

Preparing Your Organization for a Federated CMDB



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A configuration management database (CMDB) is a unified or federated repository of the information contained within an IT infrastructure. It helps an organization understand the relationships between IT components and track their configuration. The CMDB is a fundamental component of an ITIL framework, which incorporates best practices that facilitate high-quality IT delivery and services.

IT organizations, both government and private, are increasingly challenged to respond more effectively to the needs and expectations of their users. To operate more efficiently, they must reduce the complexity of their processes and the costs associated with them. In addition, an increased emphasis on accountability has resulted in a need for more control of the IT infrastructure and the ability to verify that these controls are in place.

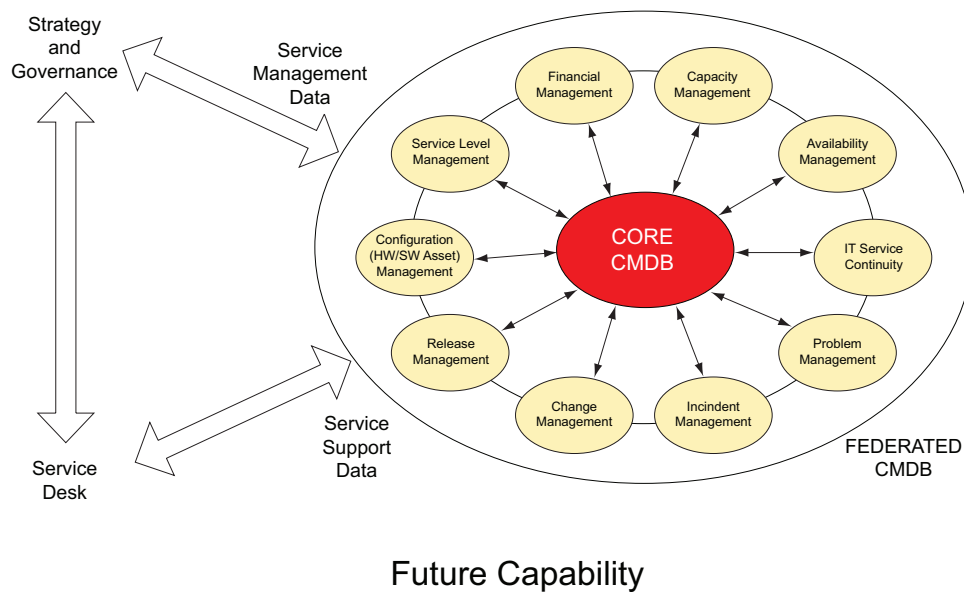
The information technology service management framework (ITSMF) has been used effectively within IT organizations to support the implementation of service management support and delivery processes and to improve the efficiencies of those currently in use. A critical factor in making those processes work together is having access to a reliable and accessible source of service management information. The configuration management database (CMDB) provides this capability.

To help clients harness the opportunities associated with creating a CMDB, this paper identifies the benefits organizations can achieve when a CMDB is developed and provides recommendations on how to get started on its implementation.

Technology Trends

Current trends demonstrate an evolution in the information technology industry toward products that focus on integrating critical service management information to support the ever-increasing need for efficiencies and accountability. These products also assist in breaking down the traditional functional silos that often exist within an organization.

While some vendors support storing all service management information within a single database, many are focusing on a federated approach to database design. The federated data model features a core database comprised of key information about infrastructure components. This database pulls together data about the infrastructure components from related databases that support the individual service management processes.



A federated approach provides the ability to view data anywhere within the enterprise; with a “common view” to the data, the user will not necessarily need to know which back-end system is being accessed.

The core database identifies the relationships between the infrastructure components and maintains a common set of information for each component. This common set of information is used to link information from the related databases. The related databases could contain information such as detailed asset information, incidents, service requests, requests for change, contracts and service-level agreements.

The federated approach encompasses the following features:

- Provides the ability to view data anywhere within the enterprise; with a “common view” to the data, the user will not necessarily need to know which back-end system is being accessed
- Places data where it can be managed most efficiently and used most effectively
 - Primary and widely shared infrastructure component data is placed in the database, leaving non-critical, less viewed data in related databases, thus the core database can focus its functionality on critical data
 - The core database is much easier to manage and maintain; bottlenecks are removed and other tools can focus on what they do best
 - Overhead required to support the core database is not wasted on data that doesn't need it
 - Transactional data can be stored in related databases, using products that are better able to handle a high volume of requests, such as incident requests, events and service requests
 - Specialized data can be stored in related databases, ensuring that the best product is used for the type of data, such as detailed component data
- Supports an evolutionary implementation as core data can be established based on priority; a phased-in implementation approach decreases risk and quick wins become visible as the organization quickly sees the benefit as functionality is implemented
- Supports use of existing systems; this low-cost implementation approach allows investment in existing systems to continue, results in minimum disruption, and allows current relationships between existing applications or processes to be left unchanged

Implementation of a federated CMDB needs to occur in an evolutionary, not revolutionary manner. Identifying and normalizing the initial data for integration and implementing the processes and procedures required to maintain the data are significant. Implementation usually involves first focusing on the primary “pain points” within an organization. Decisions to identify long-term data requirements are determined by assessing the value added against the costs associated with the additional data.

The federated approach to database design has been used successfully in business for data mining and data warehousing and is now being viewed as a solution for coordinating vast amounts of service management information. The decision to adopt a federated data model versus a single database model of a CMDB should be determined after assessing the organization's current service management processes and supporting tools and their specific requirements for service management information. The products that support the federated data model's ability to view data anywhere within the enterprise can also support many of the detailed requirements of the individual service management processes and related databases.

To determine the business requirements for a federated CMDB, organizations should focus on the sharing of information from and between various service management process groups to support strategic business decision making and service management process interconnectivity and to ensure a controlled infrastructure.

Business Requirements

To determine the business requirements for a federated CMDB, the focus is on the sharing of information from and between various service management process groups to achieve the following:

- Support strategic business decision making
- Support service management process interconnectivity and individual process business requirements
- Ensure a controlled infrastructure

Support for strategic decision making

Strategic decision making is supported by a high-level view of the infrastructure and service management data. This high-level view can provide the following capability:

- Use service level and availability information to demonstrate adherence to service level agreements, supported by a service catalog
- Use amalgamated cost data to demonstrate an accurate picture of the total cost of ownership associated with IT services by tracking costs associated with IT assets, service suppliers and internal resources; use this data to provide clients with an understanding of the costs associated with the services, facilitating an environment of mutual trust
- Use asset information to optimize future asset purchasing and maintenance renewals, to lower support costs and to determine future directions of purchases
- Use service management data to provide greater visibility into the infrastructure to identify areas that eliminate redundancy and automate business processes

Support service management process interconnectivity

Each service management process can be assessed to determine the type of information it would provide to the CMDB and what other processes to use. In addition, the assessment would determine what information it would use via the CMDB.

In this way, the business requirements for using the CMDB as a catalyst for information sharing are identified. This sharing or integration of data allows for greater process efficiencies, such as:

- Improving economy by removing redundancy between service management data sources
- Ensuring quality within a definitive source of information
- Improving productivity by decreasing the amount of time required to collect data from many sources

Implementation of a federated CMDB needs to occur in an evolutionary, not revolutionary manner. Identifying and normalizing the initial data for integration and implementing the processes and procedures required to maintain the data are significant steps that require appropriate time and attention.

Examples of the business requirements identified as those that either provide data or use data are outlined within the chart below.

PROCESS PROVIDES DATA	PROCESS USES DATA
Configuration Management	
<u>CI relationship management</u> <ul style="list-style-type: none"> Identifies relationships between configuration items <ul style="list-style-type: none"> Parent/child Network relationships Redundancies Support (backed up by, monitored by) Identifies services and the configuration items supporting them Provides such document information about operating, support and recovery procedures and documentation of functional baselines, and relates document to configuration items Tracks software license compliance reporting on assets Tracks user account information as configuration items 	<u>CI relationship management</u> <ul style="list-style-type: none"> Receives data from discovery agents to verify existence and location of assets and their usage (have they been accessed recently) Maps discovery data to hardware and software configuration items Uses updates from service desk/incident and service request management to maintain configuration data Uses updates from change management to update relationships, roles and specifics of configuration items
<u>Asset management</u> <ul style="list-style-type: none"> Identifies status of assets throughout the life cycle from ordering to decommissioning Tracks physical and logical location of assets Identifies asset ownership and asset assignment Tracks costs related to an asset Tracks ongoing warranties and plans for warranty expiration on assets Tracks lease agreements and identifies leased assets 	<u>Asset management</u> <ul style="list-style-type: none"> Uses ordering and procurement information to identify assets Uses updates from incident and service request management to maintain asset data

Taking the time to determine your organization's unique service management capabilities and identifying its long-term business requirements is the first step toward implementing a federated CMDB.

PROCESS PROVIDES DATA	PROCESS USES DATA
Incident Management (including service request management)	
<ul style="list-style-type: none"> Provides incident and service request information and maps incident records to configuration items Updates user profile or asset/configuration items for changes identified during incident management 	<ul style="list-style-type: none"> Views user profile or user account data to assist in responding to incidents or information requests Accesses software licensing data to verify if valid Views configuration items to assess service or user impact of an IT infrastructure component failure Views service level agreements (SLAs) to determine the priority of actions and escalations Views problem database or knowledge base for known error data Views software and hardware maintenance agreements to support incident resolution Views service requests and provides updates to users
Problem Management	
<ul style="list-style-type: none"> Provides problem information and maps problem records to configuration items 	<ul style="list-style-type: none"> Views change and incident data to assist in the determination of the cause Views configuration items required to support root cause analysis of incidents Views availability and capacity data to identify trends and determine resolution
Change Management	
<ul style="list-style-type: none"> Provides control over the infrastructure and configuration items Provides authorization to change configuration items Provides status of changes for infrastructure components Provides status of release activities 	<ul style="list-style-type: none"> Views configuration items and relationships to assess the effect of proposed changes on services Views availability and capacity data to identify trends and determine possible changes Views configuration items and relationships to determine the effect of application/operational changes
Service Level Management	
<ul style="list-style-type: none"> Tracks and monitors different service offerings in an SLA for reporting purposes Creates SLA and service level objectives 	<ul style="list-style-type: none"> Uses availability data to determine if SLAs are being met and to prepare service performance reviews Views configuration item relationships to ensure the accurate setting and measurement of service level objectives within an SLA
Financial Management	
<ul style="list-style-type: none"> Provides procurement services Provides financial data summaries and documents such as service budgets, costing analysis reports, and trend analysis 	<ul style="list-style-type: none"> Uses asset data and other operational costs to determine costs of providing services Uses asset data to determine cost of assets under construction Uses asset data to determine depreciation of equipment and cost of lost equipment

A controlled infrastructure is ensured through the visibility and validity of service management data. A federated CMDB can make this data visible and sharable, and sound change and configuration management practices continuously validate the data.

PROCESS PROVIDES DATA	PROCESS USES DATA
Release Management	
<ul style="list-style-type: none"> Provides release management data that will be used to update configuration items through the change management process 	<ul style="list-style-type: none"> Views configuration items and relationships to provide an understanding of the effect of component and services Views configuration items and relationships to prepare for implementation of releases and changes to documentation Views configuration items to review new requirements for asset and license use
Capacity Management	
<ul style="list-style-type: none"> Provides data to track configuration item performance characteristics 	<ul style="list-style-type: none"> Uses configuration data to support capacity design plan and analysis Uses change data and configuration item relationships to determine the effect of changes on capacity Uses problem data to identify capacity issues
Availability Management	
<ul style="list-style-type: none"> Provides updated information about the availability of components to assist SLA measurement 	<ul style="list-style-type: none"> Uses incident, problem and change data and configuration item relationships to determine the effect of events, such as outages and changes, to the infrastructure Uses configuration performance data to determine reliability, maintainability, serviceability, resilience and security requirements to resolve vulnerability issues
Service Level Management	
<ul style="list-style-type: none"> Tracks and monitors different service offerings in an SLA for reporting purposes Creates SLA and service level objectives 	<ul style="list-style-type: none"> Uses availability data to determine if SLAs are being met and to prepare service performance reviews Views configuration item relationships to ensure the accurate setting and measurement of service level objectives within an SLA
IT Service Continuity Management	
<ul style="list-style-type: none"> Provides plans to ensure provision of services following an interruption of those services 	<ul style="list-style-type: none"> Views configuration items to facilitate planning of recovery efforts Views configuration items and related documentation to support system recovery

Ensure a controlled infrastructure

A controlled infrastructure is ensured through the visibility and validity of service management data. A federated CMDB can make the data visible and sharable. Sound change and configuration management practices continuously validate the data.

By carefully following the recommended implementation steps, IT organizations will be armed with the information they need to plan for, and ultimately implement, a federated CMDB. The end result is the ability to facilitate high-quality IT delivery and services.

Steps Toward Implementation

Taking the time to determine your organization's unique service management capabilities and identifying its long-term business requirements is the first step toward implementing a federated CMDB:

- Identify organizational business goals, such as building a foundation for business decisions, reducing costs, establishing efficiencies, controlling infrastructure
- Assess your organization's current ITSM process and integration capabilities
- Identify and assess your organization's current tool set
- Determine primary “Points of Pain”
- Identify critical business requirements to meet business goals
- Ensure organizational commitment to implementing a federated CMDB

By carefully following these steps, IT organizations will be armed with the information they need to plan for-and ultimately implement-a federated CMDB. The end result is the ability to facilitate high-quality IT delivery and services.

About CGI

At CGI, we're in the business of satisfying clients. For 30 years, we've operated upon the principles of sharing in clients' challenges and delivering quality services to solve them. A leading IT and business process services provider, CGI combines industry expertise with a full portfolio of services-consulting, systems integration, the full management of IT and business functions, and 100+ proprietary solutions-to improve clients' operations, helping them become more efficient and productive.

With a focus on IT business process management, CGI's Information Technology Service Management (ITSM) practice delivers ITIL and process analysis consulting, implementation and training services to private- and public-sector clients. Through these services, CGI helps clients implement the approaches, tools and methodologies to overcome complex business challenges and achieve optimal performance. CGI is a corporate member of the Information Technology Service Management Forum (itSMF).

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