3
Why data integration matters ............................................................................. 3
Our data integration strategy .............................................................................. 3
Replicating data from one ServiceNow instance to another ......................... 4
Pulling data into our data warehouse ................................................................. 5
Pushing data out of our data warehouse ............................................................. 6
Summary ............................................................................................................. 8
About ServiceNow ............................................................................................... 8
Definitions ......................................................................................................... 9
Introduction

The purpose of this white paper is to help our customers make the most of existing data to generate critical insights that drive impactful business decisions. We'll offer experience-based guidance on how data flows within ServiceNow systems and third-party applications to power analytics for our organization.

Why data integration matters

An effective data integration strategy is the foundation that informs various business decisions across ServiceNow.

For sales, reporting the metrics and forecasting quarterly business growth is crucial to expansion. For finance, having real-time visibility into financial data is essential to keep us healthy and on track. For marketing, viewing pipeline data informs our strategy to convert leads into customers. And the list goes on.

At ServiceNow, we face the same data challenges you do

Each department is accumulating more and more data. How do we turn this data into valuable insights, and more importantly, how can we turn these insights into actions that move our business forward?

Most data is collected and stored in disparate systems within each department, in silos. As a result, IT, sales, marketing, finance, and HR each have an incomplete view of the full picture.

At ServiceNow, we face the same data challenges as every other modern enterprise. Our analytics team is tasked with breaking down these data silos and providing business insights at the right time and place so we can better serve our customers.

Our data integration strategy

While we address the challenges of converting data into insights and actions, data integration needs to be properly architected.

Best practice principles guiding our strategy:

• Try to use data from its original sources as much as possible
• Only move data when it's critical for business insights
• Integrate data from different sources where aggregation, enrichment, and re-distribution are required

Below, we'll outline three types of data movement that formulate our data integration strategy.

Most of the challenges in modern analytics stem from methods we use to integrate data from various sources. Effective data integration strategy is crucial to the success of the analytics program.

Vijay Kotu
SVP, Analytics
ServiceNow
1. Using data/insights within ServiceNow instances

Our default strategy is to leave the data in ServiceNow as is and use Performance Analytics to build insights on top of it. Using Performance Analytics to create indicators, reports, and dashboards is a natural way to get the most out of ServiceNow data assets.

This leads to several key advantages:

• Avoids any unnecessary data movements and all costs associated with building and maintaining integrations
• Drilling down to the underlying transactional data is just a click away, with no data latency issues
• No need to build any data lineage to traverse the path from insights to data
• Data security is automatically taken care of as part of the Now Platform® capabilities; no need to build it separately in the warehouse
• Building KPIs, reports, and dashboards with Performance Analytics is relatively quick and easy with ServiceNow’s low-code/no-code approach

We even follow the same guidelines when we have multiple ServiceNow instances. For example, at ServiceNow we have a separate instance for security given the compliance, privacy, and associated risk. We do not move any data in this scenario; instead, we use Performance Analytics APIs to access the KPIs and scores from one instance to another.

Benefits of using Performance Analytics APIs:

• Avoids unnecessary data movement
• Honors security and privacy compliance
• Surfaces only relevant insights

We have some applications that are deployed on more than one ServiceNow instance, usually for scaling and security purposes. IT Business Management is one example. In such cases, the data structures are the same across these instances given
that the applications are the same. To gather consolidated insights, we bring data in from some key tables into a single instance and then build Performance Analytics indicators within this consolidated data set.

To integrate data for these cases we use a Now Platform feature called Instance Data Replication (IDR) to copy data from one ServiceNow instance to another.

Benefits of using IDR across different ServiceNow instances:
• Enables simple and easy setup and configuration
• Provides consistency between ServiceNow instances
• Propagates/makes changes across multiple systems
• Shares data to manage/trigger business workflows

2. Moving data to our central data warehouse

Some business insights require data from ServiceNow instances as well as other third-party applications. Often there are scenarios where data sets need to be transformed, merged, collated, and aggregated to provide insights that can be consumed by different roles, with different levels of depth and detail.

In such scenarios, we integrate data from ServiceNow instances and third-party applications into a centralized data warehouse.

Benefits of integrating data into a data warehouse:
• Provides a central repository of enriched data for enterprise analytics
• Applies consistent business logic to calculate key metrics and prepare them for business user consumption
• Enables AI/ML insights to embed within dashboards

There are two data source categories the analytics teams pull from:

ServiceNow instances

We use multiple ServiceNow instances across our company ecosystem. Each instance is specific to our business needs and other governance, security, and compliance requirements such as data privacy (e.g. CCPA and GDPR). For example, we have an instance for all customer-facing interactions, another for internal applications, and a dedicated instance for security and compliance applications. Each has specialized applications aligned with our business purposes.

How we move ServiceNow instance data into our data warehouse

We use Snowflake Connector to make ServiceNow instance data available in Snowflake. Connector uses external API authentication to connect to ServiceNow instances. This lets us ingest data from ServiceNow tables into our Snowflake database and synchronize the data on a regular basis. Some of the feature set includes data ingestion, handling deletes, alerting, and metadata updates.

“...The purpose of analytics is to create decision-making capabilities across the organization. The data integration strategy provides an efficient way to achieve that purpose. ...

Vijay Kotu  
SVP, Analytics  
ServiceNow
Third-party applications
To support our operations, ServiceNow, like any other enterprise, uses several third-party applications, including Microsoft Office, Microsoft Teams, Okta, Zoom, and several other specialized apps. We extract data from these third-party applications and integrate it into our data warehouse.

How we move third-party system data to the data warehouse
Integrating data from third-party systems involves several activities such as data modeling, extraction, staging, transformation, and loading. Sophisticated tools including third-party application APIs are used to ensure we meet data quality as well as security and governance requirements.

3. Integrating data from our data warehouse into our ServiceNow instances and third-party apps
Data in our warehouse is curated with standardized business logic and enriched with AI/ML algorithms and predictions. Such a data set with sanitized metrics and insights is ready for consumption by the downstream applications. Often, these data sets are looped back into the third-party systems and ServiceNow instances are used along with the original source data.

These data sets are included into ServiceNow instances via standard import data set and transform map capabilities available in the Now Platform. We use specialized tools (such as Dell Boomi) along with APIs and schedules to integrate the curated data sets into third-party systems.

Benefits
• Provide data as a service for downstream app consumption
• Share enriched data to maintain a single version of truth
• Drive consistency between federated and embedded systems
• No need to enrich the data again (consistent with logic)

Here are some examples where one or more of these data movements/flows come into play.
Use case 1: CEO Dashboard

This is the one-stop dashboard for our C-suite and CEO. The CEO Dashboard provides a comprehensive view of digital transformation in action at ServiceNow.

Data from ServiceNow instances is the primary source of data used in the dashboard. Additionally, there are specialized applications used by our business functions such as sales, finance, and marketing. Data from these applications is integrated into our centralized data warehouse. These enriched data sets are used to provide key insights on the CEO Dashboard.

Use case 2: CIO Dashboard

We integrate data from both ServiceNow and third-party applications and transform it into actionable insights. The CIO Dashboard gives our Digital Technology leadership team the ability to make informed decisions that can help grow the business.

Third-party application usage data is one of the required critical insights. We use third-party APIs to pull the usage statistics into our ServiceNow instance. Using Performance Analytics from the Now Platform, these insights are then presented within the CIO Dashboard.

Data from ITBM applications across multiple ServiceNow instances is integrated together. Using IDR and Performance Analytics, KPIs are then built over it.

Use case 3: ServiceNow Impact

Impact is our first solution designed to help customers accelerate the return on their digital transformation investments. Built on the Now Platform, it delivers a personalized digital experience. This is powered by data from our centralized warehouse, the Enterprise Data Platform.

In the beginning of 2022, we released ServiceNow Impact to help customers realize results faster across their business by providing:

- Proactive insights
- Prescriptive guidance
- Tailored training and recommendations
- Premium technical support and tools
Summary

In this paper, we outlined our strategy and guiding principles for data integration used at ServiceNow.

We covered the three data movements our analytics team handles every day: data replication between ServiceNow instances, data pulled into our data warehouse, and data being pushed into our applications for business usage. We also showcased a few examples highlighting these strategies and data flows.

We hope you find this high-level overview helpful as an instructional document to guide you through your own data integration strategy using ServiceNow.

About ServiceNow

ServiceNow is making the world of work, work better for people. Our cloud-based Now Platform and solutions deliver digital workflows that create great experiences and unlock productivity for employees and the enterprise. For more information, visit: servicenow.com.

Now on Now is about how we use our own ServiceNow solutions to work faster, smarter, and better. With Now on Now, we’re achieving true end-to-end digital transformation. To learn more, go to: servicenow.com/nowonnow.

Need help with your data integration strategy? Contact your account executive to set up a meeting with a Now on Now practitioner.
Definitions

For the purposes of this document key terms are defined as follows:

Analytics
The process of uncovering, interpreting, and communicating the most important patterns in data.

API
A software interface that allows different pieces of software to send and ingest data to each other.

Application integration
Connecting different applications together so they can communicate with each other.

Connector
A wrapper that hides the complexity of an API and simplifies connecting different software together.

Data federation
An approach to database architecture where data is left in its original source and unified through some method. This is different from database consolidation, where data from different databases is joined together into a separate and centralized database.

Data governance
Internal standards guiding how data is collected, stored, processed, and deleted. Also, encompasses who can access data and under what circumstances. These standards are usually governed by security and regulatory mandates such as CCPA and GDPR.

Data integration
Broader than the traditional Extract, Load, and Transform process, data integration can include data quality, standardized definitions, and logic to create understandable insights.

Data pipeline
The tools and steps needed to automatically move, transform, and deposit data between different systems.

Data warehouse
Uses a relational database to store valuable data that is created by business processes. Typically, data is structured and governed in a form for downstream users to easily consume. This is opposed to a data lake, the place where you put all or most of your business’s data. This data does not yet have clear value and is normally unstructured.

Dell Boomi
A tool we use to bring data into our warehouse as well as push data out into other sources. View more info here.

Extract
Taking source data from the original point and placing it into a temporary staging area.

Extract-transform-load (ETL)
Data is first extracted from the source then cleaned, enriched, transformed, and finally loaded or deposited into a final area.

Extract-load-transform (ELT)
The modern approach where data is extracted then loaded into a data warehouse and transformed in the warehouse. The transformation now happens in the warehouse because computer resources are now cheaper.

ServiceNow Instance
An occurrence of all the applications and the underlying backend architecture that make up a client’s ServiceNow experience.

Perspectium integration
The integration that moves our data from our many ServiceNow instances to a single data warehouse destination.

Hub-and-Spoke Architecture
Centralized data architecture where a single data source, the hub, has connections to various data nodes (the spokes).